

Cable Entry Systems EMC Solutions



innovative
creative
technology

Product program

A company of the icotek group



Customer requests and our constant involvement in ever changing markets is motivation for icotek to continuously develop new and innovative products.

Our product offering will continue to grow in an effort to meet the needs of our customers.

Ideas move the world ...

Can't find the product that meets the demands of your application? Contact us and we will be more than happy to discuss a customized solution for you!



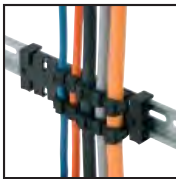
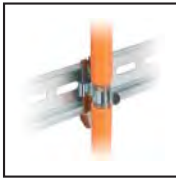


Our experienced managers and qualified personnel are in constant pursuit of customer satisfaction.

Trust our innovation.

Your comments and suggestions are important to us. We look forward to hearing from you.

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Product group 1

Cable entry systems for entering pre-terminated cables

1



Patent



Product description

At a glance ...

The patented cable entry system enables the user to enter, seal and provide strain relief for pre-terminated and standard cables.

The key feature of Icotek's patented system is the split frame and split inserts which provide quick, convenient and cost effective routing of pre-terminated and standard cables. The split frame and split insert 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 the split frame and split inserts. When assembled correctly, the split inserts are held tightly within the frame. Correctly sizing the insert to the cable diameter ensures a high degree of protection (IP 54) and provides strain relief.

Benefits ...

1. Split system

Split inserts are positively guided into the frame. This ensures a tight seal around the cables and strain relief according to DIN-EN 50262.

2. No new punch out tools required

Drilling templates, as well as cut outs according to the standard dimensions for multi pole connectors (for example from Harting, Wieland).

3. Tight connection

Uniquely designed frame and inserts assures a tight, secure unit.

4. Flexibility

Standard inserts are designed to accommodate only one cable. Utilizing inserts that pass two and four cables greatly increases packing density.

Product group 1

Cable entry system for entering pre-terminated cables

Chapter content

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KEL 24

Cable entry frames



1

Product description

The KEL-24 matches exactly the cut-out dimensions of 24-pole standard industrial connectors.

The split insert matching the cable diameter is placed around the cable and inserted into the cable entry frame.

Either a cut out of 36mm or 46mm tall can be chosen depending on the cables being routed. This flexibility is perfect for pre-terminated cables.

Advantages

- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and inserts
- Strain relief according DIN EN 50262

Specification

| | |
|--------------------|--|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | 36 x 112 mm / page 94 |

Accessories

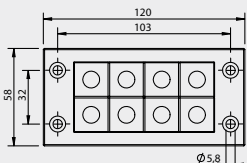
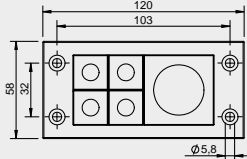
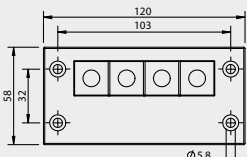
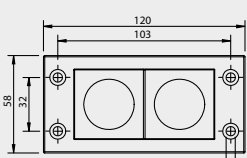
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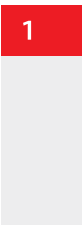
| Description | Type | Order No. | Inserts KT small large | PU |
|-------------|-------------|-----------|-----------------------------|----|
| | KEL 24 10 | 42241 | 10 - | 10 |
| | KEL 24 7 | 42247 | 6 1 | 10 |
| | KEL 24 5 | 42248 | 5 - | 10 |
| | KEL 24 4 | 42244 | 2 2 | 10 |

KEL 16

Cable entry frames



| Type | Order No. | Inserts KT small large | PU | Description |
|------------|-----------|-----------------------------|----|---|
| KEL 16 8 | 42168 | 8 - | 10 |  |
| KEL 16 5 | 42165 | 4 1 | 10 |  |
| KEL 16 4 | 42164 | 4 - | 10 |  |
| KEL 16 2 | 42162 | - 2 | 10 |  |



Product description

The KEL-16 matches exactly the cut-out dimensions of 16-pole standard industrial connectors.

The split insert matching the cable diameter is placed around the cable and inserted into the cable entry frame.

Either a cut out of 36mm or 46mm tall can be chosen depending on the cables being routed. This flexibility is perfect for pre-terminated cables.

Advantages

- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and inserts
- Strain relief according to DIN EN 50262

Specification

| | |
|--------------------|---|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | 36 x 86 mm / page 94 |

Accessories

| | |
|-------------------------|--------------|
| KT Cable inserts | Page 22 26 |
| KEL-SNAP SNAP frames | Page 15 |
| KEL-EMC Cable collector | Page 74 75 |
| KDR Base plates | Page 82 83 |

KEL 10

Cable entry frames



1

Product description

The KEL-10 matches exactly the cut-out dimensions of 10-pole standard industrial connectors.

The split insert matching the cable diameter is placed around the cable and inserted into the cable entry frame.

Either a cut out of 36mm or 46mm tall can be chosen depending on the cables being routed. This flexibility is perfect for pre-terminated cables.

Advantages

- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and inserts
- Strain relief according DIN EN 50262

Specificationen

| | |
|--------------------|---|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | 36 x 65 mm / page 94 |

Accessories

| | |
|-------------------------|--------------|
| KT Cable inserts | Page 22 26 |
| KEL-SNAP SNAP frames | Page 15 |
| KEL-EMC Cable collector | Page 74 75 |

| Description | Type | Order No. | Inserts KT | | PU |
|-------------|------------|-----------|------------|-------|----|
| | | | small | large | |
| | KEL 10 6 | 42216 | 6 | - | 10 |
| | KEL 10 3 | 42212 | 2 | 1 | 10 |

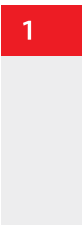
KEL - B

Cable entry frames



| Type | Order No. | Inserts KT small large | PU | Description |
|------|-----------|-----------------------------|----|-------------|
|------|-----------|-----------------------------|----|-------------|

| | | | | |
|----------|-------|-------|----|--|
| KEL - B4 | 42204 | 4 - | 10 | |
| KEL - B1 | 42206 | - 1 | 10 | |



Product description

The KEL-B matches exactly the cut-out dimensions of 46 x 46 mm measuring instruments.

The split insert matching the cable diameter is placed around the cable and inserted into the cable entry frame.

For routing cables and conduits up to 34 mm diameter.

Advantages

- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Space saving shape
- Small cut-out, high packing density
- Strain relief according to DIN EN 50262

Specification

| | |
|--------------------|---|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | 46 x 46 mm / page 94 |

Accessories

| | |
|-------------------------|--------------|
| KT Cable inserts | Page 22 26 |
| KEL-SNAP SNAP frames | Page 15 |
| KEL-EMC Cable collector | Page 74 75 |

KEL - E

Cable entry frames



1

Product description

The cable entry frames KEL-E are particularly suited for flat connectors. The small frame is ideal for applications with limited space.

For inserting cables up to 17 mm diameter.

Advantages

- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Space saving shape
- Optimal for D-Sub connectors
- Strain relief according DIN EN 50262

Specification

| | |
|-------------------|---|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |
| Drilling template | see page 94 |

Accessories

| | |
|-------------------------|--------------|
| KT Cable inserts | Page 22 25 |
| KEL-EMC Cable collector | Page 74 75 |

| Description | Type | Order No. | Cut-out [mm] | Inserts KT | | PU |
|-------------|------|-----------|--------------|------------|-------|----|
| | | | | small | large | |

| | | | | | | |
|--|--------|-------|----------|---|---|----|
| | KEL-E2 | 42249 | 43 x 24 | 2 | - | 10 |
| | KEL-E3 | 42258 | 65 x 24 | 3 | - | 10 |
| | KEL-E4 | 42259 | 86 x 24 | 4 | - | 10 |
| | KEL-E5 | 42250 | 112 x 24 | 5 | - | 10 |

KEL 24 - E Cable entry frames



| Type | Order No. | Inserts KT small large | PU | Description |
|------|-----------|-----------------------------|----|-------------|
|------|-----------|-----------------------------|----|-------------|

| | | | | |
|---------------|-------|--------|---|--|
| KEL 24 15-E | 42209 | 15 - | 1 | |
| KEL 24 12-E | 42208 | 11 1 | 1 | |
| KEL 24 9-E | 42207 | 7 2 | 1 | |

1

Product description

The KEL 24-E offers a larger frame size for routing a greater amount of cables, pipes or conduits.

The cable entry frames KEL24-E series are KEL frames extended with an additional middle frame for routing additional cables. Thus allowing the quick, easy and cost effective routing solution for up to 60 cables.

Advantages

- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density
- Strain relief according DIN EN 50262

Specification

| | |
|--------------------|---|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | 62 x 112 mm / page 94 |

Accessories

| | |
|-------------------------|--------------|
| KT Cable inserts | Page 22 26 |
| KEL-EMC Cable collector | Page 74 75 |

KEL 24 - MT

Cable entry frames



| Description | Type | Order No. | Inserts KT small large | PU |
|-------------|------|-----------|-----------------------------|----|
|-------------|------|-----------|-----------------------------|----|

1

Product description

The KEL24-MT provides additional cable routing possibilities - route up to 80 cables.

The cable entry frames KEL24-MT series are KEL frames extended with an additional middle frame for routing additional cables. Thus allowing the quick, easy and cost effective routing solution for up to 80 cables.

Advantages

- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density
- Strain relief according DIN EN 50262

Specification

| | |
|--------------------|---|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | -40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | 82 x 112 mm / page 94 |

Accessories

| | |
|-------------------------|--------------|
| KT Cable inserts | Page 22 26 |
| KEL-EMC Cable collector | Page 74 75 |

| | | | | |
|--|-------------------|-------|--------|---|
| | KEL 24 20-MT | 42232 | 20 - | 1 |
| | KEL 24 17-MT | 42224 | 16 1 | 1 |
| | KEL 24 14-MT | 42225 | 12 2 | 1 |
| | KEL 24 8-MT | 42221 | 4 4 | 1 |

KEL 24 - 2MT Cable entry frames



| Type | Order No. | Inserts KT small large | PU | Description |
|------|-----------|-----------------------------|----|-------------|
|------|-----------|-----------------------------|----|-------------|

| | | | | |
|---------------------|-------|--------|---|--|
| KEL 24 30-2 MT | 42234 | 30 - | 1 | |
| KEL 24 27-2 MT | 42233 | 26 1 | 1 | |
| KEL 24 24-2 MT | 42227 | 22 2 | 1 | |
| KEL 24 21-2 MT | 42226 | 18 3 | 1 | |
| KEL 24 12-2 MT | 42223 | 6 6 | 1 | |

1

Product description

The KEL24-2MT is our largest frame offering with the ability to route up to 120 cables.

The cable entry frames KEL24-2MT series are KEL frames extended with two additional middle frames for routing additional cables. Thus allowing the quick, easy and cost effective routing solution for up to 120 cables.

Advantages

- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density
- Strain relief according to DIN EN 50262

Specification

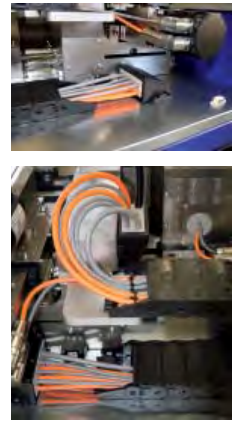
| | |
|--------------------|---|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | -40°C to +140°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | 126 x 112 mm / page 94 |

Accessories

| | |
|-------------------------|--------------|
| KT Cable inserts | Page 22 26 |
| KEL-EMC Cable collector | Page 74 75 |

KEL - FG

Flange enclosure



| Description | Type | Order No. | Inserts KT small large | PU |
|-------------|------|-----------|-----------------------------|----|
|-------------|------|-----------|-----------------------------|----|

1

Product description

The cable entry frames range KEL-FG are suited for installation, sealing and strain relief of pre-terminated cables and conduits at an angle of 90° to the cabinet.

For routing cables and conduits up to 34 mm diameter.

Advantages

- Installation at an angle of 90° to the cabinet
- Mechanical protection of cable directly at the place of entry
- Protection against water spray and drips
- Warranty of pre-terminated cables remains
- Strain relief according DIN EN 50262

Specification

| | |
|--------------------|---|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | KEL-FG Type A: 36 x 112 mm KEL-FG Type B: 46 x 36 mm |

Accessories

| | |
|-------------------------|--------------|
| KT Cable inserts | Page 22 26 |
| KEL-SNAP SNAP frames | Page 15 |
| KEL-EMC Cable collector | Page 74 75 |

| | | | | |
|--|---------------|-------|--------|---|
| | KEL-FG B4 | 42330 | 4 - | 1 |
| | KEL-FG B1 | 42332 | - 1 | 1 |
| | KEL-FG A10 | 42320 | 10 - | 1 |
| | KEL-FG A7 | 42322 | 6 1 | 1 |
| | KEL-FG A4 | 42324 | 2 2 | 1 |

KEL - SNAP

SNAP frames



| Type | Order No. | Fits for | Cut-out [mm] | PU | Description |
|------|-----------|----------|--------------|----|-------------|
|------|-----------|----------|--------------|----|-------------|

| | | | | | |
|---------------|-------|------------------------------------|----------|----|--|
| KEL - SNAP B4 | 42038 | KEL-B KEL-Quick B | 46 x 38 | 10 | |
| KEL - SNAP 10 | 42039 | KEL 10 | 46 x 65 | 10 | |
| KEL - SNAP 16 | 42040 | KEL 16 KEL-Quick 16 | 46 x 85 | 10 | |
| KEL - SNAP 24 | 42042 | KEL 24 KEL-FG A KEL-Quick 24 | 46 x 112 | 10 | |

1

Product description

The KEL-SNAP frame provides quick assembly of the KEL system when necessary. Control panels already in the factory can be equipped with the KEL-SNAP frame allowing a simple push in of the KEL frame once the associated equipment is delivered to the factory.

A cut-out of 46 mm also can be chosen instead of 36mm. Thus pre-fabricated multi pole connectors can be used.

Advantages

- 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 in SNAP-frame
- Drilling template identical to KEL-frame

Specification

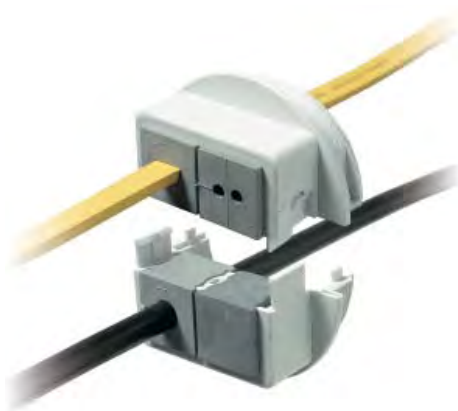
| | |
|-------------------|------------------------------|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54 |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |
| Drilling template | see page 94 |

Accessories

| | |
|-------------------------|-------------|
| KEL Cable entry frames | Page 6 14 |
| KEL-QUICK Cable entries | Page 32 |
| MP Module plates | Page 86 |
| BP-SNAP Blind plates | Page 90 |

KVT

Split cable glands



| Description | Type | Order No. | Inserts KT small large | Thread Thread length | PU |
|-------------|------|-----------|--------------------------|----------------------|----|
|-------------|------|-----------|--------------------------|----------------------|----|

1

Product description

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

SUB-D9 locknuts are available for installation of SUB-D9 connectors - minimal space for maximum effectiveness! Connectors with a max. width of 35.5mm and a height of 16mm can be installed utilizing a hole diameter of 36mm.

* Maximum cable diameter 15 mm

** For KVT 63 a locknut M63 (brass-nickel plated) is included in delivery.

Advantages

- Insertion of pre-terminated cables
- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety
- Suitable for standard or metric cut-outs

Specification

| | |
|-------------------|---|
| Material | Polycarbonate |
| Colour | similar RAL 7035 |
| Flame class | UL-94 V0, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | - 30°C to + 100°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimension | metric standard sizes |

Accessories

| | |
|------------------|--------------|
| KT Cable inserts | Page 22 26 |
| Locknuts | Page 95 |

| | | | | | |
|--|--------------|-------|----------|----------------------------|----|
| | KVT 25* | 45201 | 1 - | M25 x 1.5 Length: 14 mm | 10 |
| | KVT 32 | 45202 | 1 - | M32 x 1.5 Length: 14 mm | 10 |
| | KVT 63 4** | 45214 | 4 - | M63 x 1.5 Length: 14 mm | 5 |
| | KVT 63 1** | 45211 | - 1 | M63 x 1.5 Length: 14 mm | 5 |
| | KGM SUB-D9 | 45105 | PC, grey | M32 x 1.5 | 10 |
| | KGM 25 | 52274 | PA, grey | M25 x 1.5 | 10 |
| | KGM 32 | 52275 | PA, grey | M32 x 1.5 | 10 |
| | KGM 63 | 52278 | PA, grey | M63 x 1.5 | 5 |

KVT - SNAP

Split cable glands



| Type | Order No. | Inserts KT small large | Thread Thread length | PU | Description |
|------|-----------|--------------------------|----------------------|----|-------------|
|------|-----------|--------------------------|----------------------|----|-------------|

| | | | | | |
|--------------------|-------|----------|----------------------------|----|--|
| KVT - SNAP 32 | 45130 | 1 - | M32 x 1.5 Length: 11 mm | 10 | |
| KVT - SNAP 40 | 45134 | 1 - | M40 x 1.5 Length: 11 mm | 10 | |
| KVT - SNAP 63 4* | 45152 | 4 - | M63 x 1.5 Length: 11 mm | 5 | |
| KVT - SNAP 63 1* | 45154 | - 1 | M63 x 1.5 Length: 11 mm | 5 | |
| KGM SUB-D9 | 45105 | PC, grey | M32 x 1.5 | 10 | |
| KGM 32 | 52275 | PA, grey | M32 x 1.5 | 10 | |
| KGM 40 | 52276 | PA, grey | M40 x 1.5 | 10 | |
| KGM 63 | 52278 | PA, grey | M63 x 1.5 | 5 | |

1

Product description

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

Pre terminated cables can be routed through thick walls (> 5mm) e.g. into cast junction boxes by using the model KVT-SNAP, without the use of tools.

* For KVT 63 a locknut M63 (brass-nickel plated) is included in delivery.

Assembly

- SNAP ring is screwed into metric thread tapped into housing (or it can be fastened with a lock nut).
- Once the SNAP ring is affixed to the housing the KVT equipped with cables is simply pushed into the SNAP ring. Quick and easy installation!

Specification

| | |
|-------------------|---|
| Material | Polycarbonate |
| Colour | similar RAL 7035 |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | - 30°C to + 100°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimension | metric standard cut-outs |

Accessories

| | |
|------------------|--------------|
| KT Cable inserts | Page 22 26 |
| Locknuts | Page 95 |

KVT - W90

Split cable glands



1

Product description

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 inserts is available to the user.

Advantages



- Installation at an angle of 90° to the cabinet
- Insertion of pre-terminated cables and conduits
- Warranty of pre-terminated cables remains
- Suitable for standard or metric cut-outs

Specification

| | |
|------------------------|---|
| Material | Polycarbonate |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature Properties | - 30°C to + 100°C (static) |
| Colour | halogen-free, silicone-free similar RAL 7035 |

Accessories

| | |
|--------------------|--------------|
| KT Cable inserts | Page 22 26 |
| WST Conduit, split | Page 19 |
| Locknuts | Page 95 |

| Type | Order No. without locknut | Order No. with locknut | Inserts KT small large | Thread Thread length | PU |
|---|---------------------------|------------------------|--------------------------|------------------------------|----|
| KVT 32 - W90 | 45400 | 45404 | 1 - | M32 x 1.5 Length: 11.5 mm | 10 |
|  | Split locknut M32 | 31120 (without KVT) | - | - | 10 |
| KVT 50 4 - W90 | 45420 | 45424 | 4 - | M50 x 1.5 Length: 11.5 mm | 5 |
| KVT 50 1 - W90 | 45410 | 45414 | - 1 | M50 x 1.5 Length: 11.5 mm | 5 |
|  | Split locknut M50 | 31140 (without KVT) | - | - | 10 |

WST

Split corrugated conduit



| Type | Order No. | Internal diameter | External diameter | Dimensions | Ring length |
|-----------|-----------|-------------------|-------------------|------------|-------------|
| WST NW 10 | 31200 | 8.7 mm | 13.6 mm | 10 mm | 50 m |
| WST NW 14 | 31210 | 12.5 mm | 18.5 mm | 14 mm | 50 m |
| WST NW 20 | 31220 | 19.5 mm | 25.5 mm | 20 mm | 50 m |
| WST NW 23 | 31230 | 24.2 mm | 31.0 mm | 23 mm | 50 m |
| WST NW 37 | 31240 | 31.0 mm | 41.4 mm | 37 mm | 25 m |
| WST NW 45 | 31250 | 42.7 mm | 54.0 mm | 45 mm | 25 m |
| WST NW 70 | 31260 | 66.5 mm | 79.8 mm | 70 mm | 10 m |

1

Product description

The WST is split and two piece corrugated conduit. Perfect for routing standard or pre-terminated cables in harsh environments.

In conjunction with KVT-W90, a high degree of flexibility is achieved. Numerous conduit sizes can be used thanks to the wide variety of split inserts offered (see KT inserts on pages 22 - 24).

The length of the WST split corrugated conduit is individually adjustable.

Advantages

- Containing pre-terminated cables, warranty of cable remains
- Retrofitting and maintenance carried out easily and quickly

Specification

| | |
|------------------|----------------------------|
| Material | Polypropylene, black |
| Flame class | UL-94 V2 |
| Protection class | IP 50 |
| Temperature | - 40°C to + 105°C |
| Properties | halogen-free, UV-resistant |

SH

Conduit clip



1

Product description

Conduit clips are a one-piece location 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.

Specification

Material Polyamide, black
 Flame class UL-94 V2
 Temperature - 40°C bis + 120°C
 Properties halogen-free, silicone-free

Accessories

Corrugated conduit

Page 19

| Type | Order No. | Suitable conduit | Length [mm] | Width [mm] | Height [mm] | PU |
|-------|-----------|------------------|-------------|------------|-------------|----|
| SH 10 | 31300 | NW 10 | 18.6 | 20.0 | 23.0 | 10 |
| SH 14 | 31310 | NW 14 | 24.0 | 20.0 | 26.1 | 10 |
| SH 20 | 31320 | NW 20 | 35.0 | 20.0 | 39.6 | 10 |
| SH 23 | 31330 | NW 23 | 42.5 | 20.5 | 44.5 | 10 |
| SH 37 | 31340 | NW 37 | 52.0 | 20.5 | 52.5 | 10 |
| SH 45 | 31350 | NW 45 | 66.2 | 20.5 | 66.3 | 10 |

Service box for cable inserts

KT | Service box for cable inserts



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

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

Cable templates can also be ordered separately (Order-No. 39800).

1

Product description

Convenient - everything readily available!

The service box is perfect for installations and service calls.

The KT service box ensures your KT inserts are readily available.

Order No. 88001

Content

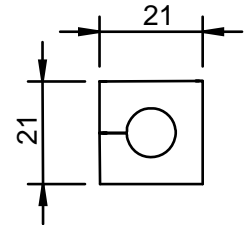
- 126 Cable inserts, small for cables 2 - 17 mm
- 8 Cable inserts, small for ASI-Bus cables
- 6 Cable inserts, small for special cables
- 29 Cable inserts, large for cables 16 - 34 mm

1 Cable template

div. Accessories: KEL-frames, KVT, strain relief plate KZL

KT

Inserts, small



1

Product description

KT cable inserts small are used with the following cable entry frames:

- KEL - Page 6 - 13
- KEL-FG - Page 14
- KVT - Page 16 - 17
- KVT-W90 - Page 18

The model range KT small is designed for cable diameters from 2 to 17mm.

Assembly

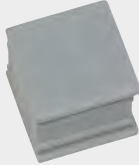
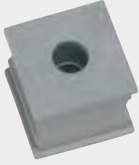
When installing the insert, the smooth side of the insert faces the middle of the cable entry frame.

Specification KT grey

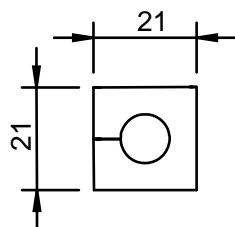
Material Elastomer
 Flame class UL-94 Vo, self-extinguishing
 Temperature - 30°C to+ 90°C (static)
 Properties halogen-free, silicone-free

Specification KT black





Material Elastomer
 Flame class UL-94 HB
 Temperature - 30°C to + 90°C (static)
 Properties higher chemical resistance,
 UV-stabilized

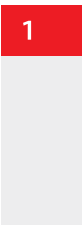
| Description | Type | Order No grey | Order No black | Clamping range | PU |
|--|--------|------------------|-------------------|----------------|----|
| BTK  | BTK | 41251 | 41351 | Blind insert | 10 |
| KT  | KT 2 | 39934 | 41302 | 2 - 3 mm | 10 |
| | KT 3 | 41203 | 41303 | 3 - 4 mm | 10 |
| | KT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

KT Inserts, small



| Type | Order No grey | Order No black | Clamping range | PU | Description |
|------|---------------|----------------|----------------|----|-------------|
|------|---------------|----------------|----------------|----|-------------|

| | | | | | |
|--------------|-------|-------|-----------------|----|---|
| KT 2 2 | 39935 | 39936 | 2x Ø 2 mm | 10 |  KT 2 x |
| KT 2 3 | 39939 | 39940 | 2x Ø 3 mm | 10 | |
| KT 2 4 | 39906 | 39907 | 2x Ø 4 mm | 10 | |
| KT 2 5 | 41200 | 39904 | 2x Ø 5 mm | 10 | |
| KT 2 6 | 41201 | 39905 | 2x Ø 6 mm | 10 | |
| KT 2 7 | 41202 | 39916 | 2x Ø 7 mm | 10 | |
| KT 2 8 | 39917 | 39918 | 2x Ø 8 mm | 10 | |
| KT 4 2 | 39937 | 39938 | 4x Ø 2 mm | 10 |  KT 4 x |
| KT 4 3 | 39914 | 39915 | 4x Ø 3 mm | 10 | |
| KT 4 4 | 39909 | 39911 | 4x Ø 4 mm | 10 | |
| KT 4 5 | 39908 | 39910 | 4x Ø 5 mm | 10 | |
| KT 4 6 | 39932 | 39933 | 4x Ø 6 mm | 10 | |
| KT-ASI | 39902 | 39903 | 1 ASI-cable | 10 | |
| KT-ASI2 rl | 39922 | 39924 | 2 ASI-cables | 10 | |
| KT-ASI2 ll | 39921 | 39923 | 2 ASI-cables | 10 | |
| KTRS 12 | 39990 | - | | 10 |  KTRS |
| KTRS 13 | 39992 | - | | 10 | |
| KTRS 16 | 39996 | - | | 10 | |
| KT tele | 39929 | - | Telephone cable | 10 |  KT tele |
| KT oval | 39930 | - | | 10 | |
| KT S1 | 39931 | - | | 10 | |



Product description

KT cable inserts small are used with the following cable entry frames:

- KEL - Page 6 - 13
- KEL-FG - Page 14
- KVT - Page 16 - 17
- KVT-W90 - Page 18

The model range KT small is designed for cable diameters from 2 to 17mm.

Assembly

When installing the insert, the smooth side of the insert faces the middle of the cable entry frame.

Specification KT grey

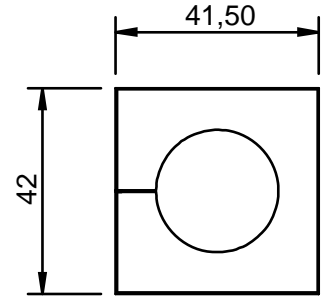
| | |
|-------------|------------------------------|
| Material | Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Temperature | - 30°C to + 90°C (static) |
| Properties | halogen-free, silicone-free |

Specification KT black

| | |
|-------------|---|
| Material | Elastomer |
| Flame class | UL-94 HB |
| Temperature | - 30°C to + 90°C (static) |
| Properties | higher chemical resistance, UV-stabilized |

KT

Inserts, large



1

Product description

The KT inserts large accept a wide range of cable diameters from 16 to 34 mm. They are used with the following cable entry frames:

- KEL - Page 6 - 13
- KEL-FG - Page 14
- KVT / KVT-W90 - Page 16 - 18

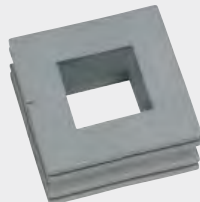
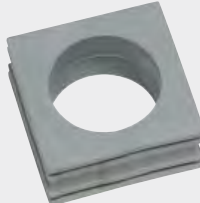
ATG adapter inserts provide the possibility to hold a small KT insert to reduce the clamping range down to 2 mm.

Specification KT grey

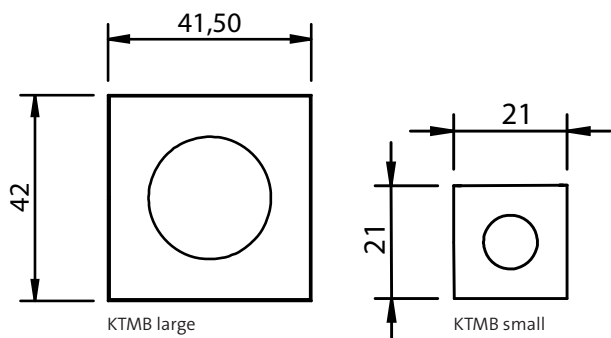
| | |
|-------------|------------------------------|
| Material | Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Temperature | - 30°C to + 90°C (static) |
| Properties | halogen-free, silicone-free |

Specification KT black

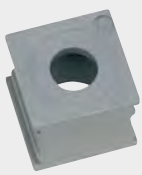



| | |
|-------------|---|
| Material | Elastomer |
| Flame class | UL-94 HB |
| Temperature | - 30°C to + 90°C (static) |
| Properties | higher chemical resistance, UV-stabilized |

| Description | Type | Order No. grey | Order No. black | Clamping range | PU |
|--|-------|----------------|-----------------|----------------|----|
|  ATG | ATG | 41253 | 41353 | Adapter insert | 10 |
| | BTG | 41252 | 41352 | Blind insert | |
|  KT 28 | KT 16 | 41216 | 41316 | 16 - 17 mm | 10 |
| | KT 17 | 41217 | 41317 | 17 - 18 mm | 10 |
| | KT 18 | 41218 | 41318 | 18 - 19 mm | 10 |
| | KT 19 | 41219 | 41319 | 19 - 20 mm | 10 |
| | KT 20 | 41220 | 41320 | 20 - 21 mm | 10 |
| | KT 21 | 41221 | 41321 | 21 - 22 mm | 10 |
| | KT 22 | 41222 | 41322 | 22 - 23 mm | 10 |
| | KT 23 | 41223 | 41323 | 23 - 24 mm | 10 |
| | KT 24 | 41224 | 41324 | 24 - 25 mm | 10 |
| | KT 25 | 41225 | 41325 | 25 - 26 mm | 10 |
| | KT 26 | 41226 | 41326 | 26 - 27 mm | 10 |
| | KT 27 | 41227 | 41327 | 27 - 28 mm | 10 |
| | KT 28 | 41228 | 41328 | 28 - 29 mm | 10 |
| | KT 29 | 41229 | 41329 | 29 - 30 mm | 10 |
| | KT 30 | 41230 | 41330 | 30 - 32 mm | 10 |
| | KT 32 | 41232 | 41332 | 32 - 33 mm | 10 |
| | KT 34 | 41234 | 41334 | 33 - 34 mm | 10 |

KTMB Inserts, multi-range



| Type | Order No. grey | Size KT | Clamping range | PU | Description |
|------|-------------------|------------|----------------|----|-------------|
|------|-------------------|------------|----------------|----|-------------|

| | | | | | |
|--------|-------|----------|---------------|----|--|
| KTMB-A | 41432 | KT small | 2.5 - 6.5 mm | 10 |  KTMB-D |
| KTMB-B | 41434 | KT small | 4.0 - 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 | |
| | | | | |  Cross section KTMB |
| 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 |  |

1

Product description KTMB

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

The KTMB multi-range inserts are not suitable for pre-terminated cables.

Specification KTMB grey

| | |
|-------------|------------------------------|
| Material | Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Temperature | - 30°C to + 90°C (static) |
| Properties | halogen-free, silicone-free |

Product description

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

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

Order-No. 39800



DT

Cable entry inserts



1

Product description

The DT cable inserts are designed for standard cables (without connectors). A large number of cables can be routed utilizing minimal space.

DT inserts are designed to fit in KT large insert spaces:

- KEL 24 | KEL 16 | KEL 10 | KEL-B - Page 6 - 9
- KEL 24 Extensions - Page 11 - 13
- KEL-FG - Page 14

Advantages

- Combination of routing pre-terminated and standard cables with one cable entry frame
- Enables a sub-assembly of cable harnesses
- High packing density

Specification

| | |
|------------------|------------------------------|
| Material | Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54 |
| Temperature | - 30°C to + 90°C (static) |
| Properties | halogen-free, silicone-free |

| Description | Type | Order No. | Number of cables | PU |
|-------------|------|-----------|---|----|
| | DT 1 | 41500 | 12x max. 6.5 mm 2x max. 12.2 mm | 10 |
| | DT 2 | 41510 | 16x max. 7.1 mm | 10 |
| | DT 3 | 41520 | 4x max. 6.5 mm 3x max. 9.5 mm 3x max. 11.3 mm | 10 |
| | DT 4 | 41530 | 9x max. 9.5 mm | 10 |

ST Plugs



1

| Type | Order No. | Diameter D | Length L | PU | Description |
|------|-----------|---------------|-------------|----|-------------|
|------|-----------|---------------|-------------|----|-------------|

| | | | | | |
|-------|-------|---------|-------|----|--|
| ST 2 | 42909 | 2,0 mm | 25 mm | 25 | |
| ST 3 | 42901 | 3,0 mm | 25 mm | 25 | |
| ST 4 | 42908 | 4,0 mm | 25 mm | 25 | |
| ST 5 | 42906 | 5,0 mm | 25 mm | 25 | |
| ST 6 | 42903 | 6,0 mm | 25 mm | 25 | |
| ST 7 | 42905 | 7,0 mm | 25 mm | 25 | |
| ST 8 | 42899 | 8,0 mm | 20 mm | 25 | |
| ST 9 | 42897 | 9,0 mm | 20 mm | 25 | |
| ST 10 | 42895 | 10,0 mm | 20 mm | 25 | |
| ST 11 | 42893 | 11,0 mm | 20 mm | 25 | |
| ST 12 | 42891 | 12,0 mm | 20 mm | 25 | |
| ST 13 | 42889 | 13,0 mm | 20 mm | 25 | |
| ST 14 | 42887 | 14,0 mm | 20 mm | 25 | |
| ST 15 | 42885 | 15,0 mm | 20 mm | 25 | |
| ST 16 | 42883 | 16,0 mm | 20 mm | 25 | |
| ST 17 | 42881 | 17,0 mm | 20 mm | 25 | |

Product description

Plugs are used to close either KT inserts or KEL-DPZ cable entry plates not equipped with cables.

Perfect for applications where cables have been removed.

Advantages

- Sealing unused cable entries

Specification

| | |
|------------------|------------------------------|
| Material | Polyamide, white |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54 |
| Temperature | - 30°C to + 120°C |
| Properties | halogen-free, silicone-free |

Accessories

| | |
|--------------------|--------------|
| KT Cable inserts | Page 22 23 |
| Cable entry plates | Page 40 41 |
| Cable entry plates | Page 42 43 |

KEL - FL

Cable entry for flat cables



1

Product description

The KEL - FL range enables a simple, fast and flexible cable routing and sealing of flat wires. Split or non-split inserts can be utilized.

Innovative construction of the inserts compensates for manufacturing inconsistencies in flat cables.

Advantages

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

Specification

| | |
|-------------------|---|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |
| Drilling template | see page 94 |

Accessories

| | |
|-------------------------|-------------------|
| FT Cable inserts, flat | Page 29 |
| KT Cable inserts, small | Page 22 23 25 |
| KEL-EMC Cable collector | Page 74 75 |

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

FT Inserts for flat wires



| Type | Order No. grey | Clamping range | PU | Description |
|------------|-------------------|---|----|---|
| FT - 1 o | 46201 | Blind insert | 5 | |
| FT - 1 A | 46210 | Width: 19.0 - 23.0 mm Thickness: 5.5 - 6.0 mm | 5 |  |
| FT - 1 B | 46211 | Width: 28.0 - 33.0 mm Thickness: 5.5 - 6.0 mm | 5 | |
| FT - 1 C | 46212 | Width: 24.0 - 30.0 mm Thickness: 8.5 - 9.0 mm | 5 | |
| FT - 2 o | 46202 | Blind insert | 5 |  |
| FT - 2 A | 46250 | Width: 32.5 - 38.0 mm Thickness: 5.0 - 5.5 mm | 5 |  |
| FT - 2 B | 46251 | Width: 45.0 - 50.5 mm Thickness: 6.0 - 6.5 mm | 5 | |
| FT - 2 C | 46252 | Width: 47.0 - 52.0 mm Thickness: 9.5 - 10.0 mm | 5 | |
| FT - 3 o | 46203 | Blind insert | 5 | |
| FT - 3 A | 46300 | Width: 72.0 - 77.0 mm Thickness: 5.0 - 5.5 mm | 5 |  |
| FT - 4 A | 46330 | Width: 85.0 - 99.0 mm Thickness: 4.2 - 5.2 mm | 5 | |

1

Product description

The range of FT inserts are used to route flat cables. Suitable cable entry frames are the KEL-FL range (see page 28).

Innovative construction of the inserts compensates for manufacturing inconsistencies in flat cables.

Advantages

- Routing of flat wires with various dimensions

Specification

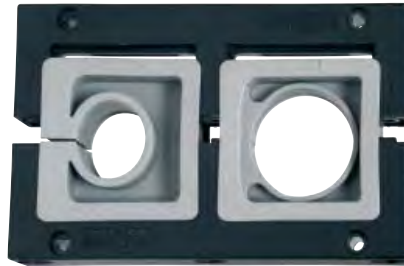
| | |
|-------------|------------------------------|
| Material | Elastomer |
| Flame class | UL-94 V0, self-extinguishing |
| Temperature | - 30°C to + 90°C (static) |
| Properties | halogen-free, silicone-free |

Accessories

KEL-FL Cable entry frames Page 28

KEL - JUMBO

Cable entry frames



| Description | Type | Order No. | Dimension length width height | PU |
|-------------|------|-----------|--------------------------------------|----|
|-------------|------|-----------|--------------------------------------|----|

1

Product description

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

The innovative insert design enables dynamic and flexible movement.

We recommend round cut-outs, which can be made using standard tools.
Suggested cut-out: cable diameter + 15-20%.

Advantages

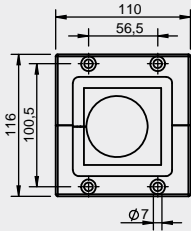
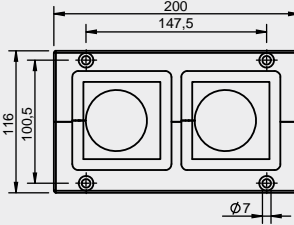
- Installation of cables up to 65 mm
- KTF-inserts allow dynamic and flexible movement
- Retrofitting and maintenance can be carried out easily and quickly

Specification

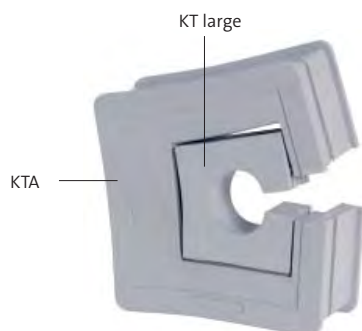
| | |
|--------------------|------------------------------|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54 |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | round, cable diameter + 15% |

Accessories

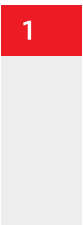
| | |
|------------------------|--------------|
| KTF Cable inserts | Page 31 |
| KDR2 Split base plates | Page 80 81 |
| MP Module plates | Page 86 |

| | | | | |
|--|---------------|-------|----------------|---|
|  | KEL - JUMBO 1 | 42360 | 110 x 116 x 35 | 1 |
|  | KEL - JUMBO 2 | 42350 | 200 x 116 x 35 | 1 |

KTF Inserts for KEL-JUMBO



| Type | Order No. grey | Clamping range | PU |
|--------|-------------------|--------------------------------|----|
| KTF 00 | 42371 | Blind Insert | 1 |
| KTA | 42370 | Adapter Insert 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 |



Product description

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

Suitable KEL-JUMBO cable entry frames, see page 30.

Comparatively small assembled cables with large inserts can be routed by using the adapter insert.

Specification

| | |
|------------------|------------------------------|
| Material | Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54 |
| Temperature | - 30°C to + 90°C (static) |
| Properties | halogen-free, silicone-free |

Accessories

| | |
|--------------------------------|---------|
| KEL - JUMBO Cable entry frames | Page 30 |
| KT large | Page 24 |

KEL - QUICK

Cable entry frames



Alternative fastening:



For quick fastening of KEL-QUICK we developed QUICK-PIN. The expansion pins are pressed into the existing bore holes. The flat seal and the KEL-QUICK cable entry frame will be fixed by pressing the threaded pins into the expansion pins.

1

Product description

The KEL-QUICK range is a compact system to route and seal assembled cables.

After populating the entry frame with inserts and cables, the two halves of the cable entry frame are SNAPPED together without using tools.

Inserts of the QT range are used.

Advantages

- Quick and safe assembly without using any tools or screws
- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and inserts

Specification

| | |
|------------------------|---|
| Material | Polyamide |
| Flame class | UL-94 V0, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature Properties | - 40°C to + 140°C (static) halogen-free, silicone-free |
| Drilling template | see page 94 |

Accessories

| | |
|--------------------------|--------------|
| QT Cable inserts | Page 37 |
| KEL-SNAP SNAP frames | Page 15 |
| KEL- EMC Cable collector | Page 74 75 |

| Description | Type | Order No. | Cut-out [mm] | Inserts | PU |
|---------------|-------------------|-----------|--------------|---------|----|
| | KEL-QUICK B4 | 42434 | 46 x 46 | 4 QT | 10 |
| | KEL-QUICK B2 | 42430 | 46 x 46 | 2 QT | 10 |
| | KEL-QUICK 16 8 | 42418 | 36 x 86 | 8 QT | 10 |
| | KEL-QUICK 16 4 | 42414 | 36 x 86 | 4 QT | 10 |
| | KEL-QUICK 24 10 | 42410 | 36 x 112 | 10 QT | 10 |
| | KEL-QUICK 24 5 | 42415 | 36 x 112 | 5 QT | 10 |
| Fastening-set | QUICK-PIN | 42405 | - | - | 40 |

QVT

Split cable glands



| Type | Order No. | Cable inserts | Thread Thread length | PU | Description |
|------|-----------|---------------|----------------------|----|-------------|
|------|-----------|---------------|----------------------|----|-------------|

| | | | | | |
|------------|-------|----------|----------------------------|----|--|
| QVT 25 | 45700 | 1 x QT | M25 x 1.5 Length: 13 mm | 10 | |
| QVT 50 4 | 45720 | 4 x QT | M50 x 1.5 Length: 13 mm | 10 | |
| KGM 25 | 52274 | PA, grey | M25 x 1.5 | 10 | |
| KGM 50 | 52277 | PA, grey | M50 x 1.5 | 10 | |

1

Product description

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

The QVT range is especially suitable for small machines, devices and instruments, because of the extremely small structure.

Advantages

- Compact and small structure
- Routing of assembled cables
- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Suitable for metric or standard hole sizes

Specification

| | |
|-------------------|---|
| Material | Polycarbonate |
| Colour | similar RAL 7035 |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with gasket and correct selection of the cable inserts |
| Temperature | - 30°C to + 100°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimension | metric standard sizes |

Accessories

QT Cable inserts

Page 37

KEL - QTA

Cable entry frames



| Description | Type | Order No. Type A | Order No. Type B | Cut-out [mm] | Cables | PU |
|-------------|------|---------------------|---------------------|-----------------|--------|----|
|-------------|------|---------------------|---------------------|-----------------|--------|----|

1

Product description

The KEL-QTA easily routes pre-terminated and standard cables without using tools.

Advantages

- Quick assembly without tools
- High packing density by using multi inserts
- Simple assembly and disassembly in case of change or service
- Routing of pre-terminated and standard cables in a high packing density
- Suitable for standard cut-outs

Specification

Material: Elastomer
 Flame class: UL-94 Vo, self-extinguishing
 Protection class: IP 54, with correct selection of the cable inserts (QT single)
 Temperature: - 30°C to + 90°C (static)
 Properties: halogen-free, silicone-free

Type A: for wall thickness 1.5 - 2.5 mm
 Type B: for wall thickness 2.8 - 4.0 mm

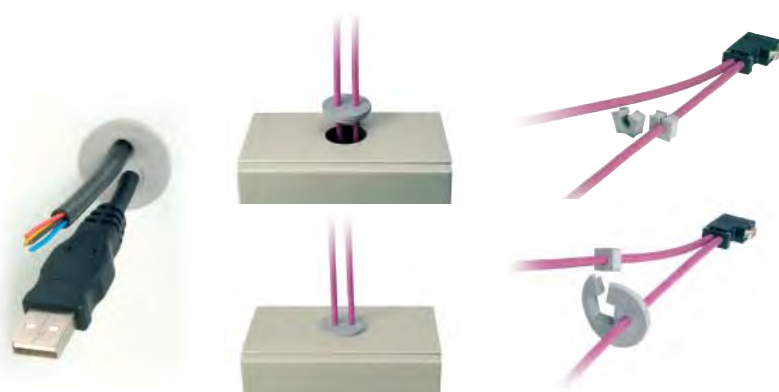
Accessories

QT Cable inserts: Page 37
 FP Flanged plates: Page 84 | 85
 KDR1 base plates: Page 87

| | | | | | | |
|--|-----------------------------|-------|-------|-------------|---|----|
| | KEL - QTA 24 2 - DP 18 | 43642 | 43643 | 112 x 35 | pre-terminated 2x 3-15 mm conventional 16x max. 7 mm 1x max. 12 mm 1x max. 16 mm | 10 |
| | KEL - QTA 24 4 | 43644 | 43645 | 112 x 35 | pre-terminated 4x 3-15 mm | 10 |
| | KEL - QTA B4 | 43660 | - | 45.5 x 45.5 | pre-terminated 4x 3-15 mm | 10 |

KEL - QTA | KEL - QTE

Cable entry frames



| Type | Order No. Type A | Order No. Type B | Cut-out [mm] | Cables | | PU | Description |
|------|---------------------|---------------------|-----------------|----------------|---------------|----|-------------|
| | | | | pre-terminated | non-pre-term. | | |

| | | | | | | | |
|---------------------|-------|-------|------|---------------|----------------|----|--|
| KEL-QTA 32 | 43632 | 43636 | ∅ 32 | 1x 3-15 mm | - | 10 | |
| KEL-QTA 50 | 43622 | 43626 | ∅ 50 | 2x 3-15 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 | |

1

Product description

The KEL-QTA easily routes pre-terminated and standard cables without using tools.

Advantages

- Quick assembly without tools
- High packing density by using multi inserts
- Simple assembly and disassembly in case of change or service
- Routing of pre-terminated and standard cables in a high packing density

Specification

| | |
|------------------------|--|
| Material | Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54, with correct selection of the cable inserts (QT single) |
| Temperature Properties | - 30°C to + 90°C (static) halogen-free, silicone-free |
| Cut-out dimension | metric standard sizes |

| | |
|---------|---------------------------------|
| Type A: | for wall thickness 1.5 - 2.5 mm |
| Type B: | for wall thickness 2.8 - 4.0 mm |

Accessories

| | |
|-----------------------------------|---------|
| QT Cable inserts | Page 37 |
| KEL-AD Cap for attachment housing | Page 36 |

KEL - AD

Cap for attachment housing



| Description | Type | Order No. | Fits for | PU |
|-------------|------|-----------|----------|----|
|-------------|------|-----------|----------|----|

1

Product description

KEL-adaptor is designed to be attached to the bases of multi-pole housings (standard industrial connectors).

The parts can be equipped with KEL-DP (when using standard cables) or KEL-QTA (when using pre-terminated cables).

In addition KEL-QTE can be installed into the KEL -AD 24 type.

Advantages

- Fits on all standard attachment housings
- High flexibility in selection of cable entry
- Quick assembly and disassembly

Specification

| | |
|------------------|------------------------------|
| Material | Polyamide |
| Flmae class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54 |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |

Accessories

| | |
|---------------------------|---------|
| KEL-QTA Cable entries | Page 35 |
| KEL-DP Cable entry frames | Page 43 |

| | | | | |
|--|---------------|-------|---|----|
| | KEL - AD 16-A | 43610 | KEL-DP 32 Type A KEL-QTA 32 Type A | 10 |
| | KEL - AD 24-A | 43612 | KEL-DP 32 Type A KEL-QTA 32 Type A KEL-QTE 20 x | 10 |

QT Inserts



1

| Type | Order No. grey | Clamping range | PU | Description |
|------|-------------------|----------------|----|-------------|
|------|-------------------|----------------|----|-------------|

| | | | | |
|------------|-------|-------------------------|----|--|
| QTB | 42540 | Blind insert | 10 | |
| QT 3 | 42503 | 3 - 4 mm | 10 | |
| QT 4 | 42504 | 4 - 5 mm | 10 | |
| QT 5 | 42505 | 5 - 6 mm | 10 | |
| QT 6 | 42506 | 6 - 7 mm | 10 | |
| QT 7 | 42507 | 7 - 8 mm | 10 | |
| QT 8 | 42508 | 8 - 9 mm | 10 | |
| QT 9 | 42509 | 9 - 10 mm | 10 | |
| QT 10 | 42510 | 10 - 11 mm | 10 | |
| QT 11 | 42511 | 11 - 12 mm | 10 | |
| QT 12 | 42512 | 12 - 13 mm | 10 | |
| QT 13 | 42513 | 13 - 14 mm | 10 | |
| QT 14 | 42514 | 14 - 15 mm | 10 | |
| QT 2 3 | 42566 | 2x \varnothing 3 mm | 10 | |
| QT 2 4 | 42568 | 2x \varnothing 4 mm | 10 | |
| QT 2 5 | 42570 | 2x \varnothing 5 mm | 10 | |
| QT 2 5.5 | 42571 | 2x \varnothing 5,5 mm | 10 | |
| QT 2 6 | 42572 | 2x \varnothing 6 mm | 10 | |
| QT 2 6.5 | 42576 | 2x \varnothing 6,5 mm | 10 | |
| QT 2 7 | 42578 | 2x \varnothing 7 mm | 10 | |
| QT 4 3 | 42580 | 4x \varnothing 3 mm | 10 | |
| QT 4 4 | 42582 | 4x \varnothing 4 mm | 10 | |
| QT 4 4.5 | 42583 | 4x \varnothing 4,5 mm | 10 | |
| QT 4 5 | 42584 | 4x \varnothing 5 mm | 10 | |
| QT 4 5.5 | 42585 | 4x \varnothing 5,5 mm | 10 | |
| QT 4 6 | 42586 | 4x \varnothing 6 mm | 10 | |
| QT-ASI 1 | 42573 | 1x ASI-cable | 10 | |
| QT-ASI 2 | 42574 | 2x ASI-cable | 10 | |
| QT tele | 42575 | Telephone cable | 10 | |



Product description

The QT range supports cable diameters from 3 to 15 mm. They are used with the following cable entry frames:

- KEL-Quick - Page 32
- QVT - Page 33
- KEL-QTA - Page 34 - 35

Assembly

When installing the insert, the smooth side of the insert has to face the middle of the cable entry frame.

Specification

| | |
|-------------|------------------------------|
| Material | Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Temperature | - 30°C to+ 90°C (static) |
| Properties | halogen-free, silicone-free |

Accessories

| | |
|-------------------------|--------------|
| KEL-QUICK Cable entries | Page 32 |
| QVT Cable glands | Page 33 |
| KEL-QTA Cable entries | Page 34 35 |

Product group 2

Cable entry systems for entering non pre-terminated cables

Product description



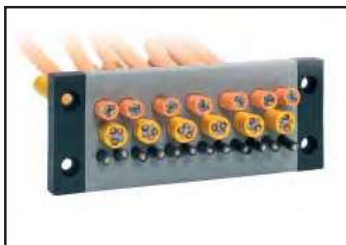
At a glance ...

Even when entering standard cables Icotek offers a wide range of products that offer a lot of advantages in comparison to conventional cable glands.

The compact, slim and innovative design of the Icotek system offers a professional appearance and in many applications good strain relief.

Especially suitable for applications where a lot of cables have to be entered into a small space.

2



Benefits ...

1. High packing density

The cable entry plates KEL-DPZ and KEL-DP offer the opportunity to enter a large amount of cables through a small space.

2. Fast and easy assembly

The installation of cables is done by pushing the cables through the thin, pierceable membrane.

3. No new punch out tools needed

The KEL-DP range matches exactly the drilling templates, as well as cut outs according to the standard dimensions for multi pole connectors (for example from Harting, Wieland).

4. Tight seal

Depending on the product a high sealing rate up to IP 65 can be achieved.

5. Flexibility

Due to the large variety of designs and sizes available, there's a solution for every application.

6. Customized solutions

If you can't find what you need in our standard product offering, custom solutions are available upon request.

Product group 2

Cable entry systems for routing non pre-terminated cables

Chapter content

| | | |
|--|------|----|
| Cable entry plates KEL-DPZ 24 | Page | 40 |
| Cable entry plates KEL-DPZ round | Page | 41 |
| Cable entry plates KEL-DP 24 | Page | 42 |
| Cable entry plates KEL-DP round | Page | 43 |
| Cable entry inserts KEL-DPF | Page | 44 |
| Cable entry inserts KEL-JUMBO flex | Page | 45 |

2

KEL - DPZ

Cable entry plates



Gasket on the front.



Gasket and strain relief on the back.

Product description

KEL-DPZ entry plates are designed for routing standard cables (without connectors). The KEL-DPZ products are a cost saving alternative to traditional cable glands. Either push the cable through the thin membrane or simply put a small slit in the thin membrane and push the cable through. Once the cable is through the membrane, it is immediately sealed and strain relieved.

ST Plugs (page 27) can be used for sealing pierced membranes if cables are removed.

Advantages

- Assembly within seconds
- High packing density
- Dual sealing of cables according to IP 65
- Automatic seal and strain relief for the cable

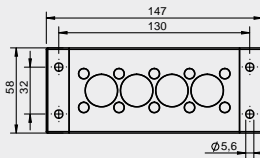
Specification

| | |
|--------------------|--|
| Material | Frame: Polyamide Sealing plate: Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 65 |
| Temperature | - 30°C to + 90°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | 35 x 112 mm / page 94 |

Accessories

FP Flanged plates Page 84 | 85

| Description | Type | Order No. | Number of cables | PU |
|-------------|------|-----------|------------------|----|
|-------------|------|-----------|------------------|----|

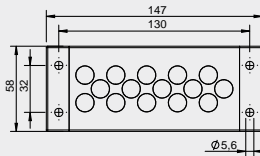


KEL - DPZ
24 | 14

43700

10x 3.2 - 6.5 mm
4x 16 - 22 mm

10

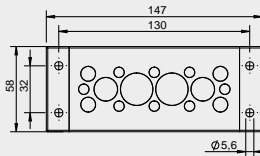


KEL - DPZ
24 | 15

43720

15x 7.2 - 12 mm

10

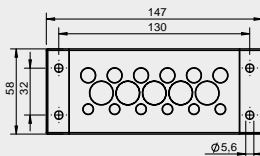


KEL - DPZ
24 | 16

43725

8x 3.2 - 6.5 mm
4x 5.0 - 9.7 mm
2x 9.0 - 16.2 mm
2x 16 - 22 mm

10

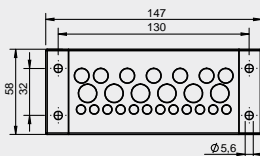


KEL - DPZ
24 | 17

43705

6x 3.2 - 6.5 mm
6x 5.0 - 10.2 mm
5x 9.0 - 16.2 mm

10

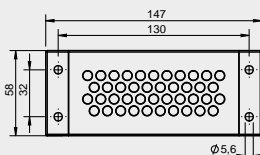


KEL - DPZ
24 | 25

43710

12x 3.2 - 6.5 mm
7x 4.8 - 9.7 mm
6x 7.5 - 12.0 mm

10



KEL - DPZ
24 | 42

43715

42x 3.2 - 6.5 mm

10

KEL - DPZ

Cable entry plates



| Type | Order No. | Number of cables | Thread metric | External diameter | Exceeds cut out | PU |
|-------------------|-----------|--|---------------|-------------------|-----------------|----|
| KEL - DPZ 32 4 | 43732 | 3x 3.2 - 6.5 mm 1x 7.2 - 12.5 mm | M 32 | 44 mm | 8.0 mm | 10 |
| KEL - DPZ 32 7 | 43734 | 7x 3.2 - 6.5 mm | M 32 | 44 mm | 8.0 mm | 10 |
| KEL - DPZ 40 8 | 43741 | 4x 3.2 - 6.5 mm 4x 5.0 - 10.2 mm | M 40 | 52 mm | 8.0 mm | 10 |
| KEL - DPZ 50 8 | 43750 | 5x 5.0 - 10.2 mm 3x 7.2 - 12.5 mm | M 50 | 62 mm | 8.0 mm | 10 |
| KEL - DPZ 50 10 | 43751 | 7x 3.2 - 6.5 mm 2x 5.0 - 10.2 mm 1x 16.0 - 22.2 mm | M 50 | 62 mm | 8.0 mm | 10 |
| KEL - DPZ 50 12 | 43752 | 4x 3.2 - 6.5 mm 8x 5.0 - 10.2 mm | M 50 | 62 mm | 8.0 mm | 10 |
| KEL - DPZ 50 19 | 43758 | 19x 3.2 - 6.5 mm | M 50 | 62 mm | 8.0 mm | 10 |
| KEL - DPZ 63 9 | 43760 | 1x 3.2 - 6.5 mm 3x 5.0 - 10.2 mm 4x 9.0 - 16.2 mm 1x 16.0 - 22.2 mm | M 63 | 75 mm | 8.0 mm | 10 |
| KEL - DPZ 63 13 | 43761 | 4x 3.2 - 6.5 mm 4x 5.0 - 10.2 mm 5x 9.0 - 16.2 mm | M 63 | 75 mm | 8.0 mm | 10 |
| KEL - DPZ 63 35 | 43763 | 35x 3.2 - 6.5 mm | M 63 | 75 mm | 8.0 mm | 10 |

Product description

KEL-DPZ entry plates are designed for routing standard cables (without connectors). The KEL-DPZ products are a cost saving alternative to traditional cable glands. Either push the cable through the thin membrane or simply put a small slit in the thin membrane and push the cable through. Once the cable is through the membrane, it is immediately sealed and strain relieved.

ST Plugs (page 27) can be used for sealing pierced membranes if cables are removed.

Advantages

- Assembly within seconds
- High packing density
- Dual sealing of cables according to IP 65
- Automatic seal and strain relief for the cable
- Suitable for standard or metric cut-outs
- Polyamide locknuts are included in the shipment

Specification

| | |
|--------------------|------------------------------|
| Material | Thread frame: Polyamide |
| Flame class | Sealing plate: Elastomer |
| Protection class | UL-94 Vo, self-extinguishing |
| Temperature | IP 65 |
| Properties | - 30°C to + 90°C (static) |
| Thread length | halogen-free, silicone-free |
| Cut-out dimensions | 14 mm |
| | metric standard sizes |

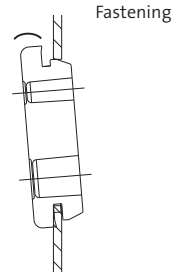
Accessories

MP Module plates

Page 86

KEL - DP

Cable entry plates



Type A: for wall-thickness 1.5 to 2.5 mm
Type B: for wall-thickness 2.8 to 4.0 mm

Product description

KEL-DP entry plates are designed for routing standard cables (without connectors). The KEL-DP products are a cost saving alternative to traditional cable glands. Either push the cable through the thin membrane or simply put a small slit in the thin membrane and push the cable through. Once the cable is through the membrane, it is immediately sealed. ST Plugs (page 27) can be used for sealing pierced membranes if cables are removed. A special fixing rib ensures a centered fit in the cut-outs.

Advantages

- Quick and easy assembly, no tools required
- High packing density
- Cost-effective
- For wall-thickness up to 1.5 - 4.0 mm

Specification

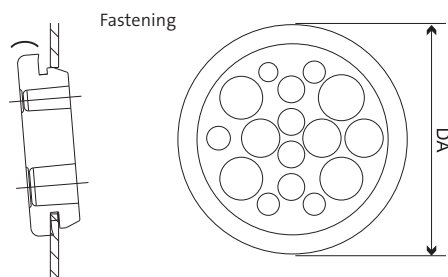
| | |
|--------------------|------------------------------|
| Material | Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54 |
| Temperature | - 30°C to + 90°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | 36 x 112 mm |

Accessories

| | |
|-------------------|--------------|
| FP Flanged plates | Page 84 85 |
| KDR1 Base plates | Page 87 |

| Description | Type | Order No. | Order No. | Number of cables | PU |
|-------------|---------------------|-----------|-----------|---|----|
| | | Type A | Type B | | |
| | KEL - DP 24 14 | 43512 | 43522 | 14x max. 12.1 mm | 10 |
| | KEL - DP 24 17 | 43514 | 43523 | 5x max. 10.5 mm 12x max. 12.6 mm | 10 |
| | KEL - DP 24 19 | 43516 | 43524 | 12x max. 6.5 mm 7x max. 12.1 mm | 10 |
| | KEL - DP 24 26 | 43518 | 43525 | 16x max. 6.5 mm 4x max. 12.1 mm 4x max. 16.1 mm 2x ASI-Leitungen | 10 |
| | KEL - DP 24 48 | 43519 | 43526 | 48x max. 6.5 mm | 10 |
| | KEL - DP 24 50 | 43520 | 43527 | 33x max. 5.3 mm 9x max. 6.4 mm 8x max. 8.3 mm | 10 |

KEL - DP Cable entry plates



Type A: for wall thickness 1.5 - 2.5 mm
Type B: for wall thickness 2.8 - 4.0 mm



| Type | Order No. Type A | Order No. Type B | Number of cables | Cut-out | External diameter DA | PU |
|---------------------|---------------------|---------------------|--|---------|-------------------------|----|
| KEL - DP 25 6 | 43531 | - | 4x max. 5.2 mm 2x max. 9.4 mm | ∅ 25 | 32 mm | 10 |
| KEL - DP 32 10 | 43532 | 43560 | 6x max. 5.2 mm 2x max. 6.4 mm 2x max. 9.4 mm | ∅ 25 | 38 mm | 10 |
| KEL - DP 50 9 | 43554 | 43568 | 5x max. 7.0 mm 4x max. 18 mm | ∅ 50 | 60 mm | 10 |
| KEL - DP 50 11 | 43555 | 43569 | 7x max. 7.2 mm 3x max. 11.2 mm 1x max. 22.5 mm | ∅ 50 | 60 mm | 10 |
| KEL - DP 50 12 | 43551 | 43562 | 10x max. 9.2 mm 2x max. 11.2 mm | ∅ 50 | 60 mm | 10 |
| KEL - DP 50 16 | 43550 | 43564 | 4x max. 5.3 mm 5x max. 6.3 mm 3x max. 9.5 mm 4x max. 11.3 mm | ∅ 50 | 60 mm | 10 |
| KEL - DP 50 18 | 43553 | 43567 | 5x max. 5.3 mm 5x max. 6.3 mm 4x max. 7.2 mm 2x max. 6.0 mm 2x max. 4.0 mm | ∅ 50 | 60 mm | 10 |
| KEL - DP 50 20 | 43552 | 43566 | 16x max. 6.3 mm 4x max. 9.3 mm | ∅ 50 | 60 mm | 10 |
| KEL - DP 50 35 | 43556 | 43570 | 35x max. 5.2 mm | ∅ 50 | 60 mm | 10 |

Product description

KEL-DP entry plates are designed for routing standard cables (without connectors). The KEL-DP products are a cost saving alternative to traditional cable glands. Either push the cable through the thin membrane or simply put a small slit in the thin membrane and push the cable through. Once the cable is through the membrane, it is immediately sealed. ST Plugs (page 27) can be used for sealing pierced membranes if cables are removed. A special fixing rib ensures a centered fit in the cut-outs.

Advantages

- Quick and easy assembly, no tools required
- High packing density
- Cost-effective
- For wall thickness up to 1.5 - 4.0 mm

Specification

| | |
|--------------------|------------------------------|
| Material | Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 54 |
| Temperature | - 30°C to + 90°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | metric standard sizes |

Type A: for wall thickness 1.5 - 2.5 mm
Type B: for wall thickness 2.8 - 4.0 mm

Accessories

KEL-AD Cap for attachment housing Page 36

KEL - DPF

Cable entry inserts



Product description

The KEL-DPF was developed particularly for routing supply cables into the switch cabinet.

Due to the flexibility and unique pyramid shape, cable entry and positioning is much easier compared to using conventional cable glands.

Cutting of DPF inserts:

- Cable diameter less 5 mm
- The corresponding diameters are marked on the insert

Advantages

- Assembly within seconds
- It is possible to install rigid cables at angles
- Suitable for standard or metric cut-outs
- Polyamide locknuts are included in the shipment

Specification

| | |
|--------------------|---|
| Material | Thread frame: Polyamide Pyramid: Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 65 |
| Temperature | - 30°C to + 90°C (static) |
| Properties | halogen-free, silicone-free |
| Thread length | 14 mm |
| Cut-out dimensions | metric standard sizes |

Accessories

MP Module plates Page 86

| Type | Order No. | Thread metric | External dimension | Clamping range | PU |
|----------------------|-----------|---------------|--------------------|----------------|----|
| KEL - DPF 25 3-17 | 42652 | M 25 | 39 mm | 3 - 17 mm | 5 |
| KEL - DPF 32 6-24 | 42653 | M 32 | 46 mm | 6 - 24 mm | 5 |
| KEL - DPF 40 11-32 | 42654 | M 40 | 54 mm | 11 - 32 mm | 5 |
| KEL - DPF 50 17-42 | 42655 | M 50 | 64 mm | 17 - 42 mm | 5 |
| KEL - DPF 63 23-55 | 42656 | M 63 | 77 mm | 23 - 55 mm | 5 |

KEL - JUMBO flex Cable entry inserts



| Type | Order No. | Clamping range | PU | Description |
|------|-----------|----------------|----|-------------|
|------|-----------|----------------|----|-------------|

| | | | | |
|------------------------|-------|------------|---|--|
| KEL - JUMBO flex 27-48 | 42614 | 27 - 48 mm | 1 | |
| KEL - JUMBO flex 47-68 | 42616 | 47 - 68 mm | 1 | |

Product description

The KEL-jumbo-flex is a flexible cable entry system for standard cables 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 inserts:

- Cable diameter less 5 mm
- The corresponding diameters are marked on the insert

Advantages

- Assembly within seconds
- Non-flexible cables, pipes and conduits can be routed at angled positions
- Small installation dimensions (88 x 88 mm)

Specification

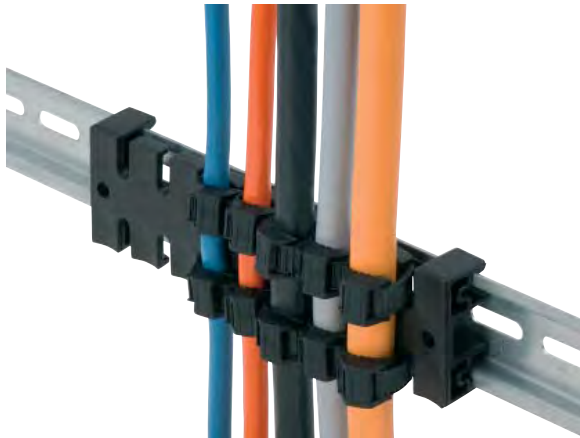
| | |
|--------------------|--|
| Material | Frame: Polyamide Inserts: Elastomer |
| Flame class | UL-94 Vo, self-extinguishing |
| Protection class | IP 65 |
| Temperature | - 30°C to + 90°C (static) |
| Properties | halogen-free, silicone-free |
| Cut-out dimensions | round, \varnothing -cable + 20% |

Accessories

| | |
|------------------|---------|
| MP Module plates | Page 86 |
| BP Blind plates | Page 88 |

Product group 3

Strain relief systems



Product description

At a glance ...

By using icotek strain relief systems the user can quickly assemble, organize and provide strain relief for cables.

The systems can be used for organizing and securing cables in machines, switch cabinets, enclosures and dynamic cable carriers.

3



Benefits ...

1. Flexible
Because of the many different types of DIN rails and screw type assemblies, Icotek offers numerous mounting options.
2. Fast and easy assembly
Securing the cables is done quickly and inexpensively with standard cable ties.
3. Secure hold
The unique shape of the strain relief securely holds the cable tie and cable.
4. High packing density
The strain relief plates are available in several sizes. By multi-layer mounting the packing density can be greatly increased.
5. Flexibility
Due to the wide variety of sizes and designs, a matching product for each application can be found.

Product group 3

Strain relief systems

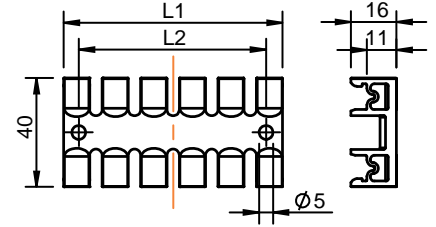
Chapter content

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| Strain relief plates KZL - for DIN rails shape H and shape C | Page | 48 |
| Strain relief plates SF ZL for DIN rails shape H | Page | 49 |
| Strain relief plates ZL - for screw assembly | Page | 50 |
| Strain relief plates ZL-AB with aluminium bushings | Page | 51 |
| Strain relief plates ZL 03 / ZL 04 / ZL 05 | Page | 52 |
| Distance bushing DH - for multilayer mounting | Page | 53 |
| Shield plates ZL SB- EMC | Page | 54 |
| Accessories KB - cable ties and pliers | Page | 55 |



KZL

Strain relief plates



Product description

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

The undercut on the comb-shaped profile provides secure strain relief according to DIN-EN-50262. Strain relief of the cables is achieved by using cable ties.

Strain relief plates are available for 30 mm DIN rails shape C or 35 mm DIN rails shape H.

3

Advantages

- Simple assembly
- Cost-effective
- High packing density
- Universal usage

Specification

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

Accessories

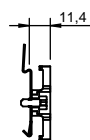
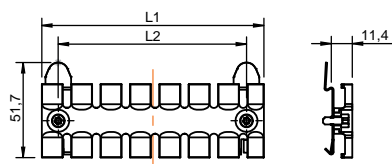
KB Cable ties

Page 55

| Type | Order No. for H-rails | Order No. for C-rails | Length L1 | Length L2 | PU |
|---------|--------------------------|--------------------------|--------------|--------------|----|
| KZL 39 | 32260 | 32261 | 38.5 mm | 28.3 mm | 10 |
| KZL 80 | 32262 | 32263 | 79.5 mm | 68.0 mm | 10 |
| KZL 140 | 32264 | 32265 | 139.5 mm | 128.1 mm | 10 |

SF | ZL

Strain relief plates



| 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 | 68.0 mm | 6 | 10 |
| SF ZL 103 | 32355 | 102.5 mm | 84.0 mm | 7 | 10 |
| SF ZL 121 | 32356 | 121.0 mm | 102.5 mm | 8 | 10 |
| SF ZL 140 | 32357 | 139.5 mm | 121.0 mm | 9 | 10 |
| SF ZL 180 | 32358 | 180.0 mm | 157.0 mm | 12 | 10 |

Product description

The strain relief plate SF/ZL range is used for assembly on 35 mm DIN rails shape H.

The SF/ZL range can be used for strain relief of cables and conduits.

The SF/ZL range is based upon the strain relief rail ZL, which is mounted on SNAP-feet for 35 mm DIN rails shape H.

3

Advantages

- Simple assembly
- Cost-effective
- High packing density
- Universal usage

Specification

| | |
|-------------|--|
| Material | ZL: Polyamide SF-foot: Spring steel |
| Flame class | UL-94 V0, self-extinguishing |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |

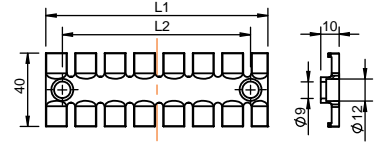
Accessories

KB Cable ties

Page 55

ZL

Strain relief plates



Product description

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

The undercut on the comb-shaped profile provides secure strain relief according to DIN-EN-50262. Strain relief of the cables is achieved by using cable ties.

For multilayer installation please use distance bushings, see page 53.

3

Advantages

- Simple assembly
- Cost-effective
- High packing density
- Universal usage

Specification

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

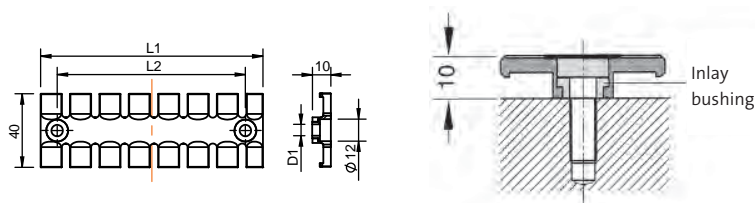
Accessories

| | |
|----------------------|---------|
| DH Distance bushings | Page 53 |
| KB Cable ties | Page 55 |

| 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 | 68.0 mm | 6 | 10 |
| ZL 103 | 32230 | 102.5 mm | 84.0 mm | 7 | 10 |
| ZL 121 | 32232 | 121.0 mm | 102.5 mm | 8 | 10 |
| ZL 140 | 32234 | 139.5 mm | 121.0 mm | 9 | 10 |
| ZL 180 | 32236 | 180.0 mm | 157.0 mm | 12 | 10 |

ZL - AB

Strain relief plates



| Type | Order No. Bushing 4.1mm | Order No. Bushing 5.2mm | Order No. Bushing 6.2mm | Length L1 | Length L2 | No. of teeth | PU |
|-----------|----------------------------|----------------------------|----------------------------|--------------|--------------|-----------------|----|
| ZL-AB 39 | 32270 | 32280 | 32290 | 38.5 mm | 19.5 mm | 3 | 10 |
| ZL-AB 60 | 32271 | 32281 | 32291 | 59.5 mm | 43.5 mm | 4 | 10 |
| ZL-AB 70 | 32272 | 32282 | 32292 | 69.1 mm | 43.5 mm | 5 | 10 |
| ZL-AB 87 | 32273 | 32283 | 32293 | 86.5 mm | 68.0 mm | 6 | 10 |
| ZL-AB 103 | 32275 | 32284 | 32294 | 102.5 mm | 84.0 mm | 7 | 10 |
| ZL-AB 121 | 32277 | 32285 | 32295 | 121.0 mm | 102.5 mm | 8 | 10 |
| ZL-AB 140 | 32274 | 32286 | 32296 | 139.5 mm | 121.0 mm | 9 | 10 |
| ZL-AB 180 | 32276 | 32287 | 32297 | 180.0 mm | 157.0 mm | 12 | 10 |

Product description

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

By using aluminum nuts for the screw holes, a better fit of the strain relief plate is achieved even in high vibration environments.

Advantages

- Simple assembly
- Cost-effective
- High packing density
- Universal usage

Specification

| | |
|-------------|-------------------------------------|
| Material | ZL: Polyamide Bushing: Aluminium |
| Flame class | UL-94 Vo, self-extinguishing |
| Temperature | - 40°C to + 140°C (static) |
| Properties | halogen-free, silicone-free |

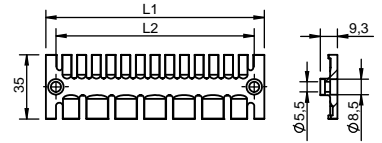
Accessories

KB Cable ties

Page 55

ZL 03 | 04 | 05

Strain relief plates



Product description

Strain relief plates ZL feature different comb widths. Thus providing a multi purpose product for various cable sizes.

The undercut on the comb-shaped profile provides secure strain relief according to DIN-EN-50262. Strain relief of the cables is achieved by using cable ties.

3

Advantages

- Simple assembly
- Cost-effective
- High packing density
- Universal usage

Specification

Material: Polyamide
 Flame class: UL-94 Vo, self-extinguishing
 Temperature: - 40°C to + 140°C (static)
 Properties: halogen-free, silicone-free

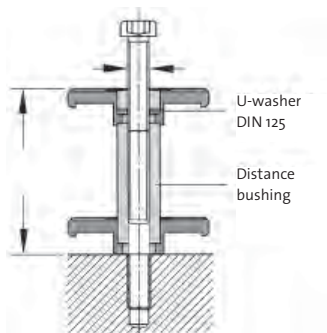
Accessories

DH Distance bushings Page 53
 KB Cable ties Page 55

| Type | Order No. | Length L1 | Length L2 | No. of teeth | PU |
|-------|-----------|--------------|--------------|-----------------|----|
| ZL 03 | 32112 | 63.4 mm | 43.4 mm | 4 7 | 10 |
| ZL 04 | 32114 | 95.0 mm | 75.0 mm | 6 11 | 10 |
| ZL 05 | 32116 | 119 mm | 108 mm | 7 13 | 10 |

DH

Distance bushings



| Type | Order No. | Fits for | Length | Diameter | | PU |
|------|-----------|----------|--------|----------|-------|----|
| | | | | inner | outer | |

| | | | | | | |
|-------|-------|-----------------|-------|--------|---------|----|
| DH 30 | 32251 | ZL 03 04 05 | 30 mm | 5.2 mm | 7.0 mm | 10 |
| DH 32 | 32252 | ZL | 32 mm | 6.2 mm | 12.0 mm | 10 |

Product description

Strain relief plates can be mounted in multi layers to achieve an increase of the packing density. Inlay bushings Type DH are used.

Advantages

- Increase of packing density

Specification

Material **Aluminium**

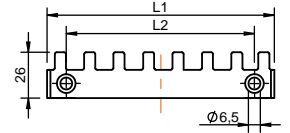
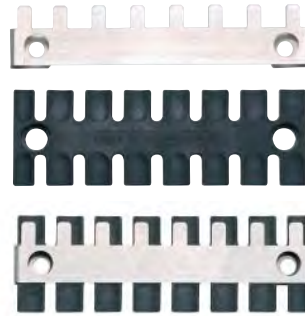
Accessories

ZL Strain relief plates

Page 50 + 52

ZL | SB - EMC

Shield plate for strain relief plates



Product description

The shielding plates provide earth shielding in addition to strain relief.

Affix the corresponding shield plate to ZL strain relief. The shield plate contacts the cable shield with ground .

The result is a secure low resistance connection between cable shield and ground.

ZL strain relief plates sold separately.

3

Specification

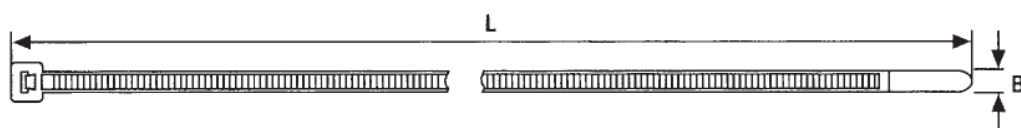
| | |
|-----------------|-----------------|
| Material | |
| Shield plate | Stainless steel |
| ZL plate | Polyamide |

Accessories

ZL Strain relief plates Page 50

| Type | Order No. | Fits for | Length L1 | Length L2 | PU |
|-------------------|-----------|----------|--------------|--------------|----|
| ZL 39 SB - EMC | 36322 | ZL 39 | 41.0 mm | 19.5 mm | 10 |
| ZL 60 SB - EMC | 36328 | ZL 60 | 62.1 mm | 43,5 mm | 10 |
| ZL 87 SB - EMC | 36324 | ZL 87 | 89.0 mm | 68.0 mm | 10 |
| ZL 103 SB - EMC | 36332 | ZL 103 | 105.2 mm | 84.0 mm | 10 |
| ZL 121 SB - EMC | 36330 | ZL 121 | 123.7 mm | 102.5 mm | 10 |
| ZL 140 SB - EMC | 36326 | ZL 140 | 142.0 mm | 121.0 mm | 10 |

KB Cable ties and pliers



| Type | Order No. | Color | Length L | Width B | Bundling range | Tensile strength | PU | |
|--------|-----------|--------------------------------|-------------|------------|-------------------|---------------------|-----|---|
| KB 28 | 61225 | black | 180 mm | 9 mm | 28 mm | 350 N | 100 | |
| KB 15 | 61115 | natural | 75 mm | 2.2 mm | 15 mm | 60 N | 100 | |
| KB 20 | 61120 | natural | 98 mm | 2.5 mm | 20 mm | 60 N | 100 | |
| KB 22 | 61125 | natural | 135 mm | 2.6 mm | 22 mm | 80 N | 100 | |
| KB 25 | 61130 | natural | 140 mm | 3.6 mm | 25 mm | 130 N | 100 | |
| KB 30 | 61135 | natural | 160 mm | 4.5 mm | 30 mm | 180 N | 100 | |
| KB 45 | 61140 | natural | 178 mm | 4.8 mm | 45 mm | 220 N | 100 | |
| KB 50 | 61145 | natural | 200 mm | 2.9 mm | 50 mm | 80 N | 100 | |
| KB 55 | 61150 | natural | 200 mm | 4.8 mm | 50 mm | 220 N | 100 | |
| KB 75 | 61150 | natural | 290 mm | 4.8 mm | 75 mm | 220 N | 100 | |
| KB 100 | 61160 | natural | 360 mm | 4.8 mm | 100 mm | 220 N | 100 | |
| KB 20 | 61215 | black | 98 mm | 2.5 mm | 20 mm | 60 N | 100 | |
| KB 25 | 61220 | black | 140 mm | 3.6 mm | 25 mm | 130 N | 100 | |
| KB 30 | 61230 | black | 160 mm | 4.5 mm | 30 mm | 180 N | 100 | |
| KB 45 | 61235 | black | 178 mm | 4.8 mm | 45 mm | 220 N | 100 | |
| KB 55 | 61240 | black | 200 mm | 4.8 mm | 50 mm | 220 N | 100 | |
| KB 75 | 61245 | black | 290 mm | 4.8 mm | 75 mm | 220 N | 100 | |
| KB 100 | 61250 | black | 360 mm | 4.8 mm | 100 mm | 220 N | 100 | |
| KBW 9 | 61300 | Processing tool for cable ties | | | | | | 1 |

Product description

Cable ties are proven utilities for economical bundling and fixing of cables, looms, tubes, conduits and many other components.

Power cable ties KB 28 (Order No. 61225) for special requirements. Bundling range max. 28 mm.

Specification KB natural

| | |
|-------------|--------------------------|
| Material | Polyamide 6.6, natural |
| Flame class | UL-94 V2 |
| Temperature | - 40°C to + 100°C |
| Properties | oil- and mould-resistant |

Specification KB black

| | |
|-------------|---|
| Material | Polyamide 6.6, black |
| Flame class | UL-94 V2 |
| Temperature | - 40°C to + 100°C |
| Properties | UV-resistant, particularly matching for outdoor use |

Product group 4

EMC Innovations

Product description

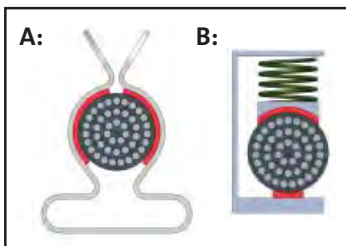


At a glance ...

For process measurement and control equipment an increasingly higher level of protection against failure is required.

The shielding and the earthing of the shields is very important.

The area where the cable shield is connected to the enclosure earth/ ground is a critical point. It is very important that the connection has a low resistance.



Benefits ...

1. Flexible

Because of the many different types of DIN rails and screw type assemblies, Icotek offers numerous mounting options.

2. Fast and tool free assembly

Strip the cable shield - press in - ready.

3. Secure hold

Properly sized and used in conjunction with cable ties, provides strain relief in accordance with VDE.

4. Large contact area

The SKL shield clamps offer a large contact area to the cable shield (see picture A). In comparison to conventional shield clamps we can achieve a up to 50% higher contact area when using the SKL line.

5. Greatly reduces high frequency interferences

In large frequency fields, the SKL shield clamps provide low resistance. Effective range up to 1,000 MHz below 120 Ohms and 10 KHz to 100 MHz significant below 20 Ohms.

Details can be supplied on request.

Product group 4

EMC Innovations

Chapter content

| | | |
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| Shield clamps for DIN rail shape H SF SKL / SFZ SKL / SFS SKL | Page | 58 - 60 |
| EMC Service box Assortment of SKL shield clamps | Page | 61 |
| Shield clamps for screw fixing LFZ SKL / LF SKL | Page | 62 - 63 |
| Shield clamps for bus bar PF SKL / PFZ SKL / busbar 10x3 mm | Page | 64 - 65 |
| Supports for DIN rails and bus bars MF - Supports | Page | 66 |
| Clamp assembly and design tool RLFZ - Clamp assembly with strain relief | Page | 67 - 69 |
| Variety of supporters Customized supporters | Page | 70 |
| Test results | Page | 71 |
| Shield clamps SK / SKS | Page | 72 - 73 |
| Cable assembly KEL-EMC / KAFM | Page | 74 - 76 |
| Accessories Stripping tools | Page | 77 |



SF | SKL

EMC Shield clamps



Product description

The shield clamps SKL range are used for shielding single cables.

Simple to use and effective shielding of cables.

For assembly on 35 mm DIN rails.

Advantages

- Optimal contact of the cable shield
- Simple and tool-free assembly
- Permanent and continuous spring pressure on the cable shield - adjustment of the pressure is not necessary
- Space saving by an optimized arrangement
- Cost effective solution

Specification

| | |
|-----------------|--|
| Material | |
| SKL-clamp | Stainless steel (SKL 1.5-3 / SKL 3-6) Spring steel (from SKL 6-8) |
| SF-foot | Spring steel |

Accessories

| | |
|------------------|---------|
| EMC - Servicebox | Page 61 |
| Stripping tool | Page 77 |

| Type | Order No. | Shield diameter | PU |
|------------------|-----------|------------------|----|
| SF SKL 1.5 - 3 | 36243 | 1.5 - 3.0 mm | 10 |
| SF SKL 3 - 6 | 36244 | 3.0 - 6.0 mm | 10 |
| SF SKL 6 - 8 | 36245 | 6.0 - 8.0 mm | 10 |
| SF SKL 9 - 11 | 36246 | 9.0 - 11 mm | 10 |
| SF SKL 12 - 16 | 36247 | 12 - 16 mm | 10 |
| SF SKL 17 - 22 | 36248 | 17 - 22 mm | 10 |
| SF SKL 23 - 29 | 36249 | 23 - 29 mm | 10 |
| SF single | 36230 | SNAP-foot single | 10 |

SFZ | SKL EMC Shield clamps



| Type | Order No. | Shield diameter | PU |
|-------------------|-----------|-----------------|----|
| SFZ SKL 1.5 - 3 | 36850 | 1.5 - 3.0 mm | 10 |
| SFZ SKL 3 - 6 | 36855 | 3.0 - 6.0 mm | 10 |
| SFZ SKL 6 - 8 | 36860 | 6.0 - 8.0 mm | 10 |
| SFZ SKL 9 - 11 | 36865 | 9.0 - 11 mm | 10 |
| SFZ SKL 12 - 16 | 36870 | 12 - 16 mm | 10 |
| SFZ SKL 17 - 22 | 36875 | 17 - 22 mm | 10 |
| SFZ SKL 23 - 29 | 36880 | 23 - 29 mm | 10 |

Product description

The shield clamps SFZ/SKL range are used for shielding single cables in combination with strain relief. Simple to use and effective shielding of cables.

Cables are secured with a cable tie. Strain relief in accordance with VDE standards is achieved.

For assembly on 35 mm DIN rails.

Advantages

- Simple and tool-free assembly
- Cost effective solution
- Strain relief of the cable with shielding in a single device
- Optimal contact of the cable shielding
- Permanent and continuous spring pressure on the cable shield, adjustment of spring load not necessary

Specification

| | |
|-----------------|--|
| Material | |
| SKL-clamp | Stainless steel (SKL 1.5-3 / SKL 3-6) Spring steel (from SKL 6-8) |
| SF- / SFZ-foot | Spring steel |

Accessories

| | |
|------------------|---------|
| EMC - Servicebox | Page 61 |
| Stripping tool | Page 77 |
| Cable ties | Page 55 |

SFS | SKL

EMC Shield clamps



Product description

Comparable with type SF|SKL, the SFS|SKL shield clamps are easily mounted on 35 mm DIN-rails.

The staggered arrangement of SFS|SKL provides optimal space utilization. Suitable for applications when there is a need for mounting cables in close proximity.

Advantages

- High packing density
- Simple and tool-free assembly
- Permanent and continuous pressure on the cable shield - adjustment of the spring pressure is not necessary
- Optimal contact of the cable shielding
- Cost effective solution

Specification

| | |
|-----------------|--|
| Material | |
| SKL-clamp | Stainless steel (SKL 1.5-3 / SKL 3-6) Spring steel (from SKL 6-8) |
| SFS-foot | Spring steel |

Accessories

| | |
|----------------|---------|
| EMC-Servicebox | Page 61 |
| Stripping tool | Page 77 |

| Type | Order No. | Shield diameter | PU |
|-------------------|-----------|------------------|----|
| SFS SKL 1.5 - 3 | 36810 | 1.5 - 3.0 mm | 10 |
| SFS SKL 3 - 6 | 36815 | 3.0 - 6.0 mm | 10 |
| SFS SKL 6 - 8 | 36820 | 6.0 - 8.0 mm | 10 |
| SFS single | 36229 | SNAP-foot single | 10 |

EMC Service box



EMC | Service box for SKL - EMC shield clamps

Product description

Always the suitable EMC clamp readily available.

The service box is perfect for installations and service calls. Retrofitting and maintenance can be carried out easily and quickly

Order No. 88002

Content

| | |
|--|----------|
| SKL for TS35 - DIN rails: | |
| Typ SF SKL - sizes: 1.5 - 29 mm | 16 x SKL |
| Typ SFZ SKL - sizes: 1.5 - 11 mm | 4 x SKL |
| Typ SFS SKL - sizes: 1.5 - 8 mm | 6 x SKL |
| SKL for assembly on subplates: | |
| Typ LFZ SKL - sizes: 1.5 - 29 mm | 15 x SKL |
| Typ LF SKL - sizes: 1.5 - 29 mm | 11 x SKL |
| SKL for 10 x 3 busbar: | |
| Typ PF SKL - sizes: 1.5 - 29 mm | 12 x SKL |
| Typ PFZ SKL - sizes: 1.5 - 11 mm | 4 x SKL |
| EMC - Accessories: | |
| RLFZ - clamp assembly 5x SKL | 1 piece |
| KAFM 4 - Cable collector | 1 piece |
| ZL 60 SB - Shield plate for strain relief plates | 1 piece |



LFZ | SKL

EMC Shield clamps



Product description

SKL shield clamps can be used for shielding single cables. The shield clamps enable an easy to use and reliable shielding of cables.

Cables are secured with a cable tie. Strain relief in accordance with VDE standards is achieved.

Shield clamps are easily attached to mounting plates via screw.

Advantages

- Integrated strain relief
- Optimal contact of the cable shielding
- Simple and tool-free assembly
- Permanent and continuous pressure on the cable shield - no adjustment of the spring load required
- Cost effective solution

Specification

| | |
|-----------------|--|
| Material | |
| SKL-clamp | Stainless steel (SKL 1.5-3 / SKL 3-6) Spring steel (from SKL 6-8) |
| LFZ-foot | Steel, galvanically zinc-plated Fixing hole 4.2 mm for screw M4 |

Accessories

| | |
|------------------|---------|
| EMC - Servicebox | Page 61 |
| Stripping tool | Page 77 |
| Cable ties | Page 55 |

| Type | Order No. | Shield diameter | Fixing hole | PU |
|-------------------|-----------|-----------------|-------------|----|
| LFZ SKL 1.5 - 3 | 36910 | 1.5 - 3.0 mm | 4.1 mm | 10 |
| LFZ SKL 3 - 6 | 36915 | 3.0 - 6.0 mm | 4.1 mm | 10 |
| LFZ SKL 6 - 8 | 36920 | 6.0 - 8.0 mm | 4.1 mm | 10 |
| LFZ SKL 9 - 11 | 36925 | 9.0 - 11 mm | 4.1 mm | 10 |
| LFZ SKL 12 - 16 | 36930 | 12 - 16 mm | 4.1 mm | 10 |
| LFZ SKL 17 - 22 | 36935 | 17 - 22 mm | 4.1 mm | 10 |
| LFZ SKL 23 - 29 | 36940 | 23 - 29 mm | 4.1 mm | 10 |

LF | SKL EMC Shield clamps



| Type | Order No. | Shield diameter | Fixing hole | PU |
|------------------|-----------|-----------------|-------------|----|
| LF SKL 1.5 - 3 | 36251 | 1.5 - 3.0 mm | 4.1 mm | 10 |
| LF SKL 3 - 6 | 36253 | 3.0 - 6.0 mm | 4.1 mm | 10 |
| LF SKL 6 - 8 | 36255 | 6.0 - 8.0 mm | 4.1 mm | 10 |
| LF SKL 9 - 11 | 36256 | 9.0 - 11 mm | 4.1 mm | 10 |
| LF SKL 12 - 16 | 36257 | 12 - 16 mm | 4.1 mm | 10 |
| LF SKL 17 - 22 | 36258 | 17 - 22 mm | 4.1 mm | 10 |
| LF SKL 23 - 29 | 36259 | 23 - 29 mm | 4.1 mm | 10 |

Product description

SKL shield clamps can be used for shielding single cables. The shield clamps enable an easy to use and a reliable shielding of cables.

Shield clamps are easily attached to mounting plates via screw.

Advantages

- Optimal contact of the cable shielding
- Simple and tool-free assembly
- Permanent and continuous spring load on the cable shield - no adjustment of the spring load required
- Cost effective solution
- High packing density because of an optimized arrangement

Specification

| | |
|-----------------|--|
| Material | |
| SKL-clamp | Stainless steel (SKL 1.5-3 / SKL 3-6) Spring steel (from SKL 6-8) |
| LF-foot | Steel, galvanically zinc-plated Fixing hole 4.2 mm for screw M4 |

Accessories

| | |
|------------------|---------|
| EMC - Servicebox | Page 61 |
| Stripping tool | Page 77 |

PF | SKL

EMC Shield clamps for bus bar



Product description

SKL shield clamps can be used for shielding single cables. The shield clamps enable an easy to use and a reliable shielding of cables.

The PF/SKL is mounted by SNAPPING on a 10x3 mm bus bar.

Advantages

- Optimal contact of the cable shielding
- Simple and tool-free assembly
- Permanent and continuous spring load on the cable shield - no adjustment of the spring load required
- Cost effective solution
- High packing density because of an optimized arrangement

Specification

| | |
|-----------------|--|
| Material | |
| SKL-clamp | Stainless steel (SKL 1.5-3 / SKL 3-6) Spring steel (from SKL 6-8) |
| PF-foot | Spring steel |
| Busbar | Cu, tin-plated Current load 140 A |

Accessories

| | |
|------------------|---------|
| Busbar | Page 64 |
| EMC - Servicebox | Page 61 |
| Stripping tool | Page 77 |

| Type | Order No. | Shield diameter | PU |
|----------------------------|-----------|-------------------|----|
| PF SKL 1.5 - 3 | 36273 | 1.5 - 3.0 mm | 10 |
| PF SKL 3 - 6 | 36274 | 3.0 - 6.0 mm | 10 |
| PF SKL 6 - 8 | 36275 | 6.0 - 8.0 mm | 10 |
| PF SKL 9 - 11 | 36276 | 9.0 - 11 mm | 10 |
| PF SKL 12 - 16 | 36277 | 12 - 16 mm | 10 |
| PF SKL 17 - 22 | 36278 | 17 - 22 mm | 10 |
| PF SKL 23 - 29 | 36279 | 23 - 29 mm | 10 |
| Busbar 10 x 3 mm | 36100 | 10 x 3 x 1,000 mm | 1 |

PFZ | SKL EMC Shield clamps



| Type | Order No. | Shield diameter | PU |
|---------------------|-----------|-------------------|----|
| PFZ SKL 1.5 - 3 | 36750 | 1.5 - 3.0 mm | 10 |
| PFZ SKL 3 - 6 | 36755 | 3.0 - 6.0 mm | 10 |
| PFZ SKL 6 - 8 | 36760 | 6.0 - 8.0 mm | 10 |
| PFZ SKL 9 - 11 | 36765 | 9.0 - 11 mm | 10 |
| Busbar 10 x 3 mm | 36100 | 10 x 3 x 1,000 mm | 1 |

Product description

Comparable with the PF|SKL range, the shield clamps can be used for shielding single cables. They are used for mounting on 10x3 mm bus bars.

The PFZ range provides possibility to fix the cable with a cable tie. Strain relief in accordance with VDE standards is achieved.

Advantages

- Integrated strain relief
- Optimal contact of the cable shield
- Simple and tool-free assembly
- Permanent, continuous pressure on the cable shield, adjustment of the spring load not necessary
- Cost effective solution

Specification

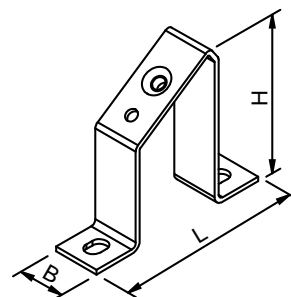
| | |
|-----------------|---------------------------------------|
| Material | |
| SKL-clamp | Stainless steel (SKL 1.5-3 / SKL 3-6) |
| PFZ-foot | Spring steel (from SKL 6-8) |
| Busbar | Spring steel |
| | Cu, tin-plated |
| | Current load 140 A |

Accessories

| | |
|------------------|---------|
| Busbar | Page 65 |
| EMC - Servicebox | Page 61 |
| Stripping tool | Page 71 |

MF

Supports for DIN rails and bus bars



Product description

There are 4 models of supports for mounting bus bars 10 x 3 mm or 35 mm DIN rail. Various supports are available to provide solutions for many different conditions.

Mounting clip (Order-No. 35150) is used for fastening busbars to supports. The support has a M6 female screw thread to fix the mounting clip or the DIN rail with a M6 screw.

Advantages

- Wide variety of supports with different sizes and design
- Simple assembly of TS-35 DIN rails and 10 x 3 mm bus bars
- Support type D provides possibility to fix 2 TS335 DIN rails





Specification

Material Steel, galvanically zinc-plated

Accessories

Busbar
Mounting clip Order No. 36150

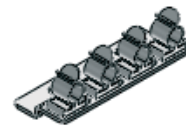
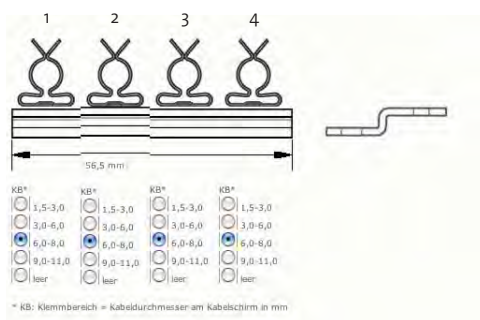
Page 64

| Description | Type | Version | Order No. without Clip | Order No. with Clip | Dimension [L x B x H] | PU |
|---|----------|---------|---------------------------|------------------------|--------------------------|----|
| <p>Type A</p>  | MF - A49 | Type A | 36056 | 36058 | 80 x 20 x 49 mm | 10 |
| | MF - A68 | Type A | 36064 | 36066 | 80 x 20 x 68 mm | 10 |
| | MF - A88 | Type A | 36072 | 36074 | 80 x 20 x 88 mm | 10 |
| <p>Type B</p>  | MF - B20 | Type B | 36000 | 36002 | 80 x 20 x 20 mm | 10 |
| | MF - B30 | Type B | 36008 | 36010 | 80 x 20 x 30 mm | 10 |
| | MF - B50 | Type B | 36016 | 36018 | 80 x 20 x 50 mm | 10 |
| <p>Type C</p>  | MF - B90 | Type B | 36024 | 36026 | 80 x 20 x 90 mm | 10 |
| | MF - C40 | Type C | 36032 | 36034 | 40 x 18 x 40 mm | 10 |
| <p>Type D</p>  | MF - C53 | Type C | 36040 | 36042 | 40 x 18 x 53 mm | 10 |
| | MF - D49 | Type D | 36048 | 36050 | 120 x 20 x 49 mm | 10 |

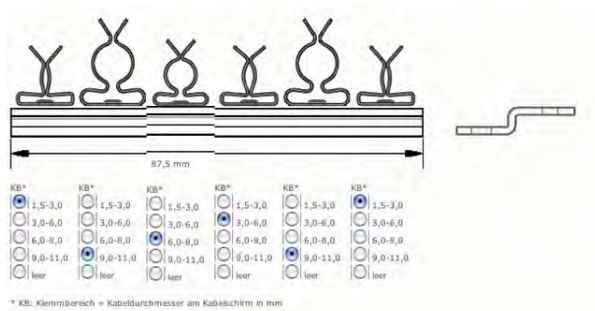


EMC | shield clamp design tool

By using the EMC shield design tool (located at www.icotek.de) you can create an EMC shield clamp configuration specifically for your application. The following drawings are examples for configurations with 4 and 6 shield clamps.



Pos. 1



Example 1:

Clamp assembly 7-piece with SKL 1,5 - 3 mm

Example 2:

Clamp assembly 3 rows 24-piece with SKL 3 - 6 mm

Product description

The design tool enables numerous configurations to be utilized on a single carrier which reduces labor time and material costs.

For this purpose use the EMC shield clamp design tool located at www.icotek.de.

You can quickly configure your own "standard" EMC shield clamp.

We are willing to give you additional information regarding the extensive possibilities of this application.

Our experienced and knowledgeable staff is available to assist you with a solution for your particular application.

Advantages

- User designed carrier configuration with SKL shielded clamps
- Cost effective even for small quantities
- Design online at www.icotek.de

Specification

| | |
|-----------------|--|
| Material | |
| Clamp assembly | Stainless steel |
| SKL-clamp | Stainless steel (SKL 1,5-3 / SKL 3-6) Spring steel (from SKL 6-8) |

RLFZ

EMC Clamp assembly with strain relief



Product description

The RLFZ range is a further development of the EMC clamp assembly. The combination of EMC shielding and strain relief is the key feature of this system. Thus the specification according to the VDE standard is achieved.

There are 10 different carriers available, which can be user configured with up to 12 SKL shielding clamps.

The EMC shielding clamps as listed below are available to mount:

- SKL 1.5 - 3 | SKL 3 - 6 | SKL 6 - 8 | SKL 9 - 11

Advantages

- High packing density due to optimized arrangement
- Possibility to configure custom specific EMC clamp assembly
- Separate strain relief and EMC-shielding

Specification

Material

SKL-clamp Stainless steel (SKL 1.5-3 / SKL 3-6)
 Spring steel (from SKL 6-8)

RLFZ-foot Steel, galvanically zinc-plated

Accessories

EMC - Servicebox Page 61
 Stripping tool Page 77
 Cable ties Page 55

| Type | Order No. (unfitted) | No. of shield clamps | Length | Width | PU |
|------------|----------------------|----------------------|----------|---------|----|
| RLFZ (x3) | 38005 | 3x SKL | 41.2 mm | 44.4 mm | 1 |
| RLFZ (x4) | 38010 | 4x SKL | 56.8 mm | 44.4 mm | 1 |
| RLFZ (x5) | 38015 | 5x SKL | 72.4 mm | 44.4 mm | 1 |
| RLFZ (x6) | 38020 | 6x SKL | 88.0 mm | 44.4 mm | 1 |
| RLFZ (x7) | 38025 | 7x SKL | 103.6 mm | 44.4 mm | 1 |
| RLFZ (x8) | 38030 | 8x SKL | 119.2 mm | 44.4 mm | 1 |
| RLFZ (x9) | 38035 | 9x SKL | 134.8 mm | 44.4 mm | 1 |
| RLFZ (x10) | 38040 | 10x SKL | 150.4 mm | 44.4 mm | 1 |
| RLFZ (x11) | 38045 | 11x SKL | 166.0 mm | 44.4 mm | 1 |
| RLFZ (x12) | 38050 | 12x SKL | 181.6 mm | 44.4 mm | 1 |

RLF EMC Clamp assembly



| Type | Order No. (unfitted) | No. of shield clamps | Length | Width | PU |
|-----------|----------------------|----------------------|----------|---------|----|
| RLF (x3) | 36965 | 3x SKL | 46.1 mm | 25.0 mm | 1 |
| RLF (x4) | 36984 | 4x SKL | 61.0 mm | 25.0 mm | 1 |
| RLF (x5) | 36958 | 5x SKL | 72.4 mm | 25.0 mm | 1 |
| RLF (x6) | 36952 | 6x SKL | 88.0 mm | 25.0 mm | 1 |
| RLF (x7) | 36963 | 7x SKL | 103.6 mm | 25.0 mm | 1 |
| RLF (x8) | 36953 | 8x SKL | 119.2 mm | 25.0 mm | 1 |
| RLF (x9) | 36985 | 9x SKL | 141.0 mm | 25.0 mm | 1 |
| RLF (x10) | 36954 | 10x SKL | 150.4 mm | 25.0 mm | 1 |
| RLF (x11) | 36955 | 11x SKL | 166.0 mm | 25.0 mm | 1 |
| RLF (x12) | 36962 | 12x SKL | 180.0 mm | 25.0 mm | 1 |

Product description

Comparable with the RLFZ-range of EMC clamp assembly, just without strain relief.

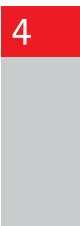
There are 10 different carriers available, which can be user configured with up to 12 SKF shielding clamps.

The EMC shielding clamps as listed below are available to mount:

- SKL 1.5 - 3 | SKL 3 - 6 | SKL 6 - 8 | SKL 9 - 11

Advantages

- High packing density due to optimized arrangement
- Possibility to configure custom specific EMC clamp assembly



Specification

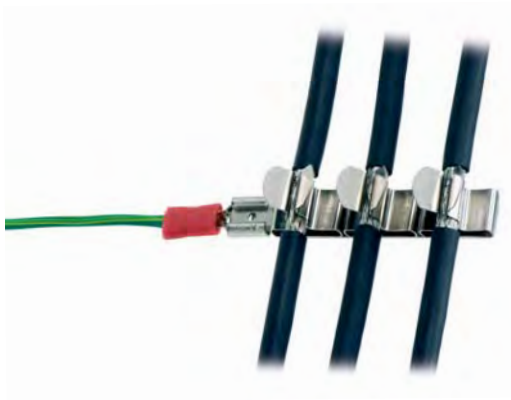
| | |
|-----------------|---------------------------------------|
| Material | |
| SKL-clamp | Stainless steel (SKL 1.5-3 / SKL 3-6) |
| RLF-foot | Spring steel (from SKL 6-8) |
| | Steel, galvanically zinc-plated |

Accessories

| | |
|-------------------|---------|
| EMC - Service box | Page 61 |
| Stripping tool | Page 77 |
| Cable ties | Page 55 |

EMC

Customized solutions



EMC | Customized solutions

Product description

Aside from our standard product offering, we offer customized solutions for your application - even for small quantities!

A wide range of standard clamp assemblies are already available (see pages 68-69).

If a standard EMC clamp assembly is not practicable, a custom designed carrier for shield clamps can be supplied.

We look forward to sharing our ideas and custom EMC solutions with you.



4

Advantages

- Supply of custom designed carriers for SKL shield clamps
- Cost effective even for small quantities
- Available for a wide range of cable diameters

Specification

| | |
|-----------------|--|
| Material | |
| Carrier | According to specification |
| SKL-clamp | Stainless steel (SKL 1.5-3 / SKL 3-6) Spring steel (from SKL 6-8) |

EMC Test results



Leakage and Impedence

All icotek shield clamps have been tested utilizing various frequency ranges and in all tests there was minimal leakage.

Therefore, icotek EMC clamps are proven to absorb EMC disturbances.

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's shield clamps effectively reduce high frequency interferences.

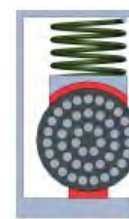
Contact area

The SKL shield clamps offer a large contact area to the cable shield (see picture A).

In comparison to conventional shield clamps, up to 50% higher contact area is achieved when using the the SKL product line.

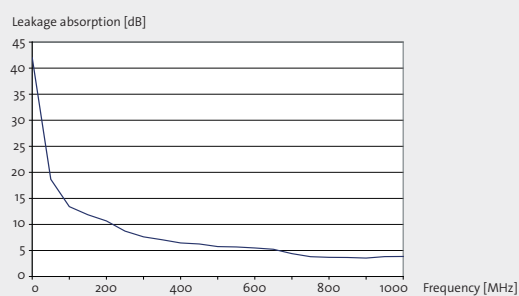
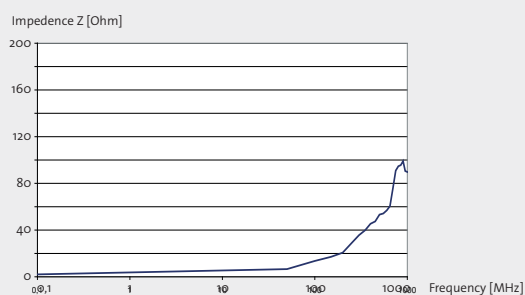


pict. A: SKL-line

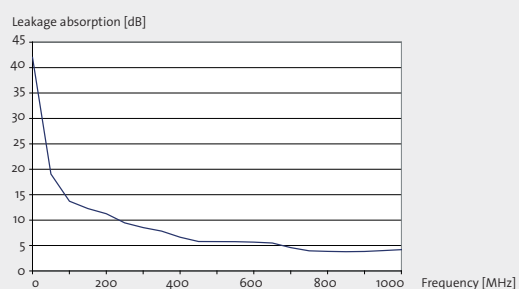
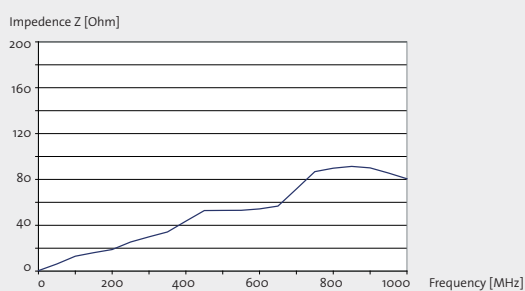


pict. B: Conventional systems

LF | SKL 9 - 11



SF | SKL 6 - 8



SK

EMC Shield clamps



Product description

Shield clamps can be used where the shield of single cables has to be grounded.

Shield clamps can be assembled on a mounting plate with screws, with SC-feet in DIN-rails shape C or with SF-feet on 35 mm DIN-rails shape H.

Advantages

- Simple assembly onto TS-35 DIN rails and 10 x 3 mm busbars
- Various sizes and possibilities for fixing

Specification

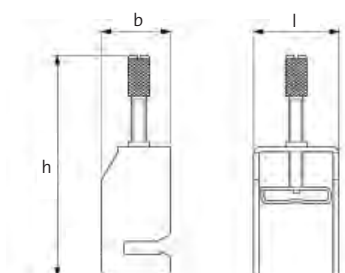
| | |
|-----------------|---------------------------------|
| Material | |
| SK-clamp | Steel, galvanically zinc-plated |
| SF-foot | Spring steel |

Accessories

| | |
|------------------|---------|
| Busbar 10x3 | Page 64 |
| EMC - Servicebox | Page 61 |
| Stripping tool | Page 77 |

| Description | Type | Order No. | Shield diameter | Dimensions [mm] | PU |
|---|---------------------|-----------|-----------------|-----------------|----|
|  | SF SK 3 - 8 | 36500 | 3 - 8 mm | 18 x 14 x 26 | 10 |
| | SF SK 4 - 13.5 | 36502 | 4 - 13.5 mm | 20 x 20 x 31 | 10 |
| | SF SK 10 - 20 | 36504 | 10 - 20 mm | 26 x 24 x 40 | 10 |
| | SF SK 15 - 32 | 36506 | 15 - 32 mm | 32 x 35 x 64 | 10 |
|  | SK 3 - 8 | 36222 | 3 - 8 mm | 18 x 14 x 26 | 10 |
| | SK 4 - 13.5 | 36224 | 4 - 13.5 mm | 20 x 20 x 31 | 10 |
| | SK 10 - 20 | 36226 | 10 - 20 mm | 26 x 24 x 40 | 10 |
| | SK 15 - 32 | 36228 | 15 - 32 mm | 32 x 35 x 64 | 10 |
|  | SS SK 3 - 8 | 36235 | 3 - 8 mm | 18 x 14 x 26 | 10 |
| | SS SK 4 - 13.5 | 36236 | 4 - 13.5 mm | 20 x 20 x 31 | 10 |
| | SS SK 10 - 20 | 36237 | 10 - 20 mm | 26 x 24 x 40 | 10 |
| | SC single | 36231 | SC foot single | for C-rail | 10 |

SKS EMC Shield clamps



| Type | Order No. | Shield diameter | Dimensions l x b x h [mm] | PU | Description |
|-------------|-----------|-----------------|---------------------------|----|---|
| SKS 2 - 5 | 36282 | 2 - 5 mm | 19.5 x 9 x 46.8 | 10 |  |
| SKS 3 - 8 | 36283 | 3 - 8 mm | 19.5 x 12 x 48.7 | 10 |  |
| SKS 3 - 14 | 36284 | 3 - 14 mm | 19.5 x 17 x 59.3 | 10 |  |
| SKS 3 - 20 | 36285 | 3 - 20 mm | 19.5 x 24 x 75 | 10 |  |
| SKS 5 - 28 | 36286 | 5 - 28 mm | 20 x 32 x 92.7 | 10 |  |
| SKS 20 - 35 | 36287 | 20 - 35 mm | 20 x 40 x 106.5 | 10 |  |

Product description

Shield clamps can be used where the shield of single cables has to be grounded.

Shield clamps can be assembled on 10 x 3 mm busbars.

Advantages

- One SKS shield clamp supports a wide range of cables
- Simple assembly on 10 x 3 mm busbars

Specification

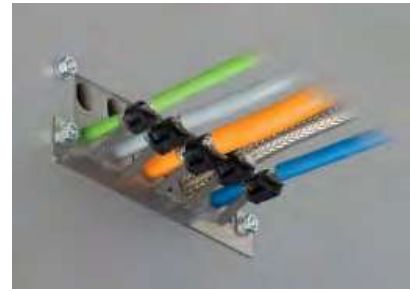
Material
SKS-clamp Steel, galvanically zinc-plated

Accessories

Busbar 10x3 Page 64
EMC - Servicebox Page 61
Stripping tool Page 77

KEL - EMC

Cable assembly



Product description

Installation of pre-terminated cables without shield interruption.

Advantages

- Direct, easy and quick contact to the enclosure
- Space-saving, up to 10 cables with two-row model
- Strain relief with cable ties according to DIN EN 50262
- No need for EMC cable gland for disturbance sources associated with cables
- Low-resistance shield contact
- Seal via cable jacket - not via shield - higher protection as a result

| Type | Order No. | No. of teeth | Fastening | Fits for | PU |
|------------------|-----------|--------------|-------------|--|----|
| KEL - EMC B | 36520 | 2 | long side | KEL - E2 KEL - B2 KEL - B4 KEL - Quick B2 B4 | 5 |
| KEL - EMC 10 | 36522 | 3 | long side | KEL - E3 KEL 10 x | 5 |
| KEL - EMC 16 4 | 36524 | 4 | long side | KEL - E4 KEL 16 x KEL - Quick 16 | 5 |
| KEL - EMC 24 5 | 36526 | 5 | long side | KEL - E5 KEL 24 x KEL - Quick 24 | 5 |
| KEL - EMC F | 39110 | 3 | narrow side | KEL - B x KEL 10 x KEL 16 x KEL 24 x | 5 |

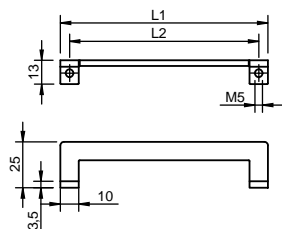
Specification

Material Stainless steel

Accessories

- | | |
|------------------------------|-------------|
| KEL Cable entry frames | Page 6 14 |
| KEL-Quick Cable entry frames | Page 32 |
| Stripping tool | Page 77 |
| Cable ties | Page 55 |

KEL - EMC Bracket version



| Type | Fits for | Order No. | Length L1 | Length L2 | PU |
|--------------------|------------------------|-----------|--------------|--------------|----|
| KEL - EMC PF B4 | KEL - E2 KEL - B | 39150 | 68.0 mm | 58.0 mm | 1 |
| KEL - EMC PF 10 | KEL - E3 KEL 10 x | 39160 | 93.0 mm | 83.0 mm | 1 |
| KEL - EMC PF 16 | KEL - E4 KEL 16 x | 39170 | 113.0 mm | 103.0 mm | 1 |
| KEL - EMC PF 24 | KEL - E5 KEL 24 x | 39180 | 140.0 mm | 130.0 mm | 1 |

Product description

The EMC-bracket with the matching PF|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 cabinet. The same fixing screws for the assembly of the KEL frame on the control cabinet are used for this process. A female screw thread M5 is already integrated in the KEL EMC bracket.

Depending on the cable diameter, the corresponding PF|SKL EMC shield clamp can be SNAPPED onto the EMC bracket.

Advantages

- Very high flexibility in terms of cable diameter
- Large-surface contact of the cable shield
- Permanent spring pressure on the cable shield
- Simple assembly

Specification

Material **Steel, galvanically zinc-plated**

Accessories

PF | SKL Shield clamps Page 64 | 65
 KEL Cable entry frames Page 6 | 14
 KEL-Quick Cable entry frames Page 32
 Stripping tool Page 77

KAFM - EMC

Cable assembly



Type SF: Mounted on SNAP-foot DIN-rail shape H



Type SC: Mounted on screw-foot DIN-rail shape C



Type SK: Mounted on screw-foot DIN-rail shape H

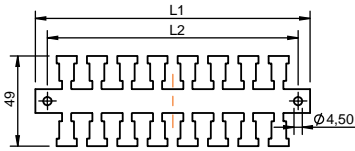


Type DH: Mounted on bushing for flexible fixation on bottomsheet

Product description

The cable assembly is practical for earthing interferences on the cable shielding.

The cable assembly can be assembled on a mounting plate with screws, with SC-feet in DIN-rails shape C or with SF-feet on 35 mm DIN-rails shape H.



| 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 |
|------|----------------------|----------------------|----------------------|----------------------|-------------------------|--------------|--------------|-----------------|
|------|----------------------|----------------------|----------------------|----------------------|-------------------------|--------------|--------------|-----------------|

| | | | | | | | | |
|---------|-------|-------|-------|-------|-------|-------|-------|----|
| KAFM 2 | 36442 | 36432 | 36412 | 36482 | 36422 | 50.5 | 37.5 | 2 |
| KAFM 4 | 36444 | 36434 | 36414 | 36484 | 36424 | 83.5 | 70.5 | 4 |
| KAFM 6 | 36446 | 36436 | 36416 | 36486 | 36426 | 116.5 | 103.5 | 6 |
| KAFM 8 | 36448 | 36438 | 36418 | 36488 | 36428 | 149.5 | 136.5 | 8 |
| KAFM 10 | 36450 | 36440 | 36400 | 36490 | 36430 | 182.5 | 169.5 | 10 |
| KAFM 16 | 36452 | 36470 | 36465 | 36460 | 36530 | 281.5 | 268.5 | 16 |
| KAFM 29 | 36454 | 36471 | 36466 | 36462 | 36540 | 494.5 | 481.5 | 29 |
| KAFM 59 | 36458 | 36472 | 36467 | 36464 | 36550 | 990.0 | 978.0 | 59 |

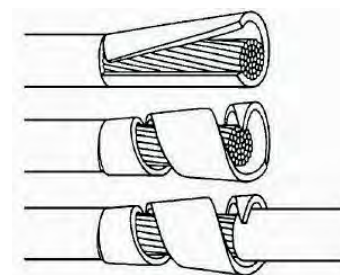
Specification

Material Stainless steel

Accessories

Stripping tool Page 77
Cable ties Page 55

| | | |
|---------|-------|--|
| SF | 36230 | SNAP-foot loose, for 35 mm DIN-rail shape H |
| SK | 36232 | Screw-foot loose, for 35 mm DIN-rail shape H |
| SC | 36231 | Screw-foot loose, for 30 mm DIN-rail shape C |
| Bushing | 36234 | Distance bushing 8 mm high |
| Screw | 99017 | M4 x 16 DIN 912 |
| Washer | 42100 | Washer \varnothing 4.3 mm DIN 125 |



Stripping functions

Stripping tools

Type A: Order No. 61400 Stripping tool for LV cables



- Flexible due to exchangeable hooks for covering a wide diameter range
- Easy to adjust, to use for lengthwise, circular and coil shaped cut
- Cable diameter 4.5 - 40 mm
- Thickness of the Isolation up to 4.5 mm
- Spare blades available with integrated storage compartment in the handle
- The blade returns into home position automatically, thus the danger of breaking the blade is reduced
- Good handling because of an optimized ergonomic shape
- Weight: 116 g

Type B: Order No. 61410 Stripping tool for signal, telephone and data cables



- Precise setting for the different insulations is easily made by means of the 9-position setting wheel
- Diameter range 2.5 - 11 mm
- Thickness of Isolation up to 1.0 mm
- Spare blades available
- Weight: 28 g

Product description

Professional heavy duty tool for removing cable jacket to expose cable shield material.

Because of the design of the tools hook, cables with diameters up to 40 mm can be removed with only one tool. It is very easy to handle and enables stripping heavy cable jackets under difficult conditions.

By turning the body of the tool the blade can be fixed in one of 3 different positions. Thus circular cuts lengthwise can be made to the cable.

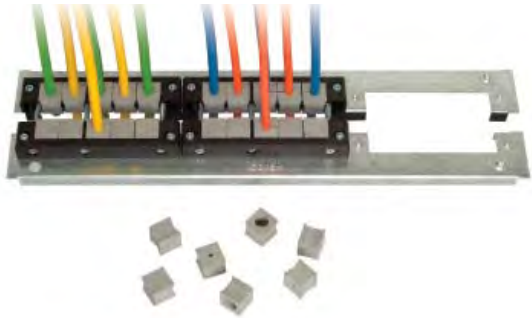
Product description

High precision tool for dismantling signal-, telephone-, AV- and data cables.

For removal of the most multi wire cables and fiber optics up to a diameter to 11 mm.

Product group 5

Switch cabinet accessories



Product description

At a glance ...

A reason for increasing machine failures is dust and dirt inside of switch gears, especially if the equipment is placed in a contaminated environment.

Also contributing to machine failures is dust and dirt inside the switch cabinet.

Conventional cable entry systems like foam rubber get brittle over time. Other systems fail by being very limited in the maximum diameter.

Benefits ...

1. Flexible

For mounting cable entry systems with pre-terminated and non pre-terminated cables there are several designs of base plates and flange plates available.

2. Fast and easy assembly

The base plates are shipped ready for assembly. Threads incorporated in the base plates provide quick and easy installation.

3. Secure hold

Strain relief and a tight seal is incorporated in the system.

4. Easy to maintain

Due to the split of the systems switch cabinets can be equipped with these systems subsequently without having to disconnect the cables. Just build "around" the running system.

Product group 5

Switch cabinet accessories

Chapter content

| | | |
|---|------|---------|
| Split base plates KDR 2 | Page | 80 - 81 |
| Cable entry frame KDR | Page | 82 - 83 |
| Flanged plates FP | Page | 84 - 85 |
| Module plates MP | Page | 86 |
| Base plates KDR 1 | Page | 87 |
| Blind plates BP-K / BP-R / BP-M / BP-SNAP | Page | 88 - 90 |
| Earthing tapes MB | Page | 91 |



KDR 2

Split base plates

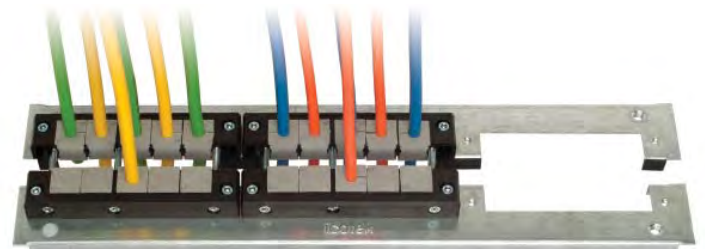


KDR 2 | Split base plates

Product description

Split, 2-part base 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.

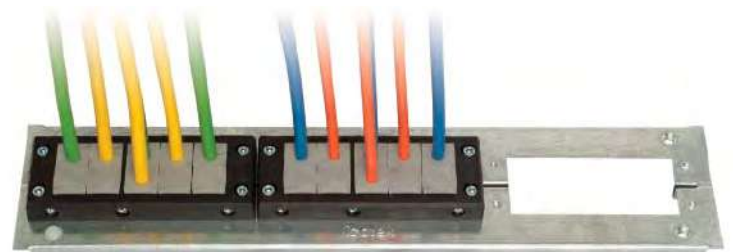


Advantages and notes

- During assembly, almost the whole base of the enclosure can be used for installation of cables.
- Even large connectors can be installed easily.
- Retrofitting possible without disconnecting of cables. All can be built around the cables. No production downtimes.
- No additional sheet metal work for the user
- Cut-outs, which are no longer required, are covered with metal blind plates Type BP-M.
- The base plate KDR 2 is designed for Rittal enclosures TS8. Other sizes can be supplied on request.



When the cable entry frames are assembled, the KDR base plates move together for a tight, secure hold of the cable entry systems.



Specification

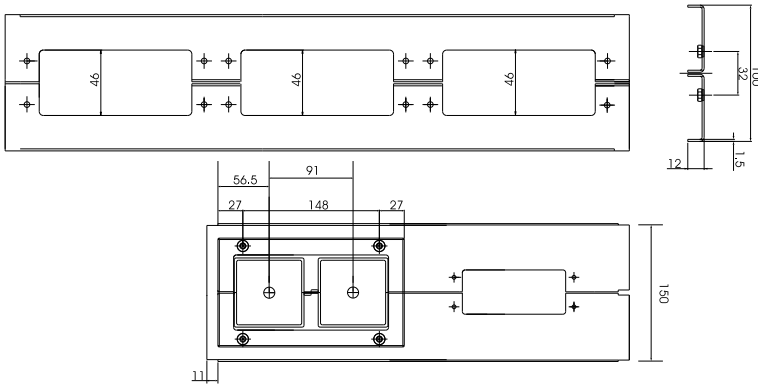
Material **Steel, zinc-plated**

Accessories

| | |
|------------------------------|---------|
| KEL 24 Cable entry frames | Page 6 |
| KEL Jumbo Cable entry frames | Page 30 |
| Blind plates BP-M metal | Page 89 |

The frame-parts with inserts 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 base plate.

KDR 2 Split base plates



| Control cabinet type | Control cabinet width | Total length base plate | Sight size of base plate opening | No. of possible cable entries | | | Order No. |
|----------------------|---------------------------------|-------------------------|----------------------------------|-------------------------------|---------|--------------|-----------|
| | | | | Jumbo 1 | Jumbo 2 | Kel 24 ... | |
| TS 8 | 600 mm | 458 mm | 436 mm | - | - | 3 | 42924 |
| | | | | 1 | - | 2 | 42953 |
| | | | | - | 1 | 1 | 42941 |
| TS 8 | 800 mm | 658 mm | 636 mm | - | - | 4 | 42922 |
| | | | | 1 | - | 3 | 42954 |
| | | | | - | 1 | 2 | 42945 |
| TS 8 | 1000 mm without division bar | 858 mm | 836 mm | - | - | 5 | 42923 |
| | | | | 1 | - | 4 | 42955 |
| | | | | - | 1 | 3 | 42952 |
| TS 8 | 1000 mm with division bar | 420 mm | 398 mm | - | - | 2 | 42958 |
| | | | | 1 | - | 1 | 42957 |
| | | | | - | 1 | 1 | 42959 |
| TS 8 | 1200 mm * | 518 mm | 496 mm | - | - | 3 | 42920 |
| | | | | 1 | - | 2 | 42956 |
| | | | | - | 1 | 1 | 42943 |

* in case both fields of the control cabinet are equipped, 2 complete split base plates are necessary.

KDR

Cable entry frame



KDR | Cable entry system

Product description

The KDR frame system is a perfect system for installation and sealing of pre-terminated cables.

The frame system is mounted into the control panel and is sealed by putting the sheet metals together. Subsequent alteration of the number of cables or of the cable diameters is very simple.

The KDR frame system is used, where multiple cables are installed, e.g. on cabinets, walls of machine tools, control panels, flexible for bottom-, cover- and side walls.

Function

Pre-fabricated cables and/ or hoses can be installed through the frame mounted at the bottom of the cabinet.

No extra components are necessary for installation of cables.

The inserts assembled in the cable entry frames guarantee strain relief of the cables (observe the correct selection of insert according to cable diameter).



Advantages

- Perfect transition of KDR frame and frame of the cabinet
- Installation of pre-terminated cables through the bottom of the control cabinet
- Suitable for any switch- and control cabinet



Specification

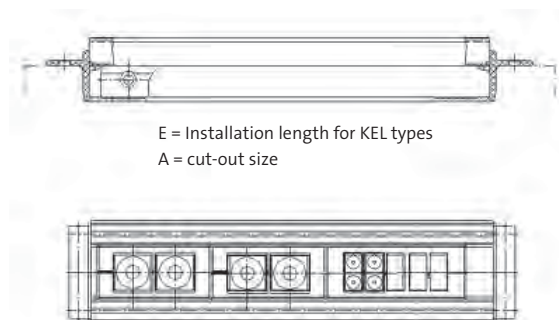
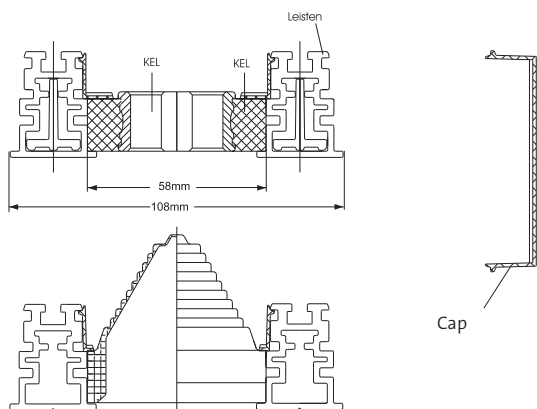
Material Aluminium

Accessories

KEL Cable entry frames

Page 6 | 7

KDR Cable entry frame



E = Installation length for KEL types
A = cut-out size

| Type | Order No. | Size | Length |
|------|-----------|------|--------|
|------|-----------|------|--------|

| | | | |
|-----------------|-------|------------|----------|
| KEL - R 24 10 | 43240 | 24 | 147 mm |
| KEL - R 24 7 | 43247 | 24 | 147 mm |
| KEL - R 24 5 | 43245 | 24 | 147 mm |
| KEL - R 24 4 | 43244 | 24 | 147 mm |
| KEL - R 16 8 | 43168 | 16 | 120 mm |
| KEL - R 16 5 | 43165 | 16 | 120 mm |
| KEL - R 16 4 | 43164 | 16 | 120 mm |
| KEL - R 16 2 | 43162 | 16 | 120 mm |
| KDR | 44xxx | | xxx mm |
| KT - Uni | 43100 | ∅ 6 -40 mm | 58 mm |
| Cap | 43150 | | 172 mm |
| End piece | 43160 | | 2 pieces |

KDR ordering information

When ordering KDR cable entry frame, please inform us about:

A = cut-out size

Example: A = 999 mm equals KDR 44999

total length can be equipped as desired with any of the types see table on the left.

Included in delivery:

1x KDR - frame by length
2x end pieces

FP

Flanged plates



Description

Product description

We supply complete flanged plates FP with cut-outs 112 x 36 mm for enclosures of the AE series and for terminal boxes of the KL series. The cut-outs, as well as the drilling template, conform to the standard cut-outs for 24-pole heavy connectors. All flanged plates are RAL 7032 or RAL 7035 powder-coated. Please use the gaskets of the standard plates. The gaskets are scope of delivery of the AE and KL terminal boxes.

Advantages

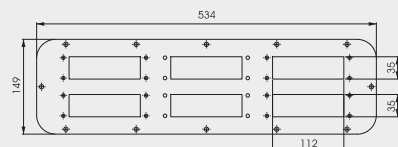
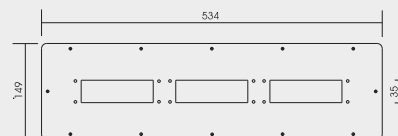
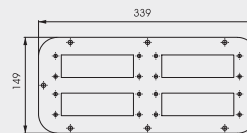
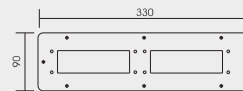
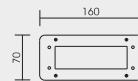
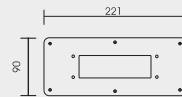
- No expensive extra sheet metal work is required
- High packing density is achieved by using KEL, KEL-DPZ or KEL-DP
- Reduce labor costs by using cable entry systems KEL, KEL-DPZ or KEL-DP compared to the assembly of conventional cable glands

Specification

Material **Steel, powder-coated**

Accessories

| | |
|----------------------------|---------|
| KEL 24 Cable entry frames | Page 6 |
| KEL-QTA Cable entry frames | Page 34 |
| KEL-DPZ Cable entry plates | Page 40 |
| KEL-DP Cable entry plates | Page 42 |
| Blind plates | Page 88 |



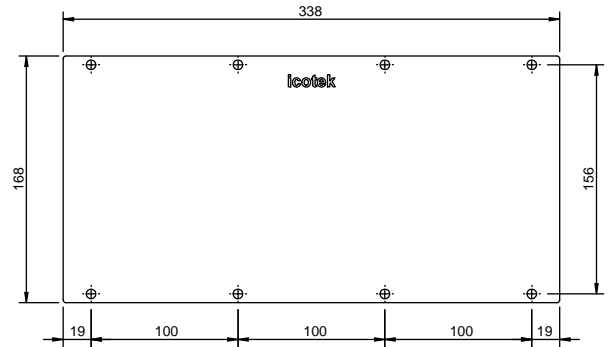
FP Flanged plates



| Type | Order No. RAL 7035 | Fits (e.g. for Rittal in RAL 7032 RAL 7035) |
|--|-----------------------|---|
| FP - KL 221 90 mm | 43834 | Terminal boxes type KL |
| FP - AE 160 70 mm | 43836 | AE 1032.600 AE 1032.500 AE 1035.600 AE 1035.500 |
| FP - AE 330 90 mm | 43838 | AE 1030.600 AE 1030.500 AE 1031.600 AE 1031.500 AE 1038.600 AE 1038.500 AE 1380.600 AE 1380.500 |
| FP - AE 339 149 mm Design with 2 cut-outs | 43840 | AE 1057.600 AE 1057.500 CS 9771.111 AE 1110.600 AE 1110.500 CS 9771.115 AE 1114.600 AE 1114.500 CS 9751.145 AE 1130.600 AE 1130.500 CS 9751.165 AE 1350.600 AE 1350.500 CS 9774.200 AE 1045.600 AE 1045.500 CS 9774.210 AE 1050.600 AE 1050.500 CS 9774.250 AE 1100.600 AE 1100.500 CS 9774.400 AE 1213.600 AE 1213.500 CS 9774.410 AE 1338.600 AE 1338.500 CS 9774.450 |
| FP - AE 339 149 mm Design with 4 cut-outs | 43846 | |
| FP - AE 534 149 mm Design with 3 cut-outs | 43842 | AE 1039.600 AE 1039.500 CS 9772.111 AE 1339.600 AE 1339.500 CS 9772.115 AE 1060.600 AE 1060.500 EL 1919.200 AE 1076.600 AE 1076.500 EL 1920.200 AE 1077.600 AE 1077.500 EL 1926.200 AE 11180.600 AE 1180.500 DK 7011.535 AE 1058.600 AE 1058.500 DK 7012.535 AE 1090.600 AE 1090.500 DK 7013.535 AE 1360.600 AE 1360.500 DK 7014.535 AE 1376.600 AE 1376.500 DK 7644.535 AE 1073.600 AE 1073.500 DK 7641.535 AE 1260.600 AE 1260.500 DK 7643.535 AE 1280.600 AE 1280.500 DK 7645.535 AE 1055.600 AE 1055.500 |
| FP - AE 534 149 mm Design with 6 cut-outs | 43848 | |

MP

Module plates



Product description

The module plates have cutouts for fixing the KEL range cable entry systems KEL 24, KEL-JUMBO, KEL-DPF and KEL-Jumbo-Flex. The module plates can be fixed on the following positions:

- Separation plates
- Closed bottom of the switch box
- 25 mm breadboard of the switch box
- 25 mm breadboard bars (Rittal TS System)

The module plate without cutouts Order-No. 43882 (blind plate) is designed for closing unused cutouts. This module plate can even be used for self-made cutouts.

The shipment includes a suitable gasket.

Specification

| | |
|-----------|--------------------|
| Material | Steel, zinc-plated |
| Article | 43875 Aluminium |
| Dimension | 338 x 168 x 2 mm |

Accessories

| | |
|---------------------------------|--------------|
| KEL 24 Cable entry frames | Page 6 |
| KEL-SNAP SNAP frames | Page 15 |
| KEL-JUMBO Cable entry frames | Page 30 |
| KEL-DPF Cable entry inserts | Page 44 |
| KEL-Jumbo-flex Cable entry ins. | Page 45 |
| Blind plates | Page 88 90 |

| Description | Type | Order No. | Fits for |
|-------------|------|-----------|----------|
|-------------|------|-----------|----------|

| | | | |
|--|------|-------|--|
| | MP 0 | 43882 | Module plate, blind |
| | MP 1 | 43891 | 3x KEL 24 x |
| | MP 2 | 43890 | 4x KEL 24 x |
| | MP 3 | 43886 | 1x KEL-JUMBO 1 1x KEL-JUMBO 2 |
| | MP 4 | 43888 | 2x KEL-JUMBO 1 |
| | MP 5 | 43887 | 2x KEL 24 x 1x KEL-JUMBO 1 |
| | MP 6 | 43875 | 5x cut-out M50 for KEL-DPF or KEL-DPZ |
| | MP 7 | 43889 | 3x KEL-Jumbo-flex |

KDR 1 Base plates

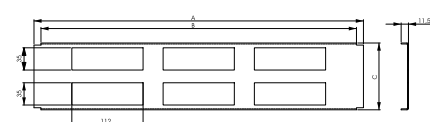
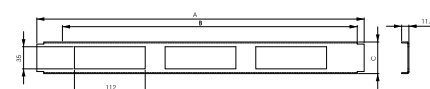


| Contr. cabinet width TS 8 | Total length base plate A | Sight size base plate opening | Width C | No. of possible cable entries KEL-DP 24 or KEL-QTA 24 | Order No. | |
|-------------------------------------|---------------------------|-------------------------------|---------|--|-----------|-------|
| 600 mm | 458 mm | 436 mm | 50 mm | one-row | 3 | 43028 |
| | | | 105 mm | two-row | 6 | 43012 |
| 800 mm | 658 mm | 636 mm | 50 mm | one-row | 4 | 43024 |
| | | | 105 mm | two-row | 8 | 43008 |
| 1.000 mm with division bar | 420 mm | 398 mm | 50 mm | one-row | 2 | 43018 |
| | | | 105 mm | two-row | 4 | 43006 |
| 1.000 mm without division bar | 858 mm | 836 mm | 50 mm | one-row | 5 | 43016 |
| | | | 105 mm | two-row | 10 | 43004 |
| 1.200 mm | 518 mm | 496 mm | 50 mm | one-row | 3 | 43020 |
| | | | 105 mm | two-row | 6 | 43000 |

Product description

For routing a large amount pre-terminated non assembled cables (especially with a diameter up to 34 mm), one-piece base plates Typ KDR1 can be used.

When assembling the KEL-DP by directly pushing it into the base plate, a reduction of labor costs are achieved.



Specification

Material **Steel, zinc-plated**

Accessories

KEL-QTA Cable entry frames **Page 34**
 KEL-DP Cable entry plates **Page 42**

BP

Blind plates, plastic



Product description

Blind plates to close cutouts for standard 10-pole / 16-pole / 24-pole industrial connectors.

Plastic blind plates are available in two different versions:

Type BP - R: Blind plates for SNAPPING into metal sheet plates up to a thickness of 1.5 mm

Type BP - K: Blind plates for screw connection

Advantages

- Fast mounting of the blind plates BP-R range by SNAPPING into the cutout
- Integrated circular sealing

Specification

| | |
|------------------------|---|
| Material | Polyamide |
| Flame class | BP-R: UL-94 V0 BP-K: UL-94 V2 |
| Temperature Properties | - 30°C to + 140°C (static) halogen-free, silicone-free |

| Type | Order No. | Blind plate for cut-out of KEL ... | Dimensions | PU |
|------------|-----------|------------------------------------|-------------|----|
| BP - K 10 | 42015 | KEL 10 | 103 x 52 mm | 10 |
| BP - R 16 | 42006 | KEL 16 | 120 x 55 mm | 10 |
| BP - K 16 | 42016 | KEL - Quick 16 | 124 x 52 mm | |
| BP - R 24 | 42008 | KEL 24 | 147 x 55 mm | 10 |
| BP - K 24 | 42024 | KEL - Quick 24 | 150 x 52 mm | |
| BP - K JFX | 42620 | KEL-Jumbo flex | 88 x 88 mm | 5 |

BP - M

Blind plates, metal



| Type | Order No. | Blind plate for KEL cut-out | Dimensions | PU |
|---------------|-----------|--------------------------------|--------------|----|
| BPM - B | 42013 | KEL - B KEL - Quick B | 75 x 58 mm | 10 |
| BPM - 10 | 42014 | KEL 10 | 99 x 58 mm | 10 |
| BPM - FG B | 42012 | KEL - FG B | 80 x 58 mm | 10 |
| BPM - 16 | 42025 | KEL 16 KEL - Quick 16 | 118 x 56 mm | 10 |
| BPM - 24 | 42027 | KEL - 24 KEL - Quick 24 | 145 x 56 mm | 10 |
| BPM - 24 20 | 42028 | KEL - 24 xx MT | 147 x 102 mm | 1 |
| BPM - Jumbo1 | 42030 | KEL - Jumbo 1 | 116 x 110 mm | 1 |
| BPM - Jumbo2 | 42032 | KEL - Jumbo 2 | 200 x 116 mm | 1 |

Product description

Blind plates to close cutouts for standard 10-pole / 16-pole / 24-pole industrial connectors.

Specification

Material Steel, zinc-plated
Width 2 mm

BP - SNAP

Blind plates for KEL-SNAP frames



Product description

Blind plate BP-SNAP to close cut-outs of pre-assembled KEL-SNAP frames.

A SNAP frame can be closed, e.g. during transport to avoid entry of dust, as long as a KEL frame is not mounted.

The BP-SNAP blind plate is simply SNAPPED on the KEL frame. There is no tool needed to remove it.

Specification

Material Steel, zinc-plated

| Type | Order No. | Blind plate fits for | Dimensions | PU |
|--------------|-----------|----------------------|-------------|----|
| BP - SNAP B | 42034 | KEL - SNAP B4 | 57 x 71 mm | 10 |
| BP - SNAP 10 | 42035 | KEL - SNAP 10 | 57 x 99 mm | 10 |
| BP - SNAP 16 | 42036 | KEL - SNAP 16 | 57 x 118 mm | 10 |
| BP - SNAP 24 | 42037 | KEL - SNAP 24 | 57 x 146 mm | 10 |

Accessories

KEL-SNAP frames

Page 15

MB Earthing tapes



| Type | Order No. | Length | Cross-section | Hole size | PU |
|---------------------|-----------|--------|--------------------|-----------|----|
| MB 200 10 M6 | 32650 | 200 mm | 10 mm ² | M6 | 1 |
| MB 300 10 M6 | 32665 | 300 mm | 10 mm ² | M6 | 1 |
| MB 200 16 M8 | 32655 | 200 mm | 16 mm ² | M8 | 1 |
| MB 300 16 M8 | 32670 | 300 mm | 16 mm ² | M8 | 1 |
| MB 200 25 M8 | 32660 | 200 mm | 25 mm ² | M8 | 1 |
| MB 300 25 M8 | 32675 | 300 mm | 25 mm ² | M8 | 1 |

Product description

Manufactured with highly flexible E-Cu-stranded wires, resistance welded using pressure at the ends.

The minimum transition and connecting resistance makes them perfectly suitable for use as earthing tapes.

Advantages

- Available in various lengths and cross-sections
- Cost-effective
- Resistance welded ends alleviate quality concerns.

Specification

Material E-Cu-strand
resistance welded using pressure

Appendix

Technical data and comments

Technical information



At a glance ...

Technical data and drilling templates at a glance.

IP rating according to the DIN EN 60529 and flammability classification according to the UL 94.



Appendix

Technical data and comments

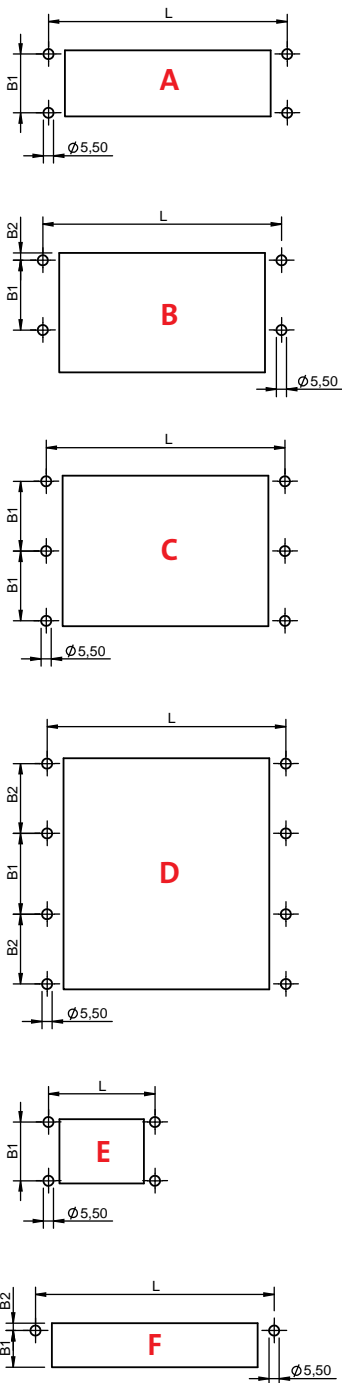
Chapter content

| | | |
|--|------|-----------|
| Technical data Drilling templates and cut-outs | Page | 94 |
| Technical data Locknuts | Page | 95 |
| Appendix Flammability classification according UL 94 | Page | 96 |
| Appendix Sealing rates according DIN EN 60529 | Page | 97 |
| Appendix Certificate DIN ISO 9001:2008 | Page | 98 |
| Appendix General reference notes | Page | 99 |
| Appendix Reference list | Page | 100 - 103 |



Technical data

Drilling templates



| Type | Page | Drill. templ. | Dimensions [mm] | | | Cut-out h x l [mm] |
|--|---------------------|---------------|--|----|----|---|
| | | | L | B1 | B2 | |
| KEL 24 x KEL-FG A KEL-QUICK 24 KEL-DPZ 24 x | 6 14 30 38 | A | 130 | 32 | - | 36 x 112 |
| KEL-SNAP 24 | 15 | A | 130 | 32 | - | max. 46 x 112 |
| KEL 16 x KEL-QUICK 16 | 7 30 | A | 103 | 32 | - | 36 x 86 |
| KEL-SNAP 16 | 15 | A | 103 | 32 | - | max. 46 x 86 |
| KEL 10 x KEL-SNAP 10 | 8 15 | A | 83 | 32 | - | 36 x 65 |
| KEL 24 x - E | 11 | B | 130 | 38 | 5 | 62 x 112 |
| KEL 24 x - MT | 12 | C | 130 | 38 | - | 82 x 112 |
| KEL 24 x - 2MT | 13 | D | 130 | 44 | 38 | 126 x 112 |
| KEL-B | 9 | E | 58 | 32 | - | 46 x 46 |
| KEL-SNAP B KEL-QUICK B | 15 | E | 56 | 32 | - | 46 x 38 |
| KEL-FG B | 14 | E | 62.5 | 32 | - | 46 x 36 |
| KEL-E x KEL-FL x | 10 26 | F | KEL-E2: 58 KEL-E3: 83 KEL-E4: 103 KEL-E5: 130 | 19 | 5 | KEL-E2: 43 x 24 KEL-E3: 65 x 24 KEL-E4: 86 x 24 KEL-E5: 112 x 24 |



KGM Locknuts



Type GMT: Split locknut



Type KGM: Plastic locknut



Type SUB-D9: for Sub-D9 plugs



| Thread | Type | Order No. | Material | Height [mm] | Wrench size | Diagonal [mm] | PU |
|--------|------|-----------|----------|-------------|-------------|---------------|----|
|--------|------|-----------|----------|-------------|-------------|---------------|----|

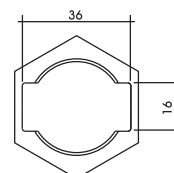
| | | | | | | | |
|-----------|------------|-------|-----------|------|-------|----|----|
| M25 x 1.5 | KGM 25 | 52274 | PA, grey | 9.0 | SW 28 | 31 | 10 |
| M25 x 1.5 | KGM 25 | 52284 | PA, black | 7.0 | SW 32 | 36 | 10 |
| M25 x 1.5 | GMT 25 | 31100 | PA, black | 9.0 | SW 32 | 35 | 5 |
| M32 x 1.5 | KGM 32 | 52275 | PA, grey | 7.0 | SW 41 | 46 | 10 |
| M32 x 1.5 | KGM 32 | 52285 | PA, black | 7.0 | SW 41 | 46 | 10 |
| M32 x 1.5 | GMT 32 | 31120 | PA, black | 12.0 | SW 40 | 44 | 5 |
| M32 x 1.5 | KGM SUB-D9 | 45105 | PC, grey | 7.0 | SW 41 | 46 | 10 |
| M40 x 1.5 | KGM 40 | 52276 | PA, grey | 7.0 | SW 50 | 56 | 10 |
| M40 x 1.5 | KGM 40 | 52286 | PA, black | 7.0 | SW 50 | 56 | 10 |
| M50 x 1.5 | KGM 50 | 52277 | PA, grey | 8.6 | SW 60 | 66 | 10 |
| M50 x 1.5 | KGM 50 | 52287 | PA, black | 8.6 | SW 60 | 66 | 10 |
| M50 x 1.5 | GMT 50 | 31140 | PA, black | 15.0 | SW 63 | 69 | 5 |
| M63 x 1.5 | KGM 63 | 52278 | PA, grey | 8.6 | SW 75 | 83 | 5 |
| M63 x 1.5 | KGM 63 | 52288 | PA, black | 8.6 | SW 75 | 83 | 5 |
| M63 x 1.5 | GM 63 | 56152 | brass | 5.0 | SW 70 | 77 | 5 |

Product description

Hexagonal nut with metric threads for attaching components together.

The counter nut KGM SUB-D9 ist designed to route into SUB-D9 plugs.

Plugs with a maximum high of 35.5 mm and a maximum width of 16.0 mm can be routed into. A hole with a diameter of 36 mm is required.



Specification

| | |
|-------------|------------------------------|
| Material | Polyamide |
| Flame class | UL-94 Vo, self-extinguishing |
| Temperature | - 30°C to + 120°C |
| Properties | halogen-free, silicone-free |

Accessories

KVT, KVT-SNAP, KVT-W90
QVT
KEL-DPZ
KEL-DPF

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Appendix

Flammability classification according 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 faster than 3 inch/min and for parts with a thickness over 3 mm the burning speed must not faster than 1,5 inch/mm.

Materials which burn faster are not UL certified.

Flame class UL 94 - V2

Applying the vertical burning test, the material must extinguish itself on average past 25 seconds or less, but maximal past 30 seconds is also allowed. The material may drop and cotton wool placed under the probe may inflame. The material must not longer glow than 60 seconds.

Flame class UL 94 - V1

Applying the vertical burning test, the material must extinguish itself on average past 25 seconds or less, but maximal past 30 seconds is also allowed. The material may drop and cotton wool placed under the probe may inflame. The material must not longer glow than 60 seconds.

Flame class UL 94 - Vo

Applying the vertical burning test, the material must extinguish itself on average past 5 seconds or less, but maximal past 10 seconds is also allowed. The material may drop down, but cotton wool placed under the probe must not inflame. The material must not longer glow than 30 seconds.



Appendix

Sealing rates according DIN EN 60529

The protection class is labelled by a letter-figure combination consisting of two letters "IP" and a figure of two digits (e.g. IP 54).

Degree of protection for contact and solid protection

| First code digit | Description | Description of scope of protection |
|------------------|---------------------------------|--|
| 0 | Not protected | No protection of persons against direct contact with active or moveable parts. No protection against the penetration of solid foreign bodies |
| 1 | Protected against large solids | Protection against accidental large-area contact of active and internal moveable parts, e.g. by hand, but no protection against intentional access to these parts. Protection against the penetration of solid foreign bodies with a diameter greater than 50 mm |
| 2 | Protected against middle solids | Protection against contact with active or internal moveable parts. Protection against the penetration of solid foreign bodies with a diameter greater than 2,5 mm |
| 3 | Protected against small solids | Protection against contact with active or internal moveable parts under voltage with tools, wires etc. of a thickness greater than 2,5 mm. Protection against the penetration of solid foreign bodies with a diameter greater than 2,5 mm |
| 4 | Protected against grainy solids | Protection against contact with active or internal moveable parts under voltage with tools, wires etc. of a thickness greater than 1 mm |
| 5 | Dust-protected | Complete protection against contact with standing or internal moveable parts under voltage, protection against dangerous dust deposits. Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety |
| 6 | Dust-tight | Protection against contact with standing or internal moveable parts under voltage. Protection against penetration of dust |

Degree of protection for water protection

| Second code digit | Description | Description of scope of protection |
|-------------------|--|---|
| 0 | Not protected | No special protection |
| 1 | Protected against vertically falling water | Vertically falling drops shall have no harmful effects |
| 2 | Protected against vertically falling water drops enclosure is tilted up to 15° | Vertically falling drops have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical. |
| 3 | Protected against spraying water | Water sprayed at an angle up to 60° degrees on either side of the vertical shall have no harmful effects |
| 4 | Protected against splashing water | Water splashed against the enclosure from any direction shall have no harmful effects |
| 5 | Protected against water jets | Water projected in jets against the enclosure from any direction shall have no harmful effects |
| 6 | Protected against floods | Water projected in powerful jets against the enclosure from any direction shall have no harmful effects. |
| 7 | Protected against the effects of temporary immersion in water | Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed 1 meter in water under standardized conditions of pressure and time |
| 8 | Protected against the effects of continuous immersion in water | Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer and the user, but are more severe than for number 7 |



Appendix

Certificate DIN ISO 9001:2008

ISO 9001:2008



Icotek GmbH

Bischof-von-Lipp-Str. 1 * D-73569 Eschach

Appendix

General reference notes



We provide all the information on chemical and physical properties of our products and technical advice to the best of knowledge.

They do not release the customer of 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 customers responsibility. Legal and regulatory provisions and any rights to third parties have to be observed.

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| 31100 | 95 | GMT 25 | 32281 | 51 | ZL-AB 60 / 5,2 | 36066 | 66 | MF-A68 Clip | 36326 | 54 | ZL 140/SB-EMV |
| 31120 | 95 | GMT 32 | 32282 | 51 | ZL-AB 70 / 5,2 | 36072 | 66 | MF-A88 | 36328 | 54 | ZL 60/SB-EMV |
| 31140 | 95 | GMT 50 | 32283 | 51 | ZL-AB 87 / 5,2 | 36074 | 66 | MF-A88 Clip | 36330 | 54 | ZL 121/SB-EMV |
| 31200 | 19 | WST NW 10 | 32284 | 51 | ZL-AB 103 / 5,2 | 36100 | 64 | Bus bar 10x3 | 36332 | 54 | ZL 103/SB-EMV |
| 31210 | 19 | WST NW 14 | 32285 | 51 | ZL-AB 121 / 5,2 | 36150 | 66 | Clip | 36400 | 76 | KAFM 10 SC |
| 31220 | 19 | WST NW 20 | 32286 | 51 | ZL-AB 140 / 5,2 | 36222 | 72 | SK 3-8 | 36412 | 76 | KAFM 2 SC |
| 31230 | 19 | WST NW 23 | 32287 | 51 | ZL-AB 180 / 5,2 | 36224 | 72 | SK 4-13,5 | 36414 | 76 | KAFM 4 SC |
| 31240 | 19 | WST NW 37 | 32290 | 51 | ZL-AB 39 / 6,2 | 36226 | 72 | SK 10-20 | 36416 | 76 | KAFM 6 SC |
| 31250 | 19 | WST NW 45 | 32291 | 51 | ZL-AB 60 / 6,2 | 36228 | 72 | SK 15-32 | 36418 | 76 | KAFM 8 SC |
| 31260 | 19 | WST NW 70 | 32292 | 51 | ZL-AB 70 / 6,2 | 36229 | 60 | SFS loose | 36422 | 76 | KAFM 2 loose |
| 31300 | 20 | SH 10 | 32293 | 51 | ZL-AB 87 / 6,2 | 36230 | 58 | SF loose | 36424 | 76 | KAFM 4 loose |
| 31310 | 20 | SH 13 | 32294 | 51 | ZL-AB 103 / 6,2 | 36231 | 72 | SC loose | 36426 | 76 | KAFM 6 loose |
| 31320 | 20 | SH 16 | 32295 | 51 | ZL-AB 121 / 6,2 | 36232 | 76 | SK | 36428 | 76 | KAFM 8 loose |
| 31330 | 20 | SH 21 | 32296 | 51 | ZL-AB 140 / 6,2 | 36234 | 76 | Bushing | 36430 | 76 | KAFM 10 loose |
| 31340 | 20 | SH 28 | 32297 | 51 | ZL-AB 180 / 6,2 | 36235 | 72 | SS/SK 3-8 | 36432 | 76 | KAFM 2 SK |
| 31350 | 20 | SH 34 | 32351 | 49 | SF/ZL 39 | 36236 | 72 | SS/SK 4-13,5 | 36434 | 76 | KAFM 2 SK |
| 31360 | 20 | SH 42 | 32352 | 49 | SF/ZL 60 | 36237 | 72 | SS/SK 10-20 | 36436 | 76 | KAFM 6 SK |
| 31370 | 20 | SH 54 | 32353 | 49 | SF/ZL 70 | 36243 | 58 | SF/SKL 1,5-3 | 36438 | 76 | KAFM 8 SK |
| 32112 | 52 | ZL 03 | 32354 | 49 | SF/ZL 87 | 36244 | 58 | SF/SKL 3-6 | 36440 | 76 | KAFM 10 SK |
| 32114 | 52 | ZL 04 | 32355 | 49 | SF/ZL 103 | 36245 | 58 | SF/SKL 6-8 | 36442 | 76 | KAFM 2 SF |
| 32116 | 52 | ZL 05 | 32356 | 49 | SF/ZL 121 | 36246 | 58 | SF/SKL 9-11 | 36444 | 76 | KAFM 4 SF |
| 32222 | 50 | ZL 39 | 32357 | 49 | SF/ZL 140 | 36247 | 58 | SF/SKL 12-16 | 36446 | 76 | KAFM 6 SF |
| 32224 | 50 | ZL 60 | 32358 | 49 | SF/ZL 180 | 36248 | 58 | SF/SKL 17-22 | 36448 | 76 | KAFM 8 SF |
| 32226 | 50 | ZL 70 | 32650 | 91 | MB 200/10/M6 | 36249 | 58 | SF/SKL 23-29 | 36450 | 76 | KAFM 10 SF |
| 32228 | 50 | ZL 87 | 32655 | 91 | MB 100/16/M8 | 36251 | 63 | LF/SKL 1,5-3 | 36452 | 76 | KAFM 16 SF |
| 32230 | 50 | ZL 103 | 32660 | 91 | MB 200/25/M8 | 36253 | 63 | LF/SKL 3-6 | 36454 | 76 | KAFM 29 SF |
| 32232 | 50 | ZL 121 | 32665 | 91 | MB 300/10/M6 | 36255 | 63 | LF/SKL 6-8 | 36458 | 76 | KAFM 59 SF |
| 32234 | 50 | ZL 140 | 32670 | 91 | MB 300/16/M8 | 36256 | 63 | LF/SKL 9-11 | 36460 | 76 | KAFM 16 DH |
| 32236 | 50 | ZL 180 | 32675 | 91 | MB 300/25/M8 | 36257 | 63 | LF/SKL 12-16 | 36462 | 76 | KAFM 29 DH |
| 32251 | 53 | DH 30 | 36000 | 66 | MF-B20 | 36258 | 63 | LF/SKL 17-22 | 36464 | 76 | KAFM 59 DH |
| 32252 | 53 | DH 32 | 36002 | 66 | MF-B20 Clip | 36259 | 63 | LF/SKL 23-29 | 36465 | 76 | KAFM 16 SC |
| 32260 | 48 | KZL 39 H | 36008 | 66 | MF-B30 | 36273 | 64 | PF/SKL 1,5-3 | 36466 | 76 | KAFM 29 SC |
| 32261 | 48 | KZL 39 C | 36010 | 66 | MF-B30 Clip | 36274 | 64 | PF/SKL 3-6 | 36467 | 76 | KAFM 59 SC |
| 32262 | 48 | KZL 80 H | 36016 | 66 | MF-B50 | 36275 | 64 | PF/SKL 6-8 | 36470 | 76 | KAFM 16 SK |
| 32263 | 48 | KZL 80 C | 36018 | 66 | MF-B50 Clip | 36276 | 64 | PF/SKL 9-11 | 36471 | 76 | KAFM 29 SK |
| 32264 | 48 | KZL 140 H | 36024 | 66 | MF-B90 | 36277 | 64 | PF/SKL 12-16 | 36472 | 76 | KAFM 59 SK |
| 32265 | 48 | KZL 140 C | 36026 | 66 | MF-B90 Clip | 36278 | 64 | PF/SKL 17-22 | 36482 | 76 | KAFM 2 DH |
| 32270 | 51 | ZL-AB 39 / 4,1 | 36032 | 66 | MF-C40 | 36279 | 64 | PF/SKL 23-29 | 36484 | 76 | KAFM 4 DH |
| 32271 | 51 | ZL-AB 60 / 4,1 | 36034 | 66 | MF-C40 Clip | 36282 | 73 | SKS 2-5 | 36486 | 76 | KAFM 6 DH |
| 32272 | 51 | ZL-AB 70 / 4,1 | 36040 | 66 | MF-C53 | 36283 | 73 | SKS 3-8 | 36488 | 76 | KAFM 8 DH |
| 32273 | 51 | ZL-AB 87 / 4,1 | 36042 | 66 | MF-C53 Clip | 36284 | 73 | SKS 3-14 | 36490 | 76 | KAFM 10 DH |
| 32274 | 51 | ZL-AB 140 / 4,1 | 36048 | 66 | MF-D49 | 36285 | 73 | SKS 3-20 | 36500 | 72 | SF/SK 3-8 |
| 32275 | 51 | ZL-AB 103 / 4,1 | 36050 | 66 | MF-D49 Clip | 36286 | 73 | SKS 5-28 | 36502 | 72 | SF/SK 4-13,5 |
| 32276 | 51 | ZL-AB 180 / 4,1 | 36056 | 66 | MF-A49 | 36287 | 73 | SKS 20-35 | 36504 | 72 | SF/SK 10-20 |
| 32277 | 51 | ZL-AB 121 / 4,1 | 36058 | 66 | MF-A49 Clip | 36322 | 54 | ZL 39/SB-EMV | 36506 | 72 | SF/SK 15-32 |
| 32280 | 51 | ZL-AB 39 / 5,2 | 36064 | 66 | MF-A68 | 36324 | 54 | ZL 87/SB-EMV | 36520 | 74 | KEL-EMV B |



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| 36522 | 74 | KEL-EMV 10 | 38050 | 68 | RLFZ (x12) | 41201 | 23 | KT 2/6 gr | 41313 | 22 | KT 13 bk |
| 36524 | 74 | KEL-EMV 16/4 | 39110 | 74 | KEL-EMV F | 41202 | 23 | KT 2/7 gr | 41314 | 22 | KT 14 bk |
| 36526 | 74 | KEL-EMV 24/5 | 39150 | 75 | KEL-EMV PF B4 | 41203 | 22 | KT 3 gr | 41315 | 22 | KT 15 bk |
| 36530 | 76 | KAFM 16 loose | 39160 | 75 | KEL-EMV PF 10 | 41204 | 22 | KT 4 gr | 41316 | 24 | KT 16 bk |
| 36540 | 76 | KAFM 29 loose | 39170 | 75 | KEL-EMV PF 16 | 41205 | 22 | KT 5 gr | 41317 | 24 | KT 17 bk |
| 36550 | 76 | KAFM 59 loose | 39180 | 75 | KEL-EMV PF 24 | 41206 | 22 | KT 6 gr | 41318 | 24 | KT 18 bk |
| 36750 | 65 | PFZ/SKL 1,5-3 | 39800 | 25 | Cable template | 41207 | 22 | KT 7 gr | 41319 | 24 | KT 19 bk |
| 36755 | 65 | PFZ/SKL 3-6 | 39900 | 22 | KTS 17 gr | 41208 | 22 | KT 8 gr | 41320 | 24 | KT 20 bk |
| 36760 | 65 | PFZ/SKL 6-8 | 39901 | 22 | KTS 16 gr | 41209 | 22 | KT 9 gr | 41321 | 24 | KT 21 bk |
| 36765 | 65 | PFZ/SKL 9-11 | 39902 | 23 | KT-ASl gr | 41210 | 22 | KT 10 gr | 41322 | 24 | KT 22 bk |
| 36810 | 60 | SFS/SKL 1,5-3 | 39903 | 23 | KT-ASl bk | 41211 | 22 | KT 11 gr | 41323 | 24 | KT 23 bk |
| 36815 | 60 | SFS/SKL 3-6 | 39904 | 23 | KT 2/5 bk | 41212 | 22 | KT 12 gr | 41324 | 24 | KT 24 bk |
| 36820 | 60 | SFS/SKL 6-8 | 39905 | 23 | KT 2/6 bk | 41213 | 22 | KT 13 gr | 41325 | 24 | KT 25 bk |
| 36850 | 59 | SFZ/SKL 1,5-3 | 39906 | 23 | KT 2/4 gr | 41214 | 22 | KT 14 gr | 41326 | 24 | KT 26 bk |
| 36855 | 59 | SFZ/SKL 3-6 | 39907 | 23 | KT 2/4 bk | 41215 | 22 | KT 15 gr | 41327 | 24 | KT 27 bk |
| 36860 | 59 | SFZ/SKL 6-8 | 39908 | 23 | KT 4/5 gr | 41216 | 24 | KT 16 gr | 41328 | 24 | KT 28 bk |
| 36865 | 59 | SFZ/SKL 9-11 | 39909 | 23 | KT 4/4 gr | 41217 | 24 | KT 17 gr | 41329 | 24 | KT 29 bk |
| 36870 | 59 | SFZ/SKL 12-16 | 39910 | 23 | KT 4/5 bk | 41218 | 24 | KT 18 gr | 41330 | 24 | KT 30 bk |
| 36875 | 59 | SFZ/SKL 17-22 | 39911 | 23 | KT 4/4 bk | 41219 | 24 | KT 19 gr | 41332 | 24 | KT 32 bk |
| 36880 | 59 | SFZ/SKL 23-29 | 39912 | 23 | KTS 16 bk | 41220 | 24 | KT 20 gr | 41334 | 24 | KT 34 bk |
| 36910 | 62 | LFZ/SKL 1,5-3 | 39913 | 23 | KTS 17 bk | 41221 | 24 | KT 21 gr | 41351 | 22 | BTK bk |
| 36915 | 62 | LFZ/SKL 3-6 | 39914 | 23 | KT 4/3 gr | 41222 | 24 | KT 22 gr | 41352 | 24 | BTG bk |
| 36920 | 62 | LFZ/SKL 6-8 | 39915 | 23 | KT 4/3 bk | 41223 | 24 | KT 23 gr | 41353 | 24 | ATG bk |
| 36925 | 62 | LFZ/SKL 9-11 | 39916 | 23 | KT 2/7 bk | 41224 | 24 | KT 24 gr | 41432 | 25 | KTMB-A gr |
| 36930 | 62 | LFZ/SKL 12-16 | 39917 | 23 | KT 2/8 gr | 41225 | 24 | KT 25 gr | 41434 | 25 | KTMB-B gr |
| 36935 | 62 | LFZ/SKL 17-22 | 39918 | 23 | KT 2/8 bk | 41226 | 24 | KT 26 gr | 41436 | 25 | KTMB-C gr |
| 36940 | 62 | LFZ/SKL 23-29 | 39921 | 23 | KT-ASl2 gr | 41227 | 24 | KT 27 gr | 41438 | 25 | KTMB-D gr |
| 36952 | 69 | RLF (x6) | 39922 | 23 | KT-ASl2 gr | 41228 | 24 | KT 28 gr | 41440 | 25 | KTMB-E gr |
| 36953 | 69 | RLF (x8) | 39923 | 23 | KT-ASl2 bk | 41229 | 24 | KT 29 gr | 41460 | 25 | KTMB-G gr |
| 36954 | 69 | RLF (x10) | 39924 | 23 | KT-ASl2 bk | 41230 | 24 | KT 30 gr | 41465 | 25 | KTMB-H gr |
| 36955 | 69 | RLF (x11) | 39929 | 23 | KT tele | 41232 | 24 | KT 32 gr | 41470 | 25 | KTMB-I gr |
| 36958 | 69 | RLF (x5) | 39930 | 23 | KT oval | 41234 | 24 | KT 34 gr | 41475 | 25 | KTMB-J gr |
| 36962 | 69 | RLF (x12) | 39931 | 23 | KT 51 | 41251 | 22 | BTK grey | 41500 | 26 | DT 1 |
| 36963 | 69 | RLF (x7) | 39932 | 23 | KT 4/6 gr | 41252 | 24 | BTG gr | 41510 | 26 | DT 2 |
| 36965 | 69 | RLF (x3) | 39933 | 23 | KT 4/6 bk | 41253 | 24 | ATG gr | 41520 | 26 | DT 3 |
| 36984 | 69 | RLF (x4) | 39934 | 22 | KT 2 gr | 41302 | 22 | KT 2 bk | 41530 | 26 | DT 4 |
| 36985 | 69 | RLF (x9) | 39935 | 23 | KT 2/2 gr | 41303 | 22 | KT 3 bk | 42006 | 88 | BP - R 16 |
| 38005 | 68 | RLFZ (x3) | 39936 | 23 | KT 2/2 bk | 41304 | 22 | KT 4 bk | 42008 | 88 | BP - R 24 |
| 38010 | 68 | RLFZ (x4) | 39937 | 23 | KT 4/2 gr | 41305 | 22 | KT 5 bk | 42012 | 89 | BPM - FG B |
| 38015 | 68 | RLFZ (x5) | 39938 | 23 | KT 4/2 bk | 41306 | 22 | KT 6 bk | 42013 | 89 | BPM - B |
| 38020 | 68 | RLFZ (x6) | 39939 | 23 | KT 2/3 gr | 41307 | 22 | KT 7 bk | 42014 | 89 | BPM - 10 |
| 38025 | 68 | RLFZ (x7) | 39940 | 23 | KT 2/3 bk | 41308 | 22 | KT 8 bk | 42015 | 88 | BP - K 10 |
| 38030 | 68 | RLFZ (x8) | 39990 | 23 | KTRS 12 gr | 41309 | 22 | KT 9 bk | 42016 | 88 | BP - K 16 |
| 38035 | 68 | RLFZ (x9) | 39992 | 23 | KTRS 13 gr | 41310 | 22 | KT 10 bk | 42024 | 88 | BP - K 24 |
| 38040 | 68 | RLFZ (x10) | 39996 | 23 | KTRS 16 gr | 41311 | 22 | KT 11 bk | 42025 | 89 | BPM - 16 |
| 38045 | 68 | RLFZ (x11) | 41200 | 23 | KT 2/5 gr | 41312 | 22 | KT 12 bk | 42027 | 89 | BPM - 24 |



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| 42030 | 89 | BPM-Jumbo 1 | 42370 | 31 | KTA | 42614 | 45 | JUMBO flex27 | 43020 | 87 | KDR1-1200 1 |
| 42032 | 89 | BPM-Jumbo 2 | 42371 | 31 | KTF 00 | 42616 | 45 | JUMBO flex47 | 43024 | 87 | KDR1-800 1 |
| 42034 | 90 | BP - SNAP B | 42376 | 31 | KTF 34 | 42620 | 88 | BP-K Jumbo flex | 43028 | 87 | KDR-1-600 1 |
| 42035 | 90 | BP - SNAP 10 | 42379 | 31 | KTF 38 | 42652 | 44 | KEL-DPF 25/3-17 | 43100 | 83 | KT - Uni |
| 42036 | 90 | BP - SNAP 16 | 42382 | 31 | KTF 42 | 42653 | 44 | KEL-DPF 32/6-24 | 43150 | 83 | Cap |
| 42037 | 90 | BP - SNAP 24 | 42385 | 31 | KTF 46 | 42654 | 44 | KEL-DPF 40/11-32 | 43160 | 83 | End part |
| 42038 | 15 | KEL-SNAP B4 | 42388 | 31 | KTF 50 | 42655 | 44 | KEL-DPF 50/17-42 | 43162 | 83 | KEL-R 16/2 |
| 42039 | 15 | KEL-SNAP 10 | 42391 | 31 | KTF 54 | 42656 | 44 | KEL-DPF 63/23-55 | 43164 | 83 | KEL-R 16/4 |
| 42040 | 15 | KEL-SNAP 16 | 42394 | 31 | KTF 58 | 42881 | 27 | ST 17 | 43165 | 83 | KEL-R 16/5 |
| 42042 | 15 | KEL-SNAP 24 | 42397 | 31 | KTF 62 | 42883 | 27 | ST 16 | 43168 | 83 | KEL-R 16/8 |
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| 42164 | 7 | KEL 16/4 | 42414 | 32 | KEL-QUICK 16/4 | 42889 | 27 | ST 13 | 43245 | 83 | KEL-R 24/5 |
| 42165 | 7 | KEL 16/5 | 42415 | 32 | KEL-QUICK 24/5 | 42891 | 27 | ST 12 | 43247 | 83 | KEL-R 24/7 |
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| 42204 | 9 | KEL-B4 | 42430 | 32 | KEL-QUICK B2 | 42895 | 27 | ST 10 | 43413 | 35 | KEL-QTE 20/3 |
| 42206 | 9 | KEL-B1 | 42434 | 32 | KEL-QUICK B4 | 42897 | 27 | ST 9 | 43414 | 35 | KEL-QTE 20/4 |
| 42207 | 11 | KEL 24/9 E | 42503 | 37 | QT 3 | 42899 | 27 | ST 8 | 43415 | 35 | KEL-QTE 20/5 |
| 42208 | 11 | KEL 24/12 E | 42504 | 37 | QT 4 | 42901 | 27 | ST 3 | 43512 | 42 | KEL-DP 24/14 |
| 42209 | 11 | KEL 24/15 E | 42505 | 37 | QT 5 | 42903 | 27 | ST 6 | 43514 | 42 | KEL-DP 24/17 |
| 42212 | 8 | KEL 10/3 | 42506 | 37 | QT 6 | 42905 | 27 | ST 7 | 43516 | 42 | KEL-DP 24/19 |
| 42216 | 8 | KEL 10/6 | 42507 | 37 | QT 7 | 42906 | 27 | ST 5 | 43518 | 42 | KEL-DP 24/26 |
| 42221 | 12 | KEL 24/8 MT | 42508 | 37 | QT 8 | 42908 | 27 | ST 4 | 43519 | 42 | KEL-DP 24/48 |
| 42223 | 13 | KEL 24/12 2MT | 42509 | 37 | QT 9 | 42909 | 27 | ST 2 | 43520 | 42 | KEL-DP 24/50 |
| 42224 | 12 | KEL 24/17 MT | 42510 | 37 | QT 10 | 42920 | 81 | KDR2-1200 | 43522 | 42 | KEL-DP 24/14 |
| 42225 | 12 | KEL 24/14 MT | 42511 | 37 | QT 11 | 42922 | 81 | KDR2-800 | 43523 | 42 | KEL-DP 24/17 |
| 42226 | 13 | KEL 24/21 2MT | 42512 | 37 | QT 12 | 42923 | 81 | KDR2-1000 | 43524 | 42 | KEL-DP 24/19 |
| 42227 | 13 | KEL 24/24 2MT | 42513 | 37 | QT 13 | 42924 | 81 | KDR2-600 | 43525 | 42 | KEL-DP 24/26 |
| 42232 | 12 | KEL 24/20 MT | 42514 | 37 | QT 14 | 42941 | 81 | KDR2-600 | 43526 | 42 | KEL-DP 24/48 |
| 42233 | 13 | KEL 24/27 2MT | 42540 | 37 | QTB | 42943 | 81 | KDR2-1200 | 43527 | 42 | KEL-DP 24/50 |
| 42234 | 13 | KEL 24/30 2MT | 42566 | 37 | QT 2/3 | 42945 | 81 | KDR2-800 | 43531 | 43 | KEL-DP 25/6 |
| 42241 | 6 | KEL 24/10 | 42568 | 37 | QT 2/4 | 42952 | 81 | KDR2-1000 | 43532 | 43 | KEL-DP 32/10 A |
| 42244 | 6 | KEL 24/4 | 42570 | 37 | QT 2/5 | 42953 | 81 | KDR2-600 | 43550 | 43 | KEL-DP 50/16 A |
| 42247 | 6 | KEL 24/7 | 42571 | 37 | QT 2/5.5 | 42954 | 81 | KDR2-800 | 43551 | 43 | KEL-DP 50/12 A |
| 42248 | 6 | KEL 24/5 | 42572 | 37 | QT 2/6 | 42955 | 81 | KDR2-800 | 43552 | 43 | KEL-DP 50/20 A |
| 42249 | 10 | KEL-E2 | 42573 | 37 | QT-ASI 1 | 42956 | 81 | KDR2-1200 | 43553 | 43 | KEL-DP 50/18 A |
| 42250 | 10 | KEL-E5 | 42574 | 37 | QT-ASI 2 | 42957 | 81 | KDR2-1000 | 43554 | 43 | KEL-DP 50/9 A |
| 42258 | 10 | KEL-E3 | 42575 | 37 | QT tele | 42958 | 81 | KDR2-1000 | 43555 | 43 | KEL-DP 50/11 A |
| 42259 | 10 | KEL-E4 | 42576 | 37 | QT 2/6.5 | 42959 | 81 | KDR2-1000 | 43556 | 43 | KEL-DP 50/35 A |
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| 42324 | 14 | KEL-FG A4 | 42582 | 37 | QT 4/4 | 43006 | 87 | KDR1-1000 2 | 43564 | 43 | KEL-DP 50/16 B |
| 42330 | 14 | KEL-FG B4 | 42583 | 37 | QT 4/4.5 | 43008 | 87 | KDR1-800 2 | 43566 | 43 | KEL-DP 50/20 B |
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| 43752 | 41 | KEL-DPZ 50/12 | 46110 | 28 | KEL-FL C | 61235 | 55 | KB 45 | | | |
| 43758 | 41 | KEL-DPZ 50/19 | 46115 | 28 | KEL-FL D | 61240 | 55 | KB 55 | | | |
| 43760 | 41 | KEL-DPZ 63/9 | 46120 | 28 | KEL-FL E | 61245 | 55 | KB 75 | | | |
| 43761 | 41 | KEL-DPZ 63/13 | 46125 | 28 | KEL-FL F | 61250 | 55 | KB 100 | | | |
| 43763 | 41 | KEL-DPZ 63/35 | 46130 | 28 | KEL-FL G | 61300 | 55 | KBW 9 | | | |
| 43820 | 85 | FP-KL 221/90 | 46135 | 28 | KEL-FL H | 61400 | 77 | EMC tool A | | | |
| 43822 | 85 | FP-AE 160/70 | 46140 | 28 | KEL-FL I | 61410 | 77 | EMC tool B | | | |
| 43824 | 85 | FP-AE 330/90 | 46145 | 28 | KEL-FL J | 88001 | 21 | KT Box | | | |
| 43826 | 85 | FP-AE 339/149 | 46150 | 28 | KEL-FL K | 88002 | 61 | EMC Box | | | |
| 43828 | 85 | FP-AE 534/149 | 46155 | 28 | KEL-FL J | 99017 | 76 | Screw | | | |
| 43834 | 85 | FP-KL 221/90 | 46201 | 29 | FT-1 / o | | | | | | |
| 43836 | 85 | FP-AE 160/70 | 46202 | 29 | FT-2 / o | | | | | | |
| 43838 | 85 | FP-AE 330/90 | 46203 | 29 | FT-3 / o | | | | | | |
| 43840 | 85 | FP-AE 339/149 | 46210 | 29 | FT-1 / A | | | | | | |
| 43842 | 85 | FP-AE 534/149 | 46211 | 29 | FT-1 / B | | | | | | |
| 43846 | 85 | FP-AE 339/149 | 46212 | 29 | FT-1 / C | | | | | | |
| 43847 | 85 | FP-AE 339/149 | 46250 | 29 | FT-2 / A | | | | | | |
| 43848 | 85 | FP-AE 534/149 | 46251 | 29 | FT-2 / B | | | | | | |
| 43849 | 85 | FP-AE 534/149 | 46252 | 29 | FT-2 / C | | | | | | |
| 43875 | 86 | MP 6 | 46300 | 29 | FT-3 / A | | | | | | |
| 43882 | 86 | MP o | 46330 | 29 | FT-4/A | | | | | | |
| 43886 | 86 | MP 3 | 52274 | 95 | KGM 25 | | | | | | |

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