

Product catalogue 37


Cable management systems



smart cable management

Ideas move the world – under this motto we have been developing innovative cable management systems since 1995. From our headquarters in Eschach, Germany, we produce our smart cable management solutions and distribute them in more than 60 countries. We are a strong and reliable partner for the industry together with our subsidiaries in Europe, Asia and North America as well as our global representatives. Globally leading companies from various sectors rely on our know-how and our innovative strength. Numerous patents and certifications are both an incentive and aspiration for us.





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icotek can develop a solution for
your individual needs.

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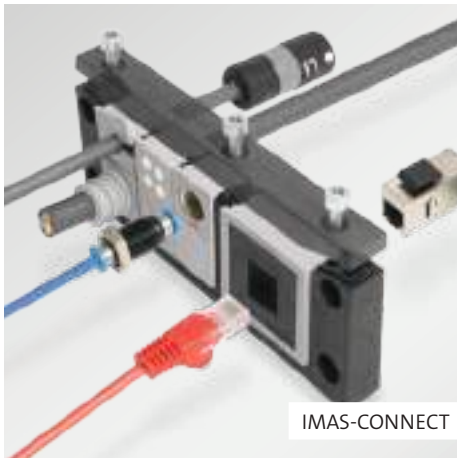
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KEL-FA

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Cable entry systems for cables with connectors



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Cable entry systems
for cables with connectors

1 Cable entry systems for cables with connectors



Product group 1 includes all split cable entry systems in round and rectangular versions. Cables with and without preassembled connectors with a maximum diameter of 75 mm can thus be inserted.

The key features of the patented system are the split frame and split grommets which provide quick, convenient and cost effective routing of pre-terminated and multi-conductor cables, hoses and conduits. The split frame and split grommets alleviate the need to cut and re-wire pre-terminated cables. Therefore, cable warranties are unaffected.

By closing the upper and lower part of the frame a high contact pressure on the cable grommets and cables is achieved. In most cases, the cables are strain relieved according to EN 62444 and immediately sealed with IP54 to IP66/ IP68/UL type 4X (depending on type).

icotek also offers split and non-split brush plates for cable pass-through, based on rectangular and round standard cut-outs – a very cost-effective solution if sealing with IP54 is not required. See product group 7 on page 350.



All icotek products with a type rating have been tested and certified by UL according to UL 50E!
More information about UL Type Rating vs. NEMA Rating in the appendix on page 451.



Configure your custom frames and grommets conveniently online with our Product Configurator on www.icotek.com

Single-piece packaging units are available on request.



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ProductFinder

| Product | IP54 | IP65 IP66 | IP67 IP68 | UL TYPE 12 | UL TYPE 4X* | Strain relief | IMAS-CONNECT compatible | Cable Ø mm min max | Max. no. of cables | Page |
|-------------------------|------|--------------|--------------|------------------|-------------------|------------------|----------------------------|-------------------------|-----------------------|-----------|
| KEL-ER | ● | ● | | ● | ● | ● | ● | 1 – 35 | 10 | 16–19 |
| KEL-ER-E | ● | ● | | ● | | ● | ● | 1 – 16 | 5 | 19 |
| KEL-ER CR | ● | ● | | ● | ● | ● | ● | 1 – 35 | 10 | 402 |
| KEL-U | ● | | | ● | | ● | ● | 1 – 35 | 40 | 20–22 |
| KEL-U CR | ● | | | ● | | ● | ● | 1 – 35 | 40 | 403 |
| KEL-E | ● | | | ● | | ● | ● | 1 – 16 | 20 | 23 |
| KEL-FA | ● | | | | | ● | ● | 1 – 35 | 40 | 24–27 |
| KEL | ● | | | ● | | ● | ● | 1 – 35 | 40 | 28–31 |
| KEL 16/24 Extensions | ● | | | | | ● | ● | 1 – 35 | 120 | 32–37 |
| KEL-FG-ER | ● | ● | | | | ● | ● | 1 – 35 | 10 | 42–45 |
| KEL-FG-A/B | ● | | | ● | | ● | ● | 1 – 35 | 40 | 46–48 |
| KEL-FG-E | ● | | | ● | | ● | ● | 1 – 16 | 20 | 49 |
| KEL-FW | ● | ● | | | | ● | ● | 1 – 35 | 16 | 50 – 51 |
| KEL-FL | ● | | | | | ● | ● | 1 – 16 + flat cables | 13 | 40–41 |
| KEL 183 | ● | | | ● | | ● | ● | 1 – 75 | 16 | 38–39 |
| KEL-SNAP(-S) | ● | | | | | | | – | – | 52 – 55 |
| KEL-JUMBO | ● | | | ● | | ● | ● | 1 – 65 | 2 | 56 – 57 |
| KVT-ER | ● | ● | ● | ● | ● | ● | ● | 1 – 35 | 4 | 60–61 |
| KVT | ● | | | ● | | ● | ● | 1 – 35 | 16 | 62–63 |
| KVT-SNAP | ● | | | | | ● | ● | 1 – 35 | 16 | 65 |
| KVT-W90 | ● | | | | | ● | ● | 1 – 35 | 16 | 66 |
| KVT 80 | ● | | | ● | | ● | ● | 1 – 35 | 24 | 64 |
| DB | ● | | | | | ● | ● | 1 – 15 | 48 | 68 – 71 |
| KEL-QUICK | ● | | | ● | | | ● | 1 – 29 | 40 | 105 – 107 |
| QVT | ● | | | | | | ● | 1 – 15 | 16 | 110 |
| QVT-CLICK | ● | | | | | | ● | 1 – 29 | 16 | 111 |
| KEL-QTA | ● | | | | | | | 1 – 15 | 26 | 114–115 |
| KEL-QTE | ● | | | | | | | 1 – 15 | 2 | 115 |
| UT/UT-DT | ● | | | | | | | 3.2 – 11 | 5 | 134–137 |
| KEL-BES / KEL-BES-S | | | | | | | | max. 33 | | 354–355 |

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*4X for indoor use only | Further details on certifications and technical specifications can be found on the product pages.

1.11 Split cable entry frames for the KT grommet system

The patented cable entry system enables the user to route, seal and provide strain relief according to EN 62444 for pre-terminated cables and cables without connectors (up to 75 mm in diameter).

Electrical, pneumatic or hydraulic lines as well as corrugated conduits and hoses can be easily routed, sealed and strain relieved using split cable entry systems.

The key feature of the patented system is the split frame and split grommets which provide quick, convenient and cost effective routing of pre-terminated and multi-conductor cables, hoses and conduits. The split frame and split grommets alleviate the need to cut and re-wire pre-terminated cables. Therefore, cable warranties are unaffected.

Cables, pipes and conduits with various diameters can be routed due to a large variety of split grommets. When assembled correctly, the split grommets are held tightly within the frame. Correctly sizing the grommet to the cable diameter ensures a high degree of protection (up to IP66/UL type 4X) and provides strain relief.



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Split system



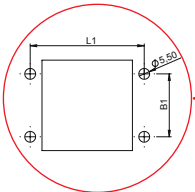
Secure and tight connection



Maintain warranty on pre-terminated cables



Fast and easy assembly



Most sizes are industrial standard cut-outs. No need for additional tooling.



KEL-ER



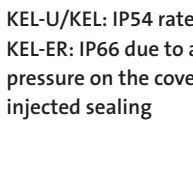
High cable density, wide variety in cable grommets and adapter grommets



Integrated strain relief according to EN 62444



Can be combined with IMAS-CONNECT grommets



KEL-U/KEL: IP54 rated protection
KEL-ER: IP66 due to a high clamping pressure on the cover lid and injected sealing



EN 62444

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1.11 Split cable entry frames for the KT grommet system



Split cable entry frames
for cable diameters up to 35 mm

KEL-ER series

16 – 19



Split cable entry frames
for cable diameters up to 35 mm

KEL-U series / KEL-E series

20 – 23



Split cable entry frames "Fast Assembly"
for a fast assembly without tools
for cable diameters up to 35 mm

KEL-FA series

24 – 27



Centrally split cable entry frames
for cable diameters up to 35 mm

KEL series

28 – 31



Extended split cable entry frames
for cable diameters up to 35 mm

KEL series, extended

32 – 37



Split cable entry frames
for cable diameters up to 75 mm

KEL 183 series / KTMB 183

38 – 39



Split cable entry frames
for flat cables
and round cables up to 17 mm in diameter

KEL-FL / FT

40 – 41



Split flange enclosure for 90° cable transit
with integrated seal
for cable diameters up to 35 mm

KEL-FG-ER series

42 – 45



Split flange enclosure for 90° cable transit
for cable diameters up to 35 mm

KEL-FG series

46 – 49



Bulkhead for 90° cable transit
for cable diameters up to 35 mm

KEL-FW

50 – 51



Snap mounting frames
for installation of KEL-U / KEL frames,
split (KEL-SNAP-S)

KEL-SNAP-S / KEL-SNAP

52 – 55



Split cable entry frames
for cable diameters up to 65 mm

KEL-JUMBO / KTF

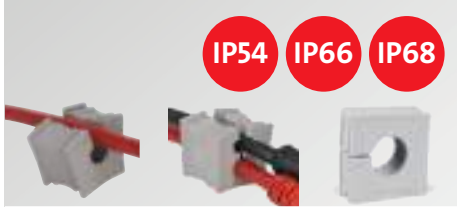
56 – 57



360° cable entry
for cable diameters up to 15 mm

DB

68 – 71



Cable grommets
split and not split,
for cables with/without connectors,
for cable diameters 1 – 35 mm

74 – 89



IMAS-CONNECT™
Modular adapter system for the KT system

Adapter grommets /Accessories

90 – 101



Thread extension
for cable glands and
cable entry plates
M32, M50, M63

TE-M

334 – 337



Split brush plate
for cable pass-through
for standard cut-outs

KEL-BES-S

355



Product configurator
www.icotek.com/en/config

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KEL-ER series

Cable entry frames with IP66 rating



Split cable entry system for routing and sealing cables with connectors, providing an IP66/UL Type 12/4X rating and strain relief for cable diameters from 1 to 17 mm (single-hole grommets KT1 to KT17) and 16 to 35 mm (single-hole grommets KT16 to KT34).

The cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly.

The KEL-ER frames match exactly the cut-out dimensions for 10-, 16- and 24-pin standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. The KEL-ER-B frame matches the cut-out dimensions of 46 x 46 mm measuring instruments.

The single-row versions KEL-ER-E are particularly suited for flat connectors. The small frames are ideal for applications with limited space. A flat rubber gasket is included in the shipment.

The version with threaded bushings enables the cable entry frame to be screwed onto the housing from the inside out. This protects against vandalism and tampering with the housing from the outside.

Advantages & benefits

- Maintain manufacturer's warranty on pre-terminated cables
- Retrofittings, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant
- Can be combined with IMAS-CONNECT adapter grommets

Specifications

| | |
|----------------|-----------------------------------------------------------------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP66, with gasket and correct selection of single grommets (certified acc. to EN 60529) |
| UL type rating | UL type 4X (acc. to UL 50E) |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |
| Frame depth | 17 mm |

Accessories

| | |
|--------------------------|-----------|
| KT Cable grommets | 74 – 89 |
| AT Adapter grommets | 90 – 101 |
| KEL-EMC Cable collectors | 260 – 262 |
| ST Plugs | 85 |



The cable entry frames enable the integration of the IMAS-CONNECT™ adapter grommets



Also available with stainless steel screws (V2A)



Also available with threaded bushings



Split KT grommets



i The KEL-ER series is also available as a cleanroom version, see from page 402. Single-piece packaging units are available on request.

KEL-ER

Cable entry frames

KEL-ER 24, KEL-ER 16



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|----------------------------------------|-------------|------------------------|-----------|----|
| | | KEL-ER 24 10 | 36/46 × 112 | 10 - | 48241 | 10 |
| | | KEL-ER 24 10 with V2A screws | 36/46 × 112 | 10 - | 48241.200 | 10 |
| | | KEL-ER 24 10 with threaded bushings M4 | 36/46 × 112 | 10 - | 48241.400 | 10 |
| | | KEL-ER 24 7 | 36/46 × 112 | 6 1 | 48247 | 10 |
| | | KEL-ER 24 7 with V2A screws | 36/46 × 112 | 6 1 | 48247.200 | 10 |
| | | KEL-ER 24 7 with threaded bushings M4 | 36/46 × 112 | 6 1 | 48247.400 | 10 |
| | | KEL-ER 24 4 | 36/46 × 112 | 2 2 | 48244 | 10 |
| | | KEL-ER 24 4 with V2A screws | 36/46 × 112 | 2 2 | 48244.200 | 10 |
| | | KEL-ER 24 4 with threaded bushings M4 | 36/46 × 112 | 2 2 | 48244.400 | 10 |
| | | KEL-ER 16 8 | 36/46 × 86 | 8 - | 48168 | 10 |
| | | KEL-ER 16 8 with V2A screws | 36/46 × 86 | 8 - | 48168.200 | 10 |
| | | KEL-ER 16 8 with threaded bushings M4 | 36/46 × 86 | 8 - | 48168.400 | 10 |
| | | KEL-ER 16 5 | 36/46 × 86 | 4 1 | 48165 | 10 |
| | | KEL-ER 16 5 with V2A screws | 36/46 × 86 | 4 1 | 48165.200 | 10 |
| | | KEL-ER 16 5 with threaded bushings M4 | 36/46 × 86 | 4 1 | 48165.400 | 10 |
| | | KEL-ER 16 2 | 36/46 × 86 | - 2 | 48162 | 10 |
| | | KEL-ER 16 2 with V2A screws | 36/46 × 86 | - 2 | 48162.200 | 10 |
| | | KEL-ER 16 2 with threaded bushings M4 | 36/46 × 86 | - 2 | 48162.400 | 10 |

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KEL-ER

Cable entry frames

KEL-ER 10, KEL-ER B



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|---------------------------------------|------------|------------------------|-----------|----|
| | | KEL-ER 10 6 | 36/46 × 65 | 6 – | 48216 | 10 |
| | | KEL-ER 10 6 with V2A screws | 36/46 × 65 | 6 – | 48216.200 | 10 |
| | | KEL-ER 10 6 with threaded bushings M4 | 36/46 × 65 | 6 – | 48216.400 | 10 |
| | | KEL-ER 10 3 | 36/46 × 65 | 2 1 | 48212 | 10 |
| | | KEL-ER 10 3 with V2A screws | 36/46 × 65 | 2 1 | 48212.200 | 10 |
| | | KEL-ER 10 3 with threaded bushings M4 | 36/46 × 65 | 2 1 | 48212.400 | 10 |
| | | KEL-ER-B4 | 46 × 46 | 4 – | 48204 | 10 |
| | | KEL-ER-B4 with V2A screws | 46 × 46 | 4 – | 48204.200 | 10 |
| | | KEL-ER-B4 with threaded bushings M4 | 46 × 46 | 4 – | 48204.400 | 10 |
| | | KEL-ER-B1 | 46 × 46 | – 1 | 48206 | 10 |
| | | KEL-ER-B1 with V2A screws | 46 × 46 | – 1 | 48206.200 | 10 |
| | | KEL-ER-B1 with threaded bushings M4 | 46 × 46 | – 1 | 48206.400 | 10 |

i The KEL-ER series is also available as a cleanroom version, see from page 402.
Single-piece packaging units are available on request.

KEL-ER

Cable entry frames

KEL-ER-E



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|-------------------------------------|------------|------------------------|-----------|----|
| | | KEL-ER-E5 | 112 × 24 | 5 – | 48250 | 10 |
| | | KEL-ER-E5 with V2A screws | 112 × 24 | 5 – | 48250.200 | 10 |
| | | KEL-ER-E5 with threaded bushings M4 | 112 × 24 | 5 – | 48250.400 | 10 |
| | | KEL-ER-E4 | 112 × 24 | 4 – | 48259 | 10 |
| | | KEL-ER-E4 with V2A screws | 112 × 24 | 4 – | 48259.200 | 10 |
| | | KEL-ER-E4 with threaded bushings M4 | 112 × 24 | 4 – | 48259.400 | 10 |
| | | KEL-ER-E3 | 65 × 24 | 3 – | 48258 | 10 |
| | | KEL-ER-E3 with V2A screws | 65 × 24 | 3 – | 48258.200 | 10 |
| | | KEL-ER-E3 with threaded bushings M4 | 65 × 24 | 3 – | 48258.400 | 10 |
| | | KEL-ER-E2 | 43 × 24 | 2 – | 48249 | 10 |
| | | KEL-ER-E2 with V2A screws | 43 × 24 | 2 – | 48249.200 | 10 |
| | | KEL-ER-E2 with threaded bushings M4 | 43 × 24 | 2 – | 48249.400 | 10 |

i The KEL-ER series is also available as a cleanroom version, see from page 402.
Single-piece packaging units are available on request.

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KEL-U series

Cable entry frames with IP54 rating



Split cable entry system for routing cables with connectors providing an IP54/UL Type 12 rating. Routing, sealing and providing strain relief for cable diameters from 1 to 35 mm.

The cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly.

The KEL-U frames match exactly the cut-out dimensions for 10-, 16- and 24-pin standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. The KEL-U-B frame matches the cut-out dimensions of 46 × 46 mm measuring instruments. For tool-free assembly/disassembly of the cable entry frames the snap mounting frame KEL-SNAP can be used.

The single-row versions KEL-E are particularly suited for flat connectors. The small frames are ideal for applications with limited space. A flat rubber gasket is included in the shipment.

The version with threaded bushings enables the cable entry frame to be screwed onto the housing from the inside out. This protects against vandalism and tampering with the housing from the outside.

Advantages & benefits

- Fast and easy assembly
- Maintain manufacturer's warranty on pre-terminated cables
- Retrofittings, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant
- Can be combined with IMAS-CONNECT adapter grommets

Specifications

| | |
|----------------|----------------------------------------------------------------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |
| Frame depth | 17 mm |

Accessories

| | |
|--------------------------|-----------|
| KT Cable grommets | 74 - 89 |
| AT Adapter grommets | 90 - 101 |
| KEL-SNAP Mounting frames | 52 - 55 |
| KEL-EMC Cable collectors | 260 - 262 |
| KDR Base plates | 300 - 313 |
| FP Flange plates | 320 - 329 |
| ST Plugs | 85 |



The cable entry frames enable the integration of the IMAS-CONNECT™ adapter grommets



Also available with stainless steel screws (V2A)



Also available with threaded bushings



Split KT grommets



i The KEL-U series is also available as a cleanroom version, see from page 403. Single-piece packaging units are available on request.

KEL-U

Cable entry frames

KEL-U 24, KEL-U 16



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|---------------------------------------|-----------------------|------------------------|-----------|----|
| | | KEL-U 24 10 | 36/46 × 112 | 10 – | 54241 | 10 |
| | | KEL-U 24 10 with V2A screws | 36/46 × 112 | 10 – | 54241.200 | 10 |
| | | KEL-U 24 10 with threaded bushings M4 | 36/46 × 112 | 10 – | 54241.400 | 10 |
| | | KEL-U 24 7 | 36/46 × 112 | 6 1 | 54247 | 10 |
| | | KEL-U 24 7 with V2A screws | 36/46 × 112 | 6 1 | 54247.200 | 10 |
| | | KEL-U 24 7 with threaded bushings M4 | 36/46 × 112 | 6 1 | 54247.400 | 10 |
| | | KEL-U 24 4 | 36/46 × 112 | 2 2 | 54244 | 10 |
| | | KEL-U 24 4 with V2A screws | 36/46 × 112 | 2 2 | 54244.200 | 10 |
| | | KEL-U 24 4 with threaded bushings M4 | 36/46 × 112 | 2 2 | 54244.400 | 10 |
| | | KEL-U 16 8 | 36/46 × 86 | 8 – | 54168 | 10 |
| | | KEL-U 16 8 with V2A screws | 36/46 × 86 | 8 – | 54168.200 | 10 |
| | | KEL-U 16 8 with threaded bushings M4 | 36/46 × 86 | 8 – | 54168.400 | 10 |
| | | KEL-U 16 5 | 36/46 × 86 | 4 1 | 54165 | 10 |
| | | KEL-U 16 5 with V2A screws | 36/46 × 86 | 4 1 | 54165.200 | 10 |
| | | KEL-U 16 5 with threaded bushings M4 | 36/46 × 86 | 4 1 | 54165.400 | 10 |
| | | KEL-U 16 2 | 36/46 × 86 | – 2 | 54162 | 10 |
| | | KEL-U 16 2 with V2A screws | 36/46 × 86 | – 2 | 54162.200 | 10 |
| | | KEL-U 16 2 with threaded bushings M4 | 36/46 × 86 | – 2 | 54162.400 | 10 |

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KEL-U

Cable entry frames

KEL-U 10, KEL-U-B



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|--------------------------------------|-----------------------|------------------------|-----------|----|
| | | KEL-U 10 6 | 36/46 × 65 | 6 – | 54216 | 10 |
| | | KEL-U 10 6 with V2A screws | 36/46 × 65 | 6 – | 54216.200 | 10 |
| | | KEL-U 10 6 with threaded bushings M4 | 36/46 × 65 | 6 – | 54216.400 | 10 |
| | | KEL-U 10 3 | 36/46 × 65 | 2 1 | 54212 | 10 |
| | | KEL-U 10 3 with V2A screws | 36/46 × 65 | 2 1 | 54212.200 | 10 |
| | | KEL-U 10 3 with threaded bushings M4 | 36/46 × 65 | 2 1 | 54212.400 | 10 |
| | | KEL-U-B4 | 46 × 46 | 4 – | 54204 | 10 |
| | | KEL-U-B4 with V2A screws | 46 × 46 | 4 – | 54204.200 | 10 |
| | | KEL-U-B4 with threaded bushings M4 | 46 × 46 | 4 – | 54204.400 | 10 |
| | | KEL-U-B1 | 46 × 46 | – 1 | 54206 | 10 |
| | | KEL-U-B1 with V2A screws | 46 × 46 | – 1 | 54206.200 | 10 |
| | | KEL-U-B1 with threaded bushings M4 | 46 × 46 | – 1 | 54206.400 | 10 |



The KEL-U series is also available as a cleanroom version, see from page 403.
Single-piece packaging units are available on request.

KEL-E

Cable entry frames



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|----------------------------------|-----------------------|------------------------|-----------|----|
| | | KEL-E5 | 112 × 24 | 5 – | 42250 | 10 |
| | | KEL-E5 with V2A screws | 112 × 24 | 5 – | 42250.200 | 10 |
| | | KEL-E5 with threaded bushings M4 | 112 × 24 | 5 – | 42250.400 | 10 |
| | | KEL-E4 | 86 × 24 | 4 – | 42259 | 10 |
| | | KEL-E4 with V2A screws | 86 × 24 | 4 – | 42259.200 | 10 |
| | | KEL-E4 with threaded bushings M4 | 86 × 24 | 4 – | 42259.400 | 10 |
| | | KEL-E3 | 65 × 24 | 3 – | 42258 | 10 |
| | | KEL-E3 with V2A screws | 65 × 24 | 3 – | 42258.200 | 10 |
| | | KEL-E3 with threaded bushings M4 | 65 × 24 | 3 – | 42258.400 | 10 |
| | | KEL-E2 | 43 × 24 | 2 – | 42249 | 10 |
| | | KEL-E2 with V2A screws | 43 × 24 | 2 – | 42249.200 | 10 |
| | | KEL-E2 with threaded bushings M4 | 43 × 24 | 2 – | 42249.400 | 10 |
| | | KEL-E1 | 21 × 27 | 1 – | 42261 | 10 |
| | | KEL-E1 with V2A screws | 21 × 27 | 1 – | 42261.200 | 10 |

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KEL-FA series

Cable entry frames

“Fast Assembly”

for a fast assembly without tools



The KEL-FA series (“Fast Assembly”) is a compact system for routing and sealing cables with and without connectors, as well as hoses and pneumatic cables.

After the frame has been equipped with the KT grommet system, the cover is put on and the two clamping levers are locked with the lower part by pressing them down. The twist-proof construction of the KEL-FA enables an intuitive assembly. The split cable entry allows for the routing of cables with a diameter of 1 mm to 35 mm, providing an IP54 rating.

The KEL-FA frames match exactly the cut-out dimensions for 10-, 16- and 24-pin standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables and connectors being routed.

The KEL-FA frames can either be screw mounted or simply snapped into the KEL-SNAP frame.

Advantages & benefits

- Fast assembly without tools
- Warranty on pre-terminated cables remains
- Retrofittings, repairs and maintenance can be done much more quickly
- Very high cable density with multi-hole grommets
- High flexibility with multi-range grommets and the IMAS-CONNECT™ system
- Strain relief according to EN 62444 (with single KT grommets)
- Integrated sealing

Specifications

| | |
|-------------|------------------------------------------------------------------------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529:2014-09) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Frame depth | 22 mm |

Accessories

| | |
|--------------------------|----------|
| KT Cable grommets | 74 - 89 |
| AT Adapter grommets | 90 - 101 |
| KEL-SNAP Mounting frames | 52 - 55 |
| ST Plugs | 85 |



Integrated sealing



Particularly easy assembly with the KEL-SNAP mounting frame

KEL-FA

Cable entry frames

“Fast Assembly”

KEL-FA 24



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|--------------|-----------------------|------------------------|-----------|----|
| | | KEL-FA 24 10 | 36/46 × 112 | 10 – | 55241 | 10 |
| | | KEL-FA 24 7 | 36/46 × 112 | 6 1 | 55247 | 10 |
| | | KEL-FA 24 4 | 36/46 × 112 | 2 2 | 55244 | 10 |



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i Single-piece packaging units are available on request.

KEL-FA

Cable entry frames

“Fast Assembly”

KEL-FA 16



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|-------------|-----------------------|------------------------|-----------|----|
| | | KEL-FA 16 8 | 36/46 × 86 | 8 – | 55168 | 10 |
| | | KEL-FA 16 5 | 36/46 × 86 | 4 1 | 55165 | 10 |
| | | KEL-FA 16 2 | 36/46 × 86 | – 2 | 55162 | 10 |



i Single-piece packaging units are available on request.

KEL-FA

Cable entry frames

“Fast Assembly”

KEL-FA 10



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|-------------|-----------------------|------------------------|-----------|----|
| | | KEL-FA 10 6 | 36/46 × 65 | 6 – | 55216 | 10 |
| | | KEL-FA 10 3 | 36/46 × 65 | 2 1 | 55212 | 10 |



i Single-piece packaging units are available on request.

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KEL series

Cable entry frames with IP54 rating



The classic KEL is a centrally split cable entry system for routing cables with connectors, providing an IP54/up to UL Type 12 rating.

The split KT grommet matching the cable diameter is placed around the cable and inserted into the cable entry frame. The split cable entry frames KEL match exactly the cut-out dimensions of 10-, 16- and 24-pin standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. The size KEL-B matches the cut-out dimensions of 46 × 46 mm measuring instruments.

Based on the frame sizes KEL 16 and KEL 24, there are also extended versions with additional middle frames available. Thus allowing a quick, easy and cost effective routing solution for up to 120 cables or hoses.

For tool-free assembly/disassembly of the cable entry frames the snap mounting frame KEL-SNAP can be used. All frame systems come with a rubber gasket.

The version with threaded bushings enables the cable entry frame to be screwed onto the housing from the inside out. This protects against vandalism and tampering with the housing from the outside.

Advantages & benefits

- Maintain manufacturer's warranty on pre-terminated cables
- Retrofittings, repairs and maintenance can be done more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant
- Can be combined with IMAS-CONNECT adapter grommets

Specifications

| | |
|----------------|----------------------------------------------------------------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |
| Frame depth | 17 mm |

Accessories

| | |
|--------------------------|-----------|
| KT Cable grommets | 74 - 89 |
| AT Adapter grommets | 90 - 101 |
| KEL-SNAP Mounting frames | 52 - 55 |
| KEL-EMC Cable collectors | 260 - 262 |
| KDR Base plates | 300 - 313 |
| FP Flange plates | 320 - 329 |
| MP Module plates | 314 - 315 |
| ST Plugs | 85 |



The cable entry frames enable the integration of the IMAS-CONNECT™ adapter grommets



Also available with stainless steel screws (V2A)



Also available with threaded bushings



Split KT grommets



Can be combined with IMAS-CONNECT adapter grommets



Single-piece packaging units are available on request.

KEL

Cable entry frames

KEL 24



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|-------------------------------------|-----------------------|------------------------|-----------|----|
| | | KEL 24 10 | 36/46 × 112 | 10 – | 42241 | 10 |
| | | KEL 24 10 with V2A screws | 36/46 × 112 | 10 – | 42241.200 | 10 |
| | | KEL 24 10 with threaded bushings M4 | 36/46 × 112 | 10 – | 42241.400 | 10 |
| | | KEL 24 7 | 36/46 × 112 | 6 1 | 42247 | 10 |
| | | KEL 24 7 with V2A screws | 36/46 × 112 | 6 1 | 42247.200 | 10 |
| | | KEL 24 7 with threaded bushings M4 | 36/46 × 112 | 6 1 | 42247.400 | 10 |
| | | KEL 24 5 | 36/46 × 112 | 5 – | 42248 | 10 |
| | | KEL 24 5 with V2A screws | 36/46 × 112 | 5 – | 42248.200 | 10 |
| | | KEL 24 5 with threaded bushings M4 | 36/46 × 112 | 5 – | 42248.400 | 10 |
| | | KEL 24 4 | 36/46 × 86 | 2 2 | 42244 | 10 |
| | | KEL 24 4 with V2A screws | 36/46 × 86 | 2 2 | 42244.200 | 10 |
| | | KEL 24 4 with threaded bushings M4 | 36/46 × 86 | 2 2 | 42244.400 | 10 |

i Single-piece packaging units are available on request.

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KEL

Cable entry frames

KEL 16



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|------------------------------------|-----------------------|------------------------|-----------|----|
| | | KEL 16 8 | 36/46 × 86 | 8 - | 42168 | 10 |
| | | KEL 16 8 with V2A screws | 36/46 × 86 | 8 - | 42168.200 | 10 |
| | | KEL 16 8 with threaded bushings M4 | 36/46 × 86 | 8 - | 42168.400 | 10 |
| | | KEL 16 5 | 36/46 × 86 | 4 1 | 42165 | 10 |
| | | KEL 16 5 with V2A screws | 36/46 × 86 | 4 1 | 42165.200 | 10 |
| | | KEL 16 5 with threaded bushings M4 | 36/46 × 86 | 4 1 | 42165.400 | 10 |
| | | KEL 16 4 | 36/46 × 86 | 4 - | 42164 | 10 |
| | | KEL 16 4 with V2A screws | 36/46 × 86 | 4 - | 42164.200 | 10 |
| | | KEL 16 4 with threaded bushings M4 | 36/46 × 86 | 4 - | 42164.400 | 10 |
| | | KEL 16 2 | 36/46 × 86 | - 2 | 42162 | 10 |
| | | KEL 16 2 with V2A screws | 36/46 × 86 | - 2 | 42162.200 | 10 |
| | | KEL 16 2 with threaded bushings M4 | 36/46 × 86 | - 2 | 42162.400 | 10 |

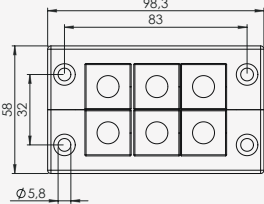
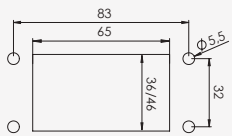
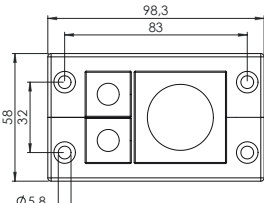
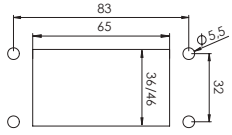
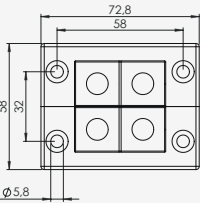
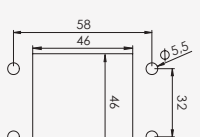
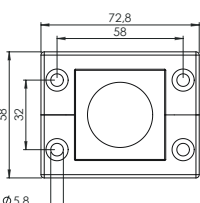
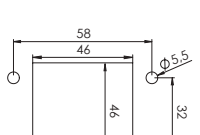
i Single-piece packaging units are available on request.


KEL

Cable entry frames

KEL 10, KEL-B



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------|-----------------------|------------------------|-----------|----|
|  |  | KEL 10 6 | 36/46 × 65 | 6 – | 42216 | 10 |
| | | KEL 10 6 with V2A screws | 36/46 × 65 | 6 – | 42216.200 | 10 |
| | | KEL 10 6 with threaded bushings M4 | 36/46 × 65 | 6 – | 42216.400 | 10 |
|  |  | KEL 10 3 | 36/46 × 65 | 2 1 | 42212 | 10 |
| | | KEL 10 3 with V2A screws | 36/46 × 65 | 2 1 | 42212.200 | 10 |
| | | KEL 10 3 with threaded bushings M4 | 36/46 × 65 | 2 1 | 42212.400 | 10 |
|  |  | KEL-B4 | 46 × 46 | 4 – | 42204 | 10 |
| | | KEL-B4 with V2A screws | 46 × 46 | 4 – | 42204.200 | 10 |
| | | KEL-B4 with threaded bushings M4 | 46 × 46 | 4 – | 42204.400 | 10 |
|  |  | KEL-B1 | 46 × 46 | – 1 | 42206 | 10 |
| | | KEL-B1 with V2A screws | 46 × 46 | – 1 | 42206.200 | 10 |
| | | KEL-B1 with threaded bushings M4 | 46 × 46 | – 1 | 42206.400 | 10 |

 Single-piece packaging units are available on request.

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KEL series

Cable entry frames, extended with IP54 rating



Based on the frame sizes KEL 16 and KEL 24, there are also extended versions with additional middle frames available. Thus allowing a quick, easy and cost effective routing solution for up to 120 cables or hoses.

A flat rubber gasket is included in the shipment.

The version with threaded bushings enables the cable entry frame to be screwed onto the housing from the inside out. This protects against vandalism and tampering with the housing from the outside.

Advantages & benefits

- Maintain manufacturer's warranty on pre-terminated cables
- Retrofittings, repairs and maintenance can be done much more easily and quickly
- High cable density
- Strain relief according to EN 62444
- High stability, vibration resistant
- Can be combined with IMAS-CONNECT adapter grommets
- Great variability in the cable grommets

Specifications

| | |
|----------------|----------------------------------------------------------------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |
| Frame depth | 17 mm |

Accessories

| | |
|--------------------------|-----------|
| KT Cable grommets | 74 - 89 |
| AT Adapter grommets | 90 - 101 |
| KEL-SNAP Mounting frames | 52 - 55 |
| KEL-EMC Cable collectors | 260 - 262 |
| ST Plugs | 85 |



The cable entry frames enable the integration of the IMAS-CONNECT™ adapter grommets



Also available with stainless steel screws (V2A)



Also available with threaded bushings



Split KT grommets

KEL

Cable entry frames

KEL-24-E



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|---------------------------------------|-----------------------|------------------------|-----------|----|
| | | KEL 24 15-E | 66 x 112 | 15 - | 42209 | 1 |
| | | KEL 24 15-E with V2A screws | 66 x 112 | 15 - | 42209.200 | 1 |
| | | KEL 24 15-E with threaded bushings M4 | 66 x 112 | 15 - | 42209.400 | 1 |
| | | KEL 24 12-E | 66 x 112 | 11 1 | 42208 | 1 |
| | | KEL 24 12-E with V2A screws | 66 x 112 | 11 1 | 42208.200 | 1 |
| | | KEL 24 12-E with threaded bushings M4 | 66 x 112 | 11 1 | 42208.400 | 1 |
| | | KEL 24 9-E | 66 x 112 | 7 2 | 42207 | 1 |
| | | KEL 24 9-E with V2A screws | 66 x 112 | 7 2 | 42207.200 | 1 |
| | | KEL 24 9-E with threaded bushings M4 | 66 x 112 | 7 2 | 42207.400 | 1 |
| | | KEL 24 10-E | 66 x 112 | 10 - | 49056 | 1 |
| | | KEL 24 10-E with V2A screws | 66 x 112 | 10 - | 49056.200 | 1 |
| | | KEL 24 10-E with threaded bushings M4 | 66 x 112 | 10 - | 49056.400 | 1 |

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KEL

Cable entry frames

KEL-24-MT

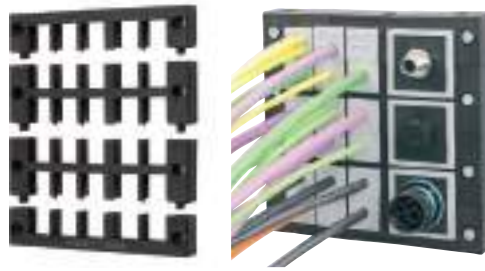


| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|----------------------------------------|-----------------------|------------------------|-----------|----|
| | | KEL 24 20-MT | 82 x 112 | 20 - | 42232 | 1 |
| | | KEL 24 20-MT with V2A screws | 82 x 112 | 20 - | 42232.200 | 1 |
| | | KEL 24 20-MT with threaded bushings M4 | 82 x 112 | 20 - | 42232.400 | 1 |
| | | KEL 24 17-MT | 82 x 112 | 16 1 | 42224 | 1 |
| | | KEL 24 17-MT with V2A screws | 82 x 112 | 16 1 | 42224.200 | 1 |
| | | KEL 24 17-MT with threaded bushings M4 | 82 x 112 | 16 1 | 42224.400 | 1 |
| | | KEL 24 14-MT | 82 x 112 | 12 2 | 42225 | 1 |
| | | KEL 24 14-MT with V2A screws | 82 x 112 | 12 2 | 42225.200 | 1 |
| | | KEL 24 14-MT with threaded bushings M4 | 82 x 112 | 12 2 | 42225.400 | 1 |
| | | KEL 24 11-MT | 82 x 112 | 8 3 | 42222 | 1 |
| | | KEL 24 11-MT with V2A screws | 82 x 112 | 8 3 | 42222.200 | 1 |
| | | KEL 24 11-MT with threaded bushings M4 | 82 x 112 | 8 3 | 42222.400 | 1 |
| | | KEL 24 8-MT | 82 x 112 | 4 4 | 42221 | 1 |
| | | KEL 24 8-MT with V2A screws | 82 x 112 | 4 4 | 42221.200 | 1 |
| | | KEL 24 8-MT with threaded bushings M4 | 82 x 112 | 4 4 | 42221.400 | 1 |

KEL

Cable entry frames

KEL-24-2MT



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|-----------------------------------------|-----------------------|------------------------|-----------|----|
| | | KEL 24 30-2MT | 126 x 112 | 30 - | 42234 | 1 |
| | | KEL 24 30-2MT with V2A screws | 126 x 112 | 30 - | 42234.200 | 1 |
| | | KEL 24 30-2MT with threaded bushings M4 | 126 x 112 | 30 - | 42234.400 | 1 |
| | | KEL 24 27-2MT | 126 x 112 | 26 1 | 42233 | 1 |
| | | KEL 24 27-2MT with V2A screws | 126 x 112 | 26 1 | 42233.200 | 1 |
| | | KEL 24 27-2MT with threaded bushings M4 | 126 x 112 | 26 1 | 42233.400 | 1 |
| | | KEL 24 24-2MT | 126 x 112 | 22 2 | 42227 | 1 |
| | | KEL 24 24-2MT with V2A screws | 126 x 112 | 22 2 | 42227.200 | 1 |
| | | KEL 24 24-2MT with threaded bushings M4 | 126 x 112 | 22 2 | 42227.400 | 1 |
| | | KEL 24 21-2MT | 126 x 112 | 18 3 | 42226 | 1 |
| | | KEL 24 21-2MT with V2A screws | 126 x 112 | 18 3 | 42226.200 | 1 |
| | | KEL 24 21-2MT with threaded bushings M4 | 126 x 112 | 18 3 | 42226.400 | 1 |
| | | KEL 24 12-2MT | 126 x 112 | 6 6 | 42223 | 1 |
| | | KEL 24 12-2MT with V2A screws | 126 x 112 | 6 6 | 42223.200 | 1 |
| | | KEL 24 12-2MT with threaded bushings M4 | 126 x 112 | 6 6 | 42223.400 | 1 |

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KEL

Cable entry frames

KEL 16-E, KEL 16-MT



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|----------------------------------------|-----------------------|------------------------|-----------|----|
| | | KEL 16 12-E | 66 x 86 | 12 - | 42141 | 1 |
| | | KEL 16 12-E with V2A screws | 66 x 86 | 12 - | 42141.200 | 1 |
| | | KEL 16 12-E with threaded bushings M4 | 66 x 86 | 12 - | 42141.400 | 1 |
| | | KEL 16 6-E | 66 x 86 | 4 2 | 42140 | 1 |
| | | KEL 16 6-E with V2A screws | 66 x 86 | 4 2 | 42140.200 | 1 |
| | | KEL 16 6-E with threaded bushings M4 | 66 x 86 | 4 2 | 42140.400 | 1 |
| | | KEL 16 16-MT | 82 x 86 | 16 - | 42145 | 1 |
| | | KEL 16 16-MT with V2A screws | 82 x 86 | 16 - | 42145.200 | 1 |
| | | KEL 16 16-MT with threaded bushings M4 | 82 x 86 | 16 - | 42145.400 | 1 |
| | | KEL 16 10-MT | 82 x 86 | 8 2 | 42144 | 1 |
| | | KEL 16 10-MT with V2A screws | 82 x 86 | 8 2 | 42144.200 | 1 |
| | | KEL 16 10-MT with threaded bushings M4 | 82 x 86 | 8 2 | 42144.400 | 1 |
| | | KEL 16 4-MT | 82 x 86 | - 4 | 42143 | 1 |
| | | KEL 16 4-MT with V2A screws | 82 x 86 | - 4 | 42143.200 | 1 |
| | | KEL 16 4-MT with threaded bushings M4 | 82 x 86 | - 4 | 42143.400 | 1 |

KEL

Cable entry frames

KEL 16-2MT



| Description | Cut-out Drilling template | Type | Cut-out dimensions mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|-----------------------------------------|-----------------------|------------------------|-----------|----|
| | | KEL 16 24-2MT | 126 x 86 | 24 - | 42149 | 1 |
| | | KEL 16 24-2MT with V2A screws | 126 x 86 | 24 - | 42149.200 | 1 |
| | | KEL 16 24-2MT with threaded bushings M4 | 126 x 86 | 24 - | 42149.400 | 1 |
| | | KEL 16 12-2MT | 126 x 86 | 8 4 | 42148 | 1 |
| | | KEL 16 12-2MT with V2A screws | 126 x 86 | 8 4 | 42148.200 | 1 |
| | | KEL 16 12-2MT with threaded bushings M4 | 126 x 86 | 8 4 | 42148.400 | 1 |
| | | KEL 16 6-2MT | 126 x 86 | - 6 | 42147 | 1 |
| | | KEL 16 6-2MT with V2A screws | 126 x 86 | - 6 | 42147.200 | 1 |
| | | KEL 16 6-2MT with threaded bushings M4 | 126 x 86 | - 6 | 42147.400 | 1 |

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KEL 183

Cable entry frames for supply cables

KTMB 183

Grommets for KEL 183



The split cable entry frame KEL 183 enables the user to route cables and tubes with a diameter of up to 75 mm (depending on the frame type) and to seal them in accordance with IP54/up to UL type 12. For cables up to 35 mm the cable grommets KT can be used. With these split cable grommets, pre-terminated cables can be routed.

For cables up to 75 mm we have created the grommets KTMB for KEL 183. Those are not split and have a defined area for pushing the cable through.

The blank grommet KTMB-O can accept cable sizes within a specified range. The membrane of the KTMB-O can be pierced or cut (cable diameter minus 10 mm) for cables up to 55 mm in diameter.

All frame systems come with a rubber gasket.

Advantages & benefits

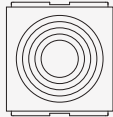
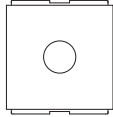
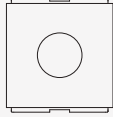
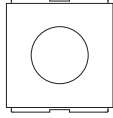
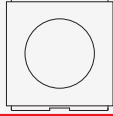
- Installation of cables up to 75 mm
- Grommets allow rigid cables to be properly positioned and oriented during the installation process
- Retrofittings, repairs and maintenance can be done much more easily and quickly
- Can be combined with IMAS-CONNECT adapter grommets
- Great variability in the cable grommets

Specifications

| | |
|----------------|-----------------------------------------------------------------------------------|
| Material | KEL 183: Polyamide (PA) KTMB: Elastomere |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 with gasket and correct selection of the cables (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | KEL 183: -40°C to +140°C (static) KTMB: -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Frame depth | 17 mm |

Accessories

| | |
|--------------------------|-----------|
| KT Cable grommets | 74 - 89 |
| AT Adapter grommets | 90 - 101 |
| KEL-EMC Cable collectors | 260 - 262 |
| ST Plugs | 85 |

| Type | Order No. | Clamping range | PU | |
|-------------------------------------------------------------------------------------|-----------|----------------|---------------|---|
|  | KTMB-O | 41410 | Blank grommet | 1 |
|  | KTMB-P | 41415 | 34 – 44 mm | 1 |
|  | KTMB-Q | 41420 | 44 – 54 mm | 1 |
|  | KTMB-R | 41425 | 54 – 64 mm | 1 |
|  | KTMB-S | 41430 | 64 – 75 mm | 1 |



Cable entry frames for supply cables up to 75 mm KEL 183, KEL 183-E



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets KT KT 183 KT large | Order No. | PU |
|-------------|-----------------------------|--------------------------------|-------------|----------------------------------|-----------|----|
| | | KEL 183 2 | 180 x 80 mm | 2 - | 47200 | 1 |
| | | KEL 183 2 with V2A screws | 180 x 80 mm | 2 - | 47200.200 | 1 |
| | | KEL 183 5 | 180 x 80 mm | 1 4 | 47220 | 1 |
| | | KEL 183 5 with V2A screws | 180 x 80 mm | 1 4 | 47220.200 | 1 |
| | | KEL 183 8 | 180 x 80 mm | - 8 | 47240 | 1 |
| | | KEL 183 8 with V2A screws | 180 x 80 mm | - 8 | 47240.200 | 1 |
| | | KEL 183-E4 | 180 x 42 mm | - 4 | 47250 | 1 |
| | | KEL 183-E4 with V2A screws | 180 x 42 mm | - 4 | 47250.200 | 1 |
| | | KEL 183-E16 | 180 x 42 mm | 16 KT small | 47255 | 1 |
| | | KEL 183-E16 with V2A screws | 180 x 42 mm | 16 KT small | 47255.200 | 1 |

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KEL-FL

Cable entry frames for flat cables

FT

Grommets for flat cables



The KEL-FL range enables simple, fast and flexible cable routing and sealing of flat wires, e.g. in lift construction.

Innovative construction of the grommets compensates for manufacturing inconsistencies in flat cables. Split KT grommets can be utilised to additionally route round cables with connectors. All frame systems come with a rubber gasket.

FT grommets are used to route flat cables, e.g. in lift construction. Suitable for cable entry frames KEL-FL. Innovative construction of the grommets compensates for manufacturing inconsistencies in flat cables.

Advantages & benefits

- Routing of flat cables in combination with pre-terminated round cables by using a single KEL-FL cable entry frame
- Routing of flat cables with various dimensions
- Space saving shape

Specifications

| | |
|-------------|------------------------------------------------------------------|
| Material | KEL-FL: Polyamide (PA) FT: Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of the cable grommets |
| Temperature | KEL-FL: -40°C to +140°C (static) FT: -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Frame depth | 17 mm |

Accessories

| | |
|-----------------------------------|-----------|
| KT Cable grommets, small | 74 - 89 |
| KTMB/KT-DPF Cable grommets, small | 81 - 83 |
| KEL-EMC Cable collectors | 260 - 262 |
| ST Plugs | 85 |

| Description | Type | Order No. | Clamping range | PU |
|-------------|--------|-----------|----------------------------------------------|----|
| | FT-1 0 | 46201 | Blank grommet | 5 |
| | FT-1 A | 46210 | Width: 19 - 23 mm Thickness: 5.5 - 6 mm | 5 |
| | FT-1 B | 46211 | Width: 28 - 33 mm Thickness: 5.5 - 6 mm | 5 |
| | FT-1 C | 46212 | Width: 24 - 30 mm Thickness: 8.5 - 9 mm | 5 |
| | FT-1 E | 46214 | Width: 19 - 24 mm Thickness: 6.5 - 7 mm | 5 |
| | FT-1 F | 46215 | Width: 28 - 33 mm Thickness: 9 - 9.5 mm | 5 |
| | FT-2 0 | 46202 | Blank grommet | 5 |
| | FT-2 A | 46250 | Width: 32.5 - 38 mm Thickness: 5 - 5.5 mm | 5 |
| | FT-2 B | 46251 | Width: 45 - 50.5 mm Thickness: 6 - 6.5 mm | 5 |
| | FT-2 C | 46252 | Width: 47 - 52 mm Thickness: 9.5 - 10 mm | 5 |
| | FT-2 F | 46255 | Width: 38 - 43 mm Thickness: 12.5 - 13 mm | 5 |
| | FT-2 G | 46256 | Width: 49 - 54 mm Thickness: 5 - 6 mm | 5 |
| | FT-3 0 | 46203 | Blank grommet | 5 |
| | FT-3 A | 46300 | Width: 72 - 77 mm Thickness: 5 - 5.5 mm | 5 |
| | FT-4 0 | 46204 | Blank grommet | 5 |
| | FT-4 A | 46330 | Width: 85 - 99 mm Thickness: 4.2 - 5.2 mm | 5 |

KEL-FL

Cable entry frames for flat cables



| Description | Cut-out Drilling template | Type | Order No. | Cut-out [mm] | Grommets KT FT | PU |
|-------------|-----------------------------|----------|-----------|--------------|----------------------|----|
| | | KEL-FL A | 46100 | 43 × 24 | 0 × KT 1 × FT-1 | 10 |
| | | KEL-FL B | 46105 | 65 × 24 | 0 × KT 1 × FT-2 | 10 |
| | | KEL-FL C | 46110 | 65 × 24 | 1 × KT 1 × FT-1 | 10 |
| | | KEL-FL D | 46115 | 86 × 24 | 0 × KT 1 × FT-3 | 10 |
| | | KEL-FL E | 46120 | 86 × 24 | 1 × KT 1 × FT-2 | 10 |
| | | KEL-FL F | 46125 | 86 × 24 | 0 × KT 2 × FT-1 | 10 |
| | | KEL-FL G | 46130 | 86 × 24 | 2 × KT 1 × FT-1 | 10 |
| | | KEL-FL H | 46135 | 112 × 24 | 2 × KT 1 × FT-2 | 10 |
| | | KEL-FL I | 46140 | 112 × 24 | 1 × KT 2 × FT-1 | 10 |
| | | KEL-FL J | 46145 | 112 × 24 | 3 × KT 1 × FT-1 | 10 |
| | | KEL-FL K | 46150 | 112 × 24 | 1 × FT-1 1 × FT-2 | 10 |
| | | KEL-FL L | 46155 | 112 × 24 | 1 × FT-4 | 10 |

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KEL-FG-ER series

Flange enclosure for 90° cable transit with integrated seal and IP65 rating



The cable entry frames KEL-FG-ER are suited for installation of cables with connectors and conduits at an angle of 90° to the cabinet, enclosure or machine wall, providing an IP65 rating and strain relief according to EN 62444 for cable diameters from 1 to 16 mm (single-hole grommets KT 1 – 15) and 16 to 35 mm (single-hole grommets KT 16 – 34).

Due to the integrated seal on the flange enclosure, a protection class of up to IP65 is provided. An additional flat rubber gasket is included in the shipment.

The KEL-FG-ER-A frame matches exactly the cut-out dimensions for 24-pin standard industrial connectors (36 x 112 mm). The KEL-FG-ER-B is suited for cut-outs 36 x 46 mm.

The single-row version KEL-FG-ER-E is particularly suited for flat connectors. The small frame is ideal for applications with limited space.

The version with threaded bushings enables the cable entry frame to be screwed onto the housing from the inside out. This protects against vandalism and tampering with the housing from the outside.

Advantages & benefits

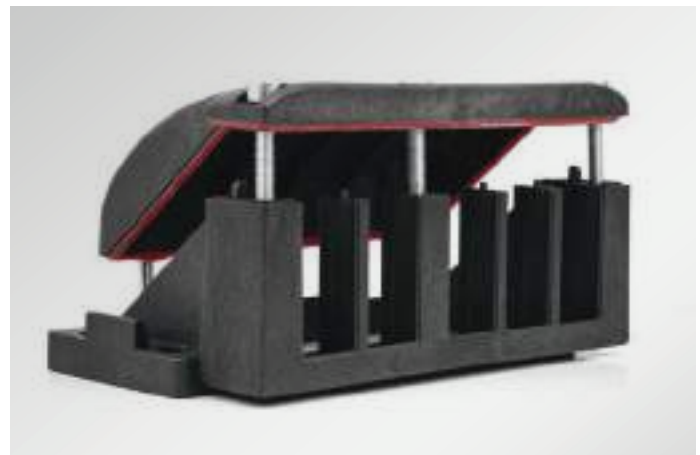
- Integrated seal
- Installation at an angle of 90° to the wall
- Mechanical protection of the cable directly at the place of entry
- Protection against water splashes and drips
- Warranty on pre-terminated cables remains
- Ideal for cables with connectors (max. Ø 35 mm)
- Strain relief according to EN 62444
- High stability, vibration resistant
- Can be combined with IMAS-CONNECT adapter grommets

Specifications

| | |
|-----------------|----------------------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, IP55, IP64, IP65 according to EN 60529 |
| Temperature | -40°C to +80°C (static) |
| Properties | Halogen-free, silicone-free |
| Mounting height | 57.5 mm |

Accessories

| | |
|--------------------------|-----------|
| KT Cable grommets | 74 - 89 |
| AT Adapter grommets | 90-101 |
| KEL-EMC Cable collectors | 260 - 262 |
| ST Plugs | 85 |



Injected seal, highlighted here in red



Can be combined with IMAS-CONNECT adapter grommets

KEL-FG-ER

Flange enclosure for 90° cable transit

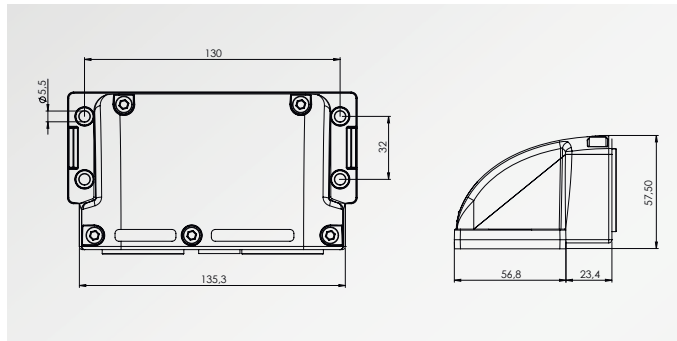
KEL-FG-ER A



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|-----------------------------------------|------------|------------------------|-----------|----|
| | | KEL-FG-ER A10 | 36 x 112 | 10 - | 42340 | 1 |
| | | KEL-FG-ER A10 with V2A screws | 36 x 112 | 10 - | 42340.200 | 1 |
| | | KEL-FG-ER A10 with threaded bushings M4 | 36 x 112 | 10 - | 42340.400 | 1 |
| | | KEL-FG-ER A7 | 36 x 112 | 6 1 | 42341 | 1 |
| | | KEL-FG-ER A7 with V2A screws | 36 x 112 | 6 1 | 42341.200 | 1 |
| | | KEL-FG-ER A7 with threaded bushings M4 | 36 x 112 | 6 1 | 42341.400 | 1 |
| | | KEL-FG-ER A4 | 36 x 112 | 2 2 | 42342 | 1 |
| | | KEL-FG-ER A4 with V2A screws | 36 x 112 | 2 2 | 42342.200 | 1 |
| | | KEL-FG-ER A4 with threaded bushings M4 | 36 x 112 | 2 2 | 42342.400 | 1 |



Split KT grommets



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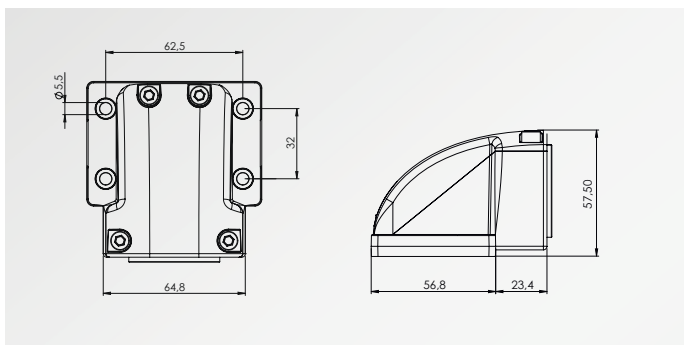
KEL-FG-ER

Flange enclosure for 90° cable transit

KEL-FG-ER B



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|----------------------------------------|------------|------------------------|-----------|----|
| | | KEL-FG-ER B4 | 46 x 36 | 4 - | 42344 | 1 |
| | | KEL-FG-ER B4 with V2A screws | 46 x 36 | 4 - | 42344.200 | 1 |
| | | KEL-FG-ER B4 with threaded bushings M4 | 46 x 36 | 4 - | 42344.400 | 1 |
| | | KEL-FG-ER B1 | 46 x 36 | - 1 | 42343 | 1 |
| | | KEL-FG-ER B1 with V2A screws | 46 x 36 | - 1 | 42343.200 | 1 |
| | | KEL-FG-ER B1 with threaded bushings M4 | 46 x 36 | - 1 | 42343.400 | 1 |



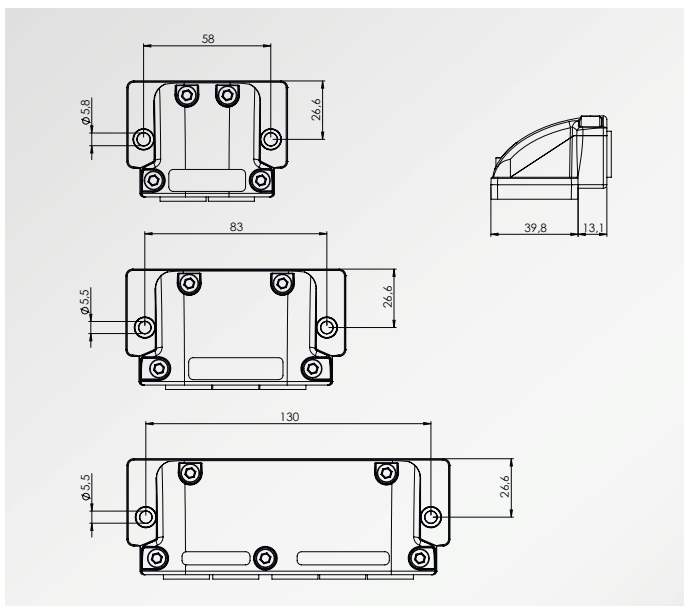
KEL-FG-ER

Flange enclosure for 90° cable transit

KEL-FG-ER E



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|----------------------------------------|------------|------------------------|-----------|----|
| | | KEL-FG-ER E2 | 43 x 24 | 2 - | 42345 | 5 |
| | | KEL-FG-ER E2 with V2A screws | 43 x 24 | 2 - | 42345.200 | 5 |
| | | KEL-FG-ER E2 with threaded bushings M4 | 43 x 24 | 2 - | 42345.400 | 5 |
| | | KEL-FG-ER E3 | 65 x 24 | 3 - | 42346 | 5 |
| | | KEL-FG-ER E3 with V2A screws | 65 x 24 | 3 - | 42346.200 | 5 |
| | | KEL-FG-ER E3 with threaded bushings M4 | 65 x 24 | 3 - | 42346.400 | 5 |
| | | KEL-FG-ER E5 | 112 x 24 | 5 - | 42347 | 5 |
| | | KEL-FG-ER E5 with V2A screws | 112 x 24 | 5 - | 42347.200 | 5 |
| | | KEL-FG-ER E5 with threaded bushings M4 | 112 x 24 | 5 - | 42347.400 | 5 |



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KEL-FG series

Flange enclosure for 90° cable transit with IP54 rating



The cable entry frames KEL-FG are suited for installation, sealing and strain relief of cables with connectors and conduits at an angle of 90° to the cabinet, enclosure or machine wall.

The KEL-FG-A frame matches exactly the cut-out dimensions for 24-pin standard industrial connectors. For tool-free assembly/disassembly of the KEL-FG-A the snap mounting frame KEL-SNAP 24 can be used. The KEL-FG-B is suited for cut-outs 36 × 46 mm.

The single-row versions KEL-FG-E are particularly suited for flat connectors. The small frames are ideal for applications with limited space.

The version with threaded bushings enables the cable entry frame to be screwed onto the housing from the inside out. This protects against vandalism and tampering with the housing from the outside.

A flat rubber gasket is included in the shipment.

Advantages & benefits

- Installation at an angle of 90° to the wall
- Mechanical protection of cable directly at the place of entry
- Protection against water spray and drips
- Maintain manufacturer's warranty on pre-terminated cables
- Strain relief according to EN 62444
- High stability, vibration resistant
- Can be combined with IMAS-CONNECT adapter grommets

Specifications

| | |
|-------------|---------------------------------------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of the cable grommets |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |

Accessories

| | |
|--------------------------|-----------|
| KT Cable grommets | 74 - 89 |
| AT Adapter grommets | 90 - 101 |
| KEL-SNAP Mounting frames | 52 - 55 |
| KEL-EMC Cable collectors | 260 - 262 |
| ST Plugs | 85 |



The cable entry frames enable the integration of the IMAS-CONNECT™ adapter grommets



Also available with stainless steel screws (V2A)



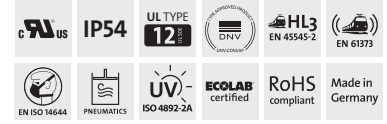
Also available with threaded bushings



KEL-FG

Flange enclosure for 90° cable transit

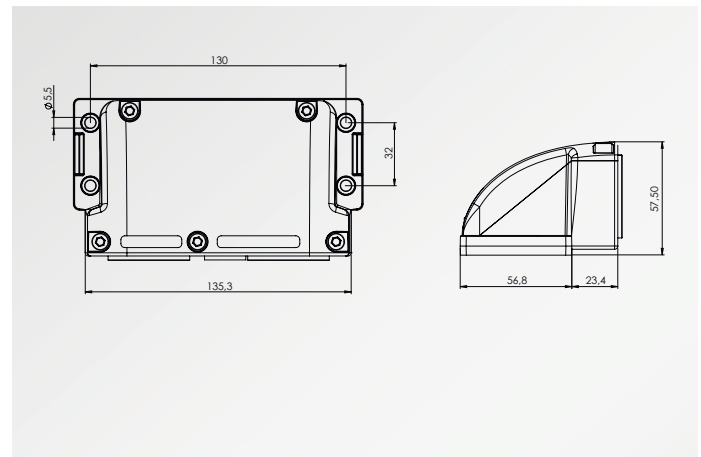
KEL-FG-A



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|--------------------------------------|------------|------------------------|-----------|----|
| | | KEL-FG-A10 | 36 x 112 | 10 - | 42320 | 1 |
| | | KEL-FG-A10 with V2A screws | 36 x 112 | 10 - | 42320.200 | 1 |
| | | KEL-FG-A10 with threaded bushings M4 | 36 x 112 | 10 - | 42320.400 | 1 |
| | | KEL-FG-A7 | 36 x 112 | 6 1 | 42322 | 1 |
| | | KEL-FG-A7 with V2A screws | 36 x 112 | 6 1 | 42322.200 | 1 |
| | | KEL-FG-A7 with threaded bushings M4 | 36 x 112 | 6 1 | 42322.400 | 1 |
| | | KEL-FG-A4 | 36 x 112 | 2 2 | 42324 | 1 |
| | | KEL-FG-A4 with V2A screws | 36 x 112 | 2 2 | 42324.200 | 1 |
| | | KEL-FG-A4 with threaded bushings M4 | 36 x 112 | 2 2 | 42324.400 | 1 |



KEL-FG-A



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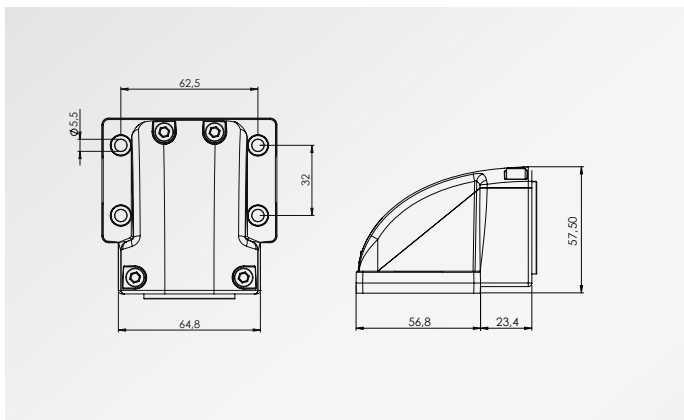
KEL-FG

Flange enclosure for 90° cable transit

KEL-FG-B



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|-------------------------------------|------------|------------------------|-----------|----|
| | | KEL-FG-B4 | 46 x 36 | 4 - | 42330 | 1 |
| | | KEL-FG-B4 with V2A screws | 46 x 36 | 4 - | 42330.200 | 1 |
| | | KEL-FG-B4 with threaded bushings M4 | 46 x 36 | 4 - | 42330.400 | 1 |
| | | KEL-FG-B1 | 46 x 36 | - 1 | 42332 | 1 |
| | | KEL-FG-B1 with V2A screws | 46 x 36 | - 1 | 42332.200 | 1 |
| | | KEL-FG-B1 with threaded bushings M4 | 46 x 36 | - 1 | 42332.400 | 1 |



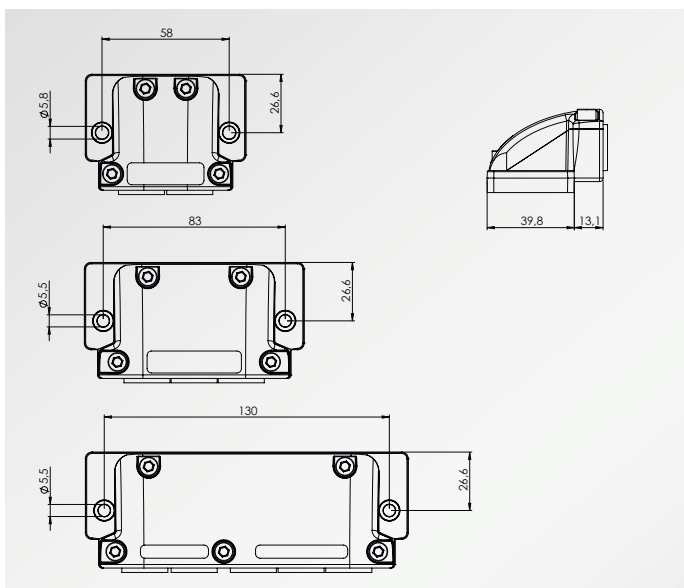
KEL-FG

Flange enclosure for 90° cable transit

KEL-FG-E



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets small large | Order No. | PU |
|-------------|-----------------------------|-------------------------------------|------------|------------------------|-----------|----|
| | | KEL-FG-E2 | 43 x 24 | 2 - | 42333 | 5 |
| | | KEL-FG-E2 with V2A screws | 43 x 24 | 2 - | 42333.200 | 5 |
| | | KEL-FG-E2 with threaded bushings M4 | 43 x 24 | 2 - | 42333.400 | 5 |
| | | KEL-FG-E3 | 65 x 24 | 3 - | 42334 | 5 |
| | | KEL-FG-E3 with V2A screws | 65 x 24 | 3 - | 42334.200 | 5 |
| | | KEL-FG-E3 with threaded bushings M4 | 65 x 24 | 3 - | 42334.400 | 5 |
| | | KEL-FG-E5 | 112 x 24 | 5 - | 42336 | 5 |
| | | KEL-FG-E5 with V2A screws | 112 x 24 | 5 - | 42336.200 | 5 |
| | | KEL-FG-E5 with threaded bushings M4 | 112 x 24 | 5 - | 42336.400 | 5 |



i Single-piece packaging units are available on request.

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KEL-FW

Bulkhead

for 90° cable transit
with IP65 rating



With the new bulkhead KEL-FW, cables can be routed at a 90° angle over a large bending radius. The hinged cover is firmly connected to the housing by a hinge and is therefore captive. This makes the system very easy and quick to mount. The KEL-FW is first screwed to the enclosure using the two rear holes and then fitted with the required cable grommets. The cover is then folded down, locked in place and screwed to the enclosure using the two front holes.

The KEL-FW is fitted with an integrated seal to achieve the high protection rating of IP65. An additional flat gasket for wall mounting is included in the shipment.

Cables with and without connectors up to a diameter of 35 mm can be routed and strain-relieved according to DIN EN 62444. Retrofitting and maintenance can be carried out quickly and easily.

Advantages

- Captive cover
- Integrated seal
- Cable entry at 90° to the enclosure
- Large bending radius of the routed cables possible (r max. = 150 mm), ideal for rigid cables
- Mechanical protection of the cable directly at the place of entry
- Protection against water splashes and drips
- Warranty on pre-terminated cables remains
- Retrofittings and maintenance can be done quickly and easily
- Ideal for cables with connectors (max. Ø 35 mm)
- Strain relief according to EN 62444
- High stability, vibration resistant
- Can be combined with IMAS-CONNECT adapter grommets

Specifications

| | |
|-------------|-----------------------------------|
| Material | Polyamide (PA) |
| Colour | Black (RAL 9005) |
| IP rating | IP65 (certified acc. to EN 60529) |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +90°C (static) |
| Properties | Halogen free, silicone free |

Accessories

| | |
|-------------------------------|----------|
| CONFiX Sheet metal punches | 388 |
| KT Cable grommets | 74 - 89 |
| IMAS-CONNECT Adapter grommets | 90 - 101 |



Captive cover for easy assembly



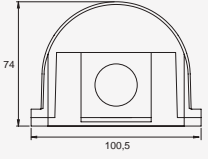
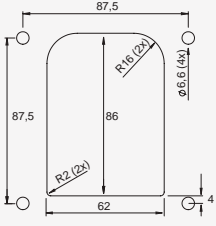
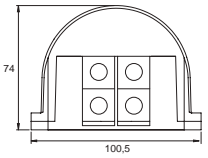
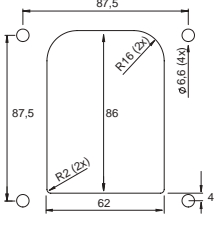
Integrated seal to achieve the high protection rating of IP65



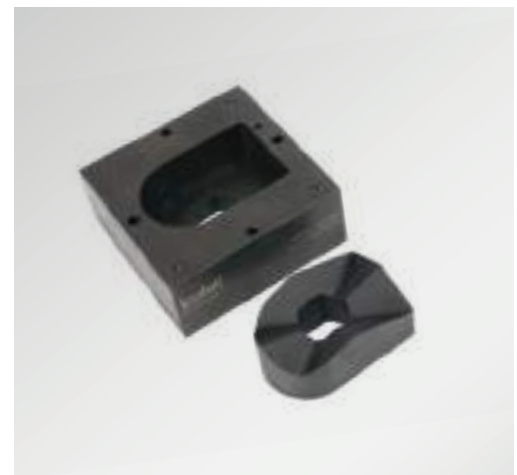
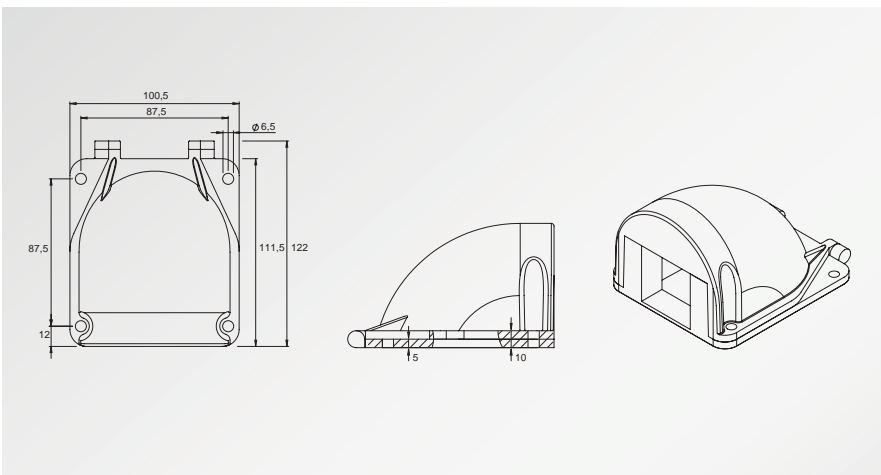
KEL-FW

Bulkhead
for 90° cable transit
with IP65 rating



| Description | Cut-out Drilling template | Type | Dimension A x B x H mm | Cut-out mm | Bore ϕ | Grommets small large | Order No. | PU |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------|------------------------------|---------------|-------------|---------------------------|-----------|----|
|  |  | KEL-FW-B1 | 121,5 x 100,5 x 75,0 | 62 x 86 mm | 4 x 6,5 mm | - 1 | 42460 | 1 |
|  |  | KEL-FW-B4 | 121,5 x 100,5 x 75,0 | 62 x 86 mm | 4 x 6,5 mm | 4 - | 42461 | 1 |

i Matching sheet metal punches on p. 374



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KEL-SNAP-S

Split snap-on mounting frames with IP54 rating

IP54

icotek also offers the proven snap-on frame KEL-SNAP as a split version KEL-SNAP-S. The snap-in frames enable quick and tool-free assembly of the KEL-FA/KEL/KEL-U/KEL-QUICK/KEL-FG-A cable entry systems.

The KEL-SNAP becomes even more versatile with the "S" version. Due to the divisibility of the snap-on frame, it can also be retrofitted without any problems. If an already mounted KEL-SNAP is damaged, it can be replaced by a split frame without having to disconnect all the cables that have already been fed through and without having to dismantle the existing KEL.

Advantages & benefits

- Subsequent assembly possible
- Upon disassembly (e.g. maintenance) screwing and unscrewing of the cable entry frame is not necessary
- Drilling template identical to cable entry frame
- Integrated gasket
- Previously assembled cable harnesses are quickly and easily attached
- There is no need to thread the cables through the snap-on frame as the divisible frame can be snapped together when the cables have already been passed through the cut-out

Specifications

| | |
|-------------|-------------------------------|
| Material | Polyamide (PA) |
| IP rating | IP 54 |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C bis +140°C (static) |
| Properties | silicone free, halogen free |

Compatible with

| | |
|------------------------------|-----------|
| KEL-FA Cable entry frames | 24 - 27 |
| KEL Cable entry frames | 28 - 37 |
| KEL-U Cable entry frames | 20 - 22 |
| KEL-FG Flange enclosure | 46 - 49 |
| KEL-QUICK Cable entry frames | 105 - 107 |
| MP Module plates | 314 - 315 |
| BPK-SNAP Blank plates | 332 |

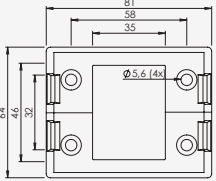
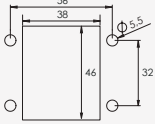
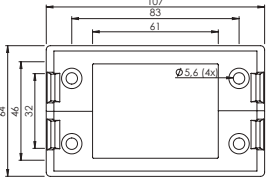
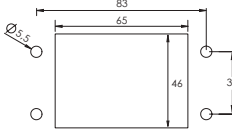
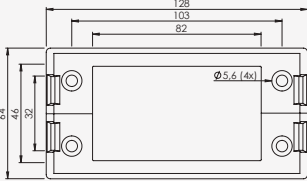
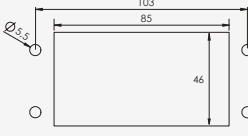
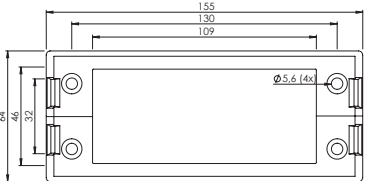
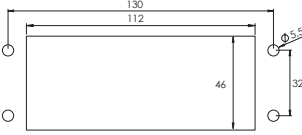


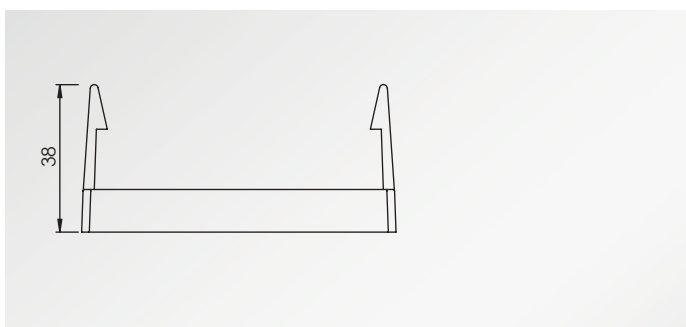
Integrated circumferential seal (IP54) Snap-in locking hook

KEL-SNAP-S

Splittable snap-on mounting frame



| Description | Cut-out Drilling template | Type | Cut-out [mm] | Suitable for | Order No. | PU |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|--------------|------------------------------------------------|-----------|----|
|  |  | KEL-SNAP-S-B | 46 × 38 | KEL-B KEL-U-B KEL-QUICK-B | 42063 | 10 |
|  |  | KEL-SNAP-S-10 | 46 × 65 | KEL 10 KEL-U 10 KEL-QUICK 10 | 42062 | 10 |
|  |  | KEL-SNAP-S-16 | 46 × 85 | KEL 16 KEL-U 16 KEL-QUICK 16 | 42061 | 10 |
|  |  | KEL-SNAP-S-24 | 46 × 112 | KEL 24 KEL-U 24 KEL-FG-A KEL-QUICK 24 | 42060 | 10 |



i Single-piece packaging units are available on request.

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KEL-SNAP

Snap-on mounting frames with IP54 rating



The patented KEL-SNAP frame provides a quick snap-in assembly of the KEL-FA/KEL/KEL-U/KEL-QUICK/KEL-FG-A cable entry systems. Control panels, cabinets or machines can be equipped with the KEL-SNAP frame at delivery, allowing a simple push in of the KEL frame when routing cables and conduit. Perfect for enclosures that are maintenance intensive or for an install at a later date.

A cut-out of 46 mm can also be chosen instead of 36 mm. Thus prefabricated multi-pin connectors can be used.

Advantages & benefits

- Upon disassembly (e.g. maintenance) screwing and unscrewing of KEL frame is not necessary
- Previously assembled KEL frames are quickly and easily attached
- Integrated gasket
- Drilling template identical to KEL frame (except KEL-SNAP-B)

Specifications

| | |
|----------------|-----------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL94V-0, self-extinguishing |
| IP rating | IP54 (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |

Compatible with

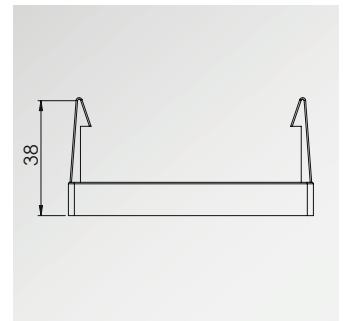
| | |
|------------------------------|-----------|
| KEL-FA Cable entry frames | 24 - 27 |
| KEL Cable entry frames | 28 - 37 |
| KEL-U Cable entry frames | 20 - 22 |
| KEL-FG Flange enclosure | 46 - 49 |
| KEL-QUICK Cable entry frames | 105 - 107 |
| MP Module plates | 314 - 315 |
| BPK-SNAP Blank plates | 332 |




Integrated circular sealing (IP54)



Blank plate BPK-SNAP, see page 332



 Single-piece packaging units are available on request.

KEL-SNAP

Snap mounting frames



| Description | Cut-out Drilling template | Type | Cut-out [mm] | Suitable for | Order No. | PU |
|-------------|-----------------------------|----------------|--------------|------------------------------------------------|-----------|----|
| | | KEL-SNAP-B | 46 × 38 | KEL-B KEL-U-B KEL-QUICK-B | 42038 | 10 |
| | | KEL-SNAP 10 | 46 × 65 | KEL 10 KEL-U 10 KEL-QUICK 10 | 42039 | 10 |
| | | KEL-SNAP 16 | 46 × 85 | KEL 16 KEL-U 16 KEL-QUICK 16 | 42040 | 10 |
| | | KEL-SNAP 24 | 46 × 112 | KEL 24 KEL-U 24 KEL-FG-A KEL-QUICK 24 | 42042 | 10 |
| | | KEL-SNAP 24-E | 71 × 112 | KEL 24-E | 42044 | 1 |
| | | KEL-SNAP 24-MT | 89 × 112 | KEL 24-MT | 42046 | 1 |

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KEL-JUMBO

Cable entry frames
for supply cables

KTF, KTF-SCDP

Grommets for KEL-JUMBO



KTF

KTF-SCDP

The KEL-JUMBO cable entry system for installation of cables and conduits with a diameter of up to 65 mm, especially suited for supply cables.

The innovative grommet design with the flex-membrane provides flexing and adjustment of the position for larger and more rigid cables.

We recommend round cut-outs, which can be made using standard punching tools. Suggested cut-out: cable diameter +15–20%. All frame systems come with a rubber gasket.

The KTF grommets are suitable for cable diameters up to 65 mm.

The adaptable KTF-SCDP cable grommet enables the routing and sealing of supply cables and conduits with diameters up to 55 mm.

Cables with a comparatively smaller diameter can be utilised with KEL-JUMBO frames by using an adapter grommet.

Advantages & benefits

- Installation of cables up to 65 mm
- KTF grommets allow flexing and adjustment of the cable position
- Retrofitting and maintenance can be carried out easily and quickly

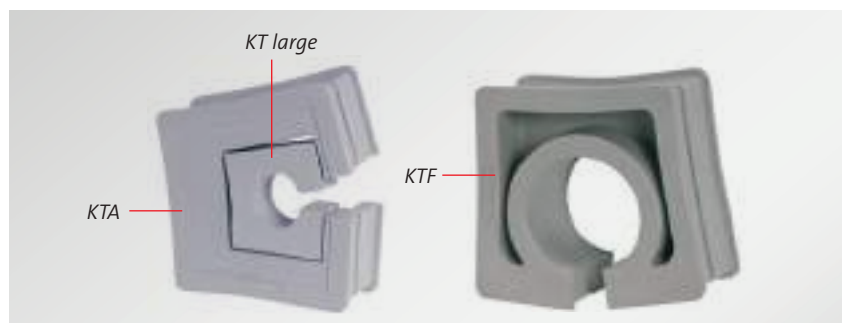
Specifications

| | |
|--------------------|--------------------------------------------------------------------------------|
| Material | KEL-JUMBO: Polyamide (PA) KTF, KTF-SCDP: Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | KEL-JUMBO: -40°C to +140°C (static) KTF, KTF-SCDP: -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Cut-out dimensions | Round (recommended) |
| Frame depth | 35 mm |

Accessories

| | |
|------------------------|-----------|
| KDR-ESR Base plates | 300 - 311 |
| KDR2 Split base plates | 312 - 313 |
| MP Module plates | 314 - 315 |

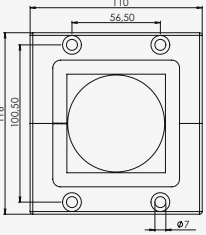
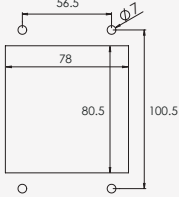
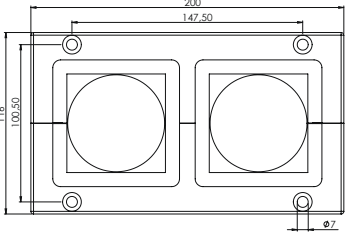
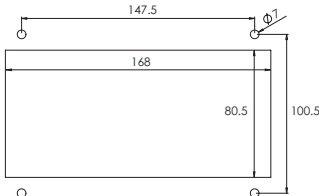
| Type | Order No. | Clamping range | PU |
|------------|-----------|------------------------------|----|
| KTF 00 | 42371 | Blank grommet | 1 |
| KTA | 42370 | Adapter grommet for KT large | 1 |
| KTF 34 | 42376 | 33 – 36 mm | 1 |
| KTF 38 | 42379 | 37 – 40 mm | 1 |
| KTF 42 | 42382 | 41 – 44 mm | 1 |
| KTF 46 | 42385 | 45 – 48 mm | 1 |
| KTF 50 | 42388 | 48 – 52 mm | 1 |
| KTF 54 | 42391 | 53 – 56 mm | 1 |
| KTF 58 | 42394 | 56 – 60 mm | 1 |
| KTF 62 | 42397 | 61 – 65 mm | 1 |
| KTF-SCDP-A | 42398 | 8 – 55 mm | 1 |



KEL-JUMBO

Cable entry frames for supply cables



| Description | Cut-out Drilling template | Type | Order No. | Dimensions length width height | PU |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------|-----------|---------------------------------------|----|
|  |  | KEL-JUMBO 1 | 42360 | 110 × 116 × 35 mm | 1 |
| | | KEL-JUMBO 1 with V2A screws | 42360.200 | 110 × 116 × 35 mm | 1 |
|  |  | KEL-JUMBO 2 | 42350 | 200 × 116 × 35 mm | 1 |
| | | KEL-JUMBO 2 with V2A screws | 42350.200 | 200 × 116 × 35 mm | 1 |



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1.12 Split cable glands for the KT grommet system



By using icotek's split cable glands, cables with or without connectors or complete cable harnesses with diameters from 1 to 35 mm can be quickly routed into enclosures, cabinets or machines and achieve protection levels up to IP66/IP68/UL type 4X rated.

The split system of the KVT cable glands enables quick and easy assembly which is great for retrofitting and maintenance. The cable is placed into the split grommet which is set into one of the gland halves.

Depending on the size of the cable gland one, two, four or six separate grommets can be installed. The two gland halves can be easily snapped together without the need of tools. The routed lines are securely sealed and held inside the grommets.

To mount the cable gland, either snap it into the standard round metric cut-out (sizes available from M20 to M80) or screw it on with a hexagon locknut. The assembly method depends on the model used.

Screwable or pluggable.

By screwing the top section of the split cable gland to its body, a higher clamping pressure can be achieved (stainless steel screws by default).

Split system

Integrated seal

Warranty on pre-terminated cables remains

Fast and easy assembly

Special locknuts for e.g. D-Sub or PROFIBUS connectors as well as split locknuts available.

For metric cut-outs M20 – M80

High cable density, wide variety in cable grommets

Very good strain relief acc. to EN 62444 – no additional cable ties required!

KVT-ER

IP68



KVT-ER 63/4 equipped with pressure compensation element, see page 100

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Split cable glands
for screw-in assembly,
M25 – M63,
for cable diameters up to 35 mm

KVT-ER

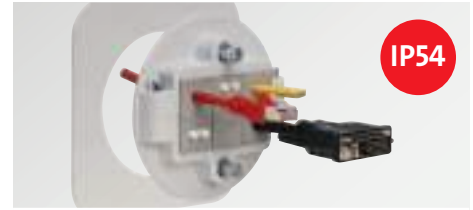
60 – 61



Split cable glands
for screw-in assembly,
M20 – M63,
for cable diameters up to 35 mm

KVT

62 – 63



Split cable glands
for screw-in assembly,
M80,
for cable diameters up to 35 mm

KVT 80

64



Split cable glands
for snap-in assembly,
M32 – M63,
for cable diameters up to 35 mm

KVT-SNAP

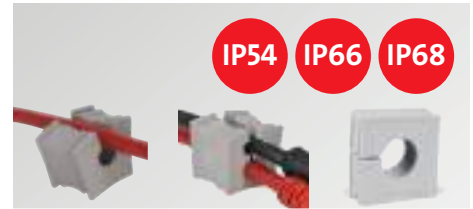
65



Split cable glands
for 90° cable transit,
for screw-in assembly,
M32 – M50,
for cable diameters up to 35 mm

KVT-W90

66



Cable grommets
split and not split,
for cables with/without connectors,
for cable diameters 1 – 35 mm

74 – 89



IMAS-CONNECT™
Modular adapter system
for the KT system

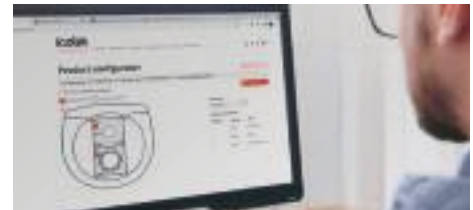
90 – 101



Thread extension
for cable glands and
cable entry plates
M32, M50, M63

TE-M

334 – 337



Product configurator
www.icotek.com/en/config

67

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KVT-ER series

Split cable glands

with IP66/IP68 rating



KVT-ER are split cable glands for routing and sealing cables with connectors, with diameters from 1 to 16 mm (KT 1 – 15) and 16 to 35 mm (KT 16 – 34). But also electric, pneumatic or hydraulic lines without terminals or connectors as well as corrugated conduits can be easily routed (e.g. into control panels, enclosures or machinery), sealed and strain relieved acc. to EN 62444.

The KVT-ER sizes are based on metric standard cut-outs M25, M32, M50 and M63. Hexagonal locknuts are included in the shipment. For assembly, we recommend to tighten the cover lid screws with max. 2 Nm.

Due to the injected gasket and if single-hole grommets are used, the KVT-ER provides certified protection ratings IP66/IP68 and UL type 12 and 4X*.

Advantages & benefits


- Very high strain relief according to EN 62444
- Maintain manufacturer's warranty on pre-terminated cables
- Retrofittings, repairs and maintenance can be done easily and quickly
- Suitable for metric cut-outs
- High cable density, wide variety of grommets
- Hexagonal lock nut included in the delivery
- V2A stainless steel screws
- Very robust housing, vibration resistant
- Modern design

Specifications

| | |
|-------------------|-----------------------------------------------------------------------------------------------|
| Material | Frame: Polypropylene (PP) Injected gasket: Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP65/IP66/IP67/IP68, if correctly assembled with single grommets (certified acc. to EN 60529) |
| Temperature | -40°C to +110°C (static) |
| Properties | Halogen-free, silicone-free |
| Cut-out dimension | Metric sizes |

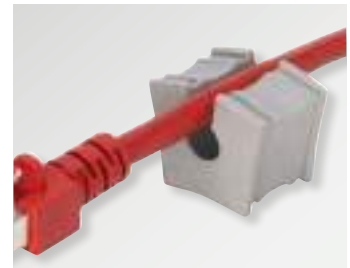
Accessories

| | |
|---------------------|---------|
| KT Cable grommets | 76 - 77 |
| AT Adapter grommets | 92 - 97 |
| KVT-EMC Brackets | 263 |
| Locknuts | 346 |
| ST Plugs | 85 |

 Single-piece packaging units are available on request.



Certified protection class IP65/
IP66/IP67/IP68



Split KT grommets



Injected elastomer gasket



Can be combined with TE-M thread extension



KGM-SUB-D9
fits D-Sub 9 connectors
(Required wall cut-out:
diameter 36 mm, PU: 10)
■ Order No. 45106

KGM-SUB-D25
fits SUB-D25 connectors
(Required wall cut-out:
diameter 50 - 54 mm, PU:10)
■ Order No. 45110

Type GMT: Split locknut, p. 346

KVT-ER

Split cable glands



| Description | Type | Order No. | Grommets KT small large | Cut-out** diameter | Thread Thread length | PU |
|-------------|-------------|-----------|------------------------------|-----------------------|----------------------------|----|
| | KVT-ER 25* | 45450 | 1 - | 25.5 mm | M25 × 1.5 Length: 18 mm | 10 |
| | KVT-ER 32 | 45452 | 1 - | 32.5 mm | M32 × 1.5 Length: 18 mm | 10 |
| | KVT-ER 50 2 | 45454 | 2 - | 50.5 mm | M50 × 1.5 Length: 18 mm | 5 |
| | KVT-ER 63 1 | 45455 | - 1 | 63.5 mm | M63 × 1.5 Length: 18 mm | 5 |
| | KVT-ER 63 4 | 45456 | 4 - | 63.5 mm | M63 × 1.5 Length: 18 mm | 5 |

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* Max. cable diameter of 15 mm
 ** Please consider any paint layers or powder coatings!

KVT series

Split cable glands with IP54 rating



KVT is a circular split frame for quick and easy installation and sealing of cables with connectors or complete cable harnesses.

Polyamide locknuts as well as a sealing ring are included in the shipment. For routing D-Sub, DVI or PROFIBUS connectors in combination with the split cable glands KVT, special locknuts with cut-outs are required.

Advantages & benefits

- Insertion of pre-terminated cables
- Maintain manufacturer's warranty on pre-terminated cables
- Retrofittings, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Suitable for metric cut-outs
- Locknut is included

Specifications

| | |
|-------------------|--------------------------------------------------------------------------------------------|
| Material | Polycarbonate (PC) |
| Colour | <input type="checkbox"/> grey (similar RAL 7035) <input type="checkbox"/> black |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -30°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Cut-out dimension | Metric sizes |

Accessories

| | |
|---------------------|----------|
| KT Cable grommets | 74 - 89 |
| AT Adapter grommets | 90 - 101 |
| KVT-EMC Brackets | 263 |
| Locknuts | 346 |
| ST Plugs | 85 |

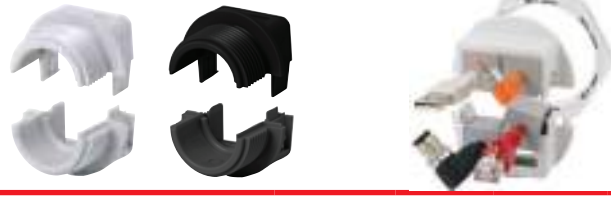
| Description | Type | Order No. | Grommets small large | Thread Thread length | PU |
|-------------|---------------------|------------------------------------------------------------------|------------------------|----------------------------|----|
| | KVT 20** | <input type="checkbox"/> 45034 <input type="checkbox"/> 45024 | 1 - | M20 × 1.5 Length: 14 mm | 10 |
| | KVT 25*** | <input type="checkbox"/> 45035 <input type="checkbox"/> 45025 | 1 - | M25 × 1.5 Length: 14 mm | 10 |
| | KVT 32 | <input type="checkbox"/> 45036 <input type="checkbox"/> 45026 | 1 - | M32 × 1.5 Length: 14 mm | 10 |
| | KVT 32 + KGM-SUB-D9 | <input type="checkbox"/> 45037 <input type="checkbox"/> 45027 | 1 - | M32 × 1.5 Length: 14 mm | 10 |

i Single-piece packaging units are available on request.



KVT

Split cable glands



Locknuts

Locknuts with special cut-outs are available separately. The cut-out dimensions are listed on page 292.

KGM-SUB-D9 fits D-Sub 9 connectors
(Required wall cut-out: \varnothing 36 mm, PU: 10)
■ Order No. 45105 ■ Order No. 45106

KGM-PB fits DVI and PROFIBUS connectors
(Required wall cut-out: \varnothing 42 mm, PU: 10)
■ Order No. 45107 ■ Order No. 45109

KGM-SUB-D25 fits SUB-D25 connectors
(Required wall cut-out: \varnothing 50 - 54 mm, PU:10)
■ Order No. 45108 ■ Order No. 45110

| Description | Type | Order No. | Grommets small large | Thread Thread length | PU |
|-------------|--------------------------|--------------------|------------------------|----------------------------|----|
| | KVT 40 | ■ 45203 ■ 45028 | 1 - | M40 x 1.5 Length: 14 mm | 10 |
| | KVT 40 + KGM-PB | ■ 45205 ■ 45029 | 1 - | M40 x 1.5 Length: 14 mm | 10 |
| | KVT 50 2 * | ■ 45204 ■ 45030 | 2 - | M50 x 1.5 Length: 14 mm | 5 |
| | KVT 50 2 * + KGM-SUB-D25 | ■ 45206 ■ 45031 | 2 - | M50 x 1.5 Length: 14 mm | 5 |
| | KVT 63 1 | ■ 45212 ■ 45112 | - 1 | M63 x 1.5 Length: 14 mm | 5 |
| | KVT 63 4 | ■ 45215 ■ 45115 | 4 - | M63 x 1.5 Length: 14 mm | 5 |

i Single-piece packaging units are available on request.



Type GMT: Split locknut, p. 346

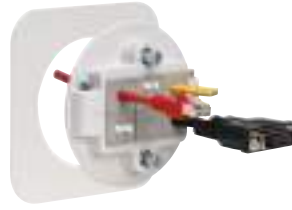


The cable glands enable the integration of the IMAS-CONNECT™ adapter grommets

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KVT 80

Split cable glands for front mounting



The KVT 80 split cable glands are designed for routing and sealing cables with connectors. By assembling the two frame halves with the screws provided, the grommets provide sufficient pressure on the routed cables to obtain a high degree of strain relief. The KVT 80 can be fitted to a wall thickness from 1.5 mm to 10 mm. A flat rubber gasket is included in the shipment.

Advantages & benefits

- Insertion of pre-terminated cables
- Maintain manufacturer's warranty on pre-terminated cables
- Retrofittings, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Fast and easy mounting from the front
- Strain relief according to EN 62444

Note

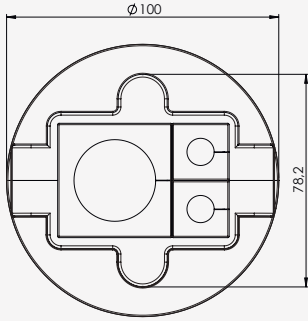
When mounting the KVT 80 on sheet metal, we recommend the following torque values:
1.5 mm sheet = 1 N m | 2 – 10 mm sheet = 1.5 N m

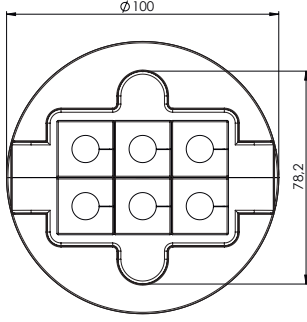
Specifications

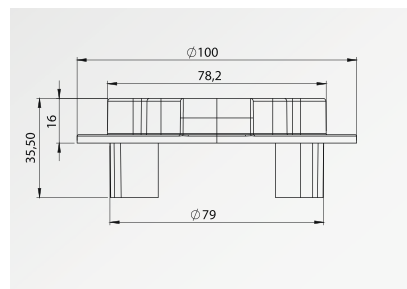
| | |
|-------------------|--------------------------------------------------------------------------------------------|
| Material | Polycarbonate (PC) |
| Colour | ■ grey (similar RAL 7035) ■ black |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -30°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Cut-out dimension | 80 mm in diameter |

Accessories

| | |
|----------------|---------|
| Cable grommets | 74 - 89 |
| ST Plugs | 85 |

| Description | Type | Order No. | Grommets KT small large | PU |
|------------------------------------------------------------------------------------|----------|--------------------|---------------------------|----|
|  | KVT 80 3 | ■ 45236 ■ 45239 | 2 1 | 1 |

| | | | | |
|-------------------------------------------------------------------------------------|----------|--------------------|-----|---|
|  | KVT 80 6 | ■ 45237 ■ 45238 | 6 - | 1 |
|-------------------------------------------------------------------------------------|----------|--------------------|-----|---|



KVT-SNAP

Split pluggable cable glands



KVT is a circular split frame for quick and easy installation of cables with connectors or complete cable harnesses.

By using the model KVT-SNAP, cables can be routed through thick walls (> 5 mm) e.g. into cast terminal boxes without the use of tools. A sealing ring is included in the shipment.

Assembly

- The snap ring is screwed into metric thread or tapped into the cut-out (it can also be fastened with a locknut, which is included in the shipment of KVT-SNAP 63)
- Once the snap ring is affixed to the housing the equipped KVT is simply pushed into it. Fast and easy installation!

Specifications

| | |
|-------------------|--------------------------------------------------------------------------------------------|
| Material | Polycarbonate (PC) |
| Colour | □ grey (similar RAL 7035) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529) |
| Temperature | -30°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Cut-out dimension | Metric cut-outs |

Accessories

| | |
|------------------|---------|
| Cable grommets | 74 - 89 |
| KVT-EMC Brackets | 263 |
| KGM Locknuts | 346 |
| ST Plugs | 85 |

| Description | Type | Order No. | Grommets small large | Thread Thread length | PU |
|-------------|------------------------|--------------------|------------------------|----------------------------|----|
| | KVT-SNAP 32 | 45130 | 1 - | M32 × 1.5 Length: 11 mm | 10 |
| | KVT-SNAP 40 | 45134 | 1 - | M40 × 1.5 Length: 11 mm | 10 |
| | KVT-SNAP 63 4 + KGM 63 | 45152 | 4 - | M63 × 1.5 Length: 11 mm | 5 |
| | KVT-SNAP 63 1 + KGM 63 | 45154 | - 1 | M63 × 1.5 Length: 11 mm | 5 |
| | KGM 32 | □ 52275 ■ 52285 | PA | M32 × 1.5 | 10 |
| | KGM 40 | □ 52276 ■ 52286 | PA | M40 × 1.5 | 10 |
| | KGM 63 | □ 52278 ■ 52288 | PA | M63 × 1.5 | 5 |

Single-piece packaging units are available on request.



* Only valid for grey product types

KVT-W90

for 90° cable transit,
split cable glands



The split KVT-W90 cable glands are used to insert and seal pre-terminated cables and conduits at a 90° angle. In particular, the KVT 50-W90 is perfectly suited to hold corrugated or smooth hoses. A large number of cable entry grommets is available to the user.

Polyamide standard locknuts as well as a sealing ring are included in the shipment. Split locknuts can be ordered separately.

Advantages & benefits

- Installation at an angle of 90° to the cabinet
- Insertion of pre-terminated cables and conduits
- Maintain manufacturer's warranty on pre-terminated cables
- Suitable for metric cut-outs

Specifications

| | |
|------------------------|--------------------------------------------------------------------------------------------|
| Material | Polycarbonate (PC) |
| Colour | <input type="checkbox"/> grey (similar RAL 7035) <input type="checkbox"/> black |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529) |
| Temperature Properties | -30°C to +100°C (static) Halogen-free, silicone-free |
| Cut-out dimension | Metric cut-outs |

Accessories

| | |
|------------------|---------|
| Cable grommets | 74 - 89 |
| KVT-EMC Brackets | 263 |
| KGM Locknuts | 346 |
| ST Plugs | 85 |

| Description | Type | Order No. with locknut | Grommets small large | Thread Thread length | PU |
|-------------|--------------|------------------------------------------------------------------|------------------------|------------------------------|----|
| | KVT 32-W90 | <input type="checkbox"/> 45404 <input type="checkbox"/> 45406 | 1 - | M32 × 1.5 Length: 11.5 mm | 10 |
| | KVT 50 4-W90 | <input type="checkbox"/> 45424 <input type="checkbox"/> 45426 | 4 - | M50 × 1.5 Length: 11.5 mm | 5 |
| | KVT 50 1-W90 | <input type="checkbox"/> 45414 <input type="checkbox"/> 45416 | - 1 | M50 × 1.5 Length: 11.5 mm | 5 |

Single-piece packaging units are available on request.

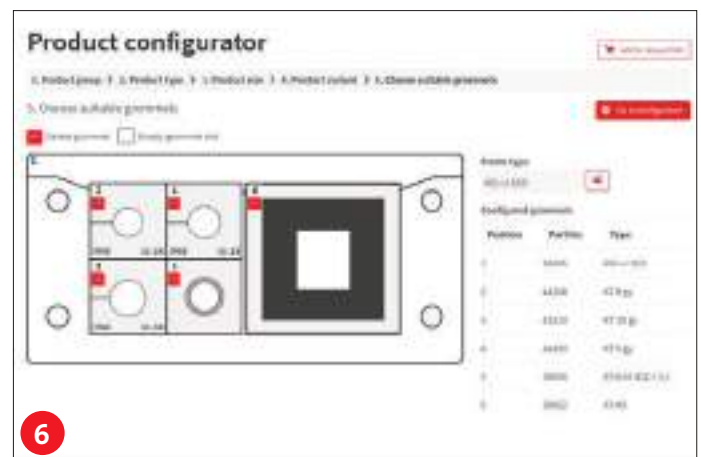
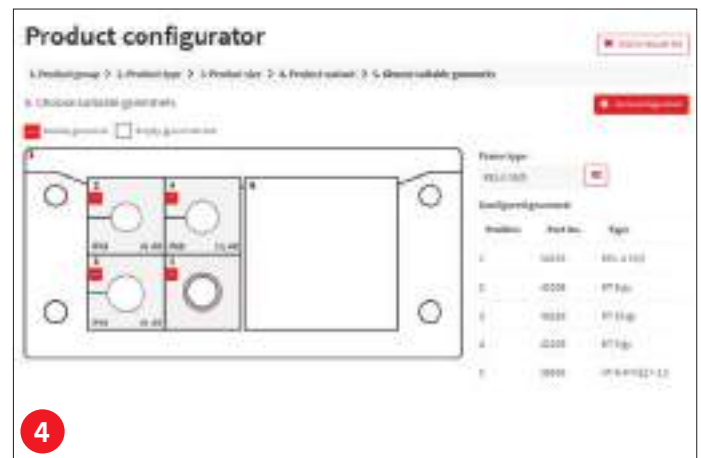
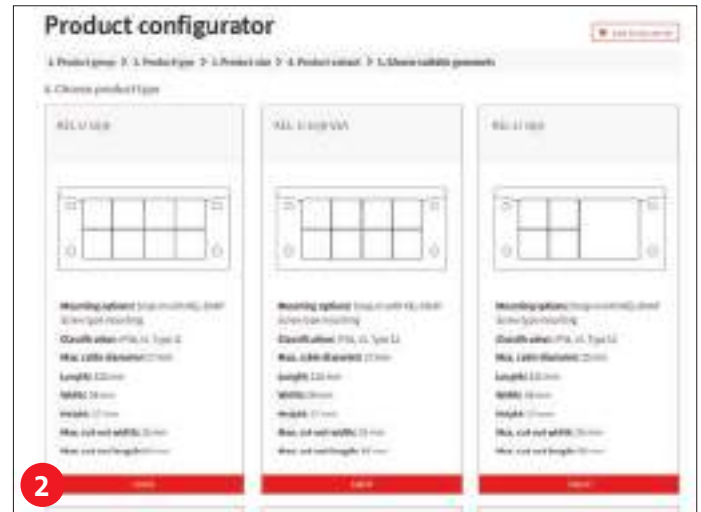




The practical product configurator

With the product configurator, you can now assemble your cable entry system with the required cable or adapter grommets.

Check it out: www.icotek.com/en/config



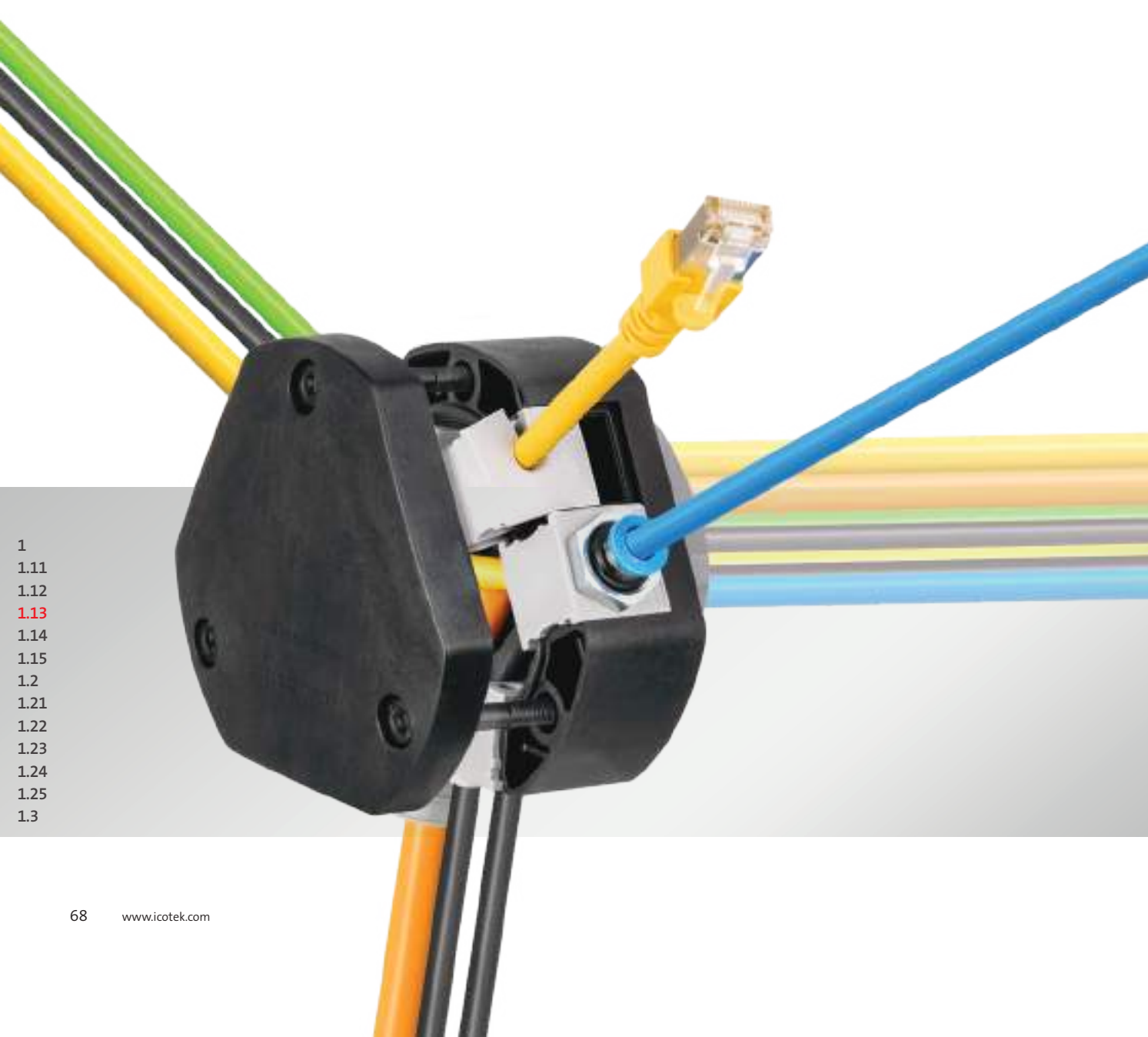
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1.13 Distribution Box for 360° cable entry

The 360° cable entry
for cables with and without connectors

With the distribution box, centrally routed cables can be distributed 360° in any direction.

Cables with and without connectors can be routed, sealed with IP54 (certified according to DIN EN 60529) and at the same time strain-relieved according to DIN EN 62444.



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Easy distribution of cables in a 360° angle



Innovative design



Metric thread, suitable for metric cut-outs M32 – M75



Material Polyamide, Polypropylene

High cable density, wide variety of grommets



Hexagonal locknut included in the delivery



Separate flat gasket included in the delivery

Strain relief according to EN 62444



Use of the proven KT grommet system as well as IMAS-CONNECT™ adapter grommets

Screw-on cover, captive screws



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DB Distribution Box

360° cable entry
with IP54 rating



With the new distribution box, centrally routed cables can be distributed 360° in any direction.

Cables with and without connectors can be routed, sealed with IP54 (certified according to DIN EN 60529) and at the same time strain-relieved according to DIN EN 62444. Up to 48 cables can be routed and a very high cable density achieved by using multiple grommets.

The basic triangular shape provides maximum space for cable entry. This allows the use of cables with different bending radii.

The distribution box fits standard metric cut-outs M32 – M75 and is secured with a locknut which is included in the delivery. The screw-on cover and the use of split cable grommets make it easy to retrofit or service at a later date.

Advantages

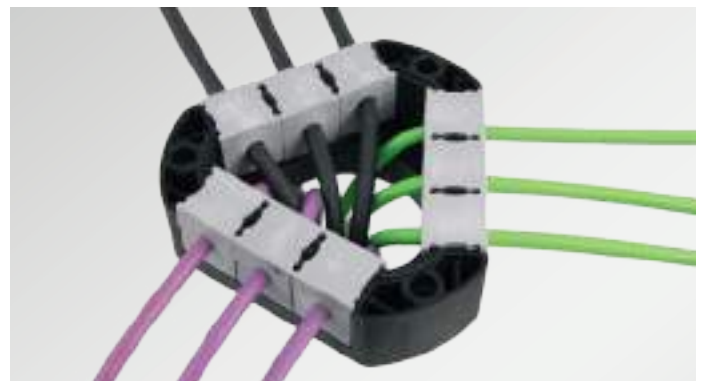
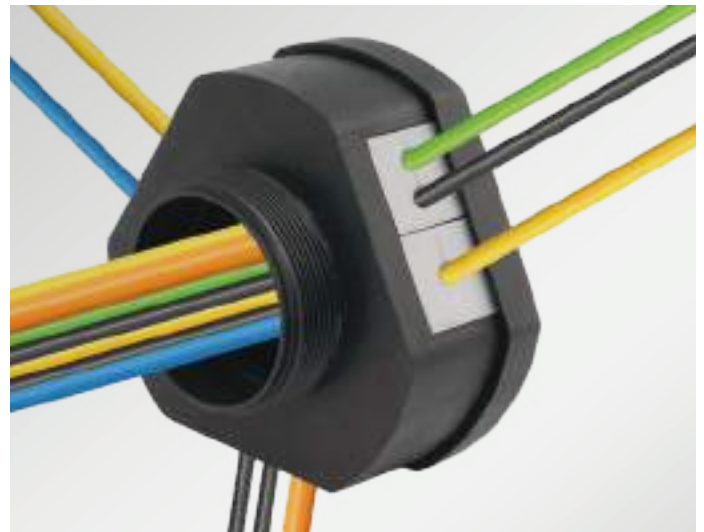
- Fast and easy assembly
- Easy distribution of cables in a 360° angle
- Warranty on pre-terminated cables remains
- Retrofittings, repairs and maintenance can be done much more easily and quickly
- Suitable for metric cut-outs M32 – M75
- Strain relief according to EN 62444
- Use of the proven KT grommet system
- High cable density, wide variety of grommets
- High flexibility with the use of multi-range and IMAS-CONNECT™ adapter grommets
- Hexagonal locknut included in the delivery
- High stability, vibration resistant
- Mechanical protection of the central entry point
- Captive screws

Specifications

| | |
|-------------|------------------------------------|
| Material | Polyamide (PA), Polypropylene (PP) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 (certified acc. to EN 60529) |
| Temperature | -40°C to +110°C (static) |
| Properties | Halogen-free, silicone-free |
| Frame depth | 39,4 mm |

Accessories

| | |
|-------------------------------|-----------|
| KT cable grommets | 74 - 89 |
| IMAS-CONNECT adapter grommets | 90 - 101 |
| TE-M | 334 - 337 |

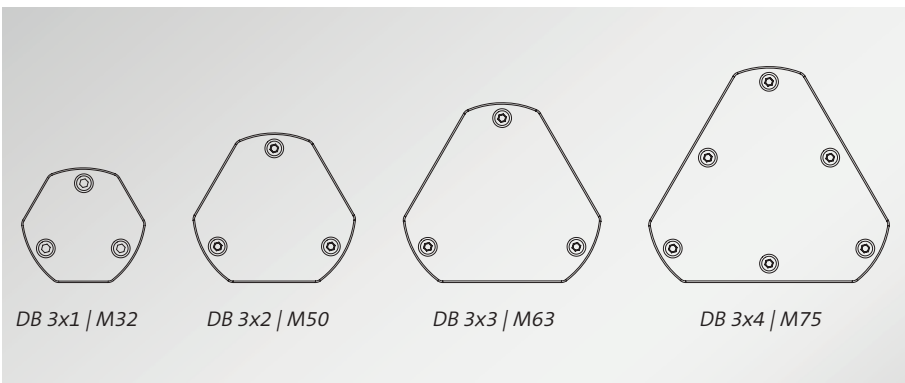


DB Distribution Box

360° cable entry



| Type | Grommets small | For max. no. of cables | Cut-out | Thread length | Dimensions L x B | Mounting height | Order No. | PU |
|--------------|----------------|------------------------|---------|---------------|------------------|-----------------|-----------|----|
| DB 3x1 M32 | 3 | 12 | M32 | 13,6 mm | 72 x 67 mm | 39,4 mm | 54300 | 5 |
| DB 3x2 M50 | 6 | 24 | M50 | 13,6 mm | 94,5 x 87 mm | 39,4 mm | 54301 | 5 |
| DB 3x3 M63 | 9 | 36 | M63 | 13,6 mm | 115 x 104 mm | 39,4 mm | 54302 | 1 |
| DB 3x4 M75 | 12 | 48 | M75 | 13,6 mm | 140 x 125 mm | 39,4 mm | 54303 | 1 |



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1.14 Cable grommets for the KT system

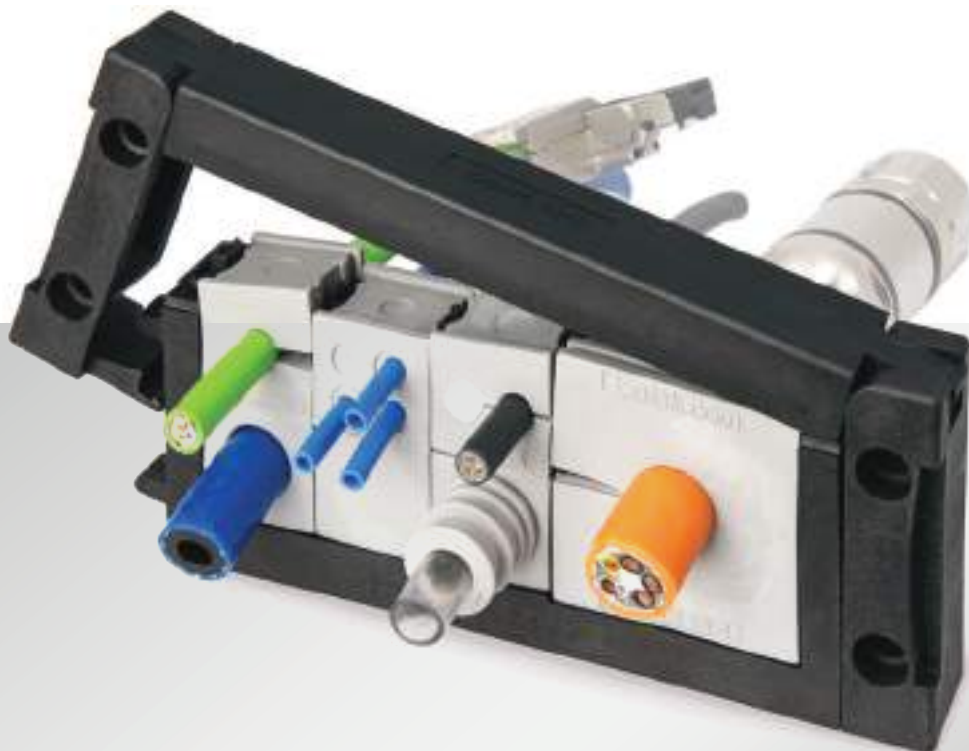
Cable grommets KT are used with the following cable entry components:

- KEL cable entry frames
- KVT split cable glands
- DB Distribution Box

In combination with KEL-ER cable entry frames and KVT-ER cable glands the KT single-hole grommets enable a sealing of the cables with up to IP66/IP68 and UL Type 4X.

In principle, there are two types of cable grommets: split and non-split grommets. The split grommets are suitable for routing cables with connectors, the non-split ones are used for routing non-terminated cables.

Electrical, pneumatic or hydraulic lines as well as corrugated conduits and hoses can be easily routed, sealed and strain relieved using split cable entry systems.



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Overview of cable entry systems and matching grommets

| Product | Split cable grommets for cables with connectors | | | | Non-split cable grommets for cables without connectors | | | |
|-----------|-------------------------------------------------|----------------------|-------------------------|------------------|--------------------------------------------------------|-------------------|------------------|-------|
| | KT small single-hole | KT large single-hole | KT small multi, special | KTMB multi-range | KT-DPF multi-range | KT-SC multi-range | KTMB multi-range | KT-DT |
| KEL-ER | ● | ● | ● | ● | ● | ● | ● | ● |
| KEL-U | ● | ● | ● | ● | ● | ● | ● | ● |
| KEL-FA | ● | ● | ● | ● | ● | ● | ● | ● |
| KEL | ● | ● | ● | ● | ● | ● | ● | ● |
| KEL-FG-ER | ● | ● | ● | ● | ● | ● | ● | ● |
| KEL-FG | ● | ● | ● | ● | ● | ● | ● | ● |
| KEL-FW | ● | ● | ● | ● | ● | ● | ● | ● |
| KVT-ER | ● | ● | ● | ● | ● | ● | ● | ● |
| KVT | ● | ● | ● | ● | ● | ● | ● | ● |
| KVT 80 | ● | ● | ● | ● | ● | ● | ● | ● |
| KVT-SNAP | ● | ● | ● | ● | ● | ● | ● | ● |
| KVT W90 | ● | ● | ● | ● | ● | ● | ● | ● |
| DB | ● | – | ● | ● | ● | ● | ● | ● |

● Not recommended, as the degree of protection would be reduced to IP54

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1.14 Cable grommets for the KT system

Split cable grommets for cables with connectors



Split cable grommets, single

Protection up to IP66/IP68 and UL Type 4X for cable diameters 1 to 35 mm

KT

76 – 77



Split multi-range cable grommets

IP54 protection and UL Type 12 for cable diameters 4 to 29 mm

KTMB

78 – 79



Split cable grommets, multi and special

IP54 protection and UL Type 12 for cable diameters 1 to 8 mm

KT multi

80

Non-split cable grommets for cables without connectors



Multi-range cable grommets

IP54 protection for cable diameters 3 to 26 mm

KT-DPF

81

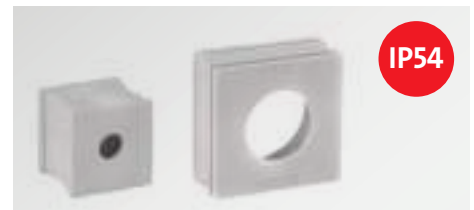


Multi-range cable grommets

IP54 protection for cable diameters 4 to 28 mm

KT-SC

82



Multi-range cable grommets

IP54 protection for cable diameters 2.5 to 33 mm

KTMB

83



Membrane cable grommets

IP54 protection, high cable density for cable diameters up to 14.5 mm

KT-DT

844

Plugs for cable grommets



Plugs and cover plugs
Plugs for cable grommets,
Cover plugs for cable entry frames

85 – 86



Plugs for membranes

ST-B

171

IMAS-CONNECT™



IMAS-CONNECT™
Modular adapter system
for the KT system

90 – 101

KT ServiceBox



KT Servicebox
Service box for cable grommets

87



KT Servicebox
Service box for cable grommets

88 – 89

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KT

Split cable grommets, small, single



Split cable grommets KT are used with the following cable entry components:

- KEL cable entry frames
- KVT split cable glands
- DB Distribution Box

They are designed for cable diameters from 1 to 17 mm. Blank grommets can seal unused grommet spaces.

When installing the small grommets in multiple rows, the flat sides should be facing each other. This allows the flat sides to match up and provide a secure seal.

Advantages

- Routing of cables with and without connectors
- High degree of protection up to IP68
- High strain relief in accordance with EN 62444 when a suitable cable entry is selected
- Available for a wide range of cable diameters

Specifications KT grey

| | |
|----------------|-----------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | up to IP66/IP68 |
| UL type rating | up to UL type 4X (acc. to UL 50E) |
| Temperature | - 40°C to + 100°C (static) |
| Properties | Halogen-free, silicone-free |

Specifications KT black

| | |
|-------------|------------------------------------------------------------------------------------|
| Material | Elastomer |
| Flame class | UL 94 HB |
| IP rating | up to IP66/IP68 |
| Temperature | - 30°C to + 90°C (static) |
| Properties | Silicone-free Higher chemical resistance e.g. with aggressive oils, coolants |

Accessories

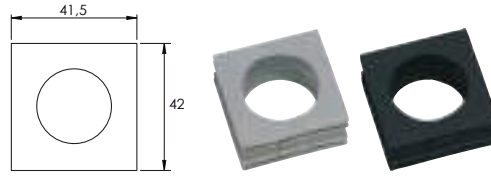
ST Plugs 85

| Description | Type | Clamping range | IP rating | Compatible ST plugs | Order No grey | Order No black | PU |
|-------------|--------|----------------|-----------|---------------------|---------------|----------------|----|
| | KT 1 | 1 – 2 mm | IP68 | ST 1 | 39941 | 39943 | 10 |
| | KT 2 | 2 – 3 mm | IP68 | ST 2 | 39934 | 41302 | 10 |
| | KT 3 | 3 – 4 mm | IP68 | ST 3 | 41203 | 41303 | 10 |
| | KT 4 | 4 – 5 mm | IP68 | ST 4 | 41204 | 41304 | 10 |
| | KT 5 | 5 – 6 mm | IP68 | ST 5 | 41205 | 41305 | 10 |
| | KT 6 | 6 – 7 mm | IP68 | ST 6 | 41206 | 41306 | 10 |
| | KT 7 | 7 – 8 mm | IP68 | ST 7 | 41207 | 41307 | 10 |
| | KT 8 | 8 – 9 mm | IP68 | ST 8 | 41208 | 41308 | 10 |
| | KT 9 | 9 – 10 mm | IP68 | ST 9 | 41209 | 41309 | 10 |
| | KT 10 | 10 – 11 mm | IP68 | ST 10 | 41210 | 41310 | 10 |
| | KT 11 | 11 – 12 mm | IP68 | ST 11 | 41211 | 41311 | 10 |
| | KT 12 | 12 – 13 mm | IP68 | ST 12 | 41212 | 41312 | 10 |
| | KT 13 | 13 – 14 mm | IP68 | ST 13 | 41213 | 41313 | 10 |
| | KT 14 | 14 – 15 mm | IP68 | ST 14 | 41214 | 41314 | 10 |
| | KT 15 | 15 – 16 mm | IP68 | ST 15 | 41215 | 41315 | 10 |
| | KTs 16 | 16 mm | IP54 | ST 16 | 39901 | 39912 | 10 |
| | KTs 17 | 17 mm | IP54 | ST 17 | 39900 | 39913 | 10 |
| | BTK | Blank grommet | IP68 | – | 41251 | 41351 | 10 |



KT

Split cable grommets, large, single



Split cable grommets KT are used with the following cable entry components:

- KEL cable entry frames
- KVT split cable glands

They are designed for cable diameters from 13 to 35 mm.

The adapter grommet ATG offers the possibility to accommodate a small cable grommet KT and thus reduce the clamping range down to 1 mm.

Advantages

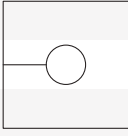
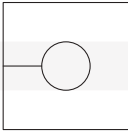
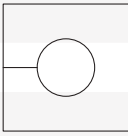
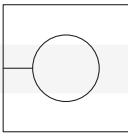
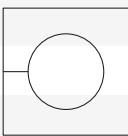
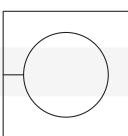
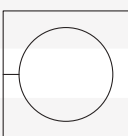

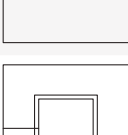
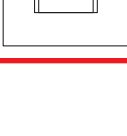



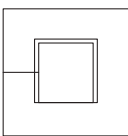
- Routing of cables with and without connectors
- High degree of protection up to IP68
- High strain relief in accordance with EN 62444 when a suitable cable entry is selected
- Available for a wide range of cable diameters

■ Specifications KT grey

| | |
|----------------|----------------------------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | KT round, single: up to IP66/IP68 ATG/BTG: IP54 |
| UL type rating | up to UL type 4X (acc. to UL 50E) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |

■ Specifications KT black

| | |
|-------------|------------------------------------------------------------------------------------|
| Material | Elastomer |
| Flame class | UL 94 HB |
| IP rating | KT round, single: up to IP66/IP68 ATG/BTG: IP54 |
| Temperature | -30°C to +90°C (static) |
| Properties | Silicone-free Higher chemical resistance e.g. with aggressive oils, coolants |

| Description | Type | Clamping range | IP rating | Compatible ST plugs | Order No grey | Order No black | PU |
|-------------------------------------------------------------------------------------|--------|-----------------|-----------|---------------------|---------------|----------------|----|
|  | KTG 13 | 13 – 14 mm | IP68 | ST 13 | 41263 | 41363 | 10 |
|  | KTG 14 | 14 – 15 mm | IP68 | ST 14 | 41264 | 41364 | 10 |
|  | KTG 15 | 15 – 16 mm | IP68 | ST 15 | 41265 | 41365 | 10 |
|  | KT 16 | 16 – 17 mm | IP68 | ST 16 | 41216 | 41316 | 10 |
|  | KT 17 | 17 – 18 mm | IP68 | ST 17 | 41217 | 41317 | 10 |
|  | KT 18 | 18 – 19 mm | IP68 | ST 18 | 41218 | 41318 | 10 |
|  | KT 19 | 19 – 20 mm | IP68 | ST 19 | 41219 | 41319 | 10 |
|  | KT 20 | 20 – 21 mm | IP68 | ST 20 | 41220 | 41320 | 10 |
|  | KT 21 | 21 – 22 mm | IP68 | ST 21 | 41221 | 41321 | 10 |
|  | KT 22 | 22 – 23 mm | IP68 | ST 22 | 41222 | 41322 | 10 |
|  | KT 23 | 23 – 24 mm | IP68 | ST 23 | 41223 | 41323 | 10 |
|  | KT 24 | 24 – 25 mm | IP68 | ST 24 | 41224 | 41324 | 10 |
| | KT 25 | 25 – 26 mm | IP68 | ST 25 | 41225 | 41325 | 10 |
| | KT 26 | 26 – 27 mm | IP68 | ST 26 | 41226 | 41326 | 10 |
| | KT 27 | 27 – 28 mm | IP68 | ST 27 | 41227 | 41327 | 10 |
| | KT 28 | 28 – 29 mm | IP68 | ST 28 | 41228 | 41328 | 10 |
| | KT 29 | 29 – 30 mm | IP68 | ST 29 | 41229 | 41329 | 10 |
| | KT 30 | 30 – 31 mm | IP68 | ST 30 | 41230 | 41330 | 10 |
| | KT 31 | 31 – 32 mm | IP68 | ST 31 | 41231 | 41331 | 10 |
| | KT 32 | 32 – 33 mm | IP68 | ST 32 | 41232 | 41332 | 10 |
| | KT 33 | 33 – 34 mm | IP68 | ST 33 | 41233 | 41333 | 10 |
| | KT 34 | 34 – 35 mm | IP68 | ST 34 | 41234 | 41334 | 10 |
|  | BTG | Blank grommet | IP68 | – | 41252 | 41352 | 10 |
|  | ATG | Adapter grommet | IP54 | – | 41253 | 41353 | 10 |

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*Only valid for grey product types | **4X for indoor use only

KTMB5

Split multi-range grommets, small



Cable grommets KTMB5 are used to route cables with and without connectors with the following cable entry components:

- KEL cable entry frames (KEL-U, KEL, KEL-FA, KEL-FG)
- KVT cable glands
- DB Distribution Box

The innovative membrane enables the routing of cables with diameters that can vary up to 3 mm.

The KTMB5 small allows for the routing of cable diameters from 4 to 12 mm.

The innovative wave cut and the flexible sealing lips make it possible to seal the cable with IP54/UL Type 12.

Advantages





- Routing of cables with and without connectors
- IP rating IP54
- Strain relief when a suitable cable entry is selected
- Large clamping range
- Only 4 grommets cover a clamping range from 4 to 12 mm
- Innovative wave cut for a better sealing
- Innovative membrane for high flexibility

Specifications KT grey

| | |
|-------------|------------------------------|
| Material | Elastomer |
| Flame class | UL 94-V0, self-extinguishing |
| IP rating | IP54 |
| Temperature | -40°C to +100°C (static) |
| Properties | Silicone free, halogen free |

Specifications KT black

| | |
|-------------|------------------------------------------------------------------------------------|
| Material | Elastomer |
| Flame class | UL 94 HB |
| IP rating | IP54 |
| Temperature | - 30°C to + 90°C (static) |
| Properties | Silicone-free Higher chemical resistance e.g. with aggressive oils, coolants |

| Description | Type | Clamping range | Compatible ST-B plugs | Order No grey | Order No black | PU |
|-----------------------------------------------------------------------------------|-------------|----------------|-----------------------|---------------|------------------|----|
|  | KTMB5 4-7 | 4 – 7 mm | ST-B 6 | 41380 | NEW 51380 | 10 |
|  | KTMB5 6-9 | 6 – 9 mm | ST-B 8 | 41381 | NEW 51381 | 10 |
|  | KTMB5 8-11 | 8 – 11 mm | ST-B 10 | 41382 | NEW 51382 | 10 |
|  | KTMB5 10-12 | 10 – 12 mm | ST-B 11 | 41383 | NEW 51383 | 10 |



i ST-B plug for the sealing of the perforated membrane



Detail of the wave cut



Also available in black

KTMB5

Split multi-range grommets, large



Cable grommets KTMB5 are used to route cables with and without connectors with the following cable entry components:

- KEL cable entry frames (KEL-U, KEL, KEL-FA, KEL-FG)
- KVT cable glands

The innovative membrane enables the routing of cables with diameters that can vary up to 3 mm.

The KTMB5 large allows for the routing of cable diameters from 12 to 29 mm.

The innovative wave cut and the flexible sealing lips make it possible to seal the cable with IP54/UL Type 12.

Advantages

- Routing of cables with and without connectors
- IP54 rating
- Strain relief when a suitable cable entry is selected
- Large clamping range
- Only 8 grommets cover a clamping range from 12 to 29 mm
- Innovative wave cut for a better sealing
- Innovative membrane for high flexibility

Specifications KT grey

| | |
|-------------|------------------------------|
| Material | Elastomer |
| Flame class | UL 94-V0, self-extinguishing |
| IP rating | IP54 |
| Temperature | -40°C to +100°C (static) |
| Properties | Silicone free, halogen free |

Specifications KT black

| | |
|-------------|------------------------------------------------------------------------------------|
| Material | Elastomer |
| Flame class | UL 94 HB |
| IP rating | IP54 |
| Temperature | - 30°C to + 90°C (static) |
| Properties | Silicone-free Higher chemical resistance e.g. with aggressive oils, coolants |

| Description | Type | Clamping range | Compatible ST-B plugs | Order No grey | Order No black | PU |
|-------------|-------------|----------------|-----------------------|---------------|------------------|----|
| | KTMB5 12-15 | 12 – 15 mm | ST-B 14 | 41384 | NEW 51384 | 10 |
| | KTMB5 14-17 | 14 – 17 mm | ST-B 16 | 41385 | NEW 51385 | 10 |
| | KTMB5 16-19 | 16 – 19 mm | ST-B 18 | 41386 | NEW 51386 | 10 |
| | KTMB5 18-21 | 18 – 21 mm | ST-B 20 | 41387 | NEW 51387 | 10 |
| | KTMB5 20-23 | 20 – 23 mm | ST-B 22 | 41388 | NEW 51388 | 10 |
| | KTMB5 22-25 | 22 – 25 mm | ST-B 24 | 41389 | NEW 51389 | 10 |
| | KTMB5 24-27 | 24 – 27 mm | ST-B 26 | 41390 | NEW 51390 | 10 |
| | KTMB5 26-29 | 26 – 29 mm | ST-B 28 | 41391 | NEW 51391 | 10 |



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KT

Split cable grommets, small, multi and special



Split cable grommets KT are used with the following cable entry components:

- KEL cable entry frames
- KVT split cable glands
- DB Distribution Box

KT multi-hole and special grommets enable a sealing of the cables with IP54 and UL Type 12.

When using double or quadruple grommets the cable density of cable entry frames and cable glands can be greatly increased. The multi-hole model range KT small is designed for cable diameters from 1 to 8 mm. icotek also offers special cable grommets for e.g. ASI lines. ATG adapter grommets provide the possibility to hold a small KT grommet to reduce the clamping range down to 1 mm.

When installing the small grommets in multiple rows, the flat sides should be facing each other. This allows the flat sides to match up and provide a secure seal.

Advantages

- Routing of pre-assembled cables through cable entry frames and split cable glands
- IP rating IP54
- Greatly increased cable density when using double or quadruple grommets
- High strain relief in accordance with EN 62444 when a suitable cable entry is selected
- Available for a wide range of cable diameters

Specifications KT grey

| | |
|----------------|-----------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 |
| UL type rating | up to UL type 12 (acc. to UL 50E) |
| Temperature | - 40°C to + 100°C (static) |
| Properties | Halogen-free, silicone-free |

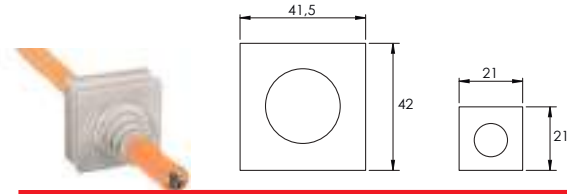
Specifications KT black

| | |
|-------------|------------------------------------------------------------------------------------|
| Material | Elastomer |
| Flame class | UL 94 HB |
| IP rating | IP54 |
| Temperature | - 30°C to + 90°C (static) |
| Properties | Silicone-free Higher chemical resistance e.g. with aggressive oils, coolants |

| Description | Type | Order No grey | Order No black | Clamping range | PU | |
|-------------|---------|------------------|-------------------|----------------|------------------------|----|
| | KT 2 x | KT 2 1 | 39942 | 39944 | 2× ø 1 mm | 10 |
| | | KT 2 2 | 39935 | 39936 | 2× ø 2 mm | 10 |
| | | KT 2 3 | 39939 | 39940 | 2× ø 3 mm | 10 |
| | | KT 2 4 | 39906 | 39907 | 2× ø 4 mm | 10 |
| | | KT 2 5 | 41200 | 39904 | 2× ø 5 mm | 10 |
| | | KT 2 6 | 41201 | 39905 | 2× ø 6 mm | 10 |
| | | KT 2 7 | 41202 | 39916 | 2× ø 7 mm | 10 |
| | | KT 2 8 | 39917 | 39918 | 2× ø 8 mm | 10 |
| | KT 4 x | KT 4 2 | 39937 | 39938 | 4× ø 2 mm | 10 |
| | | KT 4 3 | 39914 | 39915 | 4× ø 3 mm | 10 |
| | | KT 4 4 | 39909 | 39911 | 4× ø 4 mm | 10 |
| | | KT 4 5 | 39908 | 39910 | 4× ø 5 mm | 10 |
| | | KT 4 6 | 39932 | 39933 | 4× ø 6 mm | 10 |
| | KT ASI | KT-ASI | 39902 | 39903 | 1 ASI-cable | 10 |
| | | KT-ASI2 rl | 39922 | 39924 | 2 ASI-cables | 10 |
| | | KT-ASI2 lll | 39921 | 39923 | 2 ASI-cables | 10 |
| | KT oval | KT oval | 39930 | – | approx. 8 × 4 mm | 10 |
| | KT S1 | KT S1 | 39931 | – | | 10 |
| | KT tele | KT tele | 39929 | – | Telephone cable | 10 |
| | | KT tele1 | 41257 | – | Data cable RJ12 | 10 |
| | | KT tele2 | 41258 | – | Data cable RJ10 / RJ45 | 10 |

KT-DPF

Multi-range cable grommets, in pyramid shape, non-split



The multi-range KT-DPF grommets accept a wide range of cable diameters. A great benefit when the exact cable diameter is not known in advance. Due to the flexibility and unique pyramid shape, routing and flexible positioning of rigid cables is much easier compared to using conventional cable glands. It is recommended that additional strain relief be provided for the cables using a cable tie.

The KT-DPF small allows for the routing of cable diameters from 3 to 12 mm, the KT-DPF for diameters from 4 to 26 mm.

The KT-DPF grommets are not split and therefore only usable for cables without connectors.

Cutting of KT-DPF grommets: Cable diameter less 20%.

Advantages


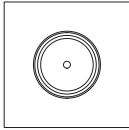
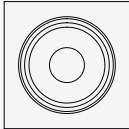
- Routing of cables without connectors through cable entry frames and split cable glands
- IP rating IP54
- High strain relief when a suitable cable entry is selected
- Large clamping range
- Only 3 grommets cover a clamping range from 3 to 26 mm
- Flexible even with rigid cables
- Ideal for wiring non pre-terminated cables locally
- Easy storage

Specifications KT grey

| | |
|----------------|-------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |

Specifications KT black

| | |
|-------------|------------------------------------------------------------------------------------|
| Material | Elastomer |
| Flame class | UL94-HB |
| IP rating | IP54 |
| Temperature | -30°C to +90°C (static) |
| Properties | Silicone-free Higher chemical resistance e.g. with aggressive oils, coolants |

| Description | Type | Order No ■ grey | Order No ■ black | Size KT | Clamping range | PU |
|------------------------------------------------------------------------------------|----------|--------------------|---------------------|----------|----------------|----|
|  | KT-DPF-A | 41260 | 41360 | KT small | 3 – 12 mm | 10 |
|  | KT-DPF-B | 41261 | 41361 | KT large | 4 – 18 mm | 10 |
|  | KT-DPF-C | 41262 | 41362 | KT large | 14 – 26 mm | 10 |



KMS Cable template

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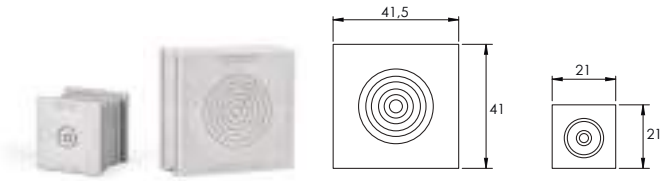
Order No. 39800



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KT-SC

Multi-range cable grommets, non-split



The KT-SC grommets accept a wide range of cable diameters. This is a great benefit when the exact cable diameter is not known in advance.

The single circular membrane can be peeled away to accommodate the specific diameter of the cable or hose. For this purpose, only a small hole between the rings needs to be pierced. Then the corresponding ring can be removed. The peeled-off area is always round, ensuring a secure seal around cable/hose.

The KT-SC cable grommet is based on the KT grommet and enables flexible routing and sealing (IP54) of electrical cables and pneumatic hoses with diameters from 4 to 28 mm.


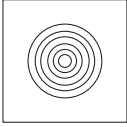
The KT-SC cable grommets are not split and therefore only usable for cables without connectors. However, it is possible to feed through cables with a pre-mounted cable lug.

Advantages

- Routing of cables without connectors through cable entry frames and split cable glands
- IP rating IP54
- Large clamping range
- Circular membranes can be peeled off easily
- Flexible even with rigid cables
- Ideal for wiring non pre-terminated cables locally
- Easy storage

Specifications

| | |
|----------------|-------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |

| Description | Type | Order No. | Size KT | Clamping range | PU |
|-----------------------------------------------------------------------------------|-------------|-----------|----------|----------------|----|
|  | KT-SC small | 41490 | KT small | 4 – 12 mm | 10 |
|  | KT-SC large | 41485 | KT large | 5 – 28 mm | 10 |



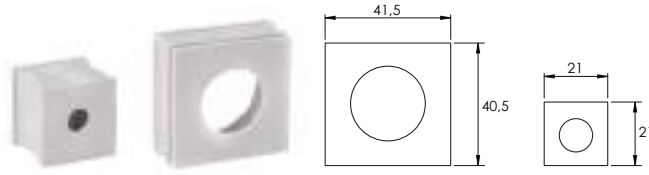
KMS Cable template

Page 87
Order No. 39800



KTMB

Multi-range cable grommets, non-split



The KTMB grommets accept a wide range of cable diameters. A great benefit when the exact cable diameter is not known in advance.

The KTMB grommets are not split and therefore only usable for cables without connectors.

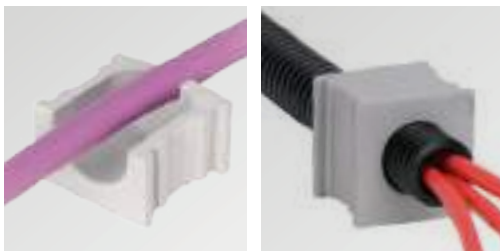
The model range KTMB small covers a diameter range from 2.5 to 16 mm, the model range KTMB large covers a diameter range from 13 to 33 mm.

Advantages

- Routing of cables without connectors through cable entry frames and split cable glands
- IP rating IP54
- Ideal for wiring non pre-terminated cables locally
- Easy storage

Specifications

| | |
|----------------|-------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |



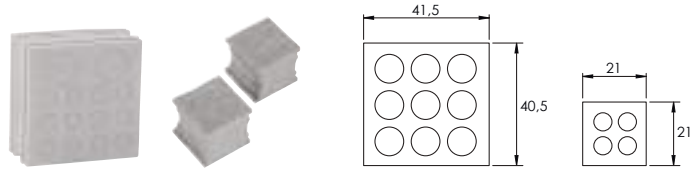
Cross section KTMB

| Description | Type | Order No. | Size KT | Clamping range | PU |
|-------------------------------------------------------------------------------------|--------|-----------|----------|----------------|----|
|  | KTMB-A | 41432 | KT small | 2.5 – 6.5 mm | 10 |
|  | KTMB-B | 41434 | KT small | 4 – 7.5 mm | 10 |
|  | KTMB-C | 41436 | KT small | 6.5 – 10 mm | 10 |
|  | KTMB-D | 41438 | KT small | 9.5 – 13 mm | 10 |
|  | KTMB-E | 41440 | KT small | 13 – 16 mm | 10 |
|  | KTMB-G | 41460 | KT large | 13 – 18 mm | 10 |
|  | KTMB-H | 41465 | KT large | 18 – 23 mm | 10 |
|  | KTMB-I | 41470 | KT large | 23 – 28 mm | 10 |
|  | KTMB-J | 41475 | KT large | 28 – 33 mm | 10 |
|  | KTMB-K | 41480 | KT large | 2x 13 – 18 mm | 10 |

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KT-DT

Membrane cable grommets, non-split



The KT-DT cable grommets can be used anywhere where a large number of electrical, pneumatic or hydraulic lines must be routed and sealed with IP54. By using the KT-DT grommets, the cable density can be significantly increased.

KT-DT grommets are compatible with split cable entry frames, such as KEL-U, KEL and KEL-FG. The routing of cables with and without preassembled connectors in one cable entry frame can thus be easily combined.

KT-DT 1 – KT-DT 5 grommets are designed to fit in KT large grommet spaces. KT-DT 7 and KT-DT 8 grommets are designed to fit in KT small grommet spaces.

The KT-DT grommets are also perfectly suitable for the assembly of subsequently terminated cable harnesses.

Advantages

- Combination of routing pre-terminated cables and cables without connectors with one cable entry frame
- IP54 rating
- High cable density
- Enables sub-assembly of cable harnesses

Specifications

| | |
|----------------|-------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | - 40°C to + 100°C (static) |
| Properties | Halogen-free, silicone-free |

Accessories

| | |
|------------|-----|
| ST-B Plugs | 171 |
|------------|-----|

| Description | Type | Order No. | Number of cables | PU |
|-------------|---------|-----------|-----------------------------------------------------|----|
| | KT-DT 1 | 41500 | 12× max. 6.5 mm 2× max. 12.2 mm | 10 |
| | KT-DT 2 | 41510 | 16× max. 7.1 mm | 10 |
| | KT-DT 3 | 41520 | 4× max. 6.5 mm 3× max. 9.5 mm 3× max. 11.3 mm | 10 |
| | KT-DT 4 | 41530 | 9× max. 9.5 mm | 10 |
| | KT-DT 5 | 41540 | 4× max. 14.5 mm 1× max. 9.5 mm | 10 |
| | KT-DT 7 | 41550 | 4× max. 6 mm | 10 |
| | KT-DT 8 | 41552 | 2× max. 7 mm 2× max. 4 mm | 10 |



ST

Plugs for cable grommets



Plugs are used to close either KT or QT grommets which are not equipped with cables. IP ratings of the grommets remain.

Perfect for applications where cables have been removed or might be routed at a later stage.

Advantages & benefits

- Sealing unused cable grommets

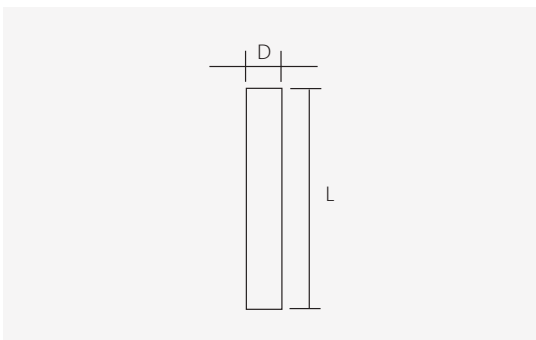
Specifications

| | |
|----------------|-------------------------------|
| Material | Polyamide (PA), white |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP rating of grommets remains |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -40°C to +120°C |
| Properties | Halogen-free, silicone-free |

Compatible with

| | |
|-------------------|-----------|
| KT Cable grommets | 74 - 89 |
| QT Cable grommets | 118 - 119 |

| Type | Order No. | Diameter D | Length L | PU |
|--------|-----------|------------|----------|----|
| ST 1 | 42900 | 1 mm | 25 mm | 25 |
| ST 2 | 42909 | 2 mm | 25 mm | 25 |
| ST 3 | 42901 | 3 mm | 25 mm | 25 |
| ST 4 | 42908 | 4 mm | 25 mm | 25 |
| ST 5 | 42906 | 5 mm | 25 mm | 25 |
| ST 6 | 42903 | 6 mm | 25 mm | 25 |
| ST 7 | 42905 | 7 mm | 25 mm | 25 |
| ST 8 | 42899 | 8 mm | 20 mm | 25 |
| ST 9 | 42897 | 9 mm | 20 mm | 25 |
| ST 10 | 42895 | 10 mm | 20 mm | 25 |
| ST 11 | 42893 | 11 mm | 20 mm | 25 |
| ST 12 | 42891 | 12 mm | 20 mm | 25 |
| ST 13 | 42889 | 13 mm | 20 mm | 25 |
| ST 14 | 42887 | 14 mm | 20 mm | 25 |
| ST 15 | 42885 | 15 mm | 20 mm | 25 |
| ST 16 | 42883 | 16 mm | 20 mm | 25 |
| ST 17 | 42881 | 17 mm | 20 mm | 25 |
| ST ASI | 42877 | – | 25 mm | 25 |



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Cover plugs for cable entry frames



The openings at the fastening points of the cable entry frames can be closed with the cover plugs.

There are two versions: One version to cover the openings when using threaded bushings, one to cover the screws. The cover plugs can be used with the products of the KEL series.

Advantages

- Simple closing of the openings at the fastening points of the KEL
- Smooth finish on the frame surface
- No dirt recesses

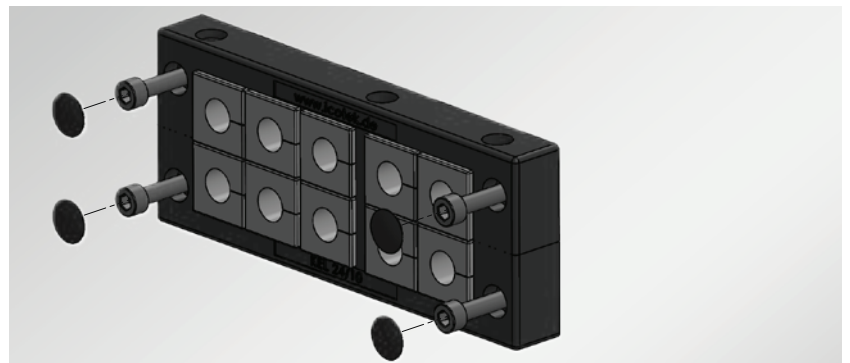
Specifications

| | |
|-------------|----------------------------------------|
| Material | Polyethylene (PE) |
| Temperature | Continuous operating temperature +70°C |
| Properties | Higher chemical resistance |

| Description | Order No. | PU |
|-----------------------------------------------------------|-----------|-----|
| Cover plugs A black for threaded bushings, for KEL | ■ 99142 | 100 |
| Cover plugs B black for M5 DIN 912 Screws, for KEL | ■ 99200 | 40 |



When fastening from the rear using a threaded bushing, an opening is created at the front at the fastening points. These can be closed with the **cover plugs A** in black (Order No. 99142).



When fastening from the front by means of screws, the openings at the screw heads can be closed with the **cover plugs B** in black (order no. 99200). The cover plugs can only be used for M5 DIN 912 screws.



KT ServiceBox

Service box for cable grommets



Convenient – everything available right away!

The KT ServiceBox is perfect for installations and service calls. It ensures your KT grommets are readily available.

Content*

Cable grommets, small:

- 110 KT for cables 1 – 17 mm
- 10 BTK blank grommets
 - 2 KTMB multi-range grommets
 - 8 KT-DPF multi-range grommets
- 1 KT-ASI for ASI-Bus cables
- AT-K-M 12x1.5

Cable grommets, large:

- 4 KT for cables 16 - 35 mm
- 3 BTG blank grommets / ATG adapter grommets
- 2 KTMB multi-range grommets
- 2 KT-DT multi-membrane grommets
- 2 KT-DPF multi-range grommets
- 2 KT-SC
- AT-M 12x1.0

Accessories:

- 1 Cable entry frame KEL-U 10|3
- 1 Cable entry frame KEL-E3
- 1 KVT split cable gland
- 1 KZL strain relief plate

- 1 Cable template

* Subject to alterations



| Description | Order No. | PU |
|---------------|-----------|----|
| KT ServiceBox | 88001 | 1 |

KMS

Cable template

The correct size of the KT grommets can easily be determined by using the cable template.

- Determining the diameter of the cable using the cable template
- Selecting the KT grommets according to the data on the cable template

Cable templates can also be ordered separately.



| Description | Order No. | PU |
|----------------|-----------|----|
| Cable template | 39800 | 1 |

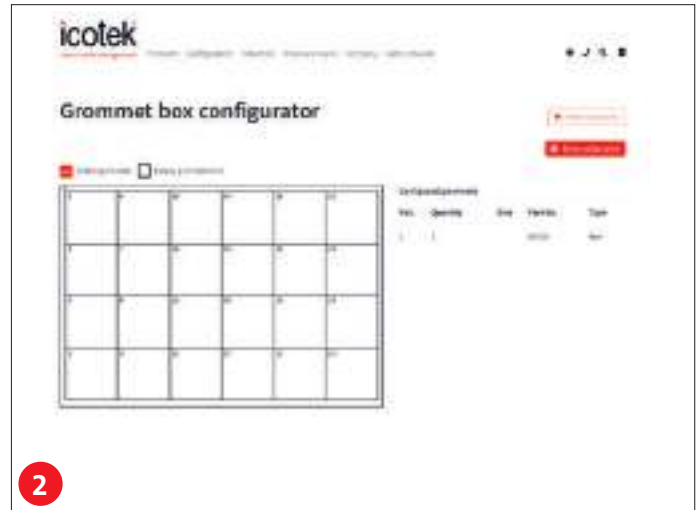
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Compile your own ServiceBox? Now it's easy with the grommet box configurator!

No more searching in vain for the right grommet: Now the assortment cases for different types and sizes of cable grommets of the KT or the QT series can be configured individually. So the perfect grommets are always at hand.

Start the configurator: www.icotek.com/en/config/626044





The practical product configurator

With the product configurator, you can now assemble your cable entry system with the required cable or adapter grommets.

Check it out: www.icotek.com/en/config



Product configurator

1. Product group > 2. Product type > 3. Product size > 4. Product variant > 5. Choose suitable grommets

1. Choose product group

1 Cable entry system for cables with 10mm/12mm

Integrates standard grommet based cable entry systems with grommets in order to assemble cable entry systems for use in a standard cable entry system. This system can be used for cables with 10mm and 12mm diameters.

2 Cable grommet for cables with 10mm/12mm

2 Cable grommet for cables with 10mm/12mm diameters. The grommet is made of high quality plastic and is suitable for use in a standard cable entry system. The grommet is made of high quality plastic and is suitable for use in a standard cable entry system.

3 EMC cable grommet system

EMC cable grommet system for cables with 10mm/12mm diameters. The grommet is made of high quality plastic and is suitable for use in a standard cable entry system. The grommet is made of high quality plastic and is suitable for use in a standard cable entry system.

Product configurator

1. Product group > 2. Product type > 3. Product size > 4. Product variant > 5. Choose suitable grommets

2. Choose product type

ALL 100

Mounting system for mounting cable entry systems. Max. cable diameter: 10mm, Type 1. Max. cable diameter: 10mm, Type 1. Length: 120mm, Width: 120mm, Height: 120mm. Max. cable diameter: 10mm, Type 1. Max. cable diameter: 10mm, Type 1. Max. cable diameter: 10mm, Type 1.

ALL 100 VVA

Mounting system for mounting cable entry systems. Max. cable diameter: 10mm, Type 1. Max. cable diameter: 10mm, Type 1. Length: 120mm, Width: 120mm, Height: 120mm. Max. cable diameter: 10mm, Type 1. Max. cable diameter: 10mm, Type 1. Max. cable diameter: 10mm, Type 1.

ALL 1100

Mounting system for mounting cable entry systems. Max. cable diameter: 10mm, Type 1. Max. cable diameter: 10mm, Type 1. Length: 120mm, Width: 120mm, Height: 120mm. Max. cable diameter: 10mm, Type 1. Max. cable diameter: 10mm, Type 1. Max. cable diameter: 10mm, Type 1.

Product configurator

1. Product group > 2. Product type > 3. Product size > 4. Product variant > 5. Choose suitable grommets

3. Choose suitable grommets

| Position | Part No. | Type |
|----------|----------|---------|
| 1 | 1000 | 10 x 10 |
| 2 | 1000 | 10 x 10 |
| 3 | 1000 | 10 x 10 |
| 4 | 1000 | 10 x 10 |
| 5 | 1000 | 10 x 10 |

Product configurator

1. Product group > 2. Product type > 3. Product size > 4. Product variant > 5. Choose suitable grommets

3. Choose suitable grommets

Product type: ALL 100

| Position | Part No. | Type |
|----------|----------|---------|
| 1 | 1000 | 10 x 10 |
| 2 | 1000 | 10 x 10 |
| 3 | 1000 | 10 x 10 |
| 4 | 1000 | 10 x 10 |
| 5 | 1000 | 10 x 10 |

Product configurator

1. Product group > 2. Product type > 3. Product size > 4. Product variant > 5. Choose suitable grommets

3. Choose suitable grommets

| Position | Part No. | Type |
|----------|----------|---------|
| 1 | 1000 | 10 x 10 |
| 2 | 1000 | 10 x 10 |
| 3 | 1000 | 10 x 10 |
| 4 | 1000 | 10 x 10 |
| 5 | 1000 | 10 x 10 |

Product configurator

1. Product group > 2. Product type > 3. Product size > 4. Product variant > 5. Choose suitable grommets

3. Choose suitable grommets

Product type: ALL 100

| Position | Part No. | Type |
|----------|----------|---------|
| 1 | 1000 | 10 x 10 |
| 2 | 1000 | 10 x 10 |
| 3 | 1000 | 10 x 10 |
| 4 | 1000 | 10 x 10 |
| 5 | 1000 | 10 x 10 |

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1.15 Modular adapter system IMAS-CONNECT™ for the KT system

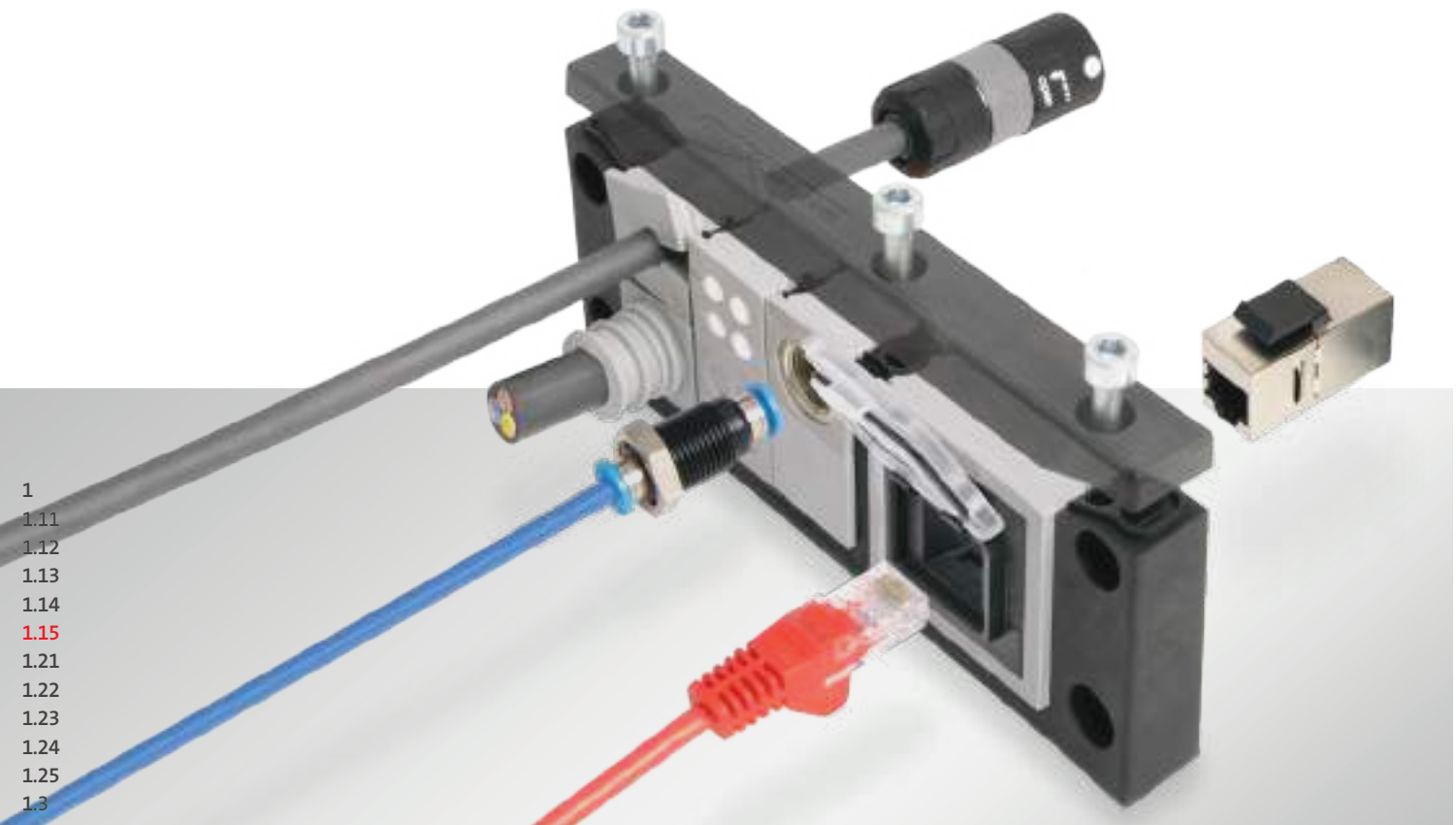


Simply configure the most individual cable entry in the world

The IMAS-CONNECT™ adapter system is a modular designed grommet system for mounting metric connectors, PushPull modules, Keystone couplers, hose fittings, pressure compensation elements and much more.

By utilising the modular adapter system, the cable entry frame becomes a hybrid system. Pre-terminated and standard cables or hoses can be routed. At the same time the system serves as a unique interface for all kinds of connectors. This means that only one interface or cut-out is required for various cables and connections.

The elastomer grommets with polyamide body fit perfectly into the icotek cable entry frames e.g. KEL-U, KEL-ER, KEL-FG and comply with protection classes IP54 to IP66.



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IP66

Adapter grommet, small with threaded insert

AT-K-M | AT-K-Z

92



IP65

Adapter grommet, large with metric inner thread

AT-M

93



IP65

Adapter grommet, blank, large

AT-B

93



IP65

Adapter grommet, large for M23 square flange

AT-FL

94



IP65

Adapter grommet, large for PushPull connector systems

AT-PP

95



IP54

Adapter grommet, large for Keystone couplers

AT-KS

96



IP54

NEW

Adapter grommet, large for Keystone couplers, with protection cover

AT-KS-AK

97



Adapter grommet, large with mounted Keystone modules or bulkhead couplings, product set

98



Keystone modules, single, bulkhead couplings and accessories

99



IP68

Pressure compensation element with metric thread

PCE

100

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AT-K-M | AT-K-Z

Adapter grommet, small with threaded insert



The AT-K-M grommet is constructed on the basis of a KT cable grommet. The grommets are made of elastomer with a nickel-plated brass body. The AT-K-M grommets are available with inner threads in sizes M5 x 0.5, M8 x 0.5, M8 x 1.0, M12 x 1.0, M12 x 1.5, M14 x 1.0 and M16 x 1.5 and the AT-K-Z grommets with inner threads in sizes 1/8" and 1/4".

By using the AT-K-M adapter grommet, several connectors can be inserted directly into the cable entry frame, e.g. pneumatic bulkhead connectors M12 x 1.0 and M14 x 1.0, metric connectors and pressure compensation elements.

They are compatible with all split icotek cable entry systems that are suitable for KT cable grommets.

Advantages & benefits

- By using AT-K-M grommets, panel connectors and sockets can be integrated directly into the cable entry system
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Thread sizes M5 to M16 and 1/8" to 1/4" available

Specifications

| | |
|------------------|-------------------------------------------------|
| Material | Grommet: Elastomer Body: nickel-plated brass |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP66 when using correct components |
| Temperature | -40°C bis +100°C (static) |
| Properties | Halogen free, silicone free |

| Type | Order No. | Height × Width × Length [mm] | Thread | Material | PU |
|---------------|-----------|------------------------------|-----------|-----------------|----|
| AT-K-M 5x0.5 | 39953 | 21 x 21 x 19 | M5 x 0.5 | Brass/Elastomer | 5 |
| AT-K-M 8x0.5 | 39966 | 21 x 21 x 19 | M8 x 0.5 | Brass/Elastomer | 5 |
| AT-K-M 8x1.0 | 39954 | 21 x 21 x 19 | M8 x 1.0 | Brass/Elastomer | 5 |
| AT-K-M 12x1.0 | 39955 | 21 x 21 x 19 | M12 x 1.0 | Brass/Elastomer | 5 |
| AT-K-M 12x1.5 | 39956 | 21 x 21 x 19 | M12 x 1.5 | Brass/Elastomer | 5 |
| AT-K-M 14x1.0 | 39962 | 21 x 21 x 19 | M14 x 1.0 | Brass/Elastomer | 5 |
| AT-K-M 16x1.5 | 39957 | 21 x 21 x 19 | M16 x 1.5 | Brass/Elastomer | 5 |
| AT-K-Z 1/8" | 39963 | 21 x 21 x 19 | 1/8" | Brass/Elastomer | 5 |
| AT-K-Z 1/4" | 39964 | 21 x 21 x 19 | 1/4" | Brass/Elastomer | 5 |



AT-K-M with extension M16x1,5 for M12 built-in connectors

AT-M | AT-B

Adapter grommet, large with metric inner thread



AT-M is a grommet (based on large KT grommets) with integrated metric threads, suitable for split icotek cable entry systems. The AT-M grommets are made of elastomer with a polyamide body. AT-M grommets are available with inner threads in sizes M12x1.0, M16x1.5, M20x1.5 and M25x1.5.

The AT-M is ideal for creating an interface for signal, data, power and hybrid connectors by simply screwing them into the AT-M thread. Pressure compensation elements or conduit connectors up to M25x1.5 can also be screwed into the AT-M.

icotek also offers screw plugs for sizes M16, M20 and M25 to close the new adapter grommet with the metric internal thread AT-M.

There is also a blank AT-B grommet available. The integrated polyamide body is completely closed on one side. The effective area is 24 x 24 mm, the wall thickness is 6 mm. Custom drill-holes and cut-outs can be made here for e.g. installation of screw mounted hybrid connectors.

Advantages & benefits

- By using AT-M grommets, panel connectors and sockets can be integrated directly into the cable entry system
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Thread sizes M12 to M25 available
- Blank grommet for flexible use

Specifications

| | |
|------------------|---------------------------------------------------|
| Material | Grommet: Elastomer Body with thread: Polyamide |
| Flame class | UL94-V0, self-extinguishing |
| Protection class | IP65 when using correct components |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen free, silicone free |



| Type | Order No. | Height x width x length [mm] | Thread | Material | PU |
|-------------|-----------|------------------------------|-----------|--------------|----|
| AT-M 12x1.0 | 39946 | 42 x 41.5 x 19 | M12 x 1.0 | PA/Elastomer | 10 |
| AT-M 16x1.5 | 39947 | 42 x 41.5 x 19 | M16 x 1.5 | PA/Elastomer | 10 |
| AT-M 20x1.5 | 39948 | 42 x 41.5 x 19 | M20 x 1.5 | PA/Elastomer | 10 |
| AT-M 25x1.5 | 39949 | 42 x 41.5 x 19 | M25 x 1.5 | PA/Elastomer | 10 |
| AT-B blank | 39950 | 42 x 41.5 x 19 | – | PA/Elastomer | 10 |

Screw plugs for AT-M

| Type | Order No. | Thread | Material | PU |
|----------------------|-----------|--------|-----------|----|
| Screw plug M16 x 1.5 | 99195 | M16 | Polyamide | 10 |
| Screw plug M20 x 1.5 | 99196 | M20 | Polyamide | 10 |
| Screw plug M25 x 1.5 | 99197 | M25 | Polyamide | 10 |



KEL-U 24/7 mounted with 1x AT-M, equipped with 1 connector M12x1.0, for the connection of sensors

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AT-FL

Adapter grommet, large for M23 square flange



The grommet AT-FL is constructed on the basis of a large KT cable grommet. The polyamide body is moulded with elastomer. All square flanges with dimensions 19.8 x 19.8 mm (M23) can be integrated.

The insertion of AT-FL into an icotek cable entry frame enables the routing of cables with and without connectors in combination with the creation of interfaces for M23 connectors within one cable entry system. Separate cut-outs for connectors are no longer necessary.

AT-FL provides ingress protection of up to IP65 (depending on the used flange and connector).

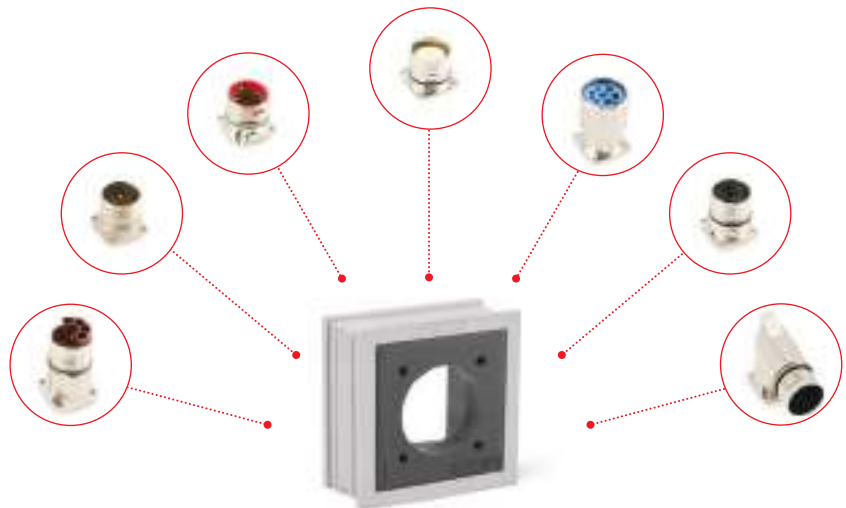
Advantages & benefits

- By using the AT-FL grommet, connectors can be integrated directly into the cable entry frame
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Cost-saving assembly

Specifications

| | |
|------------------|---------------------------------------|
| Material | Grommet: Elastomer Body: Polyamide |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54, IP55, IP64, IP65 |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen free, silicone free |

| Type | Order No. | Height x width x length [mm] | Material | PU |
|-------|-----------|------------------------------|--------------|----|
| AT-FL | 39965 | 42 x 41.5 x 19 | PA/Elastomer | 5 |



AT-PP

Adapter grommet, large for PushPull connector systems



The grommet AT-PP is constructed on the basis of a large KT cable grommet. In this elastomer grommet, a polyamide body is integrated. All modules based on the PushPull system can be inserted into the grommet.

By using the grommet AT-PP, the split cable entry frame can be used to route pre-terminated cables and at the same time it can also be used as an interface for connectors. This can save additional cut-outs and reduce labour costs.

PushPull modules and add-on housings are not included in the scope of delivery.

Advantages & benefits

- By using AT-PP grommets, panel connectors and sockets can be integrated directly into the cable entry system
- Separate cut-outs for connectors are no longer necessary
- Time saving solution
- Space-saving solution
- Assembly costs are reduced

Specifications

| | |
|------------------|---------------------------------------------------|
| Material | Grommet: Elastomer Body with thread: Polyamide |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP65 when using correct components |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen free, silicone free |

| Type | Order No. | Height x width x length [mm] | Material | PU |
|-------|-----------|------------------------------|--------------|----|
| AT-PP | 39961 | 42 x 41.5 x 19 | PA/Elastomer | 5 |



The module (left) snaps into the rear of the add-on housing mounted on the AT-PP



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AT-KS

Adapter grommet, large for Keystone couplers



The grommet AT-KS is constructed on the basis of a KT cable grommet. In this elastomer grommet, a polyamide body is integrated. All couplers based on the Keystone system can be simply snapped in.

By using the grommet AT-KS, the split cable entry frame can be used to route pre-terminated cables and at the same time it can also be used as an interface for connectors. This can save additional cut-outs and reduce labour costs.

Advantages & benefits

- By utilising the AT-KS grommet, connectors can be integrated directly into the cable entry frame
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Grommet is suitable for all Keystone couplers
- Snap-in assembly

Specifications

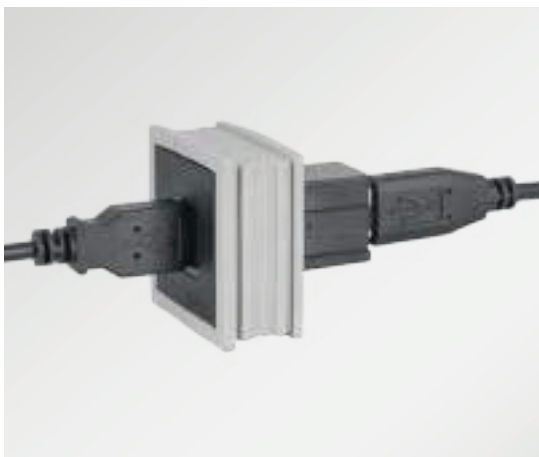
| | |
|------------------------|---------------------------------------------------------|
| Material | Grommet: Elastomer Body: Polyamide |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54 depending on Keystone module and manufacturer |
| Temperature Properties | -40°C to +100°C (static) Halogen free, silicone free |

Individual Keystone modules on page 99.

| Type | Order No. | Height x Width x Length [mm] | Material | PU |
|-------|-----------|------------------------------|--------------|----|
| AT-KS | 39952 | 42 x 41.5 x 19 | PA/Elastomer | 10 |

Adapter grommet with pre-assembled keystone modules

| Type | Order No. | Height x Width x Length [mm] | Colour Keystone module | PU |
|---------------|-----------|------------------------------|------------------------|----|
| AT-KS-USB 3.0 | 39968 | 42 x 41.5 x 19 | black | 1 |
| AT-KS-USB-C | 39981 | NEW | black | 1 |
| AT-KS-HDMI | 39969 | 42 x 41.5 x 19 | black | 1 |
| AT-KS-CAT6 | 39970 | 42 x 41.5 x 19 | silver | 1 |
| AT-KS-CAT7 | 39983 | NEW | silver | 1 |



USB-, RJ45 or e.g. HDMI connectors can be plugged in from the front and from the back

AT-KS-AK

Adapter grommet, large for Keystone couplers with protection cover



The polyamide body integrated into the adapter grommet enables all modules based on the Keystone system to be snapped in. The interface can be closed and even sealed using a protective cover on the front.

By using the grommet AT-KS-AK, the split cable entry frame can be used to route pre-terminated cables and at the same time it can also be used as an interface for connectors. This can save additional cut-outs and reduce labour costs.

AT-KS-AK fulfils protection classes up to IP54 when the cover is closed (regardless of the Keystone module type and manufacturer).

Advantages

- By utilising the AT-KS-AK grommet, connectors can be integrated directly into the cable entry frame
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Easy to install thanks to lockable cover flap
- Cover flap can be secured by sealing

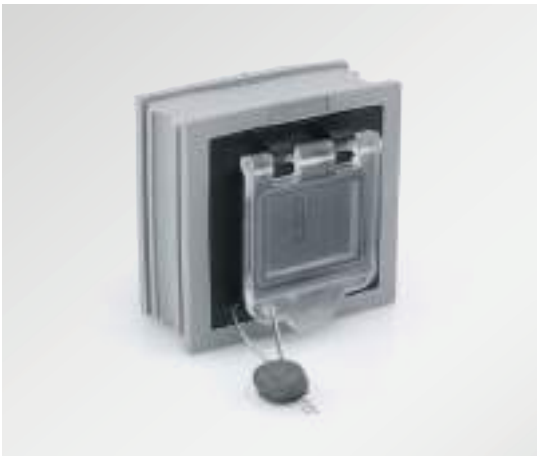
Specifications

| | |
|------------------|--------------------------------------------------------------------|
| Material | Grommet: Elastomer Body: Polyamide Cover flap: Polycarbonate |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54 (certified according to EN 60529) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen free, silicone free |

| Type | Order No. | Height × Width × Length [mm] | Material | PU |
|----------|-----------|------------------------------|-----------------|----|
| AT-KS-AK | 39967 | 42 × 41.5 × 19 | PA/Elastomer/PC | 10 |

Adapter grommet with mounted Keystone modules and protection cover

| Type | Order No. | Height × Width × Length [mm] | Colour Keystone module | PU |
|------------------|-----------|------------------------------|------------------------|----|
| AT-KS-AK-USB 3.0 | 39977 | 42 × 41.5 × 19 | black | 1 |
| AT-KS-AK-HDMI | 39978 | 42 × 41.5 × 19 | black | 1 |
| AT-KS-AK-CAT6 | 39979 | 42 × 41.5 × 19 | silver | 1 |
| AT-KS-AK-CAT7 | 39982 | 42 × 41.5 × 19 | silver | 1 |
| AT-KS-AK-USB-C | 39980 | 42 × 41.5 × 19 | black | 1 |



Cover flap can be secured by sealing



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Adapter grommet

with mounted Keystone modules
or bulkhead couplings,
product set



The adapter grommets type AT-KS are also supplied with pre-assembled keystone modules, type AT-K-M with bulkhead couplings/fittings.

Advantages & benefits

- By utilising the AT-KS grommet, connectors can be integrated directly into the cable entry frame
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Keystone modules or bulkhead couplings/fittings are already pre-assembled

Specifications

| | |
|------------------------|------------------------------------------------------------------------------------|
| Material | Grommet: Elastomer Body: Polyamide Bulkhead coupling: Brass nickel plated |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54 depending on Keystone module and manufacturer |
| Temperature Properties | -40°C to +100°C (static) Halogen free, silicone free |

| Type | Order No. | Height × Width × Length [mm] | Colour Keystone module | PU |
|---------------|------------------|------------------------------|------------------------|----|
| AT-KS-USB 3.0 | 39968 | 42 x 41.5 x 19 | black | 1 |
| AT-KS-USB-C | 39981 NEW | 42 x 41.5 x 19 | black | 1 |
| AT-KS-HDMI | 39969 | 42 x 41.5 x 19 | black | 1 |
| AT-KS-CAT6 | 39970 | 42 x 41.5 x 19 | silver | 1 |
| AT-KS-CAT7 | 39983 NEW | 42 x 41.5 x 19 | silver | 1 |

| Type | Order No. | Height × Width × Length [mm] | suitable for pneumatic hose | PU |
|--------------------------------------|------------------|------------------------------|-----------------------------|----|
| AT-K-M 12x1,0 with bulkhead coupling | 39971 | 21 x 21 x 19 | 4 mm | 1 |
| AT-K-M 14x1,0 with bulkhead coupling | 39972 | 21 x 21 x 19 | 6 mm | 1 |
| AT-K-Z 1/4" with 2x bulkhead fitting | 39973 NEW | 21 x 21 x 19 | 8 mm | 1 |
| AT-K-Z 1/4" with 2x bulkhead fitting | 39974 NEW | 21 x 21 x 19 | 10 mm | 1 |
| AT-K-Z 1/4" with 2x bulkhead fitting | 39975 NEW | 21 x 21 x 19 | 12 mm | 1 |



Keystone modules, bulkhead couplings and accessories



The Keystone modules and bulkhead couplings are also available individually for use with the adapter grommets.

Advantages & benefits

- By utilising the adapter grommets, connectors can be integrated directly into the cable entry frame
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Snap-in assembly

Specifications

| | |
|------------------|------------------------------------------------|
| Material | Bulkhead coupling: Brass nickel plated |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54 depending on module type and manufacturer |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen free, silicone free |

Keystone modules

| Type | Order No. | Colour | PU |
|-------------------------|------------------|--------|----|
| Keystone module USB 3.0 | 99204 | black | 5 |
| Keystone module USB-C | 99212 NEW | black | 5 |
| Keystone module HDMI | 99205 | black | 5 |
| Keystone module CAT 6 | 99206 | silver | 5 |
| Keystone module CAT 7 | 99213 NEW | silver | 5 |

Bulkhead couplings

| Type | Order No. | suitable for pneumatic hose | Thread | PU |
|----------------------|------------------|--------------------------------|-----------|----|
| Bulkhead coupling D4 | 99210 | 4 mm | M12 x 1.0 | 10 |
| Bulkhead coupling D6 | 99211 | 6 mm | M14 x 1.0 | 10 |
| Bulkhead fitting D8 | 99227 NEW | 8 mm | 1/4" | 10 |
| Bulkhead fitting D10 | 99228 NEW | 10 mm | 1/4" | 10 |
| Bulkhead fitting D12 | 99229 NEW | 12 mm | 1/4" | 10 |

Dust caps

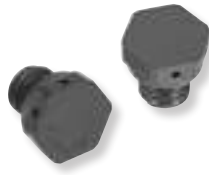
| Type | Order No. | suitable for | PU |
|---------------------|-----------|------------------|----|
| Dust caps for HDMI | 99207 | HDMI connectors | 5 |
| Dust caps for USB | 99208 | USB connectors | 5 |
| Dust caps for RJ-45 | 99209 | RJ-45 connectors | 5 |



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PCE M12 x 1.5

Pressure compensation element with metric thread



The pressure compensation element PCE with M12 x 1.5 thread is used to avoid variations in pressure caused by differences in temperature and thus to prevent damage caused by condensation. It provides protection class IP68. The pressure compensation element is easy to install by screwing it directly into the enclosure wall or via adapter grommets AT-K-M 12x1.5.

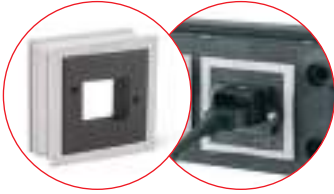
| Type | Order No. | Thread | PU |
|---------------|-----------|-----------|----|
| PCE M12 x 1.5 | 99190 | M12 x 1.5 | 10 |

Specifications

| | |
|------------------|-----------------|
| Material | Polyamide |
| Flame class | UL 94 V-2 |
| Protection class | IP67, IP68 |
| Temperature | -20°C to +100°C |



KVT-ER 63|4 equipped with pressure compensation element



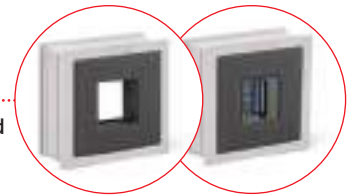
Available with pre-terminated cut-out for PushPull systems (AT-PP)



New: Adapter grommet for M23 square flange (AT-FL)



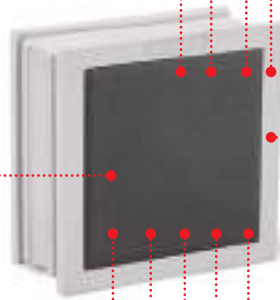
Available with threaded insert (AT-K-M/AT-K-Z), based on the KT cable grommet



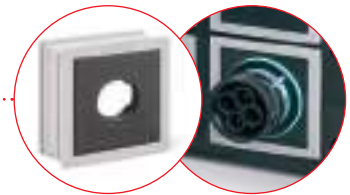
Available with pre-terminated cut-out for Keystone couplers (AT-KS)



Perfect integration into the split icotek cable entry frames



Available with metric inner threads of M12 x 1.0, M16 x 1.5, M20 x 1.5, M25 x 1.5 (AT-M).



At a high cable density only one cut-out is necessary

Usable area for special cut-outs and drill-holes: 24 x 24 mm; Wall thickness: 6 mm (AT-B)

Elastomer grommet with polyamide body based on the grommet KT large

High protection class: up to IP66

Available with protection cover for Keystone modules (AT-KS-AK)



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1.2 Cable entry systems for the QT grommet system



The QUICK systems are the perfect solution for the routing of cables with and without connectors when cost-effectiveness is the priority.

Here, too, the concept of consistent divisibility is applied. This system places great emphasis on tool-free assembly, for example in combination with the KEL-SNAP frame.

With the split QT grommets, cable diameters from 1 to 29 mm can be covered. With correct assembly, a protection class of IP54 is achieved.

The QTMB grommets allow the routing of cables with diameters that can vary up to 3 mm. By using the QT-DT grommet, the packing density of the cables can be considerably increased and the required installation space considerably reduced.

Cut-outs according to industrial standard dimensions

Warranty on pre-terminated cables remains

For metric cut-outs M16 – M50

KEL-QUICK

QVT-CLICK

Fast and easy assembly

Split system

High cable density, wide variety in cable grommets and adapter grommets

Fast and easy assembly

Snap-in and screw-in assembly possible for QVT-CLICK sizes 16, 20, 40|1, 50|1, 50|4

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IP54

Split cable entry frames
for quick assembly,
for standard cut-outs,
for cable diameters up to 29 mm

KEL-QUICK

104 – 107



IP54

Split cable glands
for screw-in assembly,
for standard cut-outs,
for cable diameters up to 15 mm

QVT

108 – 110



IP54

Split cable glands
for screw-in or snap-in assembly,
for standard cut-outs,
for cable diameters up to 29 mm

QVT-CLICK

109 – 111

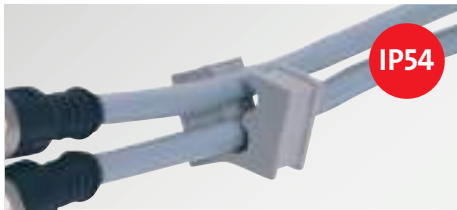


IP54

Split cable entry plates
for push-in assembly,
for standard cut-outs,
for cable diameters up to 15 mm

KEL-QTA / KEL-QTE

113 – 115



IP54

Cable grommets
for the QT system,
split and not split,
for cables with/without connectors,
for cable diameters 1 – 29 mm

118 – 121



QT Servicebox
Service box for cable grommets

121



IP54

IMAS-CONNECT™
Modular adapter system
for the QT system

124 – 132



IP54

Snap mounting frames
for installation of KEL-U/KEL frames,
split (KEL-SNAP-S)

KEL-SNAP-S / KEL-SNAP

52 – 55



Thread extension
for cable glands and cable entry plates
M32, M50, M63

TE-M

334 – 337

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1.21 Split cable entry frames for the QT grommet system



The QUICK systems are the perfect solution for the routing of cables with and without connectors when cost-effectiveness is the priority.

Here, too, the concept of consistent divisibility is applied. This system places great emphasis on tool-free assembly, for example in combination with the KEL-SNAP frame.

Cut-outs according to industrial standard dimensions

Warranty on pre-terminated cables remains

High cable density, wide variety

Fast and easy assembly

Split system

Can be combined with IMAS-CONNECT grommets

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KEL-QUICK series

Cable entry frames for quick assembly with IP54 rating

IP54

The KEL-QUICK range is a compact system to route and seal pre-terminated cables as well as conduits or pneumatic hoses utilising split QT and QTMB grommets. After populating the entry frame with QT/QTMB grommets and cables, the cover lid is snapped onto the frame without using assembly hardware.

The KEL-QUICK frames match exactly the cut-out dimensions for 10-, 16- and 24-pin standard industrial connectors. The KEL-QUICK-B frames match the cut-out dimensions 46 × 36 mm. These KEL-QUICK frames can either be screw mounted or simply snapped into the KEL-SNAP frame.

The single-row KEL-QUICK-E versions are particularly suited for flat connectors. The small frames are ideal for applications with limited space.

A flat rubber gasket is included in the shipment.

Advantages & benefits

- Fast and easy assembly and when used with the KEL-SNAP frame, mounting without tools possible
- Maintain manufacturer's warranty on pre-terminated cables
- Retrofittings, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Can be combined with IMAS-CONNECT grommets

Specifications

| | |
|-------------|---------------------------------------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of the cable grommets |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |
| Frame depth | 17 mm |

Accessories

| | |
|--------------------------|-----------|
| QT Cable grommets | 128 - 121 |
| KEL-SNAP Mounting frames | 52 - 55 |
| KEL-EMC Cable collectors | 260 - 262 |
| KDR Base plates | 300 - 311 |
| FP Flange plates | 320 - 329 |
| MP Module plates | 314 - 315 |
| ST Plugs | 85 |



Cover lid is simply snapped onto the frame



Tool-free mounting with KEL-SNAP frame



KEL-QUICK-E



Split grommets



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- 1.15
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- 1.23
- 1.24
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- 1.3

i Single-piece packaging units are available on request.

KEL-QUICK

Cable entry frames
for quick assembly

KEL-QUICK 24, KEL-QUICK 16,
KEL-QUICK 10



| Description | Cut-out Drilling template | Type | Order No. | Cut-out [mm] | Grommets | PU |
|-------------|-----------------------------|-----------------|-----------|--------------|----------|----|
| | | KEL-QUICK 24 10 | 42410 | 112 × 36 | 10 – | 10 |
| | | KEL-QUICK 24 7 | 42412 | 112 × 36 | 6 1 | 10 |
| | | KEL-QUICK 24 4 | 42413 | 112 × 36 | 2 2 | 10 |
| | | KEL-QUICK 16 8 | 42418 | 86 × 36 | 8 – | 10 |
| | | KEL-QUICK 16 5 | 42425 | 86 × 36 | 4 1 | 10 |
| | | KEL-QUICK 16 2 | 42426 | 86 × 36 | 0 2 | 10 |
| | | KEL-QUICK 10 6 | 42420 | 65 × 36 | 6 – | 10 |
| | | KEL-QUICK 10 3 | 42427 | 65 × 36 | 2 1 | 10 |

KEL-QUICK

Cable entry frames for quick assembly

KEL-QUICK-E

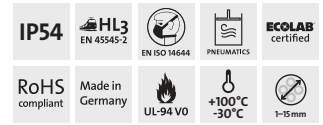


| Description | Cut-out Drilling template | Type | Order No. | Cut-out [mm] | Grommets | PU |
|-------------|-----------------------------|--------------|-----------|--------------|----------|----|
| | | KEL-QUICK-B4 | 42434 | 46 × 46 | 4 - | 10 |
| | | KEL-QUICK-B1 | 42435 | 46 × 46 | - 1 | 10 |
| | | KEL-QUICK-E5 | 42424 | 24 × 112 | 5 QT | 10 |
| | | KEL-QUICK-E4 | 42423 | 24 × 86 | 4 QT | 10 |
| | | KEL-QUICK-E3 | 42422 | 24 × 65 | 3 QT | 10 |
| | | KEL-QUICK-E2 | 42421 | 24 × 43 | 2 QT | 10 |

i Single-piece packaging units are available on request.

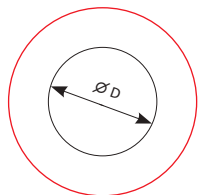
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1.22 Split cable glands for the QT grommet system



By using split QVT cable glands by icotek cables with or without connectors or complete cable harnesses with diameters from 1 to 15 mm can be quickly routed into enclosures, cabinets or machines and be sealed with IP54 rated ingress protection.

The split system of the QVT cable glands enables quick and easy assembly which is great for retrofitting and maintenance. The cable is placed into the split grommet which is set into one of the gland halves. Depending on the size of the cable gland one, two or four separate grommets can be installed. The two gland halves can be easily snapped together without the need of tools. The routed lines are securely sealed and held inside the grommets. To mount the cable glands either snap it into the round metric standard cut-out (sizes available from M16 to M50) or screw it with a hexagonal locknut. The mounting method is dependent on the model type.

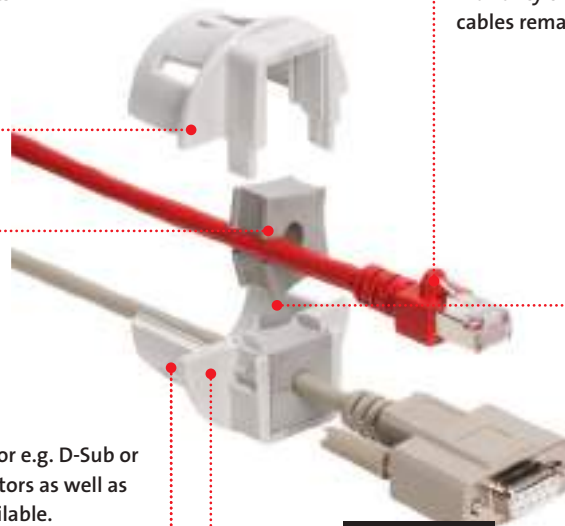


For metric cut-outs
M16 – M50



Warranty on pre-terminated
cables remains

Split system



High cable density,
wide variety in cable
grommets

Special locknuts for e.g. D-Sub or
PROFIBUS connectors as well as
split locknuts available.

QVT-CLICK



Fast and easy assembly



Snap-in and screw-in assembly
possible for QVT-CLICK sizes
16, 20, 40|1, 50|1, 50|4

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QVT | QVT-CLICK

Split cable glands for snap-in or screw-in assembly with IP54 rating

IP54

QVT and QVT-CLICK are circular split frames for quick and easy installation of pre-terminated cables or complete cable harnesses. But also electric, pneumatic or hydraulic lines without terminals or connectors as well as corrugated conduits can be easily routed and sealed with IP54. Because of its extremely compact design, the QVT/QVT-CLICK range is especially suitable for small machines, devices and instruments.

The cable glands are easy to install. The prefabricated cable is placed into the split grommet which is set into one of the gland halves. Depending on the size of the cable gland, one, two or four separate grommets can be installed. By using multi-hole grommets up to 16 lines can be routed with one cable gland.

The QVT-CLICK can be assembled without tools from the front of the enclosure wall. Sizes QVT-CLICK 16, QVT-CLICK 20, QVT-CLICK 40|1, QVT-CLICK 50|1 and QVT-CLICK 50|4 can also be screwed on with a lock nut.

QVT: Polyamide lock nuts as well as a sealing ring are included in the shipment. QVT-CLICK: A sealing ring is included in the shipment.

Advantages & benefits

- Compact design
- Routing of pre-terminated cables
- Maintain manufacturer's warranty on pre-terminated cables
- Retrofittings, repairs and maintenance can be done much more easily and quickly
- Suitable for metric cut-outs
- Lock nut is included
- Can be combined with IMAS-CONNECT system

Advantages & benefits QVT-CLICK

- Fast and easy mounting from the front
- Snap in assembly QVT-CLICK 16/20 for wall thickness 1.5 – 2.5 mm
- Snap in assembly QVT-CLICK 25/32/40/50 for wall thickness 1 – 2.5 mm
- Screw in assembly possible for QVT-CLICK sizes 40|1, 50|1 and 50|2 for a wall thickness of 11 mm (depending on the height of the locknut), for QVT-CLICK sizes 16 and 20 for a wall thickness up to 5 mm
- Snap-in and screw-in assembly possible for QVT-CLICK sizes 16, 20, 40|1, 50|1 and 50|4.

Specifications

| | |
|-------------------|---------------------------------------------------------------|
| Material | Polycarbonate (PC) |
| Colour | grey (similar RAL 7035) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of the cable grommets |
| Temperature | - 30°C to + 100°C (static) |
| Properties | Halogen-free, silicone-free |
| Cut-out dimension | Metric sizes |

Accessories

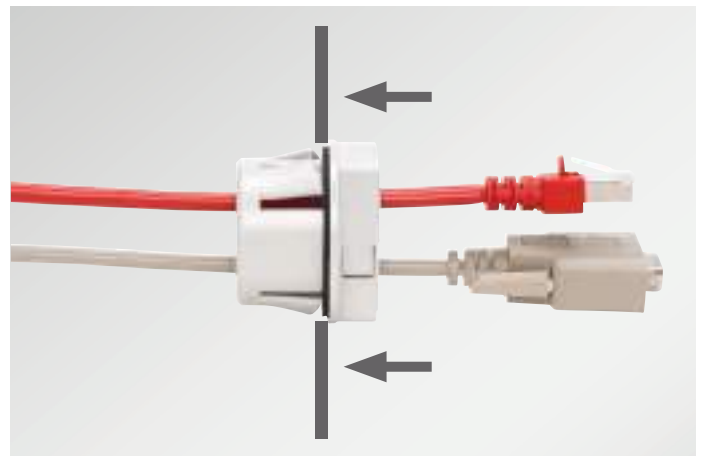
| | |
|---------------|-----|
| KGM lock nuts | 346 |
|---------------|-----|



QVT



QVT-CLICK



QVT-CLICK: Fast and easy mounting from the front



QVT – reverse view



QVT-CLICK: for screw-in or snap-in assembly



The QVT-CLICK Tool for quick and easy mounting.
Order No. 61435 (PU: 1)

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QVT

Split cable glands



| Description | Type | Order No. | Cable Grommets | Thread Thread length | PU |
|-------------|----------|-----------|----------------|----------------------------|----|
| | QVT 16* | 45692 | 1 × QT | M16 × 1.5 Length: 13 mm | 10 |
| | QVT 20** | 45695 | 1 × QT | M20 × 1.5 Length: 13 mm | 10 |
| | QVT 25 | 45702 | 1 × QT | M25 × 1.5 Length: 13 mm | 10 |
| | QVT 32 | 45711 | 1 × QT | M32 × 1.5 Length: 13 mm | 10 |
| | QVT 40 2 | 45715 | 2 × QT | M40 × 1.5 Length: 13 mm | 10 |
| | QVT 50 4 | 45722 | 4 × QT | M50 × 1.5 Length: 13 mm | 10 |

* Max. cable diameter of 10 mm | ** Max. cable diameter of 11 mm
 ♦ Cannot be combined with QT-AT-K-M

Single-piece packaging units are available on request.

Accessories

| | |
|-------------------|-----------|
| QT Cable grommets | 118 - 121 |
| KVT-EMC Brackets | 263 |
| KGM Locknuts | 346 |
| ST Plugs | 85 |



Type GMT: Split locknut, p. 346

QVT-CLICK

Split pluggable cable glands



| Description | Type | Order No. | Cable Grommets small large | Cut-out* diameter | Thread Thread length | PU |
|-------------|--------------------|-----------|---------------------------------|----------------------|----------------------------|----|
| | QVT-CLICK 16 ** ° | 45726 | 1 - | 16.2 mm | M16 × 1.5 Length: 13 mm | 10 |
| | QVT-CLICK 20 ** °° | 45728 | 1 - | 20.4 mm | M20 × 1.5 Length: 13 mm | 10 |
| | QVT-CLICK 25 | 45730 | 1 - | 25.5 mm | - | 10 |
| | QVT-CLICK 32 | 45732 | 1 - | 32.5 mm | - | 10 |
| | QVT-CLICK 40 1 ** | 45736 | - 1 | 40.5 mm | M40 × 1.5 Length: 19 mm | 10 |
| | QVT-CLICK 40 2 | 45734 | 2 - | 40.5 mm | - | 10 |
| | QVT-CLICK 50 1 ** | 45738 | - 1 | 50.5 mm | M50 × 1.5 Length: 19 mm | 10 |
| | QVT-CLICK 50 4 ** | 45740 | 4 - | 50.5 mm | M50 × 1.5 Length: 19 mm | 10 |

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* Please consider any paint layers or powder coatings!
 ** Pluggable and screwable; locknut is not included in the shipment
 † Sizes M16 und M20 for wall thickness up to 5 mm (screw-in assembly)
 ° Max. cable diameter of 10 mm
 °° Max. cable diameter of 11 mm
 † Cannot be combined with QT-AT-K-M

Single-piece packaging units are available on request.

1.23 Split cable entry plates for the QT grommet system



KEL-QTA are push-in, split IP54 cable entry plates for wall thicknesses from 1.5 to 4 mm. icotek offers several versions for rectangular standard cut-outs as well as for round metric cut-outs. The QTA system offers a large size variety.

KEL-QTA enable cable routing with or without preassembled connectors. Some types offer a combination of membranes for cable pass-through and the QT grommet system.

Split cable grommets of the QT series are used for the routing of pre-terminated cables with diameters of 1–15 mm within the KEL-QTA. In addition, there are multi-hole grommets for up to 4 lines per slot and special grommets e.g. for ASI cables.

For metric cut-outs M20 – M50

Warranty on pre-terminated cables remains

High cable density, wide variety in cable grommets

Fast and easy assembly

Cut-outs according to industrial standard dimensions

Split system

KEL-QTA

KEL-QTA | KEL-QTE

Push-in, split cable entry plates for snap-in assembly with IP54 rating

IP54

Push-in, split cable entry plates (IP54) for routing pre-terminated and standard cables utilising split QT grommets or membranes. Suitable for cut-outs for 10- and 24-pin industrial connectors. The compact size KEL-QTA-B is suitable for cut-outs 45.5 x 45.5 mm. The round versions of the KEL-QTA are suitable for cut-outs 32/50 mm in diameter.

The KEL-QTA/KEL-QTE easily routes pre-terminated cables, multi-conductors, hoses or conduits without using any tools for assembly.

The KEL-QTE fits on cut-outs of 20 mm in diameter.

Advantages & benefits

- Fast and easy assembly without tools
- High cable density by using multi-position grommets
- Simple assembly and disassembly in case of change or service
- Routing of cables with and without connectors in a high density
- Suitable for standard industrial connector cut-outs

Specifications

| | |
|-------------------|----------------------------------------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with correct selection of the cable grommets (QT single) |
| Temperature | - 40°C to + 100°C (static) |
| Properties | Halogen-free, silicone-free |
| Cut-out dimension | Metric sizes (QTE) |
| Frame depth | 5 mm (QTA) |
| Type A: | For wall thickness 1.5 - 2.5 mm |
| Type B: | For wall thickness 2.8 - 4 mm |

Accessories

| | |
|-------------------|-----------|
| QT Cable grommets | 118 - 121 |
| ST-B Plugs | 171 |
| FP Flange plates | 320 - 329 |




KEL-QTA



KEL-QTE

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 Single-piece packaging units are available on request.

KEL-QTA

Split cable entry plates



| Description | Cut-out Drilling template | Type | Order No. Type A | Order No. Type B | Cut-out [mm] | Cables | PU |
|-------------|-----------------------------|---------------------|------------------|------------------|--------------|----------------------------------------------------------------------------------------------------------------|----|
| | | KEL-QTA 24 2 -DP 18 | 43642 | 43643 | 112 × 36 | pre-terminated 2 × 1 - 15 mm without connector 16 × max. 7 mm 1 × max. 12 mm 1 × max. 16 mm | 10 |
| | | KEL-QTA 24 4 | 43644 | 43645 | 112 × 36 | pre-terminated 4 × 1 - 15 mm | 10 |
| | | KEL-QTA 10 1-DP 18 | 43655 | 43658 | 65 × 36 | pre-terminated 1 × 1 - 15 mm without connector 18 × max. 5 mm | 10 |
| | | KEL-QTA 10 2-DP 6 | 43656 | 43659 | 65 × 36 | pre-terminated 2 × 1 - 15 mm without connector 6 × max. 5 mm | 10 |
| | | KEL-QTA-B4 | 43660 | - | 46 × 46 | pre-terminated 4 × 1 - 15 mm | 10 |



i Single-piece packaging units are available on request.

KEL-QTA | KEL-QTE

Split cable entry plates



| Description | Type | Order No. Type A | Order No. Type B | Cut-out [mm] | Cables | | PU |
|-------------|----------------|---------------------|---------------------|-----------------|--------------------|-------------------|----|
| | | | | | pre-terminated | non pre-term. | |
| | KEL-QTA 32 | 43632 | 43636 | ∅ 32 | 1x 1 - 15 mm | - | 10 |
| | KEL-QTA 50 | 43622 | 43626 | ∅ 50 | 2x 1 - 15 mm | - | 10 |
| | KEL-QTE 20 2.5 | 43412 | - | ∅ 20 | 1x 2.6 - 3.2 mm | 1x max. 5.2 mm | 10 |
| | KEL-QTE 20 3 | 43413 | - | ∅ 20 | 1x 3.1 - 3.8 mm | 1x max. 5.2 mm | 10 |
| | KEL-QTE 20 4 | 43414 | - | ∅ 20 | 1x 3.8 - 4.8 mm | 1x max. 5.2 mm | 10 |
| | KEL-QTE 20 5 | 43415 | - | ∅ 20 | 1x 4.7 - 5.6 mm | 1x max. 5.2 mm | 10 |

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i Single-piece packaging units are available on request.

1.24 Cable grommets for the QT system



Cable grommets QT are used with the following cable entry components:

- KEL-QUICK
- QVT
- QVT-CLICK
- KEL-QTA

In principle, there are two types of cable grommets: split and non-split grommets. The split grommets are suitable for routing cables with connectors, the non-split ones are used for routing non-terminated cables.

Electrical, pneumatic or hydraulic lines as well as corrugated conduits and hoses can be easily routed, sealed and strain relieved using split cable entry systems.

With the split QT grommets, cable diameters from 1 to 29 mm can be covered. With correct assembly, a protection class of IP54 is achieved.

The QTMB grommets allow the routing of cables with diameters that can vary up to 3 mm. By using the QT-DT grommet, the packing density of the cables can be considerably increased and the required installation space considerably reduced.



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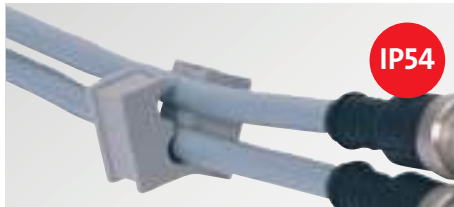
Split cable grommets for cables with connectors



Split cable grommets, single
IP54 protection
for cable diameters 1 to 15 mm

QT

118



Split cable grommets, multi and special
IP54 protection
for cable diameters 3 to 7 mm

QT multi

118



Split multi-range cable grommets
IP54 protection
for cable diameters 14 to 29 mm

QTMB

119

Non-split cable grommets for cables without connectors, QT Servicebox



Membrane cable grommets
IP54 protection, high cable density
for cable diameters 6.5 to 14.5 mm

QT-DT

120



IMAS-CONNECT™
Modular adapter system
for the QT system

122 – 132



QT Servicebox
Service box for cable grommets

121

Overview of cable entry systems and matching grommets

| Product | Split cable grommets for cables with connectors | | | Non-split cable grommets for cables without connectors | |
|-----------|----------------------------------------------------|-------------------------------|---------------------------|-----------------------------------------------------------|-------------|
| | QT small single-hole | QT small multi, special | QTMB large multi-range | QT-DT small | QT-DT large |
| KEL-QUICK | ● | ● | ● | ● | ● |
| QVT | ● | ● | – | ● | – |
| QVT-CLICK | ● | ● | ● | ● | ● |
| KEL-QTA | ● | ● | – | ● | – |
| KEL-QTE | ● | ● | – | ● | – |

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QT

Split cable grommets, small, single, multi and special, for the QUICK system



Split cable grommets QT are used with the following cable entry components:

- KEL-QUICK
- QVT
- QVT-CLICK
- KEL-QTA

They are designed for cable diameters from 1 to 15 mm. Blank grommets can seal unused grommet spaces.

When using double or quadruple grommets the cable density of cable entry frames and cable glands can be greatly increased. icotek also offers special cable grommets for e.g. ASI lines.

When installing the small grommets in multiple rows, the flat sides should be facing each other. This allows the flat sides to match up and provide a secure seal.

Advantages

- Routing of cables with and without connectors
- IP54 rating
- Greatly increased cable density when using double or quadruple grommets
- Strain relief when a suitable cable entry is selected
- Available for a wide range of cable diameters

Specifications

| | |
|-------------|-------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |

Accessories

| | |
|----------|----|
| ST Plugs | 85 |
|----------|----|



| Description | Type | Compatible plugs | Order No. | Clamping range | PU |
|-------------|----------|------------------|-----------|-----------------|----|
| | QT 1 | ST 1 | 42501 | 1 – 2 mm | 10 |
| | QT 2 | ST 2 | 42502 | 2 – 3 mm | 10 |
| | QT 3 | ST 3 | 42503 | 3 – 4 mm | 10 |
| | QT 4 | ST 4 | 42504 | 4 – 5 mm | 10 |
| | QT 5 | ST 5 | 42505 | 5 – 6 mm | 10 |
| | QT 6 | ST 6 | 42506 | 6 – 7 mm | 10 |
| | QT 7 | ST 7 | 42507 | 7 – 8 mm | 10 |
| | QT 8 | ST 8 | 42508 | 8 – 9 mm | 10 |
| | QT 9 | ST 9 | 42509 | 9 – 10 mm | 10 |
| | QT 10 | ST 10 | 42510 | 10 – 11 mm | 10 |
| | QT 11 | ST 11 | 42511 | 11 – 12 mm | 10 |
| | QT 12 | ST 12 | 42512 | 12 – 13 mm | 10 |
| | QT 13 | ST 13 | 42513 | 13 – 14 mm | 10 |
| | QT 14 | ST 14 | 42514 | 14 – 15 mm | 10 |
| | QT B | – | 42540 | Blank grommet | 10 |
| | QT 2 x | – | – | – | – |
| | QT 2 3 | ST 3 | 42566 | 2× Ø 3 mm | 10 |
| | QT 2 4 | ST 4 | 42568 | 2× Ø 4 mm | 10 |
| | QT 2 5 | ST 5 | 42570 | 2× Ø 5 mm | 10 |
| | QT 2 5.5 | – | 42571 | 2× Ø 5.5 mm | 10 |
| | QT 2 6 | ST 6 | 42572 | 2× Ø 6 mm | 10 |
| | QT 2 6.5 | – | 42576 | 2× Ø 6.5 mm | 10 |
| | QT 2 7 | ST 7 | 42578 | 2× Ø 7 mm | 10 |
| | QT 4 x | – | – | – | – |
| | QT 4 3 | ST 3 | 42580 | 4× Ø 3 mm | 10 |
| | QT 4 4 | ST 4 | 42582 | 4× Ø 4 mm | 10 |
| | QT 4 4.5 | – | 42583 | 4× Ø 4.5 mm | 10 |
| | QT 4 5 | ST 5 | 42584 | 4× Ø 5 mm | 10 |
| | QT 4 5.5 | – | 42585 | 4× Ø 5.5 mm | 10 |
| | QT 4 6 | ST 6 | 42586 | 4× Ø 6 mm | 10 |
| | QT-ASI 1 | – | 42573 | 1× ASI-cable | 10 |
| | QT-ASI 2 | – | 42574 | 2× ASI-cable | 10 |
| | QT tele | – | 42575 | Telephone cable | 10 |

QTMB

Split multi-range grommets, large, for the QUICK system



The multi-range grommet QTMB is used to route pre-terminated cables into the KEL-QUICK system.

The innovative membrane enables the routing of cables with diameters that can vary up to 3 mm.

The QTMB can also be used to insert large cables with a clamping range of 14 to 29 mm.

Advantages & benefits

- Routing of cables with and without connectors
- IP54 rating
- Strain relief when a suitable cable entry is selected
- Large clamping range
- Only 7 grommets cover a clamping range from 14 to 29 mm
- Innovative wave cut for a better sealing
- Innovative membrane for high flexibility

Specifications

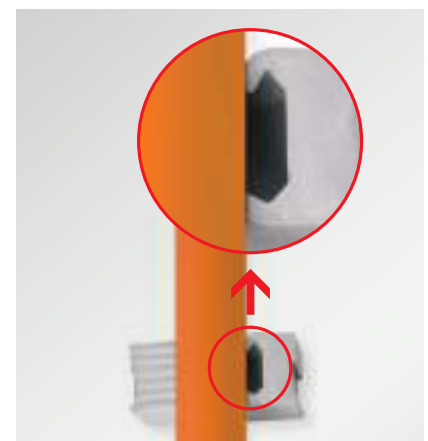
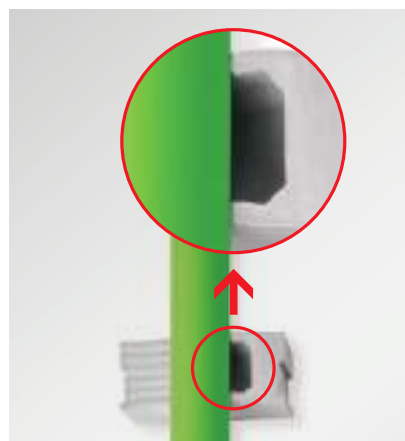
| | |
|-------------|-------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |

Accessories

| | |
|------------|-----|
| ST-B Plugs | 171 |
|------------|-----|

| Description | Type | Compatible plugs | Order No. | Clamping range | PU |
|-------------|------------|------------------|-----------|----------------|----|
| | QTMB 14-17 | ST-B 16 | 42515 | 14-17 mm | 10 |
| | QTMB 16-19 | ST-B 18 | 42516 | 16-19 mm | 10 |
| | QTMB 18-21 | ST-B 20 | 42517 | 18-21 mm | 10 |
| | QTMB 20-23 | ST-B 22 | 42518 | 20-23 mm | 10 |
| | QTMB 22-25 | ST-B 24 | 42519 | 22-25 mm | 10 |
| | QTMB 24-27 | ST-B 26 | 42520 | 24-27 mm | 10 |
| | QTMB 26-29 | ST-B 28 | 42521 | 26-29 mm | 10 |
| | QTMB-BTG | - | 42545 | Blank grommet | 10 |

i ST-B plugs for the sealing of the perforated membrane



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QT-DT

Membrane cable grommets ,
non-split,
for the QUICK system



The QT-DT membrane cable grommet enables the routing of cables without connectors. Using the QT-DT grommet considerably increases the cable packing density and decreases the space needed. This new grommet can be used in the KEL-QUICK cable entry frames as well as in the KEL-QTA cable entry plates. Therefore, it is possible to insert cables with and without connectors into one cable entry system.

Advantages & benefits

- Combination of pre-assembled and non-assembled cables in one cable entry product.
- Very high packing density
- Considerable space and cost savings
- Pre-assembly of individual assemblies possible

Specifications

| | |
|-------------|-------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |

Accessories

| | |
|----------|----|
| ST Plugs | 85 |
|----------|----|

| Description | Type | Order No. | Clamping range | PU |
|-------------|----------|-----------|-----------------------------------------------------|----|
| | QT-DT 1 | 42550 | 4x max. 6.5 mm | 10 |
| | QT-DT 2 | 42551 | 2x max. 3.5 mm 2x max. 6.5 mm | 10 |
| | QT-DT 3 | 42552 | 9x max. 3.5 mm | 10 |
| | QT-DT 8 | 42556 | 12x max. 6.5 mm 2x max. 12.2 mm | 10 |
| | QT-DT 9 | 42557 | 15x max. 7.1 mm | 10 |
| | QT-DT 10 | 42558 | 4x max. 6.5 mm 3x max. 9.5 mm 3x max. 11.3 mm | 10 |
| | QT-DT 11 | 42559 | 9x max. 9.5 mm | 10 |
| | QT-DT 12 | 42560 | 4x max. 14.5 mm 1x max. 9.5 mm | 10 |



QT ServiceBox

Service box
for cable grommets



Convenient – everything available right away!

The QT ServiceBox is perfect for installations and service calls. It ensures your QT grommets are readily available.

Content*

Cable grommets:

- 210 QT for cables 1 - 15 mm
- 10 QTB blank grommets
 - 1 QT-DT 1
 - 1 QT-DT 2
 - 1 QT-DT 3

Cable entry components:

- 5 KEL-QTA 50 A cable entry plates
- 1 KEL-QTA 32 A cable entry plate
- 1 KEL-QTA 24|2-DP 18 A cable entry plate
- 1 KEL-QTA 10|1-DP 18 A cable entry plate
- 1 KEL-QUICK 24|10 cable entry frame
- 1 QVT 25 split cable gland
- 1 QVT-CLICK 32 split cable gland

Accessories:

- 1 Cable template

* Subject to alterations



| Description | Order No. | PU |
|---------------|-----------|----|
| QT ServiceBox | 88005 | 1 |

KMS

Cable template

The correct size of the KT grommets can easily be determined by using the cable template.

- Determining the diameter of the cable using the cable template
- Selecting the KT grommets according to the data on the cable template

Cable templates can also be ordered separately.



i Now the assortment cases for different types and sizes of cable grommets can be configured individually. So the perfect grommets are always at hand: www.icotek.com/en/config/626044

| Description | Order No. | PU |
|----------------|-----------|----|
| Cable template | 39800 | 1 |

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1.25 Modular adapter system IMAS-CONNECT™ for the QT system

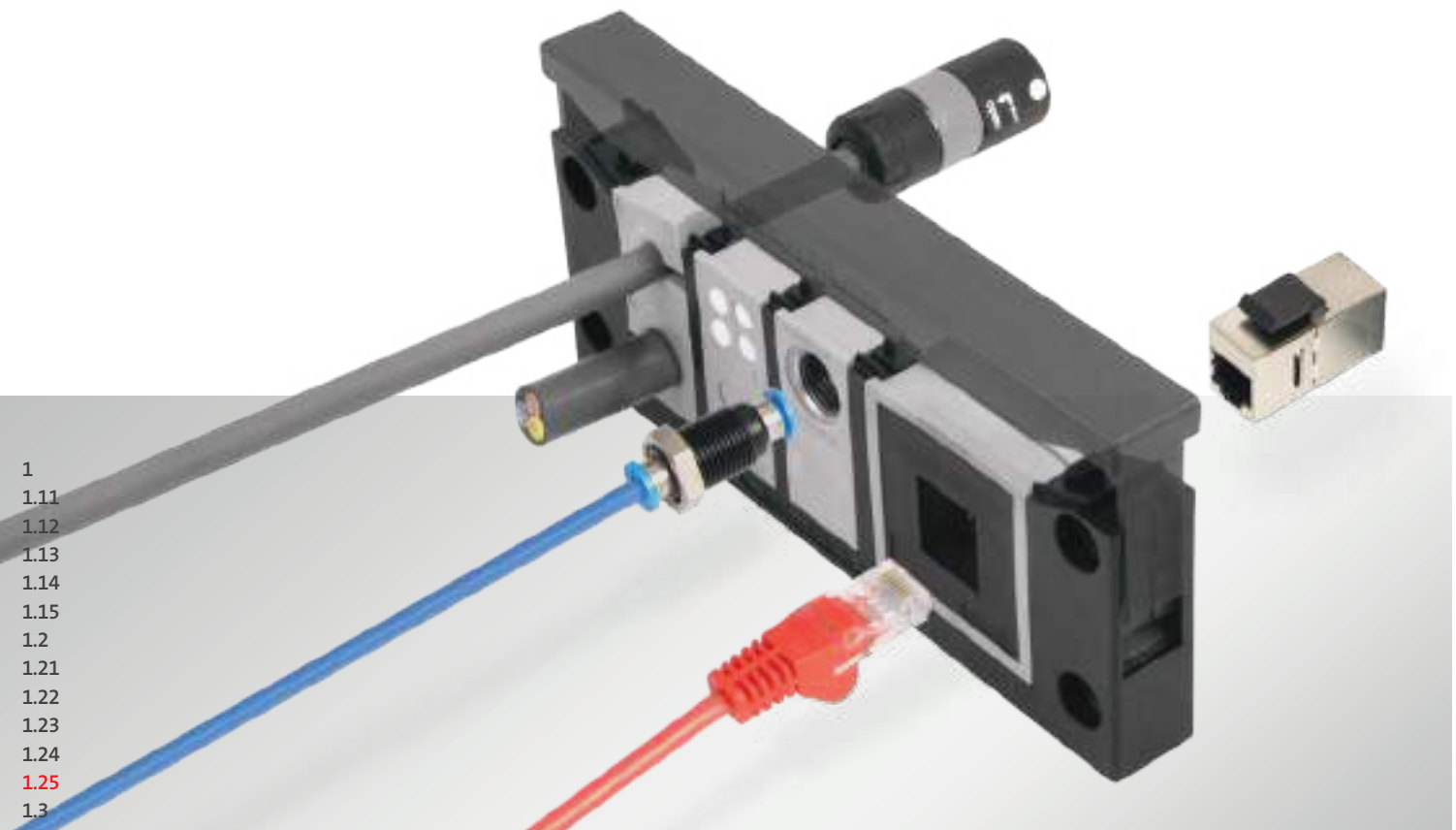


Simply configure the most individual cable entry in the world

The IMAS-CONNECT™ adapter system is a modular designed grommet system for mounting metric connectors, PushPull modules, Keystone couplers, hose fittings, pressure compensation elements and much more.

By utilising the modular adapter system, the cable entry frame becomes a hybrid system. Pre-terminated and standard cables or hoses can be routed. At the same time the system serves as a unique interface for all kinds of connectors. This means that only one interface or cut-out is required for various cables and connections.

The elastomer grommets with polyamide body fit perfectly into the icotek cable entry frames e.g. KEL-U, KEL-ER, KEL-FG and comply with protection classes IP54 to IP66.





Adapter grommet, small
with threaded insert

QT-AT-K-M

124



Adapter grommet, large
with metric inner thread

QT-AT-M

125



Adapter grommet, blank, large

QT-AT-B

125



Adapter grommet, large
for M23 square flange

QT-AT-FL

126



Adapter grommet, large
for PushPull connector systems

QT-AT-PP

127



Adapter grommet, large
for Keystone couplers

QT-AT-KS

128



Adapter grommet, large
for Keystone couplers, with protection cover

QT-AT-KS-AK

129



Adapter grommet, large
with mounted Keystone modules,
product set

130



Keystone modules, single
bulkhead couplings
and accessories

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QT-AT-K-M

Adapter grommet, small with threaded insert



The QT-AT-K-M grommet is constructed on the basis of a QT cable grommet. The grommets are made of elastomer with a nickel-plated brass body. The QT-AT-K-M grommets are available with inner threads in sizes M5 x 0.5, M8 x 0.5, M8 x 1.0, M12 x 1.0, M12 x 1.5.

By using the QT-AT-K-M adapter grommet, several connectors can be inserted directly into the cable entry frame, e.g. pneumatic bulkhead connectors M12 x 1.0 and M14 x 1.0, metric connectors and pressure compensation elements.

They are compatible with all split icotek cable entry systems that are suitable for QT cable grommets.

Advantages & benefits

- By using QT-AT-K-M grommets, panel connectors and sockets can be integrated directly into the cable entry system
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Thread sizes M5 to M12 available

Specifications

| | |
|------------------|------------------------------------|
| Material | Grommet: Elastomer |
| Body: | nickel-plated brass |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP65 when using correct components |
| Temperature | -40°C bis +100°C (static) |
| Properties | Halogen free, silicone free |

| Type | Order No. | Height x Width x Length [mm] | Thread | Material | PU |
|------------------|-----------|------------------------------|-----------|-----------------|----|
| QT-AT-K-M 5x0.5 | 42604 | 20 x 19 x 17 | M5 x 0.5 | Brass/Elastomer | 5 |
| QT-AT-K-M 8x0.5 | 42609 | 20 x 19 x 17 | M8 x 0.5 | Brass/Elastomer | 5 |
| QT-AT-K-M 8x1.0 | 42605 | 20 x 19 x 17 | M8 x 1.0 | Brass/Elastomer | 5 |
| QT-AT-K-M 12x1.0 | 42606 | 20 x 19 x 17 | M12 x 1.0 | Brass/Elastomer | 5 |
| QT-AT-K-M 12x1.5 | 42607 | 20 x 19 x 17 | M12 x 1.5 | Brass/Elastomer | 5 |



QT-AT-M | QT-AT-B

Adapter grommet, large with metric inner thread



QT-AT-M is a grommet (based on large QT grommets) with integrated metric threads, suitable for split icotek cable entry systems. The QT-AT-M grommets are made of elastomer with a polyamide body. QT-AT-M grommets are available with inner threads in sizes M12x1.0, M16x1.5, M20x1.5 and M25x1.5.

The QT-AT-M is ideal for creating an interface for signal, data, power and hybrid connectors by simply screwing them into the QT-AT-M thread. Pressure compensation elements or conduit connectors up to M25x1.5 can also be screwed into the QT-AT-M.

There is also a blank QT-AT-B grommet available. The integrated polyamide body is completely closed on one side. The effective area is 24 x 24 mm, the wall thickness is 6 mm. Custom drill-holes and cut-outs can be made here for e.g. installation of screw mounted hybrid connectors.

icotek also offers screw plugs for sizes M16, M20 and M25 to close the new adapter grommet with the metric internal thread QT-AT-M.

Advantages & benefits

- By using QT-AT-M grommets, panel connectors and sockets can be integrated directly into the cable entry system
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Thread sizes M12 to M25 available

Specifications

| | |
|------------------|---------------------------------------------------|
| Material | Grommet: Elastomer Body with thread: Polyamide |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54 when using correct components |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen free, silicone free |



| Type | Order No. | Height x Width x Length [mm] | Thread | Material | PU |
|----------------|-----------|------------------------------|-----------|--------------|----|
| QT-AT-M 12x1,0 | 42596 | 39 x 40 x 17 | M12 x 1.0 | PA/Elastomer | 10 |
| QT-AT-M 16x1,5 | 42597 | 39 x 40 x 17 | M16 x 1.5 | PA/Elastomer | 10 |
| QT-AT-M 20x1,5 | 42598 | 39 x 40 x 17 | M20 x 1.5 | PA/Elastomer | 10 |
| QT-AT-M 25x1,5 | 42599 | 39 x 40 x 17 | M25 x 1.5 | PA/Elastomer | 10 |
| QT-AT-B blank | 42600 | 39 x 40 x 17 | – | PA/Elastomer | 10 |

Screw plugs for QT-AT-M

| Type | Order No. | Thread | Material | PU |
|----------------------|-----------|--------|-----------|----|
| Screw plug M16 x 1.5 | 99195 | M16 | Polyamide | 10 |
| Screw plug M20 x 1.5 | 99196 | M20 | Polyamide | 10 |
| Screw plug M25 x 1.5 | 99197 | M25 | Polyamide | 10 |



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QT-AT-FL

Adapter grommet, large for M23 square flange



The grommet QT-AT-FL is constructed on the basis of a large QT cable grommet. The polyamide body is moulded with elastomer. All square flanges with dimensions 19.8 x 19.8 mm (M23) can be integrated.

The insertion of QT-AT-FL into an icotek cable entry frame enables the routing of cables with and without connectors in combination with the creation of interfaces for M23 connectors within one cable entry system. Separate cut-outs for connectors are no longer necessary.

QT-AT-FL provides ingress protection of up to IP54 (depending on the used flange and connector).

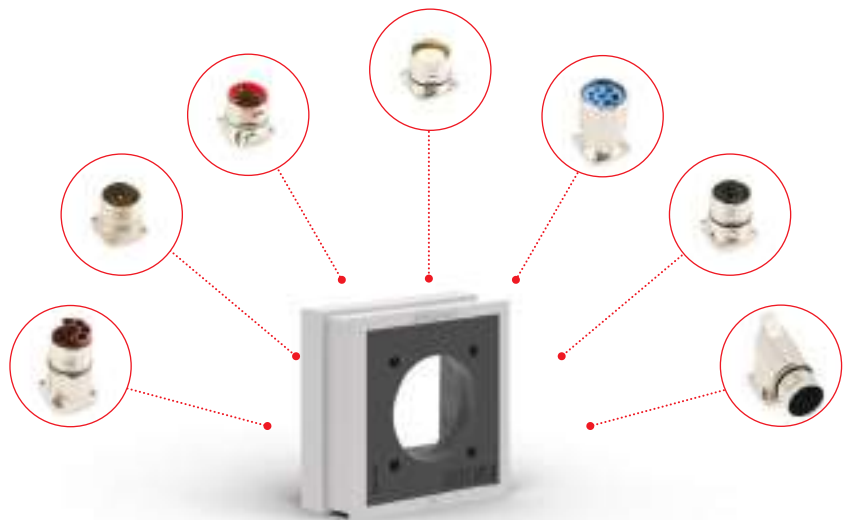
Advantages & benefits

- By using the QT-AT-FL grommet, connectors can be integrated directly into the cable entry frame
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Cost-saving assembly

Specifications

| | |
|------------------|-------------------------------|
| Material | Grommet: Elastomer |
| Body: | Polyamide |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54, IP55, IP64, IP65 |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen free, silicone free |

| Type | Order No. | Height x width x length [mm] | Material | PU |
|----------|-----------|------------------------------|--------------|----|
| QT-AT-FL | 42608 | 42 x 41.5 x 19 | PA/Elastomer | 5 |



QT-AT-PP

Adapter grommet, large for PushPull connector systems



The grommet QT-AT-PP is constructed on the basis of a large QT cable grommet. In this elastomer grommet, a polyamide body is integrated. All modules based on the PushPull system can be inserted into the grommet.

By using the grommet QT-AT-PP, the split cable entry frame can be used to route pre-terminated cables and at the same time it can also be used as an interface for connectors. This can save additional cut-outs and reduce labour costs.

PushPull modules and add-on housings are not included in the scope of delivery.

Advantages & benefits

- By using QT-AT-PP grommets, panel connectors and sockets can be integrated directly into the cable entry system
- Separate cut-outs for connectors are no longer necessary
- Time saving solution
- Space-saving solution
- Assembly costs are reduced

Specifications

| | |
|------------------|---------------------------------------------------|
| Material | Grommet: Elastomer Body with thread: Polyamide |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54 when using correct components |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen free, silicone free |

| Type | Order No. | Height × width × length [mm] | Material | PU |
|----------|-----------|------------------------------|--------------|----|
| QT-AT-PP | 42602 | 39 x 40 x 17 | PA/Elastomer | 10 |



The module (left) snaps into the rear of the add-on housing mounted on the QT-AT-PP.



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QT-AT-KS

Adapter grommet, large for Keystone couplers



The grommet QT-AT-KS is constructed on the basis of a QT cable grommet. In this elastomer grommet, a polyamide body is integrated. All couplers based on the Keystone system can be simply snapped in.

By using the grommet QT-AT-KS, the split cable entry frame can be used to route pre-terminated cables and at the same time it can also be used as an interface for connectors. This can save additional cut-outs and reduce labour costs.

Advantages & benefits

- By utilising the QT-AT-KS grommet, connectors can be integrated directly into the cable entry frame
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Grommet is suitable for all Keystone couplers
- Snap-in assembly

Specifications

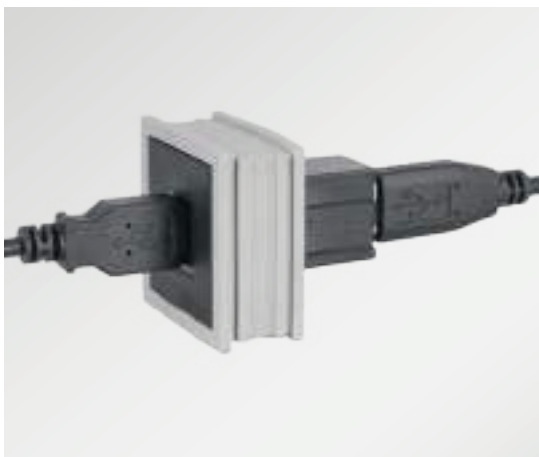
| | |
|------------------------|---------------------------------------------------------|
| Material | Grommet: Elastomer Body: Polyamide |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54 depending on Keystone module and manufacturer |
| Temperature Properties | -40°C to +100°C (static) Halogen free, silicone free |

Individual Keystone modules on page 131.

| Type | Order No. | Height x width x length [mm] | Material | PU |
|----------|-----------|------------------------------|--------------|----|
| QT-AT-KS | 42601 | 39 x 40 x 17 | PA/Elastomer | 10 |

Adapter grommet with mounted Keystone modules

| Type | Order No. | Height x Width x Length [mm] | Colour Keystone module | PU |
|------------------|-----------|------------------------------|------------------------|----|
| QT-AT-KS-USB 3.0 | 42644 | 39 x 40 x 17 | black | 1 |
| QT-AT-KS-USB-C | 42647 | NEW 39 x 40 x 17 | black | 1 |
| QT-AT-KS-HDMI | 42645 | 39 x 40 x 17 | black | 1 |
| QT-AT-KS-CAT6 | 42646 | 39 x 40 x 17 | silver | 1 |
| QT-AT-KS-CAT7 | 42643 | NEW 39 x 40 x 17 | silver | 1 |



USB-, RJ45 or e.g. HDMI connectors can be plugged in from the front and from the back.

QT-AT-KS-AK

Adapter grommet, large for Keystone couplers with protection cover



The polyamide body integrated into the adapter grommet enables all modules based on the Keystone system to be snapped in. The interface can be closed and even sealed using a protective cover on the front.

By using the grommet QT-AT-KS-AK, the split cable entry frame can be used to route pre-terminated cables and at the same time it can also be used as an interface for connectors. This can save additional cut-outs and reduce labour costs.

QT-AT-KS-AK fulfils protection classes up to IP54 when the cover is closed (regardless of the Keystone module type and manufacturer).

Advantages

- By utilising the QT-AT-KS-AK grommet, connectors can be integrated directly into the cable entry frame
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Easy to install thanks to lockable cover flap
- Cover flap can be secured by sealing

Specifications

| | |
|------------------|----------------------------------------|
| Material | Grommet: Elastomer Body: Polyamide |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54 (certified according to EN 60529) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen free, silicone free |

| Type | Order No. | Height × Width × Length [mm] | Material | PU |
|-------------|-----------|------------------------------|-----------------|----|
| QT-AT-KS-AK | 42611 | 39 x 40 x 17 | PA/Elastomer/PC | 10 |

Adapter grommet with mounted Keystone modules and protection cover

| Type | Order No. | Height × Width × Length [mm] | Colour | PU |
|---------------------|-----------|------------------------------|--------|----|
| QT-AT-KS-AK-USB 3.0 | 42648 | 39 x 40 x 17 | black | 1 |
| QT-AT-KS-AK-HDMI | 42649 | 39 x 40 x 17 | black | 1 |
| QT-AT-KS-AK-CAT6 | 42650 | 39 x 40 x 17 | silver | 1 |
| QT-AT-KS-AK-CAT7 | 42642 | 39 x 40 x 17 | silver | 1 |
| QT-AT-KS-AK-USB-C | 42651 | 39 x 40 x 17 | black | 1 |



Cover flap can be secured by sealing



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Adapter grommet with mounted Keystone modules, product set



The adapter grommets type QT-AT-KS are also supplied as a convenient product set with pre-assembled keystone module.

Advantages & benefits

- By utilising the QT-AT-KS grommet, connectors can be integrated directly into the cable entry frame
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Keystone modules are already pre-assembled

Specifications

| | |
|------------------|----------------------------------------------------|
| Material | Grommet: Elastomer Body: Polyamide |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54 depending on Keystone module and manufacturer |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen free, silicone free |

| Type | Order No. | Height x Width x Length [mm] | Colour Keystone module | PU |
|------------------|------------------|------------------------------|---------------------------|----|
| QT-AT-KS-USB 3.0 | 42644 | 39 x 40 x 17 | black | 1 |
| QT-AT-KS USB-C | 42647 NEW | 39 x 40 x 17 | black | 1 |
| QT-AT-KS-HDMI | 42645 | 39 x 40 x 17 | black | 1 |
| QT-AT-KS-CAT6 | 42646 | 39 x 40 x 17 | silver | 1 |
| QT-AT-KS-CAT7 | 42643 NEW | 39 x 40 x 17 | silver | 1 |



Keystone modules, single, bulkhead couplings and accessories



The Keystone modules and bulkhead couplings are also available individually for use with the adapter grommets.

Advantages & benefits

- By utilising the adapter grommets, connectors can be integrated directly into the cable entry frame
- Separate cut-outs for connectors are no longer necessary
- Space-saving solution
- Snap-in assembly

Specifications

| | |
|------------------|------------------------------------------------|
| Material | Bulkhead coupling: Brass nickel plated |
| Flame class | UL 94 V-0, self-extinguishing |
| Protection class | IP54 depending on module type and manufacturer |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen free, silicone free |

Keystone modules

| Type | Order No. | Colour | PU |
|-------------------------|------------------|--------|----|
| Keystone module USB 3.0 | 99204 | black | 5 |
| Keystone module USB-C | 99212 NEW | black | 5 |
| Keystone module HDMI | 99205 | black | 5 |
| Keystone module CAT 6 | 99206 | silver | 5 |
| Keystone module CAT 7 | 99213 NEW | silver | 5 |

Bulkhead couplings

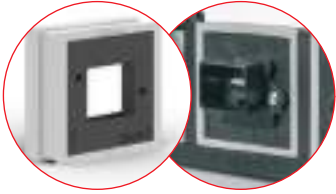
| Type | Order No. | suitable for pneumatic hose | Thread | PU |
|-------------------|-----------|--------------------------------|-----------|----|
| Bulkhead coupling | 99210 | 4 mm | M12 x 1.0 | 10 |

Dust caps

| Type | Order No. | suitable for | PU |
|---------------------|-----------|------------------|----|
| Dust caps for HDMI | 99207 | HDMI connectors | 5 |
| Dust caps for USB | 99208 | USB connectors | 5 |
| Dust caps for RJ-45 | 99209 | RJ-45 connectors | 5 |



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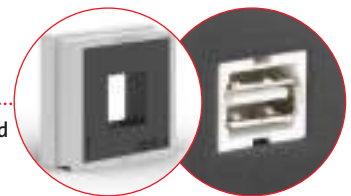
Available with pre-terminated cut-out for PushPull systems (QT-AT-PP)



Adapter grommet for M23 square flange (QT-AT-FL)

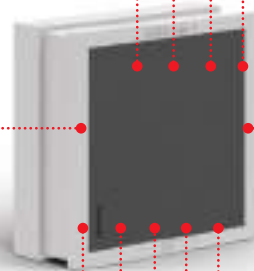


Available with threaded insert (QT-AT-K-M), based on the QT cable grommet



Available with pre-terminated cut-out for Keystone couplers (QT-AT-KS)

Perfect integration into the split cable entry frames



Available with metric inner threads of M12 x 1.0, M16 x 1.5, M20 x 1.5 and M25 x 1.5 (QT-AT-M)



At a high cable density only one cut-out is necessary

Usable area for special cut-outs and drill-holes: 24 x 24 mm; Wall thickness: 6 mm (QT-AT-B)

Elastomer grommet with polyamide body based on the grommet QT large



Available with protection cover for Keystone modules (QT-AT-KS-AK)

Protection class IP54



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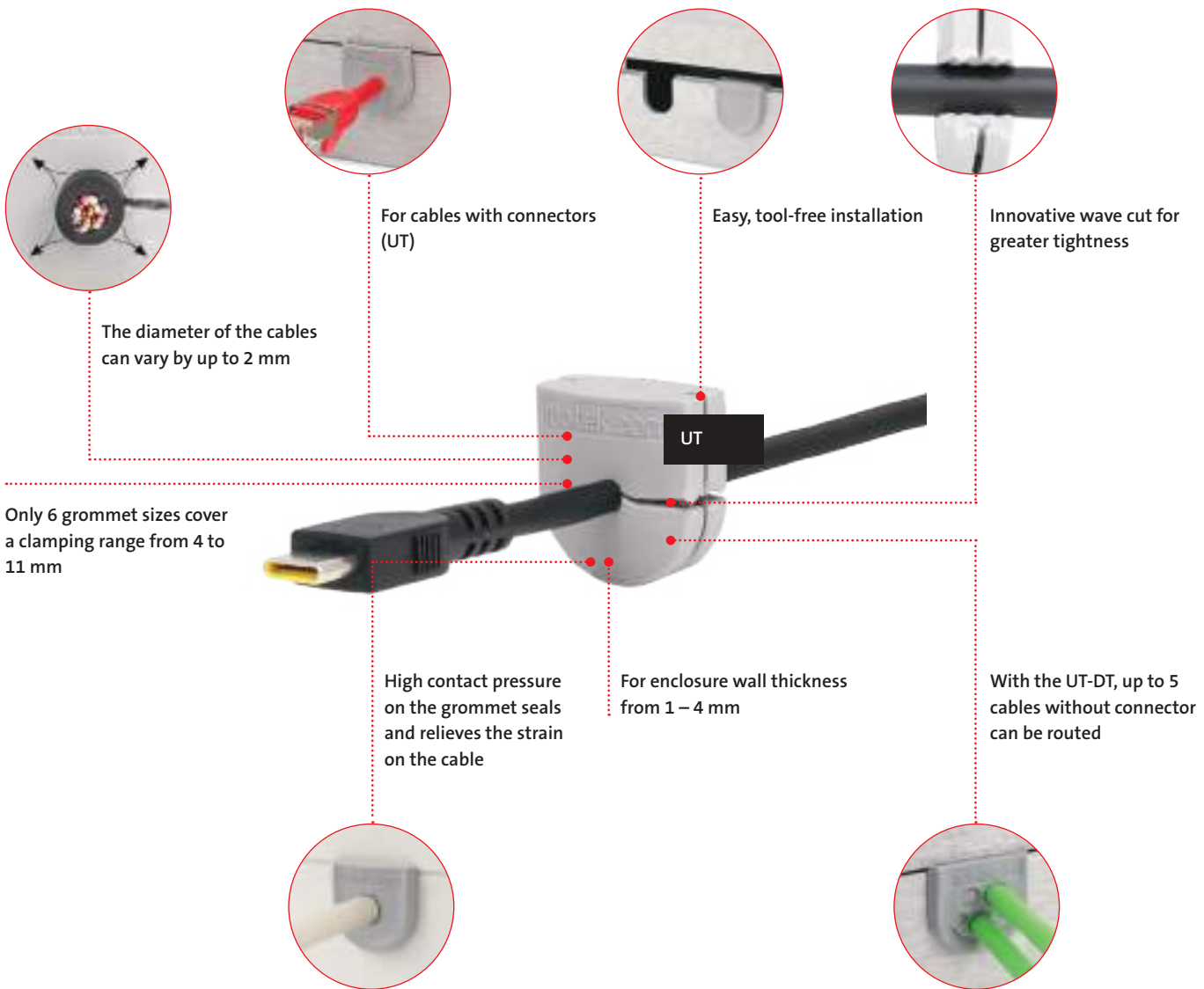
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- 1.23
- 1.24
- 1.25
- 1.3

1.3 Cable entry systems for cables with and without connectors – UT System

The universal grommet for frameless mounting is suitable for cables with and without connectors and can be used universally thanks to its variable clamping range. Depending on the housing design, a protection rating of up to IP54 is achieved.



It is used in various types of enclosures made from different materials. These include plastic, metal and die-cast aluminium enclosures.



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Split cable grommet in U-shape
easy, frameless assembly

UT

136



Cable grommet in U-shape
non-split,
easy, frameless assembly

UT-DT

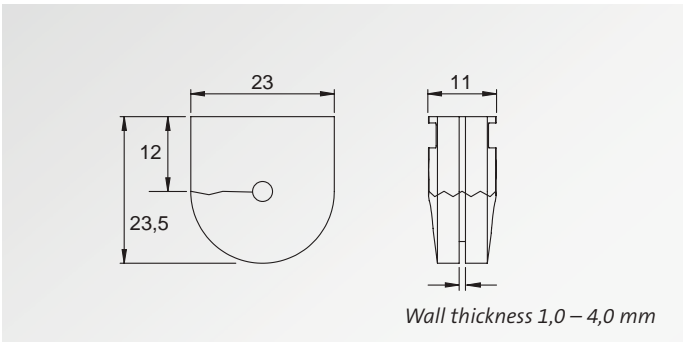
137

Assembly

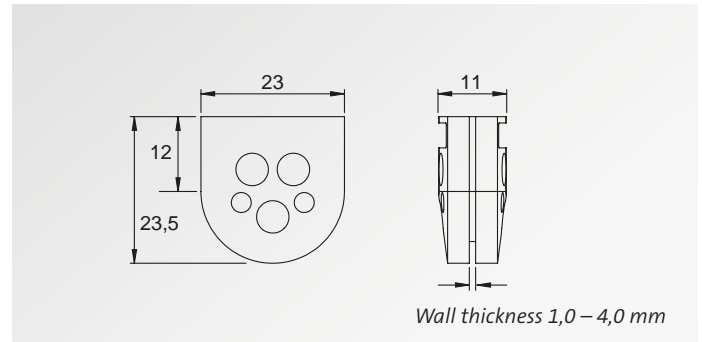
Assembly is identical for all housing versions (with/without groove): simply make a U-shaped cut-out in the housing wall and then insert the grommet.

Caution: Enclosures behave differently due to their material properties. The contact pressure of the cover, the enclosure material and the wall thickness of the enclosure are decisive.

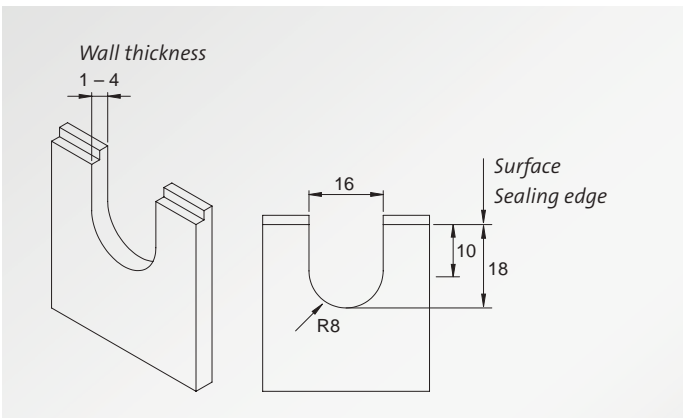
Recommendation: Fit the cut-out on the short side of the enclosure.



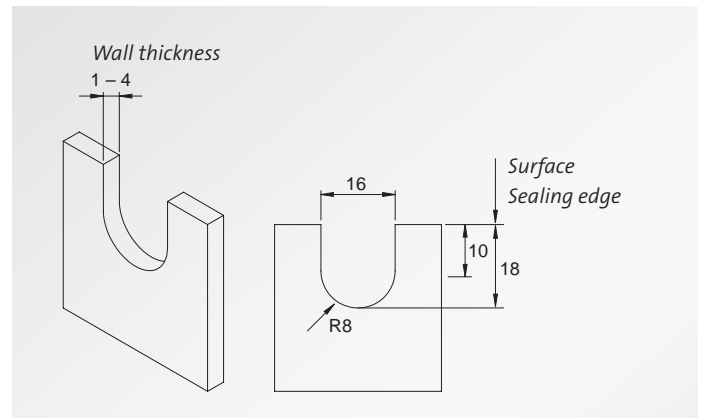
UT



UT-DT



Cut-out with groove
Housing with tongue and groove system



Cut-out without groove
Housing without tongue and groove system

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UT

Split cable grommet in U-shape



With the UT split cable grommet, cables with and without connectors can be easily and cost-effectively inserted into an enclosure and sealed with IP54. All that is required for installation is a U-shaped cut-out into which the fitted grommet is inserted. The UT can be used universally for cables (compressed air hoses, glass fibre tubes, etc.) with a diameter of 4 to 11 mm. The wall thickness of the housing can be from 1 to 4 mm.

Once the grommet has been fitted, it is inserted into the recommended cut-out. The housing cover is then placed on the lower part of the housing. Tightening the cover applies pressure to the grommet and seals and relieves the strain on the cable.

Advantages

- Only 6 grommet sizes cover a clamping range from 4 to 11 mm
- Cable diameter can vary by up to 2 mm
- Innovative wave cut for greater tightness
- For housing wall thickness from 1 – 4 mm
- Easy, tool-free installation
- Cost-effective solution

Specifications

| | |
|---------------|--------------------------------------|
| Material | Elastomer |
| Colour | ■ grey (similar RAL 7035) ■ black |
| IP Protection | IP54 (certified acc. to EN 60529) |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +100°C (static) |
| Properties | Silicone free, halogen free |

| Type | Cable diameter | Colour | Order No. | PU |
|-------------------|----------------|---------|-----------|----|
| UT 4-6 | 4 – 6 mm | ■ grey | 56001 | 10 |
| UT 4-6 | 4 – 6 mm | ■ black | 56101 | 10 |
| UT 5-7 | 5 – 7 mm | ■ grey | 56002 | 10 |
| UT 5-7 | 5 – 7 mm | ■ black | 56102 | 10 |
| UT 6-8 | 6 – 8 mm | ■ grey | 56003 | 10 |
| UT 6-8 | 6 – 8 mm | ■ black | 56103 | 10 |
| UT 7-9 | 7 – 9 mm | ■ grey | 56004 | 10 |
| UT 7-9 | 7 – 9 mm | ■ black | 56104 | 10 |
| UT 8-10 | 8 – 10 mm | ■ grey | 56005 | 10 |
| UT 8-10 | 8 – 10 mm | ■ black | 56105 | 10 |
| UT 9-11 | 9 – 11 mm | ■ grey | 56006 | 10 |
| UT 9-11 | 9 – 11 mm | ■ black | 56106 | 10 |
| UTB blank grommet | – | ■ grey | 56000 | 10 |
| UTB blank grommet | – | ■ black | 56100 | 10 |



UT-DT

Membrane cable grommet in U-shape, non-split



The UT-DT membrane cable grommet is used to route non-assembled cables. It can be used wherever the use of the UT cable grommets is possible. Its use allows the packing density of the routed cables to be increased. The wall thickness of the housing can range from 1.0 to 4.0 mm. It is used in various types of housings made from different materials. These include plastic, metal and die-cast aluminium housings.

Advantages

- Up to five cables can be routed with one grommet
- For housing wall thickness from 1 – 4 mm
- Easy, tool-free installation
- Cost-effective solution

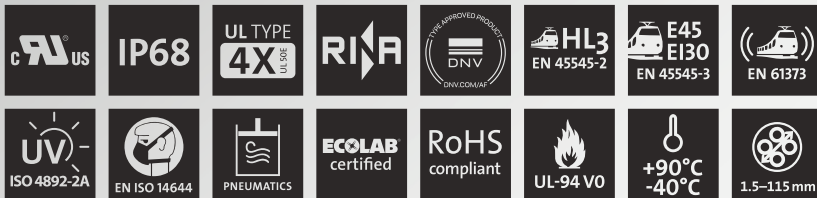
Specifications

| | |
|---------------|--------------------------------------|
| Material | Elastomer |
| Colour | ■ grey (similar RAL 7035) ■ black |
| IP Protection | IP54 (certified acc. to EN 60529) |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +100°C (static) |
| Properties | Silicone free, halogen free |

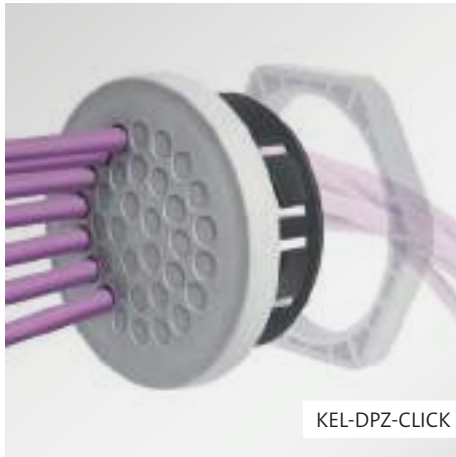
| | Type | Cable diameter | Colour | Order No. | PU |
|--|---------|----------------------------------------------------|---------|-----------|----|
| | UT-DT 1 | 1× max. 11 mm | ■ grey | 56020 | 10 |
| | UT-DT 1 | 1× max. 11 mm | ■ black | 56120 | 10 |
| | UT-DT 4 | 2× max. 6,4 mm 1× max. 4,2 mm 1× max. 3,2 mm | ■ grey | 56021 | 10 |
| | UT-DT 4 | 2× max. 6,4 mm 1× max. 4,2 mm 1× max. 3,2 mm | ■ black | 56121 | 10 |
| | UT-DT 5 | 3× max. 5,2 mm 2× max. 3,2 mm | ■ grey | 56022 | 10 |
| | UT-DT 5 | 3× max. 5,2 mm 2× max. 3,2 mm | ■ black | 56122 | 10 |



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Cable entry systems for cables without connectors



Cable entry systems
for cables without connectors

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2 Cable entry systems for cables without connectors

For routing cables without connectors icotek offers a wide range of products with a lot of advantages and benefits in comparison to conventional cable glands.

The compact, slim and innovative design of the membrane-based cable entry plates offer a professional appearance and high ingress protection ratings up to IP68/UL type 4X.

Due to high cable densities especially suitable for applications where a lot of cables have to be entered through a small space.

For routing rigid and large diameter cables icotek offers highly flexible conical cable entry grommets with high protection ratings.



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ProductFinder

| Product | IP54 | IP64 | IP65 | IP66 | IP68 | UL TYPE 12 | UL TYPE 4X* | Strain relief | Cable Ø mm min max | Max. no. of cables | Page |
|---------------------|------|------|------|------|------|------------|-------------|---------------|----------------------|--------------------|-----------|
| KEL-DPU 24 | ● | ● | ● | ● | ● | ● | ● | ● | 3.2 – 20.5 | 32 | 145 – 147 |
| KEL-DPZ 24 | ● | ● | ● | ● | | ● | | ● | 2.5 – 22 | 121 | 149 – 150 |
| KEL-DPZ 16 | ● | ● | ● | ● | | | | ● | 3.2 – 16.2 | 34 | 151 |
| KEL-DPZ 10 | ● | ● | ● | ● | | | | ● | 3.2 – 12 | 26 | 152 |
| KEL-DPZ 6 | ● | ● | ● | ● | | | | ● | 2.5 – 8 | 27 | 153 |
| KEL-DPZ-B | ● | ● | ● | ● | | ● | | ● | 3.2 – 22 | 25 | 154 |
| KEL-DPZ-E | ● | ● | ● | ● | | ● | | ● | 3.2 – 12 | 21 | 154 |
| KEL-DPZ-KL | ● | ● | ● | | | ● | | ● | 3.2 – 22 | 72 | 172 – 173 |
| KEL-DPZ round | ● | ● | ● | ● | ● | ● | ● | ● | 1.5 – 22.2 | 78 | 156 – 157 |
| KEL-DPZ-CLICK round | ● | ● | ● | ● | ● | | | ● | 1.5 – 22.2 | 78 | 158 – 159 |
| KEL-DPZ CR | ● | ● | ● | ● | ● | ● | ● | ● | 1.5 – 22.2 | 78 | 407 – 409 |
| KEL-DPR | ● | ● | ● | | | | | ● | 1 – 16.1 | 48 | 160 – 161 |
| KEL-DP 24 | ● | ● | | | | ● | | | max. 16.1 | 48 | 163 |
| KEL-DP 16 | ● | ● | | | | ● | | | max. 12.6 | 26 | 164 |
| KEL-DP 10 | ● | ● | | | | ● | | | max. 12.6 | 26 | 165 |
| KEL-DP 6 | ● | ● | | | | ● | | | max. 16.1 | 25 | 166 |
| KEL-DP-E | ● | ● | | | | ● | | | max. 12.1 | 21 | 167 |
| KEL-DP round | ● | ● | ● | | | ● | | | max. 22.5 | 35 | 168 – 170 |
| KEL-DPU-HD | ● | ● | ● | ● | ● | | | ● | 3.2 – 20.5 | 32 | 426 – 427 |
| KEL-DPZ-HD round | ● | ● | ● | ● | ● | ● | ● | ● | 1.5 – 22.2 | 78 | 428 – 429 |
| KEL-SCDP-TR | ● | ● | ● | | | | | | 5 – 52 | 5 | 178 – 179 |
| KEL-SCDP/-RW | ● | ● | ● | | | | | | 5 – 36 | 1 | 180 – 181 |
| KEL-DPF | ● | ● | ● | ● | ● | ● | ● | ● | 3 – 70 | 1 | 182 – 183 |
| KEL-JUMBO flex | ● | | | | | ● | | ● | 27 – 68 | 1 | 184 |
| KEL-ULTRA flex | ● | ● | ● | ● | | ● | | ● | 25 – 115 | 1 | 185 |

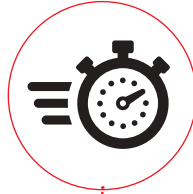
Further details on certifications and technical specifications can be found on the product pages.

*4X for indoor use only

2.1 – 2.6 Cable entry plates for cables without connectors



High cable density



Fast and easy, partially tool-free assembly

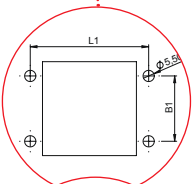


Plugs for membranes ST-B

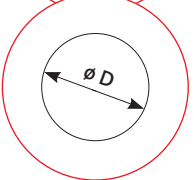


KEL-DPU

Compact, space-saving design

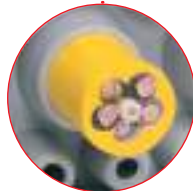


Many cut-outs according to industrial standard dimensions



For metric cut-outs M20 – M63 (KEL-DPZ/KEL-DP round)

IP64 to IP68 rated protection, double cable sealing on front and back (KEL-DPU/KEL-DPZ)



Flexible clamping range

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- 2.1
- 2.2
- 2.3
- 2.4
- 2.5
- 2.6
- 2.7
- 2.8

i Single-piece packaging units are available on request.



Cable entry plates
for screw-in or snap-in assembly,
high strain relief,
for standard cut-outs

KEL-DPU 24

144 – 147



Cable entry plates
for screw-in assembly,
strain relief,
for standard cut-outs

KEL-DPZ series

148 – 155



Cable entry plates
for screw-in assembly,
strain relief,
for standard cut-outs

KEL-DPZ-KL

172 – 173



Cable entry plates, round
for screw-in assembly,
with thread and locknut, M25 – M63,
strain relief

KEL-DPZ round series

156 – 157



Cable entry plates
for snap-in or screw-in assembly
with a locknut,
M25 – M63

KEL-DPZ-CLICK series

158 – 159



Cable entry plates
for screw-in assembly

KEL-DPR

160 – 161



Cable entry plates
for plug-in assembly without tools

KEL-DP series

162 – 167



Cable entry plates, round
plug-in mounting,
M20 – M50

KEL-DP round series

168 – 170



Plugs for membranes
and multi-range cable grommets
ST-B

Cover plugs
for cable entry plates

171



Cable entry plates
for screw-in or snap-in assembly,
high strain relief
Hygienic Design Line

KEL-DPU-HD

426 – 429



Thread extension
for cable glands and cable entry plates
M32, M50, M63

TE-M

334 – 337



90° Cable entry adapter
for cable entry systems

KEA

340 – 343

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KEL-DPU

Cable entry plates with high strain relief with IP66/IP68 rating



KEL-DPU entry plates are designed to route and seal cables without connectors (from 3.2 mm to 20.5 mm in diameter) in limited space with IP66/IP68**/up to UL type 4X ratings. The KEL-DPU is particularly characterised by its solid robust frame and the increased strain relief of the routed cables.

The KEL-DPU 24 matches exactly the cut-out dimensions of 24-pin standard industrial connectors. For optional screw assembly just pierce the membranes on the integrated screw holes with the screw itself.

The assembly of the KEL-DPU with cables or pneumatic hoses can be done quick and easy. Simply make a small hole in the thin membrane and push the cables through. ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

The version with threaded bushings enables the cable entry plate to be screwed onto the housing from the inside out. This protects against vandalism and tampering with the housing from the outside.

Advantages & benefits

- Dual cable sealing with IP66/IP68**/up to UL type 4X
- Snap or screw mounting possible
- High strength and stability
- High strain relief
- Fast and easy assembly
- Very high cable density
- For industrial standard cut-outs
- Hygienic design – free of dirt-collecting recesses



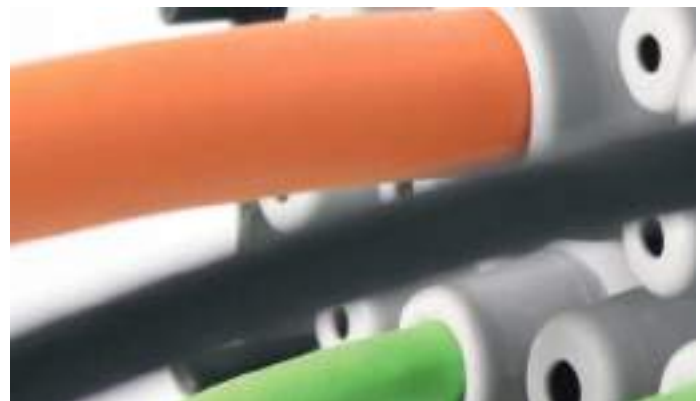
Membrane on front



ST-B plug for the sealing of the perforated membrane



Also available in black



Conical shape on back provides additional sealing and strain relief



This product range is also available as a KEL-DPU-HD version for the food sector, see pages 426 – 429. Single-piece packaging units are available on request.

KEL-DPU

Cable entry plates
with high strain relief

KEL-DPU 24



Specifications

| | |
|--------------------|------------------------------------------------------------|
| Material | Frame: Polypropylene (PP) Sealing plate: Elastomer |
| Colour | ■ grey (similar RAL 7035) ■ black |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP65/IP66/IP67/IP68** (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) UL type 4X (acc. to UL 50E) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Plate depth | 14 mm |
| For wall thickness | 1.5 – 2 mm (snap-in mounting) |

Accessories

| | |
|-----------------------------|-----------|
| ST-B Plugs | 171 |
| KEL-EMC-PF Cable collectors | 262 |
| FP Flanged plates | 320 - 329 |
| KEA Cable Entry Adapter | 340 - 343 |



Resistant against industrial detergents (ECOLAB certified)



Tool-free assembly possible due to snap-in function



Also available with threaded bushings



Can be combined with 90° cable entry adapter KEA

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- 2.5
- 2.6
- 2.7
- 2.8

*4X for indoor use only | ** IP67/IP68 only when screw mounted

KEL-DPU

Cable entry plates
with high strain relief

KEL-DPU 24



| Description | Cut-out Drilling template | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------|-----------------------------|-------------------------------------------|-------------|-------------------------------------------------------------------------------------------|----------------------------|----|
| | | KEL-DPU 24 13 | 36 x 112 mm | | ■ 43940 ■ 50940 | 10 |
| | | KEL-DPU 24 13 with threaded bushings M4 | 36 x 112 mm | 10x 3.2 - 6.3 mm 3x 16 - 20.5 mm | ■ 43940.400 ■ 50940.400 | 10 |
| | | KEL-DPU 24 14 | 36 x 112 mm | | ■ 43944 ■ 50944 | 10 |
| | | KEL-DPU 24 14 with threaded bushings M4 | 36 x 112 mm | 5x 3.2 - 6.3 mm 2x 4 - 7.5 mm 3x 5.5 - 10.5 mm 1x 8 - 12.5 mm 3x 12 - 16.2 mm | ■ 43944.400 ■ 50944.400 | 10 |
| | | KEL-DPU 24 16 | 36 x 112 mm | | ■ 43936 ■ 50936 | 10 |
| | | KEL-DPU 24 16 with threaded bushings M4 | 36 x 112 mm | 8x 3.2 - 5.5 mm 6x 5 - 8.5 mm 2x 9.5 - 14.5 mm | ■ 43936.400 ■ 50936.400 | 10 |
| | | KEL-DPU 24 16-1 | 36 x 112 mm | | ■ 43932 ■ 50932 | 10 |
| | | KEL-DPU 24 16-1 with threaded bushings M4 | 36 x 112 mm | 2x 3.2 - 6.3 mm 9x 4 - 7.5 mm 1x 5.5 - 10.5 mm 1x 8 - 12.5 mm 3x 12 - 16.2 mm | ■ 43932.400 ■ 50932.400 | 10 |



Also available in black

i This product range is also available as a KEL-DPU-HD version for the food sector, see pages 426 – 429. Single-piece packaging units are available on request.

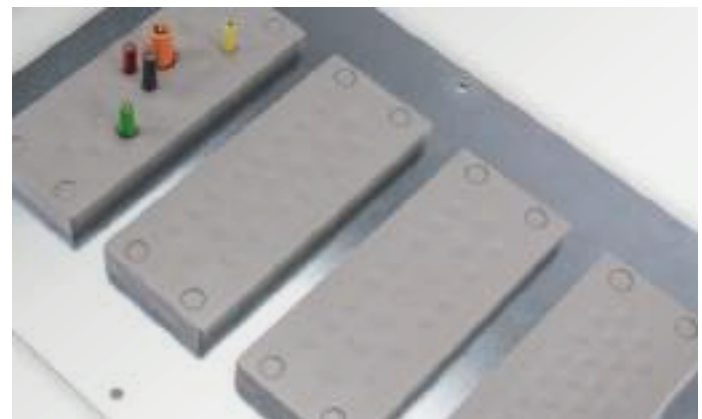
KEL-DPU

Cable entry plates with high strain relief

KEL-DPU 24



| Description | Cut-out Drilling template | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------|-----------------------------|-----------------------------------------|-------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----|
| | | KEL-DPU 24 17 | 36 x 112 mm | 4 x 3.2 - 6.3 mm 2 x 4 - 7.5 mm 1 x 5.5 - 10.5 mm 10 x 8 - 12.5 mm | <input type="checkbox"/> 43934 <input checked="" type="checkbox"/> 50934 | 10 |
| | | KEL-DPU 24 17 with threaded bushings M4 | 36 x 112 mm | <input type="checkbox"/> 43934.400 <input checked="" type="checkbox"/> 50934.400 | 10 | |
| | | KEL-DPU 24 20 | 36 x 112 mm | 12 x 3.2 - 5.5 mm 8 x 5 - 10.5 mm | <input type="checkbox"/> 43938 <input checked="" type="checkbox"/> 50938 | 10 |
| | | KEL-DPU 24 20 with threaded bushings M4 | 36 x 112 mm | <input type="checkbox"/> 43938.400 <input checked="" type="checkbox"/> 50938.400 | 10 | |
| | | KEL-DPU 24 21 | 36 x 112 mm | 1 x 3.2 - 6.3 mm 14 x 4 - 7.5 mm 4 x 5.5 - 10.5 mm 2 x 8 - 12.5 mm | <input type="checkbox"/> 43930 <input checked="" type="checkbox"/> 50930 | 10 |
| | | KEL-DPU 24 21 with threaded bushings M4 | 36 x 112 mm | <input type="checkbox"/> 43930.400 <input checked="" type="checkbox"/> 50930.400 | 10 | |
| | | KEL-DPU 24 32 | 36 x 112 mm | 32 x 3.2 - 6.3 mm | <input type="checkbox"/> 43942 <input checked="" type="checkbox"/> 50942 | 10 |
| | | KEL-DPU 24 32 with threaded bushings M4 | 36 x 112 mm | <input type="checkbox"/> 43942.400 <input checked="" type="checkbox"/> 50942.400 | 10 | |



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KEL-DPZ series

Cable entry plates with IP66 rating



KEL-DPZ cable entry plates are designed to route and seal a large number of cables without connectors, hoses or fibre optics (from 2.5 mm to 22 mm in diameter) in limited space. The KEL-DPZ products are a cost and time saving alternative to traditional cable glands.

The assembly of the KEL-DPZ with cables or pneumatic hoses can be done quick and easy. Simply make a small hole in the thin membrane, push the cables through. The KEL-DPZ provides strain relief and protection up to IP66/UL type 12.

The KEL-DPZ matches exactly the cut-out dimensions of 6-, 10- 16- and 24-pin standard industrial connectors. The size KEL-DPZ-B fits on cut-outs 46 × 46 mm. The very compact size KEL-DPZ-E is designed for routing cables in very small space. Through a cut-out of only 18 × 112 mm, up to 21 cables can be easily routed and sealed.

Especially for Rittal KL and KX terminal boxes the size KEL-DPZ-KX/KL was created. It was designed for routing up to 72 cables through the pre-cut standard cut-out. The self-tapping screws (M4) required for assembly are included in the scope of delivery. ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

The version with threaded bushings enables the cable entry plate to be screwed onto the housing from the inside out. This protects against vandalism and tampering with the housing from the outside.

Advantages & benefits

- Dual sealing acc. to IP65/IP66/UL type 12
- Fast and easy assembly
- High cable density
- High strain relief
- Hygienic design

Specifications

| | |
|----------------|-------------------------------------------------------------------------------------|
| Material | Frame: Polyamide (PA) KEL-DPZ 6: Stainless steel V2A Sealing plate: Elastomer |
| Colour | ■ grey (similar RAL 7035) ■ black |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP65/IP66 (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | - 40°C to + 100°C (static) |
| Properties | Halogen-free, silicone-free |
| Plate depth | 14 mm |

Accessories

| | |
|-----------------------------|-----------|
| ST-B Plugs | 171 |
| KEL-EMC-PF Cable collectors | 262 |
| FP Flanged plates | 320 - 329 |



Also available in black



Also available with threaded bushings



Membrane on front



Conical shape on back provides additional sealing and strain relief



Can be combined with 90° cable entry adapter KEA

KEL-DPZ

Cable entry plates

KEL-DPZ 24



| Description | Cut-out Drilling template | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------|-----------------------------|-----------------------------------------|-------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|----|
| | | KEL-DPZ 24 14 | 36 x 112 mm | 10x 3.2 - 6.5 mm 4x 16 - 22 mm | ■ 43700 ■ 50700 | 10 |
| | | KEL-DPZ 24 14 with threaded bushings M4 | 36 x 112 mm | 10x 3.2 - 6.5 mm 4x 16 - 22 mm | ■ 43700.400 ■ 50700.400 | 10 |
| | | KEL-DPZ 24 15 | 36 x 112 mm | 15x 7.2 - 12 mm | ■ 43720 ■ 50720 | 10 |
| | | KEL-DPZ 24 15 with threaded bushings M4 | 36 x 112 mm | 15x 7.2 - 12 mm | ■ 43720.400 ■ 50720.400 | 10 |
| | | KEL-DPZ 24 16 | 36 x 112 mm | 8x 3.2 - 6.5 mm 4x 5 - 9.7 mm 2x 9 - 16.2 mm 2x 16 - 22 mm | ■ 43725 ■ 50725 | 10 |
| | | KEL-DPZ 24 16 with threaded bushings M4 | 36 x 112 mm | 8x 3.2 - 6.5 mm 4x 5 - 9.7 mm 2x 9 - 16.2 mm 2x 16 - 22 mm | ■ 43725.400 ■ 50725.400 | 10 |
| | | KEL-DPZ 24 17 | 36 x 112 mm | 6x 3.2 - 6.5 mm 6x 5 - 10.2 mm 5x 9 - 16.2 mm | ■ 43705 ■ 50705 | 10 |
| | | KEL-DPZ 24 17 with threaded bushings M4 | 36 x 112 mm | 6x 3.2 - 6.5 mm 6x 5 - 10.2 mm 5x 9 - 16.2 mm | ■ 43705.400 ■ 50705.400 | 10 |
| | | KEL-DPZ 24 25 | 36 x 112 mm | 12x 3.2 - 6.5 mm 7x 4.8 - 9.7 mm 6x 7.5 - 12 mm | ■ 43710 ■ 50710 | 10 |
| | | KEL-DPZ 24 25 with threaded bushings M4 | 36 x 112 mm | 12x 3.2 - 6.5 mm 7x 4.8 - 9.7 mm 6x 7.5 - 12 mm | ■ 43710.400 ■ 50710.400 | 10 |
| | | KEL-DPZ 24 26 | 36 x 112 mm | 26x 5.0 - 10.2 mm | ■ 43711 ■ 50711 | 10 |
| | | KEL-DPZ 24 26 with threaded bushings M4 | 36 x 112 mm | 26x 5.0 - 10.2 mm | ■ 43711.400 ■ 50711.400 | 10 |

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i The KEL-DPZ series is also available as a cleanroom version, see from page 428.
Single-piece packaging units are available on request.

KEL-DPZ

Cable entry plates

KEL-DPZ 24



| Description | Cut-out Drilling template | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------|-----------------------------|------------------------------------------|-------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| | | KEL-DPZ 24 32 | 36 x 112 mm | 21x 3.2 - 6.5 mm 8x 5 - 10.2 mm 3x 7.5 - 12 mm | 43730 50730 | 10 |
| | | KEL-DPZ 24 32 with threaded bushings M4 | 36 x 112 mm | 21x 3.2 - 6.5 mm 8x 5 - 10.2 mm 3x 7.5 - 12 mm | 43730.400 50730.400 | 10 |
| | | KEL-DPZ 24 42 | 36 x 112 mm | 42x 3.2 - 6.5 mm | 43715 50715 | 10 |
| | | KEL-DPZ 24 42 with threaded bushings M4 | 36 x 112 mm | 42x 3.2 - 6.5 mm | 43715.400 50715.400 | 10 |
| | | KEL-DPZ 24 121 | 36 x 112 mm | 119x 1.5 - 2.6 mm 2x 2.5 - 5 mm | 43735 50735 | 10 |
| | | KEL-DPZ 24 121 with threaded bushings M4 | 36 x 112 mm | 119x 1.5 - 2.6 mm 2x 2.5 - 5 mm | 43735.400 50735.400 | 10 |

* Only valid for grey product types



High cable density



KEL-DPZ 16

KEL-DPZ

Cable entry plates

KEL-DPZ 16



| Description | Cut-out Drilling template | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------|-----------------------------|-----------------------------------------|------------|------------------------------------------------------|-----------|----|
| | | KEL-DPZ 16 11 | 36 x 86 mm | 11× 7.5 - 12 mm | 43815 | 10 |
| | | KEL-DPZ 16 11 with threaded bushings M4 | 36 x 86 mm | 11× 7.5 - 12 mm | 43815.400 | 10 |
| | | KEL-DPZ 16 14 | 36 x 86 mm | 5× 3.2 - 6.5 mm 5× 5 - 10.2 mm 4× 9 - 16.2 mm | 43816 | 10 |
| | | KEL-DPZ 16 14 with threaded bushings M4 | 36 x 86 mm | 5× 3.2 - 6.5 mm 5× 5 - 10.2 mm 4× 9 - 16.2 mm | 43816.400 | 10 |
| | | KEL-DPZ 16 20 | 36 x 86 mm | 11× 3.2 - 6.5 mm 5× 5 - 10.2 mm 4× 7.5 - 12 mm | 43817 | 10 |
| | | KEL-DPZ 16 20 with threaded bushings M4 | 36 x 86 mm | 11× 3.2 - 6.5 mm 5× 5 - 10.2 mm 4× 7.5 - 12 mm | 43817.400 | 10 |
| | | KEL-DPZ 16 25 | 36 x 86 mm | 16× 3.2 - 6.5 mm 6× 5 - 10.2 mm 3× 7.5 - 12 mm | 43818 | 10 |
| | | KEL-DPZ 16 25 with threaded bushings M4 | 36 x 86 mm | 16× 3.2 - 6.5 mm 6× 5 - 10.2 mm 3× 7.5 - 12 mm | 43818.400 | 10 |
| | | KEL-DPZ 16 34 | 36 x 86 mm | 34× 3.2 - 6.5 mm | 43819 | 10 |
| | | KEL-DPZ 16 34 with threaded bushings M4 | 36 x 86 mm | 34× 3.2 - 6.5 mm | 43819.400 | 10 |

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i The KEL-DPZ series is also available as a cleanroom version, see from page 428.
Single-piece packaging units are available on request.

KEL-DPZ

Cable entry plates

KEL-DPZ 10



| Description | Cut-out Drilling template | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------|-----------------------------|-----------------------------------------|------------|--------------------------------------------------------|-----------|----|
| | | KEL-DPZ 10 8 | 65 x 36 mm | 8 x 7.5 - 12 mm | 43800 | 10 |
| | | KEL-DPZ 10 8 with threaded bushings M4 | 65 x 36 mm | 8 x 7.5 - 12 mm | 43800.400 | 10 |
| | | KEL-DPZ 10 14 | 65 x 36 mm | 14 x 5 - 10.2 mm | 43801 | 10 |
| | | KEL-DPZ 10 14 with threaded bushings M4 | 65 x 36 mm | 14 x 5 - 10.2 mm | 43801.400 | 10 |
| | | KEL-DPZ 10 15 | 65 x 36 mm | 5 x 3.2 - 6.5 mm 10 x 5 - 10.2 mm | 43802 | 10 |
| | | KEL-DPZ 10 15 with threaded bushings M4 | 65 x 36 mm | 5 x 3.2 - 6.5 mm 10 x 5 - 10.2 mm | 43802.400 | 10 |
| | | KEL-DPZ 10 16 | 65 x 36 mm | 9 x 3.2 - 6.5 mm 4 x 5 - 10.2 mm 3 x 7.5 - 12 mm | 43803 | 10 |
| | | KEL-DPZ 10 16 with threaded bushings M4 | 65 x 36 mm | 9 x 3.2 - 6.5 mm 4 x 5 - 10.2 mm 3 x 7.5 - 12 mm | 43803.400 | 10 |
| | | KEL-DPZ 10 26 | 65 x 36 mm | 26 x 3.2 - 6.5 mm | 43804 | 10 |
| | | KEL-DPZ 10 26 with threaded bushings M4 | 65 x 36 mm | 26 x 3.2 - 6.5 mm | 43804.400 | 10 |

Single-piece packaging units are available on request.

KEL-DPZ

Cable entry plates

KEL-DPZ 6



| Description | Cut-out Drilling template | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------|-----------------------------|----------------|------------|----------------------------------------------------------|-----------|----|
| | | KEL-DPZ 6 12 | 52 x 36 mm | 12 x 4.5 - 8.0 mm | 43809 | 10 |
| | | KEL-DPZ 6 18-1 | 52 x 36 mm | 6 x 2.5 - 5.0 mm 5 x 3.2 - 6.5 mm 7 x 4.5 - 8.0 mm | 43811 | 10 |
| | | KEL-DPZ 6 18 | 52 x 36 mm | 18 x 3.2 - 6.5 mm | 43812 | 10 |
| | | KEL-DPZ 6 23 | 52 x 36 mm | 13 x 2.5 - 5.0 mm 10 x 3.2 - 6.5 mm | 43813 | 10 |
| | | KEL-DPZ 6 27 | 52 x 36 mm | 27 x 2.5 - 5.0 mm | 43814 | 10 |



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KEL-DPZ

Cable entry plates

KEL-DPZ-B



| Description | Cut-out Drilling template | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------|-----------------------------|----------------------------------------|------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|----|
| | | KEL-DPZ-B 13 | 46 x 46 mm | 8x 3.2 - 6.5 mm 4x 5 - 10.2 mm 1x 16 - 22 mm | ■ 43794 ■ 50794 | 10 |
| | | KEL-DPZ-B 13 with threaded bushings M4 | 46 x 46 mm | 8x 3.2 - 6.5 mm 4x 5 - 10.2 mm 1x 16 - 22 mm | ■ 43794.400 ■ 50794.400 | 10 |
| | | KEL-DPZ-B 17 | 46 x 46 mm | 10x 3.2 - 6.5 mm 4x 5 - 10.2 mm 2x 7.5 - 12 mm 1x 9 - 16.2 mm | ■ 43796 ■ 50796 | 10 |
| | | KEL-DPZ-B 17 with threaded bushings M4 | 46 x 46 mm | 10x 3.2 - 6.5 mm 4x 5 - 10.2 mm 2x 7.5 - 12 mm 1x 9 - 16.2 mm | ■ 43796.400 ■ 50796.400 | 10 |
| | | KEL-DPZ-B 25 | 46 x 46 mm | 25x 3.2 - 6.5 mm | ■ 43798 ■ 50798 | 10 |
| | | KEL-DPZ-B 25 with threaded bushings M4 | 46 x 46 mm | 25x 3.2 - 6.5 mm | ■ 43798.400 ■ 50798.400 | 10 |



The KEL-DPZ series is also available as a cleanroom version, see from page 428.
Single-piece packaging units are available on request.

KEL-DPZ

Cable entry plates

KEL-DPZ-E



| Description | Cut-out Drilling template | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------|-----------------------------|--------------------------------------------|-------------|-------------------|----------------------------|----|
| | | KEL-DPZ-E 112 7 | 18 x 112 mm | 7 × 7.5 - 12 mm | ■ 43780 ■ 50780 | 10 |
| | | KEL-DPZ-E 112 7 with threaded bushings M4 | 18 x 112 mm | 7 × 7.5 - 12 mm | ■ 43780.400 ■ 50780.400 | 10 |
| | | KEL-DPZ-E 112 21 | 18 x 112 mm | 21 × 3.2 - 6.5 mm | ■ 43790 ■ 50790 | 10 |
| | | KEL-DPZ-E 112 21 with threaded bushings M4 | 18 x 112 mm | 21 × 3.2 - 6.5 mm | ■ 43790.400 ■ 50790.400 | 10 |

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i The KEL-DPZ series is also available as a cleanroom version, see from page 428.
Single-piece packaging units are available on request.

KEL-DPZ round series

Cable entry plates with IP66/IP68 rating



KEL-DPZ round cable entry plates are designed to route and seal cables without connectors or fibre optics (from 1.5 mm to 22 mm in diameter) in limited space.

The assembly of the KEL-DPZ round with cables or pneumatic hoses can be done quick and easy. Simply make a small hole in the thin membrane, push the cables through. The KEL-DPZ round provides strain relief and protection IP66/IP68/UL Type 4X.

The round versions of the KEL-DPZ series have a thread to fit in metric cut-outs from M25 to M63. Thus cut-outs for metric cable glands can be used. ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

Advantages & benefits

- Dual sealing of cables acc. to IP66/IP68/up to UL type 4X
- Quick and easy tool-free assembly
- High cable density
- High strain relief
- Suitable for metric cut-outs
- Polyamide locknuts are included in the shipment
- Hygienic design – free of dirt-collecting recesses
- Available as an FDA compliant version

Specifications

| | |
|----------------|------------------------------------------------------------|
| Material | Thread frame: Polyamide (PA) Sealing plate: Elastomer |
| Colour | ■ grey (similar RAL 7035) ■ black |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP65/IP66/IP67/IP68 (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) UL type 4X (acc. to UL 50E) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Cut-out dim. | Metric sizes |
| Thread length | 14 mm |
| Plate depth | 8 mm |

Accessories

| | |
|-------------------|-----------|
| ST-B Plugs | 171 |
| FP Flanged plates | 320 - 329 |
| MP Module plates | 314 - 325 |
| TE-M | 334 - 337 |

i This product range is also available as a KEL-DPZ-HD version for the food sector, see pages 428 – 429. The KEL-DPZ round is also available as a cleanroom version, see from page 410. Single-piece packaging units are available on request.



Membrane on front



Conical shape on back provides additional sealing and strain relief



Also available in black

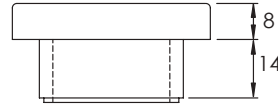
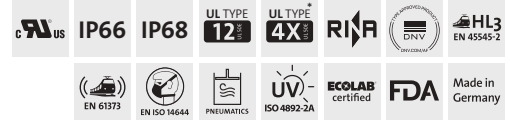


Can be combined with TE-M thread extension



ST-B plug for the sealing of the perforated membrane

KEL-DPZ round Cable entry plates



| Type | Order No. | Number of cables | Thread metric | Thread length | Max. wall thickness | External diameter | Mounting height | PU |
|----------------|-----------|-----------------------------------------------------|---------------|---------------|---------------------|-------------------|-----------------|----|
| KEL-DPZ 25 3 | ■ 43736 | 2× 3.2 - 5.2 mm | M25 × 1.5 | 14 mm | 7.0 mm | 39 mm | 8 mm | 10 |
| | ■ 50736 | 1× 3.2 - 6.5 mm | | | | | | |
| KEL-DPZ 25 4 | ■ 43737 | 4× 3.2 - 5.2 mm | M25 × 1.5 | 14 mm | 7.0 mm | 39 mm | 8 mm | 10 |
| | ■ 50737 | | | | | | | |
| KEL-DPZ 32 4 | ■ 43732 | 3× 3.2 - 6.5 mm | M32 × 1.5 | 14 mm | 7.0 mm | 44 mm | 8 mm | 10 |
| | ■ 50732 | 1× 7.2 - 12.5 mm | | | | | | |
| KEL-DPZ 32 4-2 | ■ 43733 | 4× 5 - 9.5 mm | M32 × 1.5 | 14 mm | 7.0 mm | 44 mm | 8 mm | 10 |
| | ■ 50733 | | | | | | | |
| KEL-DPZ 32 7 | ■ 43734 | 7× 3.2 - 6.5 mm | M32 × 1.5 | 14 mm | 7.0 mm | 44 mm | 8 mm | 10 |
| | ■ 50734 | | | | | | | |
| KEL-DPZ 40 8 | ■ 43741 | 4× 3.2 - 6.5 mm | M40 × 1.5 | 14 mm | 7.0 mm | 52 mm | 8 mm | 10 |
| | ■ 50741 | 4× 5 - 10.2 mm | | | | | | |
| KEL-DPZ 50 8 | ■ 43750 | 5× 5 - 10.2 mm | M50 × 1.5 | 14 mm | 6.0 mm | 62 mm | 8 mm | 10 |
| | ■ 50750 | 3× 7.2 - 12.5 mm | | | | | | |
| KEL-DPZ 50 10 | ■ 43751 | 7× 3.2 - 6.5 mm | M50 × 1.5 | 14 mm | 6.0 mm | 62 mm | 8 mm | 10 |
| | ■ 50751 | 2× 5 - 10.2 mm 1× 16 - 22.2 mm | | | | | | |
| KEL-DPZ 50 12 | ■ 43752 | 4× 3.2 - 6.5 mm | M50 × 1.5 | 14 mm | 6.0 mm | 62 mm | 8 mm | 10 |
| | ■ 50752 | 8× 5 - 10.2 mm | | | | | | |
| KEL-DPZ 50 19 | ■ 43758 | 19× 3.2 - 6.5 mm | M50 × 1.5 | 14 mm | 6.0 mm | 62 mm | 8 mm | 10 |
| | ■ 50758 | | | | | | | |
| KEL-DPZ 50 78 | ■ 43756 | 76× 1.5 - 2.6 mm | M50 × 1.5 | 14 mm | 6.0 mm | 62 mm | 8 mm | 10 |
| | ■ 50756 | 2× 2.5 - 5 mm | | | | | | |
| KEL-DPZ 63 9 | ■ 43760 | 1× 3.2 - 6.5 mm | M63 × 1.5 | 14 mm | 6.0 mm | 75 mm | 8 mm | 10 |
| | ■ 50760 | 3× 5 - 10.2 mm 4× 9 - 16.2 mm 1× 16 - 22.2 mm | | | | | | |
| KEL-DPZ 63 13 | ■ 43761 | 4× 3.2 - 6.5 mm | M63 × 1.5 | 14 mm | 6.0 mm | 75 mm | 8 mm | 10 |
| | ■ 50761 | 4× 5 - 10.2 mm 5× 9 - 16.2 mm | | | | | | |
| KEL-DPZ 63 14 | ■ 43762 | 14× 5 - 10.2 mm | M63 × 1.5 | 14 mm | 6.0 mm | 75 mm | 8 mm | 10 |
| | ■ 50762 | | | | | | | |
| KEL-DPZ 63 35 | ■ 43763 | 35× 3.2 - 6.5 mm | M63 × 1.5 | 14 mm | 6.0 mm | 75 mm | 8 mm | 10 |
| | ■ 50763 | | | | | | | |

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KEL-DPZ-CLICK series

Cable entry plates
for snap-in or screw-in assembly
with IP65/IP66/IP68 rating

IP65 IP66 IP68

The round cable entry plates KEL-DPZ-CLICK are designed to route and seal cables without connectors or fibre optics (from 1.5 mm to 22 mm in diameter) in limited space.

The variant of the proven cable entry plate KEL-DPZ is snapped into the cut-out directly from the front. This significantly reduces the assembly time. Alternatively, the new variant can be fastened with a lock nut to achieve protection class IP66/IP68. The KEL-DPZ-CLICK series have a thread to fit in metric cut-outs from M25 to M63. Thus cut-outs for metric cable glands can be used. A lock nut is not included in the shipment.

Snap-in assembly:

For wall thickness 1 – 2.5 mm
Protection class IP65

Screwed in place with a lock nut:

For max. wall thickness 11 mm
Protection class IP66/IP68

Advantages & benefits

- Easy assembly directly from the front
- Offers two mounting types:
 - Snap in (IP65) and Screw in (up to IP68)
- Certified protection IP65/IP66/IP68 (acc. to EN 60529)
- High cable density
- Automatic sealing and strain relief for the cable
- Suitable for metric cut-outs M25 – M63
- Snap-in assembly: For wall thickness 1.0 – 2.5 mm
- Screw assembly: For wall thickness up to 11 mm

Specifications

| | |
|-----------------|--------------------------------------------------------------------|
| Material | Polyamid, Elastomere |
| IP rating | Snap-in: IP65 Screwed in place with lock nut: IP65/IP66/IP68 |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +100°C (static) |
| Colour | ■ grey (similar to RAL 7035) |
| Properties | Halogen free, silicone free |
| Mounting height | 8 mm |

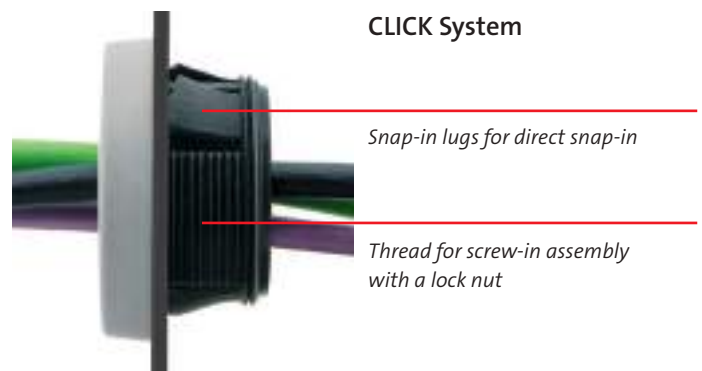
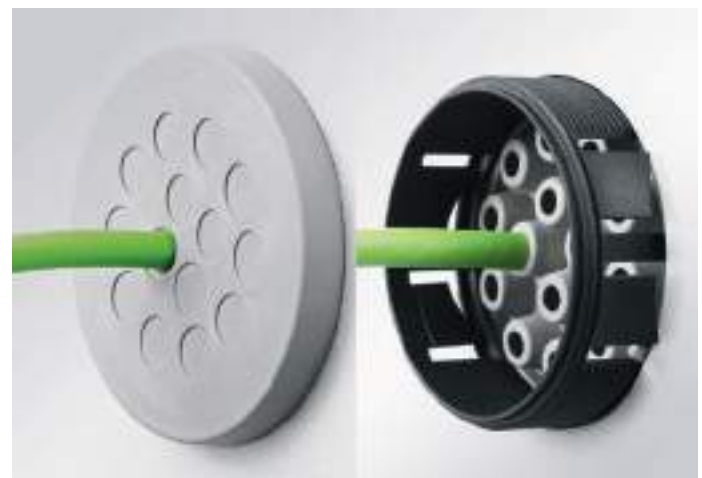
Accessories

| | |
|--------------|-----------|
| KGM locknuts | 346 |
| TE-M | 334 - 337 |



Mounting type 1:
Snap into the cut-out
For wall thickness 1 – 2.5 mm

Mounting type 2:
Screwed in place with a lock nut
For max. wall thickness 11 mm

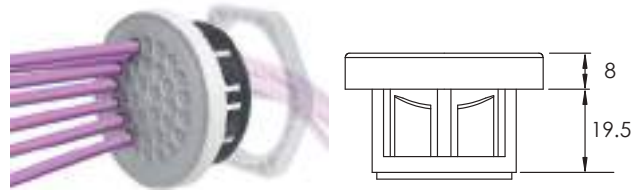


i Single-piece packaging units are available on request.

KEL-DPZ-CLICK

Cable entry plates

for snap-in or screw-in assembly



| Type | Order No. | Number of cables | Thread metric | Thread length | External diameter | Mounting height | PU |
|----------------------|-----------|------------------------------------------------------------------------|---------------|---------------|-------------------|-----------------|----|
| KEL-DPZ-CLICK 25 3 | 44050 | 2× 3.2 – 5.2 mm 1× 3.2 – 6.5 mm | M25 × 1.5 | 19.5 mm | 39 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 25 4 | 44051 | 4× 3.2 – 5.2 mm | M25 × 1.5 | 19.5 mm | 39 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 32 4 | 44052 | 3× 3.2 – 6.5 mm 1× 7.2 – 12.5 mm | M32 × 1.5 | 19.5 mm | 44 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 32 4-2 | 44053 | 4× 5 – 9.5 mm | M32 × 1.5 | 19.5 mm | 44 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 32 7 | 44054 | 7× 3.2 – 6.5 mm | M32 × 1.5 | 19.5 mm | 44 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 40 8 | 44055 | 4× 3.2 – 6.5 mm 4× 5 – 10.2 mm | M40 × 1.5 | 19.5 mm | 52 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 50 8 | 44056 | 5× 5 – 10.2 mm 3× 7.2 – 12.5 mm | M50 × 1.5 | 19.5 mm | 62 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 50 10 | 44057 | 7× 3.2 – 6.5 mm 2× 5 – 10.2 mm 1× 16 – 22.2 mm | M50 × 1.5 | 19.5 mm | 62 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 50 12 | 44058 | 4× 3.2 – 6.5 mm 8× 5 – 10.2 mm | M50 × 1.5 | 19.5 mm | 62 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 50 19 | 44059 | 19× 3.2 – 6.5 mm | M50 × 1.5 | 19.5 mm | 62 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 50 78 | 44060 | 76× 1.5 – 2.6 mm 2× 2.5 – 5 mm | M50 × 1.5 | 19.5 mm | 62 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 63 9 | 44061 | 1× 3.2 – 6.5 mm 3× 5 – 10.2 mm 4× 9 – 16.2 mm 1× 16 – 22.2 mm | M63 × 1.5 | 19.5 mm | 75 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 63 13 | 44062 | 4× 3.2 – 6.5 mm 4× 5 – 10.2 mm 5× 9 – 16.2 mm | M63 × 1.5 | 19.5 mm | 75 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 63 14 | 44063 | 14× 5 – 10.2 mm | M63 × 1.5 | 19.5 mm | 75 mm | 8 mm | 10 |
| KEL-DPZ-CLICK 63 35 | 44064 | 35× 3.2 – 6.5 mm | M63 × 1.5 | 19.5 mm | 75 mm | 8 mm | 10 |

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KEL-DPR

Cable entry plates for screw-in assembly,
with IP65 rating

NEW IP64 IP65

The KEL-DPR 24 cable entry plate is based on the proven KEL-DP 24, but has an integrated polypropylene reinforcement frame. With the KEL-DPR 24, up to 48 cables from 1 to 16.1 mm can be inserted in the smallest of spaces and sealed in accordance with IP65.

The KEL-DPR 24 cable entry fits standard cut-outs for 24-pin heavy-duty connectors.

Electrical and pneumatic lines can be assembled in a matter of seconds. The corresponding membrane is perforated and the cables are simply pushed through. Perforated membranes can be sealed with ST-B plugs.

The KEL-DPR is available in the colour black. A version with M4 threaded bushings is optionally available for screw assembly from the rear.

Advantages

- Good strain relief due to reinforced membrane
- Sealing in accordance with IP65
- Very quick installation
- Very high packing density
- Suitable for standardised cut-outs
- Optionally available with M4 threaded bushes
- Visually attractive design

Specifications

| | |
|-----------------|--------------------------------------------------|
| Material | Frame: Polypropylene (PP) Membrane: Elastomer |
| Colour | ■ black |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP64/IP65 (certified acc. to EN 60529-2000-09) |
| Temperature | -40°C to +90°C (static) |
| Properties | Halogen free, silicone free |
| Mounting height | 10 mm |

Accessories

| | |
|------------|-----------|
| ST-B Plugs | 171 |
| KEA | 340 - 343 |



Reverse

KEL-DPR

Cable entry plates for screw-in assembly



| Description | Cut-out Drilling template | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------|-----------------------------|---------------|-------------|-----------------------------------------------------------------------|-----------|----|
| | | KEL-DPR 24 12 | 112 x 36 mm | 12× max. 15 mm | 46500 | 10 |
| | | KEL-DPR 24 17 | 112 x 36 mm | 5× max. 10,5 mm 12× max. 12,6 mm | 46501 | 10 |
| | | KEL-DPR 24 25 | 112 x 36 mm | 18× max. 6,5 mm 7× max. 12,1 mm | 46502 | 10 |
| | | KEL-DPR 24 26 | 112 x 36 mm | 16× max. 6,5 mm 4× max. 12,1 mm 4× max. 16,1 mm 2× ASI cable | 46503 | 10 |
| | | KEL-DPR 24 48 | 112 x 36 mm | 48× max. 6,5 mm | 46504 | 10 |



Also available with threaded bushings

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KEL-DP series

Cable entry plates with IP64 rating



KEL-DP entry plates are designed for routing cables without connectors, hoses or fibre optics in limited space.

The KEL-DP products are an easy to assemble and cost saving alternative to traditional cable glands. Simply make a small hole in the thin membrane and push the cables through. The KEL-DP provides protection IP64/UL type 12.

The KEL-DP matches exactly the cut-out dimensions of 6-, 10-, 16- and 24-pin standard industrial connectors. The very compact size KEL-DP-E is designed for routing cables in very small space. Through a cut-out of only 18 × 112 mm, up to 21 cables can be easily routed and sealed. A special rib ensures a centred fit in the cut-outs. ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

Advantages & benefits

- Fast and easy assembly, no tools required
- Very good strain relief on the cable bundle
- Very high cable density
- Cost-effective
- Hygienic design – free of dirt-collecting recesses
- For wall thickness 1.5 - 4 mm

Specifications

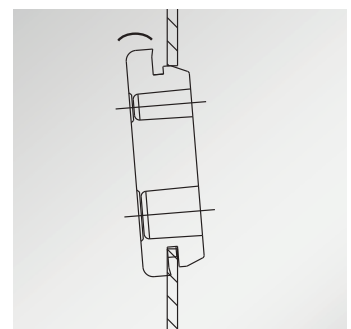
| | |
|----------------|--------------------------------------|
| Material | Elastomer |
| Colour | ■ grey (similar RAL 7035) ■ black |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP64 (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Plate depth | 5 mm |
| Type A: | For wall thickness 1.5 - 2.5 mm |
| Type B: | For wall thickness 2.8 - 4 mm |

Accessories

| | |
|-------------------------|-----------|
| ST-B Plugs | 171 |
| FP Flanged plates | 320 - 329 |
| KEA Cable Entry Adapter | 340 - 343 |



Fastening



Also available in black



Can be combined with 90° cable entry adapter KEA

i Single-piece packaging units are available on request.

KEL-DP

Cable entry plates

KEL-DP 24



| Description | Cut-out | Type | Cut-out mm | Number of cables | Order No. Type A | Order No. Type B | PU |
|-------------|---------|--------------|-------------|-------------------------------------------------------------------------|--------------------|--------------------|----|
| | | KEL-DP 24 12 | 112 x 36 mm | 12× max. 15 mm | ■ 43508 ■ 50508 | ■ 43510 ■ 50510 | 10 |
| | | KEL-DP 24 14 | 112 x 36 mm | 14× max. 12.1 mm | ■ 43512 ■ 50512 | ■ 43522 ■ 50522 | 10 |
| | | KEL-DP 24 17 | 112 x 36 mm | 5× max. 10.5 mm 12× max. 12.6 mm | ■ 43514 ■ 50514 | ■ 43523 ■ 50523 | 10 |
| | | KEL-DP 24 18 | 112 x 36 mm | 4× max. 6.5 mm 5× max. 10.5 mm 5× max. 12.6 mm 4× max. 16.1 mm | ■ 43515 ■ 50515 | ■ 43528 ■ 50528 | 10 |
| | | KEL-DP 24 19 | 112 x 36 mm | 12× max. 6.5 mm 7× max. 12.1 mm | ■ 43516 ■ 50516 | ■ 43524 ■ 50524 | 10 |
| | | KEL-DP 24 26 | 112 x 36 mm | 16× max. 6.5 mm 4× max. 12.1 mm 4× max. 16.1 mm 2× ASI cables | ■ 43518 ■ 50518 | ■ 43525 ■ 50525 | 10 |
| | | KEL-DP 24 42 | 112 x 36 mm | 1× max. 4.7 mm 12× max. 5 mm 17× max. 6.4 mm 12× max. 7.2 mm | ■ 43511 ■ 50511 | ■ 43521 ■ 50521 | 10 |
| | | KEL-DP 24 48 | 112 x 36 mm | 48× max. 6.5 mm | ■ 43519 ■ 50519 | ■ 43526 ■ 50526 | 10 |
| | | KEL-DP 24 50 | 112 x 36 mm | 33× max. 5.3 mm 9× max. 6.4 mm 8× max. 8.3 mm | ■ 43520 ■ 50520 | ■ 43527 ■ 50527 | 10 |

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KEL-DP

Cable entry plates

KEL-DP 16



| Description | Cut-out | Type | Cut-out mm | Number of cables | Art.-Nr. | PU |
|-------------|---------|--------------|------------|---------------------------------------------------------|----------|----|
| | | KEL-DP 16 10 | 86 x 36 mm | 10 x max. 12.1mm | 43460 | 10 |
| | | KEL-DP 16 11 | 86 x 36 mm | 3 x max. 10.5 mm 8 x max. 12.6 mm | 43461 | 10 |
| | | KEL-DP 16 20 | 86 x 36 mm | 20 x max. 8.3 mm | 43462 | 10 |
| | | KEL-DP 16 22 | 86 x 36 mm | 13 x max. 6.5 mm 4 x max. 8.3 mm 5 x max. 12.1 mm | 43463 | 10 |
| | | KEL-DP 16 23 | 86 x 36 mm | 18 x max. 6.5 mm 5 x max. 12.1 mm | 43464 | 10 |
| | | KEL-DP 16 26 | 86 x 36 mm | 19 x max. 6.5 mm 7 x max. 8.3 mm | 43465 | 10 |



KEL-DP 16

i Single-piece packaging units are available on request.

KEL-DP

Cable entry plates

KEL-DP 10



| Description | Cut-out | Type | Cut-out mm | Number of cables | Art.-Nr. | PU |
|-------------|---------|--------------|------------|--------------------------------------------------------|----------|----|
| | | KEL-DP 10 8 | 65 x 36 mm | 8 x max. 12.6 mm | 43466 | 10 |
| | | KEL-DP 10 12 | 65 x 36 mm | 4 x max. 6.5 mm 4 x max. 8.3 mm 4 x max. 12.6 mm | 43467 | 10 |
| | | KEL-DP 10 14 | 65 x 36 mm | 14 x max. 8.3 mm | 43468 | 10 |
| | | KEL-DP 10 16 | 65 x 36 mm | 12 x max. 6.5 mm 4 x max. 12.6 mm | 43469 | 10 |
| | | KEL-DP 10 26 | 65 x 36 mm | 26 x max. 6.5 mm | 43470 | 10 |



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KEL-DP 10

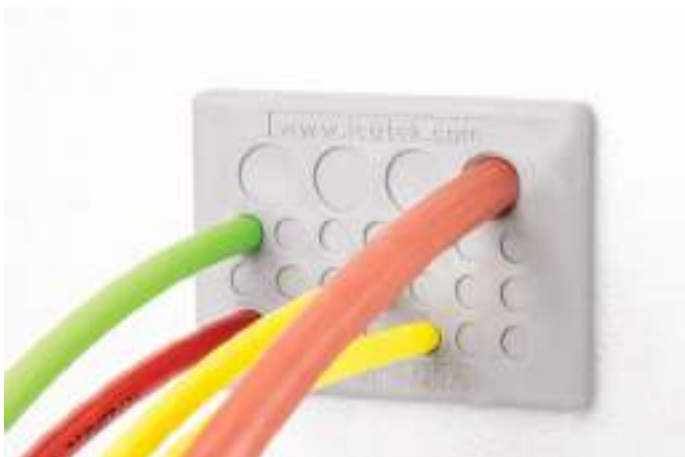
KEL-DP

Cable entry plates

KEL-DP 6



| Description | Cut-out | Type | Cut-out mm | Number of cables | Art.-Nr. | PU |
|-------------|---------|-------------|------------|---------------------------------------------------------|----------|----|
| | | KEL-DP 6 6 | 52 x 36 mm | 6 x max. 12.1 mm | 43450 | 10 |
| | | KEL-DP 6 12 | 52 x 36 mm | 8 x max. 6.5 mm 2 x max. 12.6 mm 2 x max. 16.1 mm | 43451 | 10 |
| | | KEL-DP 6 14 | 52 x 36 mm | 10 x max. 6.5 mm 4 x max. 10.5 mm | 43452 | 10 |
| | | KEL-DP 6 25 | 52 x 36 mm | 21 x max. 5.0 mm 4 x max. 8.3 mm | 43453 | 10 |



KEL-DP 6

i Single-piece packaging units are available on request.

KEL-DP

Cable entry plates

KEL-DP-E



| Description | Cut-out | Type | Cut-out mm | Number of cables | Art.-Nr. | PU |
|-------------|---------|-----------------|-----------------------------|------------------------------------------------------|--------------------|----|
| | | KEL-DP-E 46 7 | 46 × 18 mm | 2× max. 6.5 mm 5× max. 8.3 mm | ■ 43585 ■ 50585 | 10 |
| | | KEL-DP-E 46 9 | 46 × 18 mm | 8× max. 6.5 mm 1× max. 12.1 mm | ■ 43587 ■ 50587 | 10 |
| | | KEL-DP-E 86 13 | 85 × 18 mm | 2× max. 6.5 mm 11× max. 8.3 mm | ■ 43581 ■ 50581 | 10 |
| | | KEL-DP-E 86 17 | 85 × 18 mm | 16× max. 6.5 mm 1× max. 12.1 mm | ■ 43583 ■ 50583 | 10 |
| | | KEL-DP-E 112 16 | 112 × 18 mm | 4× max. 6.5 mm 11× max. 8.3 mm 1× max. 12.1 mm | ■ 43576 ■ 50576 | 10 |
| | | KEL-DP-E 112 21 | 112 × 18 mm | 16× max. 6.5 mm 4× max. 8.3 mm 1× max. 12.1 mm | ■ 43578 ■ 50578 | 10 |
| | | KEL-DP-S 69 8 | 69 × 10 mm Edge radii R2 | 8× max. 7.5 mm | ■ 43591 ■ 50591 | 10 |

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Single-piece packaging units are available on request.

KEL-DP round

Cable entry plates with IP65 rating



KEL-DP entry plates are designed for routing cables without connectors, hoses or fibre optics in limited space.

The KEL-DP products are an easy to assemble and cost saving alternative to traditional cable glands. Simply make a small hole in the thin membrane and push the cables through. The KEL-DP round provides protection IP65/UL type 12.

The round version of the KEL-DP fits perfectly into metric cut-outs M16 to M50. A special rib ensures a centred fit in the cut-outs.

ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

Advantages & benefits

- Fast and easy assembly, no tools required
- High cable density
- Very good strain relief on the cable bundle
- Cost-effective
- For wall thickness 1.5 – 4 mm

Specifications

| | |
|--------------------|----------------------------------------------------------------------------------------------|
| Material | Elastomer |
| Colour | <ul style="list-style-type: none"> ■ grey (similar RAL 7035) ■ black |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP65 (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Cut-out dimensions | Metric sizes |
| Plate depth | 5 mm |

| | |
|---------|---------------------------------|
| Type A: | For wall thickness 1.5 – 2.5 mm |
| Type B: | For wall thickness 2.8 – 4 mm |

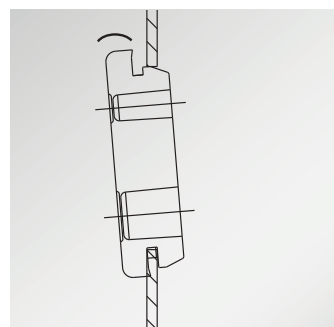
Accessories

| | |
|------------------|-----------|
| ST-B Plugs | 171 |
| FP Flange plates | 320 - 329 |

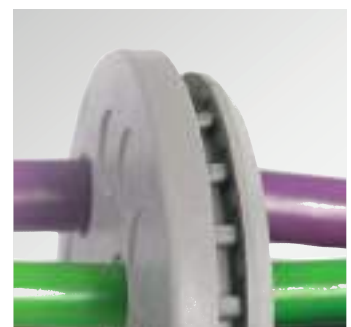


Also available in black

Membrane on front



Fastening



Special fixing ribs ensure a centred fit

i Single-piece packaging units are available on request.

KEL-DP round

Cable entry plates with IP65 rating



| Type | Order No. Typ A | Order No. Typ B | Number of cables | Cut-out | External diameter DA | PU |
|------------------|--------------------|--------------------|-----------------------------------------------------|---------|----------------------|----|
| KEL-DP 16 1 rund | ■ 43600 ■ 50535 | – | 1× max. 9,2 mm | ∅ 16 mm | 23 mm | 10 |
| KEL-DP 16 3 rund | ■ 43601 | – | 3× max. 5,2 mm | ∅ 16 mm | 23 mm | 10 |
| KEL-DP 16 7 rund | ■ 43602 | – | 7× max. 3,2 mm | ∅ 16 mm | 23 mm | 10 |
| KEL-DP 20 1 | ■ 43571 | – | 1× max. 14 mm | ∅ 20 mm | 27 mm | 10 |
| KEL-DP 20 4 | ■ 43572 | – | 4× max. 5.2 mm | ∅ 20 mm | 27 mm | 10 |
| KEL-DP 20 4-1 | ■ 43575 | – | 2× max. 4.5 2× max. 8.0 | ∅ 20 mm | 27 mm | 10 |
| KEL-DP 20 5 | ■ 43573 | – | 2× max. 3.6 mm 2× max. 4.6 mm 1× max. 10.6 mm | ∅ 20 mm | 27 mm | 10 |
| KEL-DP 20 9 | ■ 43574 | – | 4× max. 3.6 mm 5× max. 4.6 mm | ∅ 20 mm | 27 mm | 10 |
| KEL-DP 25 4 | ■ 43533 ■ 50533 | ■ 50536 ■ 43535 | 4× max. 8 mm | ∅ 25 mm | 32 mm | 10 |
| KEL-DP 25 6 | ■ 43531 ■ 50531 | – | 4× max. 5.2 mm 2× max. 9.4 mm | ∅ 25 mm | 32 mm | 10 |
| KEL-DP 25 7 | ■ 43534 | – | 7× max. 5.2 mm | ∅ 25 mm | 32 mm | 10 |
| KEL-DP 32 7 | ■ 43592 | ■ 43596 | 7× max. 8.0 mm | ∅ 32 mm | 38 mm | 10 |
| KEL-DP 32 10 | ■ 43532 ■ 50532 | ■ 43560 ■ 50560 | 6× max. 5.2 mm 2× max. 6.4 mm 2× max. 9.4 mm | ∅ 32 mm | 38 mm | 10 |
| KEL-DP 32 10-2 | ■ 43593 | ■ 43597 | 10× max. 6.4 mm | ∅ 32 mm | 38 mm | 10 |
| KEL-DP 32 11 | ■ 43594 | ■ 43598 | 9× max. 5.2 mm 2× max. 8.0 mm | ∅ 32 mm | 38 mm | 10 |
| KEL-DP 32 13 | ■ 43595 | ■ 43599 | 13× max. 5.2 mm | ∅ 32 mm | 38 mm | 10 |

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KEL-DP round

Cable entry plates with IP65 rating



| Type | Order No. Type A | Order No. Type B | Number of cables | Cut-out | External diameter DA | PU |
|--------------|--------------------|--------------------|-----------------------------------------------------------------------------------|---------|----------------------|----|
| KEL-DP 40 9 | ■ 43536 | ■ 43561 | 8× max. 9.5 mm 1× max. 11.3 mm | ∅ 40 mm | 50 mm | 10 |
| KEL-DP 40 16 | ■ 43537 | ■ 43563 | 2× max. 5.3 mm 10× max. 6.3 mm 2× max. 9.5 mm 2× max. 11.3 mm | ∅ 40 mm | 50 mm | 10 |
| KEL-DP 40 17 | ■ 43538 | ■ 43565 | 1× max. 4 mm 16× max. 7.2 mm | ∅ 40 mm | 50 mm | 10 |
| KEL-DP 50 9 | ■ 43554 ■ 50554 | ■ 43568 ■ 50568 | 5× max. 7 mm 4× max. 18 mm | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 11 | ■ 43555 ■ 50555 | ■ 43569 ■ 50569 | 7× max. 7.2 mm 3× max. 11.2 mm 1× max. 22.5 mm | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 12 | ■ 43551 ■ 50551 | ■ 43562 ■ 50562 | 10× max. 9.2 mm 2× max. 11.2 mm | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 16 | ■ 43550 ■ 50550 | ■ 43564 ■ 50564 | 4× max. 5.3 mm 5× max. 6.3 mm 3× max. 9.5 mm 4× max. 11.3 mm | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 18 | ■ 43553 ■ 50553 | ■ 43567 ■ 50567 | 2× max. 4 mm 2× max. 6 mm 4× max. 7.2 mm 5× max. 9.4 mm 5× max. 12 mm | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 20 | ■ 43552 ■ 50552 | ■ 43566 ■ 50566 | 16× max. 6.3 mm 4× max. 9.3 mm | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 35 | ■ 43556 ■ 50556 | ■ 43570 ■ 50570 | 35× max. 5.2 mm | ∅ 50 mm | 60 mm | 10 |



Single-piece packaging units are available on request.

ST-B

Plugs for membranes and multi-range cable grommets



The ST-B plugs are used to seal perforated membranes of the cable entry plates (KEL-DPU, KEL-DPZ, KEL-DP, KEL-QTA), DT grommets and, in particular, the KTMB and QTMB multi-range cable grommets. This means that entries that are no longer required can be closed. The protection rating of the cable entry remains unchanged.

The new generation of ST-B plugs has a uniform length of 30 mm to prevent the plugs from slipping out.

Advantages & benefits

- Sealing of perforated cable entry membranes which are no longer in use
- For sealing unused cable grommets

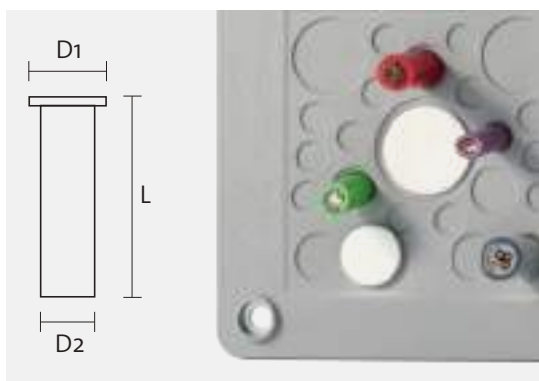
Specifications

| | |
|-------------|-------------------------------|
| Material | Polyamide (PA), white |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +120°C |
| Properties | Halogen-free, silicone-free |

Compatible with

| | |
|---------------------------------|-----------|
| KEL-DPU Cable entry plates | 144 - 147 |
| KEL-DPZ Cable entry plates | 148 - 155 |
| KEL-DP Cable entry plates | 162 - 167 |
| KT-DT Cable entry grommets | 84 |
| KEL-QTA Cable entry plates | 112 - 115 |
| KTMB multi-range cable grommets | 78 - 79 |
| QTMB multi-range cable grommets | 119 |

| Type | Order No. | Diameter D1 | Diameter D2 | Length L | PU |
|------------|-----------|-------------|-------------|----------|----|
| ST-B 5 30 | 42805 | 8 mm | 5 mm | 30 mm | 25 |
| ST-B 6 30 | 42806 | 9 mm | 6 mm | 30 mm | 25 |
| ST-B 7 30 | 42807 | 10 mm | 7 mm | 30 mm | 25 |
| ST-B 8 30 | 42808 | 11 mm | 8 mm | 30 mm | 25 |
| ST-B 9 30 | 42809 | 12 mm | 9 mm | 30 mm | 25 |
| ST-B 10 30 | 42810 | 13 mm | 10 mm | 30 mm | 25 |
| ST-B 11 30 | 42811 | 14 mm | 11 mm | 30 mm | 25 |
| ST-B 12 30 | 42812 | 15 mm | 12 mm | 30 mm | 25 |
| ST-B 13 30 | 42813 | 16 mm | 13 mm | 30 mm | 25 |
| ST-B 14 30 | 42814 | 17 mm | 14 mm | 30 mm | 25 |
| ST-B 15 30 | 42815 | 18 mm | 15 mm | 30 mm | 25 |
| ST-B 16 30 | 42816 | 19 mm | 16 mm | 30 mm | 25 |
| ST-B 17 30 | 42817 | 20 mm | 17 mm | 30 mm | 25 |
| ST-B 18 30 | 42818 | 21 mm | 18 mm | 30 mm | 25 |
| ST-B 19 30 | 42819 | 22 mm | 19 mm | 30 mm | 25 |
| ST-B 20 30 | 42820 | 23 mm | 20 mm | 30 mm | 10 |
| ST-B 21 30 | 42821 | 24 mm | 21 mm | 30 mm | 10 |
| ST-B 22 30 | 42822 | 25 mm | 22 mm | 30 mm | 10 |
| ST-B 23 30 | 42823 | 26 mm | 23 mm | 30 mm | 10 |
| ST-B 24 30 | 42824 | 27 mm | 24 mm | 30 mm | 10 |
| ST-B 25 30 | 42825 | 28 mm | 25 mm | 30 mm | 10 |
| ST-B 26 30 | 42826 | 29 mm | 26 mm | 30 mm | 10 |
| ST-B 27 30 | 42827 | 30 mm | 27 mm | 30 mm | 10 |
| ST-B 28 30 | 42828 | 31 mm | 28 mm | 30 mm | 10 |
| ST-B 29 30 | 42829 | 32 mm | 29 mm | 30 mm | 10 |
| ST-B 30 30 | 42830 | 33 mm | 30 mm | 30 mm | 10 |
| ST-B 31 30 | 42831 | 34 mm | 31 mm | 30 mm | 10 |
| ST-B 32 30 | 42832 | 35 mm | 32 mm | 30 mm | 10 |
| ST-B 33 30 | 42833 | 36 mm | 33 mm | 30 mm | 10 |
| ST-B 34 30 | 42834 | 37 mm | 34 mm | 30 mm | 10 |



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KEL-DPZ-KX/KL

Cable entry plates for enclosures



The KEL-DPZ-KX/KL cable entry plates allow a large number of cables to be routed in a very small space and sealed twice in accordance with IP65/IP66/UL Type 12. At the same time, the cables are strain-relieved.

The KEL-DPZ-KX/KL was specially developed for Rittal KL and KX terminal boxes. Up to 72 cables can be routed with this size. The self-tapping screws (M4, thread-forming) required for installation are included in the scope of delivery.

Electrical and pneumatic lines can be assembled in a matter of seconds. The corresponding membrane is perforated and the cables are simply pushed through. Perforated membranes can be sealed with ST-B plugs.

Advantages

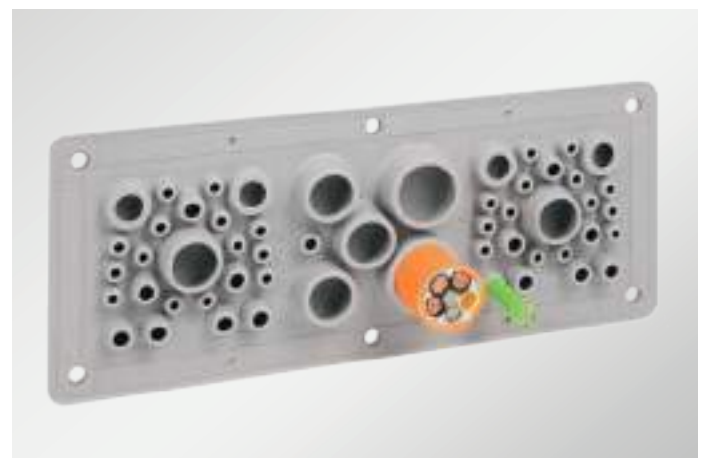
- Dual cable sealing acc. to IP65/IP66
- Fast and easy assembly
- High cable density
- High strain relief

Specifications

| | |
|-----------------|--------------------------------------------------------------|
| Material | Frame: Stainless steel V2A Membrane: Elastomer |
| Colour | ■ grey (similar RAL 7035) ■ black (KEL-DPZ-KX/KL 72 only) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP65 (certified acc. to EN 60529:2000-09) |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |
| Mounting height | 14 mm |

Accessories

| | |
|------------|-----------|
| ST-B plugs | 171 |
| FP-KX/KL | 324 - 325 |



ST-B plug for the sealing of the perforated membrane

i The KEL-DPZ series is also available as a cleanroom version, see from page 409.
Single-piece packaging units are available on request.

KEL-DPZ-KX/KL

Cable entry plates for enclosures



| Description | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------|-----------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----|
| | NEW KEL-DPZ-KX/KL 24 | 62 x 192 mm | 1× 4 - 7.5 mm 18× 10 - 17 mm 3× 15 - 20 mm 2× 21 - 26 mm | 43682 | 1 |
| | NEW KEL-DPZ-KX/KL 39 | 62 x 192 mm | 14× 3.2 - 6.5 mm 1× 4 - 7.5 mm 7× 5 - 10.2 mm 2× 9 - 16.2 mm 9× 10 - 17 mm 3× 15 - 20 mm 1× 16 - 22 mm 2× 21 - 26 mm | 43684 | 1 |
| | NEW KEL-DPZ-KX/KL 42 | 62 x 192 mm | 14× 3.2 - 6.5 mm 7× 5 - 10.2 mm 2× 9 - 16.2 mm 18× 10 - 17 mm 1× 16 - 22 mm | 43686 | 1 |
| | NEW KEL-DPZ-KX/KL 54 | 62 x 192 mm | 28× 3.2 - 6.5 mm 1× 4 - 7.5 mm 14× 5 - 10.2 mm 4× 9 - 16.2 mm 2× 15 - 20 mm 2× 16 - 22 mm 2× 21 - 26 mm | 43683 | 1 |
| | NEW KEL-DPZ-KX/KL 57 | 62 x 192 mm | 28× 3.2 - 6.5 mm 14× 5 - 10.2 mm 4× 9 - 16.2 mm 9× 10 - 17 mm 2× 16 - 22 mm | 43685 | 1 |
| | KEL-DPZ-KX/KL 72 | 62 x 192 mm | 42× 3.2 - 6.5 mm 21× 5 - 10.2 mm 6× 9 - 16.2 mm 3× 16 - 22 mm | 43675.001 43675.101 | 1 |

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Cover plugs for cable entry plates

The openings at the fastening points of the cable entry plates can be closed with the cover plugs.

The cover plugs can be used with the products of the KEL-DPZ series. They are available in black and grey.

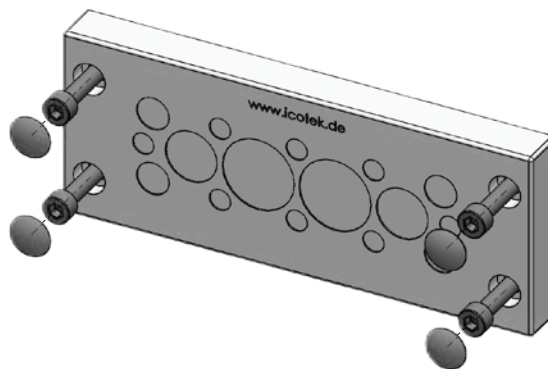
Advantages & benefits

- Simple closing of the openings at the fastening points of the KEL-DPZ
- Smooth finish on the frame surface
- No dirt recesses

Specifications

| | |
|-------------|----------------------------------------|
| Material | PE (Polyethylen) |
| Temperature | Continuous operating temperature +70°C |
| Properties | Higher chemical resistance |

| Description | Order No. | PU |
|------------------------------------------------------------------|-----------|----|
| Cover plugs B black for M5 DIN 912 Screws, for KEL-DPZ | ■ 99200 | 40 |
| Cover plugs C grey for M5 DIN 912 Screws, for KEL-DPZ | ■ 99201 | 40 |



When fastening from the front by means of screws, the openings at the screw heads can be closed with the **cover plugs B** in black (order no. 99200) or **cover plugs C** in grey (order no. 99201). The cover plugs can only be used for M5 DIN 912 screws.



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Certified
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2.7 – 2.8 Flexible cable entry grommets for cables without connectors



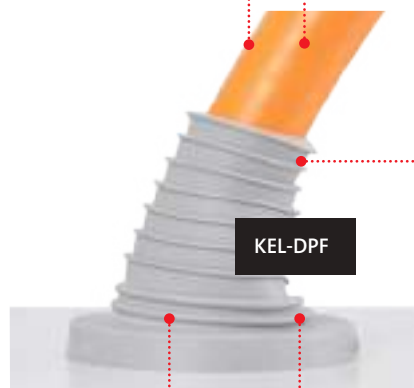
Fast and easy, partially tool-free assembly



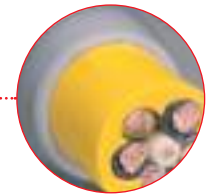
High flexibility when routing rigid cables



KEL-SCDP-TR



KEL-DPF



Up to IP66/IP68 rated protection

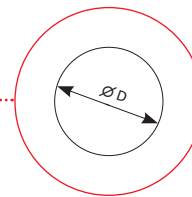


Easy peeling of the membrane rings. The peeled-off area is always round and thus seals the cable very well.



Due to high elasticity also suitable for routing preassembled cable lugs/terminals.

Compact, space-saving design



For metric cut-outs M25 – M85 (KEL-DPF)

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Cable entry plates
for screw-in assembly, M25 – M63,
for cable diameters up to 36 mm

KEL-SCDP-TR

178 – 179



Cable entry plates
for plug-in assembly, M25 – M85,
for cable diameters up to 36 mm

KEL-SCDP / KEL-SCDP-RW

180 – 181



Cable entry grommets
for screw-in assembly, M25 – M85,
for cable diameters up to 70 mm

KEL-DPF

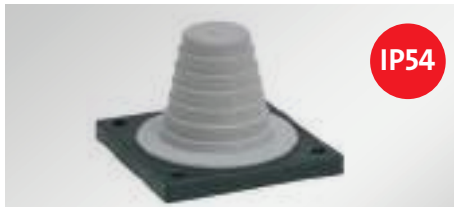
182 – 183



Cable entry grommets
for screw-in assembly,
for cable diameters up to 115 mm

KEL-ULTRA flex

184



Cable entry grommets
for screw-in assembly,
for cable diameters up to 68 mm

KEL-JUMBO flex

185



Thread extension
for cable glands and cable entry plates
M32, M50, M63

TE-M

334 – 337



Rittal/Lohmeier
Module plates
for cable entry components

MP

314 – 315

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KEL-SCDP-TR

Cable entry plate for screw-in assembly with IP65 rating



With the KEL-SCDP-TR cable entry grommet, single cables, hoses, and conduits can be routed and sealed at a rating of IP65. The KEL-SCDP-TR 63|5+1 enables the routing of up to five cables at the same time.

Its unique advantage is the large sealing range. The single circular membrane can be peeled away to accommodate the specific diameter of the cable or hose. For this purpose, only a small hole between the rings needs to be pierced. Then the corresponding ring can be removed. No tooling is required to peel off the membrane. The peeled-off area is always round, ensuring a secure seal around the cable or the hose.

Due to its high elasticity, the KEL-SCDP-TR is also suitable for routing pre-assembled cable lugs.

The KEL-SCDP-TR plates have a thread to fit in metric cut-outs from M25 to M63. Thus cut-outs for metric cable glands can be used.

The KEL-SCDP-TR is screwed in place with a locknut. A matching locknut is included in the delivery.



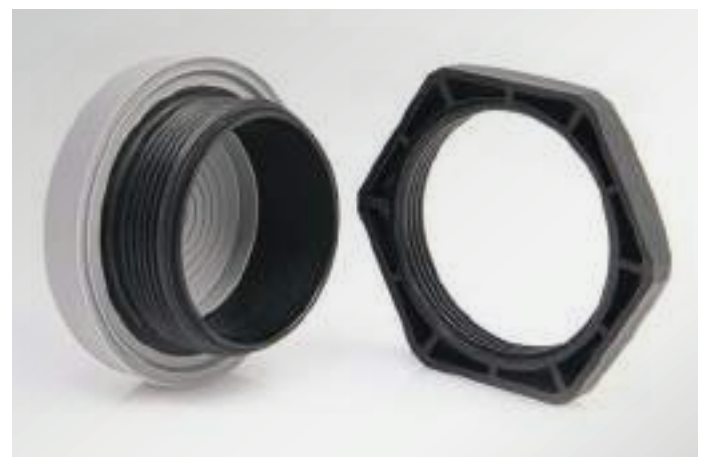
Advantages & benefits

- Fast and secure assembly with the use of included locknut
- Very large sealing range (5 – 52 mm)
- Flexible even with rigid cables
- Metric thread (M25 – M63), suitable for metric cut-outs
- Perfect edge protection and sealing
- Circular membranes can be peeled off easily
- Locknut is included in the delivery



Specifications

| | |
|-----------------|-------------------------------------------------------------|
| Material | Plate: Elastomer Thread: Polyamide Locknut: Polyamide |
| Colour | ■ grey (similar RAL 7035) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP65 (certified acc. to EN 60529) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Mounting height | 8 mm |
| Thread length | 14 mm |
| Wall thickness | max. 7 mm (M25 – M40) max. 6 mm (M50 – M63) |
| Cut-out | Metric cut-out |

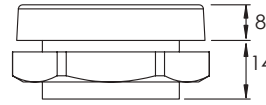


Accessories

TE-M 334 - 337

KEL-SCDP-TR

Cable entry plate



| Type | Order No. | Number of cables | Thread metric | Thread length | Max. wall thickness | External diameter | Mounting height | PU | |
|------|----------------------|------------------|-------------------------------|---------------|---------------------|-------------------|-----------------|------|----|
| | KEL-SCDP-TR 25 | 44070 | 1x 5 – 17 mm | M25 x 1.5 | 14 mm | 7.0 mm | 39 mm | 8 mm | 10 |
| | KEL-SCDP-TR 32 | 44071 | 1x 5 – 23 mm | M32 x 1.5 | 14 mm | 7.0 mm | 44 mm | 8 mm | 10 |
| | KEL-SCDP-TR 40 | 44072 | 1x 8 – 28 mm | M40 x 1.5 | 14 mm | 7.0 mm | 52 mm | 8 mm | 10 |
| | KEL-SCDP-TR 50 | 44073 | 1x 8 – 38 mm | M50 x 1.5 | 14 mm | 6.0 mm | 62 mm | 8 mm | 10 |
| | KEL-SCDP-TR 63 1 | 44074 | 1x 8 – 52 mm | M63 x 1.5 | 14 mm | 6.0 mm | 75 mm | 8 mm | 10 |
| | KEL-SCDP-TR 63 5+1 | 44078 | 5x 5 – 13 mm 1x 50 – 52 mm | M63 x 1.5 | 14 mm | 6.0 mm | 75 mm | 8 mm | 10 |



Can be combined with TE-M thread extension

- 2
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- 2.4
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- 2.6
- 2.7
- 2.8

KEL-SCDP | KEL-SCDP-RW

Cable entry plate for plug-in assembly with IP65 rating



With the KEL-SCDP cable entry grommet, single cables, hoses, and conduits can be routed and sealed at a rating of IP65. Its unique advantage is the large sealing range.

The single circular membrane can be peeled away to accommodate the specific diameter of the cable or hose. No tooling is required to peel off the membrane. The peeled-off area is always round, ensuring a secure seal around the cable or the hose.

Another advantage is the high mounting flexibility. The KEL-SCDP can simply be plugged into cut-outs with wall thicknesses from 1.5 to 4.0 mm.

The version KEL-SCDP-RW is approved for the use in the railway technology in accordance with EN45545-2 HL3.

Advantages & benefits

- Approved for the use in the railway technology (EN 45545-2, EN 45545-3 and EN 1363-1)
- Perfect edge protection and sealing
- Circular membranes can be peeled off easily
- Easy, tool-free assembly
- Protection class up to IP65

Specifications

| | |
|-------------|---------------------------------------------------------------------------|
| Material | Elastomer |
| Colour | ■ grey (similar RAL 7035) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP65 (certified acc. to EN 60529) |
| Temperature | KEL-SCDP: -40°C to +80°C (static) KEL-SCDP-RW: -40°C to +90°C (static) |
| Properties | Halogen-free, silicone-free |



Due to high elasticity also suitable for routing preassembled cable lugs or terminals



KEL-SCDP | KEL-SCDP-RW

Cable entry plate



| | Type | Order No. | Number of cables | Clamping range mm | PU |
|----------------------------------------------------------|----------------|-----------|------------------|-------------------|----|
| | KEL-SCDP 25 | ■ 43480 | 1 max. | 5 – 16 mm | 10 |
| | KEL-SCDP 32 | ■ 43481 | 1 max. | 5 – 22 mm | 10 |
| | KEL-SCDP 40 | ■ 43482 | 1 max. | 8 – 28 mm | 10 |
| | KEL-SCDP 50 | ■ 43483 | 1 max. | 8 – 36 mm | 10 |
| KEL-SCDP-RW for the use in the railway technology | | | | | |
| | KEL-SCDP-RW 25 | ■ 43490 | 1 max. | 5 – 16 mm | 10 |
| | KEL-SCDP-RW 32 | ■ 43491 | 1 max. | 5 – 22 mm | 10 |
| | KEL-SCDP-RW 40 | ■ 43492 | 1 max. | 8 – 28 mm | 10 |
| | KEL-SCDP-RW 50 | ■ 43493 | 1 max. | 8 – 36 mm | 10 |



The single membrane rings are peeled off according to the diameter of the routed cable or hose. For this purpose, only a small hole between the rings needs to be pierced. Then the corresponding ring can be removed.

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* Only valid for KEL-SCDP-RW

KEL-DPF

Cable entry grommet for screw-in assembly with IP66/IP68 rating



The KEL-DPF was developed particularly for routing large or unknown sizes of cables into a switch cabinet or machine (max. cable diameter 70 mm). Due to the flexibility and unique pyramid shape, cable entry and flexible positioning is much easier compared to using conventional cable glands. Also perfect for bundling or restraining large cables.

Cutting of DPF grommets: Cable diameter less 20%. The corresponding diameters are marked on the grommet.

It is recommended that additional strain relief be provided for cables using cable ties.

For mounting the KEL-DPF sizes 75 and 85 we offer suitable wrenches with widths for M75 and M85 plastic locknuts.

Advantages & benefits

- Quick and tool-free assembly
- It is possible to install rigid cables at angles
- Suitable for metric cut-outs
- Polyamide locknuts are included in the shipment

Specifications

| | |
|--------------------|------------------------------------------------------------|
| Material | Thread frame: Polyamide (PA) Pyramid: Elastomer |
| Colour | ■ grey (similar RAL 7035) ■ black |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP66/ IP68 (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) UL type 4X (acc. to UL 50E) |
| Temperature | - 40°C to + 100°C (static) |
| Properties | Halogen-free, silicone-free |
| Thread length | 11 mm; KEL-DPF 85 48-70: 14 mm |
| Cut-out dimensions | Metric sizes |

Accessories

| | |
|-------------------|-----------|
| FP Flanged plates | 320 - 329 |
| MP Module plates | 314 - 315 |
| TE-M | 334 - 337 |

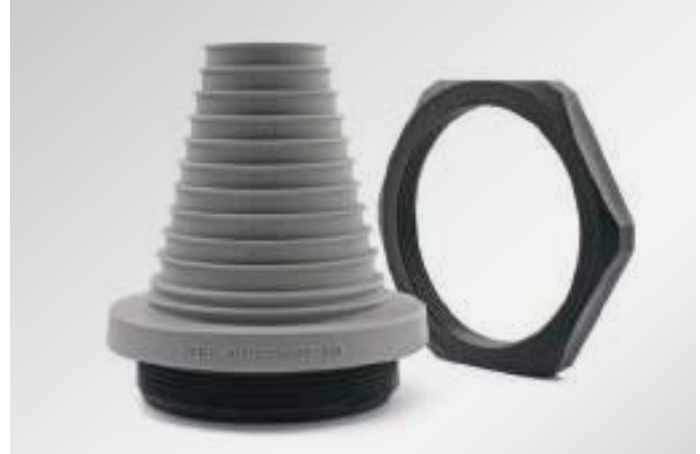


Wrenches

for M75/M85 plastic locknuts

Material: Aluminium

M75: Order No.61436 | M85: Order No. 61437 | PU: 1



Due to high elasticity also suitable for routing preassembled cable lugs or terminals



Can be combined with TE-M thread extension

KEL-DPF

Cable entry grommets

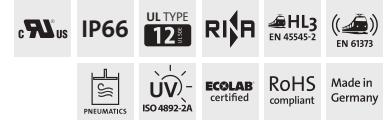


| | Type | Order No. | Thread metric | External diameter | Clamping range | PU |
|--|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------|----------------|----|
| | KEL-DPF 25 3-12 | 42652 50652 | M25 × 1.5 | 39 mm | 3 – 12 mm | 5 |
| | KEL-DPF 32 6-18 | 42653 50653 | M32 × 1.5 | 46 mm | 6 – 18 mm | 5 |
| | KEL-DPF 40 12-27 | 42654 50654 | M40 × 1.5 | 54 mm | 12 – 27 mm | 5 |
| | KEL-DPF 50 22-36 | 42655 50655 | M50 × 1.5 | 64 mm | 22 – 36 mm | 5 |
| | KEL-DPF 63 27-50 | 42656 50656 | M63 × 1.5 | 77 mm | 27 – 50 mm | 5 |
| | KEL-DPF 75 39-60 | 42657 50657 | M75 × 1.5 | 89 mm | 39 – 60 mm | 1 |
| | KEL-DPF 85 48-70 | 42658 50658 | M85 × 2 | 99 mm | 48 – 70 mm | 1 |

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KEL-ULTRA flex

Cable entry grommets



The KEL-ULTRA flex is designed as a cable entry grommet for any large cable or conduit that is difficult to manage. The KEL-ULTRA flex comes in two sizes and is ideal for routing and sealing cables and conduits with a diameter from 25 to 115 mm. Due to the high flexibility of the elastomer pyramid, inserting large, thick cables with KEL-ULTRA flex is easier than using standard cable glands.

After inserting the cable or conduit, the KEL-ULTRA flex is quickly and easily mounted with the metal ring and screws. This ring enables a circular fixing and sealing of the grommet at the enclosure wall. The ring is supplied with each KEL-ULTRA flex. Cutting of grommets: Cable diameter less 25%. It is recommended that additional strain relief be provided for cables as part of the installation.

Advantages & benefits

- Quick assembly
- Grommets allow easy orientation and seal of rigid cables
- IP66/up to UL type 12 rating

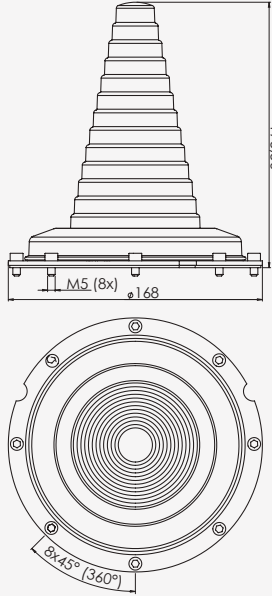
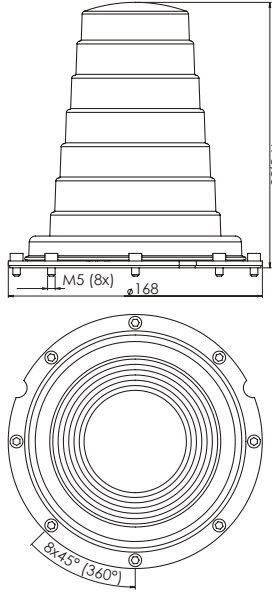
Specifications

| | |
|-------------------|------------------------------------------------------------------------------------------------|
| Material | Pyramid: Elastomer Fixing metal ring: Steel, zinc-plated Blind plate: Steel, zinc-plated |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP66, when fastened with 8 screws (certified acc. to EN 60529) |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | - 40°C to + 100°C (static) |
| Properties | Halogen-free, silicone-free |
| Cut-out dimension | Round, ϕ -cable +30%, max. ϕ 140 mm |

Accessories

| | |
|------------------|-----------|
| MP Module plates | 314 - 315 |
| BPM Blank plates | 331 |



| Description | Type | Order No. | Sealing range | PU |
|-------------------------------------------------------------------------------------|-----------------------------------------|-----------|------------------------------------|----|
|  | KEL-ULTRA flex 1 incl. fixing screws | 42630 | 25 - max. 90 mm cable diameter | 1 |
|  | KEL-ULTRA flex 2 incl. fixing screws | 42631 | 75 - max. 115 mm cable diameter | 1 |

KEL-JUMBO flex

Cable entry grommets



The KEL-JUMBO flex is a flexible cable entry grommet for cables without connectors with a diameter range from 27 – 68 mm.

They are ideal for the routing supply cables into the switch cabinets.

Cutting of KEL-JUMBO flex grommets:
Cable diameter less 25%. The corresponding diameters are marked on the grommet.

It is recommended that additional strain relief be provided for cables as part of the installation.

Advantages & benefits

- Quick assembly
- Grommets allow dynamic and flexible movement of rigid cables
- Compact installation area (88 × 88 mm)

Specifications

| | |
|--------------------|---------------------------------------------|
| Material | Frame: Polyamide (PA) Pyramid: Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54 |
| UL type rating | UL type 12 (acc. to UL 50E) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |
| Cut-out dimensions | Round, ϕ -cable +20% |

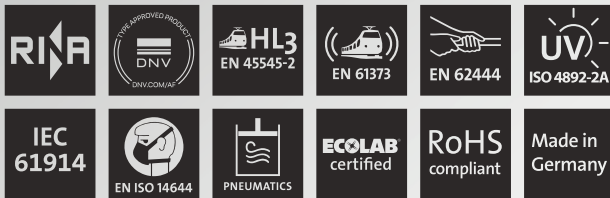
Accessories

| | |
|------------------|-----------|
| MP Module plates | 314 - 315 |
| BP Blank plates | 331 |



| Description | Type | Order No. | Clamping range | PU |
|-------------|----------------------|-----------|----------------|----|
| | KEL-JUMBO flex 27-48 | 42614 | 27 - 48 mm | 1 |
| | KEL-JUMBO flex 47-68 | 42616 | 47 - 68 mm | 1 |

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Strain relief and cable management



CCL



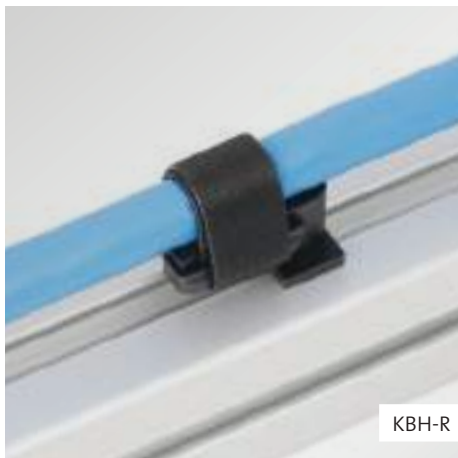
ZL



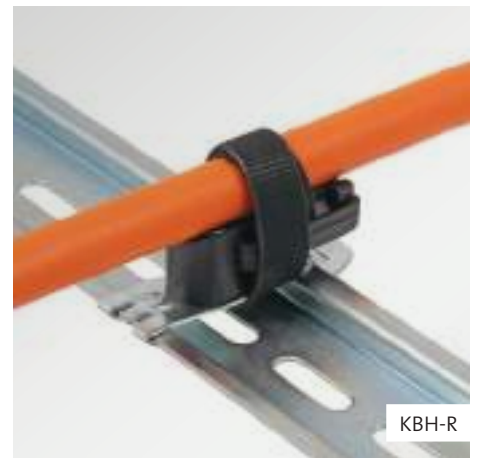
ZL 03 | 04 | 05



KBH-S



KBH-R



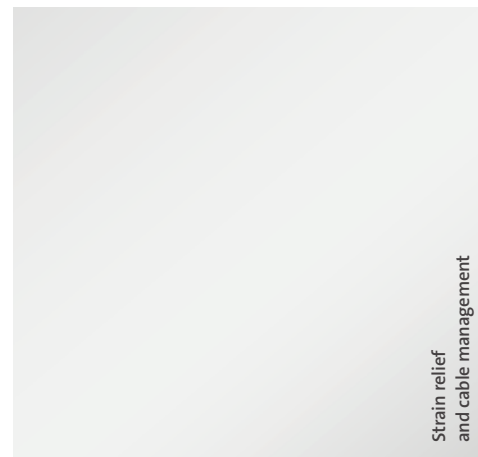
KBH-R



KB



MSMC



Strain relief
and cable management
3
3.1
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3 Strain relief and cable management



Best secured and structured: Strain relief and cable routing

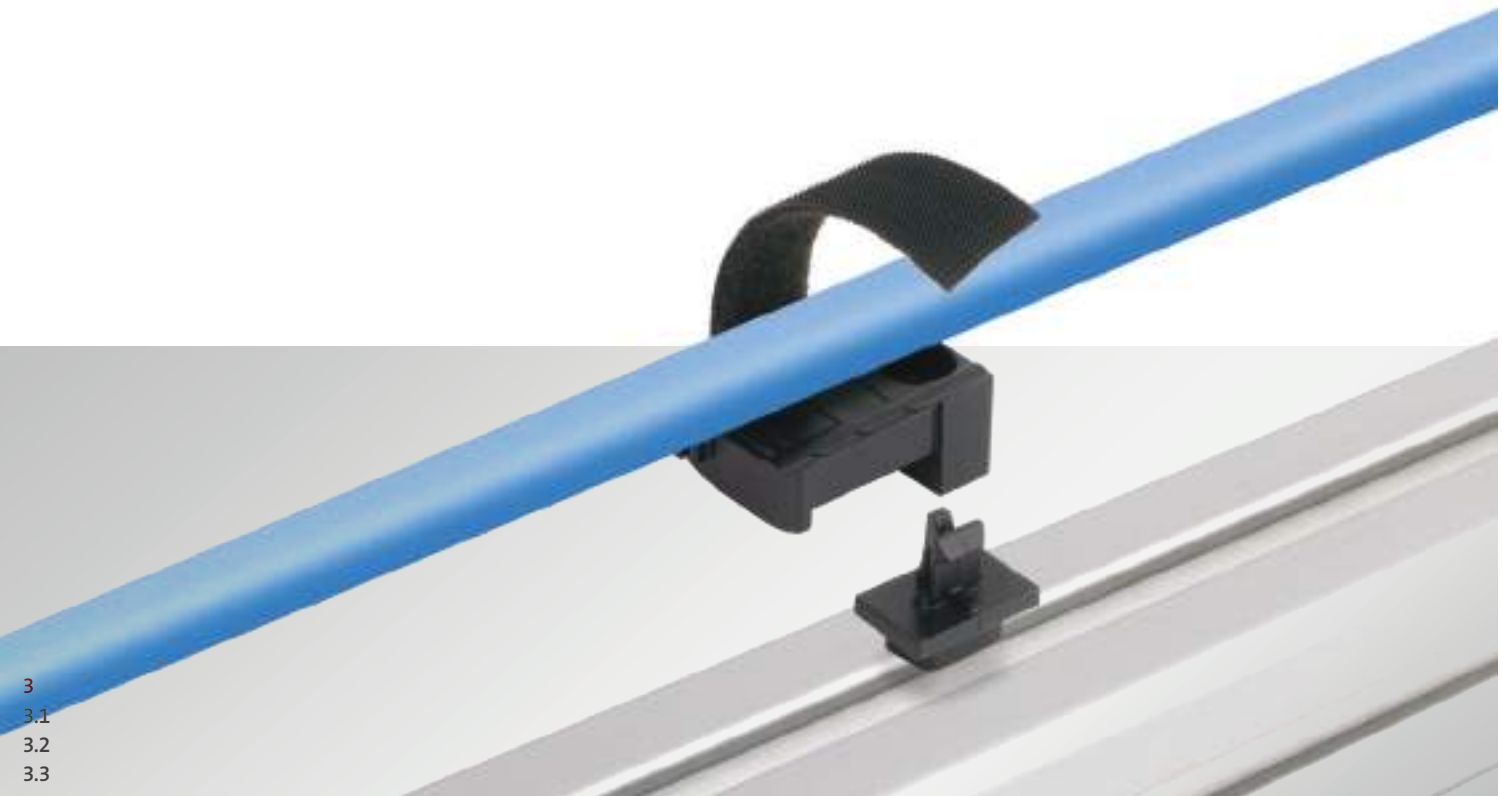
With icotek's universal strain relief and cable routing systems, cables, wires and hoses can be quickly, safely and cleanly assembled and strain relieved at the same time. This is possible under both static and dynamic loads.

With the strain relief systems, cables can be routed quickly, safely and cleanly and strain relieved in accordance with EN 62444. The possible applications range from routing cables on machines, control cabinets and enclosures to cable carriers.

Various assembly options, e.g. for top-hat rail, C-rail or direct mounting, offer a wide range of possible applications. The cables are mounted using standard cable ties.

Cable ties with hook-and-loop fasteners are an increasingly common fixing mode for cables. Various holders serve as holders for hook-and-loop fasteners, which can be mounted quickly and easily in a variety of ways.

The modular stackable cable clamp MSMC is used for cable routing and strain relief, especially for cables with large diameters and large bending radii, according to IEC 61914.



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| Product range strain relief, MSMC | Strain relief | Strain relief acc. to EN 62444 | IEC 61914 | Screw assembly | Assembly on DIN rails | Assembly on C-rails | Page |
|--------------------------------------|---------------|-----------------------------------|-----------|----------------|--------------------------|---------------------|-----------|
| CCL | ● | | | | | ● | 192 – 193 |
| ZL | ● | ● | | ● | | | 194 |
| ZL-AB / ZL-MS | ● | ● | | ● | | | 195 |
| ZL 03 / 04 / 05 | ● | ● | | ● | | | 196 |
| KZL | ● | ● | | | ● | ● | 197 |
| SF ZL | ● | ● | | | ● | | 198 |
| MSMC | ● | | ● | ● | | ● | 216 – 219 |

| Product range cable management | compatible with | Page |
|-----------------------------------|--------------------------------------------------|------|
| KBH-S M5 | universal | 204 |
| KBH-R R MS | Rittal punched section and punched rail | 205 |
| KBH-R M G8 | MiniTec profile with 8 mm groove | 206 |
| KBH-R M-I G8 | MiniTec, Item profile with 8 mm groove | 206 |
| KBH-R B-R G8 | Bosch Rexroth profile with 8 mm groove | 207 |
| KBH-R B-R G10 | Bosch Rexroth profile with 10 mm groove | 207 |
| KBH-R I G6 | Item profile with 6 mm groove | 208 |
| KBH-R May-G8 | Maytec PG40 profile with 8 mm groove | 208 |
| KBH-R P80/20 | 80/20 profile | 209 |
| KBH-R SF-M4 | 35 mm top hat DIN rail | 210 |
| KBH-R 12-SC | C-rails with an opening dimension of 16 mm | 210 |
| KBH-R 12-C | C-rails with an opening dimension of 16 mm | 210 |
| KBH-R 9,5 | 19" system punching 9.5 x 9.5 mm | 211 |
| KBH-KS | universal, self-adhesive | 211 |
| KBH-S | 23 x 23 mm mounting rail | 214 |
| KBH-SB | universal | 214 |
| KBH-R | 23 x 23 mm mounting rail systems for Rittal VX25 | 214 |
| KBH-RBA | drill-hole ø 6 mm | 214 |
| KBH-RBB | drill-hole ø 6.5 mm | 214 |
| KLKB | universal | 215 |
| KLB | universal | 215 |

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3.1 Systems for strain relief



Space-saving solution for mounting on C-rails



High cable density, multilayer mounting possible



Fast and easy, partially tool-free mounting



Wide mounting type variety: top hat DIN rail/C-rail snap mount, screw mount



Available in various sizes



Secure hold of the cable ties and cables, strain relief acc. to EN 62444



- 3
- 3.1
- 3.2
- 3.3



Cable clamp
for C-rail mount

CCL

192 – 193



Strain relief plates
for screw mount

ZL

194



Strain relief plates
for screw mount, with bushings

ZL-AB / ZL-MS

195



Strain relief plates
for screw mount, for various cable diameters

ZL 03 | 04 | 05

196



Strain relief plates
for 35 mm top hat DIN rail/C-rail snap mount

KZL

197



Strain relief plates
for 35 mm top hat DIN rail snap mount

SF|ZL

198



Spacers
for multilayer mounting of strain relief
plates

DH

196



EMC Strain relief plates

KAFM-EMC

264



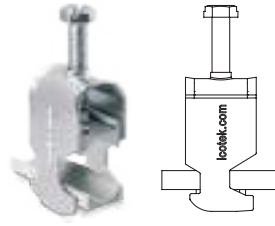
Shield plate
for ZL strain relief plates

ZL|SB-EMC

265

CCL

Cable clamp for C-rails



The cable clamps are characterised by a high clamping range and great flexibility. Ideally suited for strain relief on the C-rail for opening dimensions 16 – 17 mm. It offers flexible clamping ranges from 6 mm to 64 mm.

The counter trough integrated in the cable clamp is secured by a locking mechanism and cannot slip out of the cable clamp under tensile load.

Advantages & benefits

- Quick and easy assembly
- Tool-free and space-saving assembly
- Large variety of clamping areas from 6 to 64 mm
- High packing density
- For mounting on all common C-rails with 16 – 17 mm opening dimensions

Specifications

Material Galvanised steel

Accessories

EMC shield clamps for 30 mm C-rails 242 - 245

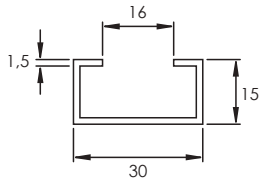
| Type | Clamping range | Order No. | PU |
|-----------|----------------|-----------|----|
| CCL 6-13 | 6 – 13 mm | 32000 | 25 |
| CCL 12-19 | 12 – 19 mm | 32001 | 25 |
| CCL 18-23 | 18 – 23 mm | 32002 | 25 |
| CCL 22-32 | 22 – 32 mm | 32003 | 25 |
| CCL 30-38 | 30 – 38 mm | 32004 | 25 |
| CCL 38-42 | 38 – 42 mm | 32005 | 25 |
| CCL 42-50 | 42 – 50 mm | 32006 | 25 |
| CCL 50-64 | 50 – 64 mm | 32007 | 25 |



CCL

Plastic counter trough (spare part)

RoHS
compliant



C-rail dimensions (mm)

Plastic counter trough (spare part)

| Type | suitable for cable clamp | Order No. | PU |
|------------------------|------------------------------------|-----------|----|
| Counter trough Y 6/12 | CCL 6-13 | 99215 | 50 |
| Counter trough Y 12/18 | CCL 12-19 | 99216 | 50 |
| Counter trough Y 16/22 | CCL 18-23 | 99217 | 50 |
| Counter trough Y 22/38 | CCL 22-32, CCL 30-38, CCL 38-42 | 99218 | 50 |
| Counter trough Y 42/64 | CCL 42-50, CCL 50-64 | 99219 | 50 |



LFC/MSKL and CCL



Applications on the C-Rail with cable clamp CCL



3
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ZL

Strain relief plates for screw assembly



The strain relief plate ZL is used for static or dynamic applications for organising and securing cables on machines, control panels or drag chains.

The design of the strain relief unit provides secure strain relief according to EN 62444. Mount of the cables or pneumatic tubing is easily done using cable ties.

For multilayer installation please use DH spacers.

Advantages & benefits

- Strain relief according to EN 62444
- Easy assembly
- Cost-effective
- High cable density
- Wide variety of mounting options
- Vibration proof

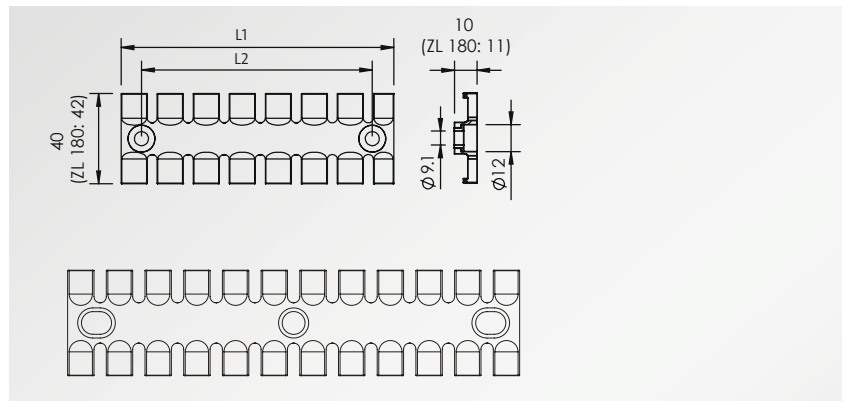
Specifications

| | |
|-------------|-------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |

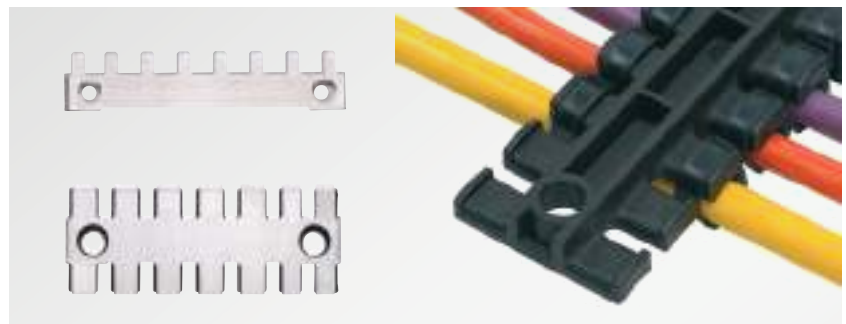
Accessories

| | |
|-------------------------|-----|
| DH Spacers | 196 |
| Mounting feet | 235 |
| ZL SB-EMC Shield plates | 265 |

| Type | Order No. | Length L1 | Length L2 | No. of teeth | PU |
|--------|-----------|-----------|-----------|--------------|----|
| ZL 39 | 32222 | 38.5 mm | 19.5 mm | 3 | 10 |
| ZL 60 | 32224 | 59.5 mm | 43.5 mm | 4 | 10 |
| ZL 70 | 32226 | 69.1 mm | 43.5 mm | 5 | 10 |
| ZL 87 | 32228 | 86.5 mm | 68 mm | 6 | 10 |
| ZL 103 | 32230 | 102.5 mm | 84 mm | 7 | 10 |
| ZL 121 | 32232 | 121 mm | 102.5 mm | 8 | 10 |
| ZL 140 | 32234 | 139.5 mm | 121 mm | 9 | 10 |
| ZL 180 | 32236 | 180 mm | 157 mm | 12 | 10 |



ZL 180



ZL|SB-EMV

ZL

ZL-AB | ZL-MS

Strain relief plates for screw assembly



The strain relief plate ZL-AB / ZL-MS is used for static or dynamic applications for organising and securing cables on machines, control panels or drag chains.

By using aluminium / brass nuts for the screw holes, a better fit of the strain relief plate is achieved, even in high vibration environments.

Advantages & benefits

- Strain relief according to EN 62444
- Easy assembly
- Cost-effective
- High cable density
- Wide variety of mounting options
- Vibration proof

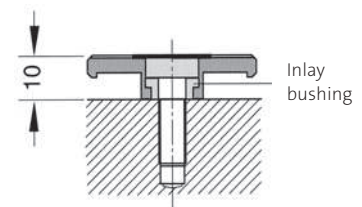
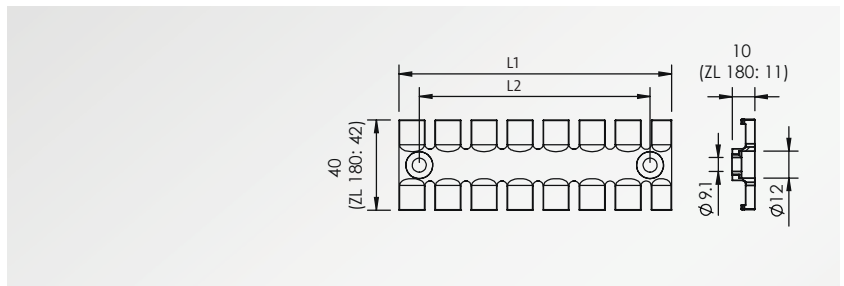
Specifications

| | |
|-------------|----------------------------------------------------------------------|
| Material | ZL: Polyamide (PA) Bushing: Aluminium (ZL-AB) Brass (ZL-MS) |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |

Accessories

ZL|SB-EMC Shield plates 265

| Type | Order No. for M4 screws | Order No. for M5 screws | Order No. for M6 screws | Length L1 | Length L2 | No. of teeth | PU |
|------------------------|-------------------------|-------------------------|-------------------------|-----------|-----------|--------------|----|
| ZL 39 AB ZL 39 MS | ■ 32270 | ■ 32280 ■ 32360 | ■ 32290 | 38.5 mm | 19.5 mm | 3 | 10 |
| ZL 60 AB ZL 60 MS | ■ 32271 | ■ 32281 ■ 32361 | ■ 32291 | 59.5 mm | 43.5 mm | 4 | 10 |
| ZL 70 AB ZL 70 MS | ■ 32272 | ■ 32282 ■ 32362 | ■ 32292 | 69.1 mm | 43.5 mm | 5 | 10 |
| ZL 87 AB ZL 87 MS | ■ 32273 | ■ 32283 ■ 32363 | ■ 32293 | 86.5 mm | 68 mm | 6 | 10 |
| ZL 103 AB ZL 103 MS | ■ 32275 | ■ 32284 ■ 32364 | ■ 32294 | 102.5 mm | 84 mm | 7 | 10 |
| ZL 121 AB ZL 121 MS | ■ 32277 | ■ 32285 ■ 32365 | ■ 32295 | 121 mm | 102.5 mm | 8 | 10 |
| ZL 140 AB ZL 140 MS | ■ 32274 | ■ 32286 ■ 32366 | ■ 32296 | 139.5 mm | 121 mm | 9 | 10 |
| ZL 180 AB ZL 180 MS | ■ 32276 | ■ 32287 ■ 32367 | ■ 32297 | 180 mm | 157 mm | 12 | 10 |



Inlay bushings are also available in brass

ZL 03 | 04 | 05

Strain relief plates
for screw assembly
for various cable diameters



Strain relief plates ZL feature different comb widths. Thus providing a multi-purpose product for various cable sizes. The design of the strain relief unit provides secure strain relief according to EN 62444. Mount of the cables or pneumatic tubing is easily done using cable ties.

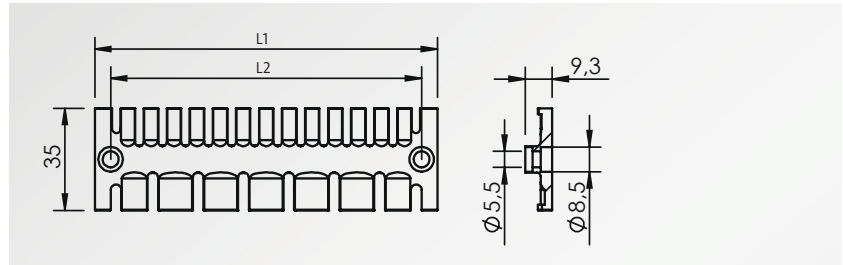
Advantages & benefits

- Strain relief according to EN 62444
- Easy assembly
- Cost-effective
- High cable density
- Wide variety of mounting options
- Vibration proof

Specifications

| | |
|-------------|-------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |

| Type | Order No. | Length L1 | Length L2 | No. of teeth | PU |
|-------|-----------|-----------|-----------|--------------|----|
| ZL 03 | 32112 | 63.4 mm | 42 mm | 4 7 | 10 |
| ZL 04 | 32114 | 95 mm | 74.5 mm | 6 11 | 10 |
| ZL 05 | 32116 | 119 mm | 108 mm | 7 13 | 10 |



DH Spacers

Due to DH spacers strain relief plates can be mounted in multi-layers to achieve an increase of the cable density.

Advantages & benefits

- Increase of cable density

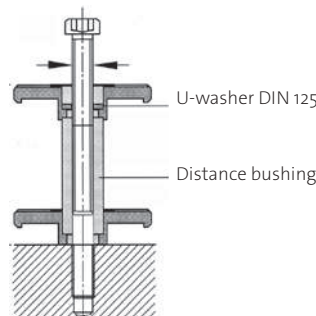
Specifications

| | |
|----------|-----------|
| Material | Aluminium |
|----------|-----------|

Compatible with

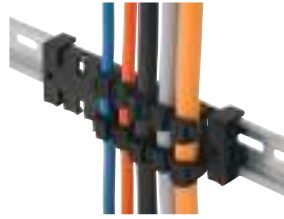
| | |
|----------------------------------|-----|
| ZL Strain relief plates | 194 |
| ZL 03 04 05 Strain relief plates | 196 |

| Type | Order No. | Fits with | Length | Diameter | | PU |
|-------|-----------|-----------------|--------|----------|--------|----|
| | | | | inner | outer | |
| DH 30 | 32251 | ZL 03 04 05 | 30 mm | 5.2 mm | 8.5 mm | 10 |
| DH 32 | 32252 | ZL | 32 mm | 6.2 mm | 12 mm | 10 |



KZL

Strain relief plates for mounting rails



The strain relief plate KZL is used for static or dynamic applications for organising and securing cables on machines, control panels or drag chains.

The design of the strain relief unit provides secure strain relief according to EN 62444. Mount of the cables or pneumatic tubing is easily done using cable ties.

KZL Strain relief plates can be mounted on 30 mm DIN rails (C-rails) and 35 mm top hat DIN rails.

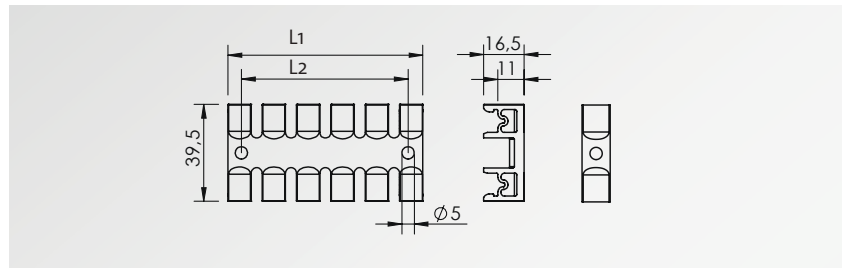
Advantages & benefits

- Strain relief according to EN 62444
- Easy assembly
- Cost-effective
- High cable density
- Wide variety of mounting options
- Vibration proof

Specifications

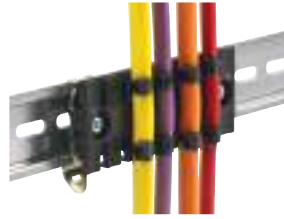
| | |
|-------------|-------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |

| Type | Order No. | Length L1 | Length L2 | No. of teeth | PU |
|---------|-----------|-----------|-----------|--------------|----|
| KZL 11 | 32250 | 11.5 mm | – | 1 | 10 |
| KZL 39 | 32260 | 38.5 mm | 28.3 mm | 3 | 10 |
| KZL 80 | 32262 | 79.5 mm | 68 mm | 6 | 10 |
| KZL 140 | 32264 | 139.5 mm | 128.1 mm | 9 | 10 |



SF|ZL

Strain relief plates for 35 mm top hat DIN rail



The strain relief plate SF|ZL is used for assembly on 35 mm top hat DIN rails. It can be used for strain relief of cables and conduits.

The SF|ZL range is based upon the strain relief plate ZL, which is mounted on snap feet for 35 mm top hat DIN rails.

Advantages & benefits

- Strain relief according to EN 62444
- Easy assembly
- Cost-effective
- High cable density
- Wide variety of mounting options

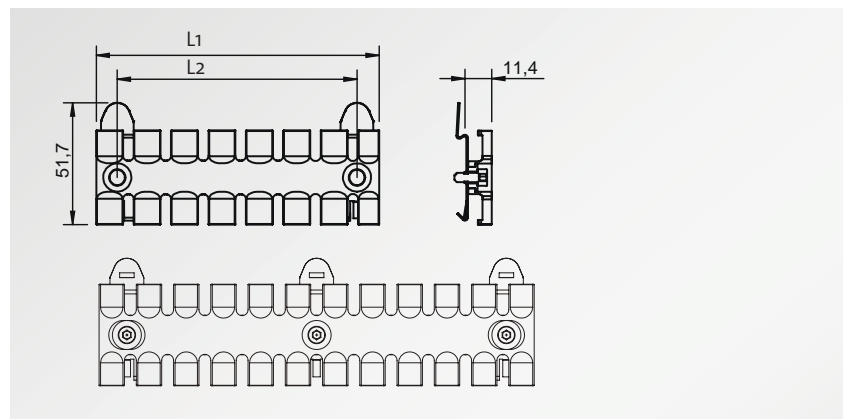
Specifications

| | |
|-------------|-------------------------------|
| Material | ZL: Polyamide (PA) |
| SF-foot: | Spring steel |
| Flame class | UL 94 V-o, self-extinguishing |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |

Accessories

ZL|SB-EMC Shield plates 265

| Type | Order No. | Length L1 | Length L2 | No. of teeth | PU |
|-----------|-----------|-----------|-----------|--------------|----|
| SF ZL 39 | 32351 | 38.5 mm | 19.5 mm | 3 | 10 |
| SF ZL 60 | 32352 | 59.5 mm | 43.5 mm | 4 | 10 |
| SF ZL 70 | 32353 | 69.1 mm | 43.5 mm | 5 | 10 |
| SF ZL 87 | 32354 | 86.5 mm | 68 mm | 6 | 10 |
| SF ZL 103 | 32355 | 102.5 mm | 84 mm | 7 | 10 |
| SF ZL 121 | 32356 | 121 mm | 102.5 mm | 8 | 10 |
| SF ZL 140 | 32357 | 139.5 mm | 121 mm | 9 | 10 |
| SF ZL 180 | 32358 | 180 mm | 157 mm | 12 | 10 |



SF|ZL 180



Typical applications



ZL 180
Packaging machines



ZL
Automation



ZL 180
Machine tools



ZL 180
Robotics

3.2 Systems for cable management

Organise, bundle, fix:
Hook-and-loop fasteners,
holders for hook-and-loop fasteners

Cable ties with hook-and-loop fasteners are an increasingly common fixing mode for cables. They are used instead of standard cable ties, because they can be easily closed and opened several times. The soft material is gentle on cables, especially where vibrations are present.

Various holders serve as holders for hook-and-loop fasteners, which can be mounted quickly and easily in a variety of ways.



High cable density,
multilayer mounting
possible



Gentle on cables,
especially during vibrations

No sharp edges,
no risk of injury



Subsequent removal or addition
of cables is easily possible

Very quick assembly thanks
to 90° rotation lock



Available for numerous
aluminium profiles and
construction profiles

Different routing directions of the
cables are possible



Available in three sizes:
12, 24 and 36 mm

Very fast assembly,
screwable



Holders for hook-and-loop cable ties
 Assembly with screws,
 suitable for hook-and-loop tape KLB and
 hook-and-loop fastener KLKB

KBH-S

204



Holders for hook-and-loop cable ties
 Pluggable,
 for numerous profiles: Rittal, MiniTec, Item,
 Bosch Rexroth, Maytec, 80/20,
 suitable for hook-and-loop tape KLB and
 hook-and-loop fastener KLKB

KBH-R

205 – 209



Holders for hook-and-loop cable ties
 Pluggable,
 for top-hat rail, C-rail, 19" system punchings,
 suitable for hook-and-loop tape KLB and
 hook-and-loop fastener KLKB

KBH-R

210 – 211



Holders for hook-and-loop cable ties
 Assembly: self-adhesive,
 suitable for hook-and-loop tape KLB and
 hook-and-loop fastener KLKB

KBH-KS

211



Holders for hook-and-loop cable ties
 Assembly with screws, pluggable,
 universal, for mounting rail systems,
 suitable for KLB and KLKB
 KBH-S / KBH-R / KBH-R-TX / KBH-SB /
 KBH-RBA / KBH-RBB

214



KBH ServiceBox
 Service boxes for KBH holders,
 Assembly with screws, pluggable,
 available for numerous profiles

KBH-S ServiceBox / KBH-R ServiceBox

212 – 213



Hook-and-loop cable ties
 for cable management,
 resealable, re-usable,
 available in four sizes or as a continuous roll

KLKB / KLB

215

3
 3.1
 3.2
 3.3

KBH

Holders for hook-and-loop cable ties

The holders for hook-and-loop fasteners KBH-S and KBH-R serve as universal holders and as cable routing systems for the hook-and-loop tape KLB and the hook-and-loop fastener KLKB.

With the KBH-R holder, cables can be routed in different directions. The 90° twist lock makes it very easy to mount.

Due to the two-part design of the KBH-R hook-and-loop holder, the cable plate (upper part) can be fixed parallel or at an angle to the profile, depending on the desired cable routing direction. If cables are added or removed later, the cable plate sizes can be changed flexibly.

Advantages & benefits KBH-S

- Available in three sizes: 12, 24 and 36 mm
- Very fast assembly, screwable
- Suitable for hook-and-loop tape KLB and hook-and-loop fastener KLKB

Advantages & benefits KBH-R

- Available in three sizes: 12, 24 and 36 mm
- Very fast assembly due to 90° twist lock
- Suitable for hook-and-loop tape KLB and hook-and-loop fastener KLKB
- Available for numerous aluminium profiles and construction profiles
- Different guiding directions of the cables possible
- Subsequent removal or addition of cables is easily possible

Specifications KBH-S, KBH-R

| | |
|-------------|-------------------------------|
| Material | Polyamide (PA) |
| Colour | Black |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +140°C |
| Properties | Halogen-free, silicone-free |

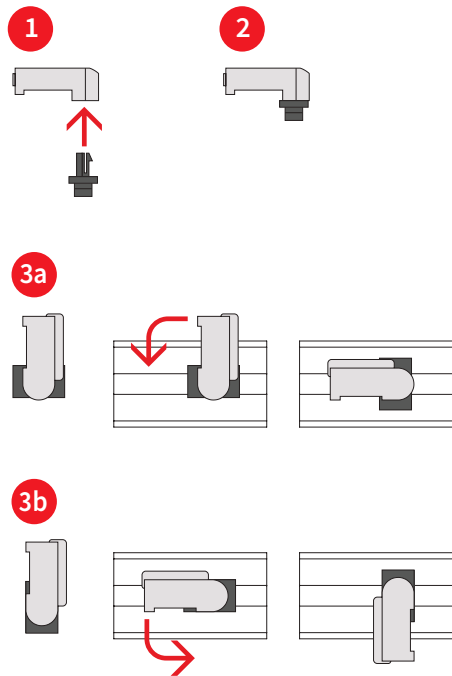
Compatible with

KLKB/KLB Cable ties
with hook-and-loop fastener 215



Assembly KBH-R

- Very fast assembly due to 90° twist lock
- Different guiding directions of the cables possible

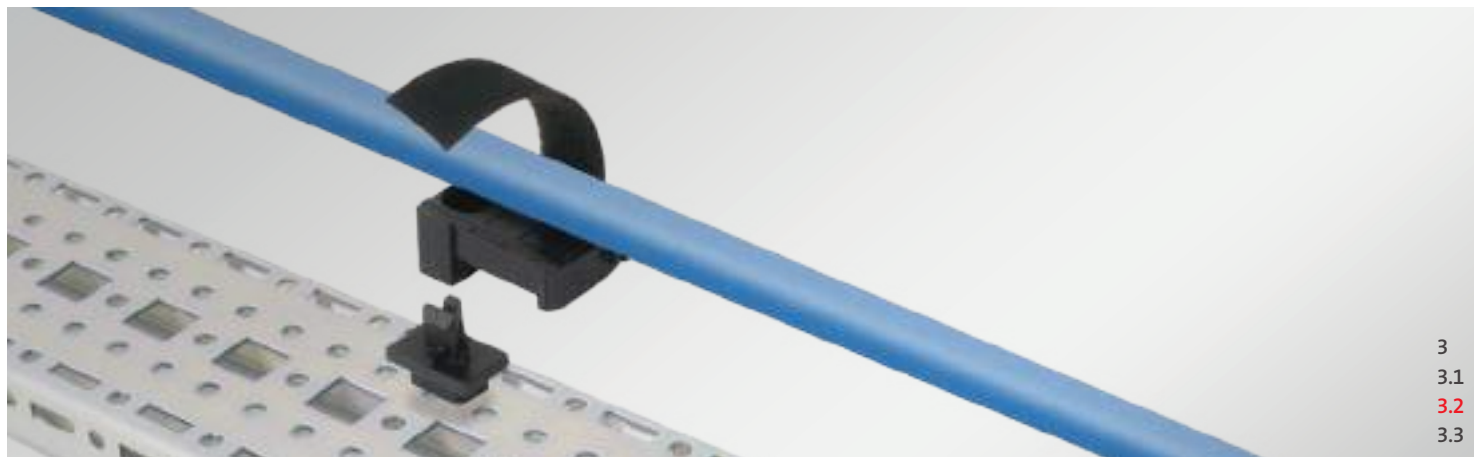
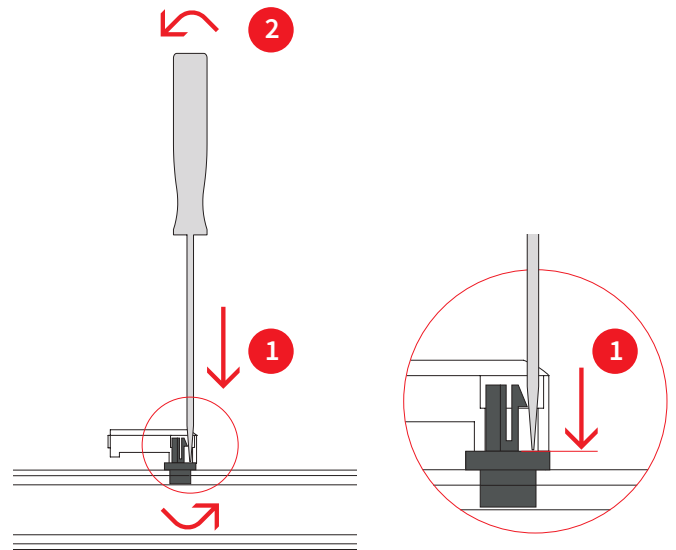


KBH-R

Disassembly KBH-R

Removal of the cable plate

- Insert the screwdriver past the locking lug all the way down (1)
- Hold the screwdriver down and press the handle in the direction of the locking lug (2)
- The plate of the holder is released and can then be removed from the base
- The plate must be mounted to release the base



KBH-S

Holders for hook-and-loop cable ties

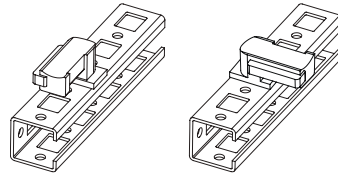


| Type | Order No. | fits KLKB KLB | compatible with | PU |
|----------------------------------------------------------------|------------|---------------------------------------------|-----------------|----|
| Holder for hook-and-loop fastener, assembly with screws | | | | |
| KBH-S 12 M5 | 61030 | KLKB 200 x 13 KLB 10 KLB 15 | universal | 10 |
| | 61030.9005 | | | 50 |
| KBH-S 24 M5 | 61031 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | universal | 10 |
| | 61031.9005 | | | 50 |
| KBH-S 36-1 M5 | 61032 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | universal | 10 |
| | 61032.9005 | | | 50 |
| KBH-S 36-2 M5 | 61033 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | universal | 10 |
| | 61033.9005 | | | 50 |

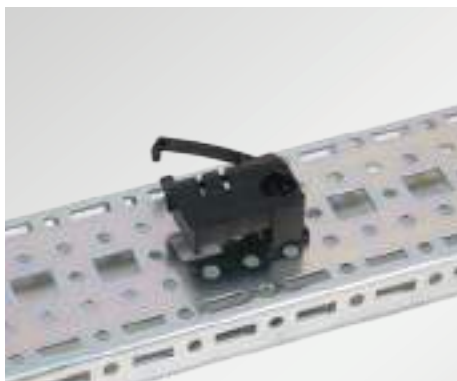
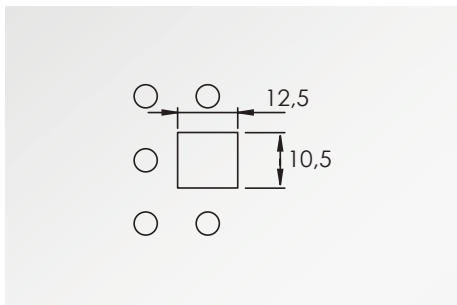


KBH-R

Holders for hook-and-loop cable ties



| Type | Order No. | fits KLKB KLB | compatible with | PU |
|--------------------------------------------------------------------------------------|------------|---------------------------------------------|-----------------------------------------|----|
| Holder for hook-and-loop fastener for Rittal punched section and punched rail | | | | |
| KBH-R 12 R MS Holder for hook-and-loop fastener, pluggable | 61045 | KLKB 200 x 13 KLB 10 KLB 15 | Rittal punched section and punched rail | 10 |
| | 61045.9005 | | | 50 |
| KBH-R 24 R MS Holder for hook-and-loop fastener, pluggable | 61046 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | Rittal punched section and punched rail | 10 |
| | 61046.9005 | | | 50 |
| KBH-R 36-1 R MS Holder for hook-and-loop fastener, pluggable | 61047 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | Rittal punched section and punched rail | 10 |
| | 61047.9005 | | | 50 |



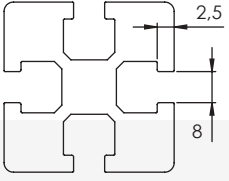

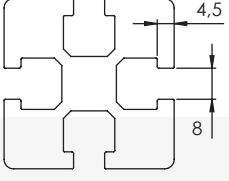

Rittal punched section

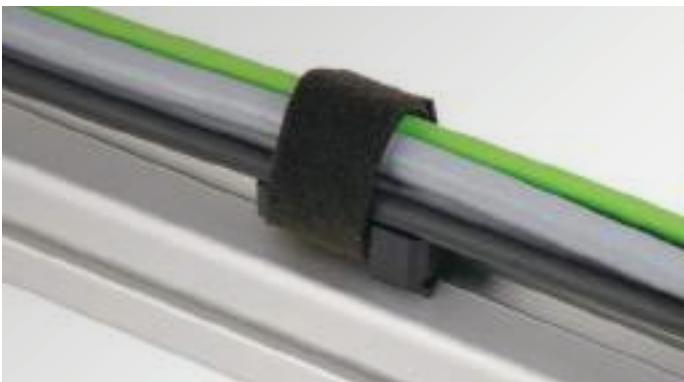


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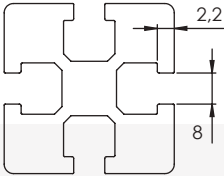

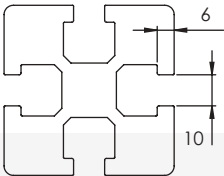

Holders for hook-and-loop cable ties

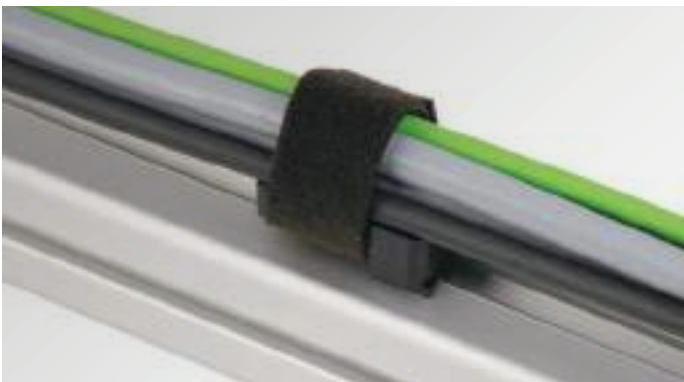
| Type | Order No. | fits KLKB KLB | compatible with | PU | |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------|---------------------------------------------|-----------------------------------|----|
| Holder for hook-and-loop fastener for MiniTec | | | | | |
|  | KBH-R 12 M G8 Holder for hook-and-loop fastener, pluggable | 61048 | KLKB 200 x 13 KLB 10 KLB 15 | MiniTec with 8 mm groove | 10 |
| | 61048.9005 | | | 50 | |
|  | KBH-R 24 M G8 Holder for hook-and-loop fastener, pluggable | 61049 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | MiniTec with 8 mm groove | 10 |
| | 61049.9005 | | | 50 | |
| | KBH-R 36-1 M G8 Holder for hook-and-loop fastener, pluggable | 61050 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | MiniTec with 8 mm groove | 10 |
| | 61050.9005 | | | | 50 |
| Holder for hook-and-loop fastener for Minitec and Item | | | | | |
|  | KBH-R 12 M-I G8 Holder for hook-and-loop fastener, pluggable | 61051 | KLKB 200 x 13 KLB 10 KLB 15 | MiniTec, Item with 8 mm groove | 10 |
| | 61051.9005 | | | 50 | |
|  | KBH-R 24 M-I G8 Holder for hook-and-loop fastener, pluggable | 61052 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | MiniTec, Item with 8 mm groove | 10 |
| | 61052.9005 | | | 50 | |
| | KBH-R 36-1 M-I G8 Holder for hook-and-loop fastener, pluggable | 61053 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | MiniTec, Item with 8 mm groove | 10 |
| | 61053.9005 | | | | 50 |



KBH-R

Holders for hook-and-loop cable ties

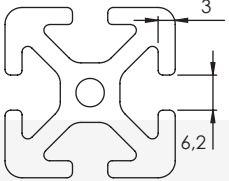
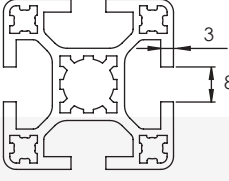
| Type | Order No. | fits KLKB KLB | compatible with | PU | |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------|---------------------------------------------|------------------------------------|----|
| Holder for hook-and-loop fastener for Bosch Rexroth, with 8 mm groove | | | | | |
|  | KBH-R 12 B-R G8 Holder for hook-and-loop fastener, pluggable | 61054 | KLKB 200 x 13 KLB 10 KLB 15 | Bosch Rexroth with 8 mm groove | 10 |
| | | 61054.9005 | | | |
|  | KBH-R 24 B-R G8 Holder for hook-and-loop fastener, pluggable | 61055 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | Bosch Rexroth with 8 mm groove | 10 |
| | | 61055.9005 | | | |
| | KBH-R 36-1 B-R G8 Holder for hook-and-loop fastener, pluggable | 61056 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | Bosch Rexroth with 8 mm groove | 10 |
| | | 61056.9005 | | | 50 |
| Holder for hook-and-loop fastener for Bosch Rexroth, with 10 mm groove | | | | | |
|  | KBH-R 12 B-R G10 Holder for hook-and-loop fastener, pluggable | 61057 | KLKB 200 x 13 KLB 10 KLB 15 | Bosch Rexroth with 10 mm groove | 10 |
| | | 61057.9005 | | | |
|  | KBH-R 24 B-R G10 Holder for hook-and-loop fastener, pluggable | 61058 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | Bosch Rexroth with 10 mm groove | 10 |
| | | 61058.9005 | | | |
| | KBH-R 36-1 B-R G10 Holder for hook-and-loop fastener, pluggable | 61059 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | Bosch Rexroth with 10 mm groove | 10 |
| | | 61059.9005 | | | 50 |

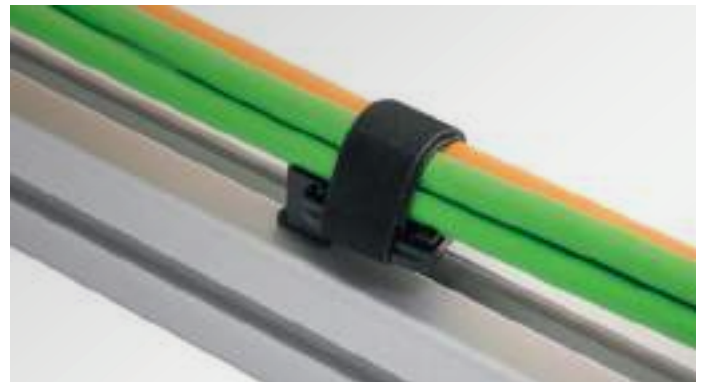
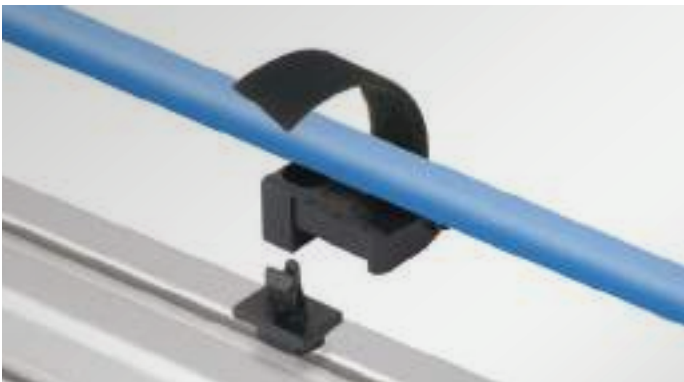


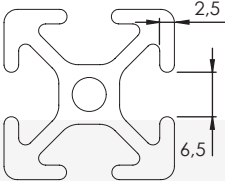
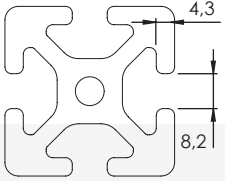
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KBH-R

Holders for hook-and-loop cable ties

| Type | Order No. | fits KLKB KLB | compatible with | PU |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| Holder for hook-and-loop fastener for item (6 mm groove) | | | | |
|  | KBH-R 12 I G6 Holder for hook-and-loop fastener, pluggable | 61061 61061.9005 | KLKB 200 x 13 KLB 10 KLB 15 | item with 6 mm groove 10 50 |
| | KBH-R 24 I G6 Holder for hook-and-loop fastener, pluggable | 61062 61062.9005 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | item with 6 mm groove 10 50 |
| KBH-R 36-1 I G6 Holder for hook-and-loop fastener, pluggable | 61063 61063.9005 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | item with 6 mm groove 10 50 | |
| Holder for hook-and-loop fastener for Maytec | | | | |
|  | KBH-R 12 May-G8 Holder for hook-and-loop fastener, pluggable | 61065 61065.9005 | KLKB 200 x 13 KLB 10 KLB 15 | Maytec PG40 with 8 mm groove 10 50 |
| | KBH-R 24 May-G8 Holder for hook-and-loop fastener, pluggable | 61066 61066.9005 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | Maytec PG40 with 8 mm groove 10 50 |
| KBH-R 36-1 May-G8 Holder for hook-and-loop fastener, pluggable | 61067 61067.9005 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | Maytec PG40 with 8 mm groove 10 50 | |



| Type | Order No. | fits KLKB KLB | compatible with | PU | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------|---------------------------------------------|-------------------------|----------|
| Holder for hook-and-loop fastener for profile 80/20 series 25 | | | | | |
|  | KBH-R 12 P80/20-25 Holder for hook-and-loop fastener, pluggable | 61084 61084.9005 | KLKB 200 x 13 KLB 10 KLB 15 | Profile 80/20 series 25 | 10 50 |
| | KBH-R 24 P80/20-25 Holder for hook-and-loop fastener, pluggable | 61085 61085.9005 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | Profile 80/20 series 25 | 10 50 |
| | KBH-R 36-1 P80/20-25 Holder for hook-and-loop fastener, pluggable | 61086 61086.9005 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | Profile 80/20 series 25 | 10 50 |
| Holder for hook-and-loop fastener for profile 80/20 series 40 | | | | | |
|  | KBH-R 12 P80/20-40 Holder for hook-and-loop fastener, pluggable | 61088 61088.9005 | KLKB 200 x 13 KLB 10 KLB 15 | Profile 80/20 series 40 | 10 50 |
| | KBH-R 24 P80/20-40 Holder for hook-and-loop fastener, pluggable | 61089 61089.9005 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | Profile 80/20 series 40 | 10 50 |
| | KBH-R 36-1 P80/20-40 Holder for hook-and-loop fastener, pluggable | 61090 61090.9005 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | Profile 80/20 series 40 | 10 50 |



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KBH-R

Holders for hook-and-loop cable ties

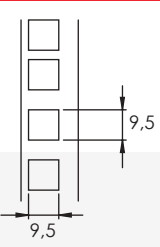


| Type | Order No. | fits KLKB KLB | compatible with | PU |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------|---------------------------------------------|----------------------------------------------------------------------|
| Holder for hook-and-loop fastener for assembly on 35 mm top hat DIN rails | | | | |
| | KBH-R 12-SF-M4 Holder for hook-and-loop fastener, pluggable | 61068 61068.9005 | KLKB 200 x 13 KLB 10 KLB 15 | 35 mm top hat DIN rails 10 50 |
| | KBH-R 24-SF-M4 Holder for hook-and-loop fastener, pluggable | 61069 61069.9005 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | 35 mm top hat DIN rails 10 50 |
| Holder for hook-and-loop fastener for assembly on C-rails | | | | |
| | KBH-R 12-SC Holder for hook-and-loop fastener, pluggable | 61070 61070.9005 | KLKB 200 x 13 KLB 10 KLB 15 | C-rails with an opening dimension of 16 mm 10 50 |
| | KBH-R 24-SC Holder for hook-and-loop fastener, pluggable | 61071 61071.9005 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | C-rails with an opening dimension of 16 mm 10 50 |
| NEW | KBH-R 12-C Holder for hook-and-loop fastener, pluggable | 61076 61076.9005 | KLKB 200 x 13 KLB 10 KLB 15 | C-rails with an opening dimension of 16 mm 10 50 |
| NEW | KBH-R 24-C Holder for hook-and-loop fastener, pluggable | 61077 61077.9005 | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 | C-rails with an opening dimension of 16 mm 10 50 |
| NEW | KBH-R 36-C Holder for hook-and-loop fastener, pluggable | 61078 61078.9005 | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 | C-rails with an opening dimension of 16 mm 10 50 |



KBH-R, KBH-KS

Holders for hook-and-loop cable ties

| Type | Order No. | fits KLKB KLB | compatible with | PU |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------|----------------------------------|---------------------------------------------|
| Holder for hook-and-loop fastener for assembly on 19" system punching | | | | |
|  | KBH-R 12 9,5 Holder for hook-and-loop fastener, pluggable | 61073 | 19" system punching 9,5 x 9,5 mm | 10 |
| | | 61073.9005 | | KLKB 200 x 13 KLB 10 KLB 15 |
| | KBH-R 24 9,5 Holder for hook-and-loop fastener, pluggable | 61074 | 19" system punching 9,5 x 9,5 mm | 10 |
| | | 61074.9005 | | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 |
| Holder for hook-and-loop fastener, self-adhesive | | | | |
| NEW | KBH-KS 12 Holder for hook-and-loop fastener, self-adhesive | 61080 | universal | 10 |
| | | 61080.9005 | | KLKB 200 x 13 KLB 10 KLB 15 |
| NEW | KBH-KS 24 Holder for hook-and-loop fastener, self-adhesive | 61081 | universal | 10 |
| | | 61081.9005 | | KLKB 200 x 13 KLB 10 KLB 15 KLB 20 |
| NEW | KBH-KS 36-1 Holder for hook-and-loop fastener, self-adhesive | 61082 | universal | 10 |
| | | 61082.9005 | | KLKB 300 x 17 KLB 15 KLB 20 KLB 25 |



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KBH ServiceBox

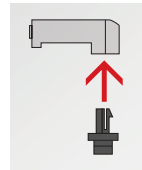
Service case with assortment of holders for hook-and-loop fasteners



Convenient – everything available right away!

The KBH service cases are ideal for installation or maintenance work, but the range also provides useful services for new developments.

With the KBH-S and KBH-R service cases, the required holders are always available.



The pluggable holders for hook-and-loop fasteners are created by combining KBH-S screw-on cable plates and bases matched to the respective profile.



KBH-S ServiceBox for assembly with screws

- Content ***
- 50× KBH-S 12 M5
 - 25× KBH-S 24 M5
 - 25× KBH-S 36-2 M5
 - 1× KEL-DPZ 25 cable entry plate
 - 1× icotek screwdriver

Order No. 88031



KBH-R ServiceBox for Rittal punched section and punched rail

- Content ***
- 50× KBH-S 12 M5
 - 30× KBH-S 24 M5
 - 20× KBH-S 36-1 M5
 - 100× RS MS base for Rittal punched section and punched rail
 - 1× KEL-DP 32 cable entry plate
 - 1× QVT 20 cable gland
 - 1× icotek screwdriver

Order No. 88032



KBH-R ServiceBox for MiniTec and item profiles with 8 mm groove

- Content ***
- 40× KBH-S 12 M5
 - 20× KBH-S 24 M5
 - 30× KBH-S 36-1 M5
 - 90× RS M-I G8 base for MiniTec and item profiles with 8 mm groove
 - 1× KEL-DP 20 cable entry plate
 - 1× icotek screwdriver

Order No. 88033

KBH ServiceBox

Service case with assortment of holders for hook-and-loop fasteners



KBH-R ServiceBox

for BoschRexroth profiles with 8 mm groove

Content *

- 30× KBH-S 12 M5
- 30× KBH-S 24 M5
- 20× KBH-S 36-1 M5
- 80× RS B-R G8 base for BoschRexroth profiles with 8 mm groove
- 1× KEL-SCDP-TR 32 cable entry plate
- 1× icotek screwdriver

Order No. 88034



KBH-R ServiceBox

for item profiles with 6 mm groove

Content *

- 40× KBH-S 12 M5
- 20× KBH-S 24 M5
- 30× KBH-S 36-1 M5
- 90× RS item G6 base for item profiles with 6 mm groove
- 1× KEL-DPZ 25|4 grey cable entry plate
- 1× icotek screwdriver

Order No. 88035



KBH-R ServiceBox

for MayTec profiles with 8 mm groove

Content *

- 40× KBH-S 12 M5
- 20× KBH-S 24 M5
- 30× KBH-S 36-1 M5
- 90× MT G8.3 base for MayTec PG40 profiles with 8 mm groove
- 1× KEL-DPZ 25|4 grey cable entry plate
- 1× icotek screwdriver

Order No. 88036



KBH-R ServiceBox

for 19" system punching

Content *

- 50× KBH-S 12 M5
- 30× KBH-S 24 M5
- 100× RS R G9.5 base for 19" system punching 9,5 × 9,5 mm
- 1× KEL-DP 32|7 grey cable entry plate
- 1× QVT 20 cable gland, QT 4
- 1× icotek screwdriver

Order No. 88037

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KBH

Holders for hook-and-loop cable ties



These holders can be used in combination with cable ties with hook-and-loop fastener KLKB and hook-and-loop tape KLB.

Large variety of holders provides unique and numerous mounting possibilities.

The KBH-R hook-and-loop tape holder is particularly suitable for tool-free mounting in the VX25 enclosure from Rittal.

Advantages & benefits

- Assembly within seconds
- Secure hold
- Flexible usage

Specifications KBH-S, KBH-R, KBH-R-TX

| | |
|-------------|-------------------------------|
| Material | Polyamide (PA) |
| Colour | ■ black |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +140°C |
| Properties | Halogen-free, silicone-free |

Specifications KBH-SB, KBH-RBA

| | |
|-------------|--------------------------------------|
| Material | Polyamide (PA) |
| Colour | ■ black (KBH-SB) □ nc (KBH-RBA) |
| Flame class | UL 94 V-2 |
| Temperature | -40°C to +85°C (short-term to 110°C) |

Specifications KBH-RBB

| | |
|-------------|-----------------|
| Material | Polyamide (PA) |
| Colour | ■ black |
| Temperature | -40°C to +120°C |

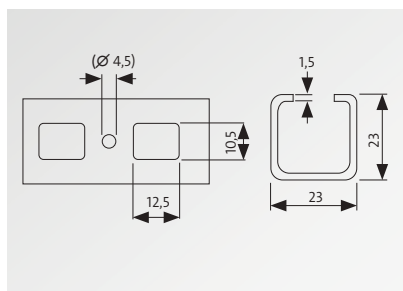
Compatible with

KLKB/KLB Cable ties with hook-and-loop fastener 215

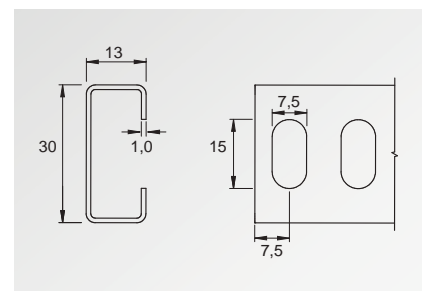
| Description | Type | Order No. | fits KLKB KLB | compatible with | PU |
|-------------------------------------------------------------------------------------|---------------------|-----------|-------------------------------------------------------------------------|--------------------------------------------------|-----|
| Holder for hook-and-loop fastener, screwable | | | | | |
|  | KBH-S | ■ 61019 | KLKB 200 × 7 KLKB 200 × 13 KLB 10 Cable ties up to 12 mm width | 23 × 23 mm mounting rail | 100 |
|  | KBH-SB | ■ 61002 | KLKB 200 × 7 | universal | 100 |
| Holder for hook-and-loop fastener, pluggable | | | | | |
|  | KBH-R | ■ 61018 | KLKB 200 × 7 KLKB 200 × 13 KLB 10 Cable ties up to 12 mm width | 23 × 23 mm mounting rail systems for Rittal VX25 | 100 |
|  | NEW KBH-R-TX | ■ 61005 | KLKB 200 × 7 KLKB 200 × 13 KLB 10 Cable ties up to 12 mm width | Telex rail | 100 |
|  | KBH-RBA nc | □ 61003 | KLKB 200 × 7 | drill-hole ø 6 mm | 100 |
|  | KBH-RBB | ■ 61004 | KLKB 200 × 7 | drill-hole ø 6.5 mm | 100 |



Telex rail



23 × 23 mm mounting rail



Telex rail



Cable ties with hook-and-loop fasteners are a more and more common fixing mode for cables. They are used instead of standard cable ties, because they can be easily closed and opened several times. The soft material is gentle on cables, especially where vibrations are present.

Hook-and-loop cable ties are available individually (KLKB) in four different sizes or as a continuous roll (KLB) in four different sizes.

Advantages & benefits

- Reusable
- Adaptable
- The cable tie material is gentle on cables, especially if there are vibrations

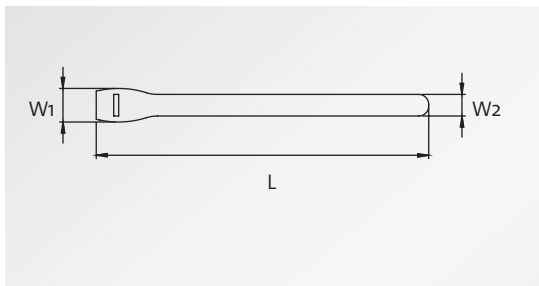
Specifications

| | |
|-------------|----------------------------|
| Material | Polypropylene + Velours PA |
| Colour | black |
| Temperature | -30°C to +80°C |

Accessories

KBH Holder for hook-and-loop fastener 205 - 211

| Type | Size [mm] | | | Order No. | PU |
|----------------------------------------|-----------|----|----|-----------|------|
| | L | W1 | W2 | | |
| KLKB 200 × 7 bk (PU 100 = 1 reel) | 200 | 13 | 7 | 61021 | 100 |
| KLKB 200 × 7 bk on reel (750 pcs.) | 200 | 13 | 7 | 61025 | 1 |
| KLKB 200 × 13 bk (PU 100 = 1 reel) | 200 | 20 | 13 | 61022 | 100 |
| KLKB 200 × 13 bk on reel (750 pcs.) | 200 | 20 | 13 | 61026 | 1 |
| KLKB 230 × 13 bk (PU 100 = 1 reel) | 230 | 20 | 13 | 61023 | 100 |
| KLKB 230 × 13 bk on reel (650 pcs.) | 230 | 20 | 13 | 61027 | 1 |
| KLKB 300 × 17 bk (PU 100 = 1 reel) | 300 | 25 | 17 | 61024 | 100 |
| KLKB 300 × 17 bk on reel (500 pcs.) | 300 | 25 | 17 | 61028 | 1 |
| KLKB 10 bk | | | 10 | 61011 | 25 m |
| KLKB 15 bk | | | 15 | 61012 | 25 m |
| KLKB 20 bk | | | 20 | 61013 | 25 m |
| KLKB 25 bk | | | 25 | 61014 | 25 m |



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3.3 MSMC Modular stackable cable clamp



The modular stackable cable clamp MSMC is used for easy, quick and secure fastening of cables, pipes and other cylindrical components. The great advantage of this cable clamp is that it can be easily extended by stacking or lining up.

By using the CMC30 connector, different clamping areas can be connected to each other. The MSMC offers a very high level of corrosion protection thanks to the choice of materials for the cable clamps and screws.

The diameter of the cables can vary up to 16 mm
Suitable for large cable diameters up to 55 mm

Designed for high strain relief

Suitable for large bending radii of rigid cables

Several cable clamps can be strung together with

Simple expansion by lining up or stacking

Assembly on surfaces or on the C-rail

MSMC

Markings on the half shells indicate how to fit.
short at the bottom – short at the top:
» Mounting in line
short at the bottom – long at the top:
» Mounting in height

Ridges in the half shells enable the absorption of tensile and torsional forces

Mounting at a central point, the slotted hole offers flexibility during assembly

Anti-rotation lock during assembly with two through bolts



Modular stackable cable clamp
for cable diameters 10 – 32 mm

MSMC

219

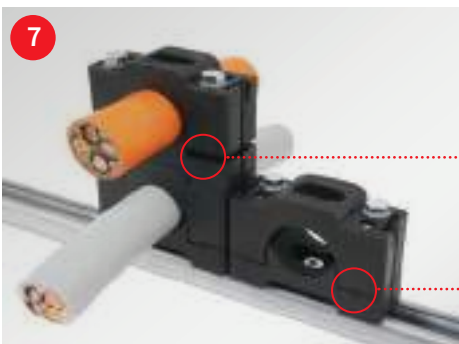
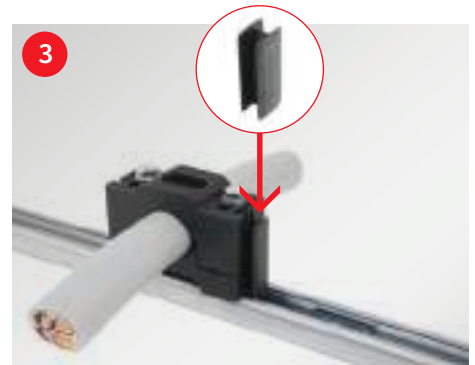


Modular stackable cable clamp
for cable diameters 30 – 55 mm

MSMC

219

Assembly – lining up and stacking



The great advantage of this cable clamp is that it can be easily extended by stacking or lining up. With Set B and a coupler, any number of cable clamps can be arranged in a row; with Set A, the cable clamps can also be stacked by rotating the top section by 180°.

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MSMC

Modular stackable cable clamp



The modular stackable cable clamp MSMC is used for easy, quick and secure fastening of cables, pipes and other cylindrical components. The variable clamping range is up to 16 mm.

The great advantage of this cable clamp is that it can be easily extended by stacking or lining up. By using the CMC30 coupler, different clamping areas can be connected to each other. The MSMC offers a very high level of corrosion protection thanks to the choice of materials for the cable clamps and screws.

The cable clamp consists of an upper and a lower part as well as hexagon head screws. A coupler is used to easily connect several cable clamps together horizontally. The longitudinal and transverse ridges of the support surface serve to absorb torsional and tensile forces. The central mounting point (slotted hole) offers a high degree of flexibility on many surfaces. For even greater stability and torsion resistance, two long screws can be used for fastening.

The cable clamps are available as Set A for lining up and stacking or as Set B for lining up. Set B contains a cable clamp (upper and lower part), a coupler and two short hexagon head screws. Set A additionally contains two long hexagon head screws.

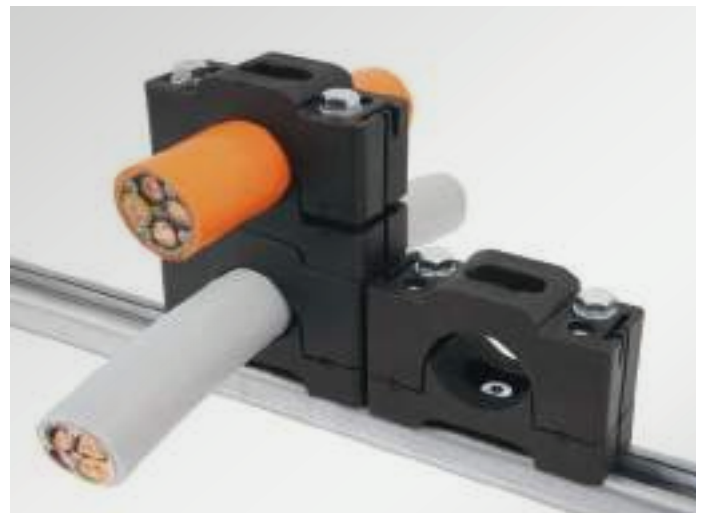
The cable clamp can be combined with a sliding nut for optional assembly on the C-rail.

Advantages

- Several cable clamps can be lined up or stacked together
- The diameter of the cables can vary up to 16 mm
- Designed for high strain relief
- Suitable for large cable diameters up to 55 mm
- Suitable for large bending radii of rigid cables
- Assembly on surfaces or on the C-rail
- Ridges in the half shells enable the absorption of tensile and torsional forces
- Anti-rotation lock during assembly with two through bolts
- The coupler can be used as a mounting aid for overhead mounting
- Weather-resistant material

Specifications

| | |
|-------------|-------------------------------|
| Material | Polyamide (PA) |
| Colour | black |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen free, silicon free |



MSMC

Modular stackable cable clamp



| Description | Type | Clamping range | Dimensions Length x Width x Height | Order No. | PU |
|-------------------------------------------------------------------------------------------------|--------------------|----------------|---------------------------------------|-----------|----|
| Cable clamp Set A 10-22 | MSMC 10-22 Set A | 10 – 22 mm | 64 x 26 x 47 mm | 32400 | 5 |
| Cable clamp Set B 10-22 | MSMC 10-22 Set B | 10 – 22 mm | 64 x 26 x 47 mm | 32401 | 5 |
| Cable clamp Set A 20-32 | MSMC 20-32 Set A | 20 – 32 mm | 64 x 26 x 47 mm | 32410 | 5 |
| Cable clamp Set B 20-32 | MSMC 20-32 Set B | 20 – 32 mm | 64 x 26 x 47 mm | 32411 | 5 |
| Cable clamp Set A 30-46 | MSMC 30-46 Set A | 30 – 46 mm | 100 x 40 x 64,5 mm | 32420 | 5 |
| Cable clamp Set B 30-46 | MSMC 30-46 Set B | 30 – 46 mm | 100 x 40 x 64,5 mm | 32421 | 5 |
| Cable clamp Set A 44-55 | MSMC 44-55 Set A | 44 – 55 mm | 100 x 40 x 72,5 mm | 32430 | 5 |
| Cable clamp Set B 44-55 | MSMC 44-55 Set B | 44 – 55 mm | 100 x 40 x 72,5 mm | 32431 | 5 |
| Coupler for cable clamp small 10-22, 20-32 | CMC 10 | – | 35 x 13,4 x 12 mm | 32598 | 10 |
| Coupler for cable clamp large 30-46, 44-55 | CMC 30 | – | 50 x 20 x 15 mm | 32599 | 10 |
| Sliding nut for C-rail for cable clamp small 10-22, 20-32 including M5 hexagon head screw | SCMC 10 | – | 40 x 28 x 6,5 mm | 32596 | 5 |
| Sliding nut for C-rail for cable clamp large 30-46, 44-55 including M8 hexagon head screw | SCMC 30 | – | 40 x 28 x 6,5 mm | 32597 | 5 |



EMC solutions

Shield clamps and cable entry systems



MSKL



LFZ



SFZ



PFSZ



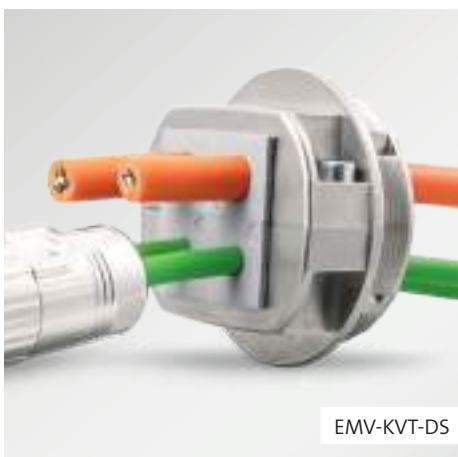
LFC



PFKZ



EMV-KEL-DS



EMV-KVT-DS

EMC solutions
Shield clamps and cable entry systems

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4 EMC solutions

Shield clamps and cable entry systems



The icotek EMC shield clamps are characterised by excellent dissipation of high-frequency interference and efficient EMC shielding for cables from 1.5 to 75 mm diameter.

For process measurement and control equipment, an increasingly higher level of protection against failure is required. Earthing of the cable shields is very important. The area where the cable shield is connected to the enclosure earth is a critical point. It is very important that the connection has a low resistance.

icotek EMC products therefore provide a good solution. The SKL shield clamps offer a large contact area to the cable shield. In comparison to conventional shield brackets and up to 50% higher contact area can be achieved when using the SKL line. The specified clamping range can be exceeded up to 10%.

In high frequency fields, the SKL shield clamps provide a low resistance. The effective range is up to 1,000 MHz below 120 Ohms and 10 kHz to 100 MHz significant below 20 Ohms.

In case of conducted as well as field bound EMI disturbances, our split cable entry system EMC-KEL-DS and our split cable gland EMC-KVT-DS offer an effective way to divert and block those disturbances and provides an alternative to conventional EMC cable glands.



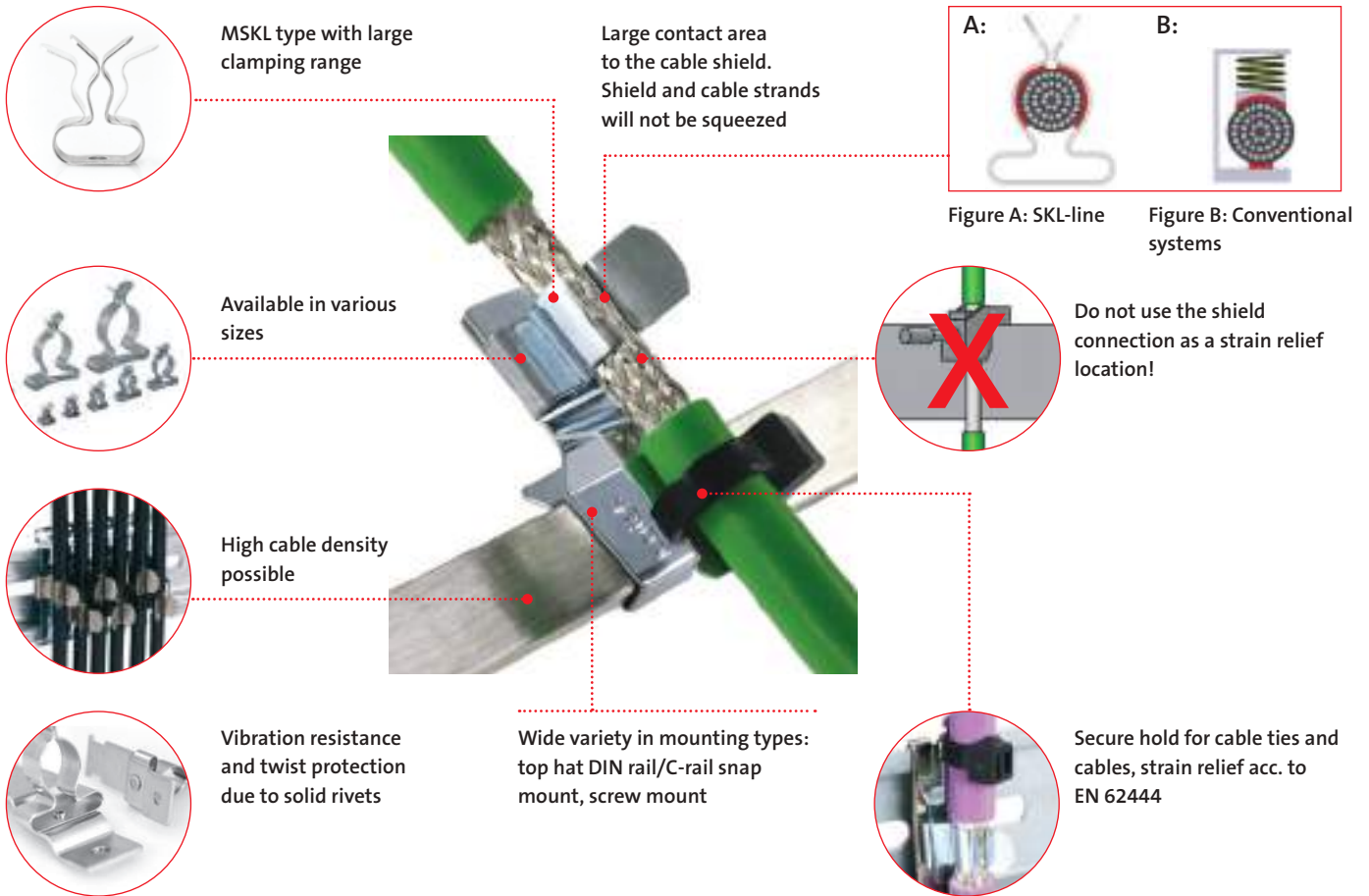
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| Product range shield clamps | Mounting type | Strain relief available | Multi shield clamps | Page |
|--------------------------------|-------------------------------|----------------------------|---------------------|-----------|
| MSKL / SKL | for screw mounting, riveting | ● | – | 229 – 231 |
| LF | for screw mounting | ● | – | 232 – 234 |
| SF | for 35 mm top hat DIN rails | ● | – | 235 – 237 |
| PFS | for bus bars | ● | ● | 238 – 241 |
| SC | for C-rails | ● | – | 242 – 245 |
| PFK | pluggable | ● | ● | 246 – 249 |
| PCB | for printed circuit boards | – | – | 250 |
| STFZ | for decentralised bus modules | ● | ● | 251 – 253 |
| RLF | Row solutions | ● | ● | 256 – 259 |

| Product range EMC cable entry frames | IP55 | Strain relief | Cable Ø mm min max | For max. no. of cables | Page |
|-----------------------------------------|------|---------------|-------------------------|---------------------------|-----------|
| EMC-KEL-DS | ● | ● | 1 – 35 | 40 | 274 – 275 |
| EMC-KVT-DS | ● | ● | 1 – 35 | 16 | 278 – 279 |
| EMC-KEL-U | – | – | 1 – 35 | 40 | 276 – 277 |

4.1 EMC cable shield earthing

Shield clamps and earthing components



EMC shield clamps MSKL

Due to its special design, the clamping ranges of the MSKL are very large while the dimensions are comparatively small. (Example: MSKL 3-12, assembled with a 12 mm cable shield: width 26.25 mm).

Advantages & benefits

- Large clamping areas, therefore less product sizes needed to cover a large cable diameter range
- Space-saving design, even when fully assembled
- Partially with integrated strain relief
- Large cable shield contact area
- Easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free



More information about the connection between the cable shield and the equipotential bonding bar in PROFINET applications:
www.icotek.com/en/profinet

* Shield connections are not certifiable as components according to the requirements of the directive and the standards for electrical equipment in potentially explosive atmospheres. Thus, the use of the shield connections in hazardous areas is possible even without a corresponding approval and marking.

Assembly possibilities



Assembly with rivets



Assembly with screws



Assembly on 35 mm top hat DIN rails



Assembly on 10 × 3 mm bus bars



Assembly on 30 mm C-rails



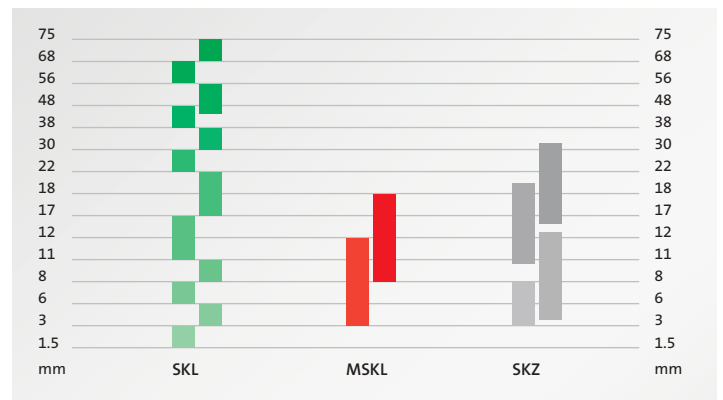
Assembly by clamping onto sheet edges

Advantages of solid rivets



- Vibration resistance according to EN 61373
- Twist protection due to solid rivets
- Stronger contact pressure of the riveted parts

SKL | MSKL | SKZ clamping ranges



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4.1 EMC cable shield earthing

Shield clamps and earthing components



EMC shield clamps
for assembly with rivets/with screws
with/without strain relief function

MSKL, SKL, RCL|MSKL, RCL|SKL, RCLZ|MSKL,
MB+MSKL/SKL

229 – 231



EMC shield clamps
for assembly with screws
with/without strain relief function

LFZ-M|MSKL, LFZ|SKL, LFZ-U|SKL, LFZ-U-AB,
LFZ-M(45°)|MSKL, LFZ-M(90°)|MSKL, LF2Z-
M|SKL, SKZ, LF|MSKL, LF|SKL, SK

232 – 234



EMC shield clamps
for 35 mm top hat DIN rails
with/without strain relief function

SFZ-M|MSKL, SFZ|SKL, SF2Z-M|MSKL,
SF2Z|SKL, SF|SKZ, SF-M|MSKL, SF|SKL,
SFS|SKL, SF|SK

236 – 237



EMC shield clamps
for 10 × 3 mm bus bars
with/without strain relief function,
single and double

PFSZ-M|MSKL, PFSZ|SKL, PFS2Z-M|MSKL,
PFS2Z|SKL, SS|SKZ, PFS|SKL, PFS|SCL, SS|SK,
SKS, PFS2Z|SKL, PFS2|SKL

238 – 241



EMC shield clamps
for 30 mm C-rails
with/without strain relief function

SC|LFZ-M|MSKL, SC|LFZ|SKL, SC|LF2Z-M|M-
SKL, SC|SKZ, SC|LF|MSKL, SC|LF|SKL, SC|SK,
LFC, CC-LFC

242 – 245



EMC shield clamps
for assembly on sheet edges
with/without strain relief function,
single and double

PFKZ-M|MSKL, PFKZ|SKL, PFK|SKL,
PFKZ2|SKL, PFK2|SKL

246 – 249



Shield clamps
for printed circuit boards

PCB|SKL

250



Shield clamps
for decentralised bus modules

STFZ|SKL / STFZ2|SKL / STFZ-U|SKL /
STFZ-SP|SKL / STFZ2-SP|SKL

251 – 253



Assortment of SKL shield clamps

EMC ServiceBox multi
EMC ServiceBox

254 – 255



EMC Shield clamp assemblies

RLFZ(-M) - clamp assembly for screw mount
 SC|RLFZ(-M) - clamp assembly for C-rails
 SF|RLFZ - clamp assembly for top hat rails
 RLF - clamp assembly without strain relief

256 – 259



EMC cable assemblies
 as accessories for cable entry components
 with/without strain relief function

KEL-EMC-Z / KEL-EMC-PF / KEL-EMC /
 KVT-EMC

260 – 263



EMC strain relief plates
 various mounting types

KAFM

264 – 265



Earthing tapes
 for assembly with screws

MB

266 – 268



EMC Split cable entry frames
 for cable diameters up to 35 mm

EMC-KEL-DS

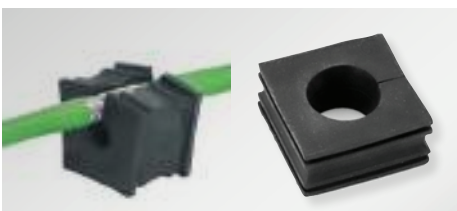
274 – 275



EMC Split cable gland
 for screw-on assembly with a locknut
 M32, M63
 for cable diameters up to 35 mm

EMC-KVT-DS

278 – 279



Split EMC grommets
 for cables with and without connectors
 for cable diameters 2 to 33 mm

EMC-KT

280 – 281



EMC Configurator
www.icotek.com/emc

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EMC

Test results



Leakage and Impedance

All icotek shield clamps have been tested utilising various frequency ranges and in all tests there was minimal leakage resistance.

icotek EMC shield clamps are proven to absorb electromagnetic interferences.

Electrical impedance values:
 - from 10 kHz to 100 MHz under 20 Ohm
 - up to 1.000 MHz under 120 Ohm

The unique design of icotek shield clamps effectively reduce high frequency interferences.

Contact area

The SKL shield clamps offer a large contact area to the cable shield (see figure A).

In comparison to conventional shield clamps, an up to 50% higher contact area is achieved when using the SKL product line.

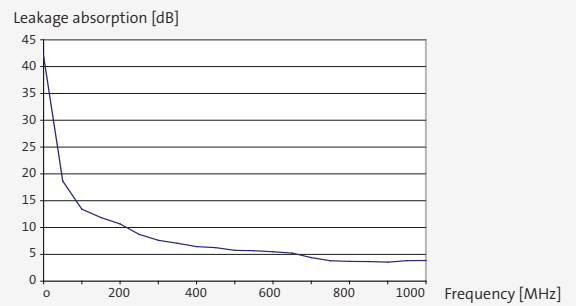
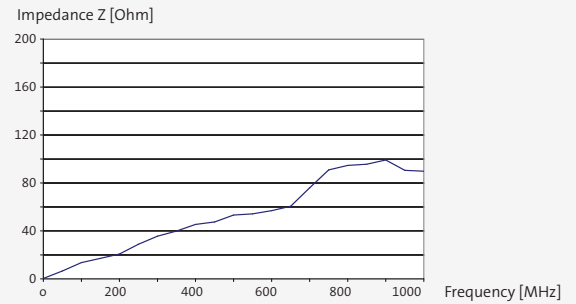


Figure A: SKL-line

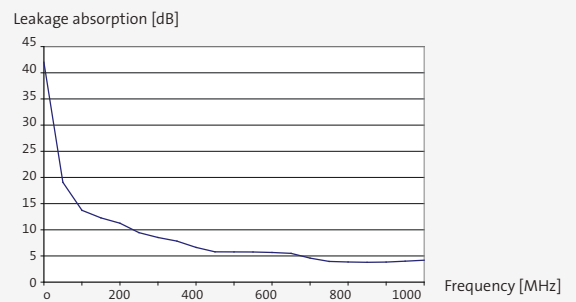
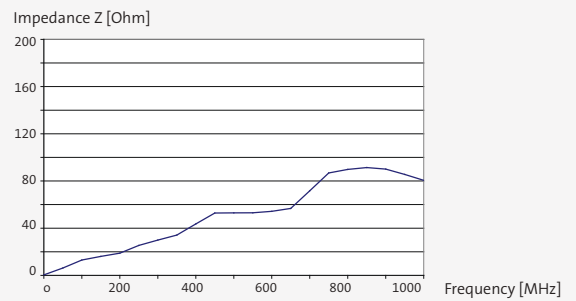


Figure B: Conventional systems

LF|SKL 8-11



SF|SKL 6-8



EMC shield clamps for assembly with rivets



MSKL

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Due to its special design, the clamping ranges of the MSKL are very large while the dimensions are comparatively small. (Example: MSKL 3-12, assembled with a 12 mm cable shield: width 26.25 mm).

Assembly

The shield clamps can be mounted using rivets.

Advantages & benefits

- Large clamping areas, therefore less product sizes needed to cover a large cable diameter range
- Space-saving design, even when fully assembled
- Partially with integrated strain relief
- Large cable shield contact area
- Easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free

Specifications

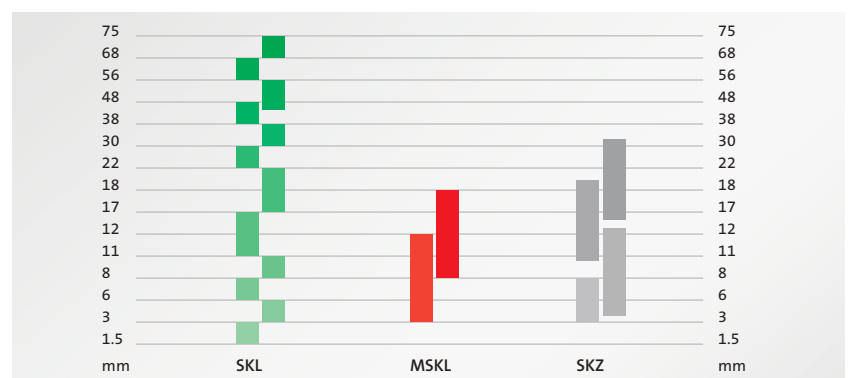
Material

| | |
|----------------------------------|--------------------------|
| MSKL clamp, SK clamp | Spring steel, galvanised |
| ** SKL 30–38 mm, SKL 38–48 mm | Stainless steel |



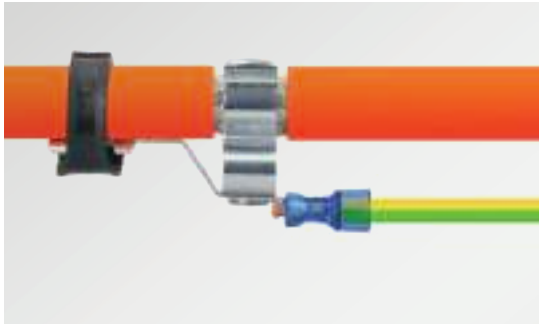
| | MSKL single | SKL single | |
|----------------|---------------|------------|----------|
| Clamping range | Order No. | Order No. | |
| MSKL | 3 – 12 mm | 37600 | – |
| | 8 – 18 mm | 37602 | – |
| SKL | 1.5 – 3 mm | – | 36200 |
| | 3 – 6 mm | – | 36202 |
| | 6 – 8 mm | – | 36204 |
| | 8 – 11 mm | – | 36205 |
| | 11 – 17 mm | – | 36206 |
| | 17 – 22 mm | – | 36207 |
| | 22 – 30 mm | – | 36208 |
| | 30 – 38 mm ** | – | 36209 * |
| | 38 – 48 mm ** | – | 36213 * |
| | 44 – 56 mm | – | 36216 * |
| | 56 – 68 mm | – | 36217 * |
| | 68 – 75 mm | – | 36218 * |
| | PU | 50 | 50 * 5 |

SKL | MSKL | SKZ clamping ranges



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EMC shield clamps on cable lugs for assembly with rivets



Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Assembly

The shield clamps can be mounted using rivets.

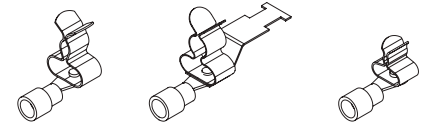
Advantages & benefits

- Integrated strain relief function
- Large contact area
- Simple and tool-free mounting, easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free
- Designed for high density applications

Specifications

Material

MSKL clamp, SK clamp Spring steel, galvanised
Cable lug UL listed



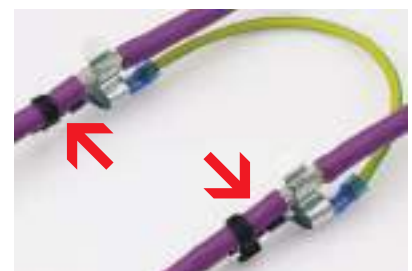
| | | RCL MSKL | RCLZ MSKL with cable fixation | RCL SKL |
|------|----------------|---------------------------|----------------------------------|-----------|
| | Clamping range | RCL | Order No. | Order No. |
| MSKL | 3 – 12 mm | 0.5 – 1.5 mm ² | 36296.2 | 36301.2 |
| | 3 – 12 mm | 1.0 – 2.5 mm ² | 36297.2 | 36302.2 |
| | 3 – 12 mm | 4 – 6 mm ² | 36298.2 | 36303.2 |
| SKL | 1.5 – 3 mm | 0.5 – 1.5 mm ² | – | – |
| | 1.5 – 3 mm | 1.0 – 2.5 mm ² | – | – |
| | 1.5 – 3 mm | 4 – 6 mm ² | – | – |
| | 3 – 6 mm | 1.0 – 2.5 mm ² | – | – |
| | 6 – 8 mm | 1.0 – 2.5 mm ² | – | – |
| | 8 – 11 mm | 1.0 – 2.5 mm ² | – | – |
| PU | | | 25 | 25 |



Applications in which both cable shields must be brought to the same potential



Example for an application with RCL|MSKL 3-12



Example for an application with RCLZ|MSKL 3-12. The contacted electrical cables are also fixed.

MB|MSKL

Earthing tapes
with fitted shield clamps
with/without cable fixation



The earthing tapes are fitted with a shield clamp at one end. This solution is used where space is limited.

The earthing tapes are available with M4 or M6 holes.

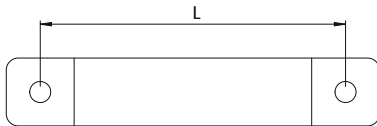
Advantages & benefits

- Very flexible assembly
- Installation even in places that are difficult to access
- Earthing tapes with pressed-on connecting end pads
- Standard products, short delivery times
- UL listed earthing tapes

Specifications

Material Earthing tape:
Copper tin-plated
with pressed-on connecting end pads
Shield clamp MSKL: Spring steel galvanised

| Type | Order No. | Length L [mm] | Cross-section mm ² | Hole size | Clamping range [mm] | PU |
|----------------------------------------|-----------|---------------|-------------------------------|-----------|---------------------|----|
| Cross-section 6 mm² | | | | | | |
| MB 100 6 M4+M4 MSKL 3-12 | 32695.01 | 100 | 6 | M4 | 3 – 12 | 10 |
| MB 100 6 M4+M4 MSKL 8-18 | 32695.02 | 100 | 6 | M4 | 8 – 18 | 10 |
| MB 100 6 M4+M4 Z-MSKL 3-12* | 32695.011 | 100 | 6 | M4 | 3 – 12 | 10 |
| MB 100 6 M4+M4 Z-MSKL 8-18* | 32695.021 | 100 | 6 | M4 | 8 – 18 | 10 |
| MB 150 6 M4+M4 MSKL 3-12 | 39710.01 | 150 | 6 | M4 | 3 – 12 | 10 |
| MB 150 6 M4+M4 MSKL 8-18 | 39710.02 | 150 | 6 | M4 | 8 – 18 | 10 |
| MB 150 6 M4+M4 Z-MSKL 3-12* | 39710.011 | 150 | 6 | M4 | 3 – 12 | 10 |
| MB 150 6 M4+M4 Z-MSKL 8-18* | 39710.021 | 150 | 6 | M4 | 8 – 18 | 10 |
| MB 200 6 M4+M4 MSKL 3-12 | 32707.01 | 200 | 6 | M4 | 3 – 12 | 10 |
| MB 200 6 M4+M4 MSKL 8-18 | 32707.02 | 200 | 6 | M4 | 8 – 18 | 10 |
| MB 200 6 M4+M4 Z-MSKL 3-12* | 32707.011 | 200 | 6 | M4 | 3 – 12 | 10 |
| MB 200 6 M4+M4 Z-MSKL 8-18* | 32707.021 | 200 | 6 | M4 | 8 – 18 | 10 |
| Cross-section 10 mm² | | | | | | |
| MB 100 10 M6+M4 MSKL 3-12 | 39711.01 | 100 | 10 | M6 | 3 – 12 | 10 |
| MB 100 10 M6+M4 MSKL 8-18 | 39711.02 | 100 | 10 | M6 | 8 – 18 | 10 |
| MB 100 10 M6+M4 Z-MSKL 3-12* | 39711.011 | 100 | 10 | M6 | 3 – 12 | 10 |
| MB 100 10 M6+M4 Z-MSKL 8-18* | 39711.021 | 100 | 10 | M6 | 8 – 18 | 10 |



Earthing tape with shield clamp MSKL and cable fixation



Earthing tape with shield clamp MSKL

* with cable fixation

EMC shield clamps for assembly with screws with strain relief function



LFZ-U|SKL

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Shield clamps are easily attached to mounting plates via screw. The shield clamp LFZ-U|SKL is available for M4 or M5 screws. During assembly it is sufficient to loosen the existing screw slightly to be able to slide the clamp underneath before re-tightening the screw.

Assembly

The shield clamps can be mounted using screws, e.g. on a mounting plate.

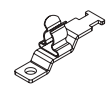
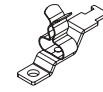
Advantages & benefits

- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free
- Double strain relief: acc. to PROFINET installation guidelines

Specifications

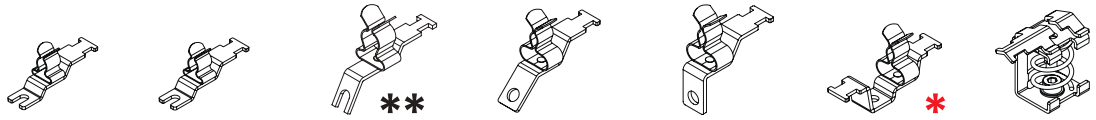
Material

| | |
|-----------------------|-------------------------------------------------------------------------|
| MSKL clamp, SKL clamp | Spring steel, zinc plated |
| LFZ foot | Steel, galvanically zinc plated fixing hole 4.2 mm/ 5.2 mm/6.2 mm |
| SK bracket | Steel, galvanically zinc plated |



| | LFZ-M MSKL Fixing hole M4 | LFZ-M MSKL Fixing hole M6 | LFZ SKL Fixing hole M4 | LFZ SKL Fixing hole M6 |
|------|------------------------------|------------------------------|---------------------------|---------------------------|
| | Order No. | Order No. | Order No. | Order No. |
| MSKL | 3 – 12 mm | 37612 | 37373 | – |
| | 8 – 18 mm | 37614 | 37388 | – |
| SKL | 1.5 – 3 mm | – | – | 36910 |
| | 3 – 6 mm | – | – | 36915 |
| | 6 – 8 mm | – | – | 36920 |
| | 8 – 11 mm | – | – | 36925 |
| | 11 – 17 mm | – | – | 36930 |
| | 17 – 22 mm | – | – | 36935 |
| | 22 – 30 mm | – | – | 36940 |
| | 30 – 38 mm | – | – | 36941 |
| PU | 10 | 10 | 10 | 10 |

EMC shield clamps for assembly with screws with strain relief function



| | LFZ-U SKL Fixing hole M4 | LFZ-U SKL Fixing hole M5 | LFZ-U-AB Fixing hole M4 | LFZ-M(45°) MSKL Fixing hole M5 | LFZ-M(90°) MSKL Fixing hole M5 | LFZ2-M MSKL Fixing hole M4 | SKZ Fixing hole M4 | |
|----------------|-----------------------------|-----------------------------|----------------------------|-----------------------------------|-----------------------------------|-------------------------------|-----------------------|-------|
| Clamping range | Order No. | Order No. | Order No. | Order No. | Order No. | Order No. | Order No. | |
| MSKL | 3 – 12 mm | – | – | – | 37660.1 | 37661.1 | 37665.150 | – |
| | 8 – 18 mm | – | – | – | 37660.2 | 37661.2 | 37666.150 | – |
| SKL | 1.5 – 3 mm | 36886.1 | 36887.1 | – | – | – | – | – |
| | 3 – 6 mm | 36886.2 | 36887.2 | – | – | – | – | – |
| | 6 – 8 mm | 36886.3 | 36887.3 | 36948.3 | – | – | – | – |
| | 8 – 11 mm | 36886.4 | 36887.4 | 36948.4 | – | – | – | – |
| | 11 – 17 mm | 36886.5 | 36887.5 | – | – | – | – | – |
| | 17 – 22 mm | – | – | – | – | – | 37590.150 | – |
| | 22 – 30 mm | – | – | – | – | – | 37591.150 | – |
| SK/SKZ | 3 – 8 mm | – | – | – | – | – | – | 36222 |
| | 4 – 13.5 mm | – | – | – | – | – | – | 36224 |
| | 10 – 20 mm | – | – | – | – | – | – | – |
| | 15 – 32 mm | – | – | – | – | – | – | – |
| PU | 10 | 10 | 10 | 10 | 10 | 10 | 10 | |

* with double strain relief function



** LFZ-U-AB are especially suitable for mounting on Allen Bradley Powerflex 525/527 frequency inverters. Direct contacting on the converter saves space and interference signals are picked up directly at the interference source.

4
4.1
4.2
4.3
4.4

EMC shield clamps for assembly with screws without strain relief function



LFI/SKL

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Shield clamps are easily attached to mounting plates via screw. The shield clamp LFZ-U/SKL is available for M4 or M5 screws. During assembly it is sufficient to loosen the existing screw slightly to be able to slide the clamp underneath before re-tightening the screw.

Assembly

The shield clamps can be mounted using screws, e.g. on a mounting plate.

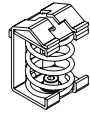
Advantages & benefits

- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free

Specifications

Material

| | |
|-----------------------|--------------------------------------------------------------|
| MSKL clamp, SKL clamp | Spring steel, zinc plated |
| LF/LFZ foot | Steel, galvanically zinc plated fixing hole 4.2 mm/5.2 mm |
| SK bracket | Steel, galvanically zinc plated |



| | | LF/MSKL Fixing hole M4 | LF/MSKL Fixing hole M5 | LF/SKL Fixing hole M4 | SK Fixing hole M4 |
|--------|----------------|---------------------------|---------------------------|--------------------------|----------------------|
| | Clamping range | Order No. | Order No. | Order No. | Order No. |
| MSKL | 3 – 12 mm | 37608 | NEW 37374 | – | – |
| | 8 – 18 mm | 37610 | NEW 37375 | – | – |
| SKL | 1.5 – 3 mm | – | – | 36251 | – |
| | 3 – 6 mm | – | – | 36253 | – |
| | 6 – 8 mm | – | – | 36255 | – |
| | 8 – 11 mm | – | – | 36256 | – |
| | 11 – 17 mm | – | – | 36257 | – |
| | 17 – 22 mm | – | – | 36258 | – |
| SK/SKZ | 22 – 30 mm | – | – | 36259 | – |
| | 3 – 8 mm | – | – | – | 36222.002 |
| | 4 – 13.5 mm | – | – | – | 36224.002 |
| | 10 – 20 mm | – | – | – | 36226 |
| | 15 – 32 mm | – | – | – | 36228 |
| | PU | 10 | 10 | 10 | 10 |

Mounting feet and accessories for EMC shield clamps



Specifications

Material

| | |
|---------------|---------------------------------------|
| SF foot | Spring steel |
| SFS foot | Spring steel |
| SC foot | Sheet steel, galvanically zinc plated |
| Sammelschiene | Cu, tin plated, current load 140 A |

SF single | SFS single | SC single

| Type | Order No. | | PU |
|--------------|-----------|------------------------------------------------------------------------------------------------|----|
| SF single M4 | 36230 | Mounting foot, single with screw thread M4 | 10 |
| SF single M5 | 36221 | Mounting foot, single with screw thread M5 | 10 |
| SFS single | 36229 | Mounting foot, single | 10 |
| SC single | 36231 | SC foot single, for 30 mm DIN-rail shape C (width of mouth: 16 mm) with twist protection notch | 10 |
| SC single | 36220 | SC foot single for C-rail | 10 |



SF single



SFS single



SC single 36231



SC single 36220

Bus bar 10 × 3 mm

| Type | Order No. | PU |
|-------------------|-------------------|-------|
| Bus bar 10 × 3 mm | 10 × 3 × 1000 mm* | 36100 |

* Other lengths available on request

4
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4.2
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4.4

EMC shield clamps for 35 mm top hat DIN rails with strain relief function



SFZ-M|MSKL

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps can be mounted on 35 mm top hat DIN rails.

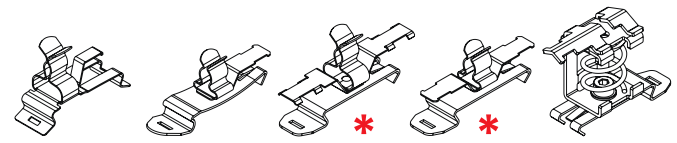
Advantages & benefits

- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free
- Double strain relief: acc. to PROFINET installation guidelines

Specifications

Material

| | |
|-----------------------|---------------------------------|
| MSKL clamp, SKL clamp | Spring steel, zinc plated |
| SF/SFZ foot | Spring steel |
| SK bracket | Steel, galvanically zinc plated |



| | | SFZ-M MSKL | SFZ SKL | SF2Z-M MSKL | SF2Z SKL | SF SKZ |
|------|----------------|------------|-----------|-------------|-----------|-----------|
| | Clamping range | Order No. | Order No. | Order No. | Order No. | Order No. |
| MSKL | 3 – 12 mm | 37620 | – | 37620.150 | – | – |
| | 8 – 18 mm | 37622 | – | 37622.150 | – | – |
| SKL | 1.5 – 3 mm | – | 36850 | – | 36850.150 | – |
| | 3 – 6 mm | – | 36855 | – | 36855.150 | – |
| | 6 – 8 mm | – | 36860 | – | 36860.150 | – |
| | 8 – 11 mm | – | 36865 | – | 36865.150 | – |
| | 11 – 17 mm | – | 36870 | – | 36870.150 | – |
| | 17 – 22 mm | – | 36875 | – | 36875.150 | – |
| | 22 – 30 mm | – | 36880 | – | 36880.150 | – |
| SKZ | 3 – 8 mm | – | – | – | – | 36500 |
| | 4 – 13.5 mm | – | – | – | – | 36502 |
| | PU | 10 | 10 | 10 | 10 | 10 |

* with double strain relief function

EMC shield clamps for 35 mm top hat DIN rails without strain relief



SF5|SKL

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Assembly

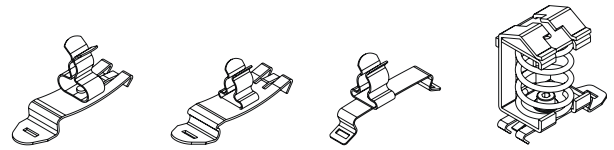
The shield clamps can be mounted on 35 mm top hat DIN rails.

Advantages & benefits

- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free

Specifications

| | |
|-----------------------|---------------------------------|
| Material | |
| MSKL clamp, SKL clamp | Spring steel, zinc plated |
| SF/SFZ foot | Spring steel |
| SK bracket | Steel, galvanically zinc plated |



| | | SF-M MSKL | SF SKL | SFS SKL | SF SK |
|-------------|----------------|-----------|-----------|-----------|-----------|
| | Clamping range | Order No. | Order No. | Order No. | Order No. |
| MSKL | 3 – 12 mm | 37616 | – | – | – |
| | 8 – 18 mm | 37618 | – | – | – |
| SKL | 1.5 – 3 mm | – | 36243 | 36810 | – |
| | 3 – 6 mm | – | 36244 | 36815 | – |
| | 6 – 8 mm | – | 36245 | 36820 | – |
| | 8 – 11 mm | – | 36246 | – | – |
| | 11 – 17 mm | – | 36247 | – | – |
| | 17 – 22 mm | – | 36248 | – | – |
| | 22 – 30 mm | – | 36249 | – | – |
| | 30 – 38 mm | – | 36250 | – | – |
| | 38 – 48 mm | – | 36252 | – | – |
| | SK | 3 – 8 mm | – | – | – |
| 4 – 13.5 mm | | – | – | – | 36502.002 |
| 10 – 20 mm | | – | – | – | 36504 |
| 15 – 32 mm | | – | – | – | 36506 |
| PU | | 10 | 10 | 10 | 10 |

EMC shield clamps for 10 × 3 mm bus bars with strain relief function



PFSZ-M|MSKL

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps can be mounted on 10 × 3 mm bus bars.

Advantages & benefits

- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free
- Double strain relief: acc. to PROFINET installation guidelines

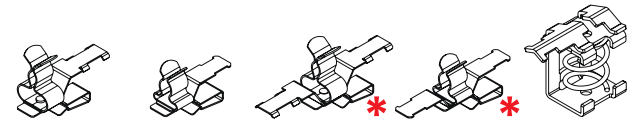
Specifications

Material

| | |
|-------------|---------------------------------------|
| MSKL-clamp, | Spring steel, zinc plated |
| SKL-clamp | Spring steel |
| PFS-foot | Spring steel |
| SK-bracket | Sheet steel, galvanically zinc plated |
| Bus bar | Cu, tin plated, current load 140 A |

Suitable for

| | |
|-----------------------------------|-----|
| KEL-EMV-PF cable assembly bracket | 261 |
| MF Supports for bus bars | 347 |



| | PFSZ-M MSKL | PFSZ SKL | PFSZ2-M MSKL | PFSZ2 SKL | SS SKZ |
|----------------|-------------|-----------|--------------|-----------|-----------|
| Clamping range | Order No. | Order No. | Order No. | Order No. | Order No. |
| MSKL | 3 – 12 mm | 37630 | – | 37630.150 | – |
| | 8 – 18 mm | 37632 | – | 37632.150 | – |
| SKL | 1.5 – 3 mm | – | 36787.1 | – | 36787.151 |
| | 3 – 6 mm | – | 36787.2 | – | 36787.152 |
| | 6 – 8 mm | – | 36787.3 | – | 36787.153 |
| | 8 – 11 mm | – | 36787.4 | – | 36787.154 |
| | 11 – 17 mm | – | 36787.5 | – | 36787.155 |
| | 17 – 22 mm | – | 36787.6 | – | 36787.156 |
| SKZ | 3 – 8 mm | – | – | – | 36235 |
| | 4 – 13.5 mm | – | – | – | 36236 |
| PU | 10 | 10 | 10 | 10 | 10 |

* with double strain relief function

Bus bar 10 × 3 mm

| Type | Order No. | PU |
|-------------------|-------------------|-------|
| Bus bar 10 × 3 mm | 10 × 3 × 1000 mm* | 36100 |
| | | 1 |

* Other lengths available on request

EMC shield clamps for 10 × 3 mm bus bars without strain relief function



PFS|SKL

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Assembly

The shield clamps can be mounted on 10 × 3 mm bus bars.

Advantages & benefits

- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free

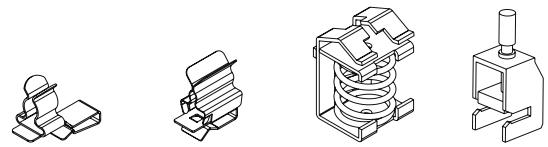
Specifications

Material

| | |
|-------------|---------------------------------------|
| MSKL-clamp, | Spring steel, zinc plated |
| SKL-clamp | Spring steel |
| PFS-foot | Spring steel |
| SK-bracket | Sheet steel, galvanically zinc plated |
| Bus bar | Cu, tin plated, current load 140 A |

Suitable for

| | |
|-----------------------------------|-----|
| KEL-EMV-PF cable assembly bracket | 261 |
| MF Supports for bus bars | 347 |



| | PFS SKL | PFS SCL | SS SK | SKS |
|----------------|-------------|-----------|-----------|-----------|
| Clamping range | Order No. | Order No. | Order No. | Order No. |
| SKL | 1.5 – 3 mm | 36786.1 | 36611 | – |
| | 3 – 6 mm | 36786.2 | 36612 | – |
| | 6 – 8 mm | 36786.3 | – | – |
| | 8 – 11 mm | 36786.4 | – | – |
| | 11 – 17 mm | 36786.5 | – | – |
| | 17 – 22 mm | 36786.6 | – | – |
| SK | 3 – 8 mm | – | 36235.002 | – |
| | 4 – 13.5 mm | – | 36236.002 | – |
| | 10 – 20 mm | – | 36237 | – |
| | 15 – 32 mm | – | 36238 | – |
| SKS | 2 – 5 mm | – | – | 36282 |
| | 3 – 8 mm | – | – | 36283 |
| | 3 – 14 mm | – | – | 36284 |
| | 3 – 20 mm | – | – | 36285 |
| | 5 – 28 mm | – | – | 36286 |
| | 20 – 35 mm | – | – | 36287 |
| PU | 10 | 10 | 10 | 10 |

EMC double shield clamps for 10 × 3 mm bus bars with strain relief function



PFSZ2|SKL

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps can be mounted on 10 × 3 mm bus bars.

Advantages & benefits

- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free

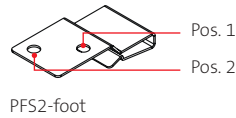
Specifications

Material

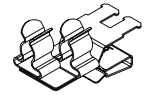
| | |
|-------------|------------------------------------|
| MSKL-clamp, | Spring steel, zinc plated |
| SKL-clamp | Spring steel |
| PFS-foot | Spring steel |
| Bus bar | Cu, tin plated, current load 140 A |

Accessories

| | |
|--------------------------|-----|
| Bus bar | 235 |
| MF Supports for bus bars | 347 |



PFS2-foot



PFSZ2|SKL

| | Clamping range Pos. 1 | Clamping range Pos. 2 | Order No. |
|-----|-----------------------|-----------------------|-----------|
| SKL | blank | 1.5 – 3 mm | 36789.01 |
| | blank | 3 – 6 mm | 36789.02 |
| | blank | 6 – 8 mm | 36789.03 |
| | blank | 8 – 11 mm | 36789.04 |
| | 1.5 – 3 mm | blank | 36789.10 |
| | 1.5 – 3 mm | 1.5 – 3 mm | 36789.11 |
| | 1.5 – 3 mm | 3 – 6 mm | 36789.12 |
| | 1.5 – 3 mm | 6 – 8 mm | 36789.13 |
| | 1.5 – 3 mm | 8 – 11 mm | 36789.14 |
| | 3 – 6 mm | blank | 36789.20 |
| | 3 – 6 mm | 1.5 – 3 mm | 36789.21 |
| | 3 – 6 mm | 3 – 6 mm | 36789.22 |
| | 3 – 6 mm | 6 – 8 mm | 36789.23 |
| | 3 – 6 mm | 8 – 11 mm | 36789.24 |
| | 6 – 8 mm | blank | 36789.30 |
| | 6 – 8 mm | 1.5 – 3 mm | 36789.31 |
| | 6 – 8 mm | 3 – 6 mm | 36789.32 |
| | 6 – 8 mm | 6 – 8 mm | 36789.33 |
| | 6 – 8 mm | 8 – 11 mm | 36789.34 |
| | 8 – 11 mm | blank | 36789.40 |
| | 8 – 11 mm | 1.5 – 3 mm | 36789.41 |
| | 8 – 11 mm | 3 – 6 mm | 36789.42 |
| | 8 – 11 mm | 6 – 8 mm | 36789.43 |
| | PU | | |

EMC double shield clamps for 10 × 3 mm bus bars without strain relief function



PFS2|SKL

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Assembly

The shield clamps can be mounted on 10 × 3 mm bus bars.

Advantages & benefits

- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free

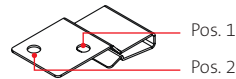
Specifications

Material

| | |
|-------------|------------------------------------|
| MSKL-clamp, | Spring steel, zinc plated |
| SKL-clamp | Spring steel |
| PFS-foot | Spring steel |
| Bus bar | Cu, tin plated, current load 140 A |

Accessories

| | |
|--------------------------|-----|
| Bus bar | 235 |
| MF Supports for bus bars | 347 |



PFS2-foot



| PFS2 SKL | | |
|-----------------------|-----------------------|-----------|
| Clamping range Pos. 1 | Clamping range Pos. 2 | Order No. |
| blank | 1.5 – 3 mm | 36788.01 |
| blank | 3 – 6 mm | 36788.02 |
| blank | 6 – 8 mm | 36788.03 |
| blank | 8 – 11 mm | 36788.04 |
| 1.5 – 3 mm | blank | 36788.10 |
| 1.5 – 3 mm | 1.5 – 3 mm | 36788.11 |
| 1.5 – 3 mm | 3 – 6 mm | 36788.12 |
| 1.5 – 3 mm | 6 – 8 mm | 36788.13 |
| 1.5 – 3 mm | 8 – 11 mm | 36788.14 |
| 3 – 6 mm | blank | 36788.20 |
| 3 – 6 mm | 1.5 – 3 mm | 36788.21 |
| 3 – 6 mm | 3 – 6 mm | 36788.22 |
| 3 – 6 mm | 6 – 8 mm | 36788.23 |
| 3 – 6 mm | 8 – 11 mm | 36788.24 |
| 6 – 8 mm | blank | 36788.30 |
| 6 – 8 mm | 1.5 – 3 mm | 36788.31 |
| 6 – 8 mm | 3 – 6 mm | 36788.32 |
| 6 – 8 mm | 6 – 8 mm | 36788.33 |
| 6 – 8 mm | 8 – 11 mm | 36788.34 |
| 8 – 11 mm | blank | 36788.40 |
| 8 – 11 mm | 1.5 – 3 mm | 36788.41 |
| 8 – 11 mm | 3 – 6 mm | 36788.42 |
| 8 – 11 mm | 6 – 8 mm | 36788.43 |
| PU | | 10 |

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EMC shield clamps for 30 mm C-rails with strain relief function



SC|LFZ-M|MSKL

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps can be mounted on 30 mm C-rails using the SC mounting foot (included in the shipment).

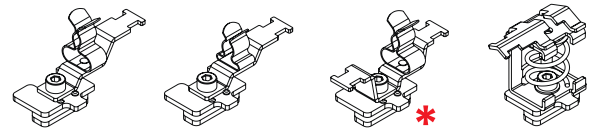
Advantages & benefits

- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free
- Double strain relief: acc. to PROFINET installation guidelines
- For mounting on all common C-rails with an opening dimension of 16–17 mm

Specifications

Material

| | |
|-------------|---------------------------------------|
| MSKL-clamp, | Sheet steel, galvanically zinc plated |
| SKL-clamp | Fixing hole M4 |
| LFZ foot | Sheet steel, galvanically zinc plated |
| SC foot | Sheet steel, galvanically zinc plated |
| SK-bracket | Sheet steel, galvanically zinc plated |



| | SC LFZ-M MSKL Fixing hole M4 | SC LFZ SKL Fixing hole M4 | SC LFZ2-M MSKL Fixing hole M4 | SC SKZ |
|------|---------------------------------|------------------------------|----------------------------------|-----------|
| | Order No. | Order No. | Order No. | Order No. |
| MSKL | Clamping range 3 – 12 mm | 37612.100 | – | 37612.150 |
| | 8 – 18 mm | 37614.100 | – | 37614.150 |
| SKL | 1.5 – 3 mm | – | 36910.100 | – |
| | 3 – 6 mm | – | 36915.100 | – |
| | 6 – 8 mm | – | 36920.100 | – |
| | 8 – 11 mm | – | 36925.100 | – |
| | 11 – 17 mm | – | 36930.100 | – |
| | 17 – 22 mm | – | 36935.100 | 37594.150 |
| | 22 – 30 mm | – | 36940.100 | 37595.150 |
| SKZ | 3 – 8 mm | – | – | 36696 |
| | 4 – 13.5 mm | – | – | 36700 |
| PU | 10 | 10 | 10 | 10 |

* with double strain relief function



SC foot single for C-rail
PU: 10, Order No. 36220

Screw-foot loose, for 30 mm DIN-rail
shape C (width of mouth: 16 – 17 mm)
with twist protection notch
PU: 10, Order No. 36231

SC-foot: space-saving design enables high cable density. Mounting foot adjusts itself when tightening the screw.

EMC shield clamps for 30 mm C-rails without strain relief function



SC|LF|SKL

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Assembly

The shield clamps can be mounted on 30 mm C-rails using the SC mounting foot (included in the shipment).

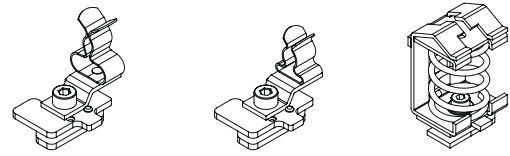
Advantages & benefits

- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free

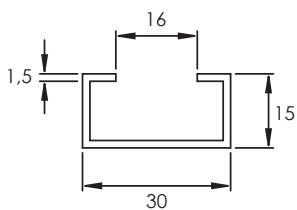
Specifications

Material

| | |
|-------------|---------------------------------------|
| MSKL-clamp, | |
| SKL-clamp | Spring steel, zinc plated |
| LF foot | Sheet steel, galvanically zinc plated |
| | Fixing hole M4 |
| SC foot | Sheet steel, galvanically zinc plated |
| SK-bracket | Sheet steel, galvanically zinc plated |



| | | SC LF MSKL Fixing hole M4 | SC LF SKL Fixing hole M4 | SC SK |
|----------------|-------------|------------------------------|-----------------------------|-----------|
| Clamping range | | Order No. | Order No. | Order No. |
| MSKL | 3 – 12 mm | 37608.100 | – | – |
| | 8 – 18 mm | 37610.100 | – | – |
| SKL | 1.5 – 3 mm | – | 36251.100 | – |
| | 3 – 6 mm | – | 36253.100 | – |
| | 6 – 8 mm | – | 36255.100 | – |
| | 8 – 11 mm | – | 36256.100 | – |
| | 11 – 17 mm | – | 36257.100 | – |
| | 17 – 22 mm | – | 36258.100 | – |
| SK | 22 – 30 mm | – | 36259.100 | – |
| | 3 – 8 mm | – | – | 36696.002 |
| | 4 – 13.5 mm | – | – | 36700.002 |
| | 10 – 20 mm | – | – | 36704 |
| | 15 – 32 mm | – | – | 36708 |
| PU | | 10 | 10 | 10 |



C-rail dimensions (mm)

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EMC shield clamps for cable clamps for 30 mm C-rails



LFC|MSKL

The LFC shield clamp offers a space-saving solution for mounting on the C-rail.

The shield clamp LFC contacts the cable shield directly on the C-rail while the use of the existing cable clamp provides the strain relief.

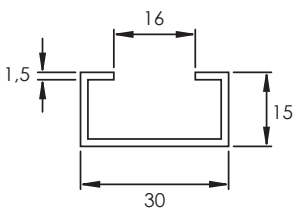
Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Advantages & benefits

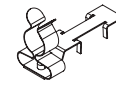
- Suitable for clamps that are mounted on C-rails
- Easy, tool-free assembly
- Space-saving assembly
- Large clamping range 3 – 30 mm
- Large cable shield contact area
- Shield contacting and strain relief are separated from each other
- For mounting on all common C-rails with an opening dimension of 16–17 mm

Specifications

Material Spring steel galvanised



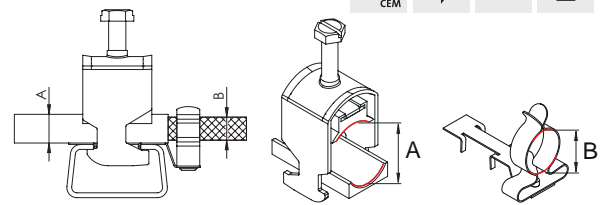
C-rail dimensions (mm)



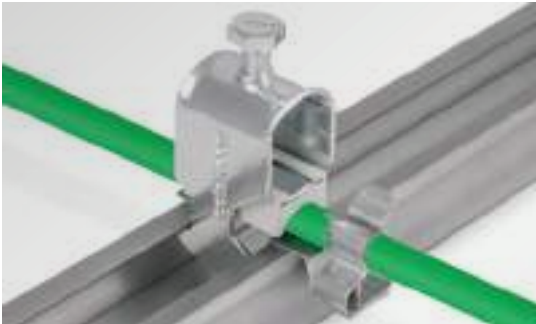
| | | LFC MSKL | LFC SKL |
|----------------|------------|-----------|-----------|
| Clamping range | | Order No. | Order No. |
| MSKL | 3 – 12 mm | 37670.100 | – |
| | 8 – 18 mm | 37671.100 | – |
| SKL | 17 – 22 mm | – | 37672.100 |
| | 22 – 30 mm | – | 37673.100 |
| PU | | 10 | 10 |



Product set of EMC shield clamps and cable clamps for 30 mm C-rails



Clamping ranges



CC-LFC|MSKL

Convenient product set consisting of the LFC EMC shield clamp for contacting the cable shield and discharging interference currents in combination with the matching CCL cable clamp for strain relief on the cable jacket.

The combination of two products helps to save space and material in the enclosure. The EMC connection of the cables no longer has to be made via an additional top hat DIN rail or bus bar.

Advantages & benefits

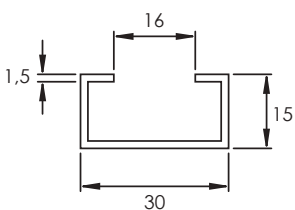
- Space-saving due to the combination of the LFC shield clamp with the CCL cable clamp
- Quick and easy assembly
- Large variety of clamping areas
- Large cable shield contact area
- Shield contacting and strain relief are separated from each other
- For mounting on all common C-rails with an opening dimension of 16–17 mm

Specifications

Material

LFC: Spring steel galvanised
 Cable clamp: Steel galvanised

| Type | Clamping range A Cable clamp (\varnothing on the cable sheath) | Clamping range B Shield clamp (\varnothing on the cable shield) | Order No. | PU |
|--------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------|----|
| CC-LFC 6-13 MSKL 3-12 | 6 – 13 mm | 3 – 12 mm | 37680 | 10 |
| CC-LFC 12-19 MSKL 8-18 | 12 – 19 mm | 8 – 18 mm | 37681 | 10 |
| CC-LFC 18-23 SKL 17-22 | 18 – 23 mm | 17 – 22 mm | 37682 | 10 |
| CC-LFC 23-32 SKL 22-30 | 23 – 32 mm | 22 – 30 mm | 37683 | 10 |
| CC-LFC 32-38 SKL 30-38 | 32 – 38 mm | 30 – 38 mm | 37688 | 10 |
| CC-LFC 38-42 SKL 30-38 | 38 – 42 mm | 30 – 38 mm | 37684 | 10 |
| CC-LFC 42-50 SKL 38-48 | 42 – 50 mm | 38 – 48 mm | 37685 | 10 |
| CC-LFC 50-64 SKL 44-56 | 50 – 64 mm | 44 – 56 mm | 37686 | 10 |
| CC-LFC 50-64 SKL 56-68 | 50 – 64 mm | 56 – 68 mm | 37687 | 10 |

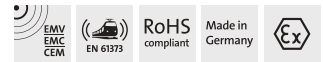


C-rail dimensions (mm)



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EMC shield clamps for assembly on sheet edges with strain relief function



Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps are used where a screw connection is either not possible or wanted. It is simply clamped onto the sheet edge. The claws provide a secure grip, even in case of vibrations.

Advantages & benefits

- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Maintenance free

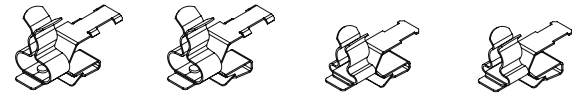
Specifications

Material

SKL-clamp Spring steel, zinc plated
PFKZ foot Spring steel

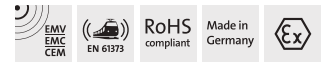
Type A: For wall/sheet thickness 1.5 – 2 mm

Type B: For wall/sheet thickness 2 – 3 mm



| | | PFKZ-A-M MSKL for sheet thickness 1.5 – 2 mm | PFKZ-B-M MSKL for sheet thickness 2 – 3 mm | PFKZ-A SKL for sheet thickness 1.5 – 2 mm | PFKZ-B SKL for sheet thickness 2 – 3 mm |
|------|-------------------|----------------------------------------------------|--------------------------------------------------|-------------------------------------------------|-----------------------------------------------|
| | Clamping range | Order No. | Order No. | Order No. | Order No. |
| MSKL | 3 – 12 mm | 37640 | 37650 | – | – |
| | 8 – 18 mm | 37642 | 37652 | – | – |
| SKL | 1.5 – 3 mm | – | – | 36779.1 | 36783.1 |
| | 3 – 6 mm | – | – | 36779.2 | 36783.2 |
| | 6 – 8 mm | – | – | 36779.3 | 36783.3 |
| | 8 – 11 mm | – | – | 36779.4 | 36783.4 |
| | 11 – 17 mm | – | – | 36779.5 | 36783.5 |
| | 17 – 22 mm | – | – | 36779.6 | 36783.6 |
| | 22 – 30 mm | – | – | 36779.7 | 36783.7 |
| PU | | 10 | 10 | 10 | 10 |

EMC shield clamps for assembly on sheet edges without strain relief function



Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Assembly

The shield clamps are used where a screw connection is either not possible or wanted. It is simply clamped onto the sheet edge. The claws provide a secure grip, even in case of vibrations.

Advantages & benefits

- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Maintenance free

Specifications

Material

SKL-clamp Spring steel, zinc plated
PFK foot Spring steel

Type A: For wall/sheet thickness 1.5 – 2 mm
Type B: For wall/sheet thickness 2 – 3 mm



PFK-A|SKL
for sheet thickness
1.5 – 2 mm



PFK-B|SKL
for sheet thickness
2 – 3 mm

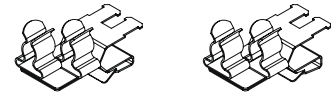
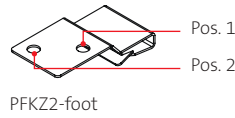
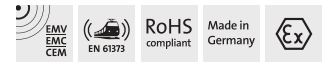
| Clamping range | Order No. | Order No. | |
|----------------|------------|-----------|---------|
| SKL | 1.5 – 3 mm | 36778.1 | 36782.1 |
| | 3 – 6 mm | 36778.2 | 36782.2 |
| | 6 – 8 mm | 36778.3 | 36782.3 |
| | 8 – 11 mm | 36778.4 | 36782.4 |
| | 11 – 17 mm | 36778.5 | 36782.5 |
| | 17 – 22 mm | 36778.6 | 36782.6 |
| | 22 – 30 mm | 36778.7 | 36782.7 |
| PU | 10 | 10 | |



Secure grip on metal sheets due to mounting claws

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EMC double shield clamps for assembly on sheet edges with strain relief function



Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps are used where a screw connection is either not possible or wanted. It is simply clamped onto the sheet edge. The claws provide a secure grip, even in case of vibrations.

Advantages & benefits

- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Maintenance free

Specifications

Material

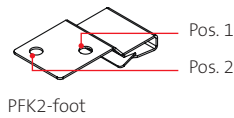
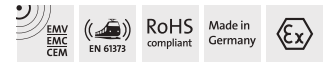
SKL-clamp Spring steel, zinc plated
PFKZ2 foot Spring steel

Type A: For wall/sheet thickness 1.5 – 2 mm

Type B: For wall/sheet thickness 2 – 3 mm

| | Clamping range Pos. 1 | Clamping range Pos. 2 | Order No. | Order No. |
|-----|--------------------------|--------------------------|-----------|-----------|
| | blank | 1.5 – 3 mm | 36781.01 | 36785.01 |
| | blank | 3 – 6 mm | 36781.02 | 36785.02 |
| | blank | 6 – 8 mm | 36781.03 | 36785.03 |
| | blank | 8 – 11 mm | 36781.04 | 36785.04 |
| | 1.5 – 3 mm | blank | 36781.10 | 36785.10 |
| | 1.5 – 3 mm | 1.5 – 3 mm | 36781.11 | 36785.11 |
| | 1.5 – 3 mm | 3 – 6 mm | 36781.12 | 36785.12 |
| | 1.5 – 3 mm | 6 – 8 mm | 36781.13 | 36785.13 |
| | 1.5 – 3 mm | 8 – 11 mm | 36781.14 | 36785.14 |
| | 3 – 6 mm | blank | 36781.20 | 36785.20 |
| | 3 – 6 mm | 1.5 – 3 mm | 36781.21 | 36785.21 |
| SKL | 3 – 6 mm | 3 – 6 mm | 36781.22 | 36785.22 |
| | 3 – 6 mm | 6 – 8 mm | 36781.23 | 36785.23 |
| | 3 – 6 mm | 8 – 11 mm | 36781.24 | 36785.24 |
| | 6 – 8 mm | blank | 36781.30 | 36785.30 |
| | 6 – 8 mm | 1.5 – 3 mm | 36781.31 | 36785.31 |
| | 6 – 8 mm | 3 – 6 mm | 36781.32 | 36785.32 |
| | 6 – 8 mm | 6 – 8 mm | 36781.33 | 36785.33 |
| | 6 – 8 mm | 8 – 11 mm | 36781.34 | 36785.34 |
| | 8 – 11 mm | blank | 36781.40 | 36785.40 |
| | 8 – 11 mm | 1.5 – 3 mm | 36781.41 | 36785.41 |
| | 8 – 11 mm | 3 – 6 mm | 36781.42 | 36785.42 |
| | 8 – 11 mm | 6 – 8 mm | 36781.43 | 36785.43 |
| PU | | | 10 | 10 |

EMC double shield clamps for assembly on sheet edges without strain relief function



Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in dissipating conducted disturbances.

Assembly

The shield clamps are used where a screw connection is either not possible or wanted. It is simply clamped onto the sheet edge. The claws provide a secure grip, even in case of vibrations.

Advantages & benefits

- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Maintenance free

Specifications

Material

SKL-clamp Spring steel, zinc plated
PFK2 foot Spring steel

Type A: For wall/sheet thickness 1.5 – 2 mm
Type B: For wall/sheet thickness 2 – 3 mm



Secure grip on metal sheets due to mounting claws

| | | PFK2-A SKL for sheet thickness 1.5 – 2 mm | PFK2-B SKL for sheet thickness 2 – 3 mm | |
|-----|------------|-------------------------------------------------|-----------------------------------------------|----------|
| | | Clamping range Pos. 1 | Clamping range Pos. 2 | |
| | | Order No. | Order No. | |
| SKL | blank | 1.5 – 3 mm | 36780.01 | 36784.01 |
| | blank | 3 – 6 mm | 36780.02 | 36784.02 |
| | blank | 6 – 8 mm | 36780.03 | 36784.03 |
| | blank | 8 – 11 mm | 36780.04 | 36784.04 |
| | 1.5 – 3 mm | blank | 36780.10 | 36784.10 |
| | 1.5 – 3 mm | 1.5 – 3 mm | 36780.11 | 36784.11 |
| | 1.5 – 3 mm | 3 – 6 mm | 36780.12 | 36784.12 |
| | 1.5 – 3 mm | 6 – 8 mm | 36780.13 | 36784.13 |
| | 1.5 – 3 mm | 8 – 11 mm | 36780.14 | 36784.14 |
| | 3 – 6 mm | blank | 36780.20 | 36784.20 |
| | 3 – 6 mm | 1.5 – 3 mm | 36780.21 | 36784.21 |
| | 3 – 6 mm | 3 – 6 mm | 36780.22 | 36784.22 |
| | 3 – 6 mm | 6 – 8 mm | 36780.23 | 36784.23 |
| | 3 – 6 mm | 8 – 11 mm | 36780.24 | 36784.24 |
| | 6 – 8 mm | blank | 36780.30 | 36784.30 |
| | 6 – 8 mm | 1.5 – 3 mm | 36780.31 | 36784.31 |
| | 6 – 8 mm | 3 – 6 mm | 36780.32 | 36784.32 |
| | 6 – 8 mm | 6 – 8 mm | 36780.33 | 36784.33 |
| | 6 – 8 mm | 8 – 11 mm | 36780.34 | 36784.34 |
| | 8 – 11 mm | blank | 36780.40 | 36784.40 |
| | 8 – 11 mm | 1.5 – 3 mm | 36780.41 | 36784.41 |
| | 8 – 11 mm | 3 – 6 mm | 36780.42 | 36784.42 |
| | 8 – 11 mm | 6 – 8 mm | 36780.43 | 36784.43 |
| | PU | | 10 | 10 |

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PCB|SKL shield clamps are easy to use and effective in earthing single cable shields.

PCB|SKL consist of SKL clamps, fixed on a soldering foot that enables assembly on printed circuit boards. There are various designs to choose from.

Advantages & benefits

- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Large contact area

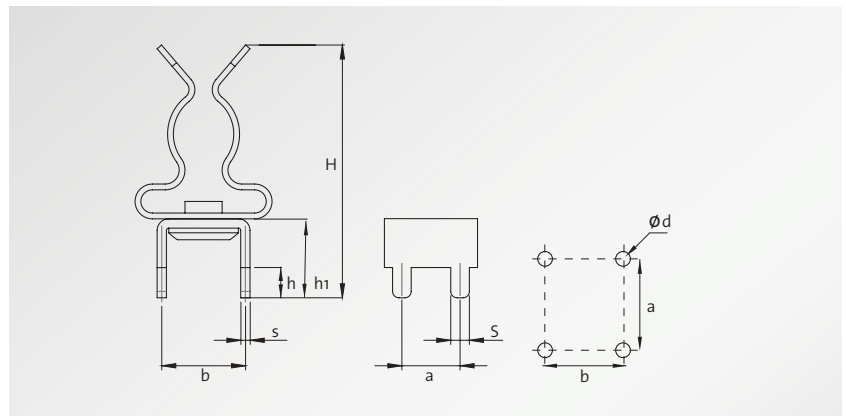
Specifications

Material

SKL-clamp Spring steel, zinc plated
PCB-foot Brass, tin plated

SKL-clamp
PCB-ET-4-V-4,1|SKL 3-6 Spring steel, tin plated

| Type | Order No. | Height H [mm] | Height h1 [mm] | Width s [mm] | Pin h [mm] | Pin S [mm] | Grid a x b [mm] | Drill-hole d [mm] | PU |
|------------------------------------------------------------------|-----------|---------------|----------------|--------------|------------|------------|-----------------|-------------------|----|
| PCB-4-V-6,8 MSKL 3-12 Clamping range 3–12 mm | 37306 | 27 | 6.8 | 0.8 | 2.6 | 1.6 | 5 x 7.2 | Ø 1.8 | 10 |
| PCB-4-V-6,8 SKL 1.5-3 Clamping range 1.5 - 3 mm | 36650.1 | 20 | 6.8 | 0.8 | 2.6 | 1.6 | 5 x 7.2 | Ø 1.8 | 10 |
| PCB-4-V-6,8 SKL 3-6 Clamping range 3 - 6 mm | 36650.2 | 20 | 6.8 | 0.8 | 2.6 | 1.6 | 5 x 7.2 | Ø 1.8 | 10 |
| PCB-4-V-6,8 SKL 6-8 Clamping range 6 - 8 mm | 36650.3 | 22 | 6.8 | 0.8 | 2.6 | 1.6 | 5 x 7.2 | Ø 1.8 | 10 |
| PCB-4-V-6,8 SKL 8-11 Clamping range 8–11 mm | 36650.4 | 27 | 6.8 | 0.8 | 2.6 | 1.6 | 5 x 7.2 | Ø 1.8 | 10 |
| PCB-4-V-12,5 SKL 1.5-3 Clamping range 1.5 - 3 mm | 36656.1 | 25 | 12.5 | 1 | 4 | 1.6 | 5 x 10.1 | Ø 1.8 | 10 |
| PCB-4-V-12,5 SKL 3-6 Clamping range 3 - 6 mm | 36656.2 | 26 | 12.5 | 1 | 4 | 1.6 | 5 x 10.1 | Ø 1.8 | 10 |
| PCB-4-V-12,5 SKL 6-8 Clamping range 6 - 8 mm | 36656.3 | 27 | 12.5 | 1 | 4 | 1.6 | 5 x 10.1 | Ø 1.8 | 10 |
| PCB-ET-4-V-4,1 SKL 3-6 Clamping range 3 - 6 mm (one-piece) | 36653.1 | 17.5 | 4.4 | 0.3 | 2.6 | 1.6 | 5 x 7.2 | Ø 1.8 | 25 |



STFZ|SKL

EMC Terminal clamp for peripheral modules



STFZ-U|SKL

The EMC terminal clamps STFZ|SKL combine the functions strain relief, cable guidance and earthing of signal cables. Available in two versions for 1 or 2 lines.

The STFZ2|SKL is used for analogue I/O modules using two actuators/sensors.

The STFZ EMC terminal clamp is compatible to bus modules listed on the left side.

For the SIMATIC ET 200SP module by Siemens icotek has developed a special terminal clamp STFZ-SP for 1 or 2 lines.

Application terminal clamp

STFZ|SKL

- Bosch Rexroth
IP20 Inline Module
- PHOENIX CONTACT
All terminals of the INLINE range.
The terminals 1.4 and 2.4 must not be used for signal I/O.
- Pilz
All PSSu-Modules with shield terminals 13 and 23
- Siemens
All terminals of the ET200s range.
Terminals 4 and 8 must not be used for signal I/O.
- TURCK
For terminals of the BL20 I/O system.
- VIPA SLIO
All terminals of the SLIO range. Terminals 4+8 must not be used for signal I/O.
- WAGO
All terminals of the WAGO I/O Systems 750.
Terminals 4 and 8 must not be used for signal I/O.
- Rockwell Automation / Allen-Bradley
Series 1734

Further manufacturers upon request.



STFZ I/O Insert Tool

STFZ I/O Insert Tool for quick and easy mounting of STFZ terminal clamps.

Order No. 61430

STFZ-U|SKL

- BECKHOFF
EL 3122, ES 3122, ES 9100, ES 9410, KL 1114, KS 2134
- OMRON
Series NX

STFZ-SP|SKL

- Siemens
SIMATIC ET 200SP



STFZ-SP|SKL

STFZ-U|SKL

STFZ|SKL

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STFZ | STFZ2

EMC Terminal clamp, single and double for various brands



The STFZ|SKL EMC terminal clamp provides strain relief, cable guidance and earthing for decentralised bus modules (see compatibility table page 212).

The STFZ2|SKL is used for analogue I/O modules using two actuators / sensors.

The EMC shield clamps as listed below are available to mount:

SKL 1.5-3 | SKL 3-6 | SKL 6-8

Advantages & benefits

- Earthing of signal cables close to the terminal
- Strain relief and cable management directly on the bus module

Specifications

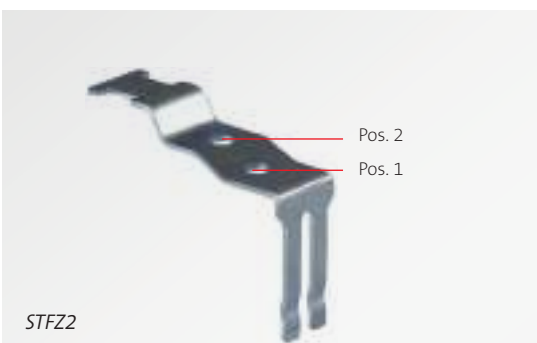
Material

SKL-clamp Spring steel, zinc plated
STFZ-foot Spring steel

Accessories

STFZ I/O Insert Tool 251

| Type | Shield diameter Pos. 1 | Shield diameter Pos. 2 | Order No. | PU |
|------------------------------------------|------------------------|------------------------|-----------|----|
| STFZ SKL with one shield clamp: | | | | |
| STFZ SKL 1.5-3 | 1.5 - 3 mm | - | 37510.1 | 10 |
| STFZ SKL 3-6 | 3 - 6 mm | - | 37510.2 | 10 |
| STFZ SKL 6-8 | 6 - 8 mm | - | 37510.3 | 10 |
| STFZ2 SKL with two shield clamps: | | | | |
| STFZ2 01 | blank | 1.5 - 3 mm | 37505.01 | 10 |
| STFZ2 02 | blank | 3 - 6 mm | 37505.02 | 10 |
| STFZ2 03 | blank | 6 - 8 mm | 37505.03 | 10 |
| STFZ2 10 | 1.5 - 3 mm | blank | 37505.10 | 10 |
| STFZ2 11 | 1.5 - 3 mm | 1.5 - 3 mm | 37505.11 | 10 |
| STFZ2 12 | 1.5 - 3 mm | 3 - 6 mm | 37505.12 | 10 |
| STFZ2 13 | 1.5 - 3 mm | 6 - 8 mm | 37505.13 | 10 |
| STFZ2 20 | 3 - 6 mm | blank | 37505.20 | 10 |
| STFZ2 21 | 3 - 6 mm | 1.5 - 3 mm | 37505.21 | 10 |
| STFZ2 22 | 3 - 6 mm | 3 - 6 mm | 37505.22 | 10 |
| STFZ2 23 | 3 - 6 mm | 6 - 8 mm | 37505.23 | 10 |
| STFZ2 30 | 6 - 8 mm | blank | 37505.30 | 10 |
| STFZ2 31 | 6 - 8 mm | 1.5 - 3 mm | 37505.31 | 10 |
| STFZ2 32 | 6 - 8 mm | 3 - 6 mm | 37505.32 | 10 |
| STFZ2 33 | 6 - 8 mm | 6 - 8 mm | 37505.33 | 10 |



STFZ-U | STFZ-SP | STFZ2-SP

EMC Terminal clamp, single and double for Siemens & Beckhoff modules



STFZ-SP|SKL

STFZ2-SP|SKL

The STFZ-SP|SKL EMC terminal clamp provides strain relief, cable guidance and earthing for decentralised bus modules SIMATIC ET 200SP by Siemens. STFZ2-SP|SKL is a version for analogue I/O modules using two actuators/sensors. STFZ-U terminal clamps for various Beckhoff modules.

The EMC shield clamps as listed below are available to mount:

SKL 1.5-3 | SKL 3-6 | SKL 6-8

Advantages & benefits

- Earthing of signal cables close to the terminal
- Strain relief and cable management directly on the bus module

Specifications

Material

SKL-clamp Spring steel, zinc plated
STFZ-SP-foot Spring steel

Accessories

STFZ I/O Insert Tool 251

| Type | Shield diameter Pos. 1 | Shield diameter Pos. 2 | Order No. | PU |
|--------------------------------------------------------|------------------------|------------------------|-----------|----|
| STFZ-SP SKL / STFZ-U SKL with one shield clamp: | | | | |
| STFZ-SP SKL 1.5-3 | 1.5 - 3 mm | - | 37512.1 | 10 |
| STFZ-U SKL 1.5-3 | 1.5 - 3 mm | - | 37514.1 | 10 |
| STFZ-SP SKL 3-6 | 3 - 6 mm | - | 37512.2 | 10 |
| STFZ-U SKL 3-6 | 3 - 6 mm | - | 37514.2 | 10 |
| STFZ-SP SKL 6-8 | 6 - 8 mm | - | 37512.3 | 10 |
| STFZ-U SKL 6-8 | 6 - 8 mm | - | 37514.3 | 10 |
| STFZ2-SP with two shield clamps: | | | | |
| STFZ2-SP 01 | blank | 1.5 - 3 mm | 37507.01 | 10 |
| STFZ2-SP 02 | blank | 3 - 6 mm | 37507.02 | 10 |
| STFZ2-SP 03 | blank | 6 - 8 mm | 37507.03 | 10 |
| STFZ2-SP 10 | 1.5 - 3 mm | blank | 37507.10 | 10 |
| STFZ2-SP 11 | 1.5 - 3 mm | 1.5 - 3 mm | 37507.11 | 10 |
| STFZ2-SP 12 | 1.5 - 3 mm | 3 - 6 mm | 37507.12 | 10 |
| STFZ2-SP 13 | 1.5 - 3 mm | 6 - 8 mm | 37507.13 | 10 |
| STFZ2-SP 20 | 3 - 6 mm | blank | 37507.20 | 10 |
| STFZ2-SP 21 | 3 - 6 mm | 1.5 - 3 mm | 37507.21 | 10 |
| STFZ2-SP 22 | 3 - 6 mm | 3 - 6 mm | 37507.22 | 10 |
| STFZ2-SP 23 | 3 - 6 mm | 6 - 8 mm | 37507.23 | 10 |
| STFZ2-SP 30 | 6 - 8 mm | blank | 37507.30 | 10 |
| STFZ2-SP 31 | 6 - 8 mm | 1.5 - 3 mm | 37507.31 | 10 |
| STFZ2-SP 32 | 6 - 8 mm | 3 - 6 mm | 37507.32 | 10 |
| STFZ2-SP 33 | 6 - 8 mm | 6 - 8 mm | 37507.33 | 10 |



STFZ2-SP

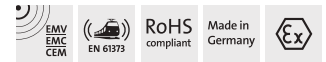


STFZ-U|SKL

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EMC ServiceBox *multi*

Service box with assorted MSKL shield clamp



The suitable EMC clamp is always readily available!
The EMC ServiceBox multi is very universal, especially when the cable diameter is unknown in advance. With the new ServiceBox multi you always have the right size on hand.

The EMC ServiceBox multi is perfect for installations and service calls. Retrofitting and maintenance can be carried out easily and quickly.

Content*

MSKL / SKL for top hat DIN rails:

Type SFZ-M|MSKL - sizes: 8 - 18 mm 10 × MSKL
Type SFZ-M|MSKL - sizes: 3 - 12 mm 20 × MSKL
Type SFZ|SKL - sizes: 1.5 - 3 mm 10 × SKL

MSKL / SKL for assembly via screws:

Type LFZ-M|MSKL - sizes: 8 - 18 mm 10 × MSKL
Type LFZ-M|MSKL - sizes: 3 - 12 mm 20 × MSKL
Type LFZ|SKL - sizes: 1.5 - 3 mm 10 × SKL

MSKL for 10 × 3 mm bus bar:

Type PFSZ-M|MSKL - sizes: 3 - 12 mm 10 × MSKL

MSKL / SKL for clipping on metal sheets:

Type PFKZ-B-M|MSKL - sizes: 1.5 - 8 mm 10 × MSKL
Type PFKZ-B|SKL 22 2 × SKL

SKL for decentralised bus modules:

Type STFZ|SKL - sizes: 3 - 6 mm 6 × SKL

SKL for clipping on metal sheets

Typ PFKZ-B|SKL 1,5-3 mm 3 × SKL
Typ PFKZ-B|SKL 3-6 mm 3 × SKL
Typ PFKZ-B|SKL 6-8 mm 3 × SKL

EMC - Accessories:

RLFZ - Clamp assembly 5 × SKL 1 piece

* Subject to alterations



| Description | Order No. | PU |
|-----------------------------|-----------|----|
| EMC ServiceBox <i>multi</i> | 88006 | 1 |

EMC ServiceBox

Service box with assorted SKL shield clamps



The suitable EMC clamp is always readily available!
The EMC ServiceBox is perfect for installations and service calls. Retrofitting and maintenance can be carried out easily and quickly.

Content*

SKL for top hat DIN rails:

- Type SFZ|SKL - sizes: 1.5 - 17 mm **15 × SKL**
- Type SFS|SKL - sizes: 1.5 - 8 mm **6 × SKL**
- SFZ-M|MSKL - sizes: 3-18 mm **4 × SKL**

SKL for assembly via screws:

- Type LFZ|SKL - sizes: 1.5 - 17 mm **21 × SKL**
- Type LFZ-U4|SKL - sizes: 1.5-11 mm **8 × SKL**
- Type LFZ-M|MSKL - sizes: 3-18 mm **4 × SKL**

SKL for 10 × 3 bus bar:

- Type PFSZ2|SKL 11 **1 × SKL**
- Type PFSZ2|SKL 22 **1 × SKL**
- Type PFSZ2|SKL 33 **1 × SKL**

SKL for clipping on metal sheets:

- Type PFSZ|SKL - sizes: 1.5 - 11 mm **15 × SKL**
- Type PFSZ-M|MSKL - sizes: 3-18 mm **4 × SKL**

SKL for decentralised bus modules:

- STFZ|SKL - sizes: 3 - 6 mm **1 × SKL**
- STFZ2|SKL 23 **1 × SKL**

SKL for Siemens module ET 200 SP:

- STFZ-SP|SKL - sizes: 3-6 mm **1 × SKL**
- STFZ2-SP|SKL 23 **1 × SKL**

* Subject to alterations

| Description | Order No. | PU |
|----------------|-----------|----|
| EMC ServiceBox | 88002 | 1 |

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RLFZ-M | SC|RLFZ-M

EMC Clamp assembly with strain relief and a large clamping range



for screw mounting

The RLFZ-M range is a further development of the EMC clamp assembly which enables earthing and strain relief of up to 12 cable shields from 3-12 mm using only one shield clamp size.

There are 10 different carriers available which can be easily user configured with up to 12 MSKL 3-12 shield clamps.

Advantages & benefits

- Easy storage due to large clamping range 3-12 mm
- Designed for high density applications
- Possibility to configure custom specific EMC clamp assemblies
- Separate strain relief and EMC shield earthing
- Online design tool for EMC Clamp assembly on www.icotek.com

Specifications

Material

| | |
|-------------|---------------------------------------|
| MSKL-clamp | Spring steel, zinc plated |
| RLFZ-M-foot | Sheet steel, galvanically zinc plated |
| SC-foot | Sheet steel, galvanically zinc plated |

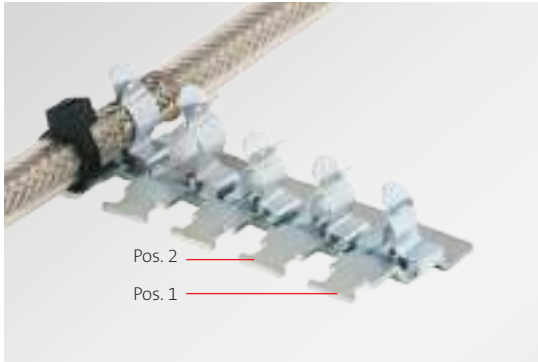
| Type | Order No. for direct mounting | Order No. for C-rails | Number of shield clamps | Length | Width | PU |
|--------------|-------------------------------|-----------------------|-------------------------|--------|---------|----|
| RLFZ-M (x2) | 38069.002 | – | 2× MSKL 3-12 | 36 mm | 54.1 mm | 1 |
| RLFZ-M (x3) | 38070.002 | 38070.100 | 3× MSKL 3-12 | 52 mm | 54.1 mm | 1 |
| RLFZ-M (x4) | 38071.002 | 38071.100 | 4× MSKL 3-12 | 73 mm | 54.1 mm | 1 |
| RLFZ-M (x5) | 38072.002 | 38072.100 | 5× MSKL 3-12 | 94 mm | 54.1 mm | 1 |
| RLFZ-M (x6) | 38073.002 | 38073.100 | 6× MSKL 3-12 | 115 mm | 54.1 mm | 1 |
| RLFZ-M (x7) | 38074.002 | 38074.100 | 7× MSKL 3-12 | 136 mm | 54.1 mm | 1 |
| RLFZ-M (x8) | 38075.002 | 38075.100 | 8× MSKL 3-12 | 157 mm | 54.1 mm | 1 |
| RLFZ-M (x9) | 38076.002 | 38076.100 | 9× MSKL 3-12 | 178 mm | 54.1 mm | 1 |
| RLFZ-M (x10) | 38077.002 | 38077.100 | 10× MSKL 3-12 | 199 mm | 54.1 mm | 1 |
| RLFZ-M (x11) | 38078.002 | 38078.100 | 11× MSKL 3-12 | 220 mm | 54.1 mm | 1 |
| RLFZ-M (x12) | 38079.002 | 38079.100 | 12× MSKL 3-12 | 241 mm | 54.1 mm | 1 |



Type SC: Mounted on screw-foot for DIN-rail shape C



Try our EMC configurator: EMC cable shield clamps as single, double or multi solution – individually configurable for your applications on www.icotek.com



for screw mounting

The RLFZ range enables earthing and strain relief of up to 12 cables in a small space.

The combination of EMC shield earthing and strain relief is the key feature of this system.

There are 10 different carriers available which can be user configured with up to 12 SKL shield clamps.

The EMC shield clamps as listed below are available to mount:
SKL 1.5-3 | SKL 3-6 | SKL 6-8 | SKL 8-11

Advantages & benefits

- Designed for high density applications
- Possibility to configure custom specific EMC clamp assemblies
- Separate strain relief and EMC shield earthing
- Online design tool for EMC Clamp assembly

Specifications

| | |
|-----------------|----------------------------------------|
| Material | |
| SKL-clamp | Spring steel, zinc plated |
| RLFZ-foot | Carbon steel, galvanically zinc plated |
| SC-foot | Carbon steel, galvanically zinc plated |

| Type | Order No. for direct mounting | Order No. for C-rails | Number of shield clamps | Length | Width | PU |
|------------|-------------------------------|-----------------------|-------------------------|----------|---------|----|
| RLFZ (x3) | 38005 | 38005.100 | 3× SKL | 41.2 mm | 44.4 mm | 1 |
| RLFZ (x4) | 38010 | 38010.100 | 4× SKL | 56.8 mm | 44.4 mm | 1 |
| RLFZ (x5) | 38015 | 38015.100 | 5× SKL | 72.4 mm | 44.4 mm | 1 |
| RLFZ (x6) | 38020 | 38020.100 | 6× SKL | 88 mm | 44.4 mm | 1 |
| RLFZ (x7) | 38025 | 38025.100 | 7× SKL | 103.6 mm | 44.4 mm | 1 |
| RLFZ (x8) | 38030 | 38030.100 | 8× SKL | 119.2 mm | 44.4 mm | 1 |
| RLFZ (x9) | 38035 | 38035.100 | 9× SKL | 134.8 mm | 44.4 mm | 1 |
| RLFZ (x10) | 38040 | 38040.100 | 10× SKL | 150.4 mm | 44.4 mm | 1 |
| RLFZ (x11) | 38045 | 38045.100 | 11× SKL | 166 mm | 44.4 mm | 1 |
| RLFZ (x12) | 38050 | 38050.100 | 12× SKL | 181.6 mm | 44.4 mm | 1 |



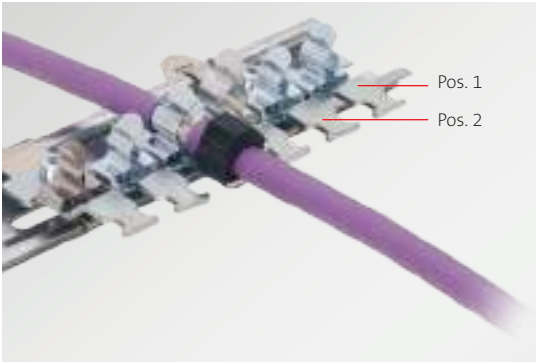
Type SC: Mounted on screw-foot for DIN-rail shape C



Try our EMC configurator: EMC cable shield clamps as single, double or multi solution – individually configurable for your applications on www.icotek.com

SF|RLFZ

EMC Clamp assembly for 35 mm top hat DIN rail



The SF|RLFZ range is based upon the RLFZ clamp assembly, which is mounted on snap feet for 35 mm top hat DIN rails.

There are 10 different carriers available, which can be user configured with up to 12 SKL shield clamps.

The EMC shield clamps as listed below are available to mount:
SKL 1.5-3 | SKL 3-6 | SKL 6-8 | SKL 8-11

Advantages & benefits

- Designed for high density applications
- Possibility to configure custom specific EMC clamp assemblies
- Separate strain relief and EMC shield earthing
- Simple and tool-free mounting, easy assembly
- configure online on www.icotek.com

Specifications

Material

| | |
|-----------|---------------------------------------|
| SKL-clamp | Spring steel, zinc plated |
| RLFZ-foot | Sheet steel, galvanically zinc plated |

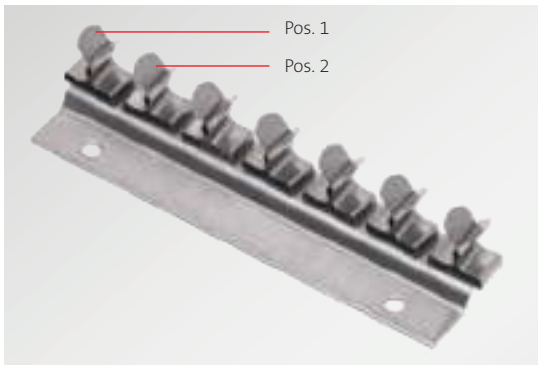
| Type | Order No. (unfitted) | Number of shield clamps | Length | Width | PU |
|---------------|----------------------|-------------------------|----------|---------|----|
| SF RLFZ (x3) | 38105 | 3× SKL | 41.2 mm | 70.7 mm | 1 |
| SF RLFZ (x4) | 38110 | 4× SKL | 56.8 mm | 70.7 mm | 1 |
| SF RLFZ (x5) | 38115 | 5× SKL | 72.4 mm | 70.7 mm | 1 |
| SF RLFZ (x6) | 38120 | 6× SKL | 88 mm | 70.7 mm | 1 |
| SF RLFZ (x7) | 38125 | 7× SKL | 103.6 mm | 70.7 mm | 1 |
| SF RLFZ (x8) | 38130 | 8× SKL | 119.2 mm | 70.7 mm | 1 |
| SF RLFZ (x9) | 38135 | 9× SKL | 134.8 mm | 70.7 mm | 1 |
| SF RLFZ (x10) | 38140 | 10× SKL | 150.4 mm | 70.7 mm | 1 |
| SF RLFZ (x11) | 38145 | 11× SKL | 166 mm | 70.7 mm | 1 |
| SF RLFZ (x12) | 38150 | 12× SKL | 181.6 mm | 70.7 mm | 1 |



Try our EMC configurator: EMC cable shield clamps as single, double or multi solution – individually configurable for your applications on www.icotek.com

RLF

EMC Clamp assembly



Comparable with the RLFZ clamp assembly, just without strain relief.

There are 10 different carriers available which can be user configured with up to 12 SKL shield clamps.

The EMC shield clamps as listed below are available to mount:
SKL 1.5-3 | SKL 3-6 | SKL 6-8 | SKL 8-11

Advantages & benefits

- Designed for high density applications
- Possibility to configure custom specific EMC clamp assemblies
- Online design tool for EMC Clamp assembly

Specifications

| | |
|-----------------|---------------------------|
| Material | |
| SKL-clamp | Spring steel, zinc plated |
| RLF-foot | Stainless steel |

| Type | Order No. (unfitted) | Number of shield clamps | Length | Width | PU |
|-----------|----------------------|-------------------------|----------|-------|----|
| RLF (x3) | 36965 | 3× SKL | 46.2 mm | 24 mm | 1 |
| RLF (x4) | 36984 | 4× SKL | 60.8 mm | 24 mm | 1 |
| RLF (x5) | 36958 | 5× SKL | 72.4 mm | 24 mm | 1 |
| RLF (x6) | 36952 | 6× SKL | 88 mm | 24 mm | 1 |
| RLF (x7) | 36963 | 7× SKL | 103.6 mm | 24 mm | 1 |
| RLF (x8) | 36953 | 8× SKL | 119.2 mm | 24 mm | 1 |
| RLF (x9) | 36985 | 9× SKL | 140.8 mm | 24 mm | 1 |
| RLF (x10) | 36954 | 10× SKL | 150.4 mm | 24 mm | 1 |
| RLF (x11) | 36955 | 11× SKL | 166 mm | 24 mm | 1 |
| RLF (x12) | 36962 | 12× SKL | 181.6 mm | 24 mm | 1 |

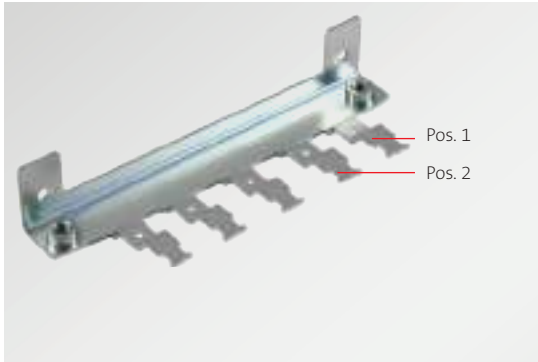
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Try our EMC configurator: EMC cable shield clamps as single, double or multi solution – individually configurable for your applications on www.icotek.com

KEL-EMC-Z

Cable assembly with strain relief



Cable entry, EMC shield earthing and strain relief – all in one location!

Cables pass through the KEL cable entry frame and lead directly to the EMC clamps and strain relief.

Simply insert the cable shield into the shield clamp and secure the cable jacket to the strain relief. Two separate functions (according to regulations) carried out quickly and easily!

Custom configurations are available for shield clamps up to 16 mm in diameter with minimal order quantities and lead time.

Advantages & benefits

- Large surface contact between cable shield and housing, especially on conductive coated surfaces
- Sealing by outer cable jacket – EMC earthing by cable shield (in acc. with regulations)
- Easily combines cable routing, EMC and strain relief due to the use of the same mounting holes
- Available without SKL shield clamps if only additional strain relief is required
- Mounting hole for earthing tape or PE connection

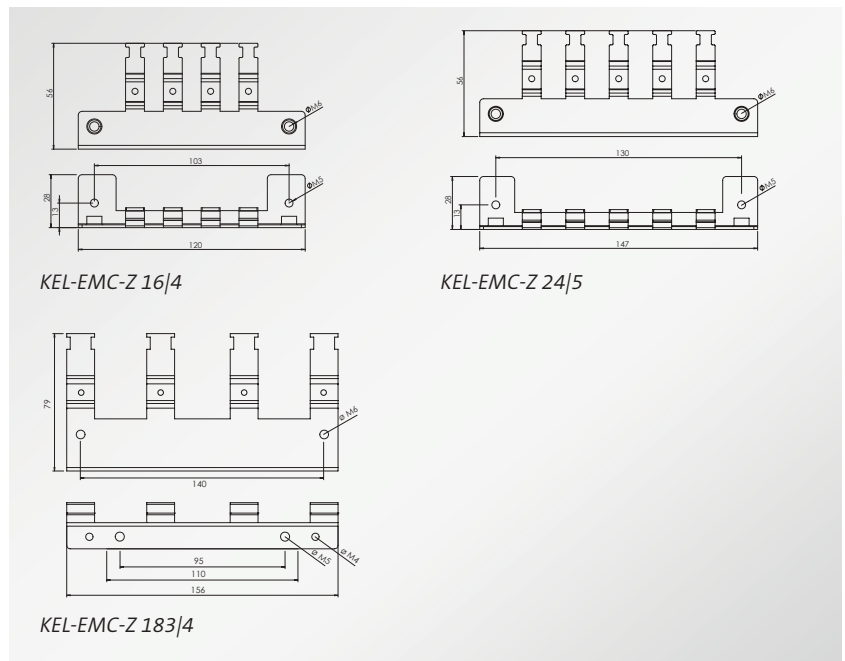
Specifications

Material Sheet steel, zinc plated

Compatible with

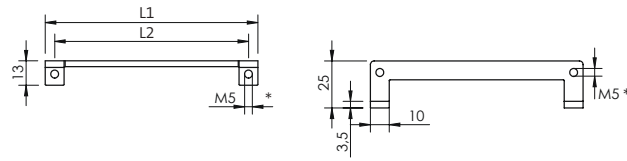
| | |
|------------------------------|----------|
| KEL-FA Cable entry frames | 24 - 27 |
| KEL-U Cable entry frames | 20 - 22 |
| KEL-ER Cable entry frames | 16 - 19 |
| KEL Cable entry frames | 28 - 37 |
| KEL-QUICK Cable entry frames | 95 - 107 |
| KEL 183 Cable entry frames | 38 - 39 |

| Type | Order No. | No. of SKL | Fastening | Fits with | PU |
|-----------------|-----------|------------|-----------|-------------------------------------------------------------------------------------|----|
| KEL-EMC-Z 16 4 | 36525 | 4 × SKL | long side | KEL-(ER-)E4 KEL 16 x KEL-FA 16 x KEL-U 16 x KEL-ER 16 x KEL-QUICK 16 | 1 |
| KEL-EMC-Z 24 5 | 36527 | 5 × SKL | long side | KEL-(ER-)E5 KEL 24 x KEL-FA 24 x KEL-U 24 x KEL-ER 24 x KEL-QUICK 24 | 1 |
| KEL-EMC-Z 183 4 | 36528 | 4 × SKL | long side | KEL 183 | 1 |



KEL-EMC-PF

Cable assembly, bracket version



The EMC bracket combined with the matching PFS|SKL EMC shield clamp is perfect in conjunction with the KEL cable entry frame for alleviating interferences due to shields.

The EMC clamp is assembled inside the control panel. For this process the fixing screws for the assembly of the KEL frame on the panel are used. A female screw thread M5 is already integrated in the KEL-EMC-PF bracket.

Depending on the cable diameter, the corresponding PFS|SKL EMC shield clamp can be snapped onto the EMC bracket.

Advantages & benefits

- Supports a wide range of cable and wire sizes
- Large surface contact of the cable shield
- Permanent spring pressure on the cable shield
- Fast and easy assembly

Specifications

Material Sheet steel, galvanically zinc plated

Compatible with

| | |
|--------------------------------------|-----------|
| KEL-FA Cable entry frames | 24 - 27 |
| KEL-U Cable entry frames | 20 - 22 |
| KEL-ER Cable entry frames | 16 - 19 |
| KEL Cable entry frames | 28 - 37 |
| KEL 183 Cable entry frames | 38 - 39 |
| KEL-QUICK Cable entry frames | 105 - 107 |
| KEL-BES Brush frames | 354 - 355 |
| KEL-DPU Cable entry plates | 144 - 147 |
| KEL-DPZ Cable entry plates | 148 - 155 |
| PFSZ SKL / PFSZ-M MSKL Shield clamps | 238 |
| PFS SKL Shield clamps | 239 |

| Type | Fits with | Order No. | Length L1 | Length L2 | PU |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|-------------|----|
| KEL-EMC-PFM 10 | KEL(-U/-ER) 10 x KEL-FA 10 x KEL-QUICK 10 x | 39184 | 93 mm | 83 mm | 1 |
| KEL-EMC-PFM 16 | KEL(-U/-ER) 16 x KEL-FA 16 x KEL-QUICK 16 x KEL-DPZ 16 x | 39183 | 113 mm | 103 mm | 1 |
| KEL-EMC-PFM 24 | KEL(-U/-ER) 24 x KEL-FA 24 x KEL-QUICK 24 x KEL-DPZ 24 x KEL-DPR 24 x KEL-DPU 24 x | 39181 | 140 mm | 130 mm | 1 |
| KEL-EMC-PF B4 | KEL(-ER)-E2 KEL-QUICK-E2 KEL(-U)-B KEL-QUICK-B KEL-ER-B | 39150 | 68 mm | 58 mm | 1 |
| KEL-EMC-PF 10 | KEL(-ER)-E3 KEL-QUICK-E3 KEL(-U/-ER) 10 x KEL-FA 10 x KEL-QUICK 10 x | 39160 | 93 mm | 83 mm | 1 |
| KEL-EMC-PF 16 | KEL(-ER)-E4 KEL-QUICK-E4 KEL(-U/-ER) 16 x KEL-FA 16 x KEL-QUICK 16 x KEL-DPZ 16 x | 39170 | 113 mm | 103 mm | 1 |
| KEL-EMC-PF 24 | KEL(-ER)-E5 KEL-QUICK-E5 KEL(-U/-ER) 24 x KEL-FA 24 x KEL-QUICK 24 x KEL-DPZ 24 x KEL-DPZ-E KEL-DPR 24 x KEL-DPU 24 x | 39180 | 140 mm | 130 mm | 1 |
| KEL-EMC-PF 183 | KEL 183 KEL 183-E | 39190 | 200 mm | 95 / 190 mm | 1 |

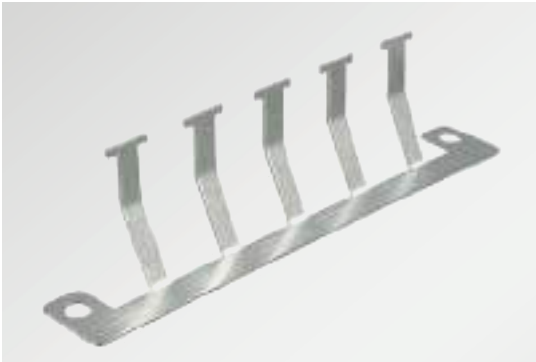


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* M5 thread only applies to KEL-EMV-PF

KEL-EMC

Cable assembly



Installation of pre-terminated cables without shield interruption.

Advantages & benefits

- Direct, easy and quick contact to the enclosure
- Space saving, usable for up to 10 cables with the two row model
- Alternative to EMC cable glands, even for pre-terminated cables
- Low resistance shield contact

Specifications

Material Stainless steel

Compatible with

| | |
|------------------------------|-----------|
| KEL-FA Cable entry frames | 24 - 27 |
| KEL-U Cable entry frames | 20 - 22 |
| KEL-ER Cable entry frames | 16 - 19 |
| KEL Cable entry frames | 28 - 37 |
| KEL-QUICK Cable entry frames | 105 - 107 |
| KEL-BES Brush frames | 354 - 455 |

| Type | Order No. | No. of teeth | Fastening | Fits with | PU |
|--------------|-----------|--------------|-----------|--------------------------------------------------------------------------------------------------------------------------|----|
| KEL-EMC-B | 36520 | 2 | long side | KEL-E2 KEL(-U)-B x KEL-ER-B x KEL-QUICK-B2 B4 | 5 |
| KEL-EMC 10 | 36522 | 3 | long side | KEL-E3 KEL-FA 10 x KEL(-U) 10 x KEL-ER 10 x | 5 |
| KEL-EMC 16 4 | 36524 | 4 | long side | KEL-E4 KEL-FA 16 x KEL(-U) 16 x KEL-ER 16 x KEL-QUICK 16 | 5 |
| KEL-EMC 24 5 | 36526 | 5 | long side | KEL-E5 KEL-FA 16 x KEL(-U) 24 x KEL-ER 24 x KEL-QUICK 24 | 5 |
| KEL-EMC F | 39110 | 3 | long side | KEL(-U/-ER)-B x KEL(-U/-ER) 10 x KEL-FA 10 x KEL(-U/-ER) 16 x KEL-FA 16 x KEL(-U/-ER) 24 x KEL-FA 24 x | 5 |



KVT-EMC

EMC bracket for cable glands



The KVT-EMC brackets in combination with the split cable glands KVT and QVT combine routing, EMC shield earthing and strain relief. The connection to the earth potential is possible via the enclosure wall or an earthing tape.

Cables pass through the split cable glands and lead directly into the EMC clamps.

Separate functions (according to regulations) carried out quickly and easily!

Advantages & benefits

- Simple and tool-free assembly
- Large contact area
- retrofitting possible
- Additional M5 hole for earthing tape

Specifications

Material Sheet steel, zinc plated

Compatible with

KVT Split cable glands 62 - 63
 QVT Split cable glands 109 - 110

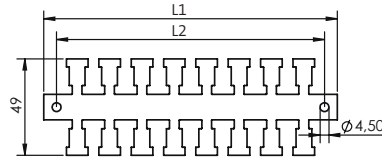
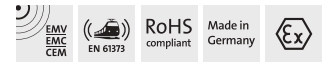
| Type | Fits with | Order No. | | Shield diameter | PU |
|----------------------|------------------|-----------|------------|-----------------|----|
| KVT-EMC-16 SKL 1.5-3 | QVT 16 | 37187.1 | | 1.5 – 3 mm | 5 |
| KVT-EMC-16 SKL 3-6 | QVT 16 | 37187.2 | | 3 – 6 mm | 5 |
| KVT-EMC-16 SKL 6-8 | QVT 16 | 37187.3 | | 6 – 8 mm | 5 |
| KVT-EMC-16 SKL 8-11 | QVT 16 | 37187.4 | | 8 – 11 mm | 5 |
| KVT-EMC-20 SKL 1.5-3 | KVT 20 QVT 20 | 37190.1 | NEW | 1.5 – 3 mm | 5 |
| KVT-EMC-20 SKL 3-6 | KVT 20 QVT 20 | 37190.2 | NEW | 3 – 6 mm | 5 |
| KVT-EMC-20 SKL 6-8 | KVT 20 QVT 20 | 37190.3 | NEW | 6 – 8 mm | 5 |
| KVT-EMC-20 SKL 8-11 | KVT 20 QVT 20 | 37190.4 | NEW | 8 – 11 mm | 5 |
| KVT-EMC-25 SKL 1.5-3 | KVT 25 QVT 25 | 37180.1 | | 1.5 – 3 mm | 5 |
| KVT-EMC-25 SKL 3-6 | KVT 25 QVT 25 | 37180.2 | | 3 – 6 mm | 5 |
| KVT-EMC-25 SKL 6-8 | KVT 25 QVT 25 | 37180.3 | | 6 – 8 mm | 5 |
| KVT-EMC-25 SKL 8-11 | KVT 25 QVT 25 | 37180.4 | | 8 – 11 mm | 5 |
| KVT-EMC-32 SKL 1.5-3 | KVT 32 QVT 32 | 37181.1 | | 1.5 – 3 mm | 5 |
| KVT-EMC-32 SKL 3-6 | KVT 32 QVT 32 | 37181.2 | | 3 – 6 mm | 5 |
| KVT-EMC-32 SKL 6-8 | KVT 32 QVT 32 | 37181.3 | | 6 – 8 mm | 5 |
| KVT-EMC-32 SKL 8-11 | KVT 32 QVT 32 | 37181.4 | | 8 – 11 mm | 5 |



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KAFM-EMC

EMC Strain relief plates



The EMC strain relief plate KAFM is practical for earthing interferences on the cable shield.

The cable assembly can be assembled on a mounting plate with screws, with SC foot on DIN-rails shape C or with SF or SK mounting foot on 35 mm top hat DIN-rails.

Specifications

Material Stainless steel

| Type | Order No. Type SF | Order No. Type SK | Order No. Type SC | Order No. Type DH | Order No. loose rail | Length L1 | Length L2 | No. of teeth | PU |
|---------------------|-------------------|------------------------------------------------------------------------------------------------------|-------------------|-------------------|----------------------|-----------|-----------|--------------|----|
| KAFM 2 | 36442 | 36432 | 36412 | 36482 | 36422 | 50.5 | 37.5 | 2 | 1 |
| KAFM 4 | 36444 | 36434 | 36414 | 36484 | 36424 | 83.5 | 70.5 | 4 | 1 |
| KAFM 6 | 36446 | 36436 | 36416 | 36486 | 36426 | 116.5 | 103.5 | 6 | 1 |
| KAFM 8 | 36448 | 36438 | 36418 | 36488 | 36428 | 149.5 | 136.5 | 8 | 1 |
| KAFM 10 | 36450 | 36440 | 36400 | 36490 | 36430 | 182.5 | 169.5 | 10 | 1 |
| KAFM 16 | 36452 | 36470 | 36465 | 36460 | 36530 | 281.5 | 268.5 | 16 | 1 |
| KAFM 29 | 36454 | 36471 | 36466 | 36462 | 36540 | 494.5 | 481.5 | 29 | 1 |
| KAFM 59 | 36458 | 36472 | 36467 | 36464 | 36550 | 990 | 978 | 59 | 1 |
| KAFM 59 zinc plated | 36459 | - | - | - | 36562 | 990 | 978 | 59 | 1 |
| SF | 36230 | Mounting foot single, for 35 mm top hat DIN-rail | | | | | | | 10 |
| SK | 36232 | Screw-foot single, for 35 mm top hat DIN-rail | | | | | | | 10 |
| SC | 36231 | Screw-foot single, for 30 mm DIN-rail shape C (width of mouth: 16–17 mm) with twist protection notch | | | | | | | 10 |
| Bushing DH | 36234 | Distance bushing 8 mm high | | | | | | | 10 |



Type SF: Mounted on snap foot for top hat DIN-rail



Type SC: Mounted on screw-foot for DIN-rail shape C



Type SK: Mounted on screw-foot for top hat DIN-rail



Type DH: Mounted on bushing for flexible fixation on bottom sheet

ZL|SB-EMC

Shield plate for ZL strain relief plates



The shield plates ZL|SB-EMC provide shield earthing in addition to strain relief.

Affix the corresponding shield plates to ZL strain relief plates. The shield plate contacts the cable shield with the earth potential.

The result is a secure low resistance connection between cable shield and earth.

ZL strain relief plates offered separately.

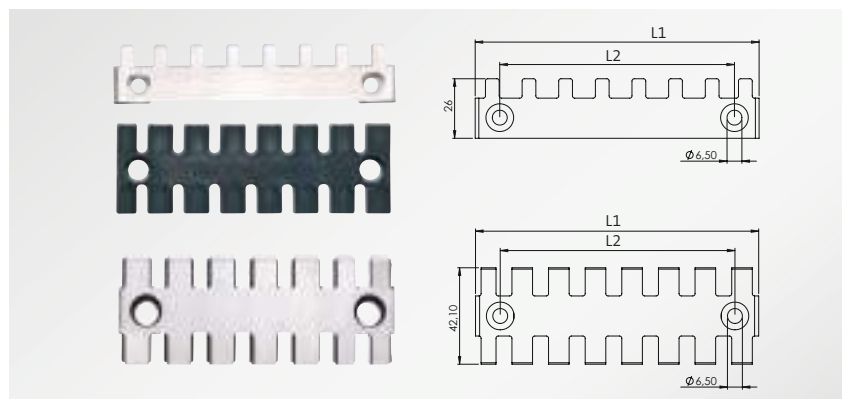
Specifications

Material
Shield plate Stainless steel

Compatible with

SF|ZL Strain relief plates 236 - 237
ZL Strain relief plates 194
ZL-AB Strain relief plates 195

| Type | Model | Order No. | Fits with | Length L1 | Length L2 | PU |
|-----------------|------------|-----------|-----------|-----------|-----------|----|
| ZL 39 SB-EMC-1 | single-row | 36322 | ZL 39 | 42 mm | 19.5 mm | 10 |
| ZL 39 SB-EMC-2 | double-row | 37150 | ZL 39 | 42 mm | 19.5 mm | 10 |
| ZL 60 SB-EMC-1 | single-row | 36328 | ZL 60 | 64 mm | 43.5 mm | 10 |
| ZL 60 SB-EMC-2 | double-row | 37152 | ZL 60 | 64 mm | 43.5 mm | 10 |
| ZL 70 SB-EMC-1 | single-row | 36323 | ZL 70 | 72.2 mm | 43.5 mm | 10 |
| ZL 87 SB-EMC-1 | single-row | 36324 | ZL 87 | 90 mm | 68 mm | 10 |
| ZL 87 SB-EMC-2 | double-row | 37154 | ZL 87 | 90 mm | 68 mm | 10 |
| ZL 103 SB-EMC-1 | single-row | 36332 | ZL 103 | 106 mm | 84 mm | 10 |
| ZL 103 SB-EMC-2 | double-row | 37156 | ZL 103 | 106 mm | 84 mm | 10 |
| ZL 121 SB-EMC-1 | single-row | 36330 | ZL 121 | 124 mm | 102.5 mm | 10 |
| ZL 121 SB-EMC-2 | double-row | 37158 | ZL 121 | 124 mm | 102.5 mm | 10 |
| ZL 140 SB-EMC-1 | single-row | 36326 | ZL 140 | 142 mm | 121 mm | 10 |
| ZL 140 SB-EMC-2 | double-row | 37159 | ZL 140 | 142 mm | 121 mm | 10 |



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MB

Earthing tapes



Manufactured with highly flexible E-Cu stranded wires with connecting end pads made of tinned copper strips.

The minimum transition and connecting resistance makes them perfectly suitable for use as earthing tapes.

Earthing Tapes are available with M4, M5, M6, M8 or M10 connections and in some sizes with both connection sizes combined.

| Type | Order No. | Distance L [mm] | Cross-section mm ² | Hole size | PU |
|----------------------------------------|-----------|-----------------|-------------------------------|-----------|----|
| Cross-section 6 mm² | | | | | |
| MB 100 6 M4 | 32695 | 100 | 6 | M4 | 1 |
| MB 100 6 M6 | 32700 | 100 | 6 | M6 | 1 |
| MB 150 6 M4 | 39710 | 150 | 6 | M4 | 1 |
| MB 150 6 M6 | 32701 | 150 | 6 | M6 | 1 |
| MB 200 6 M4 | 32707 | 200 | 6 | M4 | 1 |
| MB 200 6 M6 | 32702 | 200 | 6 | M6 | 1 |
| MB 250 6 M6 | 32706 | 250 | 6 | M6 | 1 |
| MB 300 6 M6 | 32703 | 300 | 6 | M6 | 1 |
| MB 400 6 M6 | 32704 | 400 | 6 | M6 | 1 |
| MB 500 6 M6 | 32705 | 500 | 6 | M6 | 1 |
| Cross-section 10 mm² | | | | | |
| MB 100 10 M6 | 32730 | 100 | 10 | M6 | 1 |
| MB 100 10 M6 + M4 | 39711 | 100 | 10 | M6 + M4 | 1 |
| MB 100 10 M8 | 32731 | 100 | 10 | M8 | 1 |
| MB 150 10 M5 | 32709 | 150 | 10 | M5 | 1 |
| MB 150 10 M5 + M6 | 32746 | 150 | 10 | M5 + M6 | 1 |
| MB 150 10 M8 | 32732 | 150 | 10 | M8 | 1 |
| MB 200 10 M5 | 32744 | 200 | 10 | M5 | 1 |
| MB 200 10 M6 | 32733 | 200 | 10 | M6 | 1 |
| MB 200 10 M6 + M8 | 32741 | 200 | 10 | M6 + M8 | 1 |
| MB 200 10 M8 | 32734 | 200 | 10 | M8 | 1 |
| MB 250 10 M6 + M8 | 32742 | 250 | 10 | M6 + M8 | 1 |
| MB 300 10 M6 | 32735 | 300 | 10 | M6 | 1 |
| MB 300 10 M6 + M8 | 32743 | 300 | 10 | M6 + M8 | 1 |
| MB 300 10 M8 | 32736 | 300 | 10 | M8 | 1 |
| MB 400 10 M4 | 32878 | 400 | 10 | M4 | 1 |
| MB 400 10 M6 | 32737 | 400 | 10 | M6 | 1 |
| MB 400 10 M8 | 32738 | 400 | 10 | M8 | 1 |
| MB 500 10 M6 | 32739 | 500 | 10 | M6 | 1 |

MB

Earthing tapes



Connecting end pads (copper)

Advantages & benefits

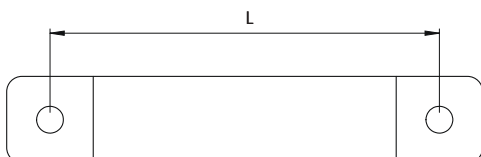
- Available in a variety of lengths and cross-sections
- Low impedances
- UL 467 listed

Specifications

Material Cu-ETP with connecting end pads
 Pads made of tinned copper strips

Current Load

| Cross-section | Current load |
|--------------------|--------------|
| 6 mm ² | 67 – 80 A |
| 10 mm ² | 89 – 106 A |
| 16 mm ² | 132 – 157 A |
| 25 mm ² | 177 – 210 A |
| 35 mm ² | 230 – 275 A |
| 50 mm ² | 280 – 350 A |
| 70 mm ² | 338 – 403 A |



| Type | Order No. | Distance L [mm] | Cross-section mm ² | Hole size | PU |
|----------------------------------------|-----------|-----------------|-------------------------------|-----------|----|
| Cross-section 16 mm² | | | | | |
| MB 100 16 M6 | 32760 | 100 | 16 | M6 | 1 |
| MB 100 16 M6 + M8 | 32758 | 100 | 16 | M6 + M8 | 1 |
| MB 100 16 M8 | 32761 | 100 | 16 | M8 | 1 |
| MB 100 16 M10 | 32759 | 100 | 16 | M10 | 1 |
| MB 150 16 M6 | 32762 | 150 | 16 | M6 | 1 |
| MB 150 16 M8 | 32763 | 150 | 16 | M8 | 1 |
| MB 200 16 M6 | 32764 | 200 | 16 | M6 | 1 |
| MB 200 16 M5 + M6 | 32776 | 200 | 16 | M5 + M6 | 1 |
| MB 200 16 M6 + M8 | 32773 | 200 | 16 | M6 + M8 | 1 |
| MB 200 16 M8 | 32765 | 200 | 16 | M8 | 1 |
| MB 250 16 M8 | 32766 | 250 | 16 | M8 | 1 |
| MB 250 16 M6 + M8 | 32774 | 250 | 16 | M6 + M8 | 1 |
| MB 300 16 M6 | 32767 | 300 | 16 | M6 | 1 |
| MB 300 16 M6 + M8 | 32775 | 300 | 16 | M6 + M8 | 1 |
| MB 300 16 M8 | 32768 | 300 | 16 | M8 | 1 |
| MB 350 16 M8 | 32769 | 350 | 16 | M8 | 1 |
| MB 350 16 M5 + M6 | 32777 | 350 | 16 | M5 + M6 | 1 |
| MB 400 16 M6 | 32873 | 400 | 16 | M6 | 1 |
| MB 400 16 M8 | 32770 | 400 | 16 | M8 | 1 |
| MB 500 16 M8 | 32771 | 500 | 16 | M8 | 1 |
| MB 600 16 M8 | 32772 | 600 | 16 | M8 | 1 |
| MB 1000 16 M8 | 32778 | 1000 | 16 | M8 | 1 |
| Cross-section 25 mm² | | | | | |
| MB 100 25 M10 | 32800 | 100 | 25 | M10 | 1 |
| MB 150 25 M10 | 32801 | 150 | 25 | M10 | 1 |
| MB 200 25 M8 | 32802 | 200 | 25 | M8 | 1 |
| MB 200 25 M10 | 32803 | 200 | 25 | M10 | 1 |
| MB 250 25 M8 | 32804 | 250 | 25 | M8 | 1 |
| MB 250 25 M10 | 32805 | 250 | 25 | M10 | 1 |

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MB

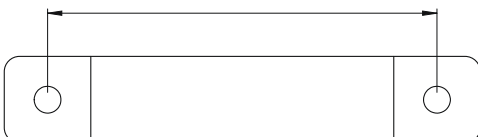
Earthing tapes



Manufactured with highly flexible E-Cu stranded wires with connecting end pads made of tinned copper strips.

The minimum transition and connecting resistance makes them perfectly suitable for use as earthing tapes.

Earthing Tapes are available with M4, M5, M6, M8 or M10 connections and in some sizes with both connection sizes combined.



| Type | Order No. | Distance L [mm] | Cross-section mm ² | Hole size | PU | |
|----------------------------------------|-----------|-----------------|-------------------------------|-----------|----------|---|
| Cross-section 25 mm² | | | | | | |
| MB 300 25 M8 | 32806 | 300 | 25 | M8 | 1 | |
| MB 300 25 M10 | 32807 | 300 | 25 | M10 | 1 | |
| MB 300 25 M6 | 32816 | NEW | 300 | 25 | M6 | 1 |
| MB 300 25 M8 + M10 | 32817 | NEW | 300 | 25 | M8 + M10 | 1 |
| MB 350 25 M10 | 32808 | 350 | 25 | M10 | 1 | |
| MB 400 25 M8 | 32809 | 400 | 25 | M8 | 1 | |
| MB 500 25 M8 | 32810 | 500 | 25 | M8 | 1 | |
| MB 500 25 M10 | 32812 | 500 | 25 | M10 | 1 | |
| MB 600 25 M8 | 32811 | 600 | 25 | M8 | 1 | |
| MB 800 25 M8 | 32815 | 800 | 25 | M8 | 1 | |
| Cross-section 35 mm² | | | | | | |
| MB 200 35 M10 | 32823 | 200 | 35 | M10 | 1 | |
| MB 250 35 M10 | 32824 | 250 | 35 | M10 | 1 | |
| MB 300 35 M10 | 32825 | 300 | 35 | M10 | 1 | |
| MB 400 35 M8 | 32886 | NEW | 400 | 35 | M8 | 1 |
| Cross-section 50 mm² | | | | | | |
| MB 150 50 M10 | 32847 | 150 | 50 | M10 | 1 | |
| MB 200 50 M10 | 32848 | 200 | 50 | M10 | 1 | |
| MB 250 50 M10 | 32849 | 250 | 50 | M10 | 1 | |
| MB 300 50 M10 | 32850 | 300 | 50 | M10 | 1 | |
| Cross-section 70 mm² | | | | | | |
| MB 200 70 M10* | 32868 | 200 | 70 | M10 | 1 | |
| MB 300 70 M10* | 32870 | 300 | 70 | M10 | 1 | |
| MB 500 70 M10* | 32872 | 500 | 70 | M10 | 1 | |

EMC

Customised solutions



In addition to our standard product offering we offer customised solutions for your application – even for small quantities!

A wide range of standard clamp assemblies are already available (see pages 256 - 259).


If a standard EMC clamp assembly is not practicable in your case, a custom designed carrier for shield clamps can be supplied.

We look forward to sharing our ideas and custom EMC solutions with you.

Advantages & benefits

- Supply of custom designed carriers for SKL shield clamps
- Cost-effective even for small quantities
- Available for a wide range of cable diameters



 Contact us: pm@icotek.com

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4.2 – 4.4 EMC cable entry systems

Solutions for conducted and field-bound disturbances



The industrial process technology demands increasing security against disturbances for electrical MCR facilities (measure, control, regulate). Special emphasis is being placed on the derivation of electromagnetic interference. A distinction is made between screening-related and field-related disturbances.

Screening-related interference is being transmitted directly from the source of interference to the cable shield of the supply or signal leads and then to the susceptible device. All capacitive and inductive influences of electrical or magnetic fields are called field bound disturbances. The field bound disturbances are being transferred, for example as a cable's electromagnetic field, from the source of interference to the susceptible device and received there, for instance, by a head acting as an antenna.

A large contact area of the cable shield for the derivation of the interference to a conductive housing wall combined with the shielding of the housing interior generally offers a good solution for both types of interference.

In case of conducted as well as field bound EMC disturbances, our cable entry system offers an effective way to divert and block those disturbances.

The key feature of icotek's system is the split frame and split grommets which provide quick, convenient and cost effective routing of pre-terminated and multi-conductor cables, hoses and conduits. The split frame and split grommets alleviate the need to cut and re-wire pre-terminated cables. Therefore, cable warranties are unaffected.

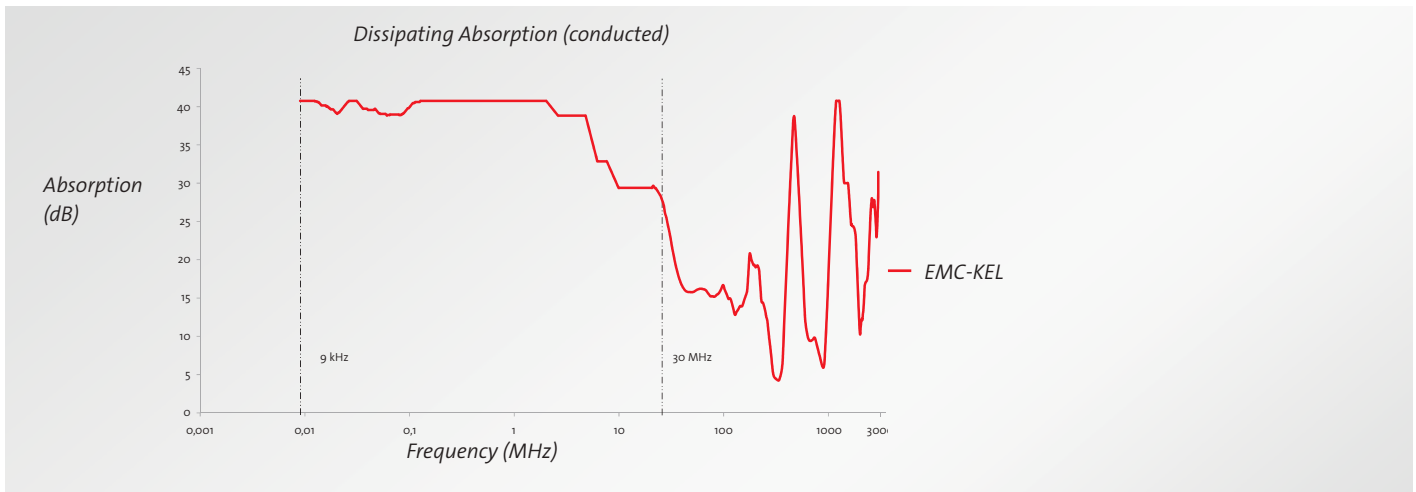
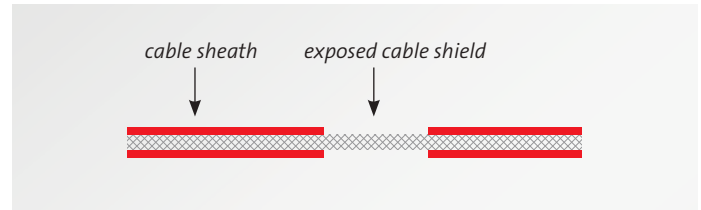


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Test results: Conducted and field-bound disturbances

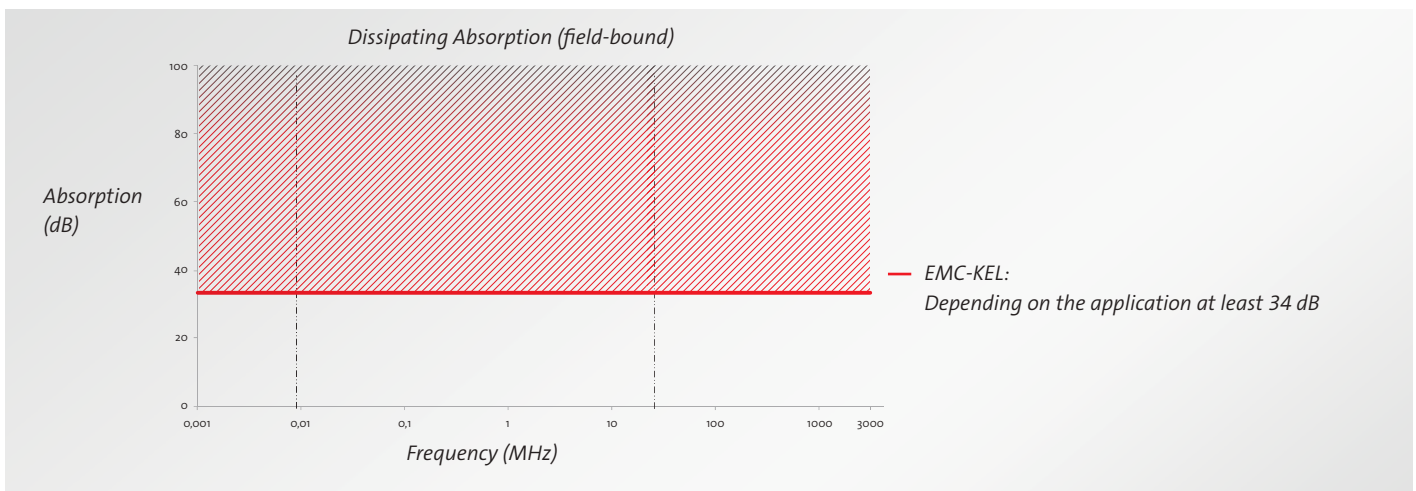
Conducted disturbances

The EMC-KEL shows during cable-bound disruptions stable attenuation values up to 40 dB in the frequency ranges from 9 kHz to 30 MHz.



Field-bound disturbances

Regarding the field-bound disturbances and depending on the application, in the relevant frequency ranges up to 3 GHz constant measurements of at least 34 dB have been achieved. Below the attenuation range, the curve falls only at extreme high frequencies above 3 GHz.



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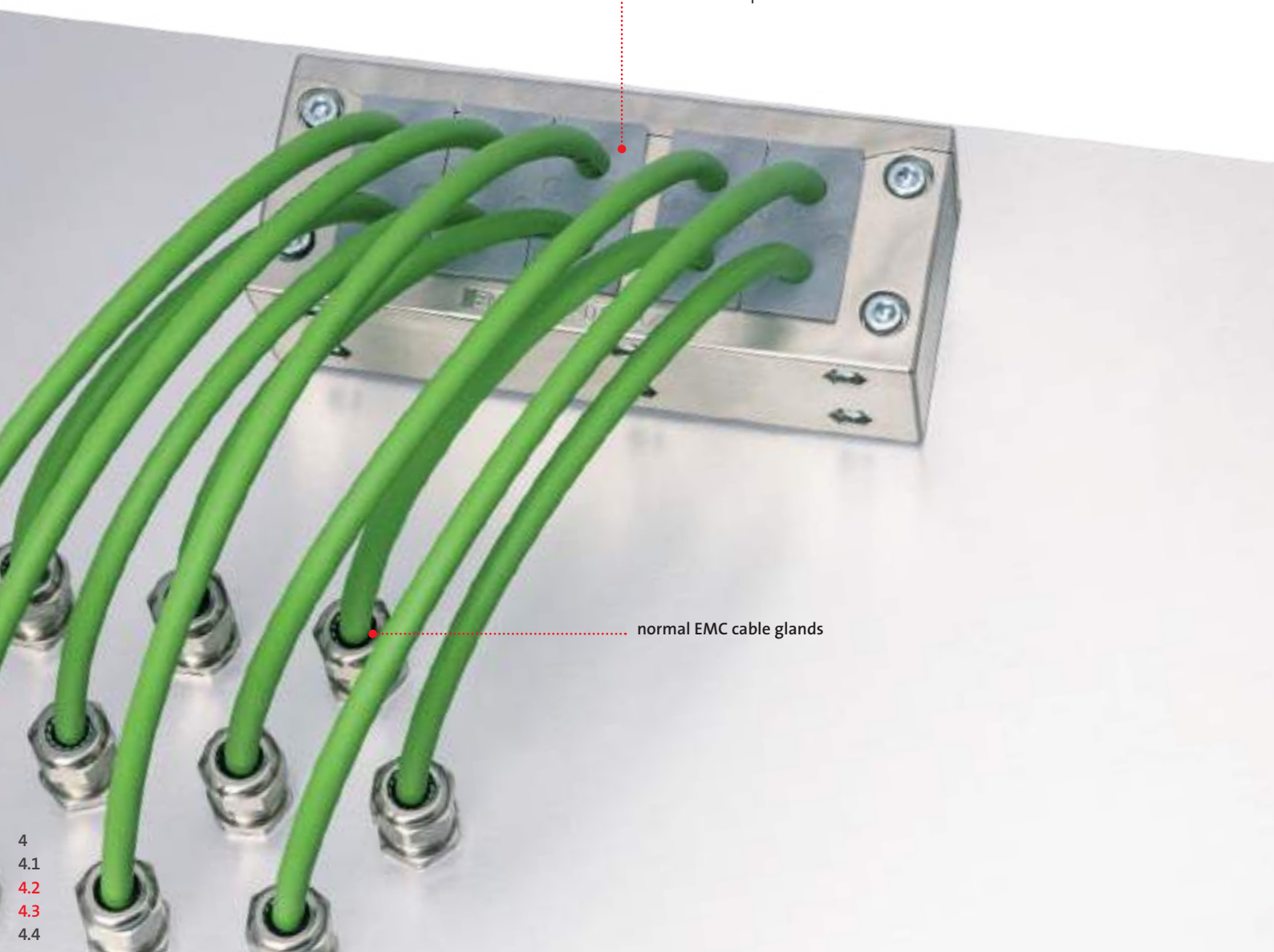
4.2 – 4.4 EMC cable entry systems

Solutions for conducted and field-bound disturbances



Space saving icotek solution:
EMC cable entry frame
EMC-KEL-DS 24|10

normal EMC cable glands



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EMC Split cable entry frames



EMC Split cable entry frames
for cable diameters 2 to 33 mm

EMC-KEL-DS

274 – 275



EMC Split cable entry frames
for cable diameters 2 to 33 mm

EMC-KEL

276 – 277

EMC Split cable gland



EMC Split cable gland
for screw-in assembly, M32, M63
for cable diameters 2 to 33 mm

EMC-KVT-DS

278 – 279

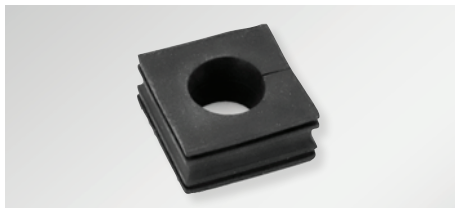
Split EMC grommets



Split EMC grommets
small, single and multi
for cables with and without connectors
for cable diameters 2 to 16 mm

EMC-KT

280



Split EMC grommets
large, single
for cables with and without connectors
for cable diameters 13 to 33 mm

EMC-KT

281



KT cable grommets
split,
for cables with and without connectors
for cable diameters 1 – 35 mm

76, 80

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The EMC cable entry frame EMC-KEL-DS has been metallised (galvanise coated) to create a conductive surface.

The front cable grommet (A) is used for strain relief and cable sealing on the cable jacket. The cable shield is contacted over 360° via the rear conductive grommet (B).

The contact between the EMC-KEL-DS and the conductive housing wall is realised via the included conductive flat gasket.

Advantages & benefits

- Perfect for already pre-terminated cables. The connector does not have to be removed for wiring
- Strain relief and sealing are separated from the EMC contact
- Both conducted and field-bound disturbances are reliably diverted
- Very attractive and scratch-resistant surface
- Contacting the cable shield over 360°
- EMC grommets made entirely from conductive elastomer
- Very good dissipation values
- Very good shielding effect with regard to EMC tightness
- Integrated strain relief
- Protection class IP55
- High cable density with multi grommets

Specifications

| | |
|-------------|--------------------------------------|
| Material | Polyamide, highly conductive coating |
| Flame class | acc. to UL 94 HB |
| Temperature | -40°C to + 140°C |
| Properties | Halogen free, silicone free |
| Frame depth | 40 mm |
| IP rating | IP55 |

Accessories

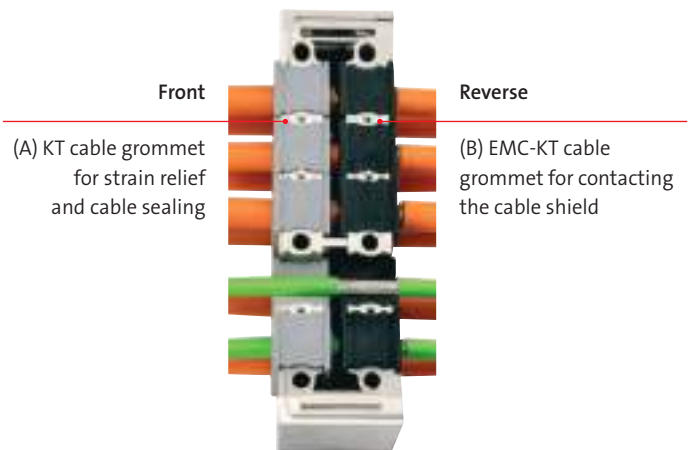
| | |
|-----------------|-----------|
| EMC-KT grommets | 280 - 281 |
| KT grommets | 76 - 77 |



Front



Reverse



EMC-KEL-DS

EMC Cable entry frames



| Description | Cut-out Drilling template | Type | Order No. | Cut-out mm | KT Grommets small large | EMC grommets small large | PU |
|-------------|-----------------------------|--------------------------------------------------------|-----------|-------------|---------------------------|---------------------------|----|
| | | EMC-KEL-DS 24 10 | 99410 | 112 × 36 mm | 10 - | 10 - | 1 |
| | | EMC-KEL-DS 24 10 with threaded bushings M4 | 99410.400 | | | | |
| | | EMC-KEL-DS 24 7 | 99411 | 112 × 36 mm | 6 1 | 6 1 | 1 |
| | | EMC-KEL-DS 24 7 with threaded bushings M4 | 99411.400 | | | | |
| | | EMC-KEL-DS 24 4 | 99412 | 112 × 36 mm | 2 2 | 2 2 | 1 |
| | | EMC-KEL-DS 24 4 with threaded bushings M4 | 99412.400 | | | | |
| | | EMC gasket size 24 conductive gasket for EMC-KEL-DS | 98047 | 112 × 36 mm | - | - | 1 |



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EMC-KEL

EMC Cable entry frames

The EMC cable entry frames EMC-KEL are based on the KEL-U and KEL-E. Due to a conductive surface, disturbances in the cable shields on the control cabinet can be easily dissipated. Field bound disturbances are derived by the metallisation.

The cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly.

The EMC-KEL-U frames match exactly the cut-out dimensions for 16- and 24-pin standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed.

The single-row versions EMC-KEL-E are particularly suited for flat connectors. The small frames are ideal for applications with limited space.

Between the EMC-KEL and the metal wall a conductive flat gasket (included) is mounted. The flange surface on the metal wall must be free of paint.

Advantages & benefits

- Both conducted and field-bound disturbances can be reliably diverted
- Very attractive and scratch-resistant surface
- Contacting the cable shield over 360°
- Grommets made entirely from conductive elastomer
- High cable density
- Very good dissipation values
- Very good shielding effect with regard to EMC tightness

Specifications

| | |
|-------------|--------------------------------------|
| Material | Polyamide, highly conductive coating |
| Flame class | UL 94 HB |
| Temperature | -40°C to + 140°C |
| Properties | Halogen free, silicone free |
| Frame depth | 17 mm |

Accessories

EMC-KT grommets 280 - 281



EMC-KEL

EMC Cable entry frames



| Description | Cut-out | Type | Order No. | Cut-out | Grommets EMC-KT small large | PU |
|-------------|---------|---------------------------------------|-----------|-------------|-------------------------------|----|
| | | EMC-KEL-U 24 10 | 99400 | 36 × 112 mm | 10 – | 1 |
| | | EMC-KEL-U 24 4 | 99401 | 36 × 112 mm | 2 2 | 1 |
| | | EMC-KEL-U 16 8 | 99402 | 36 × 86 mm | 8 – | 1 |
| | | EMC-KEL-E3 | 99420 | 24 × 65 mm | 3 – | 1 |
| | | EMC-KEL-E5 | 99422 | 24 × 112 mm | 5 – | 1 |
| | | EMC gasket size 24, conductive gasket | 98047 | 36 × 112 mm | – | 1 |

EMC-KVT-DS

EMC Split cable gland

IP55

The split cable gland EMC-KVT-DS is based on the standard icotek KVT product. However, the EMC-KVT-DS has been metallised (galvanise coated) to create a conductive surface.

The first cable grommet (KT small) is used for strain relief and cable sealing on the cable jacket. The second grommet (EMC-KT small) contacts the cable shield at a full 360 degrees.

The conductive flat gasket included in the scope of delivery makes contact between the cable gland and the conductive housing wall. The EMC-KVT-DS can thus be fixed using a plastic lock nut. Alternatively, an additional contact to the metal wall can be made using a special EMC lock nut.

Advantages & benefits

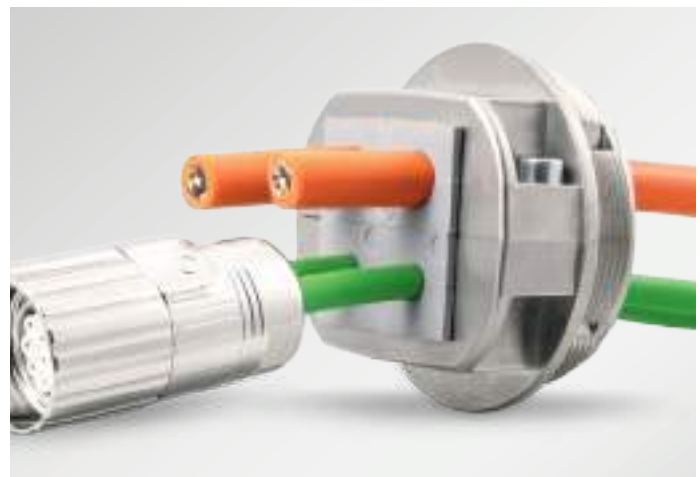
- Perfect for already pre-terminated cables. The connector does not have to be removed for wiring
- Strain relief and sealing are separated from the EMC contact
- Both conducted and field-bound disturbances are reliably diverted
- Very attractive and scratch-resistant surface
- Contacting the cable shield over 360°
- EMC grommets made entirely from conductive elastomer
- Very good dissipation values
- Very good shielding effect with regard to EMC tightness
- Integrated strain relief
- Protection class IP55
- High cable density

Specifications

| | |
|-------------|-----------------------------------------------|
| Material | Polycarbonate (PC), highly conductive coating |
| EMC locknut | Nickel-plated brass |
| Flame class | acc. to UL 94 HB |
| Temperature | -30°C to +90°C |
| Properties | Halogen free, silicone free |
| IP rating | IP55 |

Accessories

| | |
|-----------------|-----------|
| KT grommets | 76 - 77 |
| EMC-KT grommets | 280 - 281 |
| KGM | 346 |



Front
 KT cable grommet
 for strain relief
 and cable sealing

Reverse
 EMC-KT cable grommet
 for contacting
 the cable shield

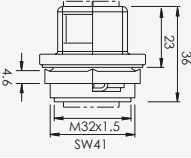
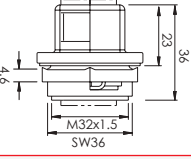
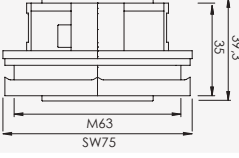
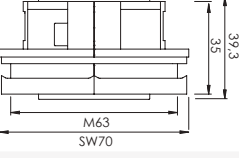
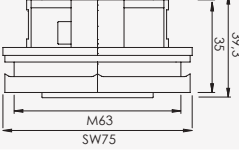
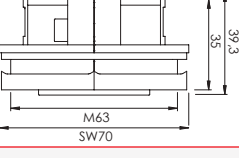
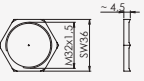
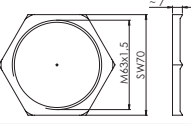
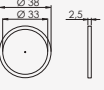
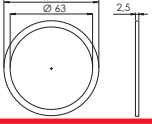


EMC locknut

EMC-KVT-DS

EMC Split cable gland

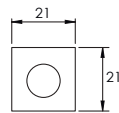


| Description | Type | Order No. | KT Grommets small large | EMC grommets small large | Thread Thread length | PU |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------|------------------------------|----------------------------------|---------------------------|----|
|  | EMC-KVT-DS 32 with plastic lock nut KGM 32 | 99431 | 1 - | 1 - | M32 x 1.5 Length 14 mm | 5 |
|  | EMC-KVT-DS 32 with EMC lock nut EMC-GM 32 Nickel-plated brass | 99432 | 1 - | 1 - | M32 x 1.5 Length 14 mm | 5 |
|  | EMC-KVT-DS 63 1 with plastic lock nut KGM 63 | 99434 | - 1 | - 1 | M63 x 1.5 Length 14 mm | 1 |
|  | EMC-KVT-DS 63 1 with EMC lock nut EMC-GM 63 Nickel-plated brass | 99435 | - 1 | - 1 | M63 x 1.5 Length 14 mm | 1 |
|  | EMC-KVT-DS 63 4 with plastic lock nut KGM 63 | 99436 | 4 - | 4 - | M63 x 1.5 Length 14 mm | 1 |
|  | EMC-KVT-DS 63 4 with EMC lock nut EMC-GM 63 Nickel-plated brass | 99437 | 4 - | 4 - | M63 x 1.5 Length 14 mm | 1 |
|  | EMC-GM 32 EMC lock nut M32 for EMC-KVT-DS 32 Nickel-plated brass | 99557 | - | - | - | 5 |
|  | EMC-GM 63 EMC lock nut M63 for EMC-KVT-DS 63 Nickel-plated brass | 99558 | - | - | - | 1 |
|  | EMC gasket 32 conductive gasket for EMC-KVT-DS 32 | 99555 | - | - | - | 1 |
|  | EMC gasket 63 conductive gasket for EMC-KVT-DS 63 | 99556 | - | - | - | 1 |

4
4.1
4.2
4.3
4.4

EMC-KT

Split EMC grommets, small, single, multi



EMC-KT small

The cable grommets type EMC-KT are made of a very conductive elastomer. Thus, disturbances are dissipated from the cable shield directly via the grommet, the frame and the flat gasket. This ensures full-area protection against field-bound interference!

The model range EMC-KT small is designed for cable diameters from 2 to 16 mm. Cable grommets EMC-KT large accept a wide range of cable diameters from 13 to 33 mm.

When installing the small grommets in multiple rows, the flat sides should be facing each other.

Advantages & benefits

- Contacting the cable shield over 360°
- EMC grommets made entirely from conductive elastomer
- Enable routing of pre-terminated cables through cable entry frames and split cable glands
- Available for a large range of cable diameters














Specifications

| | |
|----------------------|-----------------------------------|
| Material | Elastomer, conductive |
| Flame class | in accordance with UL94-HB |
| Colour | black |
| operatin temperature | -30°C to +80°C -22°F to +176°F |
| Properties | Halogen free, silicone free |

Accessories

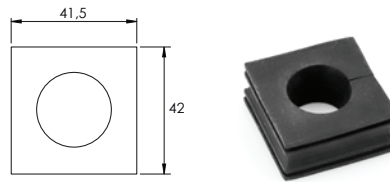
ST Plugs 85

KT grommets can be found from page 76 on.

| Description | Type | Order No. | Clamping range on the cable shield | PU |
|-------------------------------------------------------------------------------------|------------|-----------|------------------------------------|----|
|  | EMC-KT 2 | 99459 | 2 – 3 mm | 5 |
| | EMC-KT 3 | 99460 | 3 – 4 mm | 5 |
|  | EMC-KT 4 | 99461 | 4 – 5 mm | 5 |
| | EMC-KT 5 | 99462 | 5 – 6 mm | 5 |
|  | EMC-KT 6 | 99463 | 6 – 7 mm | 5 |
| | EMC-KT 7 | 99464 | 7 – 8 mm | 5 |
|  | EMC-KT 8 | 99465 | 8 – 9 mm | 5 |
| | EMC-KT 9 | 99466 | 9 – 10 mm | 5 |
|  | EMC-KT 10 | 99467 | 10 – 11 mm | 5 |
| | EMC-KT 11 | 99468 | 11 – 12 mm | 5 |
|  | EMC-KT 12 | 99469 | 12 – 13 mm | 5 |
| | EMC-KT 13 | 99470 | 13 – 14 mm | 5 |
|  | EMC-KT 14 | 99471 | 14 – 15 mm | 5 |
| | EMC-KT 15 | 99472 | 15 – 16 mm | 5 |
|  | EMC-BTK | 99473 | blank grommet | 5 |
|  | EMC-KT 2 2 | 99500 | 2× ø 2 mm | 5 |
| | EMC-KT 2 3 | 99501 | 2× ø 3 mm | 5 |
|  | EMC-KT 2 4 | 99493 | 2× ø 4 mm | 5 |
| | EMC-KT 2 5 | 99502 | 2× ø 5 mm | 5 |
|  | EMC-KT 2 6 | 99503 | 2× ø 6 mm | 5 |
|  | EMC-KT 4 2 | 99504 | 4× ø 2 mm | 5 |
| | EMC-KT 4 3 | 99505 | 4× ø 3 mm | 5 |
|  | EMC-KT 4 4 | 99506 | 4× ø 4 mm | 5 |
| | EMC-KT 4 5 | 99507 | 4× ø 5 mm | 5 |

EMC-KT

Split EMC grommets, large, single



EMC-KT large

The cable grommets type EMC-KT are made of a very conductive elastomer. Thus, disturbances are dissipated from the cable shield directly via the grommet, the frame and the flat gasket. This ensures full-area protection against field-bound interference!

The model range EMC-KT small is designed for cable diameters from 2 to 16 mm. Cable grommets EMC-KT large accept a wide range of cable diameters from 13 to 33 mm.

When installing the small grommets in multiple rows, the flat sides should be facing each other.

Advantages & benefits

- Contacting the cable shield over 360°
- EMC grommets made entirely from conductive elastomer
- Enable routing of pre-terminated cables through cable entry frames and split cable glands
- Available for a large range of cable diameters

Specifications

| | |
|-----------------------|-----------------------------------|
| Material | Elastomer, conductive |
| Flame class | in accordance with UL94-HB |
| Colour | black |
| Operating temperature | -30°C to +80°C -22°F to +176°F |
| Properties | Halogen free, silicone free |

Accessories

ST Plugs 85
KT grommets can be found from page 76 on.

| Description | Type | Order No. | Clamping range on the cable shield | PU |
|-------------|------------|-----------|------------------------------------|----|
| | EMC-KTG 13 | 99496 | 13 – 14 mm | 5 |
| | EMC-KTG 14 | 99497 | 14 – 15 mm | 5 |
| | EMC-KTG 15 | 99498 | 15 – 16 mm | 5 |
| | EMC-KT 16 | 99475 | 16 – 17 mm | 5 |
| | EMC-KT 17 | 99476 | 17 – 18 mm | 5 |
| | EMC-KT 18 | 99477 | 18 – 19 mm | 5 |
| | EMC-KT 19 | 99478 | 19 – 20 mm | 5 |
| | EMC-KT 20 | 99479 | 20 – 21 mm | 5 |
| | EMC-KT 21 | 99480 | 21 – 22 mm | 5 |
| | EMC-KT 22 | 99481 | 22 – 23 mm | 5 |
| | EMC-KT 23 | 99482 | 23 – 24 mm | 5 |
| | EMC-KT 24 | 99483 | 24 – 25 mm | 5 |
| | EMC-KT 25 | 99484 | 25 – 26 mm | 5 |
| | EMC-KT 26 | 99485 | 26 – 27 mm | 5 |
| | EMC-KT 27 | 99486 | 27 – 28 mm | 5 |
| | EMC-KT 28 | 99487 | 28 – 29 mm | 5 |
| | EMC-KT 29 | 99488 | 29 – 30 mm | 5 |
| | EMC-KT 30 | 99489 | 30 – 31 mm | 5 |
| | EMC-KT 31 | 99490 | 31 – 32 mm | 5 |
| | EMC-KT 32 | 99491 | 32 – 33 mm | 5 |
| | EMC-BTG | 99495 | blank grommet | 5 |

Assembly possibilities

| | Var. 1 | Var. 2 | Var. 3 | Var. 4 | Var. 5 |
|------------------|---------|-------------|-------------|-------------|-------------|
| Outside | EMC-KEL | EMC-KEL | EMC-KEL | KEL-ER (U) | EMC-KEL |
| Inside | – | – | KEL-EMC-PFM | EMC-KEL | – |
| EMC: conducted | – | ✓ | ✓ | ✓ | ** |
| EMC: field-bound | ✓ | ✓ | ✓ | ✓ | – |
| IP rating | IP54 | not defined | IP54 | IP66 (IP54) | not defined |
| Strain relief | ✓ | – | ✓ | ✓ | * |

* Standard KT grommets only

** EMC-KT grommets only

Field-bound disturbances with strain relief

The EMC cable entry frame (EMC-KEL) is screwed to the outside of the housing. The cable shield is not exposed.

1



Outside



EMC KT grommet

Not exposed cable shield



Profile

Conducted and field-bound disturbances

The EMC cable entry frame (EMC-KEL) is screwed to the outside of the housing. The cable shield is exposed in the area of the cable grommets.

2

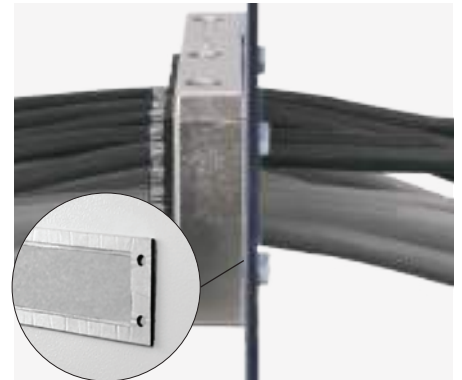


Outside



EMC KT grommet

Exposed cable shield



Profile

Conducted and field-bound disturbances with strain relief

The EMC cable entry frame (EMC-KEL) is screwed to the outside of the housing.
 Inside the housing, the EMC bracket KEL-EMC-PFM is mounted and the exposed cable shield is placed.

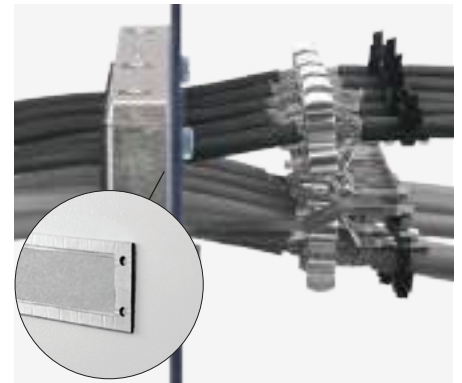
3



Outside



Inside



Profile

Conducted and field-bound disturbances with strain relief and IP66

A cable entry frame (e.g., KEL-ER or KEL-U) is bolted to the outside of the housing. Inside the housing, the EMC cable entry frame (EMC-KEL) is mounted and the cable shield is exposed in the area of the cable grommets.

4



Outside



Inside



Profile

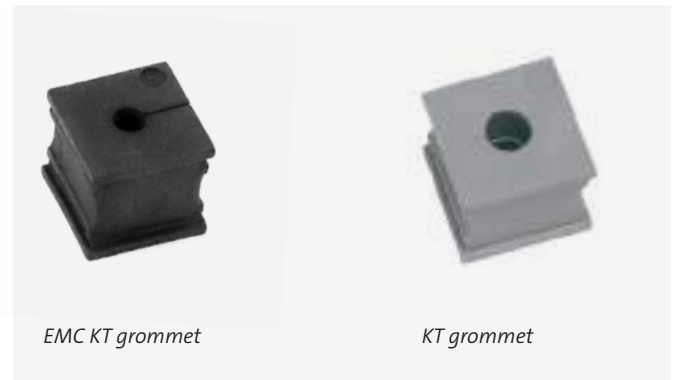
Conducted disturbances with single strain relief

The EMC cable entry frame (EMC-KEL) is screwed to the outside of the housing.
 The cable shield is exposed in the area of the cable grommets. It's possible to use different grommets (KT & EMC-KT).

5



Outside



Different grommets

4
 4.1
 4.2
 4.3
 4.4



IP54 RoHS compliant Made in Germany

CONFiX™

Cable conduit system, cable protection conduits



CONFiX
Cable conduit system, cable protection conduits

5
5.1
5.2
5.3

5 CONFIX™ Cable conduit system, cable protection conduits

IP54 RoHS compliant Made in Germany

The 90° angled conduit fitting CONFIX FWS is perfect for installation of parallel corrugated cable protection conduits, e.g. in machines, control panels or control cabinets. The liftable cover is tightly fixed by a hinge to the mounting box. Therefore, the system is very easy to handle.

Corrugated conduits CONFIX WS for cable routing are used where cables have to be protected from mechanical damage or certain weather conditions.

In addition, icotek offers split corrugated conduits CONFIX WST for routing pre-terminated cables and corresponding conduit clips CONFIX SH.

Advantages & benefits

1. Fast and easy assembly

The liftable cover of the bulkhead fitting CONFIX FWS is tightly fixed by a hinge to the mounting box. The system is therefore very easy to mount.

2. Easy to maintain

The split version of the corrugated conduits CONFIX WST offers the possibility of routing standard or pre-terminated cables in harsh environments.

3. Flexible

The corrugated conduits CONFIX WS can be used for various applications, depending on the material. Weather-resistant polyamide conduits for high mechanical requirements (indoor and outdoor use), polypropylene conduits with high resistance against acids/alkalis.



5
5.1
5.2
5.3

Conduit pass-through systems



Bulkhead fittings, split | IP54
for conduit screw connections/
direct conduit pickup

CONFiX FWS

288



Bulkhead fittings, split | IP54
for conduit screw connections/
direct conduit pickup

CONFiX FWS

289

Cable protection conduits



Corrugated conduits
NW 7.5 – NW 50

CONFiX WS

290 – 291



Corrugated conduits, split
for cables with connectors
NW 10 – NW 70

CONFiX WST

292



Conduit clips
for split corrugated conduits CONFiX WST

CONFiX SH

293

CONFiX™ FWS Assembly

Installation of CONFiX FWS
is quick and easy:

1. Use top screw(s) to mount the FWS
2. Insert conduit
3. Secure and complete installation
with two side screws

1



Fix

2



Insert

3



Lock

5
5.1
5.2
5.3

CONFIX™ FWS-A

Bulkhead fittings for conduit screw connections

IP54 RoHS compliant Made in Germany



The 90° angled conduit fitting CONFIX FWS is for installation of parallel corrugated cable protection conduits, e.g. in machines, control panels or control cabinets.

The liftable cover is tightly fixed by a hinge. Therefore the system is fast and easy to install.

CONFIX FWS is offered in the following versions:

CONFIX FWS-A with metric internal thread M16 to M50

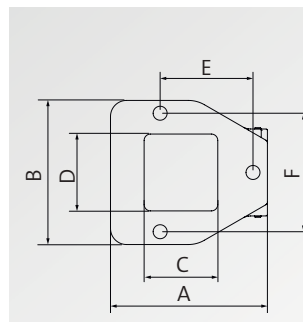
CONFIX FWS-B with a grooved conduit clip for types with sizes NW 13, 17, 23, 29, 37 and 50.

The available colours are grey (RAL 7011) and black (RAL 9005).

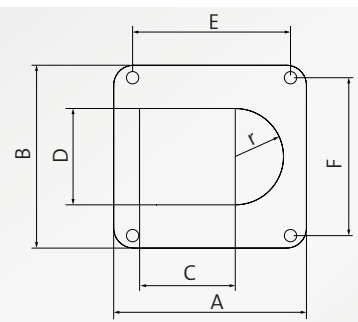
Accessories

CONFIX WS conduits 290 - 291
Punches CONFIX 388 - 389

| Type | Internal Thread | Hole Ø [mm] | Size (A × B) [mm] | Cut-out (C × D) [mm] | Drill. Templ. (E × F) [mm] | Order No. | PU |
|-----------------|-----------------|-------------|-------------------|-------------------------|----------------------------|--------------------|----|
| CONFIX FWS-A 16 | M16 × 1.5 | 3 × 4.3 | 49 × 45 | 22 × 22.6 | 29 × 37 | ■ 31381 ■ 31380 | 10 |
| CONFIX FWS-A 20 | M20 × 1.5 | 3 × 4.3 | 49 × 45 | 22 × 22.6 | 29 × 37 | ■ 31384 ■ 31383 | 10 |
| CONFIX FWS-A 25 | M25 × 1.5 | 3 × 6.6 | 67 × 63 | 37 × 28 | 41.5 × 51.5 | ■ 31387 ■ 31386 | 10 |
| CONFIX FWS-A 32 | M32 × 1.5 | 4 × 6.6 | 85.5 × 76 | 41.9 × 40 r = 20 | 64.5 × 64.5 | ■ 31390 ■ 31389 | 10 |
| CONFIX FWS-A 40 | M40 × 1.5 | 4 × 6.6 | 97 × 92 | 48.3 × 48.4 r = 24.2 | 79.5 × 79.5 | ■ 31393 ■ 31392 | 5 |
| CONFIX FWS-A 50 | M50 × 1.5 | 4 × 6.6 | 111.5 × 100.5 | 53 × 60.5 r = 30.25 | 87.5 × 87.5 | ■ 31396 ■ 31395 | 5 |



Size/Drilling template
FWS-A 16 to 25



Size/Drilling template
FWS-A 32 to 50



Matching sheet metal punches on p. 322



Metric internal thread for conduit screw connections

CONFIX™ FWS-B

Bulkhead fittings
for direct conduit pickup

IP54 RoHS compliant Made in Germany



Advantages & benefits

- Hinged cover
- Fast and easy installation
- Functional design
- Protection class IP54

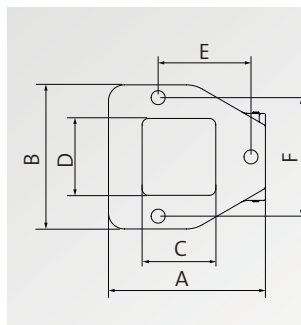
Specifications

| | |
|-------------|-----------------------------------------|
| Material | Polycarbonate (PC) |
| Colour | ■ grey (RAL 7011) ■ black (RAL 9005) |
| IP rating | IP54 |
| Flame class | UL94-V0, self-extinguishing |
| Temperature | -30°C to +100°C (static) |
| Properties | Halogen free, silicone free |

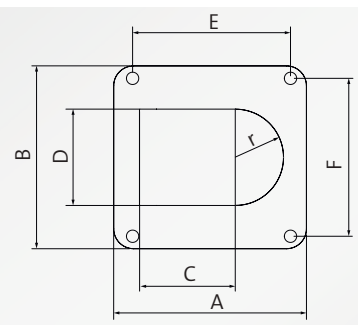
Accessories

| | |
|--------------------|-----------|
| CONFIX WS conduits | 290 - 291 |
| Punches CONFIX | 388 - 389 |

| Type | Dimension* | Hole Ø [mm] | Size (A × B) [mm] | Cut-out (C × D) [mm] | Drill. Templ. (E × F) [mm] | Order No. | PU |
|-----------------|------------|-------------|-------------------|-------------------------|----------------------------|--------------------|----|
| CONFIX FWS-B 11 | NW 13 | 3 × 4.3 | 49 × 45 | 22 × 22.6 | 29 × 37 | ■ 31411 ■ 31410 | 10 |
| CONFIX FWS-B 16 | NW 17 | 3 × 4.3 | 49 × 45 | 22 × 22.6 | 29 × 37 | ■ 31414 ■ 31413 | 10 |
| CONFIX FWS-B 21 | NW 23 | 3 × 6.6 | 67 × 63 | 37 × 28 | 41.5 × 51.5 | ■ 31417 ■ 31416 | 10 |
| CONFIX FWS-B 29 | NW 29 | 4 × 6.6 | 85.5 × 76 | 41.9 × 40 r = 20 | 64.5 × 64.5 | ■ 31420 ■ 31419 | 10 |
| CONFIX FWS-B 36 | NW 37 | 4 × 6.6 | 97 × 92 | 48.3 × 48.4 r = 24.2 | 79.5 × 79.5 | ■ 31423 ■ 31422 | 5 |
| CONFIX FWS-B 48 | NW 50 | 4 × 6.6 | 111.5 × 100.5 | 53 × 60.5 r = 30.25 | 87.5 × 87.5 | ■ 31426 ■ 31425 | 5 |



Size/Drilling template
FWS-B 11 to 21



Size/Drilling template
FWS-B 29 to 48



Matching sheet metal punches on p. 322



Grooved conduit clip



Fixed cover due to hinges

5
5.1
5.2
5.3

* For parallel corrugated cable protection conduit with dimension (NW)



Parallel corrugated conduits for cable routing are used where cables have to be protected from mechanical damage or certain weather conditions.

icotek provides conduits in sizes NW 7.5, 8.5, 10, 13, 17, 23, 29, 37, and 50.

Conduits from size NW 13 can be mounted with CONFIX FWS bulkhead fittings.

Parallel corrugated conduits are available in 3 different versions:

- CONFIX WS-PA: Polyamide conduit for high mechanical requirements (e.g. engine compartments, car bodies, construction machines, ship building, rail transportation technology, switch cabinets).

→ Suitable for ground installation

- CONFIX WS-PAL (light): Polyamide conduit for high mechanical requirements

→ Suitable for suspended installation

- CONFIX WS-PP: Polypropylene conduit for use in engine compartments, car bodies and for static installation at machinery and plant engineering.

→ Advantages: Cost-effective, flame class UL94-V2, temperature resistant, resistant to chemicals, UV resistant

| Type | External Ø | Internal Ø | Compatible with | Order No. | PU (Length) |
|-----------------------|------------|------------|-----------------|-----------|-------------|
| CONFIX WS-G-PA-NW 7.5 | Ø 10 mm | Ø 6.7 mm | – | ■ 31550 | 50 m |
| CONFIX WS-B-PA-NW 7.5 | Ø 10 mm | Ø 6.7 mm | – | ■ 31570 | 50 m |
| CONFIX WS-G-PA-NW 8.5 | Ø 11.4 mm | Ø 8.4 mm | – | ■ 31552 | 50 m |
| CONFIX WS-B-PA-NW 8.5 | Ø 11.4 mm | Ø 8.4 mm | – | ■ 31572 | 50 m |
| CONFIX WS-G-PA-NW 10 | Ø 13 mm | Ø 9.9 mm | – | ■ 31554 | 50 m |
| CONFIX WS-B-PA-NW 10 | Ø 13 mm | Ø 9.9 mm | – | ■ 31574 | 50 m |
| CONFIX WS-G-PA-NW 13 | Ø 15.8 mm | Ø 12.7 mm | CONFIX FWS-B 11 | ■ 31556 | 50 m |
| CONFIX WS-B-PA-NW 13 | Ø 15.8 mm | Ø 12.7 mm | CONFIX FWS-B 11 | ■ 31576 | 50 m |
| CONFIX WS-G-PA-NW 17 | Ø 21.2 mm | Ø 16.6 mm | CONFIX FWS-B 16 | ■ 31558 | 50 m |
| CONFIX WS-B-PA-NW 17 | Ø 21.2 mm | Ø 16.6 mm | CONFIX FWS-B 16 | ■ 31578 | 50 m |
| CONFIX WS-G-PA-NW 23 | Ø 28.3 mm | Ø 23.2 mm | CONFIX FWS-B 21 | ■ 31560 | 50 m |
| CONFIX WS-B-PA-NW 23 | Ø 28.3 mm | Ø 23.2 mm | CONFIX FWS-B 21 | ■ 31580 | 50 m |
| CONFIX WS-G-PA-NW 29 | Ø 34.5 mm | Ø 29 mm | CONFIX FWS-B 29 | ■ 31562 | 25 m |
| CONFIX WS-B-PA-NW 29 | Ø 34.5 mm | Ø 29 mm | CONFIX FWS-B 29 | ■ 31582 | 25 m |
| CONFIX WS-G-PA-NW 37 | Ø 42.4 mm | Ø 36 mm | CONFIX FWS-B 36 | ■ 31564 | 25 m |
| CONFIX WS-B-PA-NW 37 | Ø 42.4 mm | Ø 36 mm | CONFIX FWS-B 36 | ■ 31584 | 25 m |
| CONFIX WS-G-PA-NW 50 | Ø 54.5 mm | Ø 47.7 mm | CONFIX FWS-B 48 | ■ 31566 | 25 m |
| CONFIX WS-B-PA-NW 50 | Ø 54.5 mm | Ø 47.7 mm | CONFIX FWS-B 48 | ■ 31586 | 25 m |



Compatible with CONFIX FWS-B

CONFIX™ WS

Corrugated conduits



Specifications WS-PA

| | |
|-------------|---------------------------------|
| Material | Polyamide (PA) |
| Colour | ■ black ■ grey |
| Flame class | UL 94-HB |
| Temperature | -40°C to +120°C |
| Properties | Halogen free, weather-resistant |

Specifications WS-PAL

| | |
|-------------|---------------------------------|
| Material | Polyamide (PA) |
| Colour | ■ black |
| Flame class | UL 94-HB |
| Temperature | -40°C to +120°C |
| Properties | Halogen free, weather-resistant |

Specifications WS-PP

| | |
|-------------|-----------------------------------------------------------------------|
| Material | Polypropylene (PP) |
| Colour | ■ black |
| Flame class | UL 94 V-2, self-extinguishing |
| Temperature | -40°C to +135°C |
| Properties | Halogen free UV resistant High resistance against acids/alkalis |

Compatible with

| | |
|-----------------------------|-----------|
| CONFIX FWS Bulkhead fitting | 288 - 289 |
|-----------------------------|-----------|

| Type | External Ø | Internal Ø | Compatible with | Order No. | PU (Length) |
|------------------------|------------|------------|-----------------|-----------|-------------|
| CONFIX WS-B-PAL-NW 7.5 | Ø 10 mm | Ø 6.7 mm | – | ■ 31590 | 50 m |
| CONFIX WS-B-PAL-NW 8.5 | Ø 11.4 mm | Ø 8.4 mm | – | ■ 31592 | 50 m |
| CONFIX WS-B-PAL-NW 10 | Ø 13 mm | Ø 9.9 mm | – | ■ 31594 | 50 m |
| CONFIX WS-B-PAL-NW 13 | Ø 15.8 mm | Ø 12.7 mm | CONFIX FWS-B 11 | ■ 31596 | 50 m |
| CONFIX WS-B-PAL-NW 17 | Ø 21.2 mm | Ø 16.6 mm | CONFIX FWS-B 16 | ■ 31598 | 50 m |
| CONFIX WS-B-PAL-NW 23 | Ø 28.3 mm | Ø 23.2 mm | CONFIX FWS-B 21 | ■ 31600 | 50 m |
| CONFIX WS-B-PAL-NW 29 | Ø 34.5 mm | Ø 29 mm | CONFIX FWS-B 29 | ■ 31602 | 25 m |
| CONFIX WS-B-PAL-NW 37 | Ø 42.4 mm | Ø 36 mm | CONFIX FWS-B 36 | ■ 31604 | 25 m |
| CONFIX WS-B-PAL-NW 50 | Ø 54.4 mm | Ø 47.7 mm | CONFIX FWS-B 48 | ■ 31606 | 25 m |
| CONFIX WS-B-PP-NW 7.5 | Ø 10 mm | Ø 7.1 mm | – | ■ 31610 | 50 m |
| CONFIX WS-B-PP-NW 8.5 | Ø 11.4 mm | Ø 8.4 mm | – | ■ 31612 | 50 m |
| CONFIX WS-B-PP-NW 10 | Ø 13 mm | Ø 9.9 mm | – | ■ 31614 | 50 m |
| CONFIX WS-B-PP-NW 13 | Ø 15.8 mm | Ø 12.7 mm | CONFIX FWS-B 11 | ■ 31616 | 50 m |
| CONFIX WS-B-PP-NW 17 | Ø 21.2 mm | Ø 16.6 mm | CONFIX FWS-B 16 | ■ 31618 | 50 m |
| CONFIX WS-B-PP-NW 23 | Ø 28.3 mm | Ø 23.2 mm | CONFIX FWS-B 21 | ■ 31620 | 50 m |
| CONFIX WS-B-PP-NW 29 | Ø 34.5 mm | Ø 29 mm | CONFIX FWS-B 29 | ■ 31622 | 25 m |
| CONFIX WS-B-PP-NW 37 | Ø 42.4 mm | Ø 36 mm | CONFIX FWS-B 36 | ■ 31624 | 25 m |
| CONFIX WS-B-PP-NW 50 | Ø 54.5 mm | Ø 47.7 mm | CONFIX FWS-B 48 | ■ 31626 | 25 m |



The CONFiX WST is a two-part corrugated conduit that is perfect for routing cables with or without connectors in harsh environments.

In conjunction with e.g. KVT-W90, a high degree of flexibility is achieved. Numerous conduit sizes can be used thanks to the wide variety of split grommets offered.

The length of the CONFiX WST split corrugated conduit can be customized to your application. All conduits are available by the meter (0.5 m steps).

Advantages & benefits

- Containing pre-terminated cables, warranty of cable remains
- Retrofitting and maintenance carried out easily and quickly

Specifications

| | |
|-------------|----------------------|
| Material | Polypropylene, black |
| Flame class | UL 94-V2 |
| Temperature | - 30°C to + 105°C |
| Properties | UV resistant |

Compatible with

| | |
|----------------------------------------------|-----------|
| CONFIX SH Conduit clip | 293 |
| Cable entry systems for pre-terminated cable | 10 - 137 |
| Cable entry systems for standard cables | 138 - 185 |

| Type | Order No. | Internal Ø | External Ø | Compatible with | Compatible with CONFiX FWS-B | Dimensions | Ring length* | Bending radius (static) |
|------------------|-----------|------------|------------|-----------------|------------------------------|------------|--------------|-------------------------|
| CONFIX WST NW 10 | 31200 | 8.4 mm | 13.4 mm | KT 13 | – | NW 10 | 50 m* | 25 mm |
| CONFIX WST NW 14 | 31210 | 12.5 mm | 18.5 mm | KT 18 | 31411 31410 | NW 14 | 50 m* | 35 mm |
| CONFIX WST NW 16 | 31215 | 16 mm | 21.5 mm | KT 22 | 31414 31413 | NW 16 | 50 m* | 40 mm |
| CONFIX WST NW 20 | 31220 | 19.2 mm | 25.30 mm | KT 25 | – | NW 20 | 50 m* | 45 mm |
| CONFIX WST NW 23 | 31230 | 23.4 mm | 30.8 mm | KT 30 | 31417 31416 | NW 23 | 50 m* | 50 mm |
| CONFIX WST NW 29 | 31235 | 27.3 mm | 35.5 mm | KTMB-P | 31420 31419 | NW 29 | 25 m* | 90 mm |
| CONFIX WST NW 37 | 31240 | 31 mm | 41.4 mm | KTMB-P | 31423 31422 | NW 37 | 25 m* | 110 mm |
| CONFIX WST NW 45 | 31250 | 42.7 mm | 54 mm | KTMB-Q | 31426 31425 | NW 45 | 25 m* | 130 mm |
| CONFIX WST NW 70 | 31260 | 67 mm | 79.8 mm | KEL-ULTRA flex | – | NW 70 | 10 m* | 190 mm |



Individual lengths are possible!

CONFiX™ SH

Conduit clips for WST

RoHS
compliant



CONFiX SH Conduit clips are a one-piece clamping system to provide secure mounting points for corrugated conduit systems.

The clips are secured to their mounting position through a central mounting point with a hexagonal counter-bore.

Specifications

| | |
|-------------|-----------------------------|
| Material | Polyamide (PA), black |
| Flame class | UL94-V2, self-extinguishing |
| Temperature | - 40°C to + 120°C |
| Properties | Halogen free, silicone free |

Compatible with

| | |
|--------------------------|-----|
| CONFiX WST | |
| Split corrugated conduit | 292 |

| Type | Order No. | Suitable conduit | Fixing hole | Width [mm] | Height [mm] | PU |
|--------------|-----------|------------------|-------------|------------|-------------|----|
| CONFiX SH 10 | 31300 | WST NW 10 | M5 | 18.5 | 21 | 10 |
| CONFiX SH 14 | 31310 | WST NW 14 | M5 | 24 | 25.5 | 10 |
| CONFiX SH 16 | 31315 | WST NW 16 | M6 | 30 | 35 | 10 |
| CONFiX SH 20 | 31320 | WST NW 20 | M6 | 35 | 36 | 10 |
| CONFiX SH 23 | 31330 | WST NW 23 | M6 | 42 | 43.5 | 10 |
| CONFiX SH 29 | 31335 | WST NW 29 | M6 | 48 | 48.5 | 10 |
| CONFiX SH 37 | 31340 | WST NW 37 | M6 | 55 | 56.5 | 10 |
| CONFiX SH 45 | 31350 | WST NW 45 | M6 | 67 | 68 | 10 |
| CONFiX SH 70 | 31360 | WST NW 70 | M6 | 100 | 101 | 10 |



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|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
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|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|

Enclosure accessories

Gland plates, flange plates and accessories



KDR-ESR-VX25



MP



FP-KX/KL



BPK-SNAP



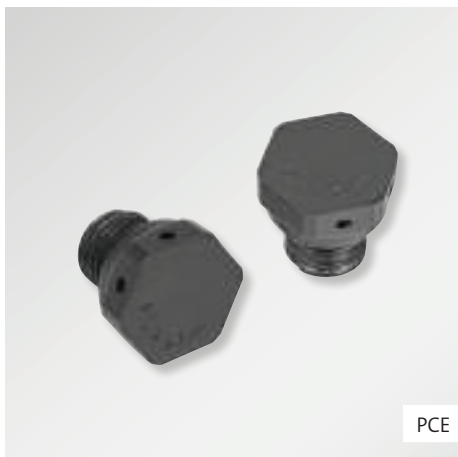
TE-M



KEA



GMT



PCE

Enclosure accessories

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| 6.1 |
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| 6.4 |
| 6.5 |
| 6.6 |

6 Enclosure accessories

Gland plates, flange plates and accessories

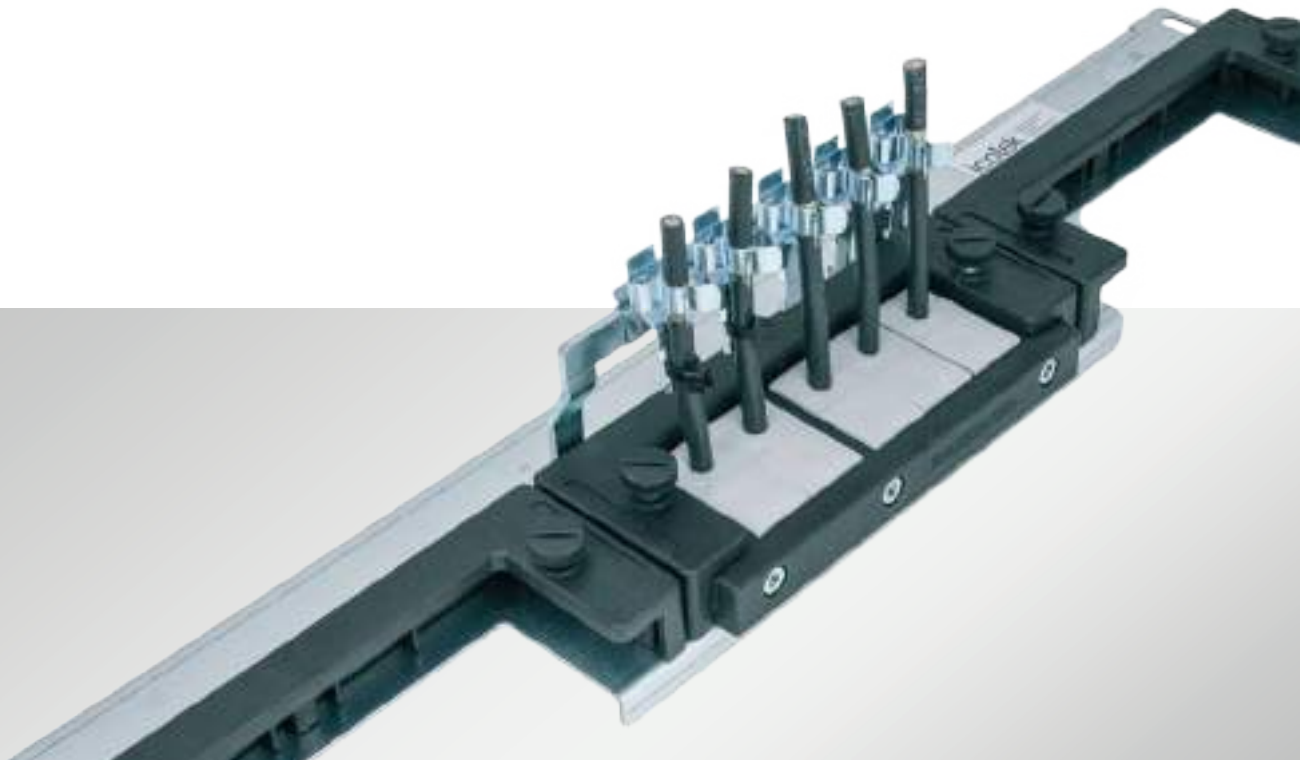
Ready-to-install enclosure gland plates, onto which the pre-assembled cable entry frames can be directly screwed, ensure quick and easy cable entry into the enclosure base.



Cables are automatically relieved of tension and held securely in the enclosure thanks to the 'integrated' strain relief of the cable entries. The fact that the systems are fully separable is particularly advantageous for maintenance or retrofitting, as there is no need to disconnect the cables.

Complete flange plates for Rittal AX enclosures, AE enclosures, KX/KL terminal boxes or BG bus enclosures, as well as prepared module plates with standard cut-outs for mounting icotek cable entry systems in the enclosure base, are also available in many variants.

icotek offers a wide range of useful accessories for enclosures for the installation of cable entry systems and cable glands as well as for cable management.



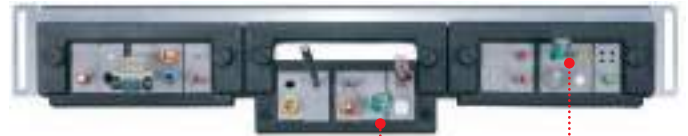
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The patented KDR base entry systems

KDR-ESR-VX25



KDRS-ESR-VX25



Routing of pre-terminated cables of up to 65 mm in diameter (KEL-JUMBO)



Optional with EMC cable assembly KDR-EMC-PFM



Fast and tool-free mounting of KEL-U cable entry frames



Routing of pre-terminated cables of up to 35 mm in diameter (KEL-U 24)



Straight cable routing into the cable duct

6 Enclosure accessories

Gland plates, flange plates and accessories



Gland plates and module plates for enclosures



IP54

Rittal/Hoffman/Häwa
Enclosure gland plates
with slide frames for cable entry frames

KDR-ESR-VX25 / KDRS-ESR-VX25 /
KDR-ESR-TS8 / KDR-ESR-HW / KDR-ESR-HG2
300 – 311



IP54

NEW

Rittal
Enclosure gland plates
for cable entry frames

KDR-VX25
304 – 305



IP54

Rittal
Enclosure gland plates
split, for cable entry frames

KDR 2-VX25 / KDR 2-TS8
312 – 313



IP54

Rittal/Lohmeier
Module plates
for cable entry components

MP
314 – 315



IP54

Rittal
Enclosure gland plates
for MP module plates

KDR-BMP-VX25 / KDR-BMP-TS8
316 – 319

Flange plates for enclosures, blank plates



IP54

IP66

Rittal
Flange plates for enclosures
for cable entry components

FP-AX / FP-AE / FP-KX / FP-KL
320 – 327



IP54

Fibox
Flange plates for enclosures
for cable entry components

FP-BG / FP-FL21
328 – 329



IP65

Blank plates
BPK / BPK-RF / BPM / BPK-SNAP

330 – 332

Thread extension and accessories



Thread extension
for cable glands and cable entry plates
M32, M50, M63

TE-M
334 – 337



NEW

Accessories for TE-M
Adapter, cover panel

TE-MA, AB-M
338 – 339

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KEA 90° Cable entry adapter



90° Cable entry adapter
for cable entry frames and cable entry plates

KEA

340 – 343

Further accessories for enclosures



Hexagonal Locknuts
M16 – M85

KGM / GM / GMT

346



Supports
for top hat DIN rails and bus bars

MF

347



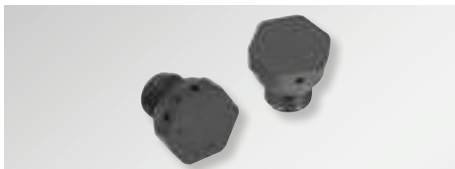
Sealing bead
for enclosure base plates

348



Drainage Device

349



Pressure compensation element
with metric thread

PCE M12 x 1,5

349

KDR-ESR-VX25

Rittal enclosure gland plate with slide frames

The KDR-ESR is a one-piece plate to be assembled on enclosure bases. Slide frames for the KEL cable entry frames are already pre-assembled.

After installing all cables into the KEL frames, they are easily and quickly inserted into the slide frames and fixed. During maintenance, the KEL frames are removed without tools from the slide frames. Due to the combination KDR-ESR and KEL cable entry frames, a rating of IP54 is achieved (with correct selection of cable grommets). Slide frames which are no longer required are closed with BPK-SNAP blank plates.

Advantages & benefits

- Easy assembly and removal
- Prepared for the assembly of KDR-EMV-PFM
- Ideal for maintenance and retrofitting
- Reserve can be scheduled
- Space-saving solution
- No additional sheet metal work required

Specifications

| | |
|-------------|------------------------------------------------------------------------|
| Material | Gland plate: Sheet steel, zinc-plated KDR-ESR Frame: Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of cable entry devices |
| Temperature | - 40°C to + 90°C (static) |
| Properties | Halogen free, silicone free |

Compatible with

| | |
|------------------------------------|---------|
| KEL(-U) 16 / 24 Cable entry frames | 21 |
| KEL-ER 16 / 24 Cable entry frames | 17 |
| KEL-JUMBO Cable entry frames | 56 - 57 |
| BPK-SNAP 16 / 24 Blank plates | 330 |



Slide frames which are no longer required are closed with BPK-SNAP blank plates



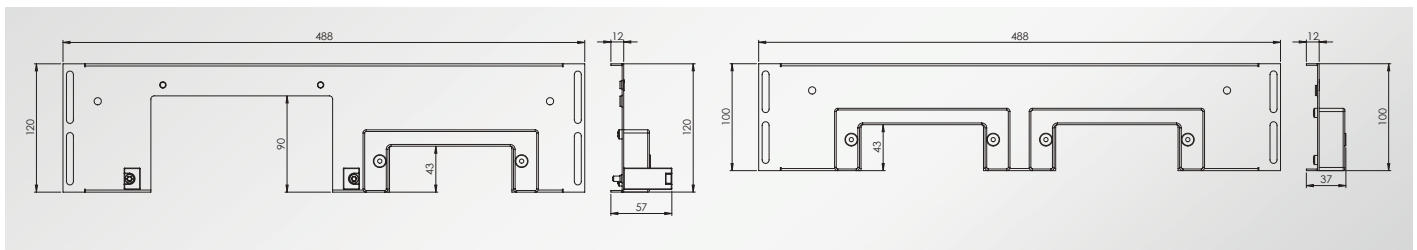
Back
Prepared for the assembly of KDR-EMV-PFM. The plates are fitted with threaded screw holes (M5), blocked with plugs. These can be easily removed if necessary. By using the KDR-EMV-PFM, there is no need to additionally install a DIN rail/bus bar above the cable entry, which would otherwise have to be attached in order to implement the EMC connection.

KDR-ESR-VX25

Rittal enclosure gland plate with slide frames

| Type | Enclosure width | Total length gland plate | Sight size of base plate opening | No. of possible cable entries | | | | Order No. |
|-------------------|-------------------------------|--------------------------|----------------------------------|-------------------------------|---------|----------------|----------------|-----------|
| | | | | JUMBO 1 | JUMBO 2 | KEL(-U) 16 ... | KEL(-U) 24 ... | |
| KDR-ESR-VX25-600 | 600 mm | 488 mm | 452 mm | - | - | - | 2 | 44500 |
| KDR-ESR-VX25-600 | 600 mm | 488 mm | 452 mm | - | 1 | - | 1 | 44501 |
| KDR-ESR-VX25-600 | 600 mm | 488 mm | 452 mm | 1 | - | 2 | - | 44502 |
| KDR-ESR-VX25-800 | 800 mm | 688 mm | 652 mm | - | - | 1 | 3 | 44503 |
| KDR-ESR-VX25-800 | 800 mm | 688 mm | 652 mm | 1 | - | 1 | 2 | 44504 |
| KDR-ESR-VX25-800 | 800 mm | 688 mm | 652 mm | - | 1 | - | 2 | 44505 |
| KDR-ESR-VX25-1000 | 1000 mm* with division bar | 438 mm | 402 mm | - | - | - | 2 | 44506 |
| KDR-ESR-VX25-1000 | 1000 mm* with division bar | 438 mm | 402 mm | 1 | - | - | 1 | 44507 |
| KDR-ESR-VX25-1000 | 1000 mm* with division bar | 438 mm | 402 mm | - | 1 | 1 | - | 44508 |
| KDR-ESR-VX25-1200 | 1200 mm* | 538 mm | 502 mm | - | - | - | 3 | 44509 |
| KDR-ESR-VX25-1200 | 1200 mm* | 538 mm | 502 mm | 1 | - | 1 | 1 | 44510 |
| KDR-ESR-VX25-1200 | 1200 mm* | 538 mm | 502 mm | - | 1 | - | 1 | 44511 |

* if both fields of the enclosure are fitted, two complete gland plates are required.



EMC cable assembly for KDR-ESR-VX25

| Type | Order No. | Material | PU |
|----------------|-----------|--------------------|----|
| KDR-EMC-PFM 16 | 39192 | Steel, zinc plated | 1 |
| KDR-EMC-PFM 24 | 39191 | Steel, zinc plated | 1 |



Suitable EMC shield clamps can be found on pages 238, 239 (PFSZ, SKS, SS|SK, SS|SKZ).

KDRS-ESR-VX25

Rittal enclosure gland plate, narrow, with slide frames



The KDRS-ESR is a one-piece plate to be assembled on enclosure bases. Slide frames for the KEL cable entry frames are already pre-assembled.

After installing all cables into the KEL frames, they are easily and quickly inserted into the slide frames and fixed. During maintenance, the KEL frames are removed without tools from the slide frames. Due to the combination KDRS-ESR and KEL cable entry frames, a rating of IP54 is achieved (with correct selection of cable grommets). Slide frames which are no longer required, are closed with BPK-SNAP blank plates.

Advantages & benefits

- Easy assembly and removal
- The KDRS-ESR floor plate is very narrow. As a result, the inserted cables are inserted straight into the cable duct.
- Ideal for maintenance and retrofitting
- Reserve can be scheduled
- Space-saving solution
- No additional sheet metal work required

Specifications

| | |
|-------------|------------------------------------------------------------------------|
| Material | Gland plate: Sheet steel, zinc-plated KDR-ESR Frame: Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of cable entry devices |
| Temperature | -40°C to +90°C (static) |
| Properties | Halogen free, silicone free |

Compatible with

| | |
|------------------------------------|-----|
| KEL(-U) 16 / 24 Cable entry frames | 21 |
| KEL-ER 16 / 24 Cable entry frames | 17 |
| BPK-SNAP 16 / 24 Blank plates | 330 |



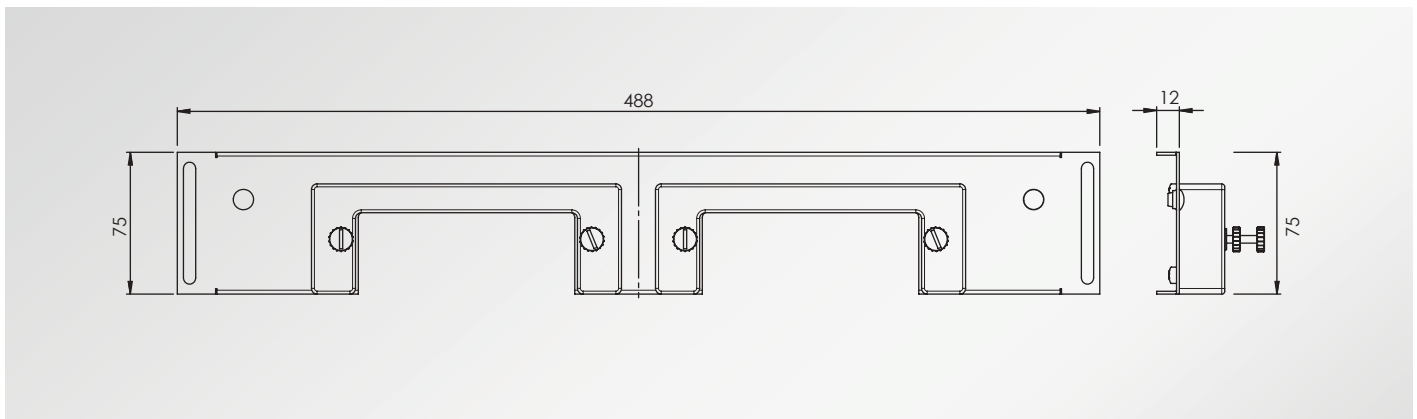
Advantage KDRS: Straight cable routing into the cable duct due to the extremely narrow gland plate

KDRS-ESR-VX25

Rittal enclosure gland plate,
narrow, with slide frames



| Type | Enclosure width | Total length gland plate | Sight size of base plate opening | No. of possible cable entries | | | | Order No. |
|-----------------------------------|-----------------|--------------------------|----------------------------------|-------------------------------|---------|----------------|----------------|-----------|
| | | | | JUMBO 1 | JUMBO 2 | KEL(-U) 16 ... | KEL(-U) 24 ... | |
| KDRS-ESR-VX25-600 (narrow) 75 mm | 600 mm | 488 mm | 452 mm | – | – | – | 2 | 44512 |
| KDRS-ESR-VX25-800 (narrow) 75 mm | 800 mm | 688 mm | 652 mm | – | – | – | 3 | 44513 |
| KDRS-ESR-VX25-1000 (narrow) 75 mm | 1000 mm* | 438 mm | 402 mm | – | – | – | 2 | 44514 |
| KDRS-ESR-VX25-1200 (narrow) 75 mm | 1200 mm* | 538 mm | 502 mm | – | – | – | 3 | 44515 |



Sealing tape
Order No. 42999 (L: 1 m)
Order No. 42999.10000 (L: 10 m)

i icotek can also produce enclosure gland plates for numerous other enclosure brands and in other sizes according to your wishes. Ask us at pm@icotek.com!

* if both fields of the enclosure are fitted, two complete gland plates are required.

KDR-VX25

Rittal VX25 enclosure gland plate

KDR-VX25 is a one-piece gland plate to be assembled on enclosure bases. The gland plates are already equipped with cut-outs for the KEL 24 or KEL-JUMBO cable entry systems or the KEL-DPR cable entry plate.

The fastening threads for the KEL frames are already integrated.

Advantages

- Easy assembly of the KEL(-U) 24, KEL-ER 24, KEL-FA 24, KEL-QUICK, KEL-DPR bzw. KEL-JUMBO
- Prepared for the assembly of KDR-EMV-PFM
- Threaded pull-through for earthing tape integrated
- Ideal for maintenance and retrofitting
- Reserve can be scheduled
- Space-saving solution
- No additional sheet metal work required
- Very large connectors can be inserted with ease
- Cut-outs which are no longer required are closed with BPM or BPK blank plates
- The KDR-VX25 gland plate is designed for Rittal VX25 enclosures. Other sizes are also available on request.

Specifications

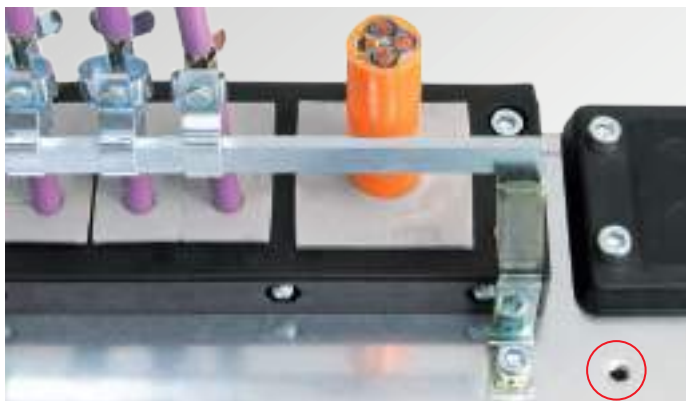
Material Sheet steel, zinc-plated

Compatible with

| | |
|-------------------------------|-----------|
| KEL(-U) 24 Cable entry frames | 21 |
| KEL-ER 24 Cable entry frames | 17 |
| KEL-FA 24 Cable entry frames | 25 |
| KEL-QUICK Cable entry frames | 104 - 107 |
| KEL-JUMBO Cable entry frames | 57 |
| KEL-DPR Cable entry plates | 160 - 161 |
| BPM, BPK Blank plates | 330 - 331 |

Accessories

| | |
|----------------|-----|
| KDR-EMV-PFM 24 | 301 |
| KEL-EMV-PFM 24 | 261 |



Prepared for the assembly of KDR-EMV-PFM. The plates are fitted with threaded screw holes (M5), blocked with plugs.

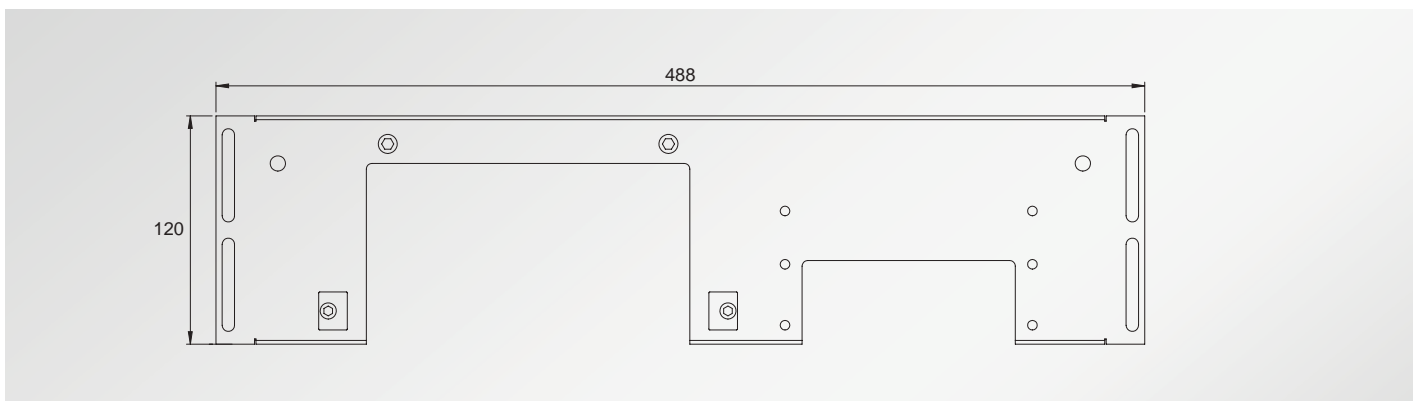


The fastening threads for the KEL frames are already integrated

KDR-VX25

Rittal VX25 enclosure gland plate

| Type | Enclosure width | Total length gland plate | Sight size of base plate opening | No. of possible cable entries | | | Order No. |
|---------------|-----------------|--------------------------|----------------------------------|-------------------------------|---------|----------------|-----------|
| | | | | JUMBO 1 | JUMBO 2 | KEL(-U) 24 ... | |
| KDR-VX25-600 | 600 mm | 488 mm | 452 mm | – | – | 2 | 44300 |
| KDR-VX25-600 | 600 mm | 488 mm | 452 mm | – | 1 | 1 | 44301 |
| KDR-VX25-600 | 600 mm | 488 mm | 452 mm | 1 | – | 2 | 44302 |
| KDR-VX25-800 | 800 mm | 688 mm | 652 mm | – | – | 4 | 44303 |
| KDR-VX25-800 | 800 mm | 688 mm | 652 mm | 1 | – | 3 | 44304 |
| KDR-VX25-800 | 800 mm | 688 mm | 652 mm | – | 1 | 2 | 44305 |
| KDR-VX25-1000 | 1000 mm | 438 mm | 402 mm | – | – | 2 | 44306 |
| KDR-VX25-1000 | 1000 mm | 438 mm | 402 mm | 1 | – | 1 | 44307 |
| KDR-VX25-1000 | 1000 mm | 438 mm | 402 mm | – | 1 | 1 | 44308 |
| KDR-VX25-1200 | 1200 mm | 538 mm | 502 mm | – | – | 3 | 44309 |
| KDR-VX25-1200 | 1200 mm | 538 mm | 502 mm | 1 | – | 2 | 44310 |
| KDR-VX25-1200 | 1200 mm | 538 mm | 502 mm | – | 1 | 1 | 44311 |



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KDR-ESR-TS8

Rittal TS8 enclosure gland plate with slide frames

The KDR-ESR is a one-piece plate to be assembled on enclosure bases. Slide frames for the KEL cable entry frames are already pre-assembled.

After installing all cables into the KEL frames, they are easily and quickly inserted into the slide frames and fixed. During maintenance, the KEL frames are removed without tools from the slide frames. Due to the combination KDR-ESR and KEL cable entry frames, a rating of IP54 is achieved (with correct selection of cable grommets). Slide frames which are no longer required are closed with BPK-SNAP blank plates.

Advantages & benefits

- Easy assembly and removal
- During assembly, almost the complete base of the enclosure can be used for installation of cables
- Even large connectors can be installed easily
- The gland plate KDR-ESR is designed for Rittal enclosures VX25 & TS 8. Other sizes can be supplied on request
- No additional sheet metal work required
- Retrofitting possible without disconnecting cables. Everything can be built around the cables

Specifications

| | |
|-------------|------------------------------------------------------------------------|
| Material | Gland plate: Sheet steel, zinc-plated KDR-ESR Frame: Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of cable entry devices |
| Temperature | - 40°C to + 90°C (static) |
| Properties | Halogen free, silicone free |

Compatible with

| | |
|------------------------------------|---------|
| KEL(-U) 16 / 24 Cable entry frames | 21 |
| KEL-ER 16 / 24 Cable entry frames | 17 |
| KEL-JUMBO Cable entry frames | 56 - 57 |
| BPK-SNAP 16 / 24 Blank plates | 332 |



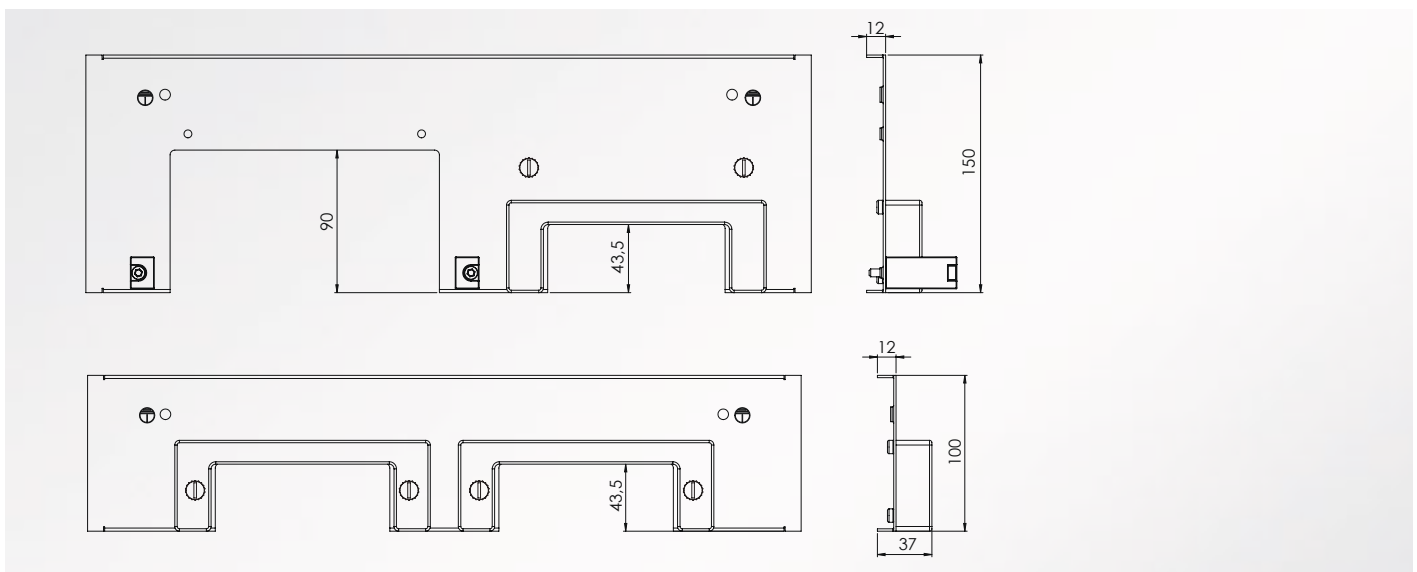
Sealing tape
Order No. 42999 (L: 1 m)
Order No. 42999.10000 (L: 10 m)

KDR-ESR-TS8

Rittal TS8 enclosure gland plate with slide frames



| Type | Enclosure width | Total length gland plate | Sight size of base plate opening | No. of possible cable entries | | | | Order No. |
|------------------|------------------------------|--------------------------|----------------------------------|-------------------------------|---------|----------------|----------------|-----------|
| | | | | JUMBO 1 | JUMBO 2 | KEL(-U) 16 ... | KEL(-U) 24 ... | |
| KDR-ESR-TS8-600 | 600 mm | 458 mm | 435 mm | - | - | - | 2 | 43079 |
| KDR-ESR-TS8-600 | 600 mm | 458 mm | 435 mm | - | 1 | - | 1 | 43070 |
| KDR-ESR-TS8-600 | 600 mm | 458 mm | 435 mm | 1 | - | 2 | - | 43071 |
| KDR-ESR-TS8-800 | 800 mm | 658 mm | 635 mm | - | - | 1 | 3 | 43080 |
| KDR-ESR-TS8-800 | 800 mm | 658 mm | 635 mm | 1 | - | - | 3 | 43072 |
| KDR-ESR-TS8-800 | 800 mm | 658 mm | 635 mm | - | 1 | - | 2 | 43073 |
| KDR-ESR-TS8-1000 | 1000 mm without division bar | 858 mm | 835 mm | - | - | - | 5 | 43081 |
| KDR-ESR-TS8-1000 | 1000 mm without division bar | 858 mm | 835 mm | 1 | - | - | 4 | 43074 |
| KDR-ESR-TS8-1000 | 1000 mm without division bar | 858 mm | 835 mm | - | 1 | - | 3 | 43075 |
| KDR-ESR-TS8-1000 | 1000 mm* with division bar | 420 mm | 398 mm | - | - | - | 2 | 43082 |
| KDR-ESR-TS8-1000 | 1000 mm* with division bar | 420 mm | 398 mm | 1 | - | - | 1 | 43076 |
| KDR-ESR-TS8-1000 | 1000 mm* with division bar | 420 mm | 398 mm | - | 1 | - | 1 | 43077 |
| KDR-ESR-TS8-1200 | 1200 mm* | 518 mm | 495 mm | - | - | - | 3 | 43083 |
| KDR-ESR-TS8-1200 | 1200 mm* | 518 mm | 495 mm | 1 | - | - | 2 | 43078 |
| KDR-ESR-TS8-1200 | 1200 mm* | 518 mm | 495 mm | - | 1 | - | 1 | 43084 |



KDR-ESR-TS8 for Rittal TS 8

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* in case both fields of the enclosure are equipped, 2 complete gland plates are necessary.

KDR-ESR-HW

Enclosure gland plate with slide frames for Häwa enclosures



The KDR-ESR HW is a one-piece plate to be assembled on enclosure bases. Slide frames for the KEL cable entry frames are already pre-assembled. After installing all cables into the KEL frames, they are easily and quickly inserted into the slide frames and fixed. Slide frames which are no longer required are closed with BPK-SNAP blank plates. The gland plate KDR-ESR HW is designed for Häwa enclosures series H395 and series H390.

Advantages & benefits

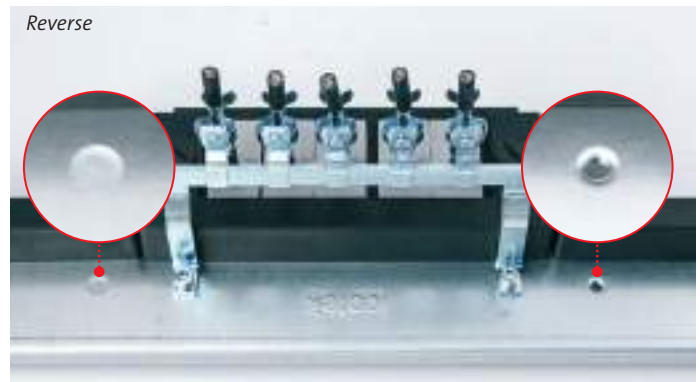
- Easy assembly and removal
- Even large connectors can be installed easily
- Retrofitting possible without disconnecting cables. Everything can be built around the cables
- Prepared for the assembly of KDR-EMV-PFM
- No additional sheet metal work required
- The gland plate KDR-ESR HW is designed for Häwa enclosures series H395 and series H390
- Other sizes are available on request

Specifications

| | |
|-------------|-------------------------------------------------------------------------|
| Material | Gland plate: Sheet steel, zinc-plated KDR-ESR Frame: Polyamide (PA)) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of cable entry devices |
| Temperature | -40°C to + 90°C (static) |
| Properties | Halogen free, silicone free |

Compatible with

| | |
|-------------------------------|---------|
| KEL(-U) 24 Cable entry frames | 21 |
| KEL-ER 24 Cable entry frames | 17 |
| KEL-JUMBO Cable entry frames | 56 - 57 |
| BPK-SNAP 24 Blank plates | 332 |



Reverse

Prepared for the assembly of KDR-EMV-PFM. The plates are fitted with threaded screw holes (M5), blocked with plugs. These can be easily removed if necessary. By using the KDR-EMV-PFM, there is no need to additionally install a DIN rail/bus bar above the cable entry, which would otherwise have to be attached in order to implement the EMC connection.



Slide frames which are no longer required are closed with BPK-SNAP blank plates

KDR-ESR-HW

Enclosure gland plate
with slide frames
for Häwa enclosures



| Type | Enclosure width | Total length gland plate | Sight size of base plate opening | No. of possible cable entries | | | | Order No. |
|------------------------------------------------------------|-----------------|--------------------------|----------------------------------|-------------------------------|---------|----------------|----------------|-----------|
| | | | | JUMBO 1 | JUMBO 2 | KEL(-U) 16 ... | KEL(-U) 24 ... | |
| KDR-ESR HW for Häwa enclosures series H395 and series H390 | | | | | | | | |
| KDR-ESR HW-600 + 1 blank plate | 600 mm | 427 mm | 392 mm | – | – | – | 2 | 44520 |
| KDR-ESR HW-800 + 1 blank plate | 800 mm | 627 mm | 592 mm | – | – | – | 3 | 44521 |
| KDR-ESR HW-800 | 800 mm | 627 mm | 592 mm | 1 | – | – | 2 | 44522 |
| KDR-ESR HW-1000 + 1 blank plate | 1000 mm | 827 mm | 792 mm | – | – | – | 4 | 44523 |
| KDR-ESR HW-1200 + 1 blank plate | 1200 mm | 1027 mm | 992 mm | – | – | – | 5 | 44524 |
| KDR-ESR HW-1200 | 1200 mm | 1027 mm | 992 mm | 1 | – | – | 4 | 44525 |
| KDR-ESR HW-1200 | 1200 mm | 1027 mm | 992 mm | – | 1 | – | 4 | 44526 |



Sealing tape
Order No. 42999 (L: 1 m)
Order No. 42999.10000 (L: 10 m)



icotek can also produce enclosure gland plates for numerous other enclosure brands and in other sizes according to your wishes. Ask us at pm@icotek.com!

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KDR-ESR-HG2

Enclosure gland plate with slide frames for Hoffman PROLINE G2

The KDR-ESR-HG2 is a one-piece plate to be assembled on enclosure bases. Slide frames for the KEL cable entry frames are already pre-assembled.

After installing all cables into the KEL frames, they are easily and quickly inserted into the slide frames and fixed. During maintenance, the KEL frames are removed without tools from the slide frames. Due to the combination KDR-ESR-HG2 and KEL cable entry frames, a rating of IP54 is achieved (with correct selection of cable grommets). Slide frames which are no longer required, are closed with BPK-SNAP blank plates.

Advantages & benefits

- Easy assembly and removal
- During assembly, almost the complete base of the enclosure can be used for installation of cables
- Even large connectors can be installed easily
- The gland plate KDR-ESR-HG2 is designed for Hoffman enclosures PROLINE G2. Other sizes can be supplied on request
- No additional sheet metal work required
- Retrofitting possible without disconnecting cables. Everything can be built around the cables

Specifications

| | |
|-------------|------------------------------------------------------------------------|
| Material | Gland plate: Sheet steel, zinc-plated KDR-ESR Frame: Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP54, with gasket and correct selection of cable entry devices |
| Temperature | -40°C to +90°C (static) |
| Properties | Halogen free, silicone free |

Compatible with

| | |
|------------------------------------|---------|
| KEL(-U) 16 / 24 Cable entry frames | 21 |
| KEL-ER 16 / 24 Cable entry frames | 17 |
| KEL-JUMBO Cable entry frames | 56 - 57 |
| BPK-SNAP 16 / 24 Blank plates | 332 |

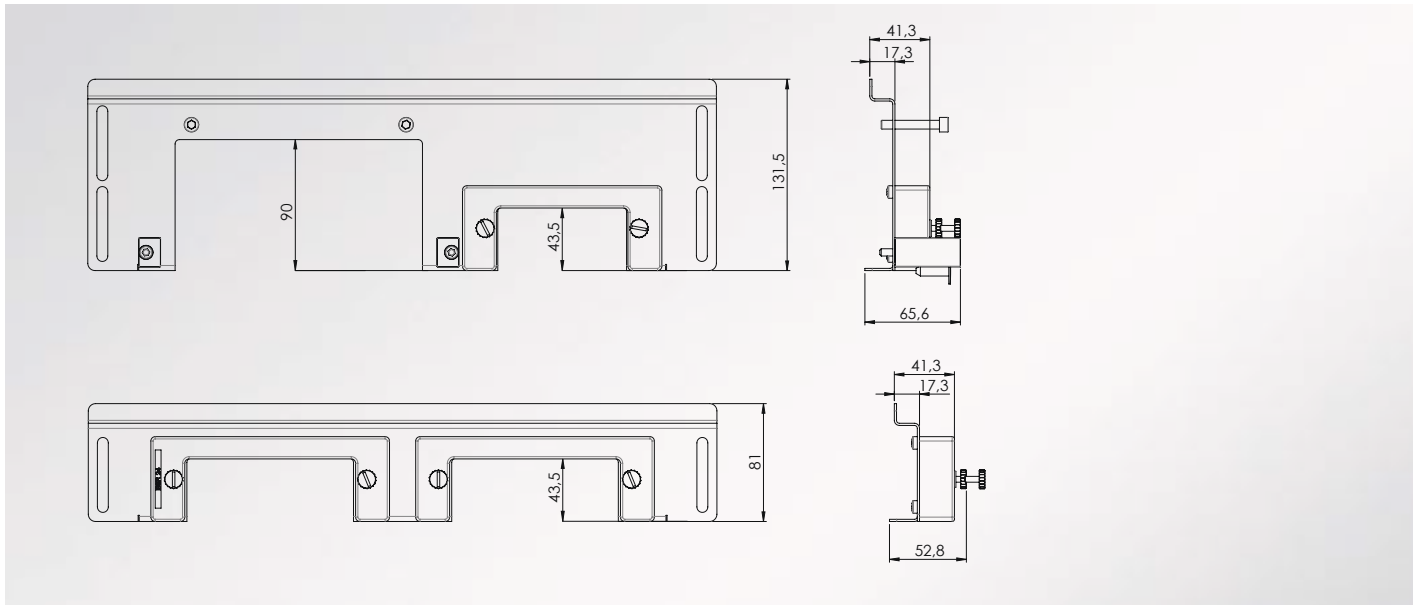


KDR-ESR-HG2

Enclosure gland plate with slide frames for Hoffman PROLINE G2



| Type | Enclosure width | Total length gland plate | Sight size of base plate opening | No. of possible cable entries | | | Order No. |
|------------------|-------------------|--------------------------|----------------------------------|-------------------------------|----------------|----------------|-----------|
| | | | | JUMBO 2 | KEL(-U) 16 ... | KEL(-U) 24 ... | |
| KDR-ESR-HG2-600 | 600 mm / 1200 mm* | 432 mm | 368 mm | 1 | 1 | - | 43250 |
| KDR-ESR-HG2-600 | 600 mm / 1200 mm* | 432 mm | 368 mm | - | - | 2 | 43251 |
| KDR-ESR-HG2-800 | 800 mm | 632 mm | 568 mm | 1 | - | 2 | 43252 |
| KDR-ESR-HG2-800 | 800 mm | 632 mm | 568 mm | - | - | 3 | 43253 |
| KDR-ESR-HG2-1000 | 1000 mm | 832 mm | 768 mm | 1 | - | 3 | 43254 |
| KDR-ESR-HG2-1000 | 1000 mm | 832 mm | 768 mm | - | - | 4 | 43255 |



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* in case both fields of the enclosure are equipped, 2 complete gland plates are necessary.

KDR 2-VX25 | KDR 2-TS8

Split Rittal enclosure gland plates

Split, 2-part gland plates KDR 2 with pre-cut holes for KEL and KEL-JUMBO cable entry systems.

Integrated screw holes provide quick and easy installation of KEL frames.

Advantages & benefits

- During assembly, almost the complete base of the enclosure can be used for installation of cables
- Even large connectors can be installed easily
- The gland plate KDR 2 is designed for Rittal enclosures TS 8 & VX25. Other sizes can be supplied on request
- Retrofitting is possible without disconnecting of cables. All can be installed around the cables.
- No additional sheet metal work required
- Cut-outs, which are no longer required, are covered with metal blank plates Type BPM

Specifications

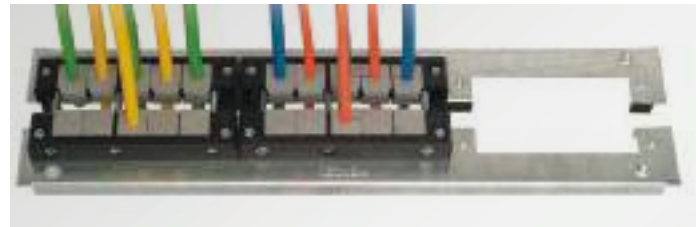
Material Sheet steel, zinc-plated

Compatible with

| | |
|------------------------------|---------|
| KEL 24 Cable entry frames | 29 |
| KEL-JUMBO Cable entry frames | 56 - 57 |
| BPM Blank plates metal | 331 |



KDR 2 Assembly



When the cable entry frames are assembled, the KDR gland plates move together for a tight, secure hold of the cable entry systems.



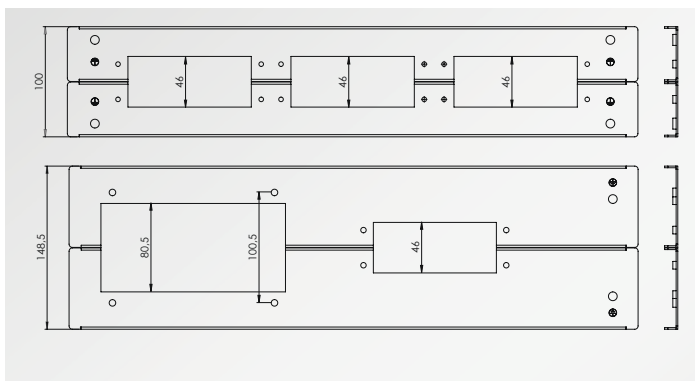
The frame parts with grommets have to be built up before final assembly, i.e. before screwing the system together. Screwing of the cable entry frames tightens both parts of the split gland plate.



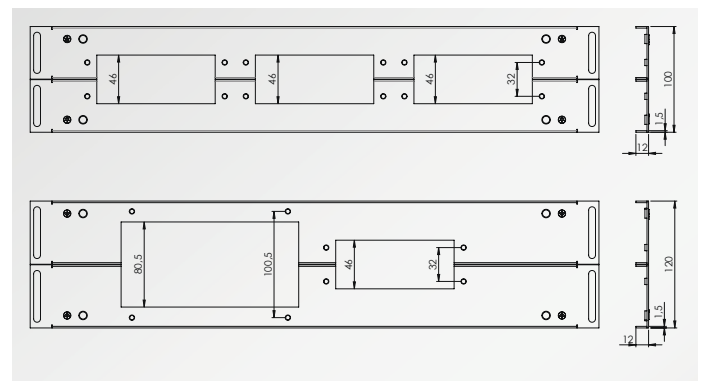
KDR 2-VX25 | KDR 2-TS8

Split Rittal enclosure gland plates

| Type | Enclosure width | Total length gland plate | Sight size of base plate opening | No. of possible cable entries | | | Order No. |
|------------------------------|------------------------------|--------------------------|----------------------------------|-------------------------------|---------|------------|-----------|
| | | | | JUMBO 1 | JUMBO 2 | KEL 24 ... | |
| KDR 2 for Rittal VX25 | | | | | | | |
| KDR 2-VX25-600 | 600 mm | 488 mm | 452 mm | - | - | 3 | 44400 |
| KDR 2-VX25-600 | 600 mm | 488 mm | 452 mm | 1 | - | 2 | 44401 |
| KDR 2-VX25-600 | 600 mm | 488 mm | 452 mm | - | 1 | 1 | 44402 |
| KDR 2-VX25-800 | 800 mm | 688 mm | 652 mm | - | - | 4 | 44403 |
| KDR 2-VX25-800 | 800 mm | 688 mm | 652 mm | 1 | - | 3 | 44404 |
| KDR 2-VX25-800 | 800 mm | 688 mm | 652 mm | - | 1 | 2 | 44405 |
| KDR 2-VX25-1000 | 1000 mm* with division bar | 438 mm | 402 mm | - | - | 2 | 44406 |
| KDR 2-VX25-1000 | 1000 mm* with division bar | 438 mm | 402 mm | 1 | - | 1 | 44407 |
| KDR 2-VX25-1000 | 1000 mm* with division bar | 438 mm | 402 mm | - | 1 | 1 | 44408 |
| KDR 2-VX25-1200 | 1200 mm* | 538 mm | 502 mm | - | - | 3 | 44409 |
| KDR 2-VX25-1200 | 1200 mm* | 538 mm | 502 mm | 1 | - | 2 | 44410 |
| KDR 2-VX25-1200 | 1200 mm* | 538 mm | 502 mm | - | 1 | 1 | 44411 |
| KDR 2 for Rittal TS8 | | | | | | | |
| KDR 2-TS8-600 | 600 mm | 458 mm | 435 mm | - | - | 3 | 42924 |
| KDR 2-TS8-600 | 600 mm | 458 mm | 435 mm | 1 | - | 2 | 42953 |
| KDR 2-TS8-600 | 600 mm | 458 mm | 435 mm | - | 1 | 1 | 42941 |
| KDR 2-TS8-800 | 800 mm | 658 mm | 635 mm | - | - | 4 | 42922 |
| KDR 2-TS8-800 | 800 mm | 658 mm | 635 mm | 1 | - | 3 | 42954 |
| KDR 2-TS8-800 | 800 mm | 658 mm | 635 mm | - | 1 | 2 | 42945 |
| KDR 2-TS8-1000 | 1000 mm without division bar | 858 mm | 835 mm | - | - | 5 | 42923 |
| KDR 2-TS8-1000 | 1000 mm without division bar | 858 mm | 835 mm | 1 | - | 4 | 42955 |
| KDR 2-TS8-1000 | 1000 mm without division bar | 858 mm | 835 mm | - | 1 | 3 | 42952 |
| KDR 2-TS8-1000 | 1000 mm* with division bar | 420 mm | 398 mm | - | - | 2 | 42958 |
| KDR 2-TS8-1000 | 1000 mm* with division bar | 420 mm | 398 mm | 1 | - | 1 | 42957 |
| KDR 2-TS8-1000 | 1000 mm* with division bar | 420 mm | 398 mm | - | 1 | 1 | 42959 |
| KDR 2-TS8-1200 | 1200 mm* | 518 mm | 495 mm | - | - | 3 | 42920 |
| KDR 2-TS8-1200 | 1200 mm* | 518 mm | 495 mm | 1 | - | 2 | 42956 |
| KDR 2-TS8-1200 | 1200 mm* | 518 mm | 495 mm | - | 1 | 1 | 42943 |



KDR 2-TS8 for Rittal TS 8



KDR 2-VX25 for Rittal VX25

* in case both fields of the enclosure are equipped, 2 complete split gland plates are necessary.

MP

Module plates

The module plates have cut-outs for fixing the KEL range cable entry systems KEL-FA 24 , KEL 24, KEL-U 24, KEL-QUICK 24, KEL-JUMBO, KEL-DPF, KEL-JUMBO flex and KEL-ULTRA flex.

The module plates can be installed on:

- Separation walls by Rittal
- closed enclosure bases and roofs (various manufacturers)
- Bases of Lohmeier enclosures
- Bases of Rittal enclosures via KDR-BMP gland plates

The module blank plate without cut-outs (Order No. 43882) is designed for closing unused cut-outs. This module plate can even be used for self-made cut-outs.

Module plates are supplied with a gasket.

Specifications

| | |
|-----------|----------------------------------------------------------------|
| Material | Sheet steel, zinc-plated Aluminium (Order No. 43883, 43899) |
| Dimension | 338 × 168 × 2 mm |

Compatible with

| | |
|---------------------------------|-----------|
| KEL-FA 24 Cable entry frames | 25 |
| KEL 24 Cable entry frames | 29 |
| KEL-U 24 Cable entry frames | 21 |
| KEL-QUICK 24 Cable entry frames | 106 |
| KEL-SNAP snap frames | 54 - 55 |
| KEL-JUMBO Cable entry frames | 56 - 57 |
| KEL-DPF Cable entry grommets | 182 - 183 |
| KEL-JUMBO flex Cable entry ins. | 185 |
| KEL-ULTRA flex Cable entry ins. | 184 |
| KEL-DPR | 160 - 161 |
| Blank plates | 330 - 332 |



MP Applications



Cable routing via module plates in the base of a Rittal TS8 enclosure. Mounting with icotek gland plate KDR BMP.



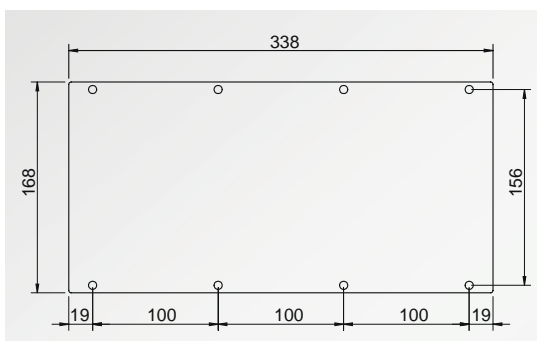
Cable routing through the divider panel of a Rittal TS8 baying enclosure system via module plates.



Routing of several cables with and without connectors through a closed enclosure roof via module plates. Cut-out size 314 x 144 mm.

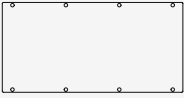
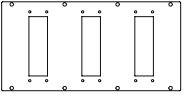
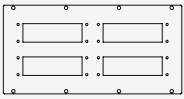
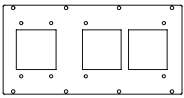
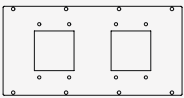
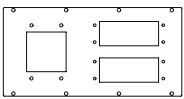
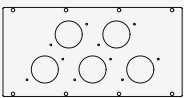
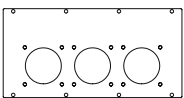
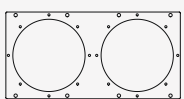
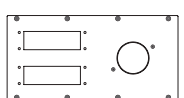
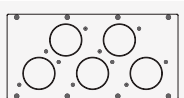


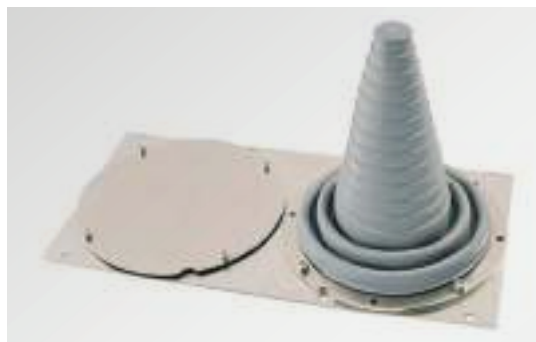
Routing of a rigid supply line through a closed enclosure roof via module plates. Cut-out size 314 x 144 mm.



MP

Module plates

| Description | Type | Order No. | Compatible with |
|-------------------------------------------------------------------------------------|-------|-----------|------------------------------------------------------------------------|
|  | MP 0 | 43882 | Module plate, blank |
|  | MP 1 | 43891 | 3× KEL(-FA/-U/-QUICK) 24 x |
|  | MP 2 | 43890 | 4× KEL(-FA/-U/-QUICK) 24 x |
|  | MP 3 | 43886 | 1× KEL-JUMBO 1 1× KEL-JUMBO 2 |
|  | MP 4 | 43888 | 2× KEL-JUMBO 1 |
|  | MP 5 | 43887 | 2× KEL(-FA/-U/-QUICK) 24 x 1× KEL-JUMBO 1 |
|  | MP 6 | 43883 | 5× cut-out M50 for KEL-DPF or KEL-DPZ |
|  | MP 7 | 43889 | Cut-out 3× KEL-JUMBO flex |
|  | MP 8 | 43894 | Cut-out 2× KEL-ULTRA flex |
|  | MP 10 | 43896 | 2× KEL(-FA/-U/-QUICK) 24 x 1× cut-out M63 for KEL-DPF or KEL-DPZ |
|  | MP 11 | 43899 | 5× cut-out M63 for KEL-DPF or KEL-DPZ |



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KDR-BMP for VX25

Enclosure gland plates for module plates

The KDR-BMP gland plates are ideally suited for Rittal VX25 enclosures and can be used instead of the 3 piece standard gland plates. The KDR-BMP gland plates are fixed by screwing.

On KDR-BMP gland plates, our MP Module Plates MP0-MP11 can be easily mounted and used for installation of cable entry components.

Note: The division bar can be removed in Rittal enclosures.

Advantages & benefits

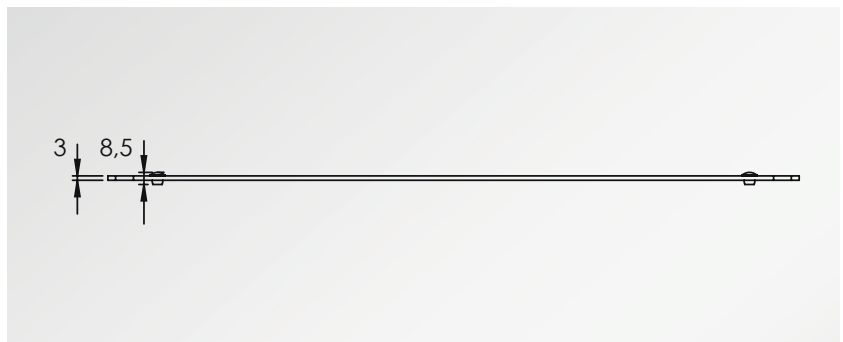
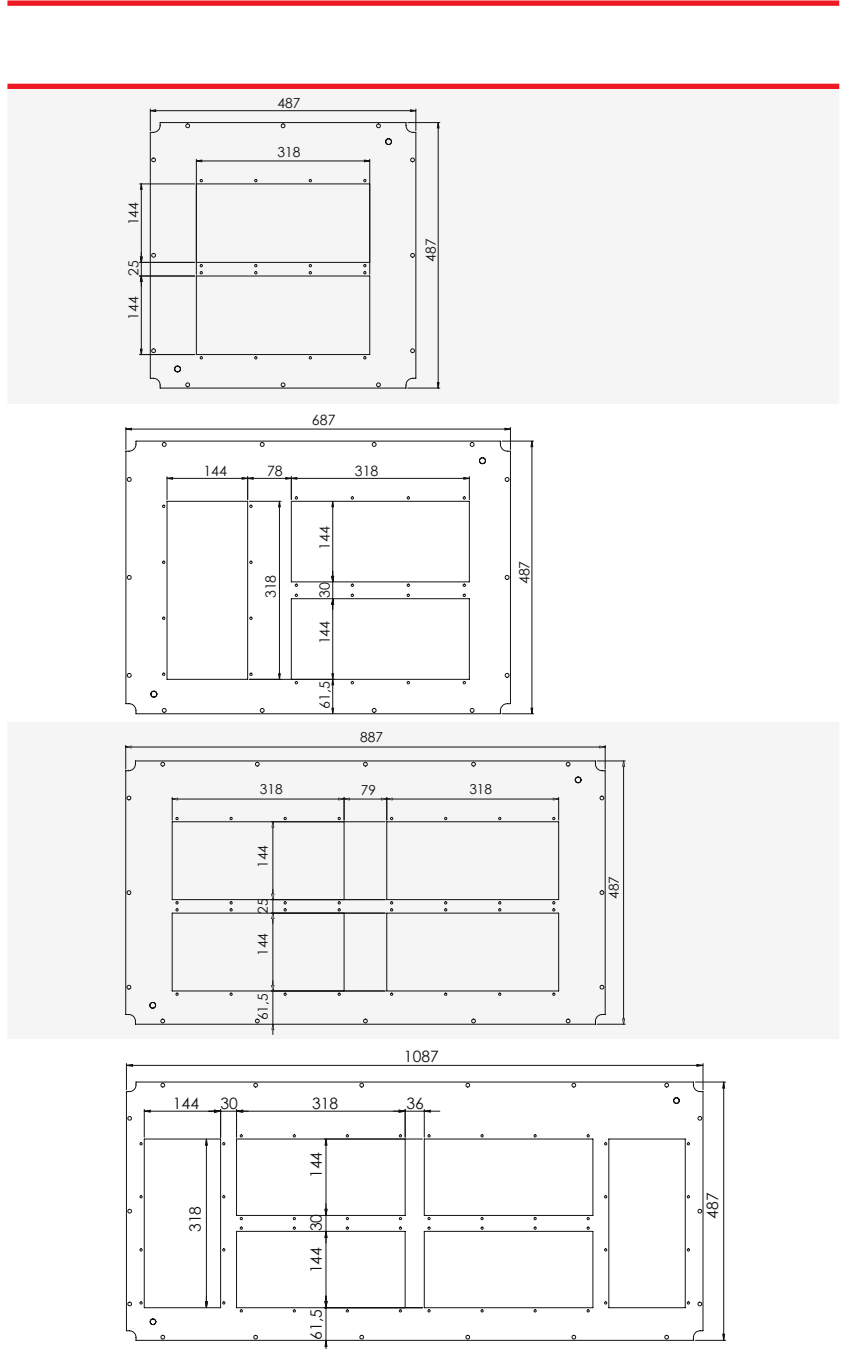
- Very simple mounting
- No sheet metal work required

Specifications

Material Sheet steel, zinc-plated
 IP rating IP54, with gasket and correct selection of cable entry devices

Compatible with

MP Module plates 314 - 315



KDR-BMP for VX25

Enclosure gland plates for module plates

| Type | Enclosure type | Enclosure width | Enclosure depth | No. of cut-outs for module plates | Order No. |
|------------------|----------------|---------------------------------|-----------------|-----------------------------------|-----------|
| KDR-BMP 600/600 | VX25 | 600 mm | 600 mm | 2 | 43334 |
| KDR-BMP 800/600 | VX25 | 800 mm | 600 mm | 3 | 43340 |
| KDR-BMP 1000/600 | VX25 | 1000 mm without division bar | 600 mm | 4 | 43346 |
| KDR-BMP 1200/600 | VX25 | 1200 mm without division bar | 600 mm | 6 | 43352 |

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KDR-BMP for TS8

Enclosure gland plates for module plates

The KDR-BMP gland plates are ideally suited for Rittal TS enclosures and can be used instead of the 3 piece standard gland plates. Rittal standard mounting clips are used for fixing the plate.

On KDR-BMP gland plates, our MP Module Plates MP0-MP8 can be easily mounted and used for installation of cable entry components.

Advantages & benefits

- Very simple mounting
- No sheet metal work required

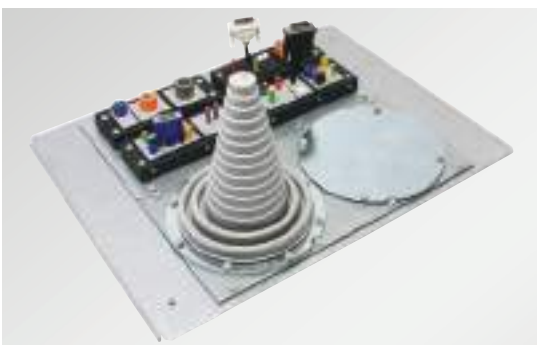
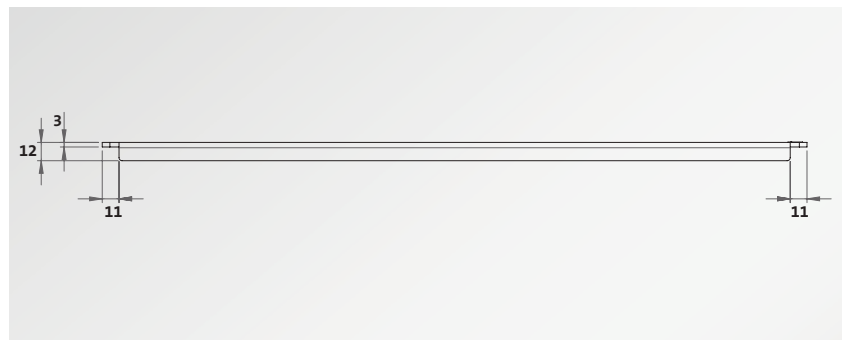
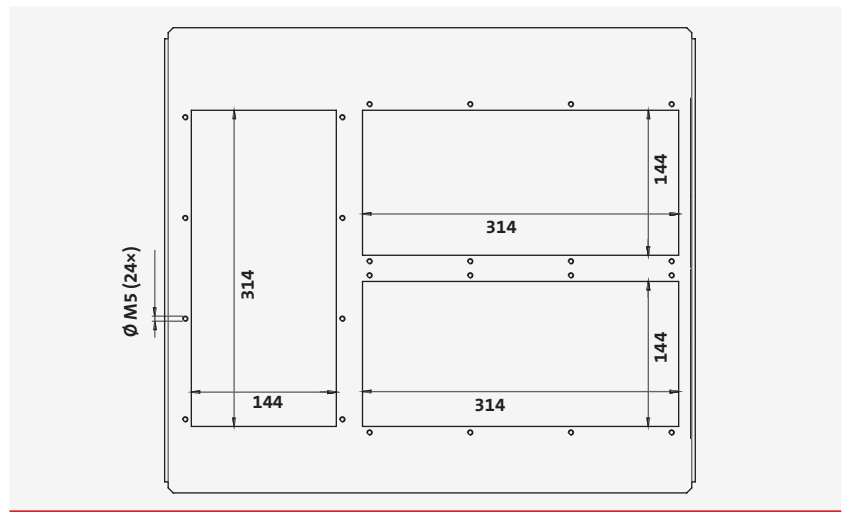
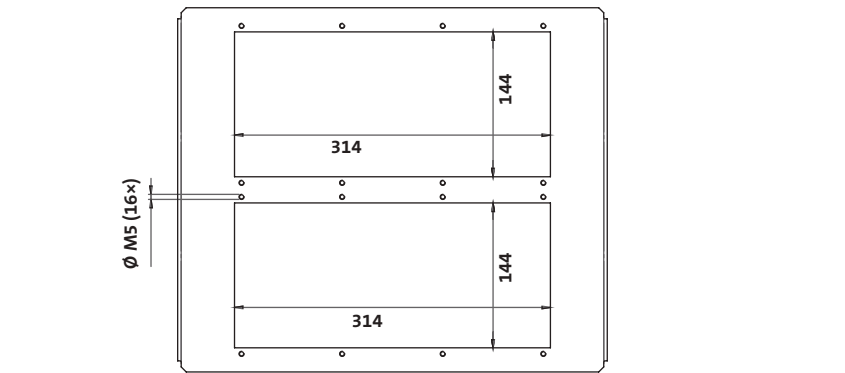
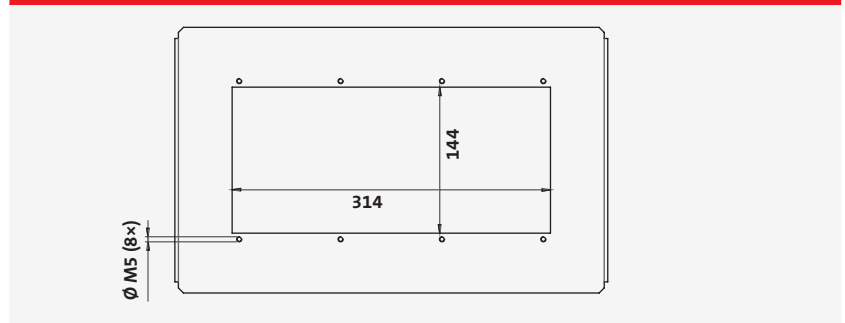
Specifications

Material Sheet steel, zinc-plated
 IP rating IP54, with gasket and correct selection of cable entry devices

Compatible with

MP Module plates 314 - 315

Description



KDR-BMP for TS8

Enclosure gland plates for module plates

| Type | Enclosure type | Enclosure width | Enclosure depth | No. of cut-outs for module plates | Order No. |
|---------------------------------------|----------------|------------------------------|-----------------|-----------------------------------|-----------|
| KDR-BMP 600/400 | TS 8 | 600 mm | 400 mm | 1 | 43300 |
| KDR-BMP 600/500 | TS 8 | 600 mm | 500 mm | 2 | 43302 |
| KDR-BMP 600/600 | TS 8 | 600 mm | 600 mm | 2 | 43304 |
| KDR-BMP 800/400 | TS 8 | 800 mm | 400 mm | 1 | 43306 |
| KDR-BMP 800/500 | TS 8 | 800 mm | 500 mm | 3 | 43308 |
| KDR-BMP 800/600 | TS 8 | 800 mm | 600 mm | 3 | 43310 |
| KDR-BMP 1000/400 | TS 8 | 1000 mm with division bar | 400 mm | 1 | 43312 |
| KDR-BMP 1000/500 | TS 8 | 1000 mm with division bar | 500 mm | 2 | 43314 |
| KDR-BMP 1000/600 | TS 8 | 1000 mm with division bar | 600 mm | 2 | 43316 |
| KDR-BMP 1200/400 | TS 8 | 1200 mm with division bar | 400 mm | 1 | 43318 |
| KDR-BMP 1200/500 | TS 8 | 1200 mm with division bar | 500 mm | 2 × 3 | 43320 |
| KDR-BMP 1200/600 for left section | TS 8 | 1200 mm with division bar | 600 mm | 3 | 43322 |
| KDR-BMP 1200/600 for right section | TS 8 | 1200 mm with division bar | 600 mm | 3 | 43324 |

FP-AX

Flange plates for compact enclosures

We supply complete flange plates FP with 112 × 36 mm cut-outs for compact enclosures of the AX series. The cut-outs, as well as the drilling template, conform to the standard cut-outs for 24-pole industrial connectors.

All flange plates are RAL 7035 powder-coated. Please use the gaskets of the standard plates. Enclosures are supplied with gaskets and screws.

We recommend fastening the cable entry systems with a torque of 1.5 - 2.0 Nm.

Advantages & benefits

- No expensive extra sheet metal work is required
- High cable density is achieved by using KEL-FA, KEL, KEL-U, KEL-QUICK, KEL-DPU, KEL-DPR, KEL-DPZ or KEL-DP
- Reduce labour costs by using cable entry systems compared to the assembly of conventional cable glands

Specifications

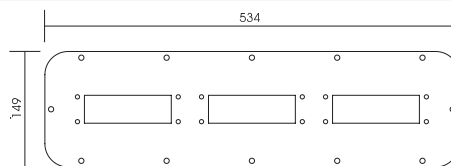
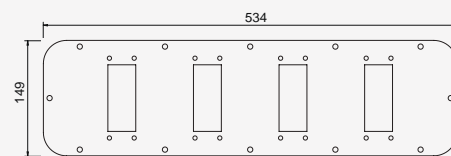
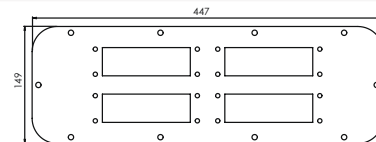
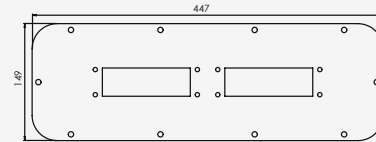
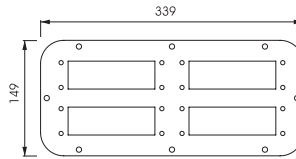
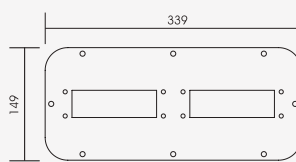
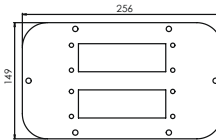
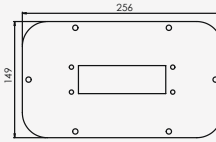
Material Sheet steel, powder coated

Compatible with

| | |
|-------------------------------|-----------|
| KEL-FA Cable entry frames | 24 - 27 |
| KEL Cable entry frames | 28 - 37 |
| KEL-U Cable entry frames | 20 - 22 |
| KEL-QUICK Cable entry frames | 105 - 107 |
| KEL-SNAP Mounting frames | 52 - 55 |
| KEL-QTA 24 Cable entry frames | 114 - 115 |
| KEL-DPU 24 Cable entry plates | 144 - 147 |
| KEL-DPZ 24 Cable entry plates | 130 - 137 |
| KEL-DPR Cable entry plates | 160 - 161 |
| KEL-DP 24 Cable entry plates | 163 |
| KEL-BES | 354 |
| KEL-BES-S | 355 |
| Blank plates | 330 - 332 |



Description



i icotek also offers enclosure gland plates with brush strips, see pages 366 – 367. Contact us at pm@icotek.com

FP-AX

Flange plates for compact enclosures

| Type | Order No. RAL 7035 | Compatible with: (Product Group 1) | Compatible with: (Product Group 2) | Size FP | Compatible with | |
|------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------|------------|----------------------------------------------------------------------------------------|----------------------------------------------------|
| FP-AX 256 149 with 1 cut-out 36 x 112 mm horizontal | 43901 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 1 | AX 1033.000 AX 1034.000 | |
| FP-AX 256 149 with 2 cut-outs 36 x 112 mm horizontal | 43902 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 1 | AX 1033.000 AX 1034.000 | |
| FP-AX AE 339 149 with 2 cut-outs 36 x 112 mm | 43840 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 2 | AX 1031.000 AX 1380.000 AX 1038.000 AX 1077.000 AX 1100.000 AX 1045.000 | |
| FP-AX AE 339 149 with 4 cut-outs 36 x 112 mm | 43846 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 2 | AX 1031.000 AX 1380.000 AX 1038.000 AX 1077.000 AX 1100.000 AX 1045.000 | |
| FP-AX 447 149 with 2 cut-outs 36 x 112 mm horizontal | 43903 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 3 | AX 1050.000 AX 1057.000 | |
| FP-AX 447 149 with 4 cut-outs 36 x 112 mm horizontal | 43904 | KEL 24 KEL-U 24 KEL-QUICK 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 3 | AX 1050.000 AX 1057.000 | |
| FP-AX AE 534 149 with 4 cut-outs 36 x 86 mm | 43871 | KEL 16 KEL-U 16 KEL-FA 16 KEL-QUICK 16 KEL-SNAP 16 KEL-BES 16 KEL-BES-S 16 | KEL-DPZ 16 KEL-DP 16 | 4 | AX 1039.000 AX 1060.000 AX 1054.000 AX 1076.000 AX 1058.000 AX 1090.000 | |
| FP-AX AE 534 149 with 3 cut-outs 36 x 112 mm | 43842 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 4 | AX 1039.000 AX 1060.000 AX 1054.000 AX 1076.000 AX 1058.000 AX 1090.000 | 6 6.1 6.2 6.3 6.4 6.5 6.6 |

We supply complete flange plates FP with 112 × 36 mm cut-outs for compact enclosures of the AX series. The cut-outs, as well as the drilling template, conform to the standard cut-outs for 24-pole industrial connectors.

All flange plates are RAL 7035 powder-coated. Please use the gaskets of the standard plates. Enclosures are supplied with gaskets and screws.

We recommend fastening the cable entry systems with a torque of 1.5 - 2.0 Nm.

Advantages & benefits

- No expensive extra sheet metal work is required
- High cable density is achieved by using KEL-FA, KEL, KEL-U, KEL-QUICK, KEL-DPU, KEL-DPZ or KEL-DP
- Reduce labour costs by using cable entry systems compared to the assembly of conventional cable glands

Specifications

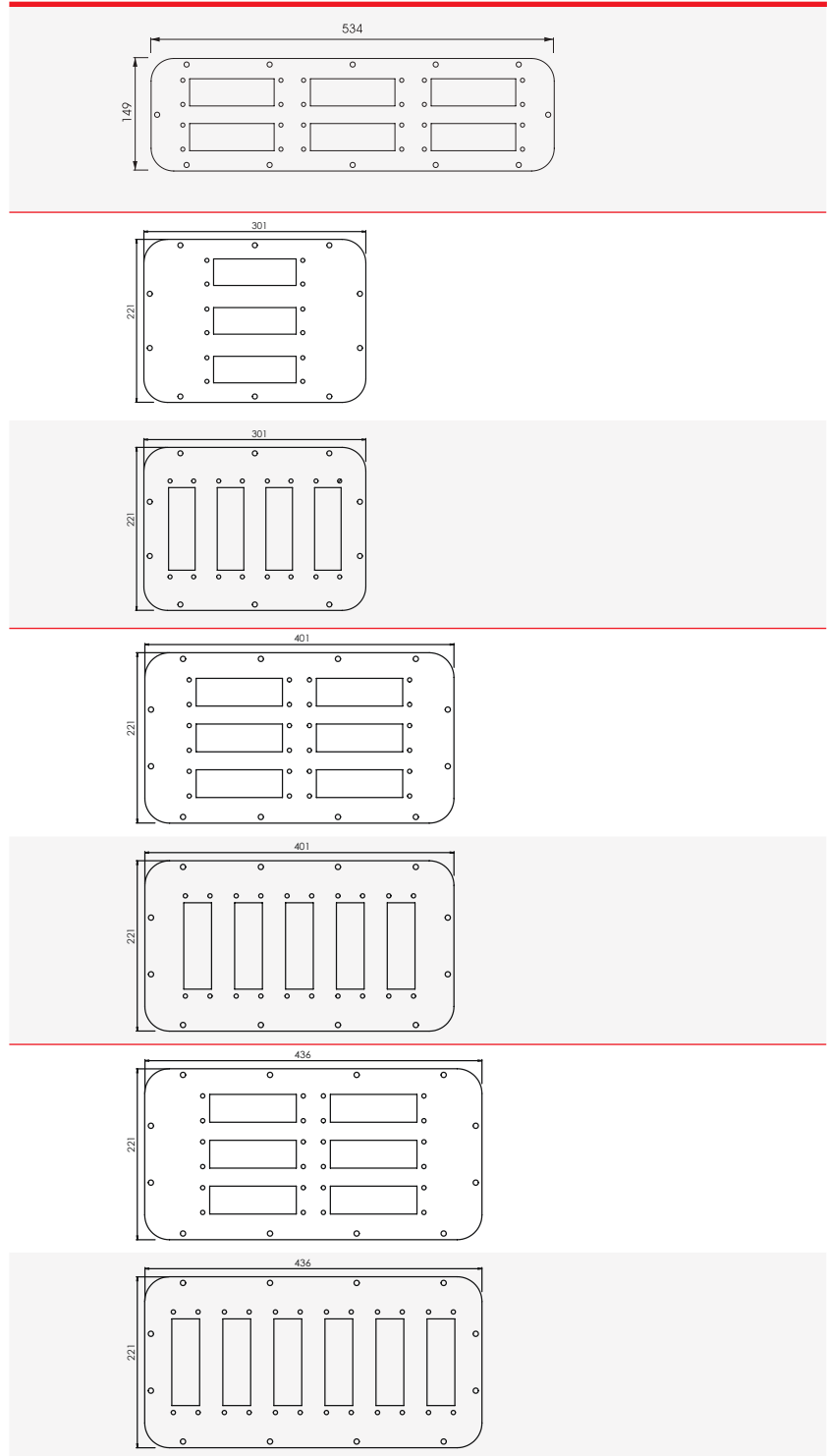
Material Sheet steel, powder coated

Compatible with

| | |
|-------------------------------|-----------|
| KEL-FA Cable entry frames | 24 - 27 |
| KEL Cable entry frames | 28 - 37 |
| KEL-U Cable entry frames | 20 - 22 |
| KEL-QUICK Cable entry frames | 105 - 107 |
| KEL-SNAP Mounting frames | 52 - 55 |
| KEL-QTA 24 Cable entry frames | 114 - 115 |
| KEL-DPU 24 Cable entry plates | 144 - 147 |
| KEL-DPZ 24 Cable entry plates | 130 - 137 |
| KEL-DPR Cable entry plates | 160 - 161 |
| KEL-DP 24 Cable entry plates | 163 |
| KEL-BES | 354 |
| KEL-BES-S | 355 |
| Blank plates | 330 - 332 |



Description



i icotek also offers enclosure gland plates with brush strips, see pages 366 – 367. Contact us at pm@icotek.com

FP-AX

Flange plates for compact enclosures

| Type | Order No. RAL 7035 | Compatible with: (Product Group 1) | Compatible with: (Product Group 2) | Size FP | Compatible with |
|-----------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------|
| FP-AX AE 534 149 with 6 cut-outs 36 x 112 mm | 43848 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 4 | AX 1039.000 AX 1060.000 AX 1054.000 AX 1076.000 AX 1058.000 AX 1090.000 |
| FP-AX 301 221 with 3 cut-outs 36 x 112 mm horizontal, 3 rows | 43905 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 5 | AX 1338.000 AX 1037.000 AX 1073.000 AX 1055.000 AX 1180.000 AX 1280.000 AX 1181.000 AX 1281.000 |
| FP-AX 301 221 with 4 cut-outs 36 x 112 mm vertical, 1 row | 43906 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 5 | AX 1338.000 AX 1037.000 AX 1073.000 AX 1055.000 AX 1180.000 AX 1280.000 AX 1181.000 AX 1281.000 |
| FP-AX 401 221 with 6 cut-outs 36 x 112 mm horizontal, 3 rows | 43907 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 6 | AX 1350.000 AX 1130.000 AX 1110.000 AX 1213.000 AX 1114.000 AX 1214.000 AX 1115.000 |
| FP-AX 401 221 with 5 cut-outs 36 x 112 mm vertical, 1 row | 43908 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 6 | AX 1350.000 AX 1130.000 AX 1110.000 AX 1213.000 AX 1114.000 AX 1214.000 AX 1115.000 |
| FP-AX 436 221 with 6 cut-outs 36 x 112 mm horizontal, 3 rows | 43909 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 7 | AX 1339.000 AX 1360.000 AX 1376.000 AX 1260.000 AX 1116.000 AX 1059.000 AX 1091.000 AX 1261.000 |
| FP-AX 436 221 with 6 cut-outs 36 x 112 mm vertical, 1 row | 43910 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 7 | AX 1339.000 AX 1360.000 AX 1376.000 AX 1260.000 AX 1116.000 AX 1059.000 AX 1091.000 AX 1261.000 |

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The FP flange plates type KX/KL, designed to fit the Rittal KX/KL series terminal boxes, are installed in combination with a cable entry system for either pre-terminated or standard cables. FP flange plates are pre-cut, pre-drilled and painted for easy and quick installation of icotek cable routing products.

We recommend fastening the cable entry systems with a torque of 1.5 – 2.0 Nm.

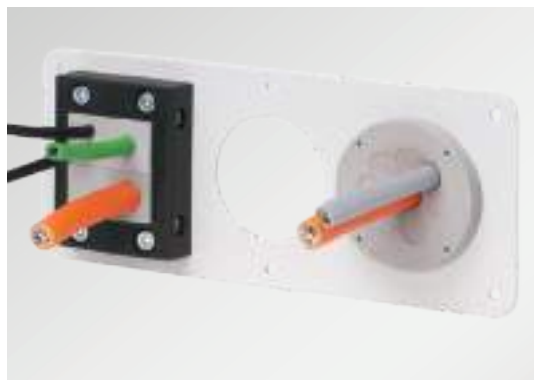
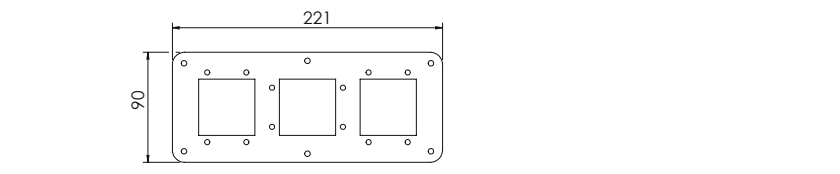
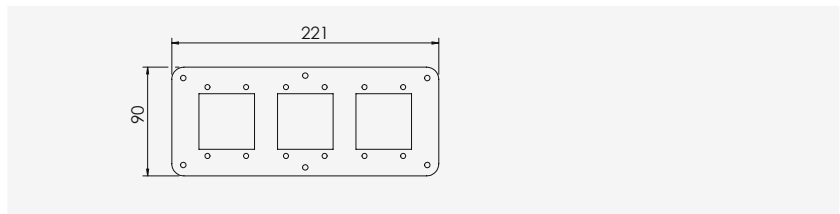
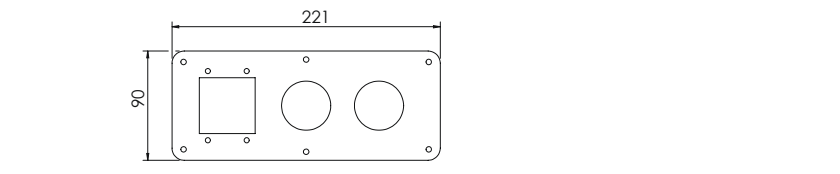
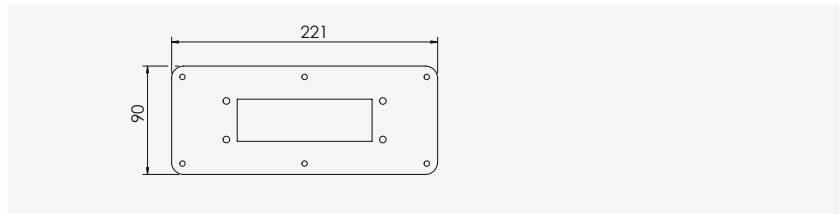
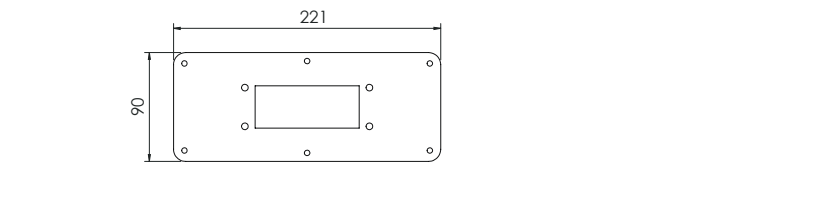
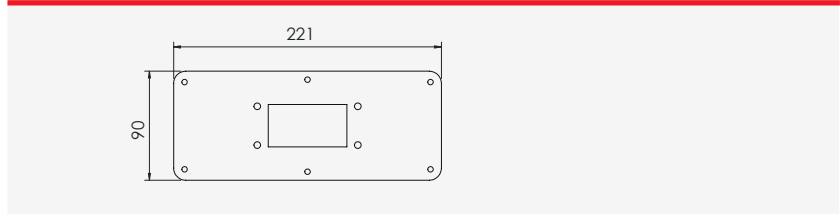
Specifications

Material Sheet steel, powder coated

Compatible with

| | |
|------------------------------|-----------|
| KEL-FA Cable entry frames | 24 - 27 |
| KEL Cable entry frames | 28 - 37 |
| KEL-U Cable entry frames | 20 - 22 |
| KEL-QUICK Cable entry frames | 105 - 107 |
| KEL-SNAP Mounting frames | 52 - 55 |
| KEL-QTA Cable entry frames | 114 - 115 |
| KEL-DPU Cable entry plates | 144 - 147 |
| KEL-DPZ Cable entry plates | 130 - 137 |
| KEL-DPR Cable entry plates | 160 - 161 |
| KEL-DP Cable entry plates | 163 |
| KEL-BES | 354 |
| KEL-BES-S | 355 |
| Blank plates | 330 - 332 |

Description



FP-KX/KL

Flange plates for terminal boxes

| Type | Order No. RAL 7035 | Flange plates compatible with | Size FP | Compatible with |
|--------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------|------------------------------------------------------------------------------------------------------------------|
| FP-KX/KL 221x90 10 with 1 cut-out 36 x 65 mm | 43853 | KEL 10 KEL-U 10 KEL-FA 10 KEL-QUICK 10 KEL-SNAP 10 KEL-SNAP-S 10 KEL-DPZ 10 KEL-DP 10 KEL-BES(-S) 10 | 2 | Terminal boxes Type KL KX 1536.000 KX 1537.000 KX 1538.000 KX 1539.000 KX 1540.000 KX 1541.000 |
| FP-KX/KL 221x90 16 with 1 cut-out 36 x 86 mm | 43855 | KEL 16 KEL-U 16 KEL-FA 16 KEL-QUICK 16 KEL-SNAP 16 KEL-SNAP-S 16 KEL-DPZ 16 KEL-DP 16 KEL-BES(-S) 16 | 2 | Terminal boxes Type KL KX 1536.000 KX 1537.000 KX 1538.000 KX 1539.000 KX 1540.000 KX 1541.000 |
| FP-KX/KL 221x90 24 with 1 cut-out 36 x 112 mm | 43834 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 KEL-BES(-S) 24 | 2 | Terminal boxes Type KL KX 1536.000 KX 1537.000 KX 1538.000 KX 1539.000 KX 1540.000 KX 1541.000 |
| FP-KX/KL 221x90 A with 3 cut-outs | 43852 | KEL-B KEL-U-B KEL-QUICK-B KEL-SNAP-B KEL-DPZ-B KEL-DPZ 40 KEL-DPF 40 | 2 | Terminal boxes Type KL KX 1536.000 KX 1537.000 KX 1538.000 KX 1539.000 KX 1540.000 KX 1541.000 |
| FP-KX/KL 221x90 B with 3 cut-outs 46 x 46 mm | 43854 | Use with: 2× KEL-SNAP-B and 1× KEL-DPZ-B | 2 | Terminal boxes Type KL KX 1536.000 KX 1537.000 KX 1538.000 KX 1539.000 KX 1540.000 KX 1541.000 |
| FP-KX/KL 221x90 C with 3 cut-outs 46 x 46 mm | 43856 | KEL-B KEL-U-B KEL-QUICK-B KEL-DPZ-B | 2 | Terminal boxes Type KL KX 1536.000 KX 1537.000 KX 1538.000 KX 1539.000 KX 1540.000 KX 1541.000 |



IP65 cable entry plate for Rittal KX and KL:
KEL-DPZ-KX/KL page 172

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FP-AE

Flange plates for compact enclosures

We supply complete flange plates FP with 112 × 36 mm cut-outs for compact enclosures of the AE series. The cut-outs, as well as the drilling template, conform to the standard cut-outs for 24-pole industrial connectors.

All flange plates are RAL 7035 powder-coated. Please use the gaskets of the standard plates. Enclosures are supplied with gaskets and screws.

We recommend fastening the cable entry systems with a torque of 1.5 - 2.0 Nm.

Advantages & benefits

- No expensive extra sheet metal work is required
- High cable density is achieved by using KEL-FA, KEL, KEL-U, KEL-QUICK, KEL-DPU, KEL-DPZ or KEL-DP
- Reduce labour costs by using cable entry systems compared to the assembly of conventional cable glands

Specifications

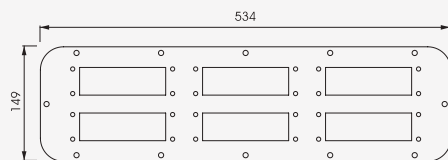
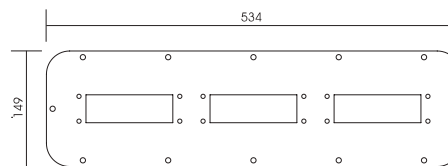
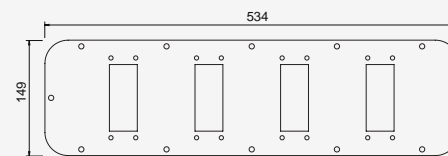
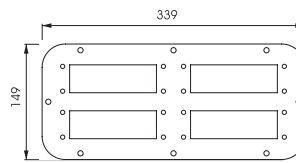
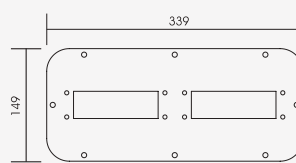
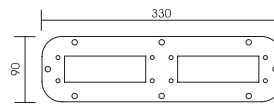
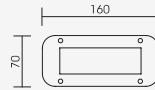
Material Sheet steel, powder coated

Compatible with

| | |
|------------------------------|-----------|
| KEL-FA Cable entry frames | 24 - 27 |
| KEL Cable entry frames | 28 - 37 |
| KEL-U Cable entry frames | 20 - 22 |
| KEL-QUICK Cable entry frames | 105 - 107 |
| KEL-SNAP Mounting frames | 52 - 55 |
| KEL-QTA Cable entry frames | 114 - 115 |
| KEL-DPU Cable entry plates | 144 - 147 |
| KEL-DPZ Cable entry plates | 130 - 137 |
| KEL-DPR Cable entry plates | 160 - 161 |
| KEL-DP Cable entry plates | 163 |
| KEL-BES | 354 |
| KEL-BES-S | 355 |
| Blank plates | 330 - 332 |



Description



FP-AE

Flange plates for compact enclosures

| Type | Order No. RAL 7035 | Compatible with: (Product Group 1) | Compatible with: (Product Group 2) | Size FP | Compatible with |
|-------------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------|---------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FP-AE 160 70 with 1 cut-out 36 x 112 mm | 43836 | KEL-QTA 24 | KEL-DP 24 | 1 | AE 1032 AE 1035 |
| FP-AE-24 330 90 with 2 cut-outs 36 x 112 mm | 43838 | KEL 24 KEL-U 24 KEL-QUICK 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 3 | AE 1030 AE 1031 AE 1038 AE 1380 |
| FP-AE-16 330 90 with 2 cut-outs 36 x 86 mm | 43861 | KEL 16 KEL-U 16 KEL-QUICK 16 KEL-BES 16 KEL-BES-S 16 | KEL-DPZ 16 KEL-DP 16 | 3 | |
| FP-AX AE 339 149 with 2 cut-outs 36 x 112 mm | 43840 | KEL 24 KEL-U 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 4 | AE 1037 AE 1045 AE 1050 AE 1057 AE 1100 AE 1110 AE 1114 AE 1130 AE 1213 AE 1338 AE 1350 CS 9751.125 CS 9751.145 CS 9751.165 CS 9752.125 TP 6710 TP 6712 TP 6714 TP 6716 |
| FP-AX AE 339 149 with 4 cut-outs 36 x 112 mm | 43846 | KEL 24 KEL-U 24 KEL-QUICK 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 4 | |
| FP-AX AE 534 149 with 4 cut-outs 36 x 86 mm | 43871 | KEL 16 KEL-U 16 KEL-QUICK 16 KEL-SNAP 16 KEL-BES 16 KEL-BES-S 16 | KEL-DPZ 16 KEL-DP 16 | 5 | AE 1039 AE 1054 AE 1055 AE 1058 AE 1060 AE 1073 AE 1076 AE 1077 AE 1090 AE 1180 AE 1260 AE 1280 AE 1339 AE 1360 AE 1376 AE 1958 EL 1919 EL 1926 |
| FP-AX AE 534 149 with 3 cut-outs 36 x 112 mm | 43842 | KEL 24 KEL-U 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 5 | |
| FP-AX AE 534 149 with 6 cut-outs 36 x 112 mm | 43848 | KEL 24 KEL-U 24 KEL-QUICK 24 KEL-QTA 24 KEL-BES 24 KEL-BES-S 24 | KEL-DPZ 24 KEL-DPU 24 KEL-DP 24 | 5 | IN 1076.290 TP 6711 TP 67113 TP 6715 TP 6717 |

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The FP flange plates type BG, designed to fit the Rittal BG series enclosures, have up to 3 cut-outs that match the dimensions of the standard cut-outs for the 24-pole industrial connectors. These flange plates are installed in combination with a cable entry system for either pre-terminated cables (KEL-FA 24, KEL 24, KEL-U 24 or KEL-QUICK 24) or standard cables (KEL-DPZ 24, KEL-DPU 24 or KEL-DP 24).

We recommend fastening the cable entry systems with a torque of 1.5 – 2.0 Nm.

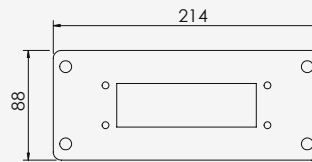
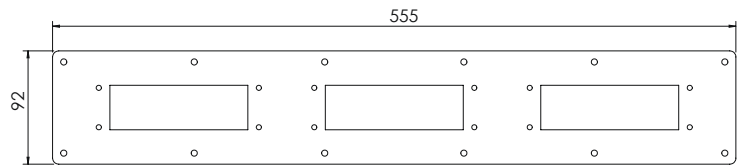
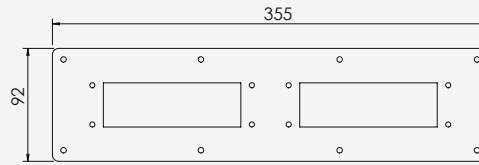
Specifications

Material Sheet steel, powder coated

Compatible with

| | |
|---------------------------------|-----------|
| KEL-FA 24 Cable entry frames | 29 |
| KEL 24 Cable entry frames | 25 |
| KEL-U 24 Cable entry frames | 21 |
| KEL-QUICK 24 Cable entry frames | 106 |
| KEL-SNAP Mounting frames | 52-55 |
| KEL-QTA 24 Cable entry frames | 114 |
| KEL-DPU 24 Cable entry plates | 145 - 147 |
| KEL-DPZ 24 Cable entry plates | 148 - 150 |
| KEL-DPR Cable entry plates | 160 - 161 |
| KEL-DP 24 Cable entry plates | 163 |
| Blank plates | 330-332 |

Description



| Type | Order No. RAL 7035 | Flange plates compatible with | Size FP. | Compatible with |
|---------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------------------------|
| FP-BG 355x92 with 2 cut-outs 36 x 112 mm | 43866 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-DPZ 24 KEL-DPR 24 KEL-DPU 24 KEL-DP 24 KEL-BES(-S) 24 | - | BG 1558.510 |
| FP-BG 555x92 with 3 cut-outs 36 x 112 mm | 43865 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-DPZ 24 KEL-DPR 24 KEL-DPU 24 KEL-DP 24 KEL-BES(-S) 24 | 6 | BG 1050.900 BG 1559.510 IN 1510.280 |
| FP-FL 21 with 1 cut-out 36 x 112 mm | 43832 | KEL 24 KEL-U 24 KEL-FA 24 KEL-QUICK 24 KEL-SNAP 24 KEL-QTA 24 KEL-DPZ 24 KEL-DPR 24 KEL-DPU 24 KEL-DP 24 KEL-BES(-S) 24 | - | Fibox plates |

BPK

Blank plates, plastic



BPK Blank plates seal cut-outs for standard 10-pole / 16-pole / 24-pole industrial connectors with IP rating up to IP64.

Plastic blank plates are available in two different versions:

Type BPK: Blank plates for screw connection
 Type BPK-RF A: Blank plates for snapping into metal sheet plates up to a thickness from 1.5 to 3 mm

Advantages & benefits

- Fast mounting of the blank plates BPK-RF range by snapping into the cut-out
- Integrated circular sealing (up to IP66)

Specifications

Material Polypropylene (PP)
 Circular sealing: Elastomer
 Flame class UL 94 V-0
 IP rating BPK: IP66 (certified acc. to EN 60529)
 BPK-RF A: IP54
 Temperature -30°C to +140°C (static)
 Properties Halogen free, silicone free

Compatible with

FP Flange plates 320 - 329

| Type | Order No. | Blank plate for KEL cut-out | Dimensions | PU |
|-----------------------------------------------------|-----------|----------------------------------|-------------|----|
| BPK Blank plates for screw connection: | | | | |
| BPK-B | 42010 | ... -B | 76 × 53 mm | 10 |
| BPK 10 | 42015 | ... 10 | 101 × 53 mm | 10 |
| BPK 16 | 42016 | ... 16 | 121 × 53 mm | 10 |
| BPK 24 | 42024 | ... 24 KEL-FG-ER A KEL-FG-A | 148 × 53 mm | 10 |
| BPK Blank plates for snapping into cut-outs: | | | | |
| BPK-B-RF A | 42010.002 | ... -B | 76 × 53 mm | 10 |
| BPK 10-RF A | 42015.002 | ... 10 | 101 × 53 mm | 10 |
| BPK 16-RF A | 42016.002 | ... 16 | 121 × 53 mm | 10 |
| BPK 24-RF A | 42024.002 | ... 24 KEL-FG-ER A KEL-FG-A | 148 × 53 mm | 10 |
| BPK-JFX | 42620 | KEL-JUMBO flex | 88 × 88 mm | 5 |



BPK



BPK-RF



BPK-RF: Snap function, tool-free assembly



BPK: screwable

BPM

Blank plates, metal

Blank plates to close cut-outs for standard 6-pole/10-pole/16-pole/24-pole industrial connectors.

Blank plates are supplied with a gasket.

Specifications

| | |
|-----------|----------------------------------|
| Material | Steel, zinc-plated Width 2 mm |
| IP rating | IP66 |

Compatible with

| | |
|--------------------------|-----------|
| KDR 2 Split gland plates | 312 - 313 |
| FP Flange plates | 320 - 329 |
| MP Module plates | 314 - 315 |

| Type | Order No. | Blank plate for KEL cut-out | Dimensions | PU |
|----------------------|----------------|-----------------------------|---------------------------|----|
| BPM-E2 | 42048 | ... -E2 | 73 × 39.5 mm | 10 |
| BPM-E3 | 42049 | ... -E3 | 98 × 39.5 mm | 10 |
| BPM-E4 | 42050 | ... -E4 | 120 × 39.5 mm | 10 |
| BPM-E5 | 42051 | ... -E5 | 147 × 39.5 mm | 10 |
| BPM-B BPM-B V2A | 42013 41996 | ... -B | 75 × 58 mm | 10 |
| BPM 6 BPM 6 V2A | 42011 41991 | ... 6 | 90 × 52 mm | 10 |
| BPM 10 BPM 10 V2A | 42014 41992 | ... 10 | 99 × 58 mm | 10 |
| BPM-FG-B | 42012 | KEL-FG-B | 80 × 58 mm | 10 |
| BPM 16 BPM 16 V2A | 42025 41994 | ... 16 | 118 × 56 mm | 10 |
| BPM 16-E | 42023 | KEL 16-E | 120 x 87 mm | 1 |
| BPM 16-MT | 42026 | KEL 16-MT | 120 x 102 mm | 1 |
| BPM 16-2MT | 42031 | KEL 16-2MT | 120 x 146 mm | 1 |
| BPM 24 BPM 24 V2A | 42027 41995 | ... 24 | 145 × 56 mm | 10 |
| BPM 24-E | 42029 | KEL 24-E | 143 x 83 mm | 1 |
| BPM 24-MT | 42028 | KEL 24-MT | 147 × 102 mm | 1 |
| BPM-JUMBO flex | 42033 | KEL-JUMBO flex | 88 × 88 mm | 1 |
| BPM-JUMBO 1 | 42030 | KEL-JUMBO 1 | 116 × 110 mm | 1 |
| BPM-JUMBO 2 | 42032 | KEL-JUMBO 2 | 200 × 116 mm | 1 |
| BPM-ULTRA | 42633 | KEL-ULTRA flex | ∅ 168 mm Width: 1.5 mm | 1 |



BPK-SNAP

Blank plates for KEL-SNAP frames

IP54 RoHS compliant Made in Germany

Blank plate BPK-SNAP to close cut-outs of pre-assembled KEL-SNAP frames.

A snap frame can be closed, i.e. during transport to avoid entry of dust, as long as a KEL frame is not mounted.

The BPK-SNAP blank plate is simply snapped on the KEL frame. There is no tool needed to remove it.

BPK-SNAP 16 and BPK-SNAP 24 for closing cut-outs of the KEL-SNAP mounting frames and unused slide frames of the KDR-ESR gland plates.

Specifications

| | |
|-------------|-----------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0 |
| IP rating | IP54 |
| Temperature | -40°C to +80°C (static) |
| Properties | Halogen free, silicone free |

Compatible with

| | |
|---------------------------------------|-----------|
| KEL-SNAP Mounting frames | 52 - 55 |
| KDR-ESR Gland plate with Slide frames | 300 - 311 |

| Type | Order No. | Blank plate compatible with | Dimensions l x b x h | PU |
|---------------|-----------|-----------------------------|-------------------------|----|
| BPK-SNAP-B | 42003 | KEL-SNAP-B4 | 58 × 72.8 × 17 mm | 10 |
| BPK-SNAP 10 | 42004 | KEL-SNAP 10 | 58 × 98.3 × 17 mm | 10 |
| BPK-SNAP 16 | 42007 | KEL-SNAP 16 | 58 × 120 × 17 mm | 10 |
| BPK-SNAP 24 | 42017 | KEL-SNAP 24 | 58 × 147 × 17 mm | 10 |
| BPK-SNAP 24-E | 42008 | KEL-SNAP 24-E | 83 × 147 × 17 mm | 10 |

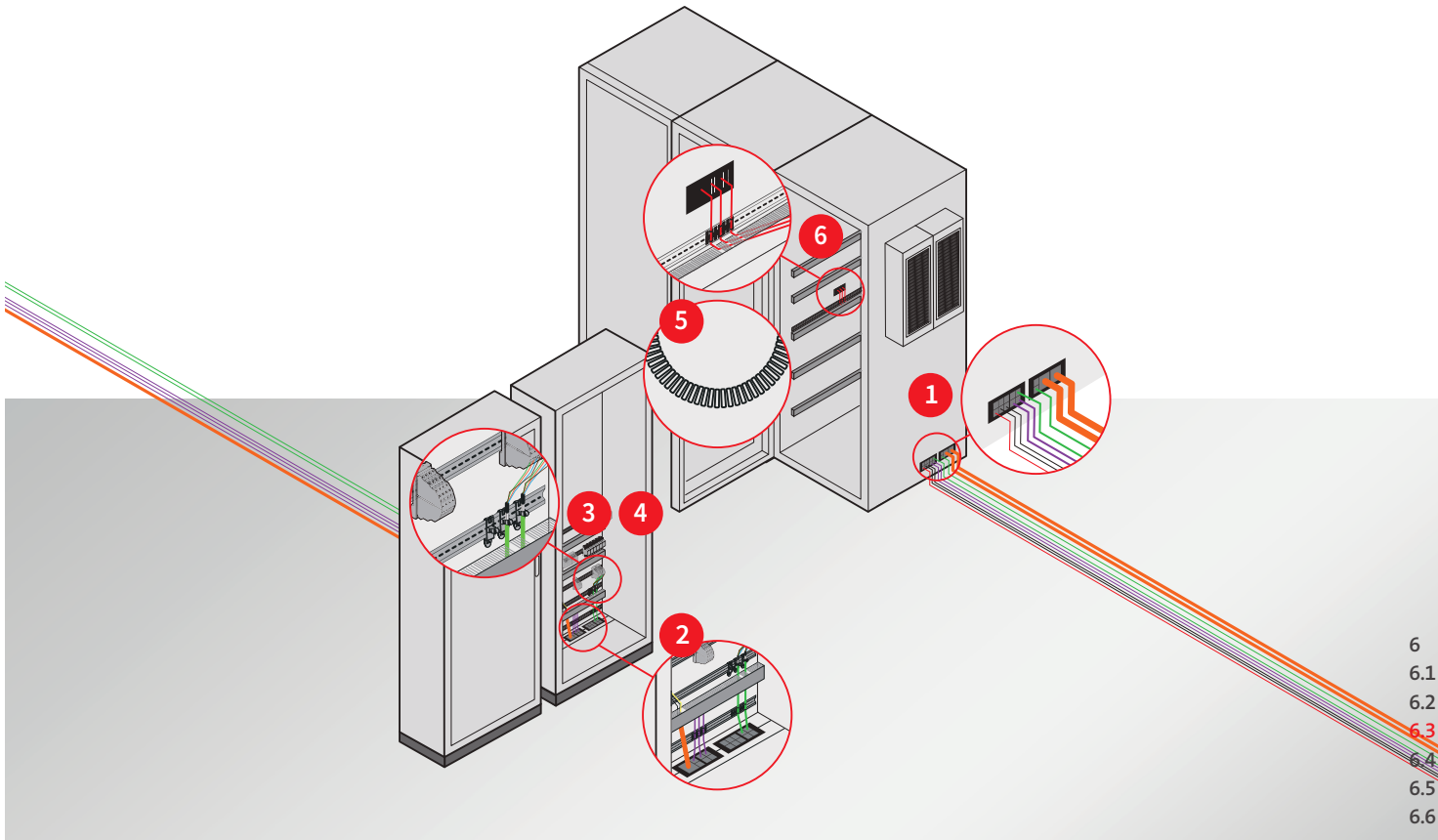


Control panel construction

Control panel construction is required in numerous areas: from building technology and electrical engineering to industrial automation and energy distribution through to network technology. In these areas, electrical engineers are confronted with deadlines and cost pressure. High demands are placed on individual control panel solutions, short production time and high quality at low costs.

icotek offers highly efficient and cost-effective solutions for every control panel application in the fields of cable entry, cable management and EMC cable shielding.

- 1 Cable entry frames and plates**
Product groups 1 and 2
Page 10 – 174
- 2 Gland plates, flange plates, accessories**
Product group 6
Page 294 – 349
- 3 Strain relief and cable routing**
Product group 3
Page 186 – 219
- 4 EMC solutions**
Product group 4
Page 220 – 283
- 5 CONFIX Cable conduit system**
Product group 5
Page 284 – 293
- 6 Cable pass-through with brush seal**
Product group 7
Page 350 – 369



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6.4 TE-M

Thread extension for cable glands and cable entry plates



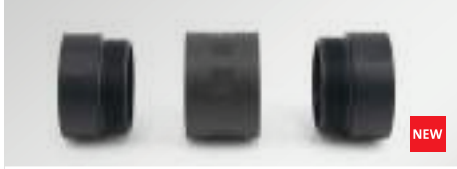
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- 6.4**
- 6.5
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Thread extension
for cable glands and cable entry plates
M32, M50, M63

TE-M

334 – 337



Adapter
for thread extension
M32, M50, M63

TE-MA

338



Cover panel
for thread extension
M32, M50, M63

AB-M

339



Hexagonal Locknuts
M16 – M85

KGM / GM / GMT

346

TE-M

Thread extension for cable glands and cable entry plates

The icotek cable glands and cable entry plates with metric thread (pitch 1.5 mm) are screwed together with a locknut during assembly. If the thread lengths are not sufficient, for example when mounting on sandwich panels or thick concrete walls, icotek offers a practical solution: the icotek thread extension!

The icotek thread extension is available in three sizes (M32, M50, M63) and in three lengths (35 mm, 60 mm, 120 mm) and represents a real innovation in the field of cable management. The different lengths can be flexibly combined or shortened at the designated points. This means that not only very large, but also dimensionally accurate distances can be overcome when routing the cable. Due to their stable construction, almost any number of thread extensions can be screwed together. If the cable gland is not supplied with a locknut, this must be ordered as well.

Advantages

- Wide range of applications in different industries such as construction, building services, caravans, cleanroom and more
- Especially suitable for sandwich panels of all wall thicknesses
- IP protection of the cable gland or cable entry plate used remains in place
- Almost endless extension possible
- Different thread lengths can be flexibly combined with each other
- Larger lengths can be shortened at the notch between the threads, without damaging the threads
- Indentation for wrench size for easy tightening of the screw connection
- Available in sizes M32, M50 and M63
- Thread lengths: 35 mm, 60 mm or 120 mm
- Fits to all round icotek cable glands and cable entry plates M32, M50 and M63

Specifications

| | |
|---------------|--------------------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | - 40°C to + 140°C (static) |
| Properties | Halogen free, silicone free |
| Cut-out sizes | 37/55/68 mm (standard sizes for hole saws) |

Accessories

| | |
|-------------|---------|
| TE-M | 338 |
| AB-M | 339 |
| KVT-ER | 60-61 |
| KVT | 62-63 |
| DB | 70-71 |
| KEL-DPZ | 156-157 |
| KEL-DPZ-HD | 410-411 |
| KEL-SCDP-TR | 178-179 |
| KEL-DPF | 183 |
| Locknut | 346 |



| Type | Thread | Length | External diameter | Wrench size | Order No. | PU |
|-------------|-----------|--------|-------------------|-------------|-----------|----|
| TE-M32 35 | M32 x 1,5 | 35 mm | 36,5 mm | SW 35 | 52300 | 5 |
| TE-M32 60 | M32 x 1,5 | 60 mm | 36,5 mm | SW 35 | 52301 | 5 |
| TE-M32 120 | M32 x 1,5 | 120 mm | 36,5 mm | SW 35 | 52302 | 5 |
| TE-M50 35 | M50 x 1,5 | 35 mm | 54,5 mm | SW 53 | 52310 | 5 |
| TE-M50 60 | M50 x 1,5 | 60 mm | 54,5 mm | SW 53 | 52311 | 5 |
| TE-M50 120 | M50 x 1,5 | 120 mm | 54,5 mm | SW 53 | 52312 | 5 |
| TE-M 63 35 | M63 x 1,5 | 35 mm | 67,5 mm | SW 66 | 52313 | 5 |
| TE-M 63 60 | M63 x 1,5 | 60 mm | 67,5 mm | SW 66 | 52314 | 5 |
| TE-M 63 120 | M63 x 1,5 | 120 mm | 67,5 mm | SW 66 | 52315 | 5 |



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Adapter for TE-M

The TE-MA adapter is available as a supplement to the thread extensions, which can be joined together in almost any order. This allows thread extensions of the same diameter to be screwed together in opposite directions so that a cable gland or cable entry can be fitted on both sides. This enables routing and sealing on both sides of the wall.

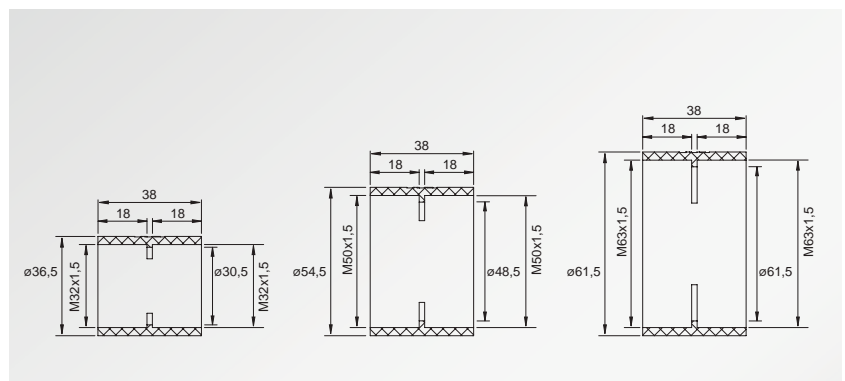
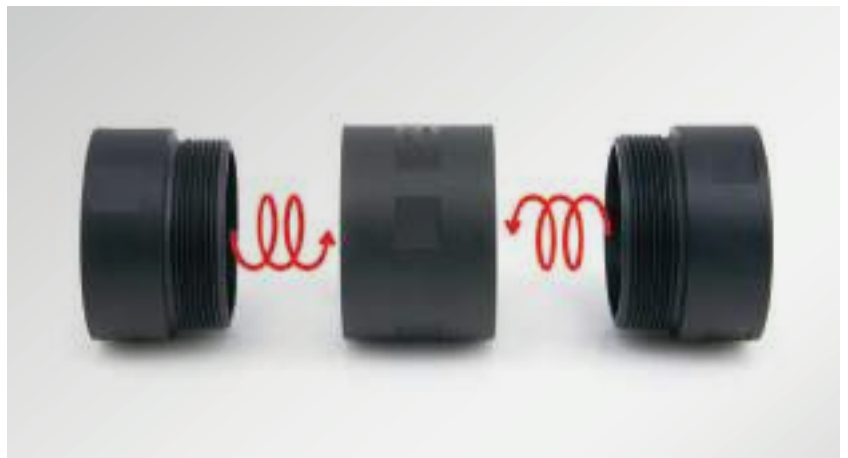
Advantages

- Use of the thread extension on both sides
- IP protection of the cable gland and cable entry used remains intact
- Available in M32, M50 and M63
- Tool-free joining of two thread extensions

Specifications

| | |
|-------------|-------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen free, silicone free |

| Type | Thread | Outer diameter | Length | Compatible with | Order No. | PU |
|------------------|-------------|----------------|--------|-----------------|-----------|----|
| Adapter TE-MA 32 | 32 x 1,5 mm | 36,5 mm | 38 mm | TE-M32 | 52305 | 5 |
| Adapter TE-MA 50 | 50 x 1,5 mm | 54,5 mm | 38 mm | TE-M50 | 52307 | 5 |
| Adapter TE-MA 63 | 63 x 1,5 mm | 67,5 mm | 38 mm | TE-M63 | 52308 | 5 |



TE-MA 32

TE-MA 50

TE-MA 63

Cover panel

Core drills with diameters from 80 mm are very often used to make wall openings in cleanrooms, cold storage rooms, buildings, etc. In order to be able to use the TE thread extension for such wall openings, the AB-M150 cover plates are used. They cover the large hole and reduce it to the required size. They also ensure a clean finish to the cut-out.

The cover panels have an outer diameter of 150 mm and a centre hole of 32.5 mm, 50.5 mm or 63.5 mm to accommodate the thread extension. They are made of 2 mm stainless steel and are bevelled on the outer radius to create a perfect transition to the wall.

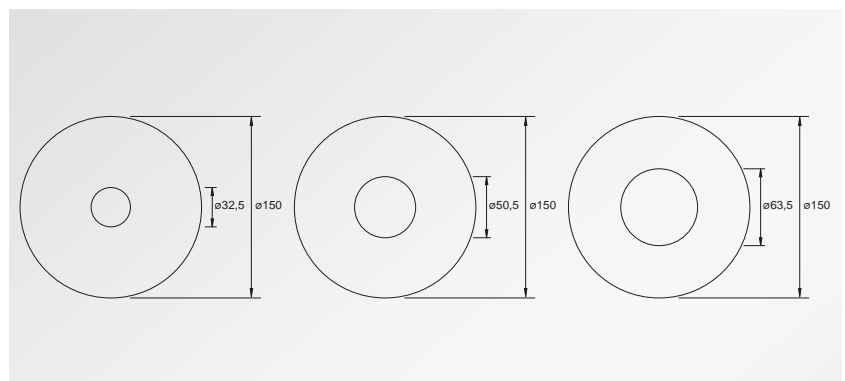
Advantages

- Reduction of large drill holes to the required size at the cut-out
- Suitable for the TE-M32, TE-M50 and TE-M63
- For a clean finish at the cut-out
- Perfect transition to the wall thanks to the bevel on the outer edge
- Installation with silicone or mounting adhesive (without fixing holes for hygiene reasons)

Specifications

Material Stainless steel
Material thickness 2 mm

| Type | Inner diameter | Outer diameter | Material thickness | Compatible with | Order No. | PU |
|-------------------------|----------------|----------------|--------------------|-----------------|-----------|----|
| Cover panel AB-M 150-32 | 32,5 mm | 150 mm | 2 mm | TE-M32 | 52350 | 1 |
| Cover panel AB-M 150-50 | 50,5 mm | 150 mm | 2 mm | TE-M50 | 52351 | 1 |
| Cover panel AB-M 150-63 | 63,5 mm | 150 mm | 2 mm | TE-M63 | 52352 | 1 |



AB-M 150-32

AB-M 150-50

AB-M 150-63

6.5 KEA 90° Cable entry adapter

The 90° adapter
for cable entries in size 24



KEA 24 is a multifunctional adapter for various size 24 cable entry systems. Cables are routed through the adapter at a 90° angle.

The installation direction can be horizontal or vertical. The cables are protected against mechanical tension in the entry and exit areas.

A major advantage of the new adapter is that a very high packing density can be achieved in combination with the icotek cable entry plates.



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Quick and easy, partly tool-free (R variant) assembly



Easy snap-on assembly with KEL-DP 24 B (Variant R)



High packing density in combination with cable entry plates in size 24



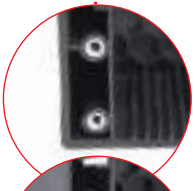
High stability due to the geometry of the housing



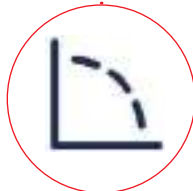
KEA 24 W90 S

Existing icotek products for cable entry can be used

Mechanical protection of the cables in the entry area



Wall mounting with threaded bushings or through bolts



Cable entry 90° to the housing



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KEA

90° Cable entry adapter

NEW up to IP66

KEA 24 is a cable entry adapter for accommodating various icotek cable entry frames and plates of size 24. The adapter allows cables to be routed at a 90° angle. The installation direction can be horizontal or vertical. The cables are protected against mechanical tension in the entry and exit areas. Wall mounting is done either with screws and nuts or by using threaded bushings. A flat rubber gasket is included in the shipment. icotek also offers suitable punches for the cut-out.

The cable entry plates KEL-DP 24 Type B can be easily snapped onto the KEA 24 W90 R. The cable entry frames KEL-U 24, KEL-ER 24, and the cable entry plates KEL-DPZ 24, KEL-DPR and KEL-DPU 24 can be screwed onto the KEA 24 W90 S. This enables the routing of cables with and without connectors.

Depending on the combination with an icotek cable entry system, the 90° adapter KEA achieves certified degrees of protection in accordance with EN 60529.

Advantages

- Allows the adaptation of cable entry plates at a 90° angle
- Quick and easy, partly tool-free (R variant) assembly
- High packing density in combination with cable entry plates (size 24)
- Mechanical protection at cable entry and exit due to the closed housing
- Universal 90° adapter for many icotek products in size 24
- Space saving within the control cabinet due to the bending radius being shifted outwards
- Edge protection

Specifications

| | |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material | Polyamide (PA) |
| Colour | black (RAL 9005) |
| IP rating KEA + ... | KEL-ER 24: IP54, IP65 KEL-U 24: IP54 KEL 24: IP54 KEL-DPU 24: IP54, IP65 KEL-DPZ 24: IP54, IP65, IP66 KEL-DPR: IP54, IP65 KEL-DP 24 B: IP54 |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | - 40°C to + 120°C (static) |
| Properties | Halogen free, silicone free |

Compatible with

| | |
|----------------------------------------------|---------------------|
| KEL(-U, -ER) 24 | 24, 17 |
| KEL-DPU 24, KEL-DPZ 24, KEL-DPR, KEL-DP 24 B | 145 - 150, 161, 163 |

Accessories

| | |
|---------|-----|
| Punches | 378 |
|---------|-----|



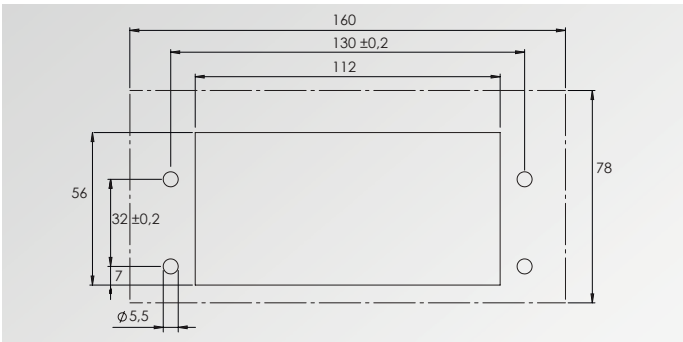
Compatible punches page 378

KEA

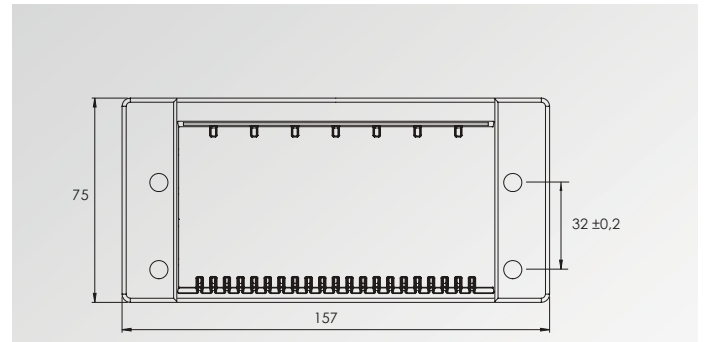
90° Cable entry adapter



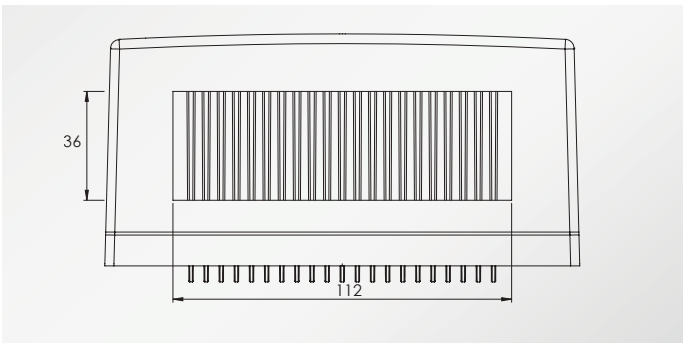
| Type | Cut-out KEA | Cut-out cable entry | compatible for | Colour | Order No. | PU |
|--------------|-------------|---------------------|----------------------------------------------------------------|--------|-----------|----|
| KEA 24 W90 R | 112 x 56 mm | 112 x 36 mm | KEL-DP 24 B | black | 48300 | 1 |
| KEA 24 W90 S | 112 x 56 mm | 112 x 36 mm | KEL-ER 24, KEL-U 24, KEL 24 KEL-DPU 24, KEL-DPR, KEL-DPZ 24 | black | 48301 | 1 |



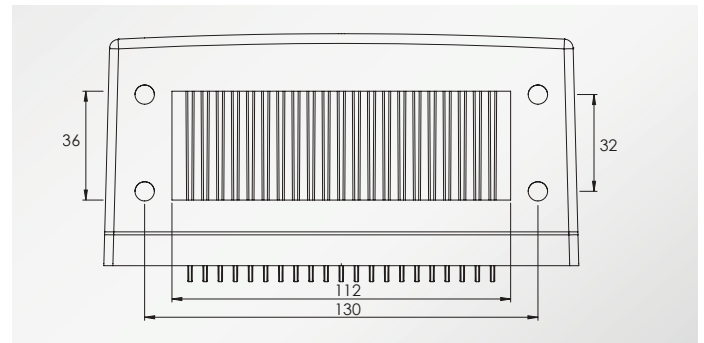
Cut-out and installation space KEA 24 W90 R and S



Rear side (wall side) KEA 24 W90 R and S



KEA 24 W90 R Cut-out for cable entry



KEA 24 W90 S Cut-out for cable entry



KEA 24 W90 R



KEA 24 W90 S

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6.6 Further accessories for enclosures

icotek offers useful enclosure accessories for easy assembly of cable entry components and EMC cable shield earthing products as well as for your cable management needs.



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Hexagonal Locknuts
M16 – M85

KGM / GM / GMT

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Supports
for top hat DIN rails and bus bars

MF

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Sealing bead
for enclosure base plates

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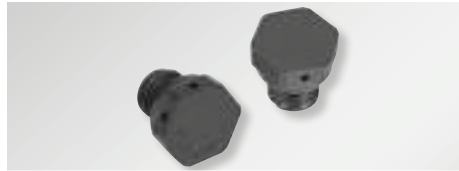
Sealing tape
for enclosure base plates

348



Drainage Device

349



Pressure compensation element
with metric thread

PCE M12 x 1,5

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Cable clamp
for C-rail mount

CCL

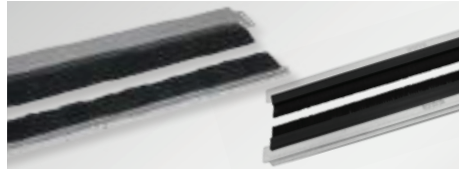
192 – 193



Rittal / Hoffman / Others
Universal brush strip
for enclosures

KDR-BES-U

356 – 363



Rittal
Enclosure gland plates
with brush grommets

KDRS-BES-U / KDR-BES-TS8

357, 362 – 363



Rittal
Split flange plates
with brush strips

FP-AX-BES-U

366 – 367



Brush strips for the cable management
in the server rack from various manufacturers

BES 10 / BES 19

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Hexagon locknut with metric thread for assembly of components. For routing SUB-D, DVI or PROFIBUS connectors in combination with the split cable glands KVT/QVT, special locknuts with suitable cut-outs are required:

KGM-SUB-D9 fits D-Sub 9 connectors
(Required wall cut-out: \varnothing 36 mm)

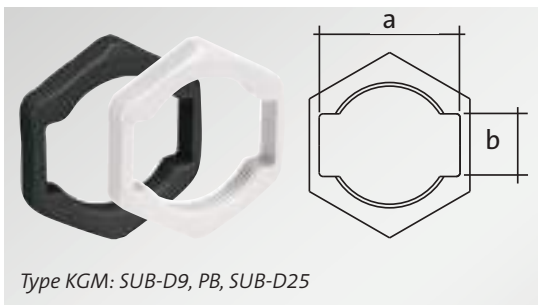
KGM-PB fits DVI and PROFIBUS connectors
(Required wall cut-out: \varnothing 42 mm)

KGM-SUB-D25 fits SUB-D25 connectors
(Required wall cut-out: \varnothing 50 - 54 mm)

Split hexagon locknuts GMT for use in combination with split cable glands KVT/QVT whenever pre-terminated cables are routed inside cable protection conduits through a machine or cabinet wall. Suitable for split corrugated conduits CONFIX WST.

Specifications

| | |
|-------------|--------------------------------------|
| Material | Polyamide (PA)/Polycarbonate (PC) |
| Colour | ■ grey (similar RAL 7035) ■ black |
| Flame class | UL 94 V-0, self-extinguishing |
| Temperature | -30°C to +120°C |
| Properties | Halogen free, silicone free |



| Thread | Type | Order No. | Material | Height [mm] | Wrench size | Diagonal [mm] | Cut-out a x b [mm] | PU |
|----------------------------------------|-------------|--------------------|----------|-------------|-------------|---------------|--------------------|----|
| Type KGM: Standard nut, plastic | | | | | | | | |
| M16 x 1.5 | KGM 16 | ■ 52272 | PA | 4.3 | SW 22.8 | 28.2 | - | 10 |
| M20 x 1.5 | KGM 20 | ■ 52273 ■ 52283 | PA | 7 | SW 26 | 28.2 | - | 10 |
| M25 x 1.5 | KGM 25 | ■ 52274 ■ 52284 | PA | 7 | SW 32 | 36 | - | 10 |
| M32 x 1.5 | KGM 32 | ■ 52275 ■ 52285 | PA | 7 | SW 41 | 46 | - | 10 |
| M40 x 1.5 | KGM 40 | ■ 52276 ■ 52286 | PA | 7 | SW 50 | 56 | - | 10 |
| M50 x 1.5 | KGM 50 | ■ 52277 ■ 52287 | PA | 8.5 | SW 60 | 66 | - | 10 |
| M63 x 1.5 | KGM 63 | ■ 52278 ■ 52288 | PA | 8.5 | SW 75 | 83 | - | 5 |
| M75 x 1.5 | KGM 75 | ■ 52289 | PA | 8.5 | SW 85 | 93.1 | - | 5 |
| M85 x 2 | KGM 85 | ■ 52290 | PA | 10 | SW 100 | 109.5 | - | 5 |
| Type KGM: PB, SUB-D9, SUB-D25 | | | | | | | | |
| M32 x 1.5 | KGM-SUB-D9 | ■ 45105 ■ 45106 | PC | 7 | SW 41 | 46 | 35 x 16 | 10 |
| M40 x 1.5 | KGM-PB | ■ 45107 ■ 45109 | PC | 8 | SW 50 | 55 | 43 x 17 | 10 |
| M50 x 1.5 | KGM-SUB-D25 | ■ 45108 ■ 45110 | PC | 8 | SW 60 | 66 | 55 x 16 | 10 |
| Type GMT: Split locknut | | | | | | | | |
| M16 x 1.5 | GMT 16 | ■ 31105 | PA | 8 | SW 19 | 21 | - | 10 |
| M20 x 1.5 | GMT 20 | ■ 31110 | PA | 9 | SW 27 | 29 | - | 10 |
| M25 x 1.5 | GMT 25 | ■ 31100 | PA | 9 | SW 32 | 35 | - | 10 |
| M32 x 1.5 | GMT 32 | ■ 31120 | PA | 12 | SW 40 | 44 | - | 10 |
| M40 x 1.5 | GMT 40 | ■ 31130 | PA | 15 | SW 48 | 53 | - | 10 |
| M50 x 1.5 | GMT 50 | ■ 31140 | PA | 15 | SW 63 | 69 | - | 10 |

MF

Supports for top hat DIN rails and bus bars

There are 4 models of supports for mounting bus bars 10 × 3 mm or 35 mm top hat DIN rails. Various supports are available to provide solutions for different conditions.

A mounting clip is used for fastening the bus bar to the supports. The support has M6 female screw threads to affix the mounting clip of the DIN rail with a M6 screw.

Advantages & benefits

- Wide variety of supports with different sizes and designs
- Simple assembly of top hat DIN rails and 10 × 3 mm bus bars
- Support type D provides possibility to affix 2 top hat DIN rails

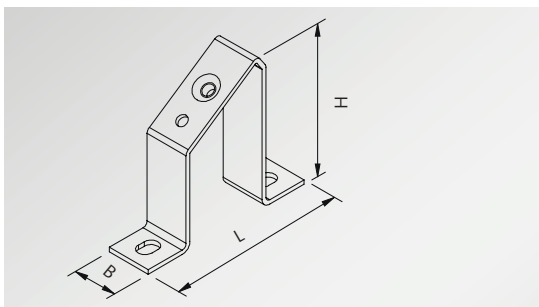
Specifications





Material Sheet steel, galvanically zinc-plated

Accessories

Bus bar Order No. 36100

Mounting clip Order No. 36150



| Description | Type | Version | Order No. without Clip | Order No. with Clip | Dimension [L × B × H] | PU |
|-------------------------------------------------------------------------------------|--------|---------|------------------------|---------------------|-----------------------|----|
| Type A | MF-A49 | Type A | 36056 | 36058 | 80 × 20 × 49 mm | 10 |
|  | MF-A68 | Type A | 36064 | 36066 | 80 × 20 × 68 mm | 10 |
| | MF-A88 | Type A | 36072 | 36074 | 80 × 20 × 88 mm | 10 |
| Type B | MF-B20 | Type B | 36000 | 36002 | 80 × 20 × 20 mm | 10 |
|  | MF-B30 | Type B | 36008 | 36010 | 80 × 20 × 30 mm | 10 |
| | MF-B50 | Type B | 36016 | 36018 | 80 × 20 × 50 mm | 10 |
| | MF-B90 | Type B | 36024 | 36026 | 80 × 20 × 90 mm | 10 |
| Type C | MF-C40 | Type C | 36032 | 36034 | 40 × 18 × 40 mm | 10 |
|  | MF-C53 | Type C | 36040 | 36042 | 40 × 18 × 53 mm | 10 |
|  | MF-D49 | Type D | 36048 | 36050 | 120 × 20 × 49 mm | 10 |

Bus bar 10 × 3 mm

| Type | Order No. | PU | |
|-------------------|-------------------|-------|---|
| Bus bar 10 × 3 mm | 10 × 3 × 1000 mm* | 36100 | 1 |

* Other lengths available on request

Sealing bead

Self-adhesive foamed PU seal

The KDR-BMP enclosure base plates have a foamed PU seal glued to the underside. icotek now also offers this separately for individual applications.

The PU seal is applied to a self-adhesive carrier film and is available in 2 widths. The length is 2150 mm in each case. The height of the seal is determined by the respective width. The PU seal is easy to compress and has very good recovery properties.

Advantages & benefits

- Very simple and quick installation
- Easy laying around corners
- Very good recovery properties

Specifications

| | |
|-------------|-----------------------------|
| Material | PU foam |
| Temperature | -40°C to 80°C |
| Properties | halogen free, silicone free |

| Type | Length | Width | Height | Order No. | PU |
|--------------|---------|-------|--------|-----------|----|
| Sealing bead | 2150 mm | 6 mm | 3.5 mm | 43347 | 1 |
| Sealing bead | 2150 mm | 9 mm | 5 mm | 43348 | 1 |



Installing the PUR seal is very easy: remove the protective film, stick it on, done!

Sealing tape

icotek offers a one-sided self-adhesive sealing tape for the enclosure base plates. It is available in two lengths, 1 metre and 10 metres long.

Advantages & Benefits

- Very simple and quick installation
- Very good recovery properties

Specifications

| | |
|-------------|--------------------------|
| Material | Cellular rubber (CR/NBR) |
| Temperature | -40°C to +100°C |
| Flame class | UL 94-HF1 |

| Type | Length | Width | Height | Order No. | PU |
|--------------|--------|-------|--------|-------------|----|
| Sealing tape | 1 m | 10 mm | 3 mm | 42999 | 1 |
| Sealing tape | 10 m | 10 mm | 3 mm | 42999.10000 | 1 |



Sealing tape
Order No. 42999 (L: 1 m)
Order No. 42999.10000 (L: 10 m)

Drainage device Pressure compensation element

IP69K IP67 IP66 Made in Germany RoHS compliant

Drainage device

In enclosures and housings with a high degree of protection, temperature differences result in condensation. By using a drainage device, it is possible to safely drain off the condensate without losing a maximum enclosure protection of IP66. A water-permeable membrane ensures the drainage of the enclosure due to its capillary effect. The design prevents splash water from entering the interior of the enclosure.

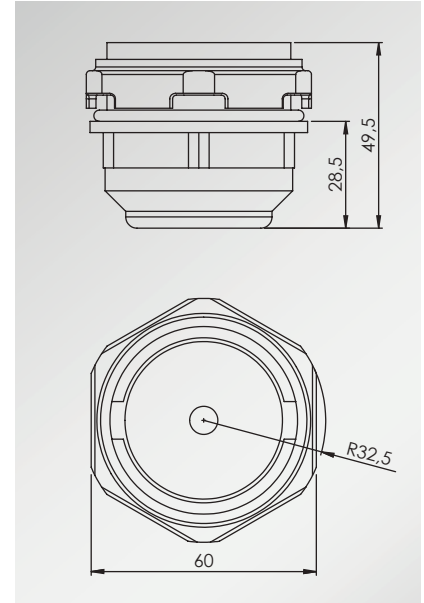
Advantages & benefits

- High protection class IP66/67, IP69K
- Good drainage performance
- Easy assembly
- Based on a standard cut-out
- Sturdy, weatherproof and UV-resistant housing

Specifications

| | |
|--------------------|----------------------------------------------|
| Water entry level | 0 mm (at 0.5 mm wall thickness) |
| Gasket | Sealing gasket NBR |
| Water permeability | approx. 200 ml/h with a water column of 5 mm |
| Mounting position | horizontal, lowest point |
| Temperature | -45 to +70°C |

| Type | Dimension Ø | Cut-out Ø | Order No. | PU |
|------------------------------|-------------|-----------|-----------|----|
| Drainage Device for M50 hole | 60 mm | 50 mm | 99193 | 1 |



Assembly

The drainage device is fixed in the bottom of the enclosure using the union nut in a hole of $\phi 50.5 \pm 0.5$ mm. Make sure that the sealing ring is on the outer housing wall and that the hole is free of burrs.

Pressure compensation element with metric thread

The pressure compensation element PCE with M12 x 1.5 thread is used to avoid variations in pressure caused by differences in temperature and thus to prevent damage caused by condensation. It provides protection class IP68. The pressure compensation element is easy to install by screwing it directly into the enclosure wall or via adapter grommets AT-K-M 12x1.5.

Specifications

| | |
|------------------|-----------------|
| Material | Polyamide |
| Flame class | UL 94 V-2 |
| Protection class | IP67, IP68 |
| Temperature | -20°C to +100°C |

| Type | Order No. | Thread | PU |
|---------------|-----------|-----------|----|
| PCE M12 x 1.5 | 99190 | M12 x 1.5 | 10 |



KVT-ER 63|4 equipped with pressure compensation element

6
6.1
6.2
6.3
6.4
6.5
6.6

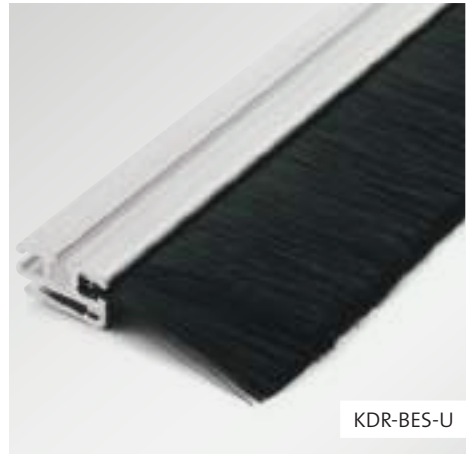


RoHS
compliant

Made in
Germany

Cable pass-through with brush seal

Brush plates and brush strips for enclosures, server racks, machines



7 Cable pass-through with brush seal

Brush plates and brush strips for enclosures, server racks, machines

icotek offers cable pass-through solutions with brush seals that are perfectly suitable for applications where no high sealing rate is required. The icotek brush seal solutions are meant for dust and dirt-proof cable pass-through of cables with and without preassembled connectors.

The application areas for a cable pass-through with brush seal are very versatile, e.g. in an electrical enclosure, a server rack, on a machine wall or on raised floors. icotek brush plates and brush strips are a cost-effective solution for a professional cable management.

The brush seal solutions allow reduced airflow while filtering out dust and larger particles. Thermal protection and visual screening are additional benefits. icotek brush plates also protect cables against wear due to sharp edges of the cut-out.

For cable pass-through applications in base areas of enclosures and server racks by numerous manufacturers and for wide cut-outs on machine walls icotek offers the universal brush strip KDR-BES-U. Due to the innovative clamp profile the brush strip can be clamped on any sheet metal edge, even in a 90° angle.

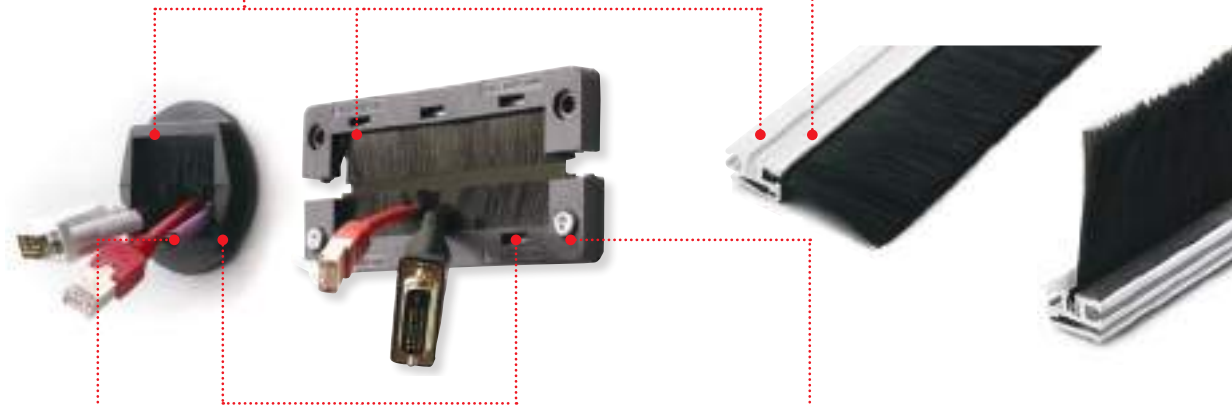
The 2-piece enclosure gland plates KDR-BES and flange plates FP-AX-BES are pre-equipped with brush strips and serve as dust- and dirt-tight cable pass-through.



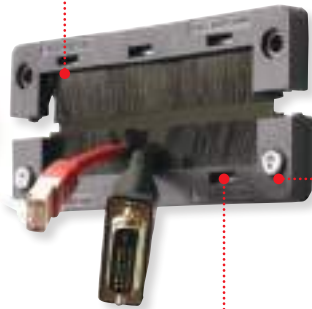
Quick and easy assembly,
partly without tools



Customization possible



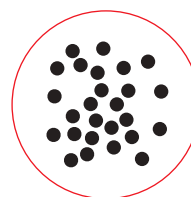
Round versions for screw-in
or snap-in assembly



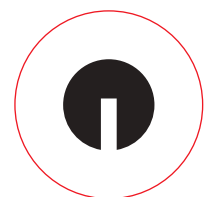
For metric or standard
cut-outs



Screw mounting or
mounting via expanding
rivets possible



Protection against
dust



Protection against
wear due to sharp
edges of the cut-out

Brush plate for cable pass-through



Brush plate
for cable pass-through
for standard cut-outs

KEL-BES

354



Split brush plate
for cable pass-through
for standard cut-outs

KEL-BES-S

355



Thread extension
for cable glands and
cable entry plates
M32, M50, M63

TE-M

334 – 337

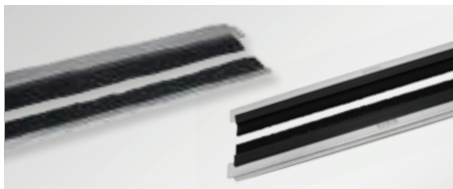
Brush strips, gland plates and flange plates with brush strips



Universal brush strip
for enclosures (Rittal/Hoffman/Others)

KDR-BES-U / KDR-BES-U-... series

356 – 363



**Rittal
Enclosure gland plates**
with brush grommets

KDRS-BES-U / KDR-BES-TS8

362 – 363



**Rittal
Split flange plates**
with brush strips

FP-AX-BES-U

366 – 367

Brush strips for the cable management in the 10" and 19" server rack



Brush strips for the cable management
in the 10" server rack from various
manufacturers

BES 10

368 – 369



Brush strips for the cable management
in the 19" server rack from various
manufacturers

BES 19

368 – 369

KEL-BES

Brush plate for cable pass-through



Brush plates KEL-BES for routing cables into server racks, control panels and electrical enclosures. KEL-BES is also an ideal solution for entry and exit of cables that are routed inside raised floors, e.g. in datacentres or IT closets. The brush plates can either be mounted via screws or via expanding rivets.

The KEL-BES plates match exactly the cut-out dimensions for 10-, 16- or 24-pin standard industrial connectors.

Advantages & benefits

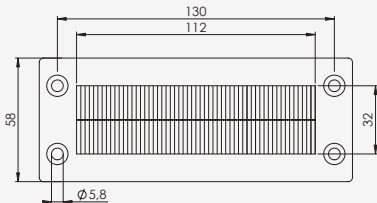
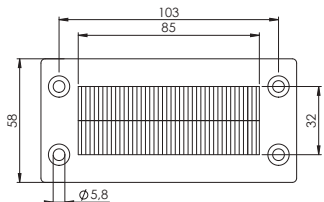
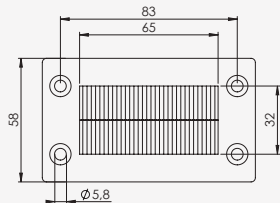
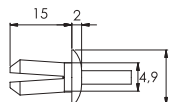
- Fast and easy assembly (optional: snap in assembly)
- Versatile utilisation
- Filtering out dust, hair and larger particulate matter
- Visual screening
- Protects cables against wear due to sharp edges of the cut-out
- For industrial standard cut-outs

Specifications

| | |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Material | Frame, rectangular: Polyamide (PA) (Flame class UL 94 V-o) Brushes: Polyamide (PA) Brush profile: sheet steel, zinc plated |
| Temperature | -20°C to +90°C |
| Properties | Halogen-free, silicone-free |
| Frame depth | 10 mm |

Accessories

| | |
|-----------------------------|-----|
| KEL-EMC-PF Cable collectors | 261 |
|-----------------------------|-----|

| Description | Type | Order No. | Cut-out | PU |
|-------------------------------------------------------------------------------------|------------------|-----------|-----------------------------|-----|
|  | KEL-BES 24 | 51515 | 36 x 112 mm | 10 |
|  | KEL-BES 16 | 51510 | 36 x 86 mm | 10 |
|  | KEL-BES 10 | 51505 | 36 x 65 mm | 10 |
|  | Expanding rivets | 99153 | For wall thickness 1 – 4 mm | 100 |



Suitable for control panel construction



... as well as for energy and building technology



Screw mounting or mounting via expanding rivets possible



Round version with M50 thread for locknut or snap-in mounting

KEL-BES-S

Split brush plate for cable pass-through



Split brush plates KEL-BES-S for routing cables into server racks, control panels and electrical enclosures. The brush plates can either be mounted via screws or via expanding rivets. Due to the split frame the KEL-BES-S can also be subsequently installed around the routed cables. The KEL-BES-S frames match exactly the cut-out dimensions for 10-, 16- or 24-pin standard industrial connectors.

For round metric cut-outs M32/M50 icotek offers the split KEL-BES-S 32/50. It can be either directly snapped into the cut-out or screwed with a locknut (included in the shipment).

Advantages & benefits

- Fast and easy assembly (optional: snap in assembly)
- Subsequent assembly possible
- Versatile utilisation
- Filtering out dust, hair and larger particulate matter
- Visual screening
- Protects cables against wear due to sharp edges of the cut-out
- For industrial standard cut-outs

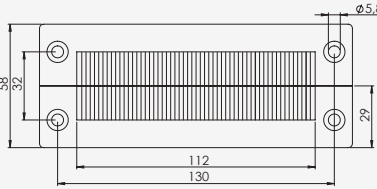
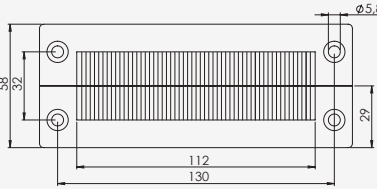
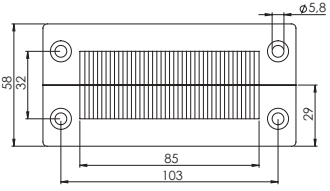
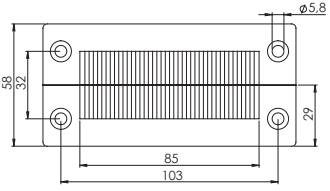
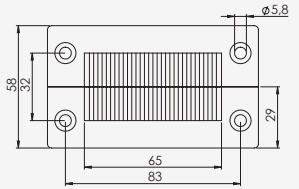
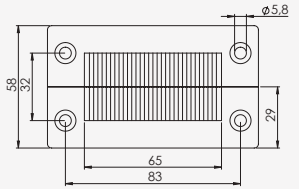
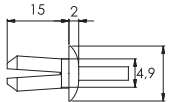
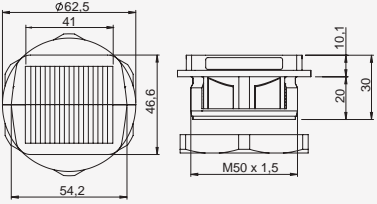
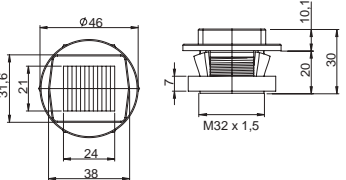
Specifications

| | |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material | Frame, rectangular: Polyamide (PA) Frame, round: Polycarbonate (PC) (Flame class UL94-Vo) Brushes: Polyamide (PA) Brush profile: sheet steel, zinc plated |
| Temperature | - 20°C to + 90°C |
| Properties | Halogen-free, silicone-free |
| Frame depth | 10 mm |

Accessories

| | |
|-----------------------------|---------|
| KEL-EMC-PF Cable collectors | 261 |
| TE-M | 334-337 |



| Description | Type | Order No. | Cut-out | PU |
|--------------------------------------------------------------------------------------|------------------------------------|-----------|-----------------------------------------------------------|-----|
|  | KEL-BES-S 24 | 51522 | 36 x 112 mm | 10 |
|  | KEL-BES-S 24 with expanding rivets | 51522.002 | 36 x 112 mm | 10 |
|  | KEL-BES-S 16 | 51521 | 36 x 86 mm | 10 |
|  | KEL-BES-S 16 with expanding rivets | 51521.002 | 36 x 86 mm | 10 |
|  | KEL-BES-S 10 | 51520 | 36 x 65 mm | 10 |
|  | KEL-BES-S 10 with expanding rivets | 51520.002 | 36 x 65 mm | 10 |
|  | Expanding rivets | 99153 | For wall thickness 1–4 mm | 100 |
|  | KEL-BES-S 50 | 51540 | M50 x 1.5 Snap-in function for wall thickness 1–2.5 mm | 10 |
|  | KEL-BES-S 32 | 51538 | M32 x 1.5 Snap-in function for wall thickness 1–2.5 mm | 10 |

KDR-BES-U

Universal brush strip for enclosures



Cable pass-through brush strip for enclosure bases or individual cut-outs on cabinets, enclosures, panels, server racks or machine walls. Due to the innovative and universal clamp strip the brush can also be assembled in a 90° angle, e.g. on bent sheet metal. Suitable for wall thickness 1.5 - 2 mm or 2.5 - 3 mm. Brush may be removed from the profile at any time and remounted using other mounting options.

The KDR-BES-U brush strip is adaptable to almost any enclosure or cabinet type on the market. The standard gland plates included in the enclosure delivery can be used for assembly. They do not have to be changed.

Advantages & benefits

- Fast, simple and tool-free mounting
- Original enclosure gland plates can be used
- Three mounting types possible
- Brush may be remounted at any time using other mounting options
- Available in any custom length up to 1.500 mm

Specifications

| | |
|-------------------------|-----------------------------|
| Material clamp strip | Aluminium |
| Material backing strips | Metal, galvanised |
| Material bristles | Polyamide (PA) |
| For sheet thickness | 1.5 – 2 mm, 2.5 – 3 mm |
| Temperature | -20°C to +90°C |
| Properties | Halogen free, silicone free |

Brush strips in your required length (up to 1.500 mm)

X (mm) = sight size of base opening
X max. = 1500 mm

Order numbers examples:

For sheet thickness 1.5 – 2 mm, trim height 35 mm:
X = **999** mm → Order No. 58210.**0999**

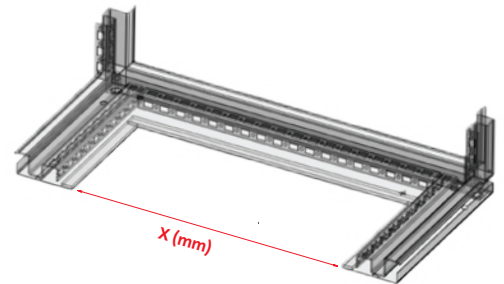
For sheet thickness 2.5 – 3 mm, trim height 35 mm:
X = **999** mm → Order No. 58225.**0999**

For sheet thickness 1.5 – 2 mm, trim height 50 mm:
X = **999** mm → Order No. 58215.**0999**

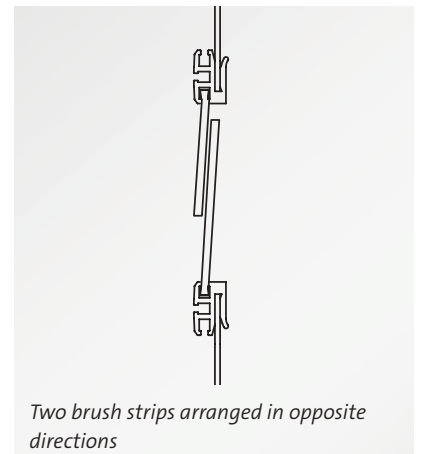
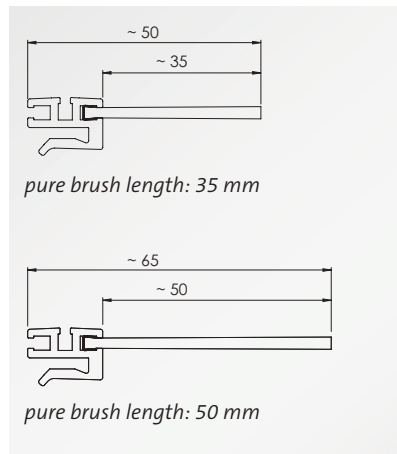
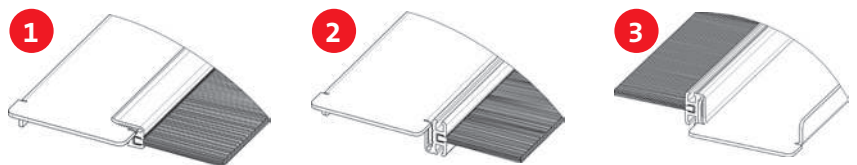
For sheet thickness 2.5 – 3 mm, trim height 50 mm:
X = **999** mm → Order No. 58230.**0999**

Scope of delivery:

1× KDR-BES-U (clamp strip + brush)



KDR-BES-U mounting options



KDR-BES-U

Brush strip for gland plates
Rittal VX25/TS8 & Hoffman PROLINE G2



| Type | Enclosure type | Enclosure width | Brush strip length | Trim height | Order no. | PU |
|----------------------------------------------------|-----------------------|---------------------------------|--------------------|-------------|------------|-------|
| KDR-BES-U for Rittal VX25 enclosures | | | | | | |
| KDR-BES-U-VX25-600 | Rittal VX25 | 600 mm | 452 mm | 35 mm | 58225.0452 | 1 |
| KDR-BES-U-VX25-800 | Rittal VX25 | 800 mm | 652 mm | 35 mm | 58225.0652 | 1 |
| KDR-BES-U-VX25-1000 | Rittal VX25 | 1000 mm* with division bar | 402 mm | 35 mm | 58225.0402 | 1 |
| KDR-BES-U-VX25-1200 | Rittal VX25 | 1200 mm* with division bar | 502 mm | 35 mm | 58225.0502 | 1 |
| KDR-BES-U-VX25-600 | Rittal VX25 | 600 mm | 452 mm | 50 mm | 58230.0452 | 1 |
| KDR-BES-U-VX25-800 | Rittal VX25 | 800 mm | 652 mm | 50 mm | 58230.0652 | 1 |
| KDR-BES-U-VX25-1000 | Rittal VX25 | 1000 mm* with division bar | 402 mm | 50 mm | 58230.0402 | 1 |
| KDR-BES-U-VX25-1200 | Rittal VX25 | 1200 mm* with division bar | 502 mm | 50 mm | 58230.0502 | 1 |
| KDR-BES-U for Rittal TS8 enclosures | | | | | | |
| KDR-BES-U-TS8-600 | Rittal TS8 | 600 mm | 435 mm | 35 mm | 58210.0435 | 1 |
| KDR-BES-U-TS8-800 | Rittal TS8 | 800 mm | 635 mm | 35 mm | 58210.0635 | 1 |
| KDR-BES-U-TS8-1000 | Rittal TS8 | 1000 mm* with division bar | 397 mm | 35 mm | 58210.0397 | 1 |
| KDR-BES-U-TS8-1000 | Rittal TS8 | 1000 mm without division bar | 835 mm | 35 mm | 58210.0835 | 1 |
| KDR-BES-U-TS8-1200 | Rittal TS8 | 1200 mm* with division bar | 495 mm | 35 mm | 58210.0495 | 1 |
| KDR-BES-U for Hoffman PROLINE G2 enclosures | | | | | | |
| KDR-BES-U-HG2-600 | Hoffman PROLINE G2 | 600 mm / 1200 mm* | 362 mm | 35 mm | 58210.0362 | 1 |
| KDR-BES-U-HG2-800 | Hoffman PROLINE G2 | 800 mm | 562 mm | 35 mm | 58210.0562 | 1 |
| KDR-BES-U-HG2-1000 | Hoffman PROLINE G2 | 1000 mm | 762 mm | 35 mm | 58210.0762 | 1 |
| Edge protection trim | universal | Clamping range 1-2 mm | | | 99152 | 100 m |



Edge protection trim (100 m)
Order No. 99152

7
7.1
7.2
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* in case both fields of the enclosure are equipped, 2 brush strips KDR-BES-U are necessary.

KDR-BES-U

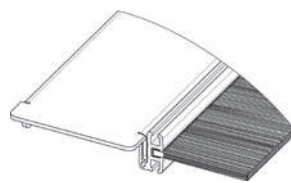
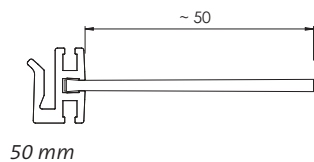
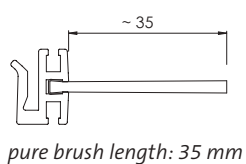
Brush strip for Häwa enclosures



| Type | Enclosure type | Enclosure width | Brush strip length | Trim height | Order no. | PU |
|-----------------------------------------------------------|----------------|-----------------|--------------------|-------------|------------|----|
| KDR-BES-U for Häwa enclosures series H395 and series H390 | | | | | | |
| KDR-BES-U HW-600 | Häwa | 600 mm | 392 mm | 35 mm | 58210.0392 | 1 |
| KDR-BES-U HW-800 | Häwa | 800 mm | 592 mm | 35 mm | 58210.0592 | 1 |
| KDR-BES-U HW-1000 | Häwa | 1000 mm | 792 mm | 35 mm | 58210.0792 | 1 |
| KDR-BES-U HW-1200 | Häwa | 1200 mm | 992 mm | 35 mm | 58210.0992 | 1 |
| KDR-BES-U HW-600 | Häwa | 600 mm | 392 mm | 50 mm | 58215.0392 | 1 |
| KDR-BES-U HW-800 | Häwa | 800 mm | 592 mm | 50 mm | 58215.0592 | 1 |
| KDR-BES-U HW-1000 | Häwa | 1000 mm | 792 mm | 50 mm | 58215.0792 | 1 |
| KDR-BES-U HW-1200 | Häwa | 1200 mm | 992 mm | 50 mm | 58215.0992 | 1 |

These brush strips KDR-BES-U are suitable for Häwa enclosures series H395 and series H390.

i icotek also produces brush strips for numerous other enclosure brands and in other sizes according to your wishes. Ask us at pm@icotek.com!



Mounting option Häwa



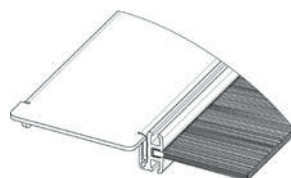
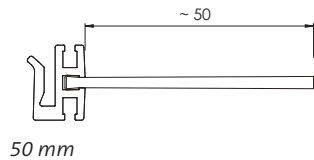
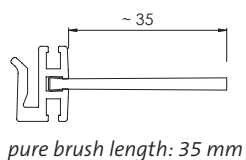
KDR-BES-U

Brush strip for Schneider Electric enclosures

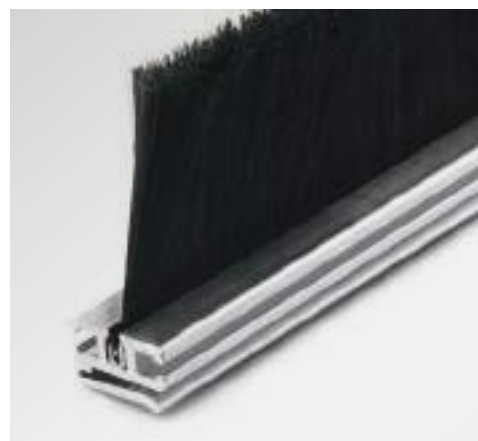


| Type | Enclosure type | Enclosure width | Brush strip length | Trim height | Order no. | PU |
|---------------------------------------------------------------|--------------------|-----------------|--------------------|-------------|------------|----|
| KDR-BES-U for Schneider Electric enclosures series Spacial SF | | | | | | |
| KDR-BES-U SSP-600 | Schneider Electric | 600 mm | 414 mm | 35 mm | 58210.0414 | 1 |
| KDR-BES-U SSP-800 | Schneider Electric | 800 mm | 614 mm | 35 mm | 58210.0614 | 1 |
| KDR-BES-U SSP-1000 | Schneider Electric | 1000 mm | 814 mm | 35 mm | 58210.0814 | 1 |
| KDR-BES-U SSP-1200 | Schneider Electric | 1200 mm * | 477 mm | 35 mm | 58210.0477 | 1 |
| KDR-BES-U SSP-600 | Schneider Electric | 600 mm | 414 mm | 50 mm | 58215.0414 | 1 |
| KDR-BES-U SSP-800 | Schneider Electric | 800 mm | 614 mm | 50 mm | 58215.0614 | 1 |
| KDR-BES-U SSP-1000 | Schneider Electric | 1000 mm | 814 mm | 50 mm | 58215.0814 | 1 |
| KDR-BES-U SSP-1200 | Schneider Electric | 1200 mm * | 477 mm | 50 mm | 58215.0477 | 1 |

These brush strips KDR-BES-U are suitable for Schneider Electric enclosures series Spacial SF.



Mounting option
Schneider Electric



7
7.1
7.2
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* in case both fields of the enclosure are equipped, 2 brush strips KDR-BES-U are necessary.

KDR-BES-U

Brush strip for ELDON enclosures

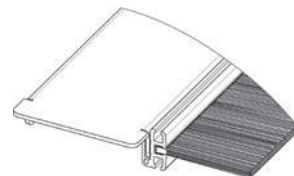
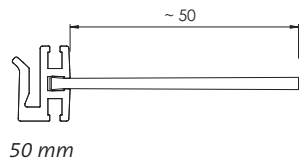
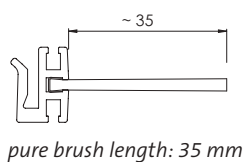


| Type | Enclosure type | Enclosure width | Brush strip length | Trim height | Order no. | PU |
|-----------------------------------------------------------------|----------------|---------------------|--------------------|-------------|------------|----|
| KDR-BES-U for ELDON/nVent enclosures type MCD, MCS, MKS und MKD | | | | | | |
| KDR-BES-U Eldon 600 | ELDON/nVent | 600 mm | 435 mm | 35 mm | 58221.0435 | 1 |
| KDR-BES-U Eldon 800 + 1600 | ELDON/nVent | 800 mm 1600 mm * | 635 mm | 35 mm | 58221.0635 | 1 |
| KDR-BES-U Eldon 1000 | ELDON/nVent | 1000 mm | 835 mm | 35 mm | 58221.0835 | 1 |
| KDR-BES-U Eldon 1200 | ELDON/nVent | 1200 mm * | 495 mm | 35 mm | 58221.0495 | 1 |
| KDR-BES-U Eldon 600 | ELDON/nVent | 600 mm | 435 mm | 50 mm | 58222.0435 | 1 |
| KDR-BES-U Eldon 800 + 1600 | ELDON/nVent | 800 mm 1600 mm * | 635 mm | 50 mm | 58222.0635 | 1 |
| KDR-BES-U Eldon 1000 | ELDON/nVent | 1000 mm | 835 mm | 50 mm | 58222.0835 | 1 |
| KDR-BES-U Eldon 1200 | ELDON/nVent | 1200 mm * | 495 mm | 50 mm | 58222.0495 | 1 |

These brush strips KDR-BES-U are suitable for ELDON/nVent enclosures type MCD, MCS, MKS und MKD.



icotek also produces brush strips for numerous other enclosure brands and in other sizes according to your wishes. Ask us at pm@icotek.com!



Mounting option ELDON



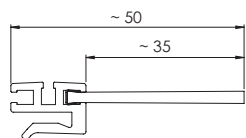
KDR-BES-U

Brush strip for ETA enclosures

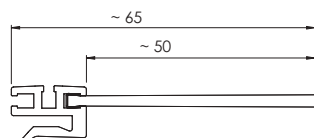


| Type | Enclosure type | Enclosure width | Brush strip length | Trim height | Order no. | PU |
|------------------------------------------------|----------------|-----------------|--------------------|-------------|------------|----|
| KDR-BES-U for ETA enclosures type E NUX | | | | | | |
| KDR-BES-U 600 ETA E NUX | ETA | 600 mm | 363 mm | 35 mm | 58221.0363 | 1 |
| KDR-BES-U 800 ETA E NUX | ETA | 800 mm | 563 mm | 35 mm | 58221.0563 | 1 |
| KDR-BES-U 1000 ETA E NUX | ETA | 1000 mm * | 345 mm | 35 mm | 58221.0345 | 1 |
| KDR-BES-U 1200 ETA E NUX | ETA | 1200 mm * | 445 mm | 35 mm | 58221.0445 | 1 |
| KDR-BES-U 600 ETA E NUX | ETA | 600 mm | 363 mm | 50 mm | 58222.0363 | 1 |
| KDR-BES-U 800 ETA E NUX | ETA | 800 mm | 563 mm | 50 mm | 58222.0563 | 1 |
| KDR-BES-U 1000 ETA E NUX | ETA | 1000 mm * | 345 mm | 50 mm | 58222.0345 | 1 |
| KDR-BES-U 1200 ETA E NUX | ETA | 1200 mm * | 445 mm | 50 mm | 58222.0445 | 1 |

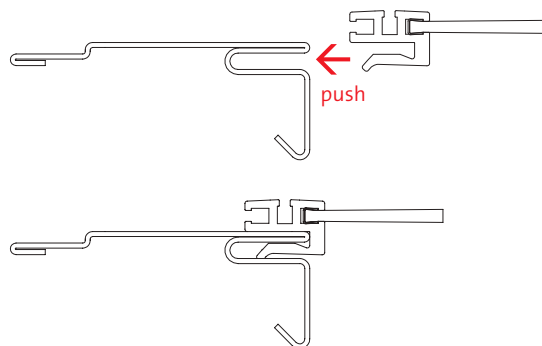
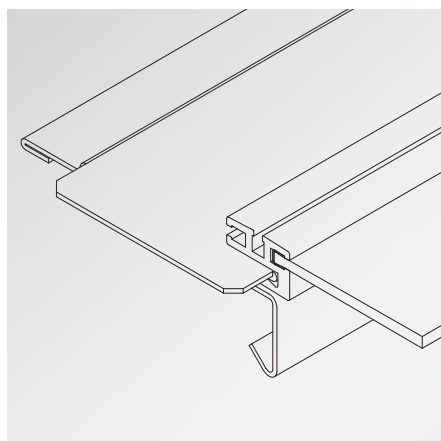
These brush strips KDR-BES-U are suitable for ETA enclosures type E NUX.



pure brush length: 35 mm



50 mm



Assembly ETA

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* in case both fields of the enclosure are equipped, 2 brush strips KDR-BES-U are necessary.

KDRS-BES-U

Enclosure gland plate, narrow,
with brush strips
for Rittal VX25 enclosures

The KDRS-BES-U consists of a narrow plate with matching brush strip with trim height 50 mm. The scope of delivery also includes a KDR-BES-U brush strip for sheet thicknesses of 2.5 – 3.0 mm with a trim height of 50 mm, which is mounted on the Rittal base plate. As a result, both brush strips are arranged in opposite directions and overlap.

The KDRS-BES-U gland plate with brush strip is very narrow. This allows the inserted cables to be inserted straight into the wiring duct.

The gland plate is fitted with threaded screw holes M8 on the left and right for earthing.

The gland plates KDRS-BES-U are designed for Rittal enclosures VX25.

Advantages & benefits

- Easy assembly and removal
- The gland plate is very narrow. As a result, the inserted cables are inserted straight into the cable duct.
- Ideal for maintenance and retrofitting
- Space-saving solution
- The gland plate KDRS-BES-U are designed for Rittal enclosures VX25. Other sizes can be supplied on request.

Specifications

| | |
|-------------|---------------------------------------------------------------------|
| Material | Gland plate: Sheet steel, zinc-plated Brush strip: Polyamid (PA) |
| Temperature | -20°C to +90°C (static) |
| Properties | Halogen free, silicone free |



Advantage KDRS: Straight cable routing into the cable duct due to the extremely narrow gland plate



icotek can also produce enclosure gland plates for numerous other enclosure brands and in other sizes according to your wishes. Ask us at pm@icotek.com!

KDRS-BES-U

Enclosure gland plate, narrow,
with brush strips
for Rittal VX25 enclosures



| Type | Enclosure type | Enclosure width | Sight size of base plate opening | Trim height | Order no. | PU |
|----------------------------------------|----------------|-----------------|-------------------------------------|-------------|-----------|----|
| KDRS-BES-U for Rittal enclosures VX 25 | | | | | | |
| KDRS-BES-U VX-25-600 | VX 25 | 600 mm | 452 mm | 50 mm | 58030 | 1 |
| KDRS-BES-U VX-25-800 | VX 25 | 800 mm | 652 mm | 50 mm | 58031 | 1 |
| KDRS-BES-U VX-25-1000 | VX 25 | 1000 mm * | 402 mm | 50 mm | 58032 | 1 |
| KDRS-BES-U VX-25-1200 | VX 25 | 1200 mm * | 502 mm | 50 mm | 58033 | 1 |

KDR-BES

Enclosure gland plate with brush grommets

The 2-piece enclosure gland plates KDR-BES are supplied with preassembled brush grommets.

The gland plates are installed with standard Rittal clips.

Depending on the maximum cable diameter to be routed, the 2 halves of the brush gland plate are aligned further or closer to each other.

The gland plates KDR-BES are perfect for protection of the enclosure interiors against dirt.

Advantages & benefits

- During assembly, almost the complete base of the enclosure can be used for installation of cables.
- Retrofitting is possible without disconnecting of cables. All can be installed around the cables.
- The gland plates KDR-BES are designed for Rittal enclosures TS8. Other sizes can be supplied on request.

Specifications

| | |
|-------------|-------------------------------------------------------------------------|
| Material | Gland plate: Sheet steel, zinc-plated Brush grommets: Polyamide (PA) |
| Temperature | -20°C to +90°C (static) |
| Properties | Halogen free, silicone free |



KDR-BES Assembly

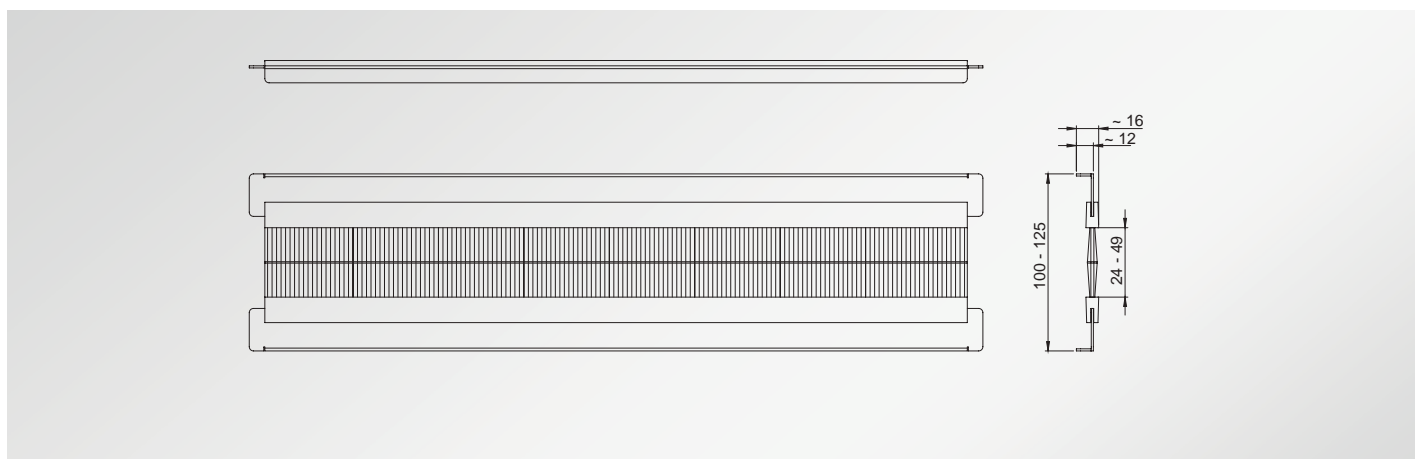


KDR-BES

Enclosure gland plate with brush grommets



| Type | Enclosure type | Enclosure width | Total length gland plate | Sight size of base plate opening | Order No. |
|-------------------|----------------|---------------------------------|--------------------------|----------------------------------|-----------|
| KDR-BES-TS 8-600 | Rittal TS8 | 600 mm | 458 mm | 435 mm | 58000 |
| KDR-BES-TS 8-800 | Rittal TS8 | 800 mm | 658 mm | 635 mm | 58006 |
| KDR-BES-TS 8-1000 | Rittal TS8 | 1000 mm without division bar | 858 mm | 835 mm | 58012 |
| KDR-BES-TS 8-1200 | Rittal TS8 | 1200 mm* | 518 mm | 495 mm | 58018 |



* in case both fields of the enclosure are equipped, 2 complete gland plates are necessary.

FP-AX-BES-U

Split flange plates with brush strips



Two-part flange plates, each with two brush strips arranged in opposite directions with different trim heights (1 x 35 mm and 1 x 50 mm). They enable the routing of cables already pre-assembled with connectors and prevent dirt from entering the enclosure.
The flange plates are designed for Rittal enclosures of type AX.


Advantages & benefits

- Easy assembly
- Proven brush solution
- The use of two overlapping brush strips arranged in opposite directions increases tightness
- Ready for installation

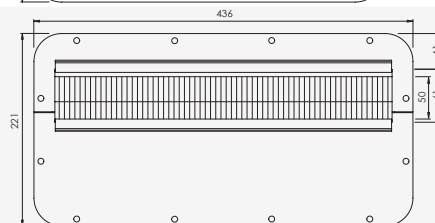
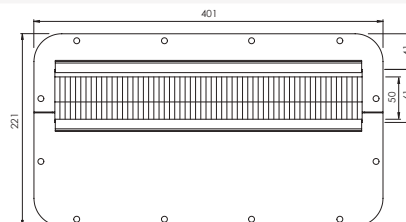
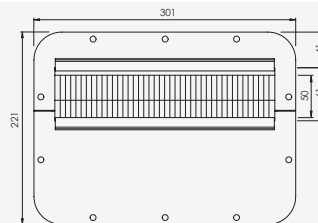
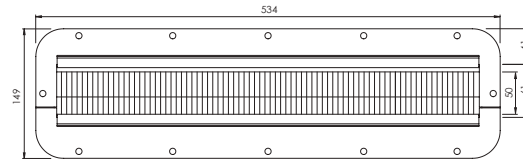
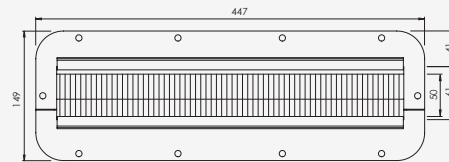
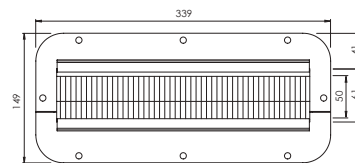
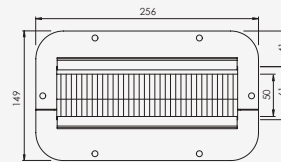
Specifications

| | |
|---------------|--------------------------------------------|
| Flange plate | Sheet steel glossy powder-coated, RAL 7035 |
| Brush profile | Aluminium |
| Brush holder | Metal, galvanised |
| Bristles | Polyamide (PA) |
| Temperature | -20°C bis +90°C |
| Properties | Halogen free, silicone free |



 icotek also produces flange plates with brush strips for numerous other enclosure brands. Ask us at pm@icotek.com!

Description



FP-AX-BES-U

Split flange plates with brush strips



| Type | Size flange plate | suitable for | Order No. |
|-----------------------------------------------------------------------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------|-----------|
| FP-AX-BES-U 256 x 149 mm, two-part, mounted with KDR-BES-U trim height 35 mm + 50 mm | 1 | AX 1033.000 AX 1034.000 | 44100 |
| FP-AX-BES-U 339 x 149 mm, two-part, mounted with KDR-BES-U trim height 35 mm + 50 mm | 2 | AX 1031.000 AX 1380.000 AX 1038.000 AX 1077.000 AX 1100.000 AX 1045.000 | 44101 |
| FP-AX-BES-U 447 x 149 mm, two-part, mounted with KDR-BES-U trim height 35 mm + 50 mm | 3 | AX 1050.000 AX 1057.000 | 44102 |
| FP-AX-BES-U 534 x 149 mm, two-part, mounted with KDR-BES-U trim height 35 mm + 50 mm | 4 | AX 1039.000 AX 1060.000 AX 1054.000 AX 1076.000 AX 1058.000 AX 1090.000 | 44103 |
| FP-AX-BES-U 301 x 221 mm, two-part, mounted with KDR-BES-U trim height 35 mm + 50 mm | 5 | AX 1338.000 AX 1037.000 AX 1073.000 AX 1055.000 AX 1180.000 AX 1280.000 AX 1181.000 AX 1281.000 | 44104 |
| FP-AX-BES-U 401 x 221 mm, two-part, mounted with KDR-BES-U trim height 35 mm + 50 mm | 6 | AX 1350.000 AX 1130.000 AX 1110.000 AX 1213.000 AX 1114.000 AX 1214.000 AX 1115.000 | 44105 |
| FP-AX-BES-U 436 x 221 mm, two-part, mounted with KDR-BES-U trim height 35 mm + 50 mm | 7 | AX 1339.000 AX 1360.000 AX 1376.000 AX 1260.000 AX 1116.000 AX 1059.000 AX 1091.000 AX 1261.000 | 44106 |

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BES 10 | BES 19

Brush strips for the cable management in the 10" and 19" server rack

This brush strip from icotek is suitable for installation in 10" or 19" server racks from various manufacturers.

The special feature of the BES brush strip is that the integrated spring locks allow tool-free assembly and disassembly. All that is needed is to release the locking mechanism on both sides.

The network cables are simply passed through the brush strip. The cables are hidden from view inside the network cabinet. This gives a tidy appearance. The brush strip also prevents the ingress of dirt.

Advantages & benefits

- Suitable for 10" and 19" server racks from various manufacturers
- Tool-free assembly and disassembly
- Ready for installation

Specifications

| | |
|-------------------|--------------------|
| Size | 1 Rack Unit (1 RU) |
| Frame material | Metal |
| Bristles material | Polyamid (PA) |
| Colour | Black |
| Temperature | -30°C to +80°C |

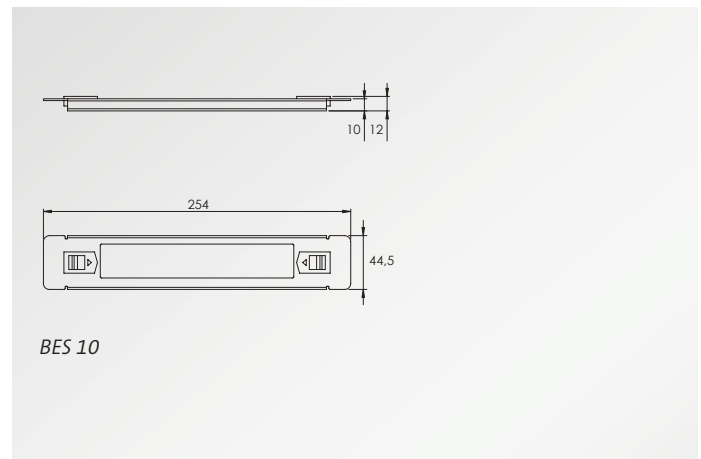
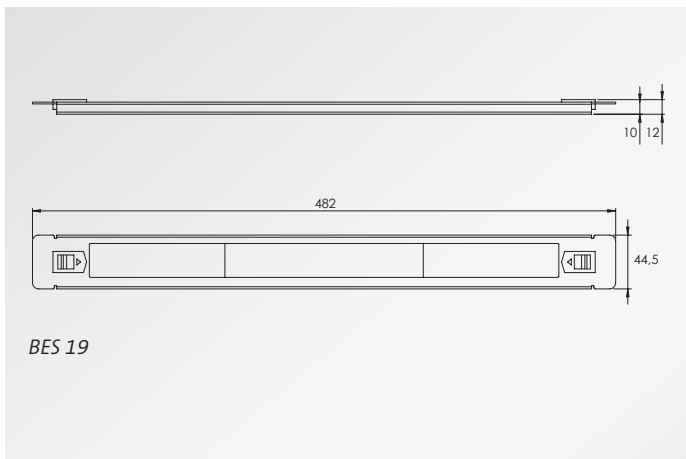


BES 10 | BES 19

Brush strips for the cable management
in the 10" and 19" server rack



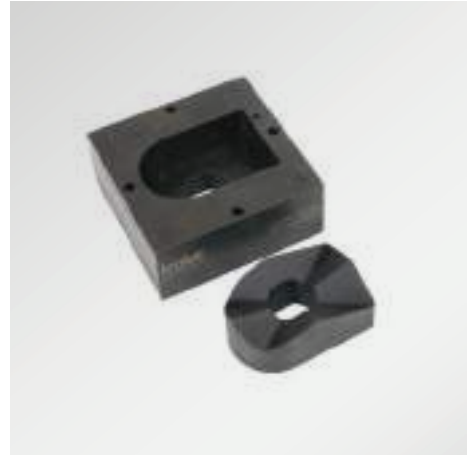
| Type | Enclosure type | Height | Length | Depth | Order No. | PU |
|----------------------------------------|-----------------|---------|--------|-------|-----------|----|
| BES 19 Cable management brush strip | Server rack 19" | 44,5 mm | 482 mm | 12 mm | 51500 | 1 |
| BES 10 Cable management brush strip | Server rack 10" | 44,5 mm | 254 mm | 12 mm | 51501 | 1 |





icotek TOOLS

Punch drivers, knockout punches and useful tools



8 icotek TOOLS

Punch drivers, knockout punches and useful tools

icotek offers a small-sized hand hydraulic punch driver without a hose which allows quick and easy punching of rectangular, square or round holes. When you have to punch several holes, this hand hydraulic punch driver is much faster than manual wrench-style punches.

icotek offers round knockout punches for cut-outs in metric and PG sizes. This self-centering knockout punches split slugs into 2 or 3 pieces for easy slug removal. For installation of pushbuttons and round switches icotek offers a 22.5 mm punch with integrated twist protection notch.

icotek also offers rectangular and square punches and dies, for cut-out sizes of 6-, 10-, 16-, 24- and 32-multi-pin industrial connectors as well as for most icotek cable entry systems.

Advantages & benefits

1. Maximum flexibility

Due to its high hydraulic force the compact, lightweight hand hydraulic punch driver makes it easy to punch holes into stainless V2A steel, mild steel, aluminum or plastics. The cylinder of the punch driver rotates 360° on 3 axles. Therefore, maximum flexibility even in hard-to-reach places is provided.

2. Multi-fold slug splitting

The special cutting geometry of the round punches reduces the cutting pressure and therefore the required effort. The punch splits slugs into several pieces for easy slug removal (type related).

3. Perfect for icotek cable entry components

The metric round, rectangular and square knockout punches can be used for industrial standard cut-outs of heavy multi-pin connectors and many icotek cable entry components.





Punch driver sets
Hand hydraulic punch driver
& round knockout die set, metric,
Hydraulic Foot Pump

374 – 376



Rail cutters
for top hat DIN rails and bus bars

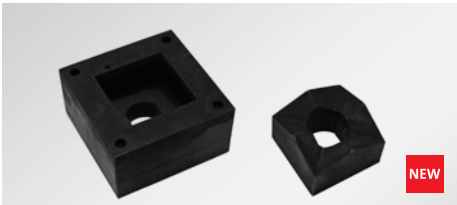
DIN-RC 1 / DIN-RC 2

377



Rectangular & square punches
for cut-outs of heavy multi-pin industrial
connectors and many icotek cable entry
components
for steel, aluminium

378 – 379



Rectangular & square punches
for cut-outs in special sizes
for steel, aluminium

380 – 381



Rectangular & square punches
for cut-outs of heavy multi-pin industrial
connectors and many icotek cable entry
components for stainless steel

382 – 383



Round punches
for cut-outs in PG and metric sizes,
for steel, aluminium

384 – 385



Round punches
for cut-outs in PG and metric sizes,
for stainless steel

386 – 387



Punches CONFiX
for CONFiX cable conduit system
and KEL-FW cable entry,
for steel, aluminium, stainless steel

388 – 389



Useful Tools
for measuring and mounting

391

Punch driver sets

Hand hydraulic punch driver and metric punches

The compact, lightweight hand hydraulic punch driver makes it easy to punch holes into stainless V2A steel, mild steel, aluminium or plastics with a max. sheet thickness of 3 mm (V2A: 2 mm), due to its high hydraulic force. The cylinder of the punch driver rotates 360° on 3 axes, so maximum flexibility even in hard-to-reach places is provided.

The punch driver can be used with all icotek punches and also with punches of other manufacturers.

Advantages & Benefits

- Maximum flexibility due to 360° head rotation
- High hydraulic force (60 kN, 600 bar) for easy punching
- Compact, lightweight aluminium design (2 kg)
- Fast and easy operation
- Punch driver also suitable for punches by other manufacturers

Specifications

| | |
|--------------------|-----------|
| Material | Aluminium |
| Punching force | 60 kN |
| Operating pressure | 600 bar |

Accessories

| | |
|------------------------------|-----------|
| Round punches | 384 - 387 |
| Rectangular & square punches | 378 - 383 |



LIGHT



PRO 16-63

Punch driver sets

Hand hydraulic punch driver and metric punches

| Type | Scope of delivery | Order No. | PU |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----|
| Punch driver set BASIC | <ul style="list-style-type: none"> 1 hand hydraulic punch driver (weight: 2 kg) 1 draw stud for punches (steel) ϕ 9.5 mm (3/8" UNF) to ϕ 19 mm (3/4" UNF), L: 105 mm 1 draw stud ϕ 19 mm (3/4" UNF), L: 125 mm 1 spacer 1 tube lubricant 1 HSS co pilot drill (multi step drill) 1 robust plastic storage case | 80000 | 1 |
| Punch driver set PRO 16-32 | <ul style="list-style-type: none"> 1 hand hydraulic punch driver (weight: 2 kg) 1 draw stud for punches (steel) ϕ 9.5 mm (3/8" UNF) to ϕ 19 mm (3/4" UNF), L: 105 mm 1 draw stud ϕ 19 mm (3/4" UNF), L: 125 mm 1 spacer 1 tube lubricant 1 HSS co pilot drill (multi step drill) 1 each knockout punch for steel M16 M20 M25 M32 1 robust plastic storage case | 80005 | 1 |
| Punch driver set PRO 16-63 | <ul style="list-style-type: none"> 1 hand hydraulic punch driver (weight: 2 kg) 1 draw stud for punches (steel) ϕ 9.5 mm (3/8" UNF) to ϕ 19 mm (3/4" UNF), L: 105 mm 1 draw stud ϕ 19 mm (3/4" UNF), L: 125 mm 1 spacer 1 tube lubricant 1 HSS co pilot drill (multi step drill) 1 each knockout punch for steel M16 M20 M25 M32 M40 M50 M63 1 robust plastic storage case | 80006 | 1 |
| Punch driver set PRO 16-63 for stainless steel | <ul style="list-style-type: none"> 1 hand hydraulic punch driver (weight: 2 kg) 1 draw stud for punches (stainless steel) ϕ 9.5 mm (3/8" UNF) to ϕ 19 mm (3/4" UNF), L: 105 mm 1 draw stud ϕ 11 mm (3/4" UNF), L: 125 mm 1 spacer 1 tube lubricant 1 HSS co pilot drill (multi step drill) 1 each knockout punch for stainless steel M16 M20 M25 M32 M40 M50 M63 1 robust plastic storage case | 80072 | 1 |
| NEW Punch driver set LIGHT | <ul style="list-style-type: none"> 1 hand hydraulic punch driver (weight: 2 kg) 1 draw stud for round punches for sheet steel, M16 M20 M25, ϕ 9.5 mm (3/8" UNF) to ϕ 19 mm (3/4" UNF), L: 105 mm 1 draw stud for round punches for sheet steel and stainless steel V2A, M32 M40 M50 M63 M85 ϕ 19 mm (3/4" UNF), L: 125 mm 1 spacer, 1 robust plastic storage case | 80003 | 1 |

Punch driver sets

Hydraulic foot pump

Hydraulic foot pump with hydraulic cylinder and accessories

Universally applicable single-stage foot pump with a fixed operating pressure of 450 bar and built-in pressure relief valve. Suitable for all icotek round punches, rectangular and square punches. Keeps your hands free to position the sheet metal punch precisely, especially when using larger sheet metal punches.

| Type | Scope of delivery | Order No. | PU |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----|
| Hydraulic foot pump | 1 foot pump 2,5 m high pressure hose including quick coupling 1 hydraulic cylinder for holding round and rectangular punch 1 draw stud for rectangular punch, Order No. 80209 1 draw stud for round punch (steel) M16 – M25, Order No. 80200 1 multi-step drill, Order No. 80204 1 spacer, Order No. 80202 1 tube lubricant, Order No. 80203 Note: storage case not included in delivery | 80002 | 1 |



DIN-RC 1 | DIN-RC 2

Rail cutters for top hat DIN rails and bus bars



The DIN-RC 1 and DIN-RC 2 cutters cut various top hat DIN rails and bus bars. The cut is clean and burr-free, there is no waste. The length stop with guiding device ensures that nothing slips during cutting and that the cut is always accurate to size.

DIN-RC 1 is suitable for cutting top hat DIN rails 35 x 7.5 mm and top hat DIN rails 35 x 15 mm.

DIN-RC 2 is suitable for cutting top hat DIN rails 35 x 7.5 mm, DIN rails 35 x 15 mm, DIN rails 15 x 5.5 mm and bus bars 10 x 3 mm.

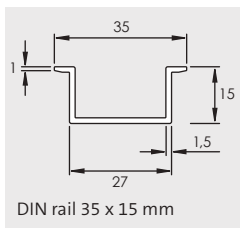
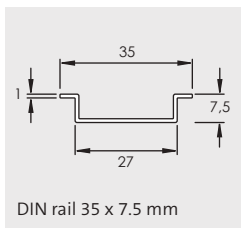
Advantages & benefits

- Cuts the most common rails and bars
DIN-RC 1: DIN rails 35 x 7.5 mm and 35 x 15 mm
DIN-RC 2: DIN rails 35 x 7.5 mm, 35 x 15 mm and 15 x 5.5 mm as well as bus bars 10 x 3 mm
- Exact 90° cuts
- Burr-free cuts
- With length stop 1000 mm and guiding device

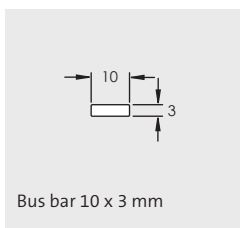
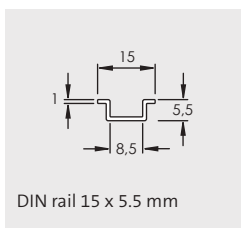
| Type | Description | Order No. | PU |
|----------|-----------------------------------------------------------------|-----------|----|
| DIN-RC 1 | Rail cutter for DIN rails with length stop 1000 mm | 80189 | 1 |
| DIN-RC 2 | Rail cutter for DIN rails and bus bars with length stop 1000 mm | 80190 | 1 |



DIN-RC 1:



DIN-RC 2 additionally:



Rectangular & square punches

sized for heavy multi-pin industrial connectors
and icotek cable entry systems
for steel and aluminium

Rectangular and square punches and dies make it easy to punch holes into mild steel, aluminium or plastics with a max. sheet thickness of 2 mm. Available for cut-outs for the most common sizes of heavy industrial connectors and also for numerous special cut-outs. Therefore, the punches are suitable for most icotek cable entry systems. Centre punches are integrated in the die for exact drilling of mounting holes.

The punches are for hydraulic operation only.

Advantages & benefits

- Centre punches for exact drilling of mounting holes
- Robust plastic storage case
- Suitable for hand hydraulic punch driver by icotek and other manufacturers

Specifications

Material Steel, hardened and burnished

Scope of delivery

Punch, die, counter nut and draw stud, robust plastic storage case

Compatible with

Hydraulic punch driver 374 - 376

Complete set

| Type | Cut-out size |
|---------------------------------------------------------------------------------------|--------------|
| Punch E1 | 21 x 27 mm |
| Punch E2 | 24 x 43 mm |
| Punch E3 | 24 x 65 mm |
| Punch E4 | 24 x 86 mm |
| Punch E5 | 24 x 112 mm |
| Punch 6 | 36 x 52 mm |
| Punch B | 46 x 46 mm |
| Punch 10 | 36 x 65 mm |
| Punch 16 | 36 x 86 mm |
| Punch 24 | 36 x 112 mm |
| Punch 24-XL | 46 x 112 mm |
| Punch 24-E * ** | 66 x 112 mm |
| Punch KEA NEW | 56 x 112 mm |

* Storage case not included in delivery

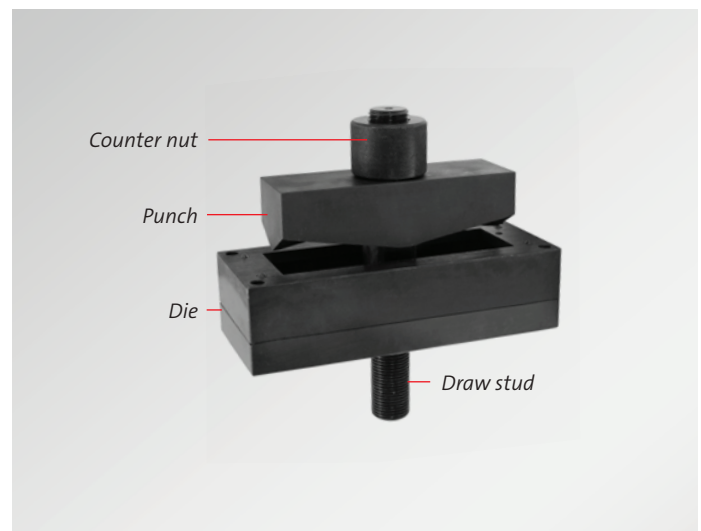
** Only to be used with hydraulic foot pump (order no. 80002).





Compatible spare parts

| Max. sheet thickness | For cut-out of connector | With centre punch (number) | Order No. | PU | Draw stud Art.-Nr. | Counter nut Art.-Nr. | Centre punch Art.-Nr. |
|----------------------|--------------------------|----------------------------|----------------|----|--------------------|----------------------|-----------------------|
| 2 mm | – | – | 80075 | 1 | 80205 | 80227 | – |
| 2 mm | – | 2 | 80055 | 1 | 80226 | 80211 | 80065 |
| 2 mm | – | 2 | 80056 | 1 | 80226 | 80211 | 80065 |
| 2 mm | – | 2 | 80057 | 1 | 80226 | 80211 | 80065 |
| 2 mm | – | 2 | 80058 | 1 | 80226 | 80211 | 80065 |
| 2 mm | 6-pin | 4 | 80062 | 1 | 80209 | 80211 | 80065 |
| 2 mm | – | 4 | 80049 80050 | 1 | 80209 | 80211 | 80065 – |
| 2 mm | 10-pin | 4 | 80051 | 1 | 80209 | 80211 | 80065 |
| 2 mm | 16-pin | 4 | 80052 | 1 | 80209 | 80211 | 80065 |
| 2 mm | 24-pin | 4 | 80053 | 1 | 80209 | 80211 | 80065 |
| 2 mm | 24-pin | 4 | 80054 | 1 | 80209 | 80211 | 80065 |
| 2 mm | 32-pin | – | 80061 | 1 | 80209 | 80211 | – |
| 2 mm | – | 4 | 80101 | 1 | 80209 | 80211 | 80065 |



Rectangular & square punches for steel and aluminium in special sizes

NEW

The special size sheet metal punches can be used for cut-outs such as appliance fan cut-outs as well as custom cut-outs. Other special sizes are available on request.

Centre punches are integrated in the die for exact drilling of mounting holes. For max. 2 mm sheet steel, aluminium and plastic. The punches are for hydraulic operation only.

Advantages & benefits

- Centre punches for exact drilling of mounting holes
- Robust plastic storage case
- Suitable for hand hydraulic punch driver by icotek and other manufacturers

Specifications

Material Steel, hardened and burnished

Scope of delivery

Punch, die, counter nut and draw stud, robust plastic storage case

Compatible with

Hydraulic punch driver 374 - 376

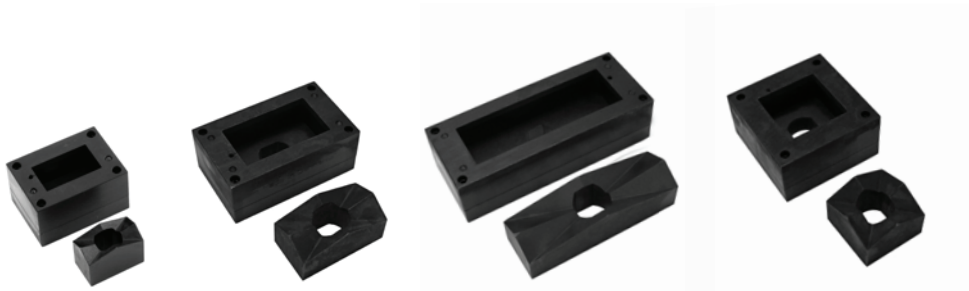
Complete set

| Type | Cut-out size |
|------------------------|-------------------------------------------------|
| Punch 68x68 ** | 68 x 68 mm |
| Punch 92x92 ** | 92 x 92 mm |
| Punch 125x125 * ** | 125 x 125 mm |
| Punch 138 x 138 * ** | 138 x 138 mm |
| Punch SUB-D9-pin | — |
| Punch 12,7 x 12,7 | 12,7 x 12,7 mm |
| Punch D 15,4 x 14,5 | 15,4 x 14,5 mm one side flattened to 14,5 mm |
| Punch 15,8 x 15,8 | 15,8 x 15,8 mm |
| Punch D 16,4 x 15,3 | 16,4 x 15,3 mm one side flattened to 15,3 mm |
| Punch 17 x 19 | 17 x 19 mm |
| Punch 19,1 x 19,1 | 19,1 x 19,1 mm |
| Punch 21,3 x 21,3 | 21,3 x 21,3 mm |
| Punch 22 x 30 | 22 x 30 mm |
| Punch 22 x 42 | 22 x 42 mm |
| Punch 22 x 45 | 22 x 45 mm |
| Punch 22,2 x 22,2 | 22,2 x 22,2 mm |
| Punch 24 x 24 | 24 x 24 mm |
| Punch 24 x 57 | 24 x 57 mm |
| Punch 25 x 50 | 25 x 50 mm |
| Punch 25,4 x 25,4 | 25,4 x 25,4 mm |
| Punch 32 x 90 | 32 x 90 mm |
| Punch 45 x 92 | 45 x 92 mm |
| Punch 46 x 92 | 46 x 92 mm |
| Punch 50,8 x 50,8 | 50,8 x 50,8 mm |
| Punch 65 x 113 * | 65 x 113 mm |
| Punch 68 x 138 * | 68 x 138 mm |
| Punch 71 x 29 | 71 x 29 mm |
| Punch 73 x 24 | 73 x 24 mm |
| Punch 91 x 117 * | 91 x 117 mm |



* Storage case not included in delivery

** Only to be used with hydraulic foot pump (Order no. 80002).



Compatible spare parts

| Max. sheet thickness | For cut-out of connector | With centre punch (number) | Order No. | PU | Draw stud Art.-Nr. | Counter nut Art.-Nr. | Centre punch Art.-Nr. |
|----------------------|--------------------------|----------------------------|-----------|----|--------------------|----------------------|-----------------------|
| 2 mm | – | – | 80064 | 1 | 80209 | 80211 | – |
| 2 mm | – | – | 80060 | 1 | 80209 | 80211 | – |
| 2 mm | – | – | 80063 | 1 | 80213*** | 80214*** | – |
| 2 mm | – | – | 80086 | 1 | 80213 | 80214 | – |
| 2 mm | SUB-D 9-pin | – | 80073 | 1 | 80228 | 80229 | – |
| 2 mm | – | – | 80079 | 1 | 80228 | 80229 | – |
| 2 mm | – | – | 80220 | 1 | 80228 | 80229 | – |
| 2 mm | – | – | 80080 | 1 | 80228 | 80229 | – |
| 2 mm | – | – | 80222 | 1 | 80228 | 80229 | – |
| 2 mm | – | – | 80087 | 1 | 80228 | 80229 | – |
| 2 mm | – | – | 80081 | 1 | 80205 | 80227 | – |
| 2 mm | – | 2 | 80082 | 1 | 80205 | 80227 | 80232 |
| 2 mm | – | – | 80088 | 1 | 80205 | 80227 | – |
| 2 mm | – | – | 80089 | 1 | 80205 | 80227 | – |
| 2 mm | – | – | 80059 | 1 | 80205 | 80227 | – |
| 2 mm | HAN 3A | 2 | 80067 | 1 | 80205 | 80227 | 80232 |
| 2 mm | – | – | 80083 | 1 | 80205 | 80227 | – |
| 2 mm | – | 4 | 80223 | 1 | 80226 | 80211 | 80065 |
| 2 mm | – | – | 80091 | 1 | 80231 | 80227 | – |
| 2 mm | – | – | 80084 | 1 | 80205 | 80227 | – |
| 2 mm | – | – | 80159 | 1 | 80226 | 80211 | – |
| 2 mm | – | – | 80092 | 1 | 80209 | 80211 | – |
| 2 mm | – | – | 80093 | 1 | 80209 | 80211 | – |
| 2 mm | – | – | 80085 | 1 | 80209 | 80211 | – |
| 2 mm | – | – | 80074 | 1 | 80209 | 80211 | – |
| 2 mm | – | – | 80094 | 1 | 80213 | 80214 | – |
| 2 mm | – | – | 80161 | 1 | 80226 | 80211 | – |
| 2 mm | – | 4 | 80224 | 1 | 80226 | 80211 | 80065 |
| 2 mm | – | – | 80066 | 1 | 80209 | 80211 | – |

*** Order numbers 80213 and 80214 are required

Rectangular & square punches

sized for heavy multi-pin industrial connectors
and icotek cable entry systems
for stainless steel

Rectangular and square punches and dies make it easy to punch holes into stainless steel (V2A versions) with a max. sheet thickness of 2 mm. Available for cut-outs for the most common sizes of heavy industrial connectors and also for numerous special cut-outs. Therefore, the punches are suitable for most icotek cable entry systems. Centre punches are integrated in the die for exact drilling of mounting holes.

The punches are for hydraulic operation only.

Advantages & benefits

- Centre punches for exact drilling of mounting holes
- Robust plastic storage case
- Suitable for hand hydraulic punch driver by icotek and other manufacturers

Specifications

Material Steel, hardened and burnished

Scope of delivery

Punch, die, counter nut and draw stud, robust plastic storage case

Compatible with

Hydraulic punch driver 374 - 376

Complete set

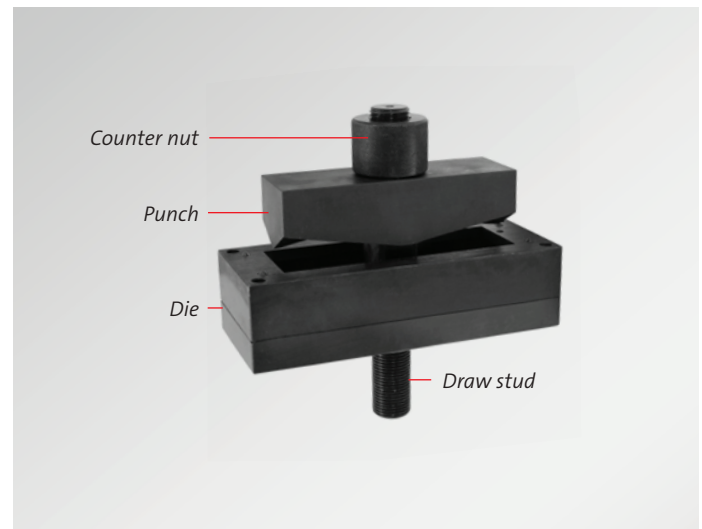
| Type | Cut-out size |
|----------------------------------------------|----------------|
| Punch 6 for stainless steel V2A | 36 x 52 mm |
| Punch B for stainless steel V2A | 46 x 46 mm |
| Punch 10 for stainless steel V2A | 36 x 65 mm |
| Punch 16 for stainless steel V2A | 36 x 86 mm |
| Punch 24 for stainless steel V2A | 36 x 112 mm |
| Punch 24-XL for stainless steel V2A | 46 x 112 mm |
| Punch KEA for stainless steel V2A | 112 x 56 mm |
| Punch 22,2 x 22,2 for stainless steel V2A | 22,2 x 22,2 mm |





Compatible spare parts

| Max. sheet thickness | For cut-out of connector | With centre punch (number) | Order No. | PU | Draw stud Order No. | Counter nut Order No. | Centre punches Order No. |
|----------------------|--------------------------|----------------------------|-----------|----|---------------------|-----------------------|--------------------------|
| 2 mm | 6-pin | 4 | 80149 | 1 | 80209 | 80211 | 80065 |
| 2 mm | – | 4 | 80150 | 1 | 80209 | 80211 | 80065 |
| 2 mm | 10-pin | 4 | 80151 | 1 | 80209 | 80211 | 80065 |
| 2 mm | 16-pin | 4 | 80152 | 1 | 80209 | 80211 | 80065 |
| 2 mm | 24-pin | 4 | 80153 | 1 | 80209 | 80211 | 80065 |
| 2 mm | 24-pin | 4 | 80154 | 1 | 80209 | 80211 | 80065 |
| 2 mm | – | 4 | 80225 | 1 | 80209 | 80211 | 80065 |
| 2 mm | HAN 3A | 3 | 80148 | 1 | 80205 | 80227 | 80232 |



Round punches

for steel and aluminium,
for cut-outs M16 – M85, PG



Punch set M16 – M63
Order No. 80007

Self-centering knockout punches for mild steel, aluminium and plastic walls. Punches available for cut-outs PG 16, M16, M20, M25, M32, M40, M50, M63, M75 and M85. Cut-outs for icotek split cable glands and round cable entry plates can be punched.

The special cutting geometry of the punch reduces the cutting pressure and therefore the required effort. The punch splits slugs into several pieces (type related)* for easy slug removal. For installation of round switches icotek offers a PG 16 punch with an integrated 3 mm twist protection notch.

The punches are designed for manual and hydraulic operation.

Advantages & benefits

- Multiple splitting punches for easier slug removal/ for easy punching
- Suitable with hand hydraulic punch driver by icotek or other manufacturers

Specifications

Material Steel, hardened and burnished

Scope of delivery

Punch and die (without draw stud)

Compatible with

Hydraulic punch driver 374 - 375



Complete set

| Type | Cut-out size ϕ |
|-----------------------------------------|-------------------------|
| Punch Set M16 – M63 | 16,2 – 63,5 mm |
| Punch M16 | 16,2 mm |
| Punch M20 | 20,4 mm |
| Punch M25 | 25,4 mm |
| Punch M32 | 32,5 mm |
| Punch M40 | 40,5 mm |
| Punch M50 | 50,5 mm |
| Punch M63 | 63,5 mm |
| Punch M75 | 75,5 mm |
| Punch M80 | 80 mm |
| Punch M85 | 86 mm |
| Punch 22 | NEW 22 mm |
| Punch 43,2 | NEW 43,2 mm |
| Punch Set PG 7 – PG 48; 30,5 mm | NEW 12,5 – 59,3 mm |
| Punch PG 11 | NEW 18,6 mm |
| Punch PG 13 (M20) | NEW 20,4 mm |
| Punch PG 16 | 22,5 mm |
| Punch PG 16 with twist protection notch | 22,5 mm + 3 mm notch |
| Punch PG 21 | NEW 28,3 mm |



3-fold slug splitting



Compatible spare parts

| Max. sheet thickness | Thread Ø | Order No. | PU | Draw stud Order No. | Counter nut Order No. |
|----------------------------------------|---------------|-----------|----|---------------------|-----------------------|
| M16 – M25: 2,0 mm M32 – M63: 2,5 mm | 9,5 mm/19 mm | 80007 | 1 | – | – |
| 2 mm | 9,5 mm | 80020 | 1 | 80200 | – |
| 2 mm | 9,5 mm | 80021 | 1 | 80200 | – |
| 2 mm | 9,5 mm | 80022 | 1 | 80200 | – |
| 3 mm | 19 mm | 80023 | 1 | 80201 | – |
| 3 mm | 19 mm | 80024 | 1 | 80201 | – |
| 3 mm | 19 mm | 80025 | 1 | 80201 | – |
| 3 mm | 19 mm | 80026 | 1 | 80201 | – |
| 2,5 mm | 19 mm | 80029 | 1 | 80201 | – |
| 2,5 mm | 19 mm | 80034 | 1 | 80201 | – |
| 2 mm | 19 mm | 80030 | 1 | 80201 | – |
| 2 mm | 9,5 mm | 80221 | 1 | 80201 | – |
| 2,5 mm | 19 mm | 80068 | 1 | 80201 | – |
| 2 mm – 9,5 mm; 2,5 mm – 19 mm | 9,5 mm; 19 mm | 80008 | 1 | – | – |
| 2 mm | 9,5 mm | 80160 | 1 | 80210 | – |
| 2 mm | 9,5 mm | 80021 | 1 | 80210 | – |
| 2 mm | 9,5 mm | 80027 | 1 | 80210 | – |
| 2 mm | 9,5 mm | 80028 | 1 | 80205 | 80227 |
| 2 mm | 9,5 mm | 80157 | 1 | 80210 | – |

Round punches for stainless steel, for cut-outs PG & M16 – M85

Self-centering knockout punches for stainless steel (V2A versions). Punches available for cut-outs PG 16, M16, M20, M25, M32, M40, M50, M63, M75 and M85. Cut-outs for icotek split cable glands and round cable entry plates can be punched.

The special cutting geometry of the punch reduces the cutting pressure and therefore the required effort. The punch splits slugs into two pieces for easy slug removal. For installation of round switches icotek offers a PG 16 punch with an integrated 3 mm twist protection notch.

The punches are designed for manual and hydraulic operation.

Advantages & benefits

- Multiple splitting punches for easier slug removal/for easy punching
- Suitable with hand hydraulic punch driver by icotek or other manufacturers

Specifications

Material Steel, hardened and burnished

Scope of delivery

Punch and die (without draw stud)

Compatible with

Hydraulic punch driver 374 - 375



Complete set

| Type | Cut-out size ø |
|-----------------------------------------------------------------|---------------------|
| Punch Set M16 – M63, for stainless steel V2A | 16,2 – 63,5 mm |
| Punch M16** for stainless steel V2A | 16,2 mm |
| Punch M20** for stainless steel V2A | 20,4 mm |
| Punch M25** for stainless steel V2A | 25,4 mm |
| Punch M32 for stainless steel V2A | 32,5 mm |
| Punch M40 for stainless steel V2A | 40,5 mm |
| Punch M50 for stainless steel V2A | 50,5 mm |
| Punch M63 for stainless steel V2A | 63,5 mm |
| Punch M75 for stainless steel V2A | NEW 75 mm |
| Punch 43,2mm for stainless steel V2A | NEW 43,2 mm |
| Punch PG11 for stainless steel V2A | NEW 18,6 mm |
| Punch PG13 (M20) for stainless steel V2A | NEW 20,4 mm |
| Punch PG16 for stainless steel V2A | NEW 22,5 mm |
| Punch PG 16 with twist protection notch for stainless steel V2A | 22,5 mm + 3 mm Nase |
| Punch PG21 for stainless steel V2A | NEW 28,3 mm |
| Punch PG42 for stainless steel V2A | NEW 54 mm |

**Draw stud (Order No. 80210) is required.
Note: More PG sizes are available on request.



2-fold slug splitting

Compatible spare parts

| Max. sheet thickness | Thread Ø | Order No. | PU | Draw stud Order No. | Counter nut Order No. |
|----------------------|---------------|-----------|----|---------------------|-----------------------|
| 2 mm | 11,1 mm/19 mm | 80070 | 1 | – | – |
| 2 mm | 11,1 mm | 80120 | 1 | 80210 | – |
| 2 mm | 11,1 mm | 80121 | 1 | 80210 | – |
| 2 mm | 11,1 mm | 80122 | 1 | 80210 | – |
| 2 mm | 19 mm | 80123 | 1 | 80201 | – |
| 2 mm | 19 mm | 80124 | 1 | 80201 | – |
| 2 mm | 19 mm | 80125 | 1 | 80201 | – |
| 2 mm | 19 mm | 80126 | 1 | 80201 | – |
| 2 mm | 19 mm | 80071 | 1 | 80201 | – |
| 2 mm | 19 mm | 80158 | 1 | 80201 | – |
| 2 mm | 11,1 mm | 80155 | 1 | 80210 | – |
| 2 mm | 11,1 mm | 80156 | 1 | 80210 | – |
| 2 mm | 11,1 mm | 80069 | 1 | 80210 | – |
| 1,5 mm | 9,5 mm | 80128 | 1 | 80205 | 80227 |
| 2 mm | 19 mm | 80031 | 1 | 80201 | – |
| 2 mm | 19 mm | 80032 | 1 | 80201 | – |

Punches CONFiX

for CONFiX cable conduit system
and KEL-FW cable entry,
for steel, aluminium, stainless steel

These punches can be used to punch the special cut-out shapes for the CONFiX bulkhead fittings.

In addition, the 80100 and 80194 punches can be used to punch the cut-outs for the KEL-FW cable entry.

For max. 2 mm stainless steel (V2A versions), sheet steel, aluminium and plastic.

The punches are suitable for the hand hydraulic punch driver and the hydraulic foot pump.

The punches are supplied with draw stud and counter nut in a transport case.

Advantages

- For the special cut-out shapes for CONFiX and KEL-FW
- High-quality padded transport case
- Suitable with hand hydraulic punch driver by icotek or other manufacturers

Specifications

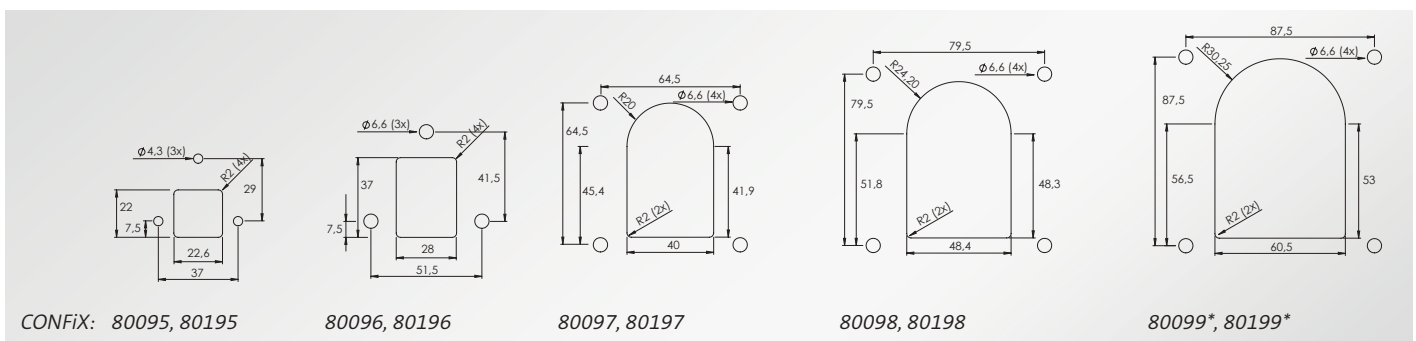
Material Steel, hardened and burnished

Compatible with

Hydraulic punch driver 374 - 375
Hydraulic foot pump 317

Complete set

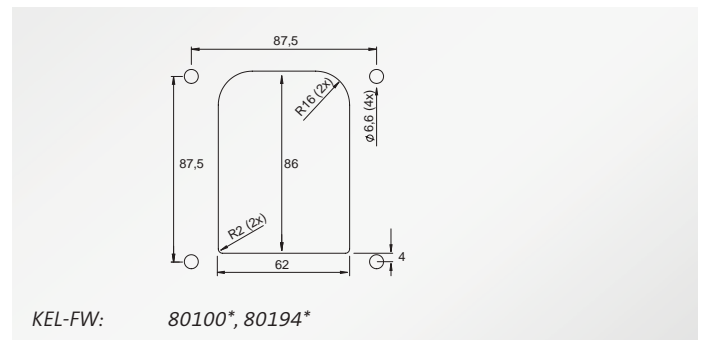
| Type | Cut-out size |
|----------------------------------------|-----------------|
| Punches for steel and aluminium | |
| Punch CONFiX | 22,6 x 22 mm |
| Punch CONFiX | 28 x 37 mm |
| Punch CONFiX | 40 x 64,5 mm |
| Punch CONFiX | 48,4 x 79,5 mm |
| Punch CONFiX* | 83,25 x 60,5 mm |
| Punch KEL-FW* | 62 x 86 mm |
| Punches for stainless steel V2A | |
| Punch CONFiX | 22,6 x 22 mm |
| Punch CONFiX | 28 x 37 mm |
| Punch CONFiX | 40 x 64,5 mm |
| Punch CONFiX | 48,4 x 79,5 mm |
| Punch CONFiX* | 83,25 x 60,5 mm |
| Punch KEL-FW* | 62 x 86 mm |





Compatible spare parts

| Max. sheet thickness | Suitable for | With centre punch (number) | Order No. | PU | Draw stud Order No. | Counter nut Order No. | Centre punches Order No. |
|----------------------|----------------------------------------------|----------------------------|-----------|----|---------------------|-----------------------|--------------------------|
| 2 mm | FWS-A 16 FWS-A 20 FWS-B 11 FWS-B 16 | 3 | 80095 | 1 | 80205 | 80227 | 80232 |
| 2 mm | FWS-A 25 FWS-B 21 | 3 | 80096 | 1 | 80205 | 80227 | 80232 |
| 2 mm | FWS-A 32 FWS-B 29 | 4 | 80097 | 1 | 80209 | 80211 | 80065 |
| 2 mm | FWS-A 40 FWS-B 36 | 4 | 80098 | 1 | 80209 | 80211 | 80065 |
| 2 mm | FWS-A 50 FWS-B 48 | 4 | 80099 | 1 | 80209 | 80211 | 80065 |
| 2 mm | KEL-FW B1 KEL-FW B4 | 4 | 80100 | 1 | 80209 | 80211 | 80065 |
| 2 mm | FWS-A 16 FWS-A 20 FWS-B 11 FWS-B 16 | 3 | 80195 | 1 | 80205 | 80227 | 80232 |
| 2 mm | FWS-A 25 FWS-B 21 | 3 | 80196 | 1 | 80205 | 80227 | 80232 |
| 2 mm | FWS-A 32 FWS-B 29 | 4 | 80197 | 1 | 80209 | 80211 | 80065 |
| 2 mm | FWS-A 40 FWS-B 36 | 4 | 80198 | 1 | 80209 | 80211 | 80065 |
| 2 mm | FWS-A 50 FWS-B 48 | 4 | 80199 | 1 | 80209 | 80211 | 80065 |
| 2 mm | KEL-FW B1 KEL-FW B4 | 4 | 80194 | 1 | 80209 | 80211 | 80065 |



Accessories for punches



Draw studs

| Type | Compatible for | Order No. | PU |
|-----------|-------------------------------------------------------------------------------------------------------------|-----------|----|
| Draw stud | for rectangular punch D = 19 mm, Length: 135 mm | 80209 | 1 |
| Draw stud | for rectangular punch, one side flattened D = 13 mm, d = 11 mm, Length: 105 mm | 80205 | 1 |
| Draw stud | for rectangular punch, two sides flattened Order No. 80063, 80086 | 80213 | 1 |
| Draw stud | for rectangular punch 19 x 14 x 130 mm, two sides flattened | 80226 | 1 |
| Draw stud | for rectangular punch 9,5 x 8,25 x 105 mm, one side flattened | 80228 | 1 |
| Draw stud | for rectangular punch, Order No. 80091 16 x 14,5 x 110 mm | 80231 | 1 |
| Draw stud | for round punch (steel) M16 – M25 d = 9,5 mm; D = 19 mm; L = 105 mm | 80200 | 1 |
| Draw stud | for round punch (steel and stainless steel V2A) M32 – M85, D = 19 mm; L = 125 mm | 80201 | 1 |
| Draw stud | for round punch M16, M20, M25 (steel and stainless steel V2A) with adapter 11,1 x 19,0 mm, L = 105 mm | 80210 | 1 |

For manual operation

| Type | Compatible for | Order No. | PU |
|-------------------------------------|--------------------------------------------------------------------|-----------|----|
| Ball bearing mounted pressure screw | for round punch M16 – M25, screw 9,5 x 50 mm, UNF 3/8 thread | 80217 | 1 |
| Ball bearing mounted pressure screw | for round punch M32 – M40, screw 19 x 55 mm UNF 3/4 thread | 80218 | 1 |
| Ball bearing mounted pressure screw | for round punch M50, screw 19 x 75 mm UNF 3/4 thread | 80219 | 1 |
| Pressure nut with ball bearing | 1/2 UNF | 80207 | 1 |
| Pressure nut with ball bearing | 3/8 UNF | 80230 | 1 |



Counter nuts

| Type | Compatible for | Order No. | PU |
|-------------|--------------------------------------------------------------|-----------|----|
| Counter nut | 1/2 UNF | 80206 | 1 |
| Counter nut | for rectangular punch 125 x 125 mm Order No. 80063, 80086 | 80214 | 1 |
| Counter nut | 3/4 UNF | 80211 | 1 |
| Counter nut | 3/8 UNF | 80229 | 1 |

Centre punches

| Type | Compatible for | small large | Order No. | PU |
|----------------|----------------------------|---------------|-----------|----|
| Centre punches | Rectangular punches | large | 80065 | 1 |
| Centre punches | 80082, 80095, 80096, 80148 | small | 80232 | 1 |

Other accessories

| Type | Compatible for | Order No. | PU |
|-------------------|----------------|-----------|----|
| Multi-stage drill | HSS co-drill | 80204 | 1 |
| Adapter | 3/4 to 1/2 UNF | 80208 | 1 |
| Adapter | 3/4 to 3/8 UNF | 80234 | 1 |

Useful Tools for measuring and mounting



KMS
Cable template

| Description | Order No. | PU |
|----------------|-----------|----|
| Cable template | 39800 | 1 |

The correct size of the KT grommets can easily be determined by using the cable template

- Determining the diameter of the cable using the cable template
- Selecting the KT grommets according to the data on the cable template



QVT-CLICK Tool
Mounting tool

| Description | Order No. | PU |
|----------------|-----------|----|
| QVT-CLICK Tool | 61435 | 1 |

The QVT-CLICK Tool for a quick and easy mounting of the split cable glands QVT-CLICK (see page 111)



Wrenches
for plastic locknuts M75/M85

| Description | Material | Order No. | PU |
|-------------|-----------|-----------|----|
| Wrench M75 | Aluminium | 61436 | 1 |
| Wrench M85 | Aluminium | 61437 | 1 |

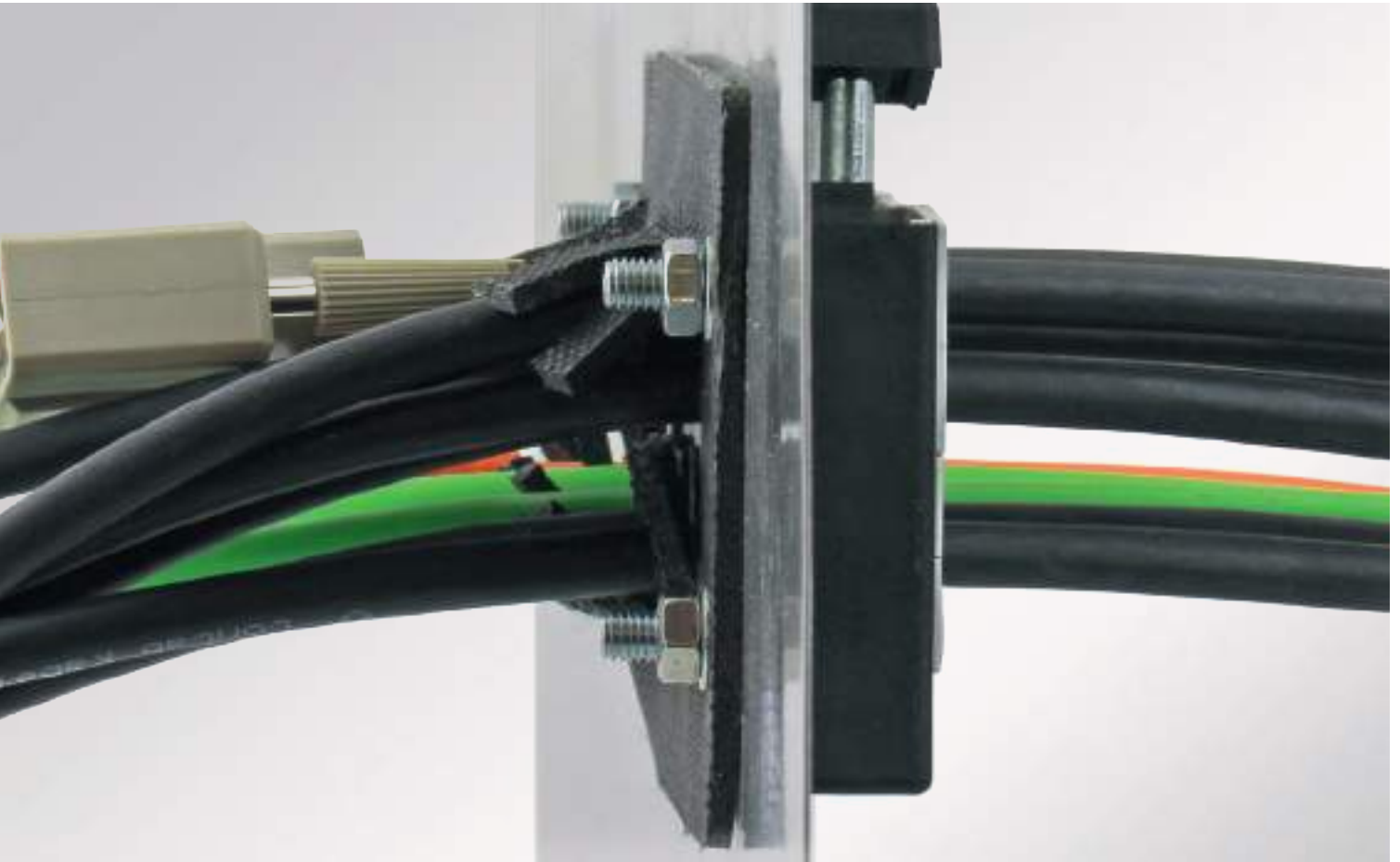
For mounting the KEL-DPF sizes we offer suitable wrenches with widths for M75 and M85 plastic locknuts. Material: aluminium













STFZ I/O Insert Tool
Mounting tool for I/O modules

| Description | Order No. | PU |
|----------------------|-----------|----|
| STFZ I/O Insert Tool | 61430 | 1 |

STFZ I/O Insert Tool for a quick and easy mounting of STFZ terminal clamps (EMC shield clamps for peripheral modules, see page 251).



| | | | | |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
|  EN 45545-2 |  EN 45545-3 |  JAPAN RAILWAY TESTED FLAME RETARDANT |  UL US |  IP68 |
|  UL TYPE 12 |  UL TYPE 4X |  RoHS compliant |  Made in Germany |  ISO 4892-2A |

Cable entry systems with IFPS fire penetration seals acc. to EN 45545-3

Fire resistance of fire barriers

The European railway standard for fire safety EN 45545-3 regulates the fire resistance of fire barriers. The requirements and measures defined in this part of the standard aim to protect passengers and staff in railway vehicles against onboard fire incidents.

Fire barriers can have different standards

The lowest standard „E“

Barrier against flames, preventing fissure formation. „E45“, for example, means that the specimen can withstand the test for 45 minutes.



The highest standard „EI“

Barrier against flames, preventing fissure formation and thermal insulation, which means that the temperature on the side facing away from the fire must not exceed 200° C (180° K above room temperature). „EI30“, for example, means that the specimen can withstand the test for 30 minutes.

Based on the standards EN 45545-3 and EN 1363-1 icotek cable entry systems have been tested on „E“ and „EI“ in vertical alignment using mounted IFPS fire penetration seals. All tested products have been successfully certified using only one layer of fire penetration seals.

icotek cable entry systems meet the classifications E45 and EI30!

The cable entry frames and grommets manufactured by icotek have undergone flammability testing for railway vehicle materials by the Japan Railway Vehicle Machinery Engineering Association, and have been certified as "flame retardant".



Fire penetration seals facing the fire side



before



after

Cable entry systems

with IFPS fire penetration seals

according to EN 45545-3



icotek cable entry frames and plates with fire penetration seals, approved for use in railway technology (meeting the standards EN 45545-2, EN 45545-3 and EN 1363-1).

The intumescent (foaming) IFPS fire penetration seals which are mounted at the backside of the cable entry components consist of expandable graphite and increase their volume by a multiple in case of a fire.

This creates a barrier which prevents a penetration of flames and high heat from one room into another for the longest possible period.

Advantages & benefits

- Approved for use in railway technology (EN 45545-2, EN 45545-3 and EN 1363-1)
- Easy assembly
- High cable density
- Only one fire penetration seal per cable entry component required
- Large product variety
- Up to IP66/UL Type 4X, depending on the cable entry
- High classifications E45/EI30

Specifications

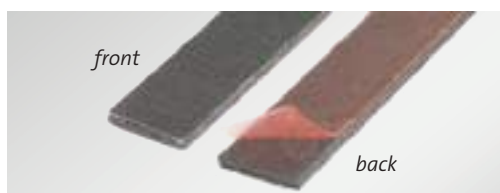
| | |
|-----------------------|-----------------------|
| Cable entry comp. | See standard products |
| Fire penetration seal | Intumescent (foaming) |
| Material | Graphite (C) |

Scope of delivery

Each 1 cable entry frame/plate + suitable fire penetration seal.

Suitable grommets are not included in the shipment and have to be ordered separately.

| Type | Order No. | Order No. with V2A screws | Cut-out | Grommets KT small large | IP Ingress protection | PU |
|-----------------|-----------|---------------------------|-------------|---------------------------|-----------------------|----|
| KEL-U 24 4-BS | 99300.001 | 99300.201 | 36 × 112 mm | 2 2 | IP54 | 5 |
| KEL-U 24 7-BS | 99300.002 | 99300.202 | 36 × 112 mm | 6 1 | IP54 | 5 |
| KEL-U 24 10-BS | 99300.003 | 99300.203 | 36 × 112 mm | 10 - | IP54 | 5 |
| KEL-U 16 2-BS | 99301.001 | 99301.201 | 36 × 86 mm | - 2 | IP54 | 5 |
| KEL-U 16 5-BS | 99301.002 | 99301.202 | 36 × 86 mm | 4 1 | IP54 | 5 |
| KEL-U 16 8-BS | 99301.003 | 99301.203 | 36 × 86 mm | 8 - | IP54 | 5 |
| KEL-U 10 6-BS | 99306.001 | 99306.201 | 36 × 65 mm | 6 - | IP54 | 5 |
| KEL-U 10 3-BS | 99306.002 | 99306.202 | 36 × 65 mm | 2 1 | IP54 | 5 |
| KEL-U-B1-BS | 99305.001 | 99305.201 | 46 × 46 mm | - 1 | IP54 | 5 |
| KEL-U-B4-BS | 99305.002 | 99305.202 | 46 × 46 mm | 4 - | IP54 | 5 |
| KEL-ER 24 4-BS | 99300.004 | 99300.204 | 36 × 112 mm | 2 2 | IP65 / IP66 | 5 |
| KEL-ER 24 7-BS | 99300.005 | 99300.205 | 36 × 112 mm | 6 1 | IP65 / IP66 | 5 |
| KEL-ER 24 10-BS | 99300.006 | 99300.206 | 36 × 112 mm | 10 - | IP65 / IP66 | 5 |
| KEL-ER 16 2-BS | 99301.004 | 99301.204 | 36 × 86 mm | - 2 | IP65 / IP66 | 5 |
| KEL-ER 16 5-BS | 99301.005 | 99301.205 | 36 × 86 mm | 4 1 | IP65 / IP66 | 5 |
| KEL-ER 16 8-BS | 99301.006 | 99301.206 | 36 × 86 mm | 8 - | IP65 / IP66 | 5 |
| KEL-ER 10 6-BS | 99306.003 | 99306.203 | 36 × 65 mm | 6 - | IP65 / IP66 | 5 |
| KEL-ER 10 3-BS | 99306.004 | 99306.204 | 36 × 65 mm | 2 1 | IP65 / IP66 | 5 |
| KEL-ER B1-BS | 99305.003 | 99305.203 | 46 × 46 mm | - 1 | IP65 / IP66 | 5 |
| KEL-ER B4-BS | 99305.004 | 99305.204 | 46 × 46 mm | 4 - | IP65 / IP66 | 5 |
| KEL-E5-BS | 99302.001 | 99302.201 | 24 × 112 mm | 5 - | IP54 | 5 |
| KEL-E4-BS | 99309.001 | 99309.201 | 24 × 86 mm | 4 - | IP54 | 5 |
| KEL-E3-BS | 99308.001 | 99308.201 | 24 × 65 mm | 3 - | IP54 | 5 |
| KEL-E2-BS | 99307.001 | 99307.201 | 24 × 43 mm | 2 - | IP54 | 5 |
| KEL-ER-E5-BS | 99302.002 | 99302.202 | 24 × 112 mm | 5 - | IP65 / IP66 | 5 |
| KEL-ER-E4-BS | 99309.002 | 99309.202 | 24 × 86 mm | 4 - | IP65 / IP66 | 5 |
| KEL-ER-E3-BS | 99308.002 | 99308.202 | 24 × 65 mm | 3 - | IP65 / IP66 | 5 |
| KEL-ER-E2-BS | 99307.002 | 99307.202 | 24 × 43 mm | 2 - | IP65 / IP66 | 5 |



Also available: IFPS fire penetration seal stripe, 900 x 17 x 2.7 mm, self-adhesive
Order No. 99303

Cable entry systems

with IFPS fire penetration seals

according to EN 45545-3



icotek cable entry frames and plates with fire penetration seals, approved for use in railway technology (meeting the standards EN 45545-2, EN 45545-3 and EN 1363-1).

The intumescent (foaming) IFPS fire penetration seals which are mounted at the backside of the cable entry components consist of expandable graphite and increase their volume by a multiple in case of a fire.

This creates a barrier which prevents a penetration of flames and high heat from one room into another for the longest possible period.

Advantages & benefits

- Approved for use in railway technology (EN 45545-2, EN 45545-3 and EN 1363-1)
- Easy assembly
- High cable density
- Only one fire penetration seal per cable entry component required
- Large product variety
- Up to UL Type 4X/IP66, depending on the cable entry
- High classifications E45 / EI30

Specifications

| | |
|-----------------------|-----------------------|
| Cable entry comp. | See standard products |
| Fire penetration seal | Intumescent (foaming) |
| Material | Graphite (C) |

Scope of delivery

Each 1 cable entry frame/plate + suitable fire penetration seal.

Suitable grommets are not included in the shipment and have to be ordered separately.



Also available: IFPS fire penetration seal stripe, 900 x 17 x 2.7 mm, self-adhesive
Order No. 99303

| Type | Order No. | Cut-out | IP Ingress protection | PU |
|-----------------------|-----------|-------------|-----------------------|----|
| KEL-DPU 24 13-BS gy | 99300.010 | 36 × 112 mm | IP66 / IP68 | 5 |
| KEL-DPU 24 14-BS gy | 99300.011 | 36 × 112 mm | IP66 / IP68 | 5 |
| KEL-DPU 24 16-BS gy | 99300.012 | 36 × 112 mm | IP66 / IP68 | 5 |
| KEL-DPU 24 16-1-BS gy | 99300.013 | 36 × 112 mm | IP66 / IP68 | 5 |
| KEL-DPU 24 17-BS gy | 99300.014 | 36 × 112 mm | IP66 / IP68 | 5 |
| KEL-DPU 24 20-BS gy | 99300.015 | 36 × 112 mm | IP66 / IP68 | 5 |
| KEL-DPU 24 21-BS gy | 99300.016 | 36 × 112 mm | IP66 / IP68 | 5 |
| KEL-DPU 24 32-BS gy | 99300.017 | 36 × 112 mm | IP66 / IP68 | 5 |
| KEL-DPZ 16 11-BS gy | 99301.007 | 36 × 86 mm | IP65 / IP66 | 5 |
| KEL-DPZ 16 14-BS gy | 99301.008 | 36 × 86 mm | IP65 / IP66 | 5 |
| KEL-DPZ 16 20-BS gy | 99301.009 | 36 × 86 mm | IP65 / IP66 | 5 |
| KEL-DPZ 16 25-BS gy | 99301.010 | 36 × 86 mm | IP65 / IP66 | 5 |
| KEL-DPZ 16 34-BS gy | 99301.011 | 36 × 86 mm | IP65 / IP66 | 5 |
| KEL-DPZ 24 14-BS gy | 99300.018 | 36 × 112 mm | IP65 / IP66 | 5 |
| KEL-DPZ 24 15-BS gy | 99300.019 | 36 × 112 mm | IP65 / IP66 | 5 |
| KEL-DPZ 24 16-BS gy | 99300.020 | 36 × 112 mm | IP65 / IP66 | 5 |
| KEL-DPZ 24 17-BS gy | 99300.021 | 36 × 112 mm | IP65 / IP66 | 5 |
| KEL-DPZ 24 25-BS gy | 99300.022 | 36 × 112 mm | IP65 / IP66 | 5 |
| KEL-DPZ 24 32-BS gy | 99300.023 | 36 × 112 mm | IP65 / IP66 | 5 |
| KEL-DPZ 24 42-BS gy | 99300.024 | 36 × 112 mm | IP65 / IP66 | 5 |

Fire penetration seal (accessories)

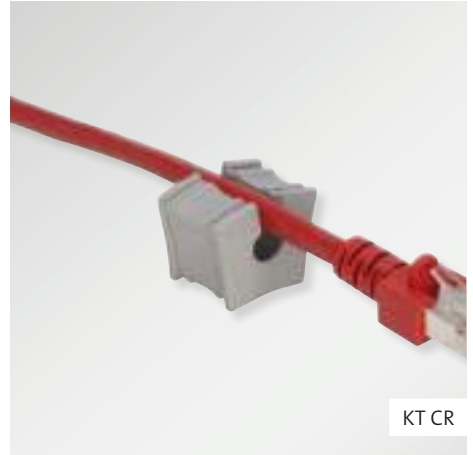
| Type | Order No. | Cut-out | PU |
|----------------------------------------------|-----------|-------------|----|
| Fire penetration seal size 24 | 99300 | 36 × 112 mm | 1 |
| Fire penetration seal size 16 | 99301 | 36 × 86 mm | 1 |
| Fire penetration seal size 10 | 99306 | 36 × 65 mm | 1 |
| Fire penetration seal size B | 99305 | 46 × 46 mm | 1 |
| Fire penetration seal size E5 | 99302 | 24 × 112 mm | 1 |
| Fire penetration seal size E4 | 99309 | 24 × 86 mm | 1 |
| Fire penetration seal size E3 | 99308 | 24 × 65 mm | 1 |
| Fire penetration seal size E2 | 99307 | 24 × 43 mm | 1 |
| Fire penetration seal size KEL 183 ** | 99311 | 180 × 80 mm | 1 |
| Fire penetration seal size 24-MT ** | 99312 | 82 × 112 mm | 1 |
| Fire penetration seal size 16-MT ** | 99314 | 82 × 86 mm | 1 |
| Fire penetration seal for KEL-DPZ-KX/KL72 ** | 99315 | 62 × 192 mm | 1 |

** At the time of certification, these sizes were not yet part of our product portfolio.

*4X for indoor use only



Cable entry systems for the use in cleanrooms



10 Cable entry systems for the use in cleanrooms



A cleanroom is a room that has an extremely low concentration of airborne particles. Airborne particles are all particles and substances that are suspended in the air and for the most part cannot be seen with the naked eye.

Such cleanrooms are needed wherever particles present in the ambient air would disrupt production. This is the case, for example, in medical technology, semiconductor production, microsystems technology, pharmaceuticals, aerospace technology or optics. Cleanrooms are also needed in medical research.

Cleanrooms are classified by classes according to ISO 14644-1 as per ISO 1 to 9. The individual cleanroom classes may only contain a certain number of particles of a specified size. The particle concentration is considered per m³ of air. ISO 1 contains the strictest specifications, for ISO 9 the lowest specifications.

In order to meet these strict requirements, materials specially researched or modified by icotek are required and used for the certified cleanroom products.

All icotek cable entry systems for the cleanroom tested and certified by the Fraunhofer IPA are suitable and certified for class 1 in accordance with ISO 14644-1.



For more information about products for the cleanroom, please contact us directly: pm@icotek.com



Cleanroom classes according to ISO 14644-1 and other regulations

| Regulatory | | | | Limiting values of each air cleanliness class for different particle sizes and reference volumes (acc. to ISO 14644-1) | | | | | | | | | | | | | |
|------------------------------|-------------------------|------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|--------|-----|
| ISO-GMP "in operation" | ISO-GMP "at rest" | US Fed. Standard 209E* | EN 18264 ISO 14644-1 | 0.1 µm | | 0.2 µm | | 0.3 µm | | 0.5 µm | | 1.0 µm | | 5.0 µm | | | |
| | | | | per m³ | per cub | per m³ | per cub | per m³ | per cub | per m³ | per cub | per m³ | per cub | per m³ | per cub | | |
| | | | 1 | 10 | 0,1 | | | | | | | | | | | | |
| | | | 2 | 100 | 1 | 28 | 1 | 10 | 0,3 | | | | | | | | |
| | | | 3 | 1.000 | 38 | 230 | 7 | 102 | 3 | 35 | 1 | | | | | | |
| | | 1 | | 1.240 | 35 | 265 | 8 | 106 | 3 | 35 | 1 | | | | | | |
| | | 10 | 4 | 10.000 | 300 | 2.510 | 67 | 1.320 | 29 | 85 | 9,9 | 83 | 2 | | | | |
| | | | | 32.000 | 340 | 2.850 | 75 | 1.660 | 29 | 85 | 10 | | | | | | |
| A | A | 100 | 5 | 300.000 | 2.833 | 23.700 | 671 | 10.000 | 289 | 2.520 | 100 | 830 | 24 | 29 | 0,8 | | |
| | | | | | | | | | | | | 1.520 | 100 | | | 20 | 0,6 |
| | | | | | | | | | | | | 3.520 | 100 | | | 20 | 0,6 |
| | | | | | | | | | | | | 3.520 | 100 | | | 29 | 0,8 |
| | | | | | | 26.500 | 750 | 10.000 | 300 | 3.520 | 100 | | | | | | |
| | | | 6 | 1.000.000 | 28.325 | 237.000 | 6.710 | 102.000 | 2.890 | 25.200 | 997 | 8.320 | 235 | 290 | 8 | | |
| | | | | | | | | | | 26.500 | 1.000 | | | 247 | 7 | | |
| B | C | 10.000 | 7 | 352.000 | 9.972 | 33.200 | 2.357 | 2.900 | 83 | | | | | | | | |
| | | | | | | | | | | | | 352.000 | 9.972 | | | 2.900 | 82 |
| | | | | | | | | | | | | 352.000 | 9.972 | | | 2.900 | 82 |
| | | | | | | | | | | | | 352.000 | 10.000 | | | 2.470 | 70 |
| | | | | | | | | | | | | | | | | | |
| C | D | 100.000 | 8 | 3.520.000 | 99.716 | 332.000 | 23.569 | 29.000 | 830 | | | | | | | | |
| | | | | | | | | | | | | 3.520.000 | 99.716 | | | 29.000 | 821 |
| | | | | | | | | | | | | 3.520.000 | 99.716 | | | 29.000 | 821 |
| | | | | | | | | | | | | 3.520.000 | 100.000 | | | 24.700 | 700 |
| | | | | | | | | | | | | | | | | | |
| | | | 9 | 35.200.000 | 997.167 | 3.320.000 | 235.694 | 293.000 | 8.300 | | | | | | | | |

Source: Fraunhofer IPA

Industries and cleanliness criteria

| | Particle emission | Outgassing VOC / SVOC | Outgassing aromatics | Outgassing H ₂ S | ESD | Corrosivity (hydrofluoric test) | Chemical resistance | Biological resistance | Antibacterial activity | H ₂ O ₂ absorption/ desorption | Hygienic Design |
|-----------------------------|-------------------|--------------------------|-------------------------|--------------------------------|-----|------------------------------------|---------------------|-----------------------|------------------------|------------------------------------------------------------|-----------------|
| Semiconductor industry | ++ | ++ | * | + | ++ | * | + | + | 0 | 0 | 0 |
| Electronic | ++ | + | + | + | ++ | 0 | 0 | 0 | 0 | 0 | 0 |
| Display (e.g. mobile phone) | ++ | + | 0 | 0 | ++ | 0 | 0 | 0 | 0 | 0 | 0 |
| Battery technology | ++ | 0 | 0 | 0 | ++ | 0 | 0 | 0 | 0 | 0 | 0 |
| Microsystem technology | ++ | + | 0 | 0 | ++ | + | + | + | 0 | 0 | 0 |
| Optic | + | ++ | + | + | + | + | + | + | 0 | 0 | 0 |
| Photovoltaic | + | + | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 |
| Aerospace | ++ | ++ | + | + | ++ | + | + | + | + | 0 | 0 |
| Pharmacy | ++ | 0 | 0 | 0 | + | ++ | ++ | ++ | ++ | ++ | ++ |
| Biotechnology | + | + | 0 | 0 | 0 | ++ | ++ | ++ | ++ | + | ++ |
| Medical technology | + | 0 | 0 | 0 | + | ++ | ++ | ++ | ++ | + | ++ |
| Food technology | + | 0 | 0 | 0 | 0 | ++ | ++ | ++ | ++ | + | ++ |
| Hospital | 0 | 0 | 0 | 0 | 0 | ++ | ++ | ++ | ++ ^{*)} | + | ++ |

*) depending on the subject

++ mandatory | + recommended, but not mandatory | 0 generally not required but in individual cases recommended

Source: Fraunhofer IPA

*4X for indoor use only

10 Cable entry systems for the use in cleanrooms

Specially designed for the cleanroom

Not only the particle emissions are relevant but also the outgassing values VOC (Volatile Organic Compounds)/SVOC (Semivolatile Organic Compounds) of the products used in clean rooms. This applies in particular to the semiconductor, optics and aerospace industries.

In the ISO class, the air cleanliness classification works on the basis of the particulate concentration.

In the ISO-ACC class, air cleanliness works on the basis of chemical concentration. The chemical concentration can lead to a chemical contamination, which can have a damaging effect on the product or on the process.

Materials as well as cable entry systems are classified based on their chemical concentration.



i Decontamination with H₂O₂ vaporization

Cleanrooms must be cleaned of contamination with microorganisms, particles and pyrogens before each commissioning or after maintenance work. An effective method is cleaning by vaporizing hydrogen peroxide (H₂O₂). The hydrogen peroxide is converted into a gaseous state and the subsequent microcondensation results in optimum decontamination throughout the entire room and on all surfaces.

icotek has subjected its cable entry systems to the H₂O₂ cleaning process and can recommend its use. A declaration of conformity is available on request from product management: pm@icotek.com

Manual disinfection

icotek recommends cleaning products installed in cleanrooms with a mixture of 70% isopropanol and 30% distilled water.

ISO-ACCe Class (x) =
ISO-Air Cleanliness chemical concentration for equipment =
AMC Class Equipment

ISO-ACCm Class (x) =
ISO-Air Cleanliness chemical concentration for material =
AMC Class Material

The Fraunhofer IPA certified values that were in part no longer measurable in the ultra-trace range and thus excellent to very good values. The material-specific emission rate (= ISO-ACCm class) was determined. The smaller the ISO-ACCm class, the lower the material-specific emission rate.

The test certificates of the Fraunhofer IPA can be requested from icotek: pm@icotek.com



i Explanation of article numbers

The products with article ending **.600** are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1. The materials used for these products have been tested and certified for outgassing according to VOC/SVOC (ISO 14644-8; ISO 16000-6,-9,-11,-25, VDI 2083 sheet 17).

The products with the article ending **.601** are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1.



EN ISO 14644



Split cable entry system
for cables with connectors

KEL-ER CR series

IP66

402



Split cable entry system
for cables with connectors

KEL-U CR series

IP54

403



Grommets
small, single

KT CR

IP66

404

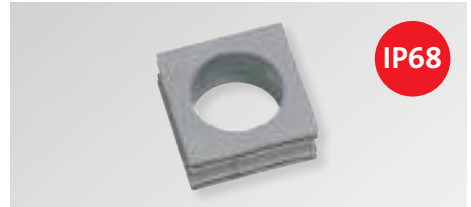


Grommets
small, multi

KT CR

IP68

405



Grommets
large

KT CR

IP68

406



Cable entry plates

KEL-DPZ CR series

IP66

407 – 409



Cable entry plates

KEL-DPZ round CR series

IP68

410



Cable entry plates
Hygienic Design Line

KEL-DPZ-HD CR

IP68

411

Cable entry frames

KEL-ER CR series



Split cable entry system for cables with connectors.
Detailed product description from page 10.

| Type | Cut-out mm | Grommets KT small large | Order No. * | Order No. ** | PU |
|---------------------|-------------|------------------------------|-------------|--------------|----|
| KEL-ER 24 CR | | | | | |
| KEL-ER 24 10 CR | 36/46 × 112 | 10 – | 48241.600 | 48241.601 | 5 |
| KEL-ER 24 7 CR | 36/46 × 112 | 6 1 | 48247.600 | 48247.601 | 5 |
| KEL-ER 24 4 CR | 36/46 × 112 | 2 2 | 48244.600 | 48244.601 | 5 |
| KEL-ER 16 CR | | | | | |
| KEL-ER 16 8 CR | 36/46 × 86 | 8 – | 48168.600 | 48168.601 | 5 |
| KEL-ER 16 5 CR | 36/46 × 86 | 4 1 | 48165.600 | 48165.601 | 5 |
| KEL-ER 16 2 CR | 36/46 × 86 | – 2 | 48162.600 | 48162.601 | 5 |
| KEL-ER 10 CR | | | | | |
| KEL-ER 10 6 CR | 36/46 × 65 | 6 – | 48216.600 | 48216.601 | 5 |
| KEL-ER 10 3 CR | 36/46 × 65 | 2 1 | 48212.600 | 48212.601 | 5 |
| KEL-ER-B CR | | | | | |
| KEL-ER-B4 CR | 46 × 46 | 4 – | 48204.600 | 48204.601 | 5 |
| KEL-ER-B1 CR | 46 × 46 | – 1 | 48206.600 | 48206.601 | 5 |
| KEL-ER-E CR | | | | | |
| KEL-ER-E5 CR | 112 × 24 | 5 – | 48250.600 | 48250.601 | 5 |
| KEL-ER-E4 CR | 112 × 24 | 4 – | 48259.600 | 48259.601 | 5 |
| KEL-ER-E3 CR | 65 × 24 | 3 – | 48258.600 | 48258.601 | 5 |
| KEL-ER-E2 CR | 43 × 24 | 2 – | 48249.600 | 48249.601 | 5 |



- * The products with article ending .600 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1. The materials used for these products have been tested and certified for outgassing according to VOC/SVOC (ISO 14644-8; ISO 16000-6,-9,-11,-25, VDI 2083 sheet 17).
- ** The products with the article ending .601 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1.

Cable entry frames

KEL-U CR series



Split cable entry system for cables with connectors.
Detailed product description from page 10.

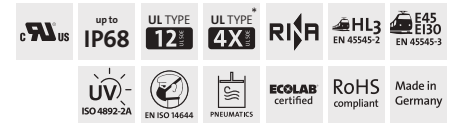
| Type | Cut-out mm | Grommets KT small large | Order No. * | Order No. ** | PU |
|--------------------|-------------|---------------------------|-------------|--------------|----|
| KEL-U 24 CR | | | | | |
| KEL-U 24 10 CR | 36/46 × 112 | 10 – | 54241.600 | 54241.601 | 5 |
| KEL-U 24 7 CR | 36/46 × 112 | 6 1 | 54247.600 | 54247.601 | 5 |
| KEL-U 24 4 CR | 36/46 × 112 | 2 2 | 54244.600 | 54244.601 | 5 |
| KEL-U 16 CR | | | | | |
| KEL-U 16 8 CR | 36/46 × 86 | 8 – | 54168.600 | 54168.601 | 5 |
| KEL-U 16 5 CR | 36/46 × 86 | 4 1 | 54165.600 | 54165.601 | 5 |
| KEL-U 16 2 CR | 36/46 × 86 | – 2 | 54162.600 | 54162.601 | 5 |
| KEL-U 10 CR | | | | | |
| KEL-U 10 6 CR | 36/46 × 65 | 6 – | 54216.600 | 54216.601 | 5 |
| KEL-U 10 3 CR | 36/46 × 65 | 2 1 | 54212.600 | 54212.601 | 5 |
| KEL-U-B CR | | | | | |
| KEL-U-B4 CR | 46 × 46 | 4 – | 54204.600 | 54204.601 | 5 |
| KEL-U-B1 CR | 46 × 46 | – 1 | 54206.600 | 54206.601 | 5 |



- * The products with article ending .600 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1. The materials used for these products have been tested and certified for outgassing according to VOC/SVOC (ISO 14644-8; ISO 16000-6,-9,-11,-25, VDI 2083 sheet 17).
- ** The products with the article ending .601 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1.

KT CR

Grommets, small, single



Detailed product description from page 76.

| Description | Type | Clamping range | Order No. * grey | Order No. ** grey | PU |
|-------------|-----------|----------------|---------------------|----------------------|----|
| BTK | BTK CR | Blank grommet | ■ 41251.600 | ■ 41251.601 | 10 |
| KT small | KT 1 CR | 1 – 2 mm | ■ 39941.600 | ■ 39941.601 | 10 |
| | KT 2 CR | 2 – 3 mm | ■ 39934.600 | ■ 39934.601 | 10 |
| | KT 3 CR | 3 – 4 mm | ■ 41203.600 | ■ 41203.601 | 10 |
| | KT 4 CR | 4 – 5 mm | ■ 41204.600 | ■ 41204.601 | 10 |
| | KT 5 CR | 5 – 6 mm | ■ 41205.600 | ■ 41205.601 | 10 |
| | KT 6 CR | 6 – 7 mm | ■ 41206.600 | ■ 41206.601 | 10 |
| | KT 7 CR | 7 – 8 mm | ■ 41207.600 | ■ 41207.601 | 10 |
| | KT 8 CR | 8 – 9 mm | ■ 41208.600 | ■ 41208.601 | 10 |
| | KT 9 CR | 9 – 10 mm | ■ 41209.600 | ■ 41209.601 | 10 |
| | KT 10 CR | 10 – 11 mm | ■ 41210.600 | ■ 41210.601 | 10 |
| | KT 11 CR | 11 – 12 mm | ■ 41211.600 | ■ 41211.601 | 10 |
| | KT 12 CR | 12 – 13 mm | ■ 41212.600 | ■ 41212.601 | 10 |
| | KT 13 CR | 13 – 14 mm | ■ 41213.600 | ■ 41213.601 | 10 |
| | KT 14 CR | 14 – 15 mm | ■ 41214.600 | ■ 41214.601 | 10 |
| | KT 15 CR | 15 – 16 mm | ■ 41215.600 | ■ 41215.601 | 10 |
| | KTs 16 CR | 16 mm | ■ 39901.600 | ■ 39901.601 | 10 |
| | KTs 17 CR | 17 mm | ■ 39900.600 | ■ 39900.601 | 10 |



- * The products with article ending .600 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1. The materials used for these products have been tested and certified for outgassing according to VOC/SVOC (ISO 14644-8; ISO 16000-6,-9,-11,-25, VDI 2083 sheet 17).
- ** The products with the article ending .601 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1.



The cable grommets CR are each certified in connection with the cable entry frames KEL-ER CR and KEL-U CR.

KT CR

Grommets, small, multi



Detailed product description from page 80.

| Description | Type | Clamping range | Order No. * grey | Order No. ** grey | PU |
|-------------|-----------|----------------|---------------------|----------------------|----|
| KT 2 x | KT 2 1 CR | 2× ø 1 mm | ■ 39942.600 | ■ 39942.601 | 10 |
| | KT 2 2 CR | 2× ø 2 mm | ■ 39935.600 | ■ 39935.601 | 10 |
| | KT 2 3 CR | 2× ø 3 mm | ■ 39939.600 | ■ 39939.601 | 10 |
| | KT 2 4 CR | 2× ø 4 mm | ■ 39906.600 | ■ 39906.601 | 10 |
| | KT 2 5 CR | 2× ø 5 mm | ■ 41200.600 | ■ 41200.601 | 10 |
| | KT 2 6 CR | 2× ø 6 mm | ■ 41201.600 | ■ 41201.601 | 10 |
| | KT 2 7 CR | 2× ø 7 mm | ■ 41202.600 | ■ 41202.601 | 10 |
| | KT 2 8 CR | 2× ø 8 mm | ■ 39917.600 | ■ 39917.601 | 10 |
| KT 4 x | KT 4 2 CR | 4× ø 2 mm | ■ 39937.600 | ■ 39937.601 | 10 |
| | KT 4 3 CR | 4× ø 3 mm | ■ 39914.600 | ■ 39914.601 | 10 |
| | KT 4 4 CR | 4× ø 4 mm | ■ 39909.600 | ■ 39909.601 | 10 |
| | KT 4 5 CR | 4× ø 5 mm | ■ 39908.600 | ■ 39908.601 | 10 |
| | KT 4 6 CR | 4× ø 6 mm | ■ 39932.600 | ■ 39932.601 | 10 |



- * The products with article ending .600 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1. The materials used for these products have been tested and certified for outgassing according to VOC/SVOC (ISO 14644-8; ISO 16000-6,-9,-11,-25, VDI 2083 sheet 17).
- ** The products with the article ending .601 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1.



The cable grommets CR are each certified in connection with the cable entry frames KEL-ER CR and KEL-U CR.

10

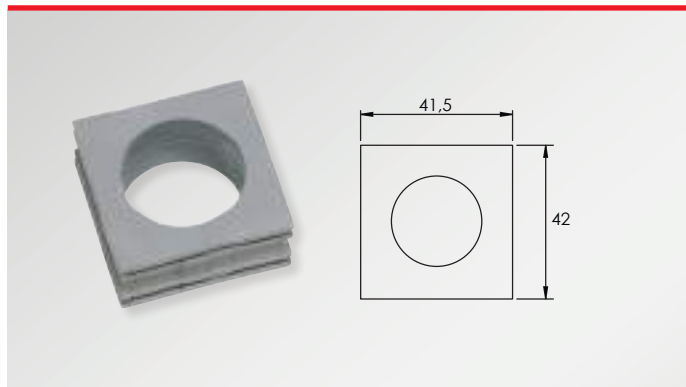
KT CR

Grommets, large



Detailed product description from page 77.

| Description | Type | Clamping range | Order No. * grey | Order No. ** grey | PU |
|-------------|------------|-----------------|---------------------|----------------------|----|
| ATG | ATG CR | Adapter grommet | ■ 41253.600 | ■ 41253.601 | 10 |
| BTG | BTG CR | Blank grommet | ■ 41252.600 | ■ 41252.601 | 10 |
| KT large | KTG 13 CR | 13 – 14 mm | ■ 41263.600 | ■ 41263.601 | 10 |
| | KTG 14 CR | 14 – 15 mm | ■ 41264.600 | ■ 41264.601 | 10 |
| | KTG 15 CR | 15 – 16 mm | ■ 41265.600 | ■ 41265.601 | 10 |
| | KT 16 CR | 16 – 17 mm | ■ 41216.600 | ■ 41216.601 | 10 |
| | KT 17 CR | 17 – 18 mm | ■ 41217.600 | ■ 41217.601 | 10 |
| | KT 18 CR | 18 – 19 mm | ■ 41218.600 | ■ 41218.601 | 10 |
| | KT 19 CR | 19 – 20 mm | ■ 41219.600 | ■ 41219.601 | 10 |
| | KT 20 CR | 20 – 21 mm | ■ 41220.600 | ■ 41220.601 | 10 |
| | KT 21 CR | 21 – 22 mm | ■ 41221.600 | ■ 41221.601 | 10 |
| | KT 22 CR | 22 – 23 mm | ■ 41222.600 | ■ 41222.601 | 10 |
| | KT 23 CR | 23 – 24 mm | ■ 41223.600 | ■ 41223.601 | 10 |
| | KT 24 CR | 24 – 25 mm | ■ 41224.600 | ■ 41224.601 | 10 |
| | KT 25 CR | 25 – 26 mm | ■ 41225.600 | ■ 41225.601 | 10 |
| | KT 26 CR | 26 – 27 mm | ■ 41226.600 | ■ 41226.601 | 10 |
| | KT 27 CR | 27 – 28 mm | ■ 41227.600 | ■ 41227.601 | 10 |
| | KT 28 CR | 28 – 29 mm | ■ 41228.600 | ■ 41228.601 | 10 |
| | KT 29 CR | 29 – 30 mm | ■ 41229.600 | ■ 41229.601 | 10 |
| KT 30 CR | 30 – 31 mm | ■ 41230.600 | ■ 41230.601 | 10 | |
| KT 31 CR | 31 – 32 mm | ■ 41231.600 | ■ 41231.601 | 10 | |
| KT 32 CR | 32 – 33 mm | ■ 41232.600 | ■ 41232.601 | 10 | |
| KT 33 CR | 33 – 34 mm | ■ 41233.600 | ■ 41233.601 | 10 | |
| KT 34 CR | 34 – 35 mm | ■ 41234.600 | ■ 41234.601 | 10 | |



* The products with article ending .600 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1. The materials used for these products have been tested and certified for outgassing according to VOC/SVOC (ISO 14644-8; ISO 16000-6,-9,-11,-25, VDI 2083 sheet 17).

** The products with the article ending .601 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1.



The cable grommets CR are each certified in connection with the cable entry frames KEL-ER CR and KEL-U CR.

Cable entry plates KEL-DPZ CR series



Detailed product description from page 140.

| Type | Cut-out mm | Number of cables | Order No. * | Order No. ** | PU |
|----------------------|-------------|---------------------------------------------------------------------|----------------------------|----------------------------|----|
| KEL-DPZ 24 CR | | | | | |
| KEL-DPZ 24 14 CR | 36 x 112 mm | 10× 3.2 - 6.5 mm 4× 16 - 22 mm | ■ 43700.600 ■ 50700.600 | ■ 43700.601 ■ 50700.601 | 5 |
| KEL-DPZ 24 15 CR | 36 x 112 mm | 15× 7.2 - 12 mm | ■ 43720.600 ■ 50720.600 | ■ 43720.601 ■ 50720.601 | 5 |
| KEL-DPZ 24 16 CR | 36 x 112 mm | 8× 3.2 - 6.5 mm 4× 5 - 9.7 mm 2× 9 - 16.2 mm 2× 16 - 22 mm | ■ 43725.600 ■ 50725.600 | ■ 43725.601 ■ 50725.601 | 5 |
| KEL-DPZ 24 17 CR | 36 x 112 mm | 6× 3.2 - 6.5 mm 6× 5 - 10.2 mm 5× 9 - 16.2 mm | ■ 43705.600 ■ 50705.600 | ■ 43705.601 ■ 50705.601 | 5 |
| KEL-DPZ 24 25 CR | 36 x 112 mm | 12× 3.2 - 6.5 mm 7× 4.8 - 9.7 mm 6× 7.5 - 12 mm | ■ 43710.600 ■ 50710.600 | ■ 43710.601 ■ 50710.601 | 5 |
| KEL-DPZ 24 26 CR | 36 x 112 mm | 26× 5.0 - 10.2 mm | ■ 43711.600 ■ 50711.600 | ■ 43711.601 ■ 50711.601 | 5 |
| KEL-DPZ 24 32 CR | 36 x 112 mm | 21× 3.2 - 6.5 mm 8× 5 - 10.2 mm 3× 7.5 - 12 mm | ■ 43730.600 ■ 50730.600 | ■ 43730.601 ■ 50730.601 | 5 |
| KEL-DPZ 24 42 CR | 36 x 112 mm | 42× 3.2 - 6.5 mm | ■ 43715.600 ■ 50715.600 | ■ 43715.601 ■ 50715.601 | 5 |
| KEL-DPZ 24 121 CR | 36 x 112 mm | 119× 1.5 - 2.6 mm 2× 2.5 - 5 mm | ■ 43735.600 ■ 50735.600 | ■ 43735.601 ■ 50735.601 | 5 |



* The products with article ending .600 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1. The materials used for these products have been tested and certified for outgassing according to VOC/SVOC (ISO 14644-8; ISO 16000-6,-9,-11,-25, VDI 2083 sheet 17).

** The products with the article ending .601 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1.

Cable entry plates KEL-DPZ CR series



Detailed product description from page 140.

| Type | Cut-out mm | Number of cables | Order No. * | Order No. ** | PU |
|----------------------|------------|----------------------------------------------------------|-------------|--------------|----|
| KEL-DPZ 16 CR | | | | | |
| KEL-DPZ 16 11 CR | 36 x 86 mm | 11 x 7.5 - 12 mm | 43815.600 | 43815.601 | 5 |
| KEL-DPZ 16 14 CR | 36 x 86 mm | 5 x 3.2 - 6.5 mm 5 x 5 - 10.2 mm 4 x 9 - 16.2 mm | 43816.600 | 43816.601 | 5 |
| KEL-DPZ 16 20 CR | 36 x 86 mm | 11 x 3.2 - 6.5 mm 5 x 5 - 10.2 mm 4 x 7.5 - 12 mm | 43817.600 | 43817.601 | 5 |
| KEL-DPZ 16 25 CR | 36 x 86 mm | 16 x 3.2 - 6.5 mm 6 x 5 - 10.2 mm 3 x 7.5 - 12 mm | 43818.600 | 43818.601 | 5 |
| KEL-DPZ 16 34 CR | 36 x 86 mm | 34 x 3.2 - 6.5 mm | 43819.600 | 43819.601 | 5 |
| KEL-DPZ 6 CR | | | | | |
| KEL-DPZ 6 12 CR | 52 x 36 mm | 12 x 4.5 - 8.0 mm | 43809.600 | 43809.601 | 5 |
| KEL-DPZ 6 18-1 CR | 52 x 36 mm | 6 x 2.5 - 5.0 mm 5 x 3.2 - 6.5 mm 7 x 4.5 - 8.0 mm | 43811.600 | 43811.601 | 5 |
| KEL-DPZ 6 18 CR | 52 x 36 mm | 18 x 3.2 - 6.5 mm | 43812.600 | 43812.601 | 5 |
| KEL-DPZ 6 23 CR | 52 x 36 mm | 13 x 2.5 - 5.0 mm 10 x 3.2 - 6.5 mm | 43813.600 | 43813.601 | 5 |
| KEL-DPZ 6 27 CR | 52 x 36 mm | 27 x 2.5 - 5.0 mm | 43814.600 | 43814.601 | 5 |



- * The products with article ending .600 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1. The materials used for these products have been tested and certified for outgassing according to VOC/SVOC (ISO 14644-8; ISO 16000-6,-9,-11,-25, VDI 2083 sheet 17).
- ** The products with the article ending .601 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1.

Cable entry plates

KEL-DPZ CR series



Detailed product description from page 140.

| Type | Cut-out mm | Number of cables | Order No. * | Order No. ** | PU |
|-------------------------|-------------|------------------------------------------------------------------------|------------------------------------|------------------------------------|----|
| KEL-DPZ-B CR | | | | | |
| KEL-DPZ-B 13 CR | 46 x 46 mm | 8× 3.2 - 6.5 mm 4× 5 - 10.2 mm 1× 16 - 22 mm | ■ 43794.600 ■ 50794.600 | ■ 43794.601 ■ 50794.601 | 5 |
| KEL-DPZ-B 17 CR | 46 x 46 mm | 10× 3.2 - 6.5 mm 4× 5 - 10.2 mm 2× 7.5 - 12 mm 1× 9 - 16.2 mm | ■ 43796.600 ■ 50796.600 | ■ 43796.601 ■ 50796.601 | 5 |
| KEL-DPZ-B 25 CR | 46 x 46 mm | 25× 3.2 - 6.5 mm | ■ 43798.600 ■ 50798.600 | ■ 43798.601 ■ 50798.601 | 5 |
| KEL-DPZ-E CR | | | | | |
| KEL-DPZ-E 112 7 CR | 18 x 112 mm | 7× 7.5 - 12 mm | ■ 43780.600 ■ 50780.600 | ■ 43780.601 ■ 50780.601 | 5 |
| KEL-DPZ-E 112 21 CR | 18 x 112 mm | 21× 3.2 - 6.5 mm | ■ 43790.600 ■ 50790.600 | ■ 43790.601 ■ 50790.601 | 5 |
| KEL-DPZ-KX/KL CR | | | | | |
| KEL-DPZ-KX/KL 72 CR | 62 x 192 mm | 42× 3.2 - 6.5 mm 21× 5 - 10.2 mm 6× 9 - 16.2 mm 3× 16 - 22 mm | ■ 43675.001.600 ■ 43675.101.600 | ■ 43675.001.601 ■ 43675.101.601 | 1 |



- * The products with article ending .600 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1. The materials used for these products have been tested and certified for outgassing according to VOC/SVOC (ISO 14644-8; ISO 16000-6,-9,-11,-25, VDI 2083 sheet 17).
- ** The products with the article ending .601 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1.

Cable entry plates

KEL-DPZ round CR series



Detailed product description from page 156.

| Type | Number of cables | Thread metric | Thread length | External diameter | Mounting height | Order No. * | Order No. ** | PU |
|-------------------|------------------------------------------------------------------------|---------------|---------------|-------------------|-----------------|----------------------------|----------------------------|----|
| KEL-DPZ 25 3 CR | 2× 3.2 - 5.2 mm 1× 3.2 - 6.5 mm | M25 × 1.5 | 14 mm | 39 mm | 8 mm | ■ 43736.600 ■ 50736.600 | ■ 43736.601 ■ 50736.601 | 5 |
| KEL-DPZ 25 4 CR | 4× 3.2 - 5.2 mm | M25 × 1.5 | 14 mm | 39 mm | 8 mm | ■ 43737.600 ■ 50737.600 | ■ 43737.601 ■ 50737.601 | 5 |
| KEL-DPZ 32 4 CR | 3× 3.2 - 6.5 mm 1× 7.2 - 12.5 mm | M32 × 1.5 | 14 mm | 44 mm | 8 mm | ■ 43732.600 ■ 50732.600 | ■ 43732.601 ■ 50732.601 | 5 |
| KEL-DPZ 32 4-2 CR | 4× 5 - 9.5 mm | M32 × 1.5 | 14 mm | 44 mm | 8 mm | ■ 43733.600 ■ 50733.600 | ■ 43733.601 ■ 50733.601 | 5 |
| KEL-DPZ 32 7 CR | 7× 3.2 - 6.5 mm | M32 × 1.5 | 14 mm | 44 mm | 8 mm | ■ 43734.600 ■ 50734.600 | ■ 43734.601 ■ 50734.601 | 5 |
| KEL-DPZ 40 8 CR | 4× 3.2 - 6.5 mm 4× 5 - 10.2 mm | M40 × 1.5 | 14 mm | 52 mm | 8 mm | ■ 43741.600 ■ 50741.600 | ■ 43741.601 ■ 50741.601 | 5 |
| KEL-DPZ 50 8 CR | 5× 5 - 10.2 mm 3× 7.2 - 12.5 mm | M50 × 1.5 | 14 mm | 62 mm | 8 mm | ■ 43750.600 ■ 50750.600 | ■ 43750.601 ■ 50750.601 | 5 |
| KEL-DPZ 50 10 CR | 7× 3.2 - 6.5 mm 2× 5 - 10.2 mm 1× 16 - 22.2 mm | M50 × 1.5 | 14 mm | 62 mm | 8 mm | ■ 43751.600 ■ 50751.600 | ■ 43751.601 ■ 50751.601 | 5 |
| KEL-DPZ 50 12 CR | 4× 3.2 - 6.5 mm 8× 5 - 10.2 mm | M50 × 1.5 | 14 mm | 62 mm | 8 mm | ■ 43752.600 ■ 50752.600 | ■ 43752.601 ■ 50752.601 | 5 |
| KEL-DPZ 50 19 CR | 19× 3.2 - 6.5 mm | M50 × 1.5 | 14 mm | 62 mm | 8 mm | ■ 43758.600 ■ 50758.600 | ■ 43758.601 ■ 50758.601 | 5 |
| KEL-DPZ 50 78 CR | 76× 1.5 - 2.6 mm 2× 2.5 - 5 mm | M50 × 1.5 | 14 mm | 62 mm | 8 mm | ■ 43756.600 ■ 50756.600 | ■ 43756.601 ■ 50756.601 | 5 |
| KEL-DPZ 63 9 CR | 1× 3.2 - 6.5 mm 3× 5 - 10.2 mm 4× 9 - 16.2 mm 1× 16 - 22.2 mm | M63 × 1.5 | 14 mm | 75 mm | 8 mm | ■ 43760.600 ■ 50760.600 | ■ 43760.601 ■ 50760.601 | 5 |
| KEL-DPZ 63 13 CR | 4× 3.2 - 6.5 mm 4× 5 - 10.2 mm 5× 9 - 16.2 mm | M63 × 1.5 | 14 mm | 75 mm | 8 mm | ■ 43761.600 ■ 50761.600 | ■ 43761.601 ■ 50761.601 | 5 |
| KEL-DPZ 63 14 CR | 14× 5 - 10.2 mm | M63 × 1.5 | 14 mm | 75 mm | 8 mm | ■ 43762.600 ■ 50762.600 | ■ 43762.601 ■ 50762.601 | 5 |
| KEL-DPZ 63 35 CR | 35× 3.2 - 6.5 mm | M63 × 1.5 | 14 mm | 75 mm | 8 mm | ■ 43763.600 ■ 50763.600 | ■ 43763.601 ■ 50763.601 | 5 |



* The products with article ending .600 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1. The materials used for these products have been tested and certified for outgassing according to VOC/SVOC (ISO 14644-8; ISO 16000-6,-9,-11,-25, VDI 2083 sheet 17).

** The products with the article ending .601 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1.

Cable entry plates

KEL-DPZ-HD CR

Hygienic Design Line



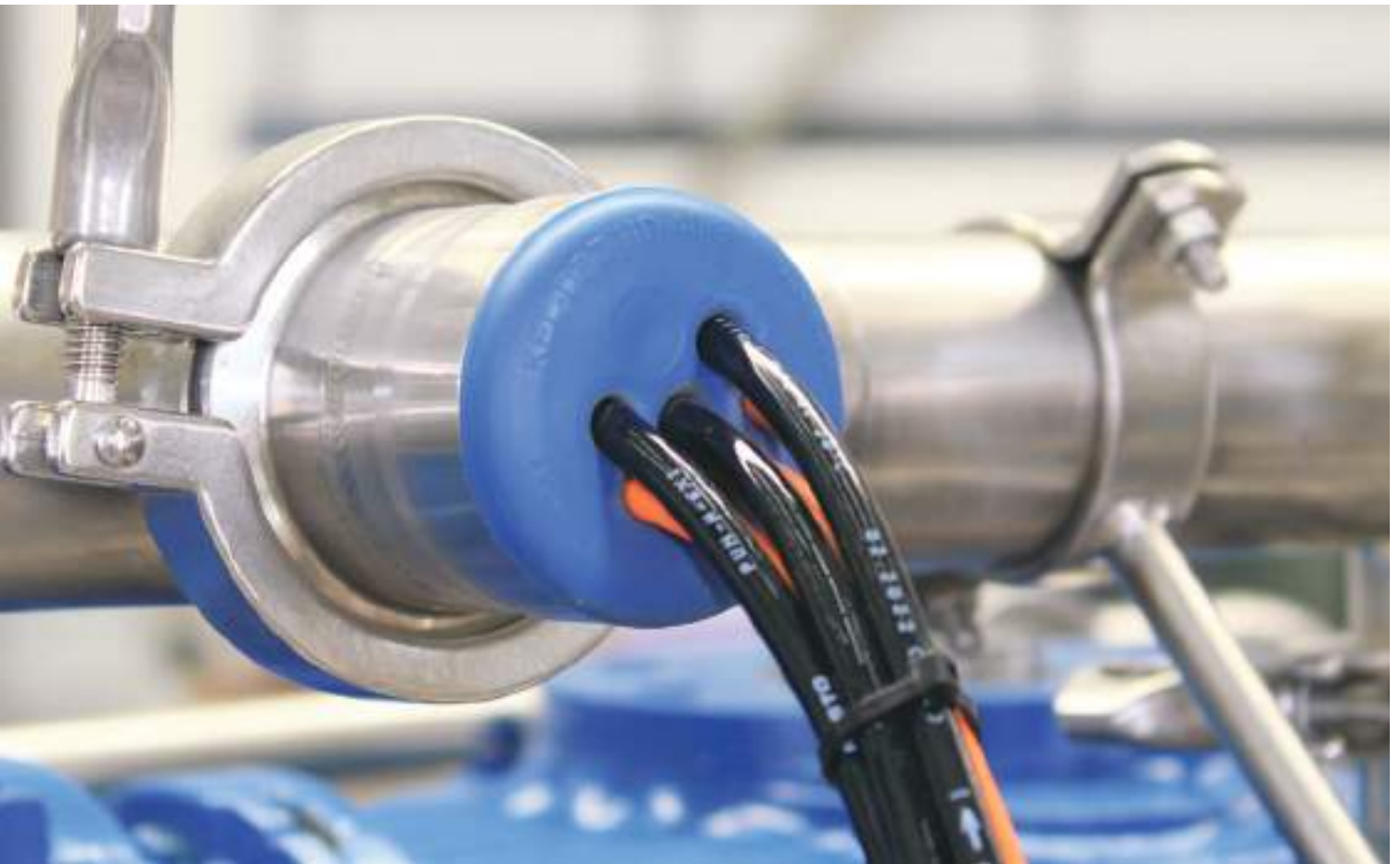
Detailed product description from page 428.

| Type | Number of cables | Thread metric | Thread length | External diameter | Mounting height | Order No. * | Order No. ** | PU |
|----------------------|------------------------------------------------------------------------|---------------|---------------|-------------------|-----------------|-------------|--------------|----|
| KEL-DPZ-HD 32 4 CR | 3× 3.2 - 6.5 mm 1× 7.2 - 12.5 mm | M32 × 1.5 | 14 mm | 44 mm | 8 mm | 70351.600 | 70351.601 | 5 |
| KEL-DPZ-HD 32 4-2 CR | 4× 5 - 9.5 mm | M32 × 1.5 | 14 mm | 44 mm | 8 mm | 70352.600 | 70352.601 | 5 |
| KEL-DPZ-HD 32 7 CR | 7× 3.2 - 6.5 mm | M32 × 1.5 | 14 mm | 44 mm | 8 mm | 70353.600 | 70353.601 | 5 |
| KEL-DPZ-HD 40 8 CR | 4× 3.2 - 6.5 mm 4× 5 - 10.2 mm | M40 × 1.5 | 14 mm | 52 mm | 8 mm | 70354.600 | 70354.601 | 5 |
| KEL-DPZ-HD 50 8 CR | 5× 5 - 10.2 mm 3× 7.2 - 12.5 mm | M50 × 1.5 | 14 mm | 62 mm | 8 mm | 70355.600 | 70355.601 | 5 |
| KEL-DPZ-HD 50 10 CR | 7× 3.2 - 6.5 mm 2× 5 - 10.2 mm 1× 16 - 22.2 mm | M50 × 1.5 | 14 mm | 62 mm | 8 mm | 70356.600 | 70356.601 | 5 |
| KEL-DPZ-HD 50 12 CR | 4× 3.2 - 6.5 mm 8× 5 - 10.2 mm | M50 × 1.5 | 14 mm | 62 mm | 8 mm | 70357.600 | 70357.601 | 5 |
| KEL-DPZ-HD 50 19 CR | 19× 3.2 - 6.5 mm | M50 × 1.5 | 14 mm | 62 mm | 8 mm | 70358.600 | 70358.601 | 5 |
| KEL-DPZ-HD 63 9 CR | 1× 3.2 - 6.5 mm 3× 5 - 10.2 mm 4× 9 - 16.2 mm 1× 16 - 22.2 mm | M63 × 1.5 | 14 mm | 75 mm | 8 mm | 70359.600 | 70359.601 | 5 |
| KEL-DPZ-HD 63 13 CR | 4× 3.2 - 6.5 mm 4× 5 - 10.2 mm 5× 9 - 16.2 mm | M63 × 1.5 | 14 mm | 75 mm | 8 mm | 70360.600 | 70360.601 | 5 |
| KEL-DPZ-HD 63 14 CR | 14× 5 - 10.2 mm | M63 × 1.5 | 14 mm | 75 mm | 8 mm | 70361.600 | 70361.601 | 5 |
| KEL-DPZ-HD 63 35 CR | 35× 3.2 - 6.5 mm | M63 × 1.5 | 14 mm | 75 mm | 8 mm | 70362.600 | 70362.601 | 5 |



* The products with article ending .600 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1. The materials used for these products have been tested and certified for outgassing according to VOC/SVOC (ISO 14644-8; ISO 16000-6,-9,-11,-25, VDI 2083 sheet 17).

** The products with the article ending .601 are tested and certified for particle emission for cleanroom class 1 according to ISO 14644-1.



**BLUE
LINE**

**HYGIENIC
DESIGN
LINE**

1935/
2004/
EG

EU VO.
10/2011

FDA

cUL US

UL TYPE
4X
UL94V-0

UL TYPE
12
UL94V-0

IP68

ECOLAB
certified


EN ISO 14644


PNEUMATICS

RoHS
compliant

Made in
Germany


+80°C
-40°C


3.2-22.2mm

Cable entry systems for the food industry



KEL-ER-BL



KT-BL



KEL-DPU-HD



KEL-DPZ-HD



ST-B-HDD



KBH-HDD

11 Cable entry systems for the food industry

The split cable entry frames KEL-ER-BL in the signal colour blue is preferably used in the area of food packaging and processing machines where there is no direct contact with food.

Products in this signal colour are also popular in the pharmaceutical sector. With the membrane based hygienic cable entry plates, cables or pneumatic hoses can be quickly and space-efficiently routed into control cabinets, panels and machines and can be sealed with certified protection classes up to IP66 / IP68 (acc. to EN 60529). Hygienic icotek cable entry plates are cost, space and time saving alternatives to hygienic stainless steel cable glands.



- 11
- 11.1
- 11.2

Food production areas

1

Food zone: Product zone

All appliance parts and components that come into direct contact with food must be washable, disinfectable, corrosion-resistant, non-toxic, non-absorbent and smooth.

Matching products

- Hygienic Design Line
(depending on the application)

2

Food zone: Splash zone

Food can come into contact with the components, but is not returned to the product cycle. As this area must also be cleaned regularly, the special requirements for the product must be observed here.

Matching products

- Hygienic Design Line
- Blue Line
(depending on the application)

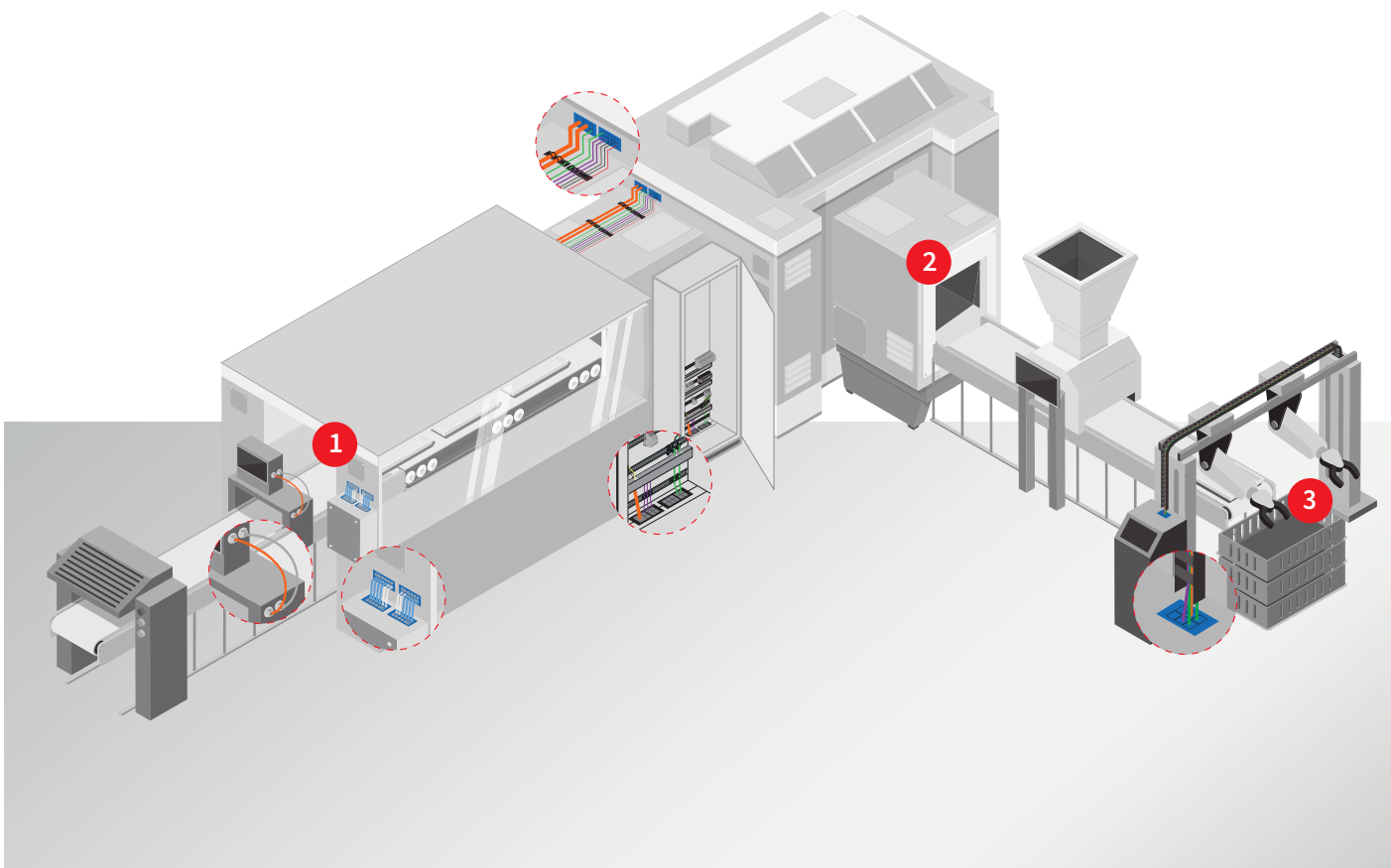
3

Food zone: Product-free zone

No direct contact between food and system components. These components must be corrosion-resistant, easily washable and disinfectable.

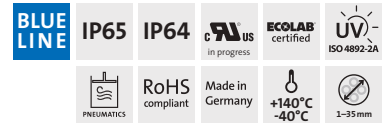
Matching products

- Hygienic Design Line
- Blue Line
- Cable entry systems of product groups 1 and 2

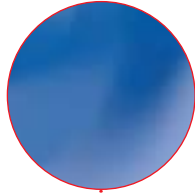


11
11.1
11.2

11.1 Cable entry frames for the food industry in signal colour blue



Split system



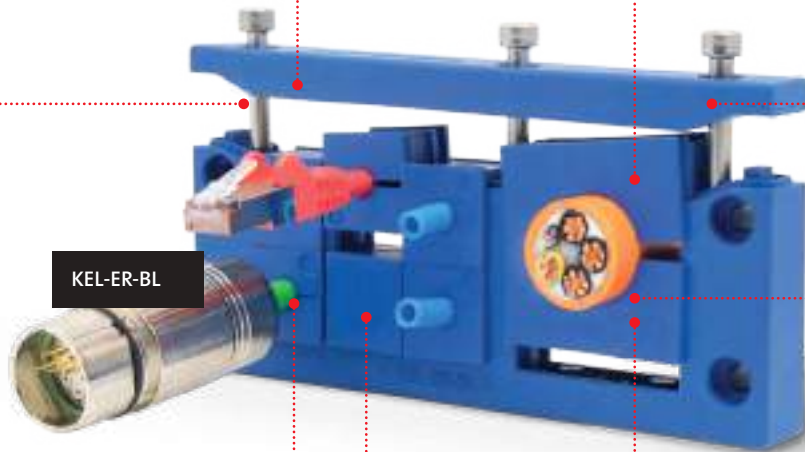
Signal colour blue (similar to Signal Blue RAL 5005)



Maintain warranty on pre-terminated cables



Fast and easy assembly

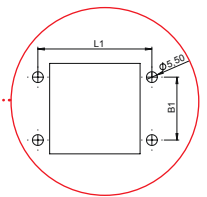


KEL-ER-BL

High cable density



IP65 rated protection due to a high clamping pressure on the cover lid and injected sealing



Most sizes are industrial standard cut-outs

Integrated strain relief according to EN 62444



BLUE LINE



Split cable entry frames
for the food industry
in signal colour blue
with IP65 rated protection

KEL-ER-BL series

418 – 421



Cable grommets split
for the food industry
in signal colour blue
with IP65 rated protection
for cable diameters 1 – 35 mm

KT-BL

422 – 423



Plugs for cable entry plates
Hygienic Design Line

ST-B-HD | ST-B-HDD

430

Cable entry frames for the food industry in signal colour blue with IP65 rating KEL-ER-BL series



The KEL-ER-BL in the signal colour blue is preferably used in the area of food packaging and processing machines where there is no direct contact with food. Products in this signal colour are also popular in the pharmaceutical sector.

The KEL-ER-BL is a split cable entry system for cables with and without connectors. Depending on the size, cables with a diameter of 1 to 16 mm (single grommets KT-BL 1 to KT-BL 15) or 16 to 35 mm (single grommets KT-BL 16 to 34) can be routed, sealed with IP65 and simultaneously strain-relieved according to DIN EN 62444. The cable grommets are automatically fixed into the frame during assembly. After complete fitting, the end cover is screwed on.

The KEL-ER frames match exactly the cut-out dimensions for 10-, 16- and 24-pin standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. The KEL-ER-B frame matches the cut-out dimensions of 46 x 46 mm measuring instruments.

The single-row cable entry KEL-ER-BL-E is characterised by its space-saving design and is therefore ideal for confined spaces and cables with flat connectors (e.g. Sub-D).

The KEL-ER-BL series is IP65 rated due to the injected seal and the use of single grommets. An additional blue flat rubber gasket is included in the shipment.

Advantages

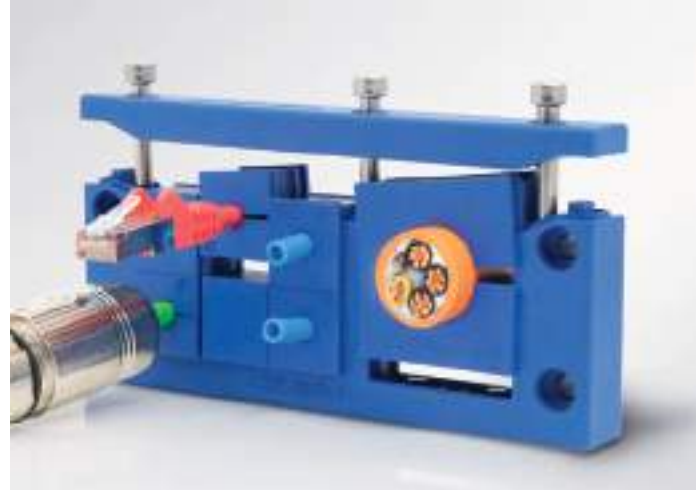
- Maintain manufacturer's warranty on pre-terminated cables
- Retrofittings, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant
- Very simple assembly

Specifications

| | |
|-------------|-----------------------------------------------------------------------------------------|
| Material | Polyamide (PA) |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | IP65, with gasket and correct selection of single grommets (certified acc. to EN 60529) |
| Colour | Blue (similar to Signal Blue RAL 5005) |
| Temperature | -40°C to +140°C (static) |
| Properties | Halogen-free, silicone-free |
| Frame depth | 17 mm |

Accessories

| | |
|----------------------|-----------|
| KT-BL Cable grommets | 422 - 423 |
|----------------------|-----------|



KEL-ER-BL

Cable entry frames
in signal colour blue

KEL-ER-BL 24, KEL-ER-BL 16



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets KT-BL small large | Order No. | PU |
|-------------|-----------------------------|------------------------------------|-------------|------------------------------------|-----------|----|
| | | KEL-ER-BL 24 10 with V2A screws | 36/46 × 112 | 10 – | 70000.200 | 10 |
| | | KEL-ER-BL 24 7 with V2A screws | 36/46 × 112 | 6 1 | 70001.200 | 10 |
| | | KEL-ER-BL 24 4 with V2A screws | 36/46 × 112 | 2 2 | 70002.200 | 10 |
| | | KEL-ER-BL 16 8 with V2A screws | 36/46 × 86 | 8 – | 70003.200 | 10 |
| | | KEL-ER-BL 16 5 with V2A screws | 36/46 × 86 | 4 1 | 70004.200 | 10 |
| | | KEL-ER-BL 16 2 with V2A screws | 36/46 × 86 | – 2 | 70005.200 | 10 |

11
11.1
11.2

KEL-ER-BL

Cable entry frames
in signal colour blue

KEL-ER-BL 10, KEL-ER-BL-B



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets KT-BL small large | Order No. | PU |
|-------------|-----------------------------|-----------------------------------|------------|------------------------------------|-----------|----|
| | | KEL-ER-BL 10 6 with V2A screws | 36/46 × 65 | 6 – | 70006.200 | 10 |
| | | KEL-ER-BL 10 3 with V2A screws | 36/46 × 65 | 2 1 | 70007.200 | 10 |
| | | KEL-ER-BL B4 with V2A screws | 46 × 46 | 4 – | 70008.200 | 10 |
| | | KEL-ER-BL B1 with V2A screws | 46 × 46 | – 1 | 70009.200 | 10 |

KEL-ER-BL

Cable entry frames
in signal colour blue

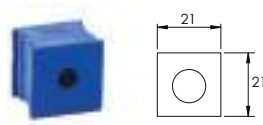
KEL-ER-BL-E



| Description | Cut-out Drilling template | Type | Cut-out mm | Grommets KT-BL small large | Order No. | PU |
|-------------|-----------------------------|---------------------------------|------------|------------------------------|-----------|----|
| | | KEL-ER-BL-E5 with V2A screws | 112 × 24 | 5 - | 70010.200 | 10 |
| | | KEL-ER-BL-E4 with V2A screws | 112 × 24 | 4 - | 70011.200 | 10 |
| | | KEL-ER-BL-E3 with V2A screws | 65 × 24 | 3 - | 70012.200 | 10 |
| | | KEL-ER-BL-E2 with V2A screws | 43 × 24 | 2 - | 70013.200 | 10 |

KT-BL

Split cable grommets for KEL-ER-BL
for the food industry
in signal colour blue
small, single



The KT-BL range of grommets are particularly suitable for use with the KEL-ER-BL cable entry frames. The signal colour blue provides clear visual colour identification.

They are designed for cable diameters from 1 to 16 mm. Blank grommets can seal unused grommet locations.

When installing the small grommets in multiple rows, the flat sides should be facing each other. This allows the flat sides to match up and provide a secure seal.

Advantages

- Routing of cables with and without connectors through the cable entry frame KEL-ER-BL
- High protection class up to IP65
- High strain relief in accordance with EN 62444
- Available for a wide range of cable diameters
- Signal colour blue for a clear visual colour recognition in the food industry

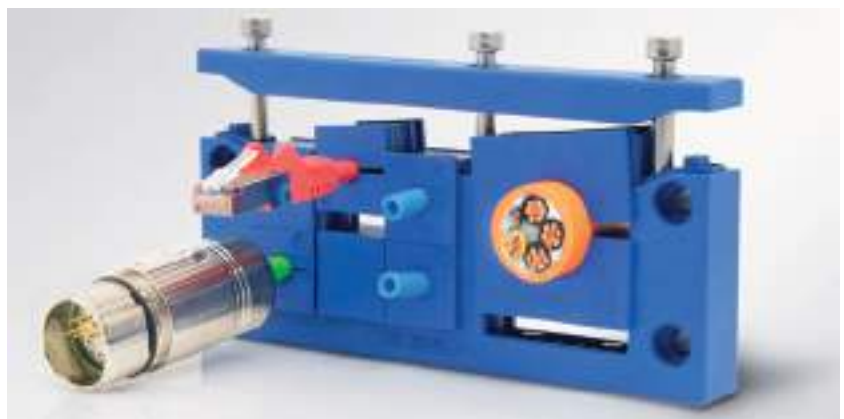
Specification

| | |
|-------------|----------------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | up to IP65 |
| Colour | Blue (similar to Signal blue RAL 5005) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |

Suitable for

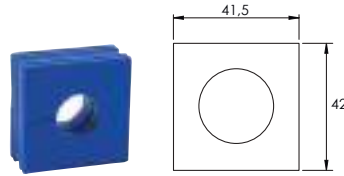
KEL-ER-BL series 418 - 421

| Description | Type | Clamping range | Order No | PU |
|-------------|----------|----------------|----------|----|
| | KT-BL 1 | 1 – 2 mm | 70101 | 10 |
| | KT-BL 2 | 2 – 3 mm | 70102 | 10 |
| | KT-BL 3 | 3 – 4 mm | 70103 | 10 |
| | KT-BL 4 | 4 – 5 mm | 70104 | 10 |
| | KT-BL 5 | 5 – 6 mm | 70105 | 10 |
| | KT-BL 6 | 6 – 7 mm | 70106 | 10 |
| | KT-BL 7 | 7 – 8 mm | 70107 | 10 |
| | KT-BL 8 | 8 – 9 mm | 70108 | 10 |
| | KT-BL 9 | 9 – 10 mm | 70109 | 10 |
| | KT-BL 10 | 10 – 11 mm | 70110 | 10 |
| | KT-BL 11 | 11 – 12 mm | 70111 | 10 |
| | KT-BL 12 | 12 – 13 mm | 70112 | 10 |
| | KT-BL 13 | 13 – 14 mm | 70113 | 10 |
| | KT-BL 14 | 14 – 15 mm | 70114 | 10 |
| | KT-BL 15 | 15 – 16 mm | 70115 | 10 |
| | BTK-BL | Blank grommet | 70135 | 10 |



KT-BL

Split cable grommets for KEL-ER-BL
for the food industry
in signal colour blue
large, single



The KT-BL range of grommets are particularly suitable for use with the KEL-ER-BL cable entry frames. The signal colour blue provides clear visual colour identification.

They are designed for cable diameters from 16 to 35 mm.

Advantages

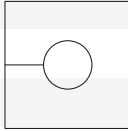
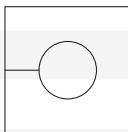
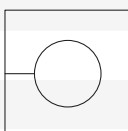
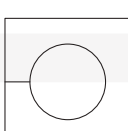
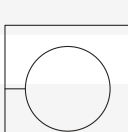
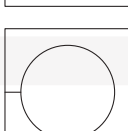

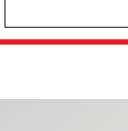


- Routing of cables with and without connectors through the cable entry frame KEL-ER-BL
- High protection class up to IP65
- High strain relief in accordance with EN 62444
- Available for a wide range of cable diameters
- Signal colour blue for a clear visual colour recognition in the food industry

Specifications

| | |
|-------------|----------------------------------------|
| Material | Elastomer |
| Flame class | UL 94 V-0, self-extinguishing |
| IP rating | up to IP65 |
| Colour | Blue (similar to Signal blue RAL 5005) |
| Temperature | -40°C to +100°C (static) |
| Properties | Halogen-free, silicone-free |

Suitable for

KEL-ER-BL series 418 - 421

| Description | Type | Clamping range | Order No | PU | |
|-------------------------------------------------------------------------------------|----------|----------------|---------------|-------|----|
|  | KT-BL 16 | 16 – 17 mm | 70116 | 10 | |
|  | KT-BL 17 | 17 – 18 mm | 70117 | 10 | |
|  | KT-BL 18 | 18 – 19 mm | 70118 | 10 | |
|  | KT-BL 19 | 19 – 20 mm | 70119 | 10 | |
|  | KT-BL 20 | 20 – 21 mm | 70120 | 10 | |
|  | KT-BL 21 | 21 – 22 mm | 70121 | 10 | |
|  | KT-BL 22 | 22 – 23 mm | 70122 | 10 | |
|  | KT-BL 23 | 23 – 24 mm | 70123 | 10 | |
|  | KT-BL 24 | 24 – 25 mm | 70124 | 10 | |
|  | KT-BL 25 | 25 – 26 mm | 70125 | 10 | |
|  | KT-BL 26 | 26 – 27 mm | 70126 | 10 | |
|  | KT-BL 27 | 27 – 28 mm | 70127 | 10 | |
| | KT-BL 28 | 28 – 29 mm | 70128 | 10 | |
| | KT-BL 29 | 29 – 30 mm | 70129 | 10 | |
| | KT-BL 30 | 30 – 31 mm | 70130 | 10 | |
| | KT-BL 31 | 31 – 32 mm | 70131 | 10 | |
| | KT-BL 32 | 32 – 33 mm | 70132 | 10 | |
| | KT-BL 33 | 33 – 34 mm | 70133 | 10 | |
| | KT-BL 34 | 34 – 35 mm | 70134 | 10 | |
| | IP54 | BTG-BL | Blank grommet | 70136 | 10 |



11.2 Cable entry plates for the food industry – Hygienic Design Line



High cable density

FDA compliant, food approval acc. to 1935/2004/EG and (EU) 10/2011, Ecolab certified

IP65 to IP68 rated protection, double cable sealing on front and back

Signal blue colour (similar to Signal Blue RAL 5005)

Fast and easy assembly

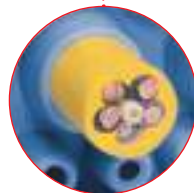
Compact, space-saving design

Very smooth surface

For metric cut-outs



The fixation is very simple with the lock nut



Flexible clamping range, up to 7 mm

HYGIENIC DESIGN LINE



Cable entry plates
screw-in or snap-in assembly,
high strain relief
Hygienic Design Line

KEL-DPU-HD

426 – 427



Cable entry plates, round
with thread and locknut
M32 – M63
Hygienic Design Line

KEL-DPZ-HD round

428 – 429



Plugs for cable entry plates
Hygienic Design Line

ST-B-HD | ST-B-HDD

430



Detectable cable ties
and holders for cable ties
Hygienic Design Line

KB-HDD | KBH-HDD

431

Heavy-duty cable entry plates

Hygienic Design Line

KEL-DPU-HD

HYGIENIC
DESIGN
LINE

IP66

IP68

FDA

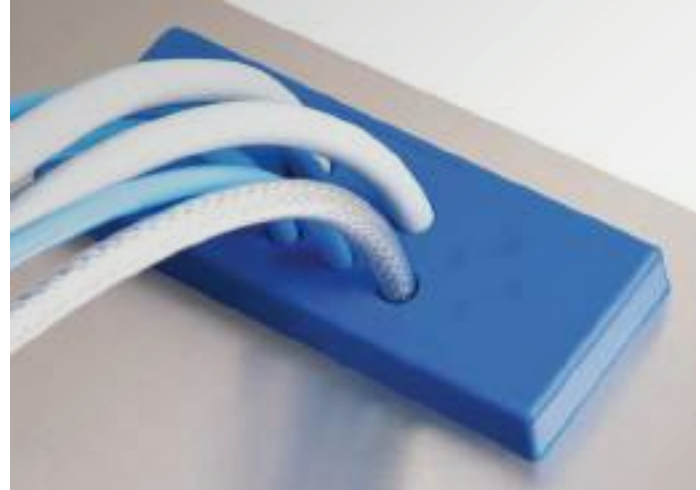
1935/
2004/EG

EU VO.
10/2011

The cable entry plates KEL-DPU-HD have been specially developed for installation in food processing and packaging machines. During the development according to the Hygienic Design guidelines, care was taken to ensure that the visible side of the cable entry plate are free of dirt-collecting recesses. The surface was kept very smooth. The outer contour has a radius of 6 mm instead of the required 3 mm. In addition, the KEL-DPU-HD uses an FDA-compliant elastomer in accordance with food approval 1935/2004/EG and (EU) 10/2011. The signal colour blue ensures a clear visual colour recognition.

KEL-DPU-HD entry plates are designed to route and seal cables without connectors (from 3.2 mm to 20.5 mm in diameter) in limited space with IP66/IP68**. The KEL-DPU-HD is particularly characterised by its solid robust frame and the increased strain relief of the routed cables.

The KEL-DPU-HD 24 matches exactly the cut-out dimensions of 24-pin standard industrial connectors. The cable entry plate is mounted either by screwing it to the inside of the enclosure or by snapping it into the cut-out.



Advantages & benefits


- Elastomer of the cable entry plate made of material according to 1935/2004/EG, (EU) 10/2011
- FDA compliant
- Developed according to hygienic design guidelines (EHEDG)
- Hygienic design – free of dirt-collecting recesses
- Very flat design, very smooth surface (Ra 0.421 µm)
- Dual sealing of cables (IP66/IP68**)
- High strength and stability
- High strain relief
- Fast and easy assembly
- Very high cable density
- Cable diameter 3.2 – 20.5 mm
- Reproducible cleaning process
- Very low moisture absorption
- High resistance to aromatic solvents, oils, greases, mineral products



Specifications

| | |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material | Frame: Polypropylene (PP), sealing plate: Elastomer FDA compliant material Food approval acc. to 1935/2004/EG Food approval acc. to (EU) 10/2011 |
| IP rating | IP65/IP66/IP67/IP68** |
| Flame class | UL 94 HB |
| Colour | Blue (similar to Signal blue RAL 5005) |
| Temperature | -40°C to +80°C |
| Properties | Halogen-free, silicone-free |
| For wall thickness | 1.5 – 2 mm (snap-in mounting) |

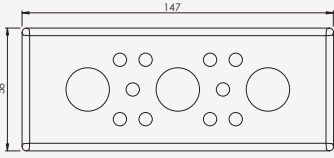
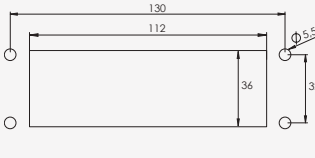
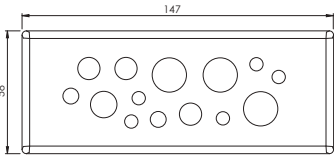
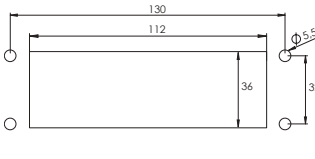
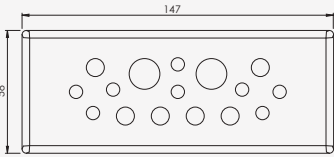
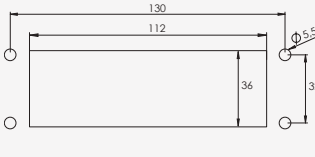
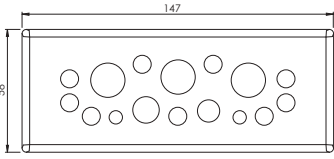
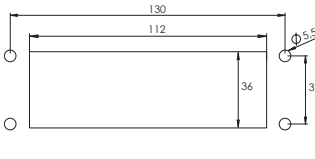
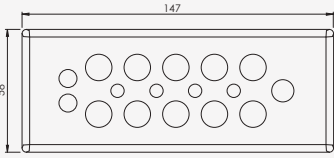
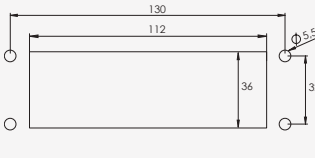
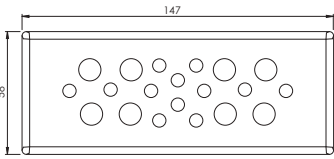
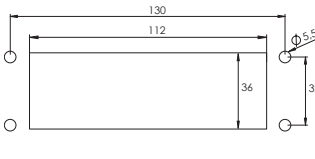
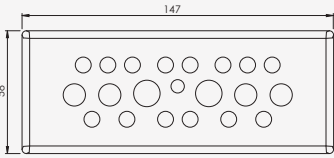
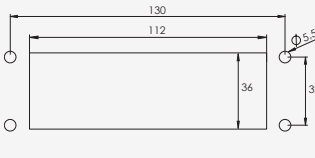
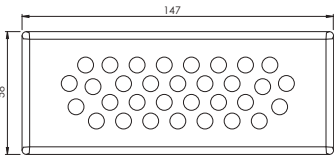
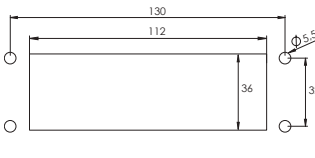


 Single-piece packaging units are available on request.

KEL-DPU-HD

Heavy-duty cable entry plates
with high strain relief
Hygienic Design Line



| Description | Cut-out Drilling template | Type | Cut-out mm | Number of cables | Order No. | PU |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------|-------------|-------------------------------------------------------------------------------------------|-----------|----|
|  |  | KEL-DPU-HD 24 13 with threaded bushings M4 | 36 x 112 mm | 10× 3.2 – 6.3 mm 3× 16 – 20.5 mm | 73940 | 10 |
|  |  | KEL-DPU-HD 24 14 with threaded bushings M4 | 36 x 112 mm | 5× 3.2 – 6.3 mm 2× 4 – 7.5 mm 3× 5.5 – 10.5 mm 1× 8 – 12.5 mm 3× 12 – 16.2 mm | 73944 | 10 |
|  |  | KEL-DPU-HD 24 16 with threaded bushings M4 | 36 x 112 mm | 8× 3.2 – 5.5 mm 6× 5 – 8.5 mm 2× 9.5 – 14.5 mm | 73936 | 10 |
|  |  | KEL-DPU-HD 24 16-1 with threaded bushings M4 | 36 x 112 mm | 2× 3.2 – 6.3 mm 9× 4 – 7.5 mm 1× 5.5 – 10.5 mm 1× 8 – 12.5 mm 3× 12 – 16.2 mm | 73932 | 10 |
|  |  | KEL-DPU-HD 24 17 with threaded bushings M4 | 36 x 112 mm | 4× 3.2 – 6.3 mm 2× 4 – 7.5 mm 1× 5.5 – 10.5 mm 10× 8 – 12.5 mm | 73934 | 10 |
|  |  | KEL-DPU-HD 24 20 with threaded bushings M4 | 36 x 112 mm | 12× 3.2 – 5.5 mm 8× 5 – 10.5 mm | 73938 | 10 |
|  |  | KEL-DPU-HD 24 21 with threaded bushings M4 | 36 x 112 mm | 1× 3.2 – 6.3 mm 14× 4 – 7.5 mm 4× 5.5 – 10.5 mm 2× 8 – 12.5 mm | 73930 | 10 |
|  |  | KEL-DPU-HD 24 32 with threaded bushings M4 | 36 x 112 mm | 32× 3.2 – 6.3 mm | 73942 | 10 |

11
11.1
11.2

Cable entry plates

Hygienic Design Line

KEL-DPZ-HD



The cable entry plates KEL-DPZ-HD with metric thread from M32 to M63 have been developed for installation in food processing and packaging machines.

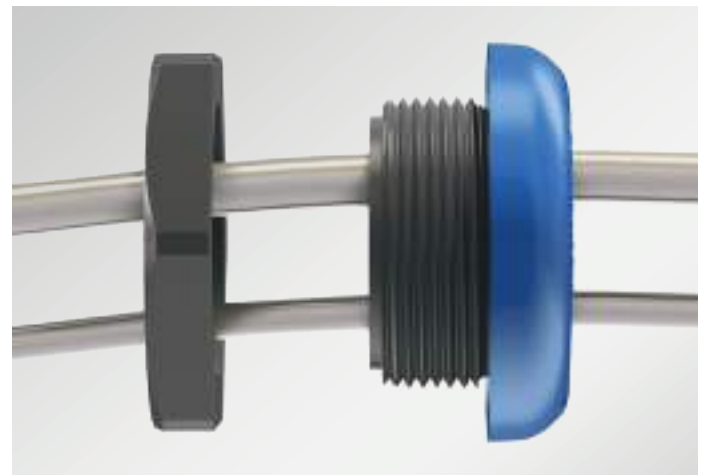
During the development according to the Hygienic Design guidelines, care was taken to ensure that the visible side of the cable entry plate are free of dirt-collecting recesses. The surface was kept very smooth. The outer contour has a radius of 6 mm instead of the required 3 mm. In addition, the KEL-DPZ-HD uses an FDA-compliant elastomer in accordance with food approval 1935/2004/EG and (EU) 10/2011. The signal colour blue ensures a clear visual colour recognition.

The cable entry plates are designed to route several cables and hoses with a diameter range of 3.2 mm to 22.2 mm and seal them acc. to IP65/66/67/68. A significant advantage over cable glands is the significantly higher cable density and the flexibility of the cable diameter range. The fixation is very simple with the lock nut. A lock nut is included in the shipment.



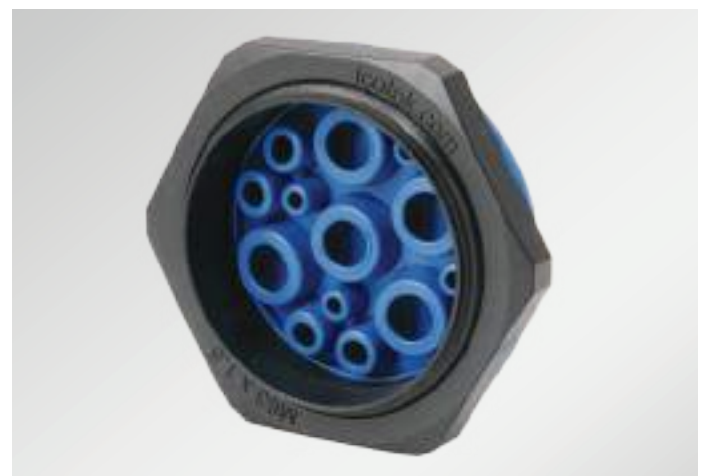
Advantages & benefits

- Elastomer of the cable entry plate made of material according to 1935/2004/EG, (EU) 10/2011
- FDA compliant
- Developed according to hygienic design guidelines (EHEDG)
- Hygienic design – free of dirt-collecting recesses
- Ecolab certified
- Very flat design
- Very smooth surface (Ra 0.421 µm)
- Very fast assembly
- Cable diameter 3.2 – 22.2 mm
- Very large sealing areas and clamping areas
- High cable density
- High strain relief
- Dual sealing of cables (IP66/IP68)
- Suitable for metric cut-outs
- Reproducible cleaning process
- Very low moisture absorption
- High resistance to aromatic solvents, oils, greases, mineral products
- No corrosion possible because plastics have been processed
- Maintenance free



Specifications

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| Material | Polyamide and elastomer FDA compliant material Food approval acc. to 1935/2004/EG Food approval acc. to (EU) 10/2011 |
| IP protection | IP65/66/67/68 |
| Flame class | UL 94 HB |
| Colour | Blue (similar to Signal blue RAL 5005) |
| Temperature | -40°C to +80°C |
| Properties | Halogen-free, silicone-free |



i The KEL-DPZ-HD is also available as a cleanroom version, see page 411.
Single-piece packaging units are available on request.

KEL-DPZ-HD

Cable entry plates

Hygienic Design Line



| Type | Order No. | Number of cables | Thread metric | Thread length | Max. wall thickness | External diameter | Mounting height | PU |
|-------------------|-----------|------------------------------------------------------------------------|---------------|---------------|---------------------|-------------------|-----------------|----|
| KEL-DPZ-HD 32 4 | 70351 | 3× 3.2 - 6.5 mm 1× 7.2 - 12.5 mm | M32 × 1.5 | 14 mm | 7.0 mm | 44 mm | 8 mm | 5 |
| KEL-DPZ-HD 32 4-2 | 70352 | 4× 5 - 9.5 mm | M32 × 1.5 | 14 mm | 7.0 mm | 44 mm | 8 mm | 5 |
| KEL-DPZ-HD 32 7 | 70353 | 7× 3.2 - 6.5 mm | M32 × 1.5 | 14 mm | 7.0 mm | 44 mm | 8 mm | 5 |
| KEL-DPZ-HD 40 8 | 70354 | 4× 3.2 - 6.5 mm 4× 5 - 10.2 mm | M40 × 1.5 | 14 mm | 7.0 mm | 52 mm | 8 mm | 5 |
| KEL-DPZ-HD 50 8 | 70355 | 5× 5 - 10.2 mm 3× 7.2 - 12.5 mm | M50 × 1.5 | 14 mm | 6.0 mm | 62 mm | 8 mm | 5 |
| KEL-DPZ-HD 50 10 | 70356 | 7× 3.2 - 6.5 mm 2× 5 - 10.2 mm 1× 16 - 22.2 mm | M50 × 1.5 | 14 mm | 6.0 mm | 62 mm | 8 mm | 5 |
| KEL-DPZ-HD 50 12 | 70357 | 4× 3.2 - 6.5 mm 8× 5 - 10.2 mm | M50 × 1.5 | 14 mm | 6.0 mm | 62 mm | 8 mm | 5 |
| KEL-DPZ-HD 50 19 | 70358 | 19× 3.2 - 6.5 mm | M50 × 1.5 | 14 mm | 6.0 mm | 62 mm | 8 mm | 5 |
| KEL-DPZ-HD 63 9 | 70359 | 1× 3.2 - 6.5 mm 3× 5 - 10.2 mm 4× 9 - 16.2 mm 1× 16 - 22.2 mm | M63 × 1.5 | 14 mm | 6.0 mm | 75 mm | 8 mm | 5 |
| KEL-DPZ-HD 63 13 | 70360 | 4× 3.2 - 6.5 mm 4× 5 - 10.2 mm 5× 9 - 16.2 mm | M63 × 1.5 | 14 mm | 6.0 mm | 75 mm | 8 mm | 5 |
| KEL-DPZ-HD 63 14 | 70361 | 14× 5 - 10.2 mm | M63 × 1.5 | 14 mm | 6.0 mm | 75 mm | 8 mm | 5 |
| KEL-DPZ-HD 63 35 | 70362 | 35× 3.2 - 6.5 mm | M63 × 1.5 | 14 mm | 6.0 mm | 75 mm | 8 mm | 5 |



Can be combined with TE-M thread extension

ST-B-HD | ST-B-HDD

Plugs for cable entry plates

Hygienic Design Line



icotek offers plugs of the type ST-B-HD in the signal colour blue and in a detectable version of the type ST-B-HDD. The signal colour blue ensures a clear visual color recognition.

The ST-B-HDD plugs consist of a combination of polymer compound and metal particles. These can be sorted out using metal detectors, X-ray devices and visual detection systems.

The ST-B-HD and ST-B-HDD plugs are particularly suitable for pharmaceutical applications and for the food industry.

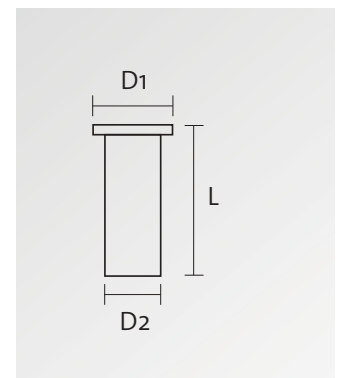
Advantages & benefits

- Sealing of pierced cable entry membranes which are no longer in use
- Blue colour for clear visual recognition
- ST-B-HDD: Detectable using metal detectors X-ray devices
- High resistance to aromatic solvents, oils, greases, mineral products

Specifications

| | |
|-------------|----------------------------------------------------------------------------------------------|
| Material | Polypropylene |
| Colour | Blue (similar to Signal blue RAL 5005) |
| Temperature | -40°C to +120°C |
| Properties | Food approval acc. to 1935/2004/EG and (EU) 10/2011 ST-B-HDD: Detectable by V2A particles |

| Type | Order No. | Diameter D1 | Diameter D2 | Length L | PU |
|------------------------|-----------|-------------|-------------|----------|----|
| ST-B-HD 6 | 70500 | 8 mm | 6 mm | 16 mm | 10 |
| ST-B-HD 10 | 70501 | 12 mm | 10 mm | 16 mm | 10 |
| ST-B-HD 12 | 70502 | 15 mm | 12 mm | 16 mm | 10 |
| ST-B-HD 16 | 70503 | 19 mm | 16 mm | 16 mm | 10 |
| ST-B-HD 22 | 70504 | 25 mm | 22 mm | 21 mm | 10 |
| ST-B-HDD 6 detectable | 70620 | 8 mm | 6 mm | 16 mm | 10 |
| ST-B-HDD 10 detectable | 70621 | 12 mm | 10 mm | 16 mm | 10 |
| ST-B-HDD 12 detectable | 70622 | 15 mm | 12 mm | 16 mm | 10 |
| ST-B-HDD 16 detectable | 70623 | 19 mm | 16 mm | 16 mm | 10 |
| ST-B-HDD 22 detectable | 70624 | 25 mm | 22 mm | 21 mm | 10 |



KB-HDD | KBH-HDD

Detectable cable ties and holders for cable ties *Hygienic Design Line*



The detectable cables ties and holders for cable ties are particularly suitable for pharmaceutical applications and for the food industry. The cable ties can be used to close packagings and transport containers.

The detectable cable ties and holders are used to install cables in the production systems. Cable ties are proven aids for the economical bundling and fastening of cables, cable harnesses, pipes and hoses. At the same time, the cable ties achieve a very high strain relief.

The holder is mounted using a screw assembly or an adhesive surface.

Advantages & benefits

- Cable ties: High resistance to aromatic solvents, oils, greases, mineral products
- Blue colour for clear visual recognition
- Detectable using metal detectors X-ray devices
- Support in quality assurance within food production, for example within the framework of HACCP

Specifications KB-HDD

| | |
|-------------|----------------------------------------|
| Material | Polyamide |
| Colour | Blue (similar to Signal blue RAL 5005) |
| Temperature | -40°C to +60°C |

Specifications KBH-HDD

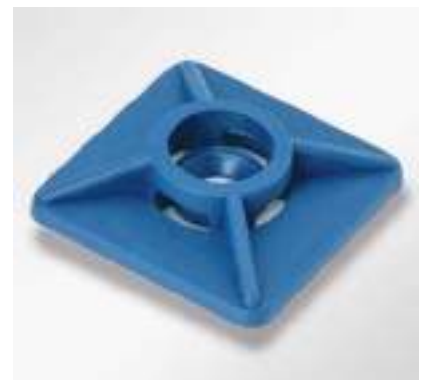
| | |
|-------------|--------------------------------------------------------------------|
| Material | Polyamide |
| Dimensions | 27 x 27 mm |
| Colour | Blue (similar to Signal blue RAL 5005) |
| Temperature | -40°C to +60°C; recommended application temperature +15°C to +40°C |
| Properties | For cable ties up to 4.8 mm wide |

Detectable cable ties KB-HDD

| Type | Length | Width | Order No. | PU |
|-----------------------------|--------|--------|-----------|-----|
| Cable ties KB 2.5 x 100 HDD | 100 mm | 2.5 mm | 70680 | 100 |
| Cable ties KB 3.6 x 150 HDD | 150 mm | 3.6 mm | 70681 | 100 |
| Cable ties KB 4.8 x 200 HDD | 200 mm | 4.8 mm | 70682 | 100 |
| Cable ties KB 4.8 x 300 HDD | 300 mm | 4.8 mm | 70683 | 100 |

Detectable holders for cable ties KBH-HDD

| Type | Length | Width | Order No. | PU |
|---------------------------------------|--------|-------|-----------|-----|
| Holder for cable ties KBH 27 x 27 HDD | 27 mm | 27 mm | 70710 | 100 |





ALLIOLIGHT

Lighting systems for industry and automation

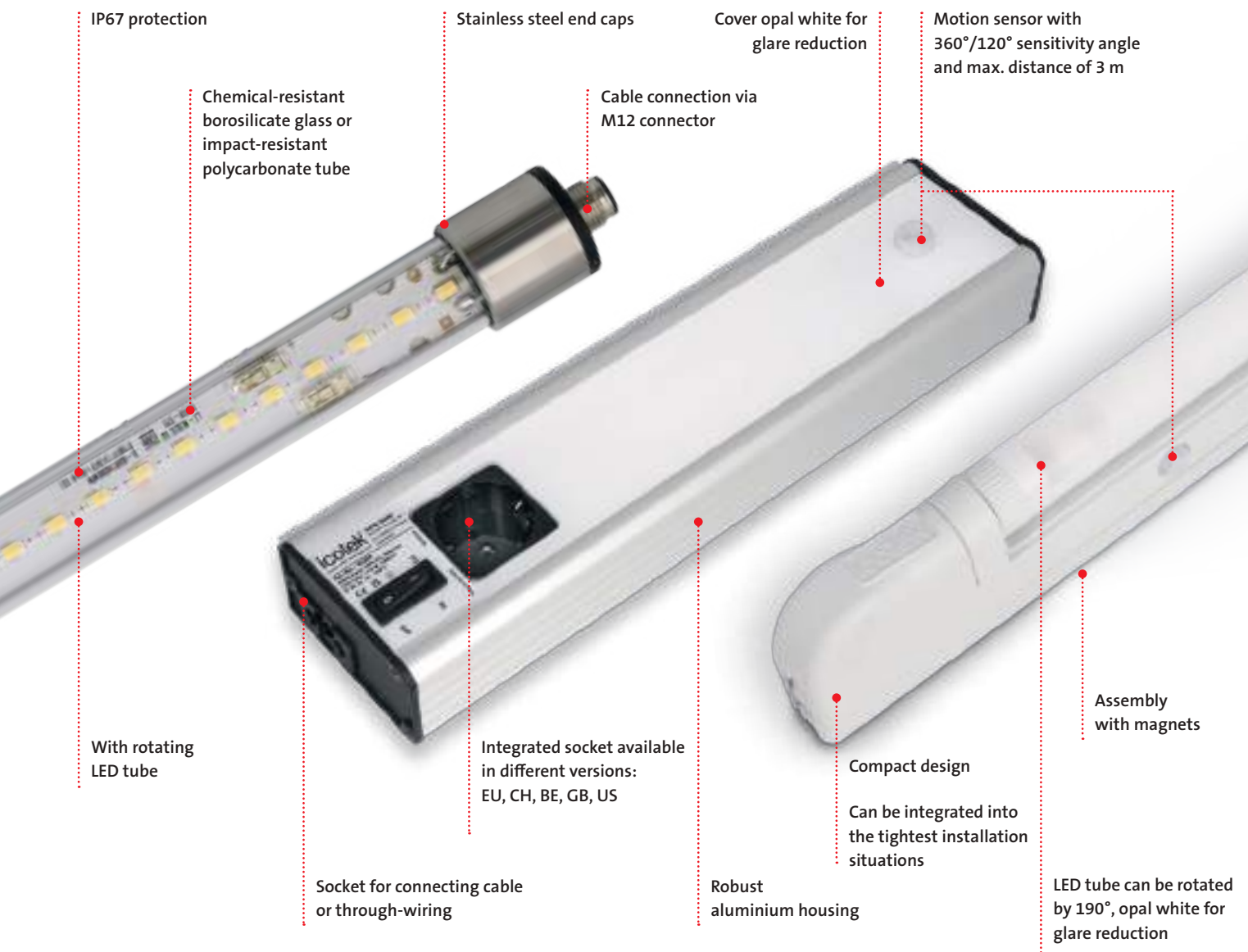


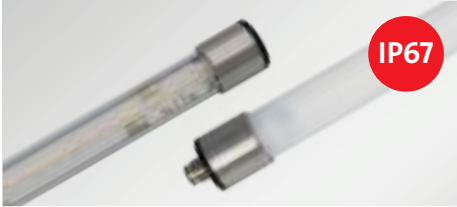
12 ALLIOLIGHT Lighting systems for industry and automation



Efficient LED lighting for industry and automation

As a long-standing partner for the industry, icotek is known worldwide for innovative cable entry systems with the highest quality standards. With the acquisition of the luminaire manufacturer Alliolight (all-in-one-light, i.e. luminaires for all areas of application in industry), founded in 1990, we are now expanding our product portfolio around the illumination of enclosures, IT applications as well as machines of all kinds. Over 30 years of experience in the field of luminaires and accessories as well as renowned customers from all over the world guarantee the highest quality – made in Germany.





Machine luminaire

Chemical-resistant borosilicate glass or impact-resistant polycarbonate tube, protection class IP67 and protection category III

TUBE

436 – 437



Enclosure luminaire

with integrated socket, with robust aluminium housing, available with motion sensor, protection category I

ALU-LINE

438 – 441



Enclosure luminaire

with 190° rotating tube, available with motion sensor, protection category II

ALLIO

442 – 443



Accessories

for ALLIOLiGHT system luminaires

Connecting cable, through-wiring cable, door operated switch, panels

444 – 445

Robust machine luminaire with protection class IP67 TUBE



The TUBE system luminaire provides effective lighting for machinery and equipment, with M12 connectors for standardised connection.

The luminaire is easy to mount, rotates and offers a circuit-independent service life of 50,000 operating hours.

Depending on the application, you can choose different materials for the tubes: the TUBE is available in chemical-resistant borosilicate glass and in impact-resistant polycarbonate. Fluctuating temperatures, oil, water or various chemicals therefore affect neither the luminosity nor the service life.

The connecting cable is not included in the scope of delivery and must be ordered separately. Mounting clips are included in the delivery.

Advantages & benefits

- Chemical-resistant borosilicate glass or impact-resistant polycarbonate tube
- Protection class IP67
- Completely maintenance-free product
- High energy efficiency thanks to High Power LED
- Compact round design \varnothing 28 mm, suitable for the tightest installation situations
- Easy retrofitting in existing machines
- With rotating LED tube
- Stainless steel end caps
- Cable connection via M12 connector

Specifications

| | |
|----------------------------|------------------------------------------------------|
| Tube material | Borosilicate glass or polycarbonate |
| End caps material | Stainless steel |
| Mounting clips material | Polypropylene (PP) |
| Operating voltage | 24 V DC; reverse polarity protection |
| Rated power | see table |
| Protection class | IP67 (certified acc. to EN 60598-1) |
| Protection category | III (Protective extra-low voltage) |
| Operating temperature | -20°C to +50°C |
| Tube diameter | 24 mm |
| End caps diameter | 28 mm |
| Service life of illuminant | 50 000 hours |
| Light colour | Borosilicate glass: 5000 K, Polycarbonate: 5600 K |

Accessories

| | |
|------------------|-----|
| Connecting cable | 444 |
|------------------|-----|



LED tube in borosilicate glass



LED tube in polycarbonate



TUBE

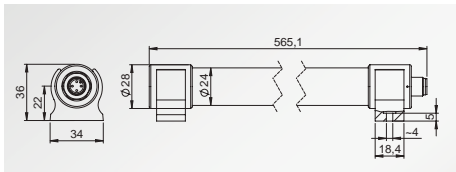
Robust machine luminaire
with protection class IP67



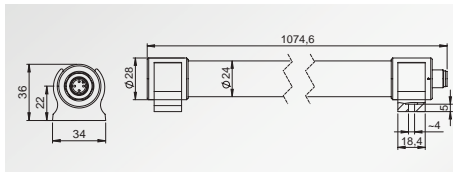
| Type | Length | Tube material | Rated power | Luminous flux Light colour | Colour rendering index CRI | Colour mounting clips | Protection class | Order No. |
|------------------------------|---------|-----------------------|-------------|-------------------------------|-------------------------------|--------------------------|------------------|-----------|
| TUBE system luminaire 13 W | 570 mm | Polycarbonate | 13 W | 1700 lm 5600 K | > 80 | black | IP67 | 81500 |
| TUBE system luminaire 26 W | 1080 mm | Polycarbonate | 26 W | 3400 lm 5600 K | > 80 | black | IP67 | 81501 |
| TUBE system luminaire 8 W | 300 mm | Polycarbonate | 8 W | 1000 lm 5600 K | > 80 | black | IP67 | 81502 |
| TUBE system luminaire 11,2 W | 330 mm | Borosilicate glass | 11,2 W | 1650 lm 5000 K | > 80 | black | IP67 | 81503 |
| TUBE system luminaire 16,8 W | 615 mm | Borosilicate glass | 16,8 W | 2775 lm 5000 K | > 80 | black | IP67 | 81504 |

Accessories for TUBE

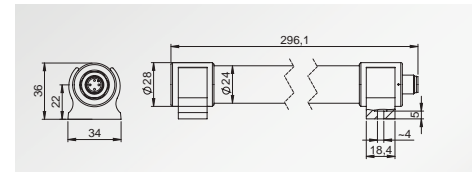
| Description | Length | Version | Colour | Order No. |
|------------------|--------|--------------------------------------|--------|-----------|
| Connecting cable | 5 m | M12 connector female, open cable end | black | 81530 |
| Connecting cable | 10 m | M12 connector female, open cable end | black | 81531 |



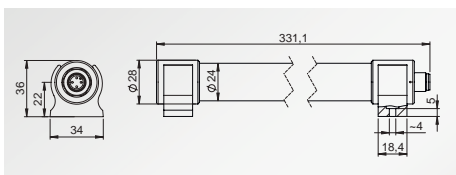
81500



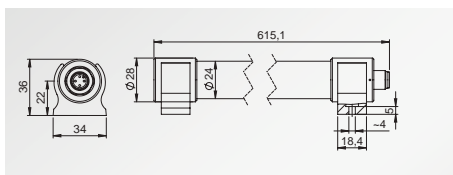
81501



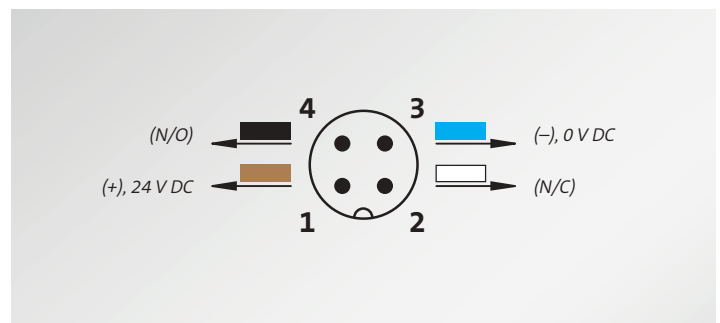
81502



81503



81504



Assembly with mounting clips (included in the delivery)

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ALU-LINE

LED lighting

with and without integrated socket



The ALU-LINE system luminaires provides effective lighting in enclosures for industrial and IT applications. Their aluminium housing makes them particularly high-quality and stable.

The ALU-LINE luminaire offers an integrated socket as a practical additional benefit. This is available in EU, CH, BE, GB or US versions.

The High Power LED illuminates with up to 1350 lumens and provides a balanced homogeneous area light. Another advantage is that the through-wiring of several luminaires is possible.

Some versions are equipped with a motion sensor with 360° sensitivity angle, max. distance of 3 m and illumination time 8 minutes.

The connecting cable is not included in the scope of delivery and must be ordered separately. Mounting brackets are included in the delivery.



Available with motion sensor

Advantages & benefits

- Integrated socket available in different versions: EU, BE, CH, GB and US; the EU version also in orange
- High-quality and stable aluminium housing
- Various mounting types: screw assembly and assembly on top-hat rail 35 mm
- Assembly aid via integrated magnets
- Effective LED lighting with up to 1350 lm
- Available with motion sensor
- Through-wiring of several luminaires possible
- Door operated switch available as an option



Specifications

| | |
|----------------------------|---------------------------------------|
| Cover material | Polycarbonate |
| Housing material | Aluminium |
| Motion sensor | Infrared, illumination time 8 minutes |
| Protection class | IP20 |
| Protection category | I (Protective conductor connection) |
| Operating temperature | -20°C to +50°C |
| Service life of illuminant | 50 000 hours |
| Light colour | 5600 K |
| Luminous flux | 900/1280/1350 lm |
| Rated voltage | see table |
| Rated power | 6/9/12 W |

Accessories

| | |
|----------------------|-----|
| Door operated switch | 445 |
| Connecting cable | 444 |
| Through-wiring cable | 444 |
| Panel for 19" rack | 445 |



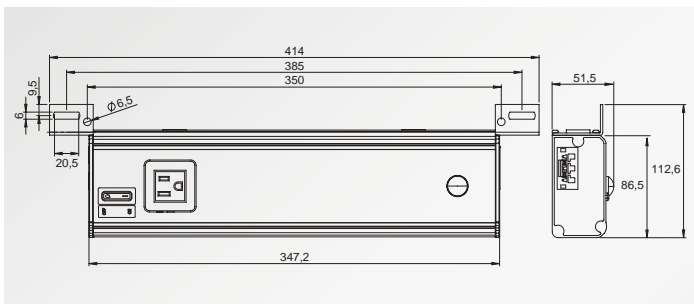
ALU-LINE

LED lighting

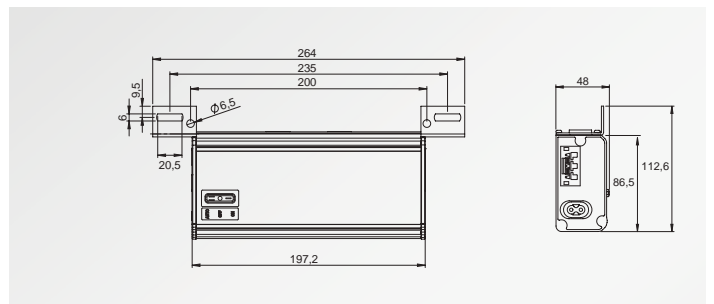
with and without integrated socket



| Type | Length | Material | Rated voltage | Rated power | Luminous flux Light colour | Colour rendering index CRI | Socket | UL certified in progress | Order No. |
|------------------------------------------------------|--------|-----------------------------|----------------|-------------|-------------------------------|-------------------------------|--------|-----------------------------|-----------|
| ALU-LINE system luminaire US with motion sensor | 350 mm | Aluminium, Polycarbonate | 100 – 240 V AC | 9 W | 1280 lm 5600 K | > 80 | US | ● | 81400 |
| ALU-LINE system luminaire | 350 mm | Aluminium, Polycarbonate | 100 – 240 V AC | 9 W | 1280 lm 5600 K | > 80 | – | ● | 81401 |
| ALU-LINE system luminaire | 200 mm | Aluminium, Polycarbonate | 100 – 240 V AC | 6 W | 900 lm 5600 K | > 80 | – | ● | 81402 |
| ALU-LINE system luminaire US | 350 mm | Aluminium, Polycarbonate | 120 V AC | 9 W | 1280 lm 5600 K | > 80 | US | ● | 81403 |
| ALU-LINE system luminaire | 200 mm | Aluminium, Polycarbonate | 120 V AC | 6 W | 1280 lm 5600 K | > 80 | – | ● | 81404 |



Version with US socket, with motion sensor,
without socket for door operated switch



Short version without US socket, with socket for door operated switch

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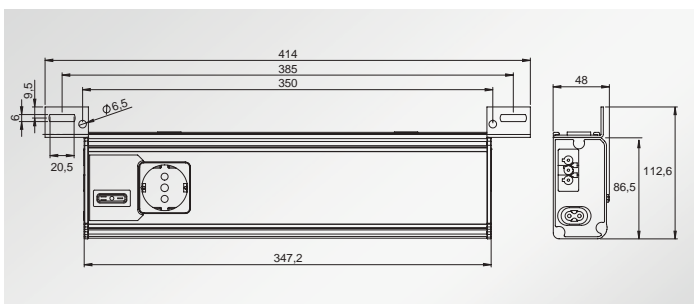
ALU-LINE

LED lighting

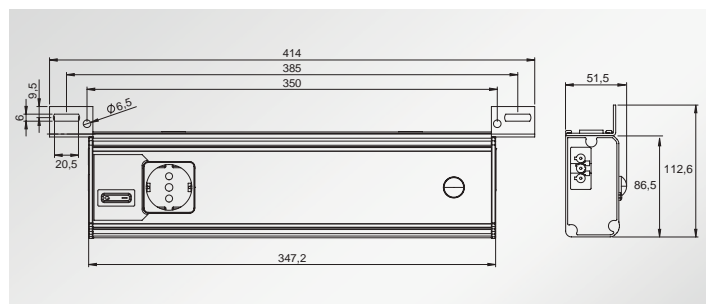
with integrated socket



| Type | Length | Rated power | Rated voltage | Luminous flux Light colour | Colour rendering index CRI | Socket | UL certified in progress | Order No. |
|----------------------------------------------------------------|--------|-------------|---------------|-------------------------------|-------------------------------|-----------|-----------------------------|-----------|
| ALU-LINE system luminaire EU | 350 mm | 230 V AC | 12 W | 1350 lm 5600 K | > 80 | EU | – | 81300 |
| ALU-LINE system luminaire EU orange | 350 mm | 230 V AC | 12 W | 1350 lm 5600 K | > 80 | EU orange | – NEW | 81308 |
| ALU-LINE system luminaire BE | 350 mm | 230 V AC | 12 W | 1350 lm 5600 K | > 80 | BE | – | 81301 |
| ALU-LINE system luminaire CH | 350 mm | 230 V AC | 12 W | 1350 lm 5600 K | > 80 | CH | – | 81302 |
| ALU-LINE system luminaire GB | 350 mm | 230 V AC | 12 W | 1350 lm 5600 K | > 80 | GB | – | 81303 |
| ALU-LINE system luminaire EU with motion sensor | 350 mm | 230 V AC | 12 W | 1350 lm 5600 K | > 80 | EU | – | 81304 |
| ALU-LINE system luminaire EU orange with motion sensor | 350 mm | 230 V AC | 12 W | 1350 lm 5600 K | > 80 | EU orange | – NEW | 81309 |
| ALU-LINE system luminaire BE with motion sensor | 350 mm | 230 V AC | 12 W | 1350 lm 5600 K | > 80 | BE | – | 81305 |
| ALU-LINE system luminaire CH with motion sensor | 350 mm | 230 V AC | 12 W | 1350 lm 5600 K | > 80 | CH | – | 81306 |
| ALU-LINE system luminaire GB with motion sensor | 350 mm | 230 V AC | 12 W | 1350 lm 5600 K | > 80 | GB | – | 81307 |



Version without motion sensor, with socket for door operated switch



Version with motion sensor, without socket for door operated switch

Assembly options



Assembly with screws on profiles



Assembly with screws on surfaces



Assembly on 35 mm top hat DIN rails



Assembly aid via integrated magnets



Available with motion sensor



With integrated socket

ALLIO

Compact LED lighting with 190° rotating LED tube



With its compact design and 190° rotating tube, the ALLIO system luminaire offers space-saving lighting for enclosures. This also enables easy retrofitting in existing enclosures.

The High Power LED illuminates with 1050 lumens and offers a service life of at least 50,000 hours. The opal white polycarbonate tube provides a homogeneous, glare-free area light. The connecting cable is integrated.

Some versions are equipped with a motion sensor with 120° sensitivity angle, max. distance of 3 m and illumination time 30 seconds.

Advantages & benefits

- Compact design with 190° rotating LED tube
- Various mounting types: with magnets, screw assembly or snap-in assembly in the 19" server rack
- Integrated connecting cable
- Easy retrofitting in existing enclosures
- Effective LED lighting with 1050 lumens
- Available with motion sensor
- Door operated switch available as an option

Specifications

| | |
|----------------------------|----------------------------------------|
| Tube material | Polycarbonate |
| Housing material | Polycarbonate |
| Housing colour | RAL 7035, similar light grey |
| Motion sensor | Infrared, illumination time 30 seconds |
| Protection class | IP20 |
| Protection category | II (Protective insulation) |
| Operating temperature | -20°C to +50°C |
| Service life of illuminant | 50 000 hours |
| Light colour | 5600 K |
| Luminous flux | 1000 lm |
| Rated voltage | see table; reverse polarity protection |
| Rated power | 8 W |

Accessories

| | |
|----------------------|-----|
| Door operated switch | 445 |
| Panel for 19" rack | 445 |



Available with motion sensor



Panel for 19" rack available as an option

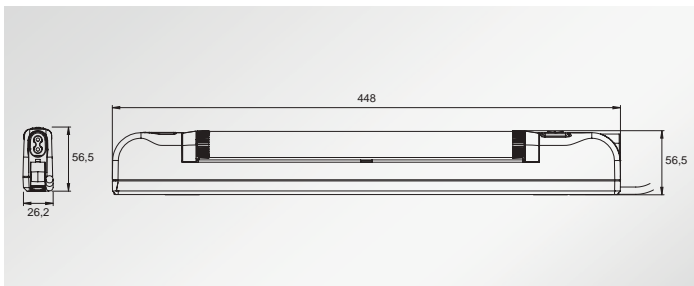


ALLIO

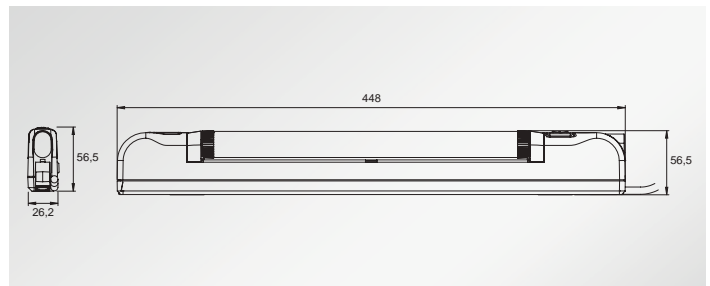
Compact LED lighting with 190° rotating LED tube



| Type | Tube material | Rated voltage | Rated power | Luminous flux Light colour | Colour rendering index CRI | Connection | UL certified in progress | Order No. |
|----------------------------------------------|---------------|----------------|-------------|-------------------------------|-------------------------------|------------------------------------|-----------------------------|-----------|
| ALLIO system luminaire | Polycarbonate | 24 V DC | 8 W | 1000 lm 5600 K | > 80 | 3 m, ferrules | ● | 81202 |
| | | | | | | | – | 81100 |
| ALLIO system luminaire with motion sensor | Polycarbonate | 24 V DC | 8 W | 1000 lm 5600 K | > 80 | 3 m, ferrules | ● | 81203 |
| | | | | | | | – | 81101 |
| ALLIO system luminaire | Polycarbonate | 230 V AC | 8 W | 1000 lm 5600 K | > 80 | 3 m, ferrules | – | 81102 |
| ALLIO system luminaire | Polycarbonate | 230 V AC | 8 W | 1000 lm 5600 K | > 80 | 1,5 m round pin attachment plug | – | 81103 |
| ALLIO system luminaire | Polycarbonate | 100 – 240 V AC | 8 W | 1000 lm 5600 K | > 80 | 3 m, ferrules | ● | 81200 |
| | | | | | | | – | 81104 |
| ALLIO system luminaire with motion sensor | Polycarbonate | 100 – 240 V AC | 8 W | 1000 lm 5600 K | > 80 | 3 m, ferrules | ● | 81201 |
| | | | | | | | – | 81105 |



Version without motion sensor, with socket for door operated switch



Version with motion sensor, without socket for door operated switch



Assembly with integrated magnets



Assembly with screws on profiles and surfaces



Snap-in assembly in the 19" rack

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12.2
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12.4

Accessories

for ALLIOLIGHT system luminaires



Accessories for TUBE



| Description | Length | Version | Colour | Order No. |
|------------------|--------|--------------------------------------|--------|-----------|
| Connecting cable | 5 m | M12 connector female, open cable end | black | 81530 |
| Connecting cable | 10 m | M12 connector female, open cable end | black | 81531 |

| Description | Inner diameter | Material | Colour | Order No. |
|-----------------------------------------|----------------|--------------------|-----------------|-----------|
| Mounting clips (spare part) | 28 mm | Polypropylene (PP) | black | 91070 |
| Mounting clips (spare part) Bore 6.5 mm | 28 mm | Stainless steel | Stainless steel | 91443 |

Accessories for ALU-LINE



| Description | Length | Version | UL certified in progress | Order No. |
|------------------|--------|-------------------------------------------|--------------------------|-----------|
| Connecting cable | 3 m | Connector GST18 female, wire end ferrules | ● | 81430 |
| | | | — | 81330 |

| Description | Length | Version | UL certified in progress | Order No. |
|----------------------|--------|------------------------------|--------------------------|-----------|
| Through-wiring cable | 0,6 m | Connector GST18 female, male | ● | 81431 |
| | | | — | 81331 |
| Through-wiring cable | 1,0 m | Connector GST18 female, male | ● | 81432 |
| | | | — | 81332 |

Accessories

for ALLIOLiGHT system luminaires



Accessories for ALU-LINE and ALLIO



| Description | Length connection cable | Connector | UL certified in progress | Order No. |
|----------------------|-------------------------|-----------|--------------------------|----------------|
| Door operated switch | 1,5 m | angled | – | 81333 |
| Door operated switch | 0,6 m | angled | – | 81334 |
| Door operated switch | 0,6 m | straight | ● – | 81232 81132 |
| Door operated switch | 1,5 m | straight | ● – | 81233 81133 |

Accessories for ALU-LINE



| Description | Dimensions | drill-hole-Ø | Surface | Colour | Order No. |
|-----------------------------|---------------|--------------|---------------|--------|-----------|
| Mounting plate for 19" rack | 111 x 43,4 mm | 7 mm | powder-coated | black | 81337 |

Accessories for ALLIO



| Description | Surface | Colour | Order No. |
|--------------------|---------------|---------------------|-----------|
| Panel for 19" rack | powder-coated | RAL 7035 light grey | 81134 |
| Panel for 19" rack | powder-coated | RAL 9005 black | 81135 |

* only fits ALLIO lumieres without motion sensor

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12.4

Certificates



| Product | IP rating | | | | | | UL 50E rating | | cURus | RINA | DNV-GL | EN45545-2 | UV | ECOLAB | RoHS | Cleanroom | Flame class | UL94 | Halogen free |
|------------------------|-----------|------|------|------|------|------|---------------|----|-------------|------|--------|-----------|----|--------|------|-----------|-------------|------|--------------|
| | IP54 | IP64 | IP65 | IP66 | IP67 | IP68 | 12 | 4X | | | | | | | | | | | |
| Product group 1 | | | | | | | | | | | | | | | | | | | |
| KEL 24/16/10/-B | ■ | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | |
| KEL 24-E/-MT/-2MT | ■ | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | |
| KEL 16-E/-MT/-2MT | ■ | | | | | | | | ■ | | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | |
| KEL-ER 24/16/10/-B | ■ | ■ | ■ | ■ | | | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | |
| KEL-U 24/16/10/-B | ■ | | | | | | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | |
| KEL-E | ■ | | | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | |
| KEL-ER | ■ | ■ | ■ | ■ | | | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | |
| KEL-FA | ■ | | | | | | | | | | | ■ | ■ | ■ | ■ | | ■ | ■ | |
| KEL-FG | ■ | | | | | | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | |
| KEL-FG-ER | ■ | ■ | ■ | | | | | ■ | | | ■ | ■ | | ■ | ■ | | ■ | ■ | |
| KEL-FW | ■ | ■ | ■ | | | | | | in progress | | ■ | | | ■ | ■ | | ■ | ■ | |
| KEL-SNAP | ■ | | | | | | ■ | ■ | | | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KVT-ER | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KVT gy | ■ | | | | | | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KVT bk | ■ | | | | | | ■ | ■ | ■ | ■ | | | ■ | ■ | ■ | | ■ | ■ | |
| KVT 80 gy | ■ | | | | | | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KVT 80 bk | ■ | | | | | | ■ | ■ | ■ | | | | ■ | ■ | ■ | | ■ | ■ | |
| KVT-SNAP | ■ | | | | | | | ■ | | ■ | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KVT-W90 gy | ■ | | | | | | | ■ | | ■ | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KVT-W90 bk | ■ | | | | | | | ■ | | ■ | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| DB | ■ | | | | | | | | in progress | | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KT small gy, single | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KT small bk, single | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | | | | ■ | ■ | ■ | | ■ | ■ | |
| KT small gy, multi | ■ | | | | | | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KT small bk, multi | ■ | | | | | | | | ■ | | | | ■ | ■ | ■ | | ■ | ■ | |
| KT large gy | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KT large bk | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | | | | ■ | ■ | ■ | | ■ | ■ | |
| KTMB5 | ■ | | | | | | ■ | ■ | | | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KTMB small/ large | ■ | | | | | | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KT-DPF small gy | ■ | | | | | | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KT-DPF small bk | ■ | | | | | | | | ■ | | | | ■ | ■ | ■ | | ■ | ■ | |
| KT-DPF large gy | ■ | | | | | | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | | ■ | ■ | |
| KT-DPF large bk | ■ | | | | | | | | ■ | | | | ■ | ■ | ■ | | ■ | ■ | |

Certificates



| Product | IP rating | | | | | | UL 50E rating | | cURus | RINA | DNV-GL | EN45545-2 | UV | ECOLAB | RoHS | Cleanroom | Flame class | UL94 | Halogen free |
|--------------------------|-----------|------|------|------|------|------|---------------|----|-------------|------|--------|-----------|----|--------|------|-----------|-------------|------|--------------|
| | IP54 | IP64 | IP65 | IP66 | IP67 | IP68 | 12 | 4X | | | | | | | | | | | |
| DT | ■ | | | | | | ■ | | ■ | ■ | | ■ | ■ | ■ | ■ | | | ■ | ■ |
| ST | | | | | | | ■ | | ■ | | | | | | | | | ■ | ■ |
| KEL-FL | ■ | | | | | | | | ■ | | ■ | ■ | | | ■ | | | ■ | ■ |
| FT | ■ | | | | | | | | ■ | | ■ | ■ | | | ■ | | | ■ | ■ |
| KEL 183 | ■ | | | | | | ■ | | ■ | | ■ | ■ | | | ■ | | | ■ | ■ |
| KEL 183-E | ■ | | | | | | ■ | | ■ | | ■ | ■ | | | ■ | | | ■ | ■ |
| KTMB 183 | ■ | | | | | | ■ | | ■ | | ■ | ■ | | | ■ | | | ■ | ■ |
| KEL-JUMBO | ■ | | | | | | ■ | | ■ | | ■ | ■ | | | ■ | | | ■ | ■ |
| KTF | ■ | | | | | | ■ | | ■ | | ■ | ■ | | | ■ | | | ■ | ■ |
| KTF-SCDP | ■ | | | | | | ■ | | ■ | | ■ | ■ | | | ■ | | | ■ | ■ |
| KEL-QUICK 24/16/10/-B/-E | ■ | | | | | | ■ | | ■ | | ■ | ■ | | | ■ | | | ■ | ■ |
| QVT | ■ | | | | | | | | | ■ | ■ | | | | ■ | | | ■ | ■ |
| QVT-CLICK | ■ | | | | | | | | | | ■ | | | | ■ | | | ■ | ■ |
| KEL-QTA 24/10/-B/round | ■ | | | | | | | | ■ | ■ | | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-QTE | ■ | | | | | | | | ■ | ■ | | ■ | ■ | ■ | ■ | | | ■ | ■ |
| QT | ■ | | | | | | | | ■ | | ■ | ■ | | | ■ | | | ■ | ■ |
| UT/UT-DT | ■ | | | | | | | | in progress | | ■ | ■ | | | ■ | | | ■ | ■ |
| Product group 2 | | | | | | | | | | | | | | | | | | | |
| KEL-DPU 24 gy | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPU 24 bk | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ 24 gy | ■ | ■ | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ 24 bk | ■ | ■ | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ 16/10/6 | ■ | ■ | ■ | ■ | | | | | ■ | | | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ-B gy | ■ | ■ | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ-B bk | ■ | ■ | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ-E gy | ■ | ■ | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ-E bk | ■ | ■ | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ-KL gy | ■ | ■ | ■ | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ-KL bk | ■ | ■ | ■ | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ round gy | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ round bk | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPZ-CLICK | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DPR | ■ | ■ | ■ | | | | | | | | | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DP 24 gy | ■ | ■ | | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DP 24 bk | ■ | ■ | | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |
| KEL-DP 16/10/6 | ■ | ■ | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |

Certificates



| Product | IP rating | | | | | | UL 50E rating | | cURus | RINA | DNV-GL | EN45545-2 | UV | ECOLAB | RoHS | Cleanroom | Flame class | UL94 | Halogen free | | | | | |
|------------------------|-------------|------|------|------|------|------|---------------|----|-------|------|--------|-----------|----|--------|------|-----------|-------------|------|--------------|----|-----|----|-----|---------------|
| | IP54 | IP64 | IP65 | IP66 | IP67 | IP68 | 12 | 4X | | | | | | | | | | | | GL | HL3 | HB | V-0 | Silicone free |
| | KEL-DP-E gy | ■ | ■ | | | | | ■ | | | | | | | | | | | | | ■ | ■ | ■ | ■ |
| KEL-DP-E bk | ■ | ■ | | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| KEL-DP round gy | ■ | ■ | ■ | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| KEL-DP round bk | ■ | ■ | ■ | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| ST-B | | | | | | | ■ | | ■ | | | | | | | | ■ | ■ | | | | | | |
| KEL-SCDP-TR | ■ | ■ | ■ | | | | | | | | | | ■ | ■ | ■ | | ■ | ■ | | | | | | |
| KEL-SCDP KEL-SCDP-RW | ■ | ■ | ■ | | | | | | | | - ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| KEL-DPF gy | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| KEL-DPF bk | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| KEL-JUMBO flex | ■ | | | | | | ■ | | ■ | | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| KEL-ULTRA flex | ■ | ■ | ■ | ■ | | | ■ | | ■ | | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| Product group 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| KZL | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| SF ZL | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| ZL | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| ZL-AB | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| ZL 03 04 05 | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| KBH-S/KBH-R | | | | | | | | | | | ■ | ■ | | | | | | | | | | | | |
| MSMC | | | | | | | | | | | ■ | ■ | ■ | ■ | | | ■ | ■ | | | | | | |
| Product group 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| EMC-KEL-DS | ■ | | | | | | | | ■ | | | | | ■ | | | ■ | ■ | | | | | | |
| EMC-KVT-DS | ■ | | | | | | | | ■ | | | | | ■ | | | ■ | ■ | | | | | | |
| Product group 5 | | | | | | | | | | | | | | | | | | | | | | | | |
| CONFIX FWS-A/-B gy | ■ | | | | | | | | | | | | | ■ | | | ■ | ■ | | | | | | |
| CONFIX FWS-A/-B bk | ■ | | | | | | | | | | | | | ■ | | | ■ | ■ | | | | | | |
| Product group 6 | | | | | | | | | | | | | | | | | | | | | | | | |
| KDR(S)-ESR/KDR-VX25 | ■ | | | | | | | | | | ■ | | | ■ | | | ■ | ■ | | | | | | |
| KDR2/KDR-BMP/MP | ■ | | | | | | | | | | | | | ■ | | | | | | | | | | |
| FP-AX/FP-AE | ■ | ■ | ■ | ■ | | | | | | | | | | ■ | | | | | | | | | | |
| FP-KX/KL | ■ | | | | | | | | | | | | | ■ | | | | | | | | | | |
| FP-BG/FP-FL21 | ■ | | | | | | | | | | | | | ■ | | | | | | | | | | |
| BPK | ■ | ■ | | | | | ■ | | ■ | | | | | ■ | | | ■ | ■ | | | | | | |
| BPK-RF | ■ | | | | | | ■ | | ■ | | | | | ■ | | | ■ | ■ | | | | | | |
| BPM | ■ | ■ | ■ | | | | | | | | | | | ■ | | | | | | | | | | |
| BPK-SNAP | ■ | | | | | | | | | | | | | ■ | | | ■ | | | | | | | |

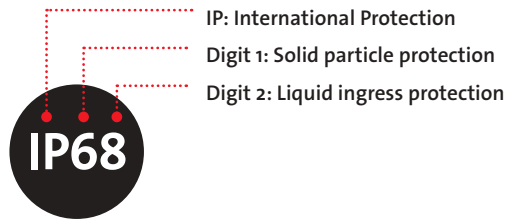
Certificates



| Product | IP rating | | | | | | UL 50E rating | | cURus | RINA | DNV-GL | EN45545-2 | UV | ECOLAB | RoHS | Cleanroom | Flame class | UL94 | Halogen free |
|----------------------------|-----------|------|------|------|------|-------|---------------|----|-------|-------------|--------|-----------|-----|--------|------|-----------|-------------|------|--------------|
| | IP54 | IP64 | IP65 | IP66 | IP67 | IP68 | 12 | 4X | | | | | | | | | | | |
| TE-M | | | | | | | | | | | | | | | | | | | |
| KEA | ■ | ■ | ■ | ■ | | | | | | | | ■ | | ■ | ■ | | | ■ | ■ |
| Drainage device | ■ | ■ | ■ | ■ | ■ | IP69K | | | ■ | | | | | | | | | | |
| PCE | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | ■ |
| KGM | | | | | | | | | ■ | | | | | | | | | ■ | ■ |
| Product group 7 | | | | | | | | | | | | | | | | | | | |
| KEL-BES(-S) 24/16/10/round | | | | | | | | | | | | | | | | | | ■ | ■ |
| Product group 10 | | | | | | | | | | | | | | | | | | | |
| KEL-ER CR | ■ | ■ | ■ | ■ | | | | | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ |
| KEL-U CR | ■ | | | | | | | | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ |
| KEL-DPZ CR gy/bk | ■ | ■ | ■ | ■ | | | | | ■ | ■ | ■ | ■ | ■ - | ■ | ■ | ■ | ■ | ■ | ■ |
| KEL-DPZ round CR gy/bk | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | ■ | ■ | ■ - | ■ | ■ | ■ | ■ | ■ | ■ |
| KEL-DPZ-HD CR | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | | | | | ■ | ■ | ■ | ■ | ■ | ■ |
| Product group 11 | | | | | | | | | | | | | | | | | | | |
| KEL-ER-BL series | ■ | ■ | ■ | | | | | | | in progress | | | | ■ | ■ | ■ | | ■ | ■ |
| KT-BL | ■ | ■ | ■ | | | | | | | in progress | | | | ■ | ■ | ■ | | ■ | ■ |
| KEL-DPU-HD | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | ■ | ■ | | | | ■ |
| KEL-DPZ-HD | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | ■ | ■ | | ■ | ■ | | | | ■ |
| Product group 12 | | | | | | | | | | | | | | | | | | | |
| TUBE | ■ | ■ | ■ | ■ | ■ | | | | | in progress | | | | | | | | ■ | |
| ALU-LINE | | IP20 | | | | | | | | in progress | | | | | | | | ■ | |
| ALLIO | | IP20 | | | | | | | | in progress | | | | | | | | ■ | |

Appendix

IP protection classes



IP protection classes according to EN 60529

| 1st digit | Solid particle protection... | | 2nd digit | Liquid ingress protection... | |
|-----------|------------------------------|-------------------------------------------|-----------|------------------------------|------------------------------------------------------------|
| 0 | | no protection | 0 | | no protection |
| 1 | | against any surface of the body > 50 mm | 1 | | against dripping water (vertically falling drops) |
| 2 | | against any surface of the body > 12.5 mm | 2 | | against dripping water when tilted at 15° |
| 3 | | against objects > 2.5 mm (tools) | 3 | | against spraying water at any angle up to 60° |
| 4 | | against objects > 1 mm (most wires) | 4 | | against splashing water from any direction |
| 5 | | Dust protected | 5 | | against water jets from any direction |
| 6 | | Dust tight | 6 | | against powerful water jets from any direction by a nozzle |
| 6 | | | 7 | | Suitable for temporary immersion in water up to 1 m depth |
| 6 | | | 8 | | Suitable for continuous immersion in water* |

*specified by the manufacturer

Appendix

UL type rating vs. NEMA rating

Why you should only rely on the UL Type Rating according to UL 50E

UL type rating acc. to UL 50E

The UL type rating is required for enclosures, cable entry components etc. for which an UL approval is required – regardless of the installation location. The UL type rating according to UL 50E requires intensive testing!

If a customer has to deliver a device according to UL Type 4X to the U.S. and installs a cable entry component, the manufacturer of which only specifies as NEMA 4X, this can lead to big problems. The UL inspector who approves the device usually also requests the corresponding test certificate from the UL. If this cannot be shown, the component has to be removed because the device does not meet the requirements of UL 50E.

All icotek products with a type rating have been tested and certified by UL according to UL 50E!



NEMA types

Using the NEMA rating lies with the responsibility of the manufacturer. That means: For enclosures, cable entry components etc. that are not particularly used for the North American market and for which no UL approval is required, the NEMA rating is sufficient.

It is also the sole responsibility of the manufacturer whether he checks the component on tightness at all or whether he just claims a NEMA conformity. An examination is not absolutely necessary. Regardless of whether the product is delivered to the USA or not, proof that the product corresponds to the tightness specified by the manufacturer is ensured by the type test according to UL 50E.



Appendix

Flammability classification according to UL 94



Flame class UL 94 HB

Applying the horizontal burning test the material burns slowly. For parts with a thickness up to 3 mm the burning speed must not be faster than 3 inches/min and for parts with a thickness over 3 mm the burning speed must not be faster than 1.5 inches/mm.

Materials which burn faster are not UL certified.

Flame class UL 94 V-2

Applying the vertical burning test, the material must normally extinguish itself after 25 seconds or less, but max. after 30 seconds. The material may drop and cotton wool placed under the probe may inflame. The material must not glow longer than 60 seconds.

Flame class UL 94 V-1

Applying the vertical burning test, the material must normally extinguish itself after 25 seconds or less, but max. after 30 seconds. The material may drop and cotton wool placed under the probe may inflame. The material must not glow longer than 30 seconds.

Flame class UL 94 V-0

Applying the vertical burning test, the material must normally extinguish itself after 5 seconds or less, but max. after 10 seconds. The material may drop down, but cotton wool placed under the probe must not inflame. The material must not glow longer than 30 seconds.

Appendix

General reference notes



We provide all the information on chemical and physical properties of our products and technical advice to the best of our knowledge.

Please do your own examinations and tests to determine the practical suitability of the products for the usage intended.

Application, use and installation of the products is the customer's responsibility. Legal and regulatory provisions and any rights to third parties have to be observed.

Moreover our general terms and conditions, which can be requested from us, apply.

This catalogue was prepared with the greatest care. All technical data and information have been reviewed before printing. Due to continuous improvement and development of our production programme we reserve, modify products from this catalogue or to take out products from our product range. Therefore, technical information and products which are included in this catalogue may differ – without prior notice.

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| 31105 | 346 | 31610 | 291 | 32400 | 219 | 32823 | 268 | 36257 | 234 | 36810 | 237 | 38025 | 257 |
| 31110 | 346 | 31612 | 291 | 32401 | 219 | 32824 | 268 | 36258 | 234 | 36815 | 237 | 38030 | 257 |
| 31120 | 346 | 31614 | 291 | 32410 | 219 | 32825 | 268 | 36259 | 234 | 36820 | 237 | 38035 | 257 |
| 31130 | 346 | 31616 | 291 | 32411 | 219 | 32847 | 268 | 36282 | 239 | 36850 | 236 | 38040 | 257 |
| 31140 | 346 | 31618 | 291 | 32420 | 219 | 32848 | 268 | 36283 | 239 | 36855 | 236 | 38045 | 257 |
| 31200 | 292 | 31620 | 291 | 32421 | 219 | 32849 | 268 | 36284 | 239 | 36860 | 236 | 38050 | 257 |
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| 31215 | 292 | 31624 | 291 | 32431 | 219 | 32868 | 268 | 36286 | 239 | 36870 | 236 | 38110 | 258 |
| 31220 | 292 | 31626 | 291 | 32598 | 219 | 32870 | 268 | 36287 | 239 | 36875 | 236 | 38115 | 258 |
| 31230 | 292 | 32000 | 192 | 32599 | 219 | 32872 | 268 | 36322 | 265 | 36880 | 236 | 38120 | 258 |
| 31235 | 292 | 32001 | 192 | 32596 | 219 | 32873 | 267 | 36323 | 265 | 36885 | 236 | 38125 | 258 |
| 31240 | 292 | 32002 | 192 | 32597 | 219 | 32878 | 266 | 36324 | 265 | 36910 | 232 | 38130 | 258 |
| 31250 | 292 | 32003 | 192 | 32695 | 266 | 32886 | 268 | 36326 | 265 | 36915 | 232 | 38135 | 258 |
| 31260 | 292 | 32004 | 192 | 32700 | 266 | 36000 | 347 | 36328 | 265 | 36920 | 232 | 38140 | 258 |
| 31300 | 293 | 32005 | 192 | 32701 | 266 | 36002 | 347 | 36330 | 265 | 36925 | 232 | 38145 | 258 |
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| 31315 | 293 | 32007 | 192 | 32703 | 266 | 36010 | 347 | 36400 | 264 | 36935 | 232 | 39110 | 262 |
| 31320 | 293 | 32112 | 196 | 32704 | 266 | 36016 | 347 | 36412 | 264 | 36940 | 232 | 39150 | 261 |
| 31330 | 293 | 32114 | 196 | 32705 | 266 | 36018 | 347 | 36414 | 264 | 36941 | 232 | 39160 | 261 |
| 31335 | 293 | 32116 | 196 | 32706 | 266 | 36024 | 347 | 36416 | 264 | 36952 | 259 | 39170 | 261 |
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| 31380 | 288 | 32228 | 194 | 32731 | 266 | 36040 | 347 | 36426 | 264 | 36958 | 259 | 39184 | 261 |
| 31381 | 288 | 32230 | 194 | 32732 | 266 | 36042 | 347 | 36428 | 264 | 36962 | 259 | 39190 | 261 |
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| 31384 | 288 | 32234 | 194 | 32734 | 266 | 36050 | 347 | 36432 | 264 | 36965 | 259 | 39192 | 301 |
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| 31392 | 288 | 32260 | 197 | 32739 | 266 | 36072 | 347 | 36442 | 264 | 37154 | 265 | 39901 | 76 |
| 31393 | 288 | 32262 | 197 | 32741 | 266 | 36074 | 347 | 36444 | 264 | 37156 | 265 | 39902 | 80 |
| 31395 | 288 | 32264 | 197 | 32742 | 266 | 36100 | 347 | 36446 | 264 | 37158 | 265 | 39903 | 80 |
| 31396 | 288 | 32270 | 195 | 32743 | 266 | 36200 | 229 | 36448 | 264 | 37159 | 265 | 39904 | 80 |
| 31410 | 289 | 32271 | 195 | 32744 | 266 | 36202 | 229 | 36450 | 264 | 37306 | 260 | 39905 | 80 |
| 31411 | 289 | 32272 | 195 | 32746 | 266 | 36204 | 229 | 36452 | 264 | 37374 | 234 | 39906 | 80 |
| 31413 | 289 | 32273 | 195 | 32758 | 267 | 36205 | 229 | 36454 | 264 | 37375 | 234 | 39907 | 80 |
| 31414 | 289 | 32274 | 195 | 32759 | 267 | 36206 | 229 | 36458 | 264 | 37600 | 229 | 39908 | 80 |
| 31416 | 289 | 32275 | 195 | 32760 | 267 | 36207 | 229 | 36459 | 264 | 37602 | 229 | 39909 | 80 |
| 31417 | 289 | 32276 | 195 | 32761 | 267 | 36208 | 229 | 36460 | 264 | 37608 | 234 | 39910 | 80 |
| 31419 | 289 | 32277 | 195 | 32762 | 267 | 36209 | 229 | 36462 | 264 | 37610 | 234 | 39911 | 80 |
| 31420 | 289 | 32280 | 195 | 32763 | 267 | 36213 | 229 | 36464 | 264 | 37612 | 232 | 39912 | 76 |
| 31422 | 289 | 32281 | 195 | 32764 | 267 | 36216 | 229 | 36465 | 264 | 37614 | 232 | 39913 | 76 |
| 31423 | 289 | 32282 | 195 | 32765 | 267 | 36217 | 229 | 36466 | 264 | 37616 | 237 | 39914 | 80 |
| 31425 | 289 | 32283 | 195 | 32766 | 267 | 36218 | 229 | 36467 | 264 | 37618 | 237 | 39915 | 80 |
| 31426 | 289 | 32284 | 195 | 32767 | 267 | 36220 | 235 | 36470 | 264 | 37620 | 236 | 39916 | 80 |
| 31550 | 290 | 32285 | 195 | 32768 | 267 | 36221 | 235 | 36471 | 264 | 37622 | 236 | 39917 | 80 |
| 31552 | 290 | 32286 | 195 | 32769 | 267 | 36222 | 233 | 36472 | 264 | 37630 | 238 | 39918 | 80 |
| 31554 | 290 | 32287 | 195 | 32770 | 267 | 36224 | 233 | 36482 | 264 | 37632 | 238 | 39921 | 80 |
| 31556 | 290 | 32290 | 195 | 32771 | 267 | 36226 | 234 | 36484 | 264 | 37640 | 246 | 39922 | 80 |
| 31558 | 290 | 32291 | 195 | 32772 | 267 | 36228 | 234 | 36486 | 264 | 37642 | 246 | 39923 | 80 |
| 31560 | 290 | 32292 | 195 | 32773 | 267 | 36229 | 235 | 36488 | 264 | 37650 | 246 | 39924 | 80 |
| 31562 | 290 | 32293 | 195 | 32774 | 267 | 36230 | 235 | 36490 | 264 | 37652 | 246 | 39929 | 80 |
| 31564 | 290 | 32294 | 195 | 32775 | 267 | 36231 | 235 | 36500 | 236 | 37680 | 245 | 39930 | 80 |
| 31566 | 290 | 32295 | 195 | 32776 | 267 | 36232 | 264 | 36502 | 236 | 37681 | 245 | 39931 | 80 |
| 31570 | 290 | 32296 | 195 | 32777 | 267 | 36234 | 264 | 36504 | 237 | 37682 | 245 | 39932 | 80 |
| 31572 | 290 | 32297 | 195 | 32778 | 267 | 36235 | 238 | 36506 | 237 | 37683 | 245 | 39933 | 80 |
| 31574 | 290 | 32351 | 198 | 32800 | 267 | 36236 | 238 | 36520 | 262 | 37684 | 245 | 39934 | 76 |
| 31576 | 290 | 32352 | 198 | 32801 | 267 | 36237 | 239 | 36522 | 262 | 37685 | 245 | 39935 | 80 |
| 31578 | 290 | 32353 | 198 | 32802 | 267 | 36238 | 239 | 36524 | 262 | 37687 | 245 | 39936 | 80 |
| 31580 | 290 | 32354 | 198 | 32803 | 267 | 36243 | 237 | 36525 | 260 | 37688 | 245 | 39937 | 80 |
| 31582 | 290 | 32355 | 198 | 32804 | 267 | 36244 | 237 | 36526 | 262 | 37701 | 232 | 39938 | 80 |
| 31584 | 290 | 32356 | 198 | 32805 | 267 | 36245 | 237 | 36527 | 260 | 37702 | 232 | 39939 | 80 |
| 31586 | 290 | 32357 | 198 | 32806 | 268 | 36246 | 237 | 36530 | 264 | 37703 | 232 | 39940 | 80 |
| 31590 | 291 | 32358 | 198 | 32807 | 268 | 36247 | 237 | 36540 | 264 | 37704 | 232 | 39941 | 76 |
| 31592 | 291 | 32360 | 195 | 32808 | 268 | 36248 | 237 | 36550 | 264 | 37705 | 232 | 39942 | 80 |
| 31594 | 291 | 32361 | 195 | 32809 | 268 | 36249 | 237 | 36562 | 264 | 37706 | 232 | 39943 | 76 |
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| 31602 | 291 | 32365 | 195 | 32815 | 268 | 36253 | 234 | 36700 | 239 | 38010 | 257 | 39948 | 93 |
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