

# Cable Entry Systems EMC Solutions



innovative  
creative  
technology

## Product catalogue

A company of the icotek group



## Ideas move the world ...

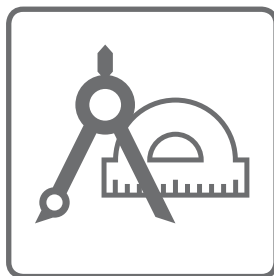
Founded in 1995, icotek has become an innovative leader in cable entry systems, cable management and EMC solutions. At our headquarters in Germany we develop our products and distribute them worldwide. With offices in Switzerland, Turkey and the U.S. as well as representatives in over 50 countries, we are a strong and reliable partner for the global industry. We provide expert advice, a high delivery capability and a broad range of services for our customers around the globe.

Close contact with business partners contributes significantly to the development and success of icotek. Interacting with customers in various markets and icotek's willingness to implement and share innovative ideas are reflected in the success of the company.

## ... the origin of every movement is imagination.



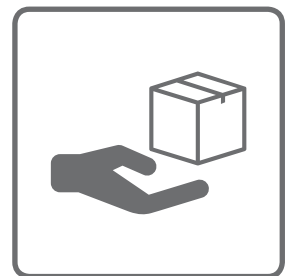
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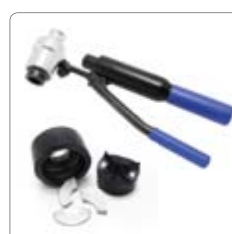
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# 1 Split cable entry systems for cables with connectors



## KEL - Split cable entry frames for the KT grommet system, page 8 - 34

The patented cable entry system enables the user to enter, seal and provide strain relief for cables with and without connectors.

The key feature of icotek's patented system is the split frame and slit grommets which provide quick, convenient and cost effective routing of pre-terminated and multi-conductor cables, hoses or conduits. The split frame and slit grommets alleviate the need to cut and re-wire pre-terminated cables.

Therefore, cable warranties are unaffected. Cables, pipes and conduits with various diameters can be routed due to large variety of slit grommets. When assembled correctly, the slit grommets are held tightly within the frame. Correctly sizing the grommet to the cable diameter ensures a high degree of protection (up to IP65 / NEMA type 4X) and provides strain relief.

### Product range





## KVT - Split cable glands

for the KT grommet system, page 38 - 42

By using split cable glands by icotek cables with or without connectors or complete cable harnesses with diameters from 2 to 35 mm can be quickly routed into enclosures, cabinets or machines and be sealed with IP54 / NEMA type 12 rated ingress protection.

The split system of the KVT cable glands enables quick and easy assembly which is great for retrofitting and maintenance. The cable is placed into the slit grommet which is set into one of the gland halves. Depending on the size of the cable gland one, two or four separate grommets can be installed. The two gland halves can be easily snapped together without the need of tools. The routed lines are securely sealed and held inside the grommets. To mount the cable glands either snap it into the round metric standard cut-out (sizes available from M20 to M80) or screw it with a hexagonal locknut. The mounting method is dependent on the model type.

### Product range



KVT 20 | KVT 25

KVT 32 | KVT 40

KVT 50

KVT 63

KVT-W90

KVT-SNAP

KVT 80

# 1 Split cable entry systems for cables with connectors

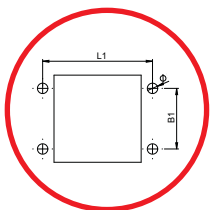


## QUICK - Cable entry frames & cable glands for the QT grommet system, page 50 - 55

The QUICK systems by icotek are the perfect solution for quick and cost-effective routing of cables with and without connectors.

With QT slit grommets cables, hoses or conduits with diameters 3 - 15 mm can be easily routed. When installed correctly the QUICK systems achieve an IP54 rated protection.

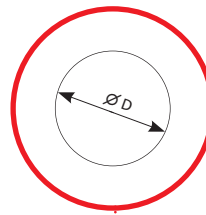
In addition to the consistent divisibility the QUICK systems are characterised by its tool-free assembly possibilities such as snap-in with the KEL-SNAP frame (KEL-QUICK), direct plug-in into the wall cut-out (QVT-CLICK/KEL-QTA) or mounting via locknuts (QVT).



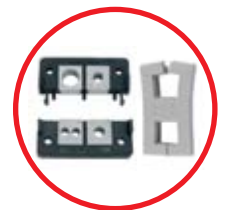
KEL-QUICK and KEL-QTA cut-outs according to industrial standard dimensions



Warranty on pre-terminated cables remains



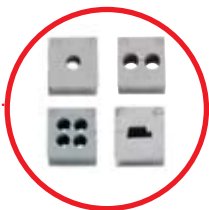
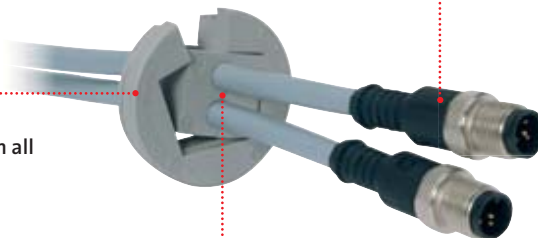
QVT and KEL-QTA round for metric cut-outs M16 - M50



Split system

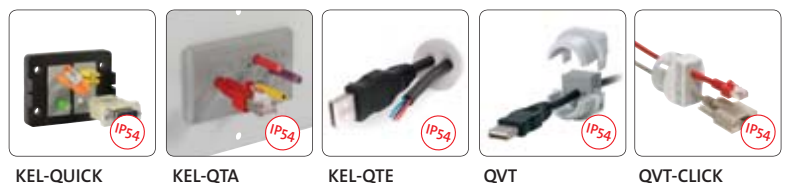


Fast and easy tool-free assembly (possible with all QUICK products)



High cable density, wide variety

Product range



KEL-QUICK

KEL-QTA

KEL-QTE




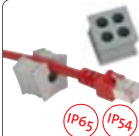





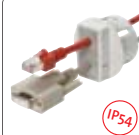








QVT

QVT-CLICK

# Product group 1

## Split cable entry systems for cables with connectors

### Chapter content

|   |   |   |   |
|---|---|---|---|
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# KEL-U 24

## Cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



Also available with threaded steel bushings.



Slit grommets



| Description | Type | Order No. | Grommets<br>small   large | PU |
|-------------|------|-----------|---------------------------|----|
|-------------|------|-----------|---------------------------|----|

### Product description

Split cable entry system for routing cables with connectors providing an IP54 / up to NEMA type 12 rating. Routing, sealing and providing strain relief for cable diameters from 2 to 35 mm. The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-U 24 frame matches exactly the cut-out dimensions for 24-pin standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. A flat rubber gasket is included in the shipment.

### Advantages & benefits

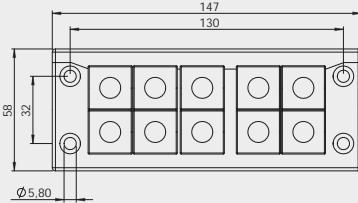
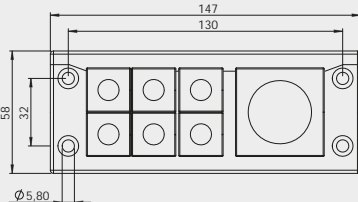
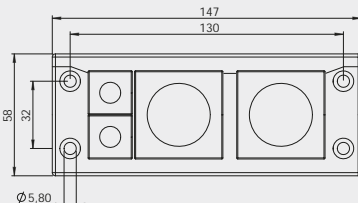
- Fast and easy assembly
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)  |
| Temperature        | - 40°C to + 140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 36/46 x 112 mm / page 192 - 193  |
| Frame depth        | 17 mm  |

### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-SNAP Mounting frames | 36 - 37   |
| KEL-EMC Cable collectors | 122 - 124 |
| KDR Base plates          | 142 - 151 |
| FP Flange plates         | 152 - 157 |
| MP Module plates         | 148 - 149 |

|  |                             |           |      |    |
|--|-----------------------------|-----------|------|----|
|    | KEL-U 24 10                 | 54241     | 10 - | 10 |
|  | KEL-U 24 10 with V2A screws | 54241.200 | 10 - | 10 |
|  | KEL-U 24 7                  | 54247     | 6 1  | 10 |
|  | KEL-U 24 7 with V2A screws  | 54247.200 | 6 1  | 10 |
|  | KEL-U 24 4                  | 54244     | 2 2  | 10 |
|  | KEL-U 24 4 with V2A screws  | 54244.200 | 2 2  | 10 |



# KEL-ER 24

## Cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



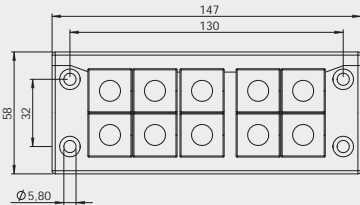
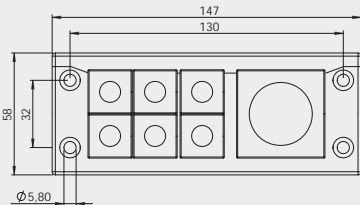
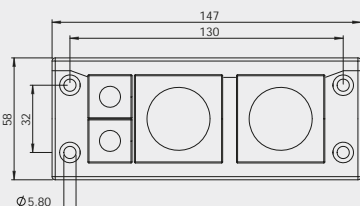
Also available with threaded bushings.



Slit grommets



| Type | Order No. | Grommets<br>small   large | PU | Description |
|------|-----------|---------------------------|----|-------------|
|------|-----------|---------------------------|----|-------------|

|                                 |           |      |    |   |
|---------------------------------|-----------|------|----|---|
| KEL-ER 24 10                    | 48241     | 10 - | 10 |    |
| KEL-ER 24 10<br>with V2A screws | 48241.200 | 10 - | 10 |   |
| KEL-ER 24 7                     | 48247     | 6 1  | 10 |   |
| KEL-ER 24 7<br>with V2A screws  | 48247.200 | 6 1  | 10 |  |
| KEL-ER 24 4                     | 48244     | 2 2  | 10 |   |
| KEL-ER 24 4<br>with V2A screws  | 48244.200 | 2 2  | 10 |  |

### Product description

Split cable entry system for routing and sealing cables with connectors, providing an IP65 / up to NEMA type 4X rating and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15) and 16 to 35 mm (KT 16 - 34).

The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-ER 24 frame matches exactly the cut-out dimensions for 24-pin standard industrial connectors. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |   |
|--------------------|---|
| Material           | Polyamide (PA)  |
| Flame class        | UL94-Vo, self-extinguishing   |
| IP rating          | IP65, with gasket and correct selection of single grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 4X (acc. to UL 50E)   |
| Temperature        | - 40°C to + 140°C (static)  |
| Properties         | Halogen-free, silicone-free   |
| Cut-out dimensions | 36/46 × 112 mm / page 192 - 193   |
| Frame depth        | 17 mm   |

### Accessories

|                          |           |
|--------------------------|-----------|
| KT Cable grommets        | 44 - 46   |
| KEL-EMC Cable collectors | 122 - 124 |

# KEL-U 16

## Cable entry frames



Slit grommets



V2A anti-corrosive

Also available with stainless steel screws (V2A).



Also available with threaded bushings.



| Description | Type | Order No. | Grommets<br>small   large | PU |
|-------------|------|-----------|---------------------------|----|
|-------------|------|-----------|---------------------------|----|

### Product description

Split cable entry system for routing cables with connectors, providing an IP54 / up to NEMA type 12 rating. Routing, sealing and providing strain relief for cable diameters from 2 to 35 mm. The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-U 16 frame matches exactly the cut-out dimensions for 16-pin standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. A flat rubber gasket is included in the shipment.

### Advantages & benefits

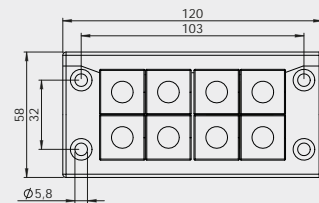
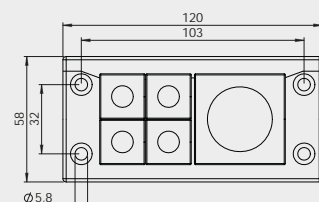
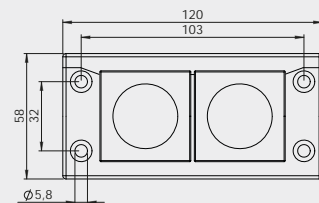
- Fast and easy assembly
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)  |
| Temperature        | - 40°C to + 140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 36/46 × 86 mm / Page 192 - 193   |
| Frame depth        | 17 mm  |

### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-SNAP Mounting frames | 36 - 37   |
| KEL-EMC Cable collectors | 122 - 124 |
| KDR Base plates          | 142 - 151 |
| FP Flange plates         | 152 - 157 |

|  |                            |           |     |    |
|--|----------------------------|-----------|-----|----|
|    | KEL-U 16 8                 | 54168     | 8 - | 10 |
|  | KEL-U 16 8 with V2A screws | 54168.200 | 8 - | 10 |
|  | KEL-U 16 5                 | 54165     | 4 1 | 10 |
|  | KEL-U 16 5 with V2A screws | 54165.200 | 4 1 | 10 |
|  | KEL-U 16 2                 | 54162     | - 2 | 10 |
|  | KEL-U 16 2 with V2A screws | 54162.200 | - 2 | 10 |

# KEL-ER 16

## Cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



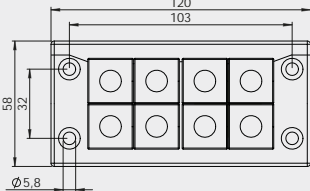
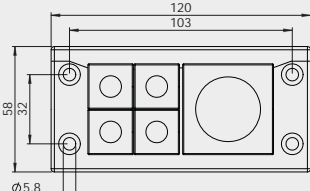
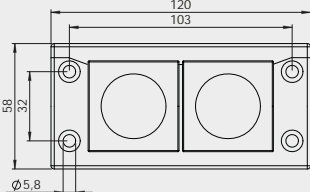
Also available with threaded bushings.



Slit grommets



| Type | Order No. | Grommets<br>small   large | PU | Description |
|------|-----------|---------------------------|----|-------------|
|------|-----------|---------------------------|----|-------------|

|                                |           |     |    |   |
|--------------------------------|-----------|-----|----|---|
| KEL-ER 16 8                    | 48168     | 8 - | 10 |    |
| KEL-ER 16 8<br>with V2A screws | 48168.200 | 8 - | 10 |   |
| KEL-ER 16 5                    | 48165     | 4 1 | 10 |  |
| KEL-ER 16 5<br>with V2A screws | 48165.200 | 4 1 | 10 |   |
| KEL-ER 16 2                    | 48162     | - 2 | 10 |  |
| KEL-ER 16 2<br>with V2A screws | 48162.200 | - 2 | 10 |   |

### Product description

Split cable entry system for routing and sealing cables with connectors, providing an IP65 / up to NEMA type 4X rating and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15) and 16 to 35 mm (KT 16 - 34).

The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-ER 16 frame matches exactly the cut-out dimensions for 16-pin standard industrial connectors. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |   |
|--------------------|---|
| Material           | Polyamide (PA)  |
| Flame class        | UL94-Vo, self-extinguishing   |
| IP rating          | IP65, with gasket and correct selection of single grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 4X (acc. to UL 50E)   |
| Temperature        | - 40°C to + 140°C (static)  |
| Properties         | Halogen-free, silicone-free   |
| Cut-out dimensions | 36/46 × 86 mm / Page 192 - 193  |
| Frame depth        | 17 mm   |

### Accessories

|                          |           |
|--------------------------|-----------|
| KT Cable grommets        | 44 - 46   |
| KEL-EMC Cable collectors | 122 - 124 |

# KEL-U 10

## Cable entry frames



Slit grommets



V2A anti-corrosive

Also available with stainless steel screws (V2A).



Also available with threaded bushings.

1



| Description | Type | Order No. | Grommets<br>small   large | PU |
|-------------|------|-----------|---------------------------|----|
|-------------|------|-----------|---------------------------|----|

### Product description

Split cable entry system for routing cables with connectors, providing an IP54 / up to NEMA type 12 rating. Routing, sealing and providing strain relief for cable diameters from 2 to 35 mm. The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-U 10 frame matches exactly the cut-out dimensions for 10-pin standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. A flat rubber gasket is included in the shipment.

### Advantages & benefits

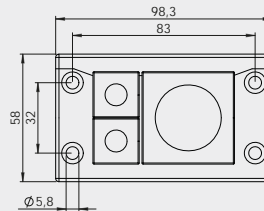
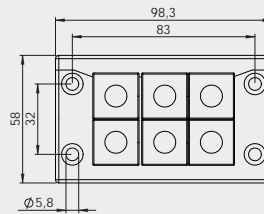
- Fast and easy assembly
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-V0, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)  |
| Temperature        | - 40°C to + 140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 36/46 × 65 mm / Page 192 - 193   |
| Frame depth        | 17 mm  |

### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-SNAP Mounting frames | 36 - 37   |
| KEL-EMC Cable collectors | 122 - 124 |



|                            |           |     |    |
|----------------------------|-----------|-----|----|
| KEL-U 10 6                 | 54216     | 6 - | 10 |
| KEL-U 10 6 with V2A screws | 54216.200 | 6 - | 10 |
| KEL-U 10 3                 | 54212     | 2 1 | 10 |
| KEL-U 10 3 with V2A screws | 54212.200 | 2 1 | 10 |

# KEL-ER 10

## Cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



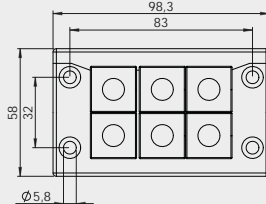
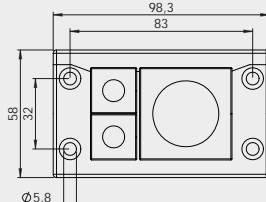
Also available with threaded bushings.



Slit grommets



| Type | Order No. | Grommets<br>small   large | PU | Description |
|------|-----------|---------------------------|----|-------------|
|------|-----------|---------------------------|----|-------------|

|                                |           |     |    |   |
|--------------------------------|-----------|-----|----|---|
| KEL-ER 10 6                    | 48216     | 6 - | 10 |   |
| KEL-ER 10 6<br>with V2A screws | 48216.200 | 6 - | 10 |   |
| KEL-ER 10 3                    | 48212     | 2 1 | 10 |  |
| KEL-ER 10 3<br>with V2A screws | 48212.200 | 2 1 | 10 |   |

### Product description

Split cable entry system for routing and sealing cables with connectors, providing an IP65 / up to NEMA type 4X rating and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15) and 16 to 35 mm (KT 16 - 34).

The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-ER 10 frame matches exactly the cut-out dimensions for 10-pin standard industrial connectors. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |   |
|--------------------|---|
| Material           | Polyamide (PA)  |
| Flame class        | UL94-V0, self-extinguishing   |
| IP rating          | IP65, with gasket and correct selection of single grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 4X (acc. to UL 50E)   |
| Temperature        | - 40°C to + 140°C (static)  |
| Properties         | Halogen-free, silicone-free   |
| Cut-out dimensions | 36 / 46 × 65 mm / Page 192 - 193  |
| Frame depth        | 17 mm   |

### Accessories

|                          |           |
|--------------------------|-----------|
| KT Cable grommets        | 44 - 46   |
| KEL-EMC Cable collectors | 122 - 124 |

# KEL-U-B

## Cable entry frames



**IP54**



Slit grommets



V2A anti-corrosive

Also available with stainless steel screws (V2A).



Also available with threaded bushings.

1

| Description | Type | Order No. | Grommets<br>small   large | PU |
|-------------|------|-----------|---------------------------|----|
|-------------|------|-----------|---------------------------|----|

### Product description

Split cable entry system for routing cables with connectors, providing an IP54 / up to NEMA type 12 rating. Routing, sealing and providing strain relief for cable diameters from 2 to 35 mm.

The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-U-B frame matches exactly the cut-out dimensions of 46 x 46 mm measuring instruments. A flat rubber gasket is included in the shipment.

### Advantages & benefits

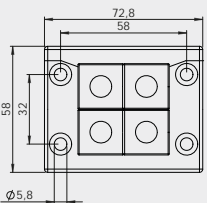
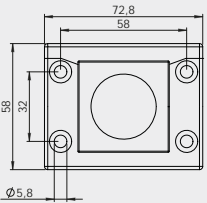
- Fast and easy assembly
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)  |
| Temperature        | - 40°C to + 140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 46 x 46 mm / Page 192 - 193  |
| Frame depth        | 17 mm  |

### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-SNAP Mounting frames | 36 - 37   |
| KEL-EMC Cable collectors | 122 - 124 |
| FP Flange plates         | 152 - 157 |

|   |                          |           |     |    |
|---|--------------------------|-----------|-----|----|
|   | KEL-U-B4                 | 54204     | 4 - | 10 |
|   | KEL-U-B4 with V2A screws | 54204.200 | 4 - | 10 |
|  | KEL-U-B1                 | 54206     | - 1 | 10 |
|   | KEL-U-B1 with V2A screws | 54206.200 | - 1 | 10 |

# KEL-ER-B

## Cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



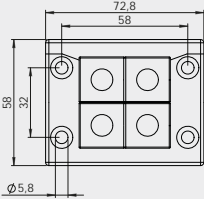
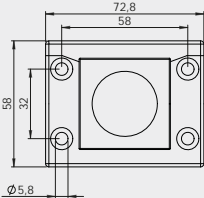
Also available with threaded bushings.



Slit grommets



| Type | Order No. | Grommets<br>small   large | PU | Description |
|------|-----------|---------------------------|----|-------------|
|------|-----------|---------------------------|----|-------------|

|                              |           |     |    |   |
|------------------------------|-----------|-----|----|---|
| KEL-ER-B4                    | 48204     | 4 - | 10 |   |
| KEL-ER-B4<br>with V2A screws | 48204.200 | 4 - | 10 |   |
| KEL-ER-B1                    | 48206     | - 1 | 10 |  |
| KEL-ER-B1<br>with V2A screws | 48206.200 | - 1 | 10 |   |

### Product description

Split cable entry system for routing and sealing cables with connectors, providing an IP65 / up to NEMA type 4X rating and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15) and 16 to 35 mm (KT 16 - 34).

The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-ER-B frame matches exactly the cut-out dimensions of 46 × 46 mm measuring instruments. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- Small cut-out, high cable density
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |   |
|--------------------|---|
| Material           | Polyamide (PA)  |
| Flame class        | UL94-Vo, self-extinguishing   |
| IP rating          | IP65, with gasket and correct selection of single grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 4X (acc. to UL 50E)   |
| Temperature        | - 40°C to + 140°C (static)  |
| Properties         | Halogen-free, silicone-free   |
| Cut-out dimensions | 46 × 46 mm / Page 192 - 193   |
| Frame depth        | 17 mm   |

### Accessories

|                          |           |
|--------------------------|-----------|
| KT Cable grommets        | 44 - 46   |
| KEL-EMC Cable collectors | 122 - 124 |

# KEL-E

## Compact cable entry frames



Slit grommets



V2A anti-corrosive

Also available with stainless steel screws (V2A).



Also available with threaded bushings.



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

### Product description

Split cable entry system for routing cables with connectors, providing an IP54 / up to NEMA type 12 rating. Routing, sealing and providing strain relief for cable diameters from 2 to 17 mm. The KEL-E version is particularly suited for flat connectors. The small frame is ideal for applications with limited space.

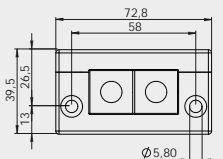
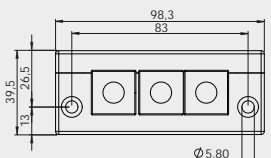
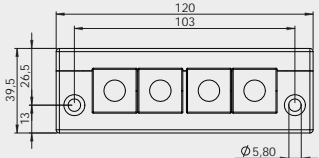
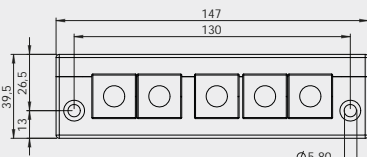
A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- Space saving shape
- Optimal for D-Sub connectors
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                  |  |
|------------------|--|
| Material         | Polyamide (PA)   |
| Flame class      | UL94-Vo, self-extinguishing  |
| IP rating        | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)  |
| Temperature      | - 40°C to + 140°C (static)   |
| Properties       | Halogen-free, silicone-free  |
| Frame depth      | 17 mm  |

|  |                        |           |          |     |    |
|--|------------------------|-----------|----------|-----|----|
|     | KEL-E2                 | 42249     | 43 × 24  | 2 - | 10 |
|  | KEL-E2 with V2A screws | 42249.200 | 43 × 24  | 2 - | 10 |
|   | KEL-E3                 | 42258     | 65 × 24  | 3 - | 10 |
|  | KEL-E3 with V2A screws | 42258.200 | 65 × 24  | 3 - | 10 |
|  | KEL-E4                 | 42259     | 86 × 24  | 4 - | 10 |
|  | KEL-E4 with V2A screws | 42259.200 | 86 × 24  | 4 - | 10 |
|  | KEL-E5                 | 42250     | 112 × 24 | 5 - | 10 |
|  | KEL-E5 with V2A screws | 42250.200 | 112 × 24 | 5 - | 10 |

### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 47   |
| KEL-EMC Cable collectors | 122 - 124 |



# KEL-ER-E

## Compact cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



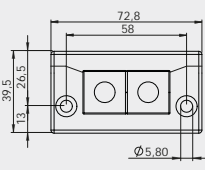

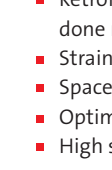
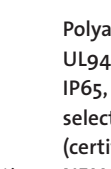
Also available with threaded bushings.



Slit grommets



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

|                           |           |          |     |    |   |
|---------------------------|-----------|----------|-----|----|---|
| KEL-ER-E2                 | 48249     | 43 × 24  | 2 - | 10 |      |
| KEL-ER-E2 with V2A screws | 48249.200 | 43 × 24  | 2 - | 10 |   |
| KEL-ER-E3                 | 48258     | 65 × 24  | 3 - | 10 |    |
| KEL-ER-E3 with V2A screws | 48258.200 | 65 × 24  | 3 - | 10 |   |
| KEL-ER-E4                 | 48259     | 86 × 24  | 4 - | 10 |   |
| KEL-ER-E4 with V2A screws | 48259.200 | 86 × 24  | 4 - | 10 |   |
| KEL-ER-E5                 | 48250     | 112 × 24 | 5 - | 10 |  |
| KEL-ER-E5 with V2A screws | 48250.200 | 112 × 24 | 5 - | 10 |   |

### Product description

Split cable entry system for routing and sealing cables with connectors, providing an IP65 / up to NEMA type 12 rating and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15). It is particularly suited for flat connectors. The small frame is ideal for applications with limited space.

The cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- Strain relief according to EN 62444
- Space saving shape
- Optimal for D-Sub connectors
- High stability, vibration resistant

### Specifications

|                  |   |
|------------------|---|
| Material         | Polyamide (PA)  |
| Flame class      | UL94-Vo, self-extinguishing   |
| IP rating        | IP65, with gasket and correct selection of single grommets (certified acc. to EN 60529) |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)   |
| Temperature      | - 40°C to + 140°C (static)  |
| Properties       | Halogen-free, silicone-free   |
| Frame depth      | 17 mm   |

### Accessories

|                          |           |
|--------------------------|-----------|
| KT Cable grommets        | 44        |
| KEL-EMC Cable collectors | 122 - 124 |

# KEL 24

## Cable entry frames



Slit grommets



V2A anti-corrosive

Also available with stainless steel screws (V2A).



Also available with threaded bushings.



| Description | Type | Order No. | Grommets<br>small   large | PU |
|-------------|------|-----------|---------------------------|----|
|-------------|------|-----------|---------------------------|----|

### Product description

Centrally split cable entry system for routing cables with connectors, providing an IP54 / up to NEMA type 12 rating. The slit grommet matching the cable diameter is placed around the cable and inserted into the cable entry frame. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. The split cable entry frame KEL 24 matches exactly the cut-out dimensions of 24-pin standard industrial connectors. A flat rubber gasket is included in the shipment.

### Advantages & benefits

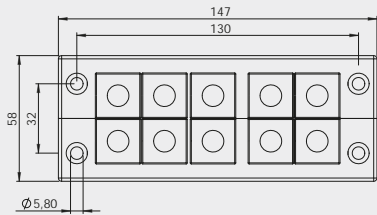
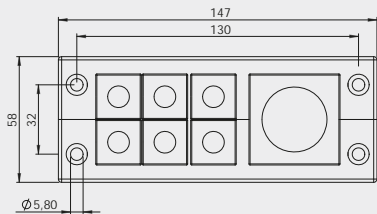
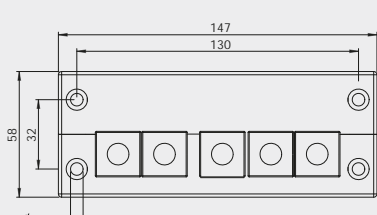
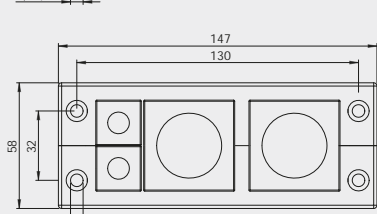
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)  |
| Temperature        | - 40°C to + 140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 36/46 × 112 mm / Page 192 - 193  |
| Frame depth        | 17 mm  |

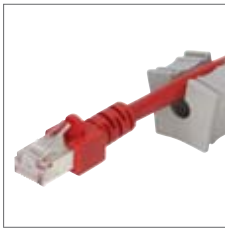
### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-SNAP Mounting frames | 36 - 37   |
| KEL-EMC Cable collectors | 122 - 124 |
| KDR Base plates          | 142 - 151 |
| FP Flange plates         | 152 - 157 |
| MP Module plates         | 148 - 149 |

|  |                           |           |      |    |
|--|---------------------------|-----------|------|----|
|   | KEL 24 10                 | 42241     | 10 - | 10 |
|  | KEL 24 10 with V2A screws | 42241.200 | 10 - | 10 |
|  | KEL 24 7                  | 42247     | 6 1  | 10 |
|  | KEL 24 7 with V2A screws  | 42247.200 | 6 1  | 10 |
|  | KEL 24 5                  | 42248     | 5 -  | 10 |
|  | KEL 24 5 with V2A screws  | 42248.200 | 5 -  | 10 |
|  | KEL 24 4                  | 42244     | 2 2  | 10 |
|  | KEL 24 4 with V2A screws  | 42244.200 | 2 2  | 10 |

# KEL 16

## Cable entry frames



Slit grommets



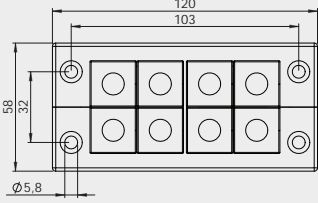
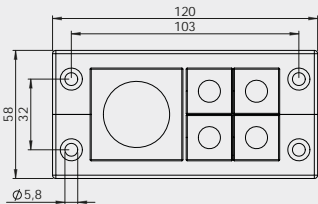
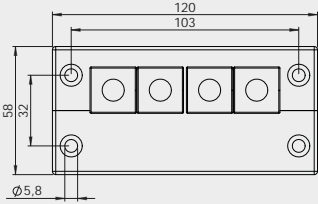
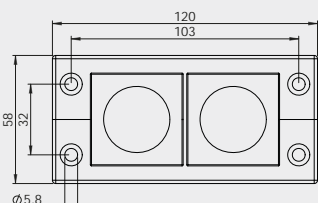
V2A anti-corrosive

Also available with stainless steel screws (V2A).



Also available with threaded bushings.



| Type                        | Order No. | Grommets<br>small   large | PU | Description   |
|-----------------------------|-----------|---------------------------|----|---|
| KEL 16 8                    | 42168     | 8 -                       | 10 |   |
| KEL 16 8<br>with V2A screws | 42168.200 | 8 -                       | 10 |   |
| KEL 16 5                    | 42165     | 4 1                       | 10 |  |
| KEL 16 5<br>with V2A screws | 42165.200 | 4 1                       | 10 |   |
| KEL 16 4                    | 42164     | 4 -                       | 10 |  |
| KEL 16 4<br>with V2A screws | 42164.200 | 4 -                       | 10 |   |
| KEL 16 2                    | 42162     | - 2                       | 10 |  |
| KEL 16 2<br>with V2A screws | 42162.200 | - 2                       | 10 |   |

### Product description

Centrally split cable entry system for routing cables with connectors, providing an IP54 / up to NEMA type 12 rating. The slit grommet matching the cable diameter is placed around the cable and inserted into the cable entry frame. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. The split cable entry frame KEL 16 matches exactly the cut-out dimensions of 16-pin standard industrial connectors. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)  |
| Temperature        | - 40°C to + 140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 36/46 × 86 mm / Page 192 - 193   |
| Frame depth        | 17 mm  |

### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-SNAP Mounting frames | 36 - 37   |
| KEL-EMC Cable collectors | 122 - 124 |
| KDR Base plates          | 142 - 151 |
| FP Flange plates         | 152 - 157 |

# KEL 10

## Cable entry frames



Slit grommets



Also available with stainless steel screws (V2A).



Also available with threaded bushings.

1



| Description | Type | Order No. | Grommets<br>small   large | PU |
|-------------|------|-----------|---------------------------|----|
|-------------|------|-----------|---------------------------|----|

### Product description

Centrally split cable entry system for routing cables with connectors, providing an IP54 / up to NEMA type 12 rating. The slit grommet matching the cable diameter is placed around the cable and inserted into the cable entry frame. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. The split cable entry frame KEL 10 matches exactly the cut-out dimensions of 10-pin standard industrial connectors. A flat rubber gasket is included in the shipment.

### Advantages & benefits

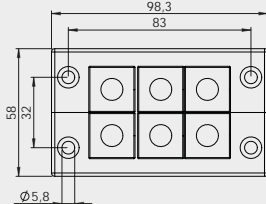
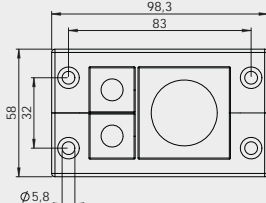
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)  |
| Temperature        | - 40°C to + 140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 36/46 × 65 mm / Page 192 - 193   |
| Frame depth        | 17 mm  |

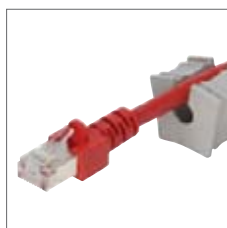
### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-SNAP Mounting frames | 36 - 37   |
| KEL-EMC Cable collectors | 122 - 124 |

|  |                          |           |     |    |
|--|--------------------------|-----------|-----|----|
|   | KEL 10 6                 | 42216     | 6 - | 10 |
|  | KEL 10 6 with V2A screws | 42216.200 | 6 - | 10 |
|  | KEL 10 3                 | 42212     | 2 1 | 10 |
|  | KEL 10 3 with V2A screws | 42212.200 | 2 1 | 10 |

# KEL-B

## Cable entry frames



Slit grommets



V2A  
anti-corrosive

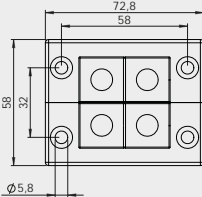
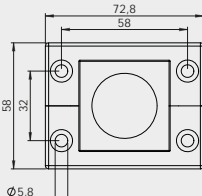
Also available with stainless steel screws (V2A).



Also available with threaded bushings.



| Type | Order No. | Grommets<br>small   large | PU | Description |
|------|-----------|---------------------------|----|-------------|
|------|-----------|---------------------------|----|-------------|

|                           |           |     |    |   |
|---------------------------|-----------|-----|----|---|
| KEL-B4                    | 42204     | 4 - | 10 |   |
| KEL-B4<br>with V2A screws | 42204.200 | 4 - | 10 |   |
| KEL-B1                    | 42206     | - 1 | 10 |  |
| KEL-B1<br>with V2A screws | 42206.200 | - 1 | 10 |   |

### Product description

Centrally split cable entry system for routing cables with connectors, providing an IP54 / up to NEMA type 12 rating. The slit grommet matching the cable diameter is placed around the cable and inserted into the cable entry frame. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. The split cable entry frame KEL-B matches exactly the cut-out dimensions of 46 × 46 mm measuring instruments. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- Space saving shape
- Small cut-out, high cable density
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)  |
| Temperature        | - 40°C to + 140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 46 × 46 mm / Page 192 - 193  |
| Frame depth        | 17 mm  |

### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-SNAP Mounting frames | 36 - 37   |
| KEL-EMC Cable collectors | 122 - 124 |
| FP Flange plates         | 152 - 157 |

# KEL 24-E

## Extended cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



Also available with threaded steel screws (V2A).  
Also available with threaded bushings.



| Description | Type | Order No. | Grommets<br>small   large | PU |
|-------------|------|-----------|---------------------------|----|
|-------------|------|-----------|---------------------------|----|

### Product description

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

The KEL24-E series are KEL 24 frames extended with an additional middle frame for routing additional cables. Thus allowing a quick, easy and cost effective routing solution for up to 60 cables.

A flat rubber gasket is included in the shipment.

### Advantages & benefits

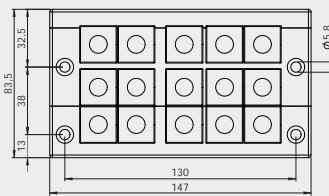
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| Temperature        | - 40°C to + 140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 66 x 112 mm / Page 192 - 193   |
| Frame depth        | 17 mm  |

### Accessories

|                          |           |
|--------------------------|-----------|
| KEL-SNAP Mounting frames | 36 - 37   |
| Cable grommets           | 44 - 48   |
| KEL-EMC Cable collectors | 122 - 124 |



KEL 24|15-E

42209

15|-

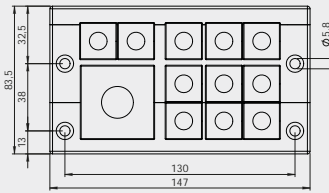
1

KEL 24|15-E with V2A screws

42209.200

15|-

1



KEL 24|12-E

42208

11|1

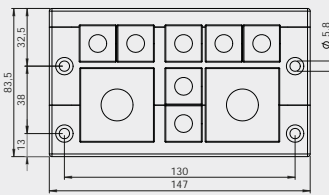
1

KEL 24|12-E with V2A screws

42208.200

11|1

1



KEL 24|9-E

42207

7|2

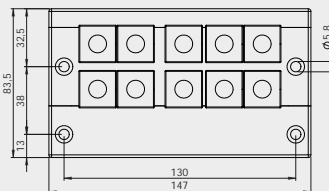
1

KEL 24|9-E with V2A screws

42207.200

7|2

1



KEL 24|10-E

49056

10|-

1

KEL 24|10-E with V2A screws

49056.200

10|-

1

# KEL 24-MT

## Extended cable entry frames



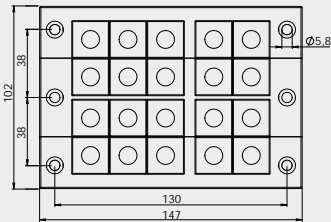
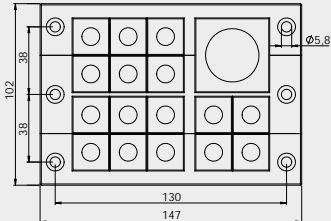
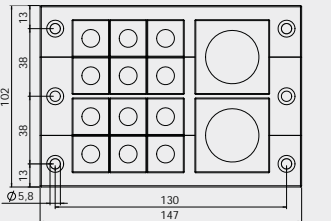
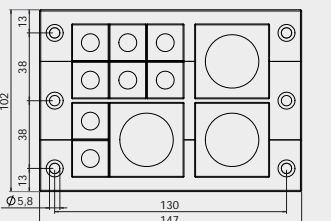
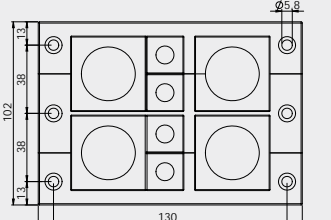
V2A anti-corrosive  
Also available with stainless steel screws (V2A).



Also available with threaded bushings.



| Type | Order No. | Grommets<br>small   large | PU | Description |
|------|-----------|---------------------------|----|-------------|
|------|-----------|---------------------------|----|-------------|

|                              |           |      |   |   |
|------------------------------|-----------|------|---|---|
| KEL 24 20-MT                 | 42232     | 20 - | 1 |   |
| KEL 24 20-MT with V2A screws | 42232.200 | 20 - | 1 |   |
| KEL 24 17-MT                 | 42224     | 16 1 | 1 |  |
| KEL 24 17-MT with V2A screws | 42224.200 | 16 1 | 1 |   |
| KEL 24 14-MT                 | 42225     | 12 2 | 1 |  |
| KEL 24 14-MT with V2A screws | 42225.200 | 12 2 | 1 |   |
| KEL 24 11-MT                 | 42222     | 8 3  | 1 |  |
| KEL 24 11-MT with V2A screws | 42222.200 | 8 3  | 1 |   |
| KEL 24 8-MT                  | 42221     | 4 4  | 1 |  |
| KEL 24 8-MT with V2A screws  | 42221.200 | 4 4  | 1 |   |

### Product description

The cable entry frame KEL 24-MT provides additional cable routing possibilities.

The KEL 24-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.

A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529) |
| Temperature        | -40°C to +140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 82 × 112 mm / Page 192 - 193   |
| Frame depth        | 17 mm  |

### Accessories

|                          |           |
|--------------------------|-----------|
| KEL-SNAP Mounting frames | 36 - 37   |
| Cable grommets           | 44 - 48   |
| KEL-EMC Cable collectors | 122 - 124 |

# KEL 24-2MT

## Extended cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



Also available with threaded steel bushings.

1

| Description | Type | Order No. | Grommets<br>small   large | PU |
|-------------|------|-----------|---------------------------|----|
|-------------|------|-----------|---------------------------|----|

### Product description

The KEL 24-2MT is our largest frame providing the ability to route and seal up to 120 cables.

The cable entry frames KEL 24-2MT 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. A flat rubber gasket is included in the shipment.

### Advantages & benefits

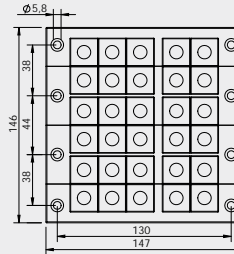
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

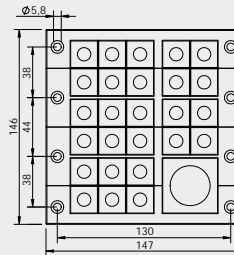
|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529) |
| Temperature        | -40°C to +140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 126 × 112 mm / Page 192 - 193  |
| Frame depth        | 17 mm  |

### Accessories

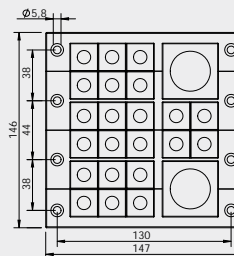
|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-EMC Cable collectors | 122 - 124 |



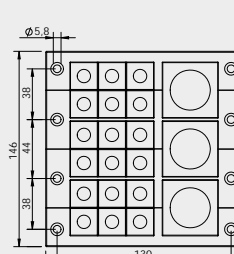
|                |       |      |   |
|----------------|-------|------|---|
| KEL 24 30-2 MT | 42234 | 30 - | 1 |
|----------------|-------|------|---|



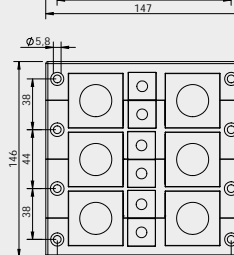
|                                |           |      |   |
|--------------------------------|-----------|------|---|
| KEL 24 30-2 MT with V2A screws | 42234.200 | 30 - | 1 |
|--------------------------------|-----------|------|---|



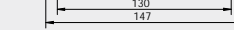
|                |       |      |   |
|----------------|-------|------|---|
| KEL 24 27-2 MT | 42233 | 26 1 | 1 |
|----------------|-------|------|---|



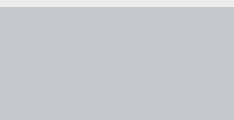
|                                |           |      |   |
|--------------------------------|-----------|------|---|
| KEL 24 27-2 MT with V2A screws | 42233.200 | 26 1 | 1 |
|--------------------------------|-----------|------|---|



|                |       |      |   |
|----------------|-------|------|---|
| KEL 24 24-2 MT | 42227 | 22 2 | 1 |
|----------------|-------|------|---|



|                                |           |      |   |
|--------------------------------|-----------|------|---|
| KEL 24 24-2 MT with V2A screws | 42227.200 | 22 2 | 1 |
|--------------------------------|-----------|------|---|



|                |       |      |   |
|----------------|-------|------|---|
| KEL 24 21-2 MT | 42226 | 18 3 | 1 |
|----------------|-------|------|---|



|                                |           |      |   |
|--------------------------------|-----------|------|---|
| KEL 24 21-2 MT with V2A screws | 42226.200 | 18 3 | 1 |
|--------------------------------|-----------|------|---|



|                |       |     |   |
|----------------|-------|-----|---|
| KEL 24 12-2 MT | 42223 | 6 6 | 1 |
|----------------|-------|-----|---|



|                                |           |     |   |
|--------------------------------|-----------|-----|---|
| KEL 24 12-2 MT with V2A screws | 42223.200 | 6 6 | 1 |
|--------------------------------|-----------|-----|---|



# KEL 16-E

## Extended cable entry frames



V2A anti-corrosive

Also available with stainless steel screws (V2A).



Also available with threaded bushings.



| Type | Order No. | Grommets<br>small   large | PU | Description |
|------|-----------|---------------------------|----|-------------|
|------|-----------|---------------------------|----|-------------|

|                             |           |      |   |  |
|-----------------------------|-----------|------|---|--|
| KEL 16 12-E                 | 42141     | 12 - | 1 |  |
| KEL 16 12-E with V2A screws | 42141.200 | 12 - | 1 |  |
| KEL 16 6-E                  | 42140     | 4 2  | 1 |  |
| KEL 16 6-E with V2A screws  | 42140.200 | 4 2  | 1 |  |

### Product description

The cable entry frame KEL 16-E offers a larger frame size for routing a greater amount of cables, pipes or conduits.

The KEL16-E series are KEL 16 frames extended with an additional middle frame for routing additional cables. Thus allowing a quick, easy and cost effective routing solution for up to 48 cables.

A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| Temperature        | - 40°C to + 140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 66 × 86 mm   |
| Frame depth        | 17 mm  |

### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-EMC Cable collectors | 122 - 124 |

# KEL 16-MT

## Extended cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



Also available with threaded bushings.

### Product description

The cable entry frame KEL 16-MT provides additional cable routing possibilities.

The KEL 16-MT series are KEL 16 frames extended with an additional middle frame for routing additional cables. Thus allowing the quick, easy and cost effective routing solution for up to 64 cables.

A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)   |
| Flame class        | UL94-Vo, self-extinguishing  |
| IP rating          | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529) |
| Temperature        | -40°C to +140°C (static)   |
| Properties         | Halogen-free, silicone-free  |
| Cut-out dimensions | 82 × 86 mm   |
| Frame depth        | 17 mm  |

### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-EMC Cable collectors | 122 - 124 |

| Description | Type | Order No. | Grommets<br>small   large | PU |
|-------------|------|-----------|---------------------------|----|
|-------------|------|-----------|---------------------------|----|

|  |                              |           |      |   |
|--|------------------------------|-----------|------|---|
|  | KEL 16 16-MT                 | 42145     | 16 - | 1 |
|  | KEL 16 16-MT with V2A screws | 42145.200 | 16 - | 1 |
|  | KEL 16 10-MT                 | 42144     | 8 2  | 1 |
|  | KEL 16 10-MT with V2A screws | 42144.200 | 8 2  | 1 |
|  | KEL 16 4-MT                  | 42143     | - 4  | 1 |
|  | KEL 16 4-MT with V2A screws  | 42143.200 | - 4  | 1 |

# KEL 16-2MT

## Extended cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



Also available with threaded bushings.



| Type | Order No. | Grommets<br>small   large | PU | Description |
|------|-----------|---------------------------|----|-------------|
|------|-----------|---------------------------|----|-------------|

|                                 |           |      |   |  |
|---------------------------------|-----------|------|---|--|
| KEL 16  24-2 MT                 | 42149     | 24 - | 1 |  |
| KEL 16  24-2 MT with V2A screws | 42149.200 | 24 - | 1 |  |
| KEL 16  12-2 MT                 | 42148     | 8 4  | 1 |  |
| KEL 16  12-2 MT with V2A screws | 42148.200 | 8 4  | 1 |  |
| KEL 16  6-2 MT                  | 42147     | - 6  | 1 |  |
| KEL 16  6-2 MT with V2A screws  | 42147.200 | - 6  | 1 |  |

### Product description

The KEL 16-2MT is our largest frame providing the ability to route and seal up to 96 cables.

The cable entry frames KEL 16-2MT series are KEL 16 frames extended with two additional middle frames for routing additional cables. Thus allowing the quick, easy and cost effective routing solution for up to 96 cables. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                        |  |
|------------------------|--|
| Material               | Polyamide (PA)   |
| Flame class            | UL94-Vo, self-extinguishing  |
| IP rating              | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529) |
| Temperature Properties | -40°C to +140°C (static)   |
| Properties             | Halogen-free, silicone-free  |
| Cut-out dimensions     | 126 x 86 mm  |
| Frame depth            | 17 mm  |

### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-EMC Cable collectors | 122 - 124 |

# KEL-FG A

Flange enclosures for cable entry



Slit grommets

1

| Description | Type | Order No. | Grommets<br>small   large | PU |
|-------------|------|-----------|---------------------------|----|
|-------------|------|-----------|---------------------------|----|

## Product description

The cable entry frames KEL-FG are suited for installation, sealing and strain relief of cables with connectors and conduits at an angle of 90° to the cabinet, enclosure or machine wall. For routing cables and conduits up to 35 mm in diameter. A flat rubber gasket is included in the shipment.

## Advantages & benefits

- Installation at an angle of 90° to the wall
- Mechanical protection of cable directly at the place of entry
- Protection against water spray and drips
- Warranty on pre-terminated cables remains
- Strain relief according to EN 62444
- High stability, vibration resistant

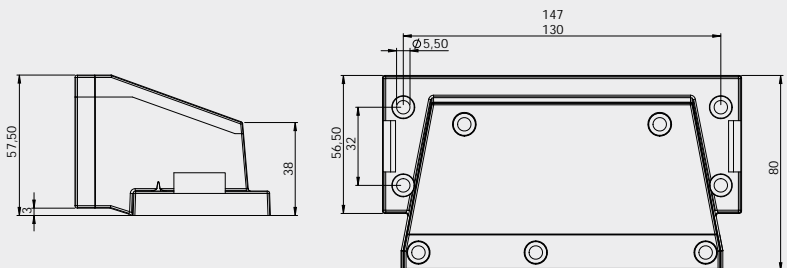
## Specifications

|                    |   |
|--------------------|---|
| Material           | Polyamide (PA)  |
| Flame class        | UL94-Vo, self-extinguishing                                   |
| IP rating          | IP54, with gasket and correct selection of the cable grommets |
| Temperature        | - 40°C to + 140°C (static)                                    |
| Properties         | Halogen-free, silicone-free                                   |
| Cut-out dimensions | 36 × 112 mm, Page 192 - 193                                   |

## Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-SNAP Mounting frames | 36 - 37   |
| KEL-EMC Cable collectors | 122 - 124 |

|  |                                   |                  |             |          |
|--|-----------------------------------|------------------|-------------|----------|
|  | <b>KEL-FG A10</b>                 | <b>42320</b>     | <b>10 -</b> | <b>1</b> |
|  | <b>KEL-FG A10 with V2A screws</b> | <b>42320.200</b> | <b>10 -</b> | <b>1</b> |
|  | <b>KEL-FG A7</b>                  | <b>42322</b>     | <b>6 1</b>  | <b>1</b> |
|  | <b>KEL-FG A7 with V2A screws</b>  | <b>42322.200</b> | <b>6 1</b>  | <b>1</b> |
|  | <b>KEL-FG A4</b>                  | <b>42324</b>     | <b>2 2</b>  | <b>1</b> |
|  | <b>KEL-FG A4 with V2A screws</b>  | <b>42324.200</b> | <b>2 2</b>  | <b>1</b> |



# KEL-FG B

## Flange enclosures for cable entry



V2A anti-corrosive



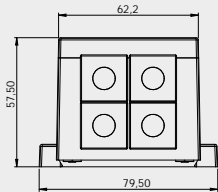
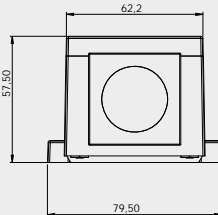
Also available with threaded bushings.



Slit grommets



| Type | Order No. | Grommets<br>small   large | PU | Description |
|------|-----------|---------------------------|----|-------------|
|------|-----------|---------------------------|----|-------------|

|                           |           |     |   |   |
|---------------------------|-----------|-----|---|---|
| KEL-FG B4                 | 42330     | 4 - | 1 |    |
| KEL-FG B4 with V2A screws | 42330.200 | 4 - | 1 |   |
| KEL-FG B1                 | 42332     | - 1 | 1 |  |
| KEL-FG B1 with V2A screws | 42332.200 | - 1 | 1 |   |

### Product description

The cable entry frames KEL-FG are suited for installation, sealing and strain relief of cables with connectors and conduits at an angle of 90° to the cabinet, enclosure or machine wall. For routing cables and conduits up to 35 mm in diameter. A flat rubber gasket is included in the shipment.

### Advantages & benefits

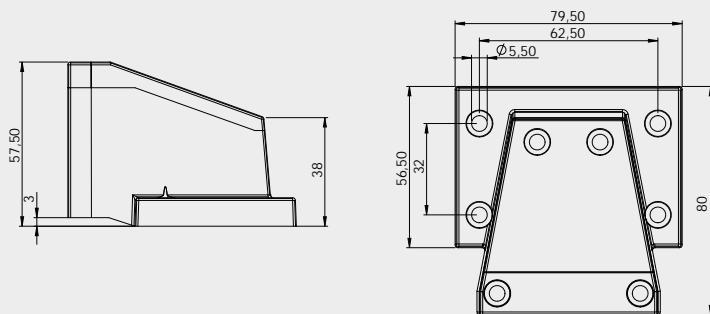
- Installation at an angle of 90° to the wall
- Mechanical protection of cable directly at the place of entry
- Protection against water spray and drips
- Warranty on pre-terminated cables remains
- Strain relief according to EN 62444
- High stability, vibration resistant

### Specifications

|                    |   |
|--------------------|---|
| Material           | Polyamide (PA)  |
| Flame class        | UL94-Vo, self-extinguishing                                   |
| IP rating          | IP54, with gasket and correct selection of the cable grommets |
| Temperature        | - 40°C to + 140°C (static)                                    |
| Properties         | Halogen-free, silicone-free                                   |
| Cut-out dimensions | 46 x 36 mm, Page 192 - 193                                    |

### Accessories

|                          |           |
|--------------------------|-----------|
| Cable grommets           | 44 - 48   |
| KEL-EMC Cable collectors | 122 - 124 |



# KEL-FL

## Cable entry frames for flat cables



### Product description

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

Innovative construction of the grommets compensates for manufacturing inconsistencies in flat cables. Split KT grommets can be utilised to additionally route round cables with connectors. A flat rubber gasket is included in the shipment.

### Advantages & benefits

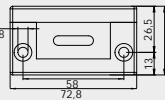
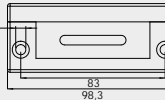
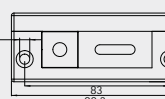
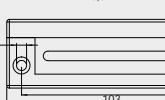
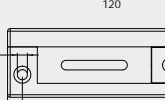
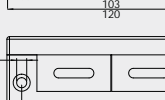
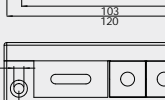
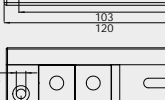
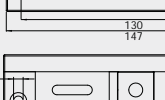
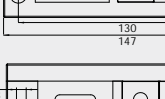


- Routing of flat cables in combination with pre-terminated round cables by using a single KEL-FL cable entry frame
- Space saving shape

### Specifications

|                   |   |
|-------------------|---|
| Material          | Polyamide (PA)  |
| Flame class       | UL94-Vo, self-extinguishing                                   |
| IP rating         | IP54, with gasket and correct selection of the cable grommets |
| Temperature       | - 40°C to + 140°C (static)                                    |
| Properties        | Halogen-free, silicone-free                                   |
| Drilling template | See Page 192 - 193  |
| Frame depth       | 17 mm   |

### Accessories

|                                   |           |
|-----------------------------------|-----------|
| KT Cable grommets, small          | 44 - 45   |
| KTMB/KT-DPF Cable grommets, small | 47        |
| FT Cable grommets, flat           | 31        |
| KEL-EMC Cable collectors          | 122 - 124 |

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



# FT Grommets for flat cables



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

## Product description

FT grommets are used to route flat cables, e.g. in lift construction. Suitable for cable entry frames KEL-FL.

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

## Advantages & benefits

- Routing of flat cables with various dimensions

## Specifications

|             |                             |
|-------------|-----------------------------|
| Material    | Elastomer                   |
| Flame class | UL94-Vo, self-extinguishing |
| IP rating   | IP54                        |
| Temperature | - 40°C to + 90°C (static)   |
| Properties  | Halogen-free, silicone-free |

## Compatible with

KEL-FL Cable entry frames 30

# KEL 183 | KEL 183-E

Cable entry frames for supply cables



## Product description

The split cable entry frame KEL 183 enables the user to route cables and tubes with a diameter of up to 75 mm (depending on the frame type) and to seal them in accordance with IP54 / up to NEMA type 12.

For cables up to 35 mm the cable grommets KT can be used. With these split cable grommets, pre-terminated cables can be routed.

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

A flat rubber gasket is included in the shipment.

## Advantages & benefits

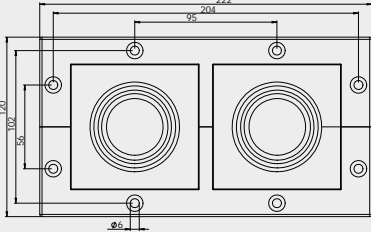
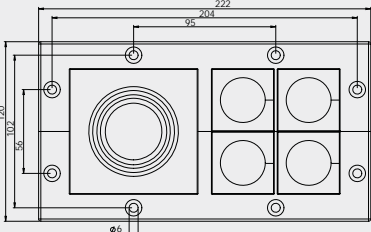
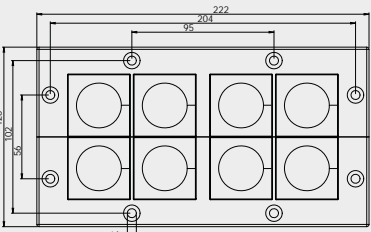
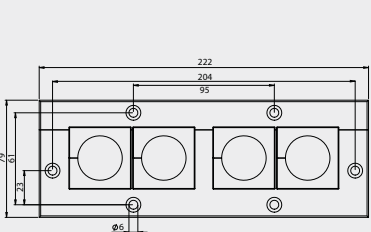
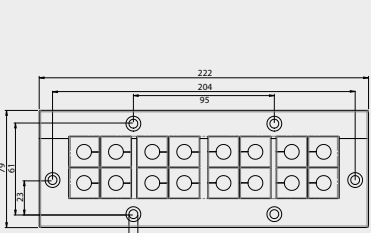
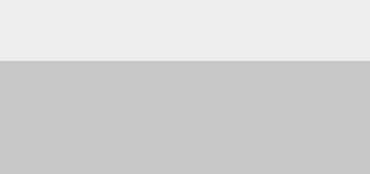
- Installation of cables up to 75 mm
- Grommets allow rigid cables to be properly positioned and oriented during the installation process.
- Retrofits, repairs and maintenance can be done much more easily and quickly

## Specifications

|                    |  |
|--------------------|--|
| Material           | Polyamide (PA)                                       |
| Flame class        | UL94-Vo, self-extinguishing                          |
| IP rating          | IP54 with gasket and correct selection of the cables |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)                        |
| Temperature        | - 40°C to + 140°C (static)                           |
| Properties         | Halogen-free, silicone-free                          |
| Cut-out dimensions | See page 192 - 193                                   |
| Frame depth        | 17 mm  |

## Accessories

|                         |         |
|-------------------------|---------|
| KTMB 183 Cable grommets | 33      |
| Cable grommets          | 44 - 48 |

| Description  | Type   | Order No. | Grommets<br>KT 183   KT large | PU |
|--|--|-----------|-------------------------------|----|
|   | KEL 183 2                                    | 47200     | 2 -                           | 1  |
|  | KEL 183 2<br>with V2A screws                 | 47200.200 | 2 -                           | 1  |
|  | KEL 183 5                                    | 47220     | 1 4                           | 1  |
|  | KEL 183 5<br>with V2A screws                 | 47220.200 | 1 4                           | 1  |
|  | KEL 183 8                                    | 47240     | - 8                           | 1  |
|  | KEL 183 8<br>with V2A screws                 | 47240.200 | - 8                           | 1  |
|  | KEL 183-E4                                   | 47250     | - 4                           | 1  |
|  | KEL 183-E4<br>with V2A screws                | 47250.200 | - 4                           | 1  |
|  | KEL 183-E16                                  | 47255     | 16 KT small                   | 1  |
|  | <b>NEW</b><br>KEL 183-E16<br>with V2A screws | 47255.200 | 16 KT small                   | 1  |



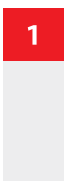


# KTMB 183

## Grommets for KEL 183



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



### Product description

The grommets KTMB-P to KTMB-S are suitable for cable diameters up to 75 mm. These grommets can be used with the KEL 183 cable entry frames.

These multi-range grommets are not split and have a defined area for pushing the cable through.

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

### Specifications

|                  |                               |
|------------------|-------------------------------|
| Material         | Elastomer                     |
| Flame class      | UL94-Vo, self-extinguishing   |
| IP rating        | IP54                          |
| NEMA type rating | NEMA type 12 (acc. to UL 50E) |
| Temperature      | - 40°C to + 90°C (static)     |
| Properties       | Halogen-free, silicone-free   |

### Compatible with

KEL 183 Cable entry frames 32

# KEL-JUMBO

Cable entry frames for supply cables



**IP54**



Also available with stainless steel screws (V2A).

1

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

## Product description

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

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

We recommend round cut-outs, which can be made using standard punching tools.

Suggested cut-out: cable diameter +15 - 20%.  
A flat rubber gasket is included in the shipment.

## Advantages & benefits

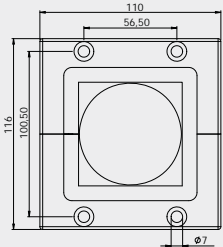
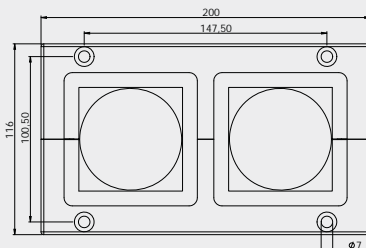
- Installation of cables up to 65 mm
- KTF grommets allow flexing and adjustment of the cable position
- Retrofitting and maintenance can be carried out easily and quickly
- Strain relief according to EN 62444

## Specifications

|                    |                               |
|--------------------|-------------------------------|
| Material           | Polyamide (PA)                |
| Flame class        | UL94-Vo, self-extinguishing   |
| IP rating          | IP54                          |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E) |
| Temperature        | - 40°C to + 140°C (static)    |
| Properties         | Halogen-free, silicone-free   |
| Cut-out dimensions | Round, cable diameter +15%    |
| Frame depth        | 35 mm                         |

## Accessories

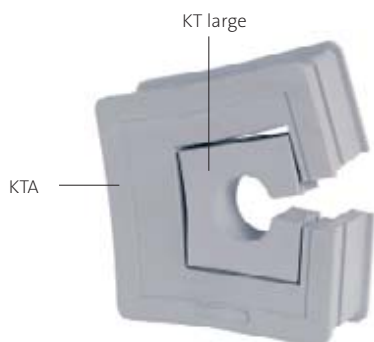
|                        |           |
|------------------------|-----------|
| KTF Cable grommets     | 35        |
| KDR-ESR Base plates    | 142 - 143 |
| KDR2 Split base plates | 144 - 145 |
| MP Module plates       | 148 - 149 |

|  |                            |           |                |   |
|--|----------------------------|-----------|----------------|---|
|    | KEL-JUMBO1                 | 42360     | 110 × 116 × 35 | 1 |
|  | KEL-JUMBO1 with V2A screws | 42360.200 | 110 × 116 × 35 | 1 |
|  | KEL-JUMBO2                 | 42350     | 200 × 116 × 35 | 1 |
|  | KEL-JUMBO2 with V2A screws | 42350.200 | 200 × 116 × 35 | 1 |



# KTF

## Grommets for KEL-JUMBO



| Type   | Order No.<br>grey | Clamping range                  | PU |
|--------|-------------------|---------------------------------|----|
| KTF 00 | 42371             | Blank grommet                   | 1  |
| KTA    | 42370             | Adapter grommet<br>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 grommets KTF are suitable for cable diameters up to 65 mm.

Suitable for KEL-JUMBO cable entry frames.

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

### Specifications

|                  |                               |
|------------------|-------------------------------|
| Material         | Elastomer                     |
| Flame class      | UL94-Vo, self-extinguishing   |
| IP rating        | IP54                          |
| NEMA type rating | NEMA type 12 (acc. to UL 50E) |
| Temperature      | - 40°C to + 90°C (static)     |
| Properties       | Halogen-free, silicone-free   |

### Compatible with

KEL-JUMBO Cable entry frames 34

### Accessories

KT Cable grommets, large 46

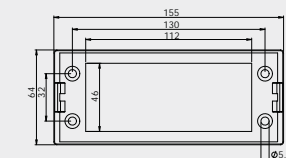
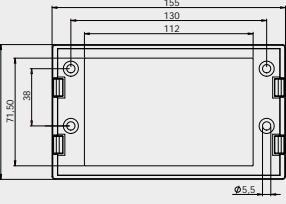
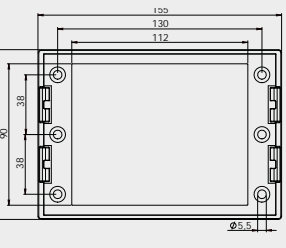


# KEL-SNAP

## Snap mounting frames



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

|                |       |  |          |    |   |
|----------------|-------|--|----------|----|---|
| KEL-SNAP 24    | 42042 | KEL 24<br>KEL-U 24<br>KEL-FG A<br>KEL-QUICK 24 | 46 × 112 | 10 |    |
| KEL-SNAP 24-E  | 42044 | KEL 24-E                                       | 71 × 112 | 1  |  |
| KEL-SNAP 24-MT | 42046 | KEL 24-MT                                      | 89 × 112 | 1  |  |

### Specifications

|                    |                                   |
|--------------------|-----------------------------------|
| Material           | Polyamide (PA)                    |
| Flame class        | UL94-Vo, self-extinguishing       |
| IP rating          | IP54 (certified acc. to EN 60529) |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)     |
| Temperature        | - 40°C to + 140°C (static)        |
| Properties         | Halogen-free, silicone-free       |
| Cut-out dimensions | See Page 192 - 193                |

### Accessories

|                              |           |
|------------------------------|-----------|
| KEL Cable entry frames       | 18 - 24   |
| KEL-U Cable entry frames     | 8 - 14    |
| KEL-QUICK Cable entry frames | 50 - 51   |
| MP Module plates             | 148 - 149 |
| BPK-SNAP Blank plates        | 160       |

# KVT

## Split cable glands



IP54

1

### Product description

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

Polyamide locknuts as well as a sealing ring are included in the shipment.

For routing D-Sub, DVI or PROFIBUS connectors in combination with the split cable glands KVT, special locknuts with cut-outs are required.

### Locknuts

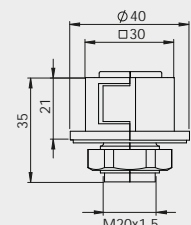
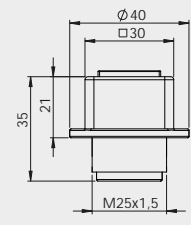
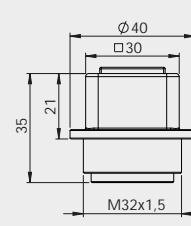
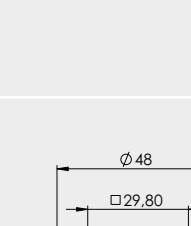
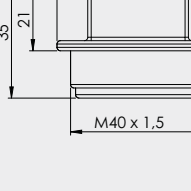
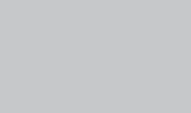
Locknuts with special cut-outs are available separately. The cut-out dimensions are listed on pages 162 - 163.



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

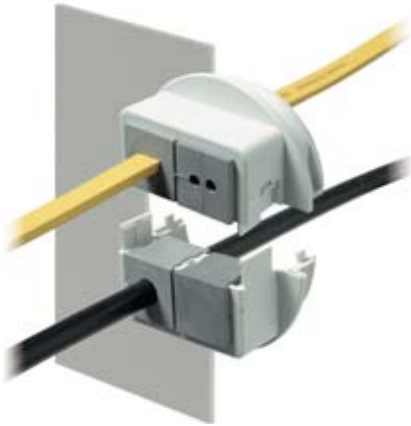
**KGM-PB** fits DVI and PROFIBUS connectors  
(Required wall cut-out:  $\varnothing$  42 mm, PU: 10)  
 Order No. 45107  Order No. 45109

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

| Description   | Type                | Order No.  | Grommets small   large | Thread Thread length       | PU |
|---|---------------------|--|------------------------|----------------------------|----|
|   | KVT 20**            | <input type="checkbox"/> 45034<br><input type="checkbox"/> 45024 | 1 -                    | M20 x 1.5<br>Length: 14 mm | 10 |
|  | KVT 25***           | <input type="checkbox"/> 45035<br><input type="checkbox"/> 45025 | 1 -                    | M25 x 1.5<br>Length: 14 mm | 10 |
|  | KVT 32              | <input type="checkbox"/> 45036<br><input type="checkbox"/> 45026 | 1 -                    | M32 x 1.5<br>Length: 14 mm | 10 |
|  | KVT 32 + KGM-SUB-D9 | <input type="checkbox"/> 45037<br><input type="checkbox"/> 45027 | 1 -                    | M32 x 1.5<br>Length: 14 mm | 10 |
|  | KVT 40              | <input type="checkbox"/> 45203<br><input type="checkbox"/> 45028 | 1 -                    | M40 x 1.5<br>Length: 14 mm | 10 |
|  | KVT 40 + KGM-PB     | <input type="checkbox"/> 45205<br><input type="checkbox"/> 45029 | 1 -                    | M40 x 1.5<br>Length: 14 mm | 10 |

\* Only valid for grey product types

\*\* Max. cable diameter of 11 mm | \*\*\* Max. cable diameter of 15 mm


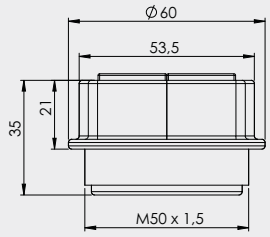




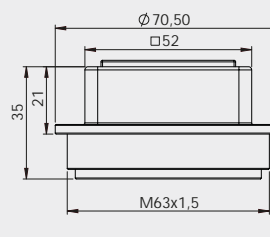





# KVT

## Split cable glands



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



|                        |   |     |                            |   |   |
|------------------------|---|-----|----------------------------|---|---|
| KVT 50 2               |  45204   | 2 - | M50 x 1,5<br>Length: 14 mm | 5 |   |
|                        |  45030   |     |                            |   |   |
| KVT 50 2 + KGM-SUB-D25 |  45206 | 2 - | M50 x 1,5<br>Length: 14 mm | 5 |   |
|                        |  45031 |     |                            |   |   |
| KVT 63 1               |  45212 | - 1 | M63 x 1,5<br>Length: 14 mm | 5 |  |
|                        |  45112 |     |                            |   |   |
| KVT 63 4               |  45215 | 4 - | M63 x 1,5<br>Length: 14 mm | 5 |   |
|                        |  45115 |     |                            |   |   |

### Advantages & benefits

- Insertion of pre-terminated cables
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Suitable for metric cut-outs
- Locknut is included



### Specifications

|                   |  |
|-------------------|--|
| Material          | Polycarbonate (PC)   |
| Colour            |  grey (similar RAL 7035)<br> black |
| Flame class       | UL94-Vo, self-extinguishing  |
| IP rating         | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529)   |
| NEMA type rating  | NEMA type 12 (acc. to UL 50E)  |
| Temperature       | - 30°C to + 100°C (static)   |
| Properties        | Halogen-free, silicone-free  |
| Cut-out dimension | Metric sizes   |

### Accessories

|                  |          |
|------------------|----------|
| Cable grommets   | 44 - 48  |
| KVT-EMC Brackets | 125      |
| Locknuts         | 162 -163 |

\* Only valid for grey product types

# KVT 8o

## Split cable glands



IP54

1

| Description | Type | Order No. | Grommets KT<br>small   large | PU |
|-------------|------|-----------|------------------------------|----|
|-------------|------|-----------|------------------------------|----|

### Product description

The KVT 8o split cable glands are designed for routing and sealing cables with connectors.

By assembling the two frame halves with the screws provided, the grommets provide sufficient pressure on the routed cables to obtain a high degree of strain relief. The KVT 8o can be fitted to a wall thickness from 1,5 mm to 10 mm. A flat rubber gasket is included in the shipment.

### Advantages & benefits

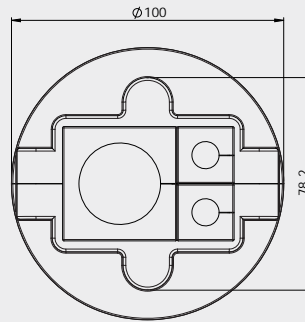
- Insertion of pre-terminated cables
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Fast and easy mounting from the front side
- Strain relief according to EN 62444

### Note

When mounting the KVT 8o on sheet metal, we recommend the following torque values:  
 1,5 mm sheet = 1 Nm | 2 - 10 mm sheet = 1,5 Nm

### Specifications

|                   |  |
|-------------------|--|
| Material          | Polycarbonate (PC)   |
| Colour            | <input type="checkbox"/> grey (similar RAL 7035)<br><input type="checkbox"/> black         |
| Flame class       | UL94-Vo, self-extinguishing  |
| IP rating         | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529) |
| NEMA type rating  | NEMA type 12 (acc. to UL 50E)  |
| Temperature       | - 30°C to + 100°C (static)   |
| Properties        | Halogen-free, silicone-free  |
| Cut-out dimension | 80 mm in diameter  |

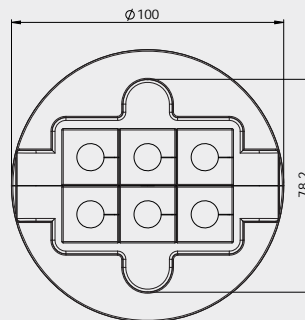


KVT 8o|3

- 45236
- 45239

2|1

1

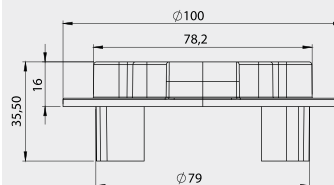


KVT 8o|6

- 45237
- 45238

6|-

1



\*Only valid for grey product types

### Accessories

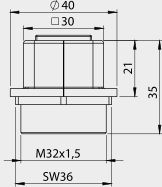
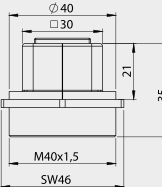
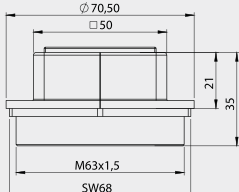
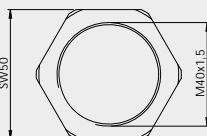
Cable grommets 44 - 48



# KVT-SNAP

## Pluggable split cable glands



| Type          | Order No.   | Grommets small   large | Thread Thread length       | PU | Description   |
|---------------|---|------------------------|----------------------------|----|---|
| KVT-SNAP 32   | 45130   | 1 -                    | M32 × 1.5<br>Length: 11 mm | 10 |   |
| KVT-SNAP 40   | 45134   | 1 -                    | M40 × 1.5<br>Length: 11 mm | 10 |  |
| KVT-SNAP 63 4 | 45152   | 4 -                    | M63 × 1.5<br>Length: 11 mm | 5  |  |
| KVT-SNAP 63 1 | 45154   | - 1                    | M63 × 1.5<br>Length: 11 mm | 5  |   |
| KGM 32        | <input type="checkbox"/> 52275<br><input checked="" type="checkbox"/> 52285 | PA                     | M32 × 1.5                  | 10 |  |
| KGM 40        | <input type="checkbox"/> 52276<br><input checked="" type="checkbox"/> 52286 | PA                     | M40 × 1.5                  | 10 |   |
| KGM 63        | <input type="checkbox"/> 52278<br><input checked="" type="checkbox"/> 52288 | PA                     | M63 × 1.5                  | 5  |   |

### Product description

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

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

A sealing ring is included in the shipment.

### Assembly

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

### Specifications

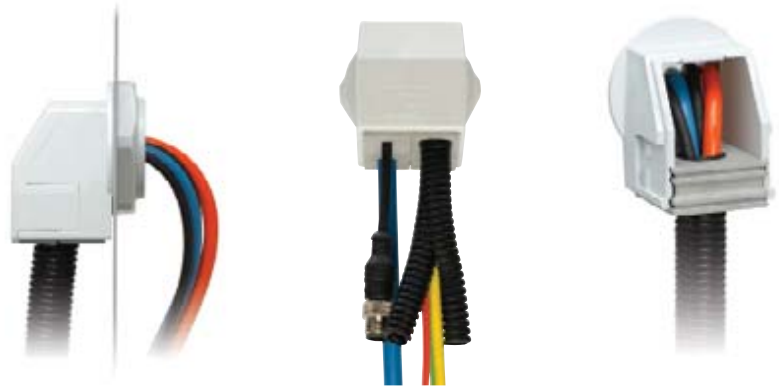
|                   |  |
|-------------------|--|
| Material          | Polycarbonate (PC)   |
| Colour            | <input checked="" type="checkbox"/> grey (similar RAL 7035)                                |
| Flame class       | UL94-Vo, self-extinguishing  |
| IP rating         | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529) |
| Temperature       | - 30°C to + 100°C (static)   |
| Properties        | Halogen-free, silicone-free  |
| Cut-out dimension | Metric cut-outs  |

### Accessories

|                  |          |
|------------------|----------|
| Cable grommets   | 44 - 48  |
| KVT-EMC Brackets | 125      |
| KGM Locknuts     | 162 -163 |

# KVT-W90

## Split cable glands



1

| Description | Type | Order No.<br>with locknut | Grommets<br>small   large | Thread<br>Thread length | PU |
|-------------|------|---------------------------|---------------------------|-------------------------|----|
|-------------|------|---------------------------|---------------------------|-------------------------|----|

### 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 grommets is available to the user.

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

### Advantages & benefits

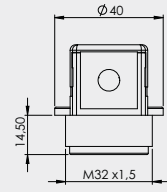
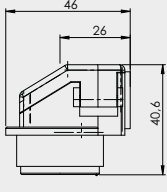
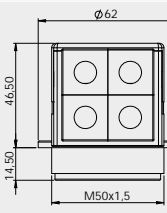
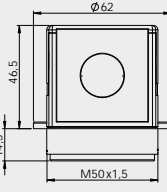
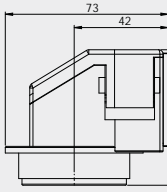
- Installation at an angle of 90° to the cabinet
- Insertion of pre-terminated cables and conduits
- Warranty on pre-terminated cables remains
- Suitable for metric cut-outs

### Specifications

|                   |   |
|-------------------|---|
| Material          | Polycarbonate (PC)  |
| Colour            | <input type="checkbox"/> grey (similar RAL 7035)<br><input checked="" type="checkbox"/> black |
| Flame class       | UL94-Vo, self-extinguishing   |
| IP rating         | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529)    |
| Temperature       | - 30°C to + 100°C (static)  |
| Properties        | Halogen-free, silicone-free   |
| Cut-out dimension | Metric cut-outs   |

### Accessories

|                  |          |
|------------------|----------|
| Cable grommets   | 44 - 48  |
| KVT-EMC Brackets | 125      |
| KGM Locknuts     | 162 -163 |

|   |              |   |     |                              |    |
|---|--------------|---|-----|------------------------------|----|
|    | KVT 32-W90   | <input type="checkbox"/> 45404<br><input checked="" type="checkbox"/> 45406 | 1 - | M32 x 1.5<br>Length: 11.5 mm | 10 |
|   | GMT 32       | <input checked="" type="checkbox"/> 31120                                   | -   | M32 x 1.5                    | 10 |
|  | KVT 50 4-W90 | <input type="checkbox"/> 45424<br><input checked="" type="checkbox"/> 45426 | 4 - | M50 x 1.5<br>Length: 11.5 mm | 5  |
|  | KVT 50 1-W90 | <input type="checkbox"/> 45414<br><input checked="" type="checkbox"/> 45416 | - 1 | M50 x 1.5<br>Length: 11.5 mm | 5  |
|  | GMT 50       | <input checked="" type="checkbox"/> 31140                                   | -   | M50 x 1.5                    | 10 |

\*Only valid for grey product types

# KT ServiceBox

Service box for cable grommets



## KT ServiceBox for cable grommets



### Product description

**Convenient - everything available right away!**

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

**Order No. 88001**

### Content\*

**Cable grommets, small:**

- 121 KT for cables 2 - 17 mm
- 5 BTK blank grommets
- 10 KTMB multi-range grommets
- 2 KT-DPF mutli-range grommets
- 8 KT-ASI for ASI-Bus cables

**Cable grommets, large:**

- 25 KT for cables 16 - 35 mm
- 4 BTG blank grommets / ATG adapter grommets
- 5 KTMB multi-range grommets
- 2 KT-DPF multi-range grommets

**Accessories:**

- 2 KEL-frames
- 1 KVT split cable gland
- 1 KZL strain relief plate
- 1 Cable template

\* Subject to alterations

## KMS Cable template



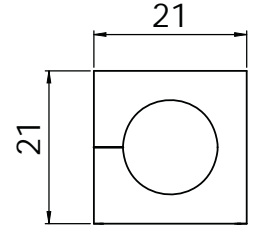
The correct size of the KT grommets can easily be determined by using the cable template

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

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

# KT

## Grommets, small, single



1

### Product description

Cable grommets KT small are used with the following cable entry frames:

KEL-U/KEL-ER/KEL (8 - 34) | KVT (38 - 42)

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

### Assembly note

When installing the grommets, the flat side should be facing the middle of the frame. This allows the flat sides of adjacent grommets to match up and provide a secure seal.

### Specifications KT grey

|                  |  |
|------------------|--|
| Material         | Elastomer  |
| Flame class      | UL94-Vo, self-extinguishing  |
| IP rating        | KT round, single: up to IP65<br>(in combination with KEL-ER frame)<br>KT special/blank: IP54 |
| NEMA type rating | up to NEMA type 4X (acc. to UL 50E)  |
| Temperature      | - 40°C to + 90°C (static)  |
| Properties       | Halogen-free, silicone-free  |

### Specifications KT black

|                  |  |
|------------------|--|
| Material         | Elastomer  |
| Flame class      | UL94-HB  |
| IP rating        | KT round, single: up to IP65<br>(in combination with KEL-ER frame)<br>KT special/blank: IP54 |
| NEMA type rating | up to NEMA type 4X (acc. to UL 50E)  |
| Temperature      | - 30°C to + 90°C (static)  |
| Properties       | Higher chemical resistance   |

| Description | Type | Order No<br>grey | Order No<br>black | Clamping range | PU |
|-------------|------|------------------|-------------------|----------------|----|
|-------------|------|------------------|-------------------|----------------|----|

|          |  |                                |   |                        |    |
|----------|--|--------------------------------|---|------------------------|----|
| BTK      |  | <input type="checkbox"/> 41251 | <input checked="" type="checkbox"/> 41351 | Blank grommet          | 10 |
| KT 2     |  | <input type="checkbox"/> 39934 | <input checked="" type="checkbox"/> 41302 | 2 - 3 mm               | 10 |
| KT 3     |  | <input type="checkbox"/> 41203 | <input checked="" type="checkbox"/> 41303 | 3 - 4 mm               | 10 |
| KT 4     |  | <input type="checkbox"/> 41204 | <input checked="" type="checkbox"/> 41304 | 4 - 5 mm               | 10 |
| KT 5     |  | <input type="checkbox"/> 41205 | <input checked="" type="checkbox"/> 41305 | 5 - 6 mm               | 10 |
| KT 6     |  | <input type="checkbox"/> 41206 | <input checked="" type="checkbox"/> 41306 | 6 - 7 mm               | 10 |
| KT 7     |  | <input type="checkbox"/> 41207 | <input checked="" type="checkbox"/> 41307 | 7 - 8 mm               | 10 |
| KT 8     |  | <input type="checkbox"/> 41208 | <input checked="" type="checkbox"/> 41308 | 8 - 9 mm               | 10 |
| KT 9     |  | <input type="checkbox"/> 41209 | <input checked="" type="checkbox"/> 41309 | 9 - 10 mm              | 10 |
| KT 10    |  | <input type="checkbox"/> 41210 | <input checked="" type="checkbox"/> 41310 | 10 - 11 mm             | 10 |
| KT 11    |  | <input type="checkbox"/> 41211 | <input checked="" type="checkbox"/> 41311 | 11 - 12 mm             | 10 |
| KT 12    |  | <input type="checkbox"/> 41212 | <input checked="" type="checkbox"/> 41312 | 12 - 13 mm             | 10 |
| KT 13    |  | <input type="checkbox"/> 41213 | <input checked="" type="checkbox"/> 41313 | 13 - 14 mm             | 10 |
| KT 14    |  | <input type="checkbox"/> 41214 | <input checked="" type="checkbox"/> 41314 | 14 - 15 mm             | 10 |
| KT 15    |  | <input type="checkbox"/> 41215 | <input checked="" type="checkbox"/> 41315 | 15 - 16 mm             | 10 |
| KTs 16   |  | <input type="checkbox"/> 39901 | <input checked="" type="checkbox"/> 39912 | 16 mm                  | 10 |
| KTs 17   |  | <input type="checkbox"/> 39900 | <input checked="" type="checkbox"/> 39913 | 17 mm                  | 10 |
| KT oval  |  | <input type="checkbox"/> 39930 | -   | approx. 8 × 4 mm       | 10 |
| KT S1    |  | <input type="checkbox"/> 39931 | -   |                        | 10 |
| KT tele  |  | <input type="checkbox"/> 39929 | -   | Telephone cable        | 10 |
| KT tele1 |  | <input type="checkbox"/> 41257 | -   | Data cable RJ12        | 10 |
| KT tele2 |  | <input type="checkbox"/> 41258 | -   | Data cable RJ10 / RJ45 | 10 |

\*Only valid for grey product types

### Accessories





# KT

## Grommets, small, multi



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

|            |       |       |              |    |   |
|------------|-------|-------|--------------|----|---|
| KT 2 2     | 39935 | 39936 | 2x Ø 2 mm    | 10 | <br>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 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 | <br>KT ASI2 rI |
| KT-ASI2 rI | 39922 | 39924 | 2 ASI-cables | 10 |   |
| KT-ASI2 II | 39921 | 39923 | 2 ASI-cables | 10 |   |

### Product description

Cable grommets KT small are used with the following cable entry frames:

KEL-U/KEL-ER/KEL (8 - 34) | KVT (38 - 42)

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

### Assembly note

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

#### Specifications KT grey

|                  |  |
|------------------|--|
| Material         | Elastomer  |
| Flame class      | UL94-Vo, self-extinguishing                      |
| IP rating        | KT round, multi: IP54<br>KT special, multi: IP54 |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)                    |
| Temperature      | - 40°C to + 90°C (static)                        |
| Properties       | Halogen-free, silicone-free                      |

#### Specifications KT black

|                  |  |
|------------------|--|
| Material         | Elastomer  |
| Flame class      | UL94-HB  |
| IP rating        | KT round, multi: IP54<br>KT special, multi: IP54 |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)                    |
| Temperature      | - 30°C to + 90°C (static)                        |
| Properties       | Higher chemical resistance                       |

### Accessories

ST Plugs 49

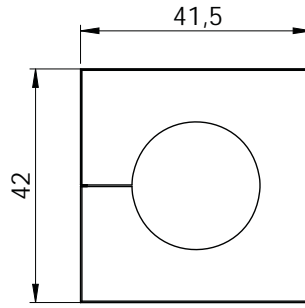
\*Only valid for grey product types

# KT

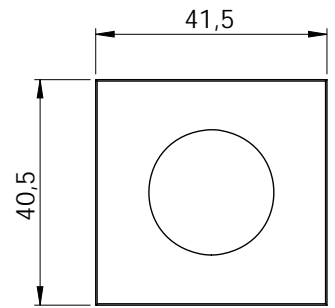
## Grommets, large



IP54 IP65



KT / KT-DPF large



KTMB large

1

### Product description

Cable grommets KT large accept a wide range of cable diameters from 16 to 35 mm. They are used with the following cable entry frames:

KEL-U/KEL-ER/KEL (8 - 34) | KVT (38 - 42)

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

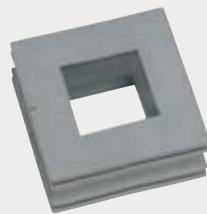

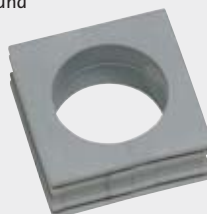
### Specifications KT grey

**Material** Elastomer  
**Flame class** UL94-Vo, self-extinguishing  
**IP rating** KT round, single: up to IP65 (in combination with KEL-ER frame) ATG/BTG: IP54  
**NEMA type rating** up to NEMA type 4X (acc. to UL 50E)  
**Temperature** - 40°C to + 90°C (static)  
**Properties** Halogen-free, silicone-free

### Specifications KT black

**Material** Elastomer  
**Flame class** UL94-HB  
**IP rating** KT round, single: up to IP65 (in combination with KEL-ER frame) ATG/BTG: IP54  
**NEMA type rating** up to NEMA type 4X (acc. to UL 50E)  
**Temperature** - 30°C to + 90°C (static)  
**Properties** Higher chemical resistance

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

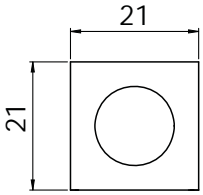
|          |   |       |  |                            |    |
|----------|---|-------|--|----------------------------|----|
| ATG      |    | ATG   | <input type="checkbox"/> 41253 <input checked="" type="checkbox"/> 41353 | Adapter grommet            | 10 |
| BTG      |  | BTG   | <input type="checkbox"/> 41252 <input checked="" type="checkbox"/> 41352 | Blank grommet or 5 - 20 mm | 10 |
| KT round |  | KT 16 | <input type="checkbox"/> 41216 <input checked="" type="checkbox"/> 41316 | 16 - 17 mm                 | 10 |
|          |   | KT 17 | <input type="checkbox"/> 41217 <input checked="" type="checkbox"/> 41317 | 17 - 18 mm                 | 10 |
|          |   | KT 18 | <input type="checkbox"/> 41218 <input checked="" type="checkbox"/> 41318 | 18 - 19 mm                 | 10 |
|          |   | KT 19 | <input type="checkbox"/> 41219 <input checked="" type="checkbox"/> 41319 | 19 - 20 mm                 | 10 |
|          |   | KT 20 | <input type="checkbox"/> 41220 <input checked="" type="checkbox"/> 41320 | 20 - 21 mm                 | 10 |
|          |   | KT 21 | <input type="checkbox"/> 41221 <input checked="" type="checkbox"/> 41321 | 21 - 22 mm                 | 10 |
|          |   | KT 22 | <input type="checkbox"/> 41222 <input checked="" type="checkbox"/> 41322 | 22 - 23 mm                 | 10 |
|          |   | KT 23 | <input type="checkbox"/> 41223 <input checked="" type="checkbox"/> 41323 | 23 - 24 mm                 | 10 |
|          |   | KT 24 | <input type="checkbox"/> 41224 <input checked="" type="checkbox"/> 41324 | 24 - 25 mm                 | 10 |
|          |   | KT 25 | <input type="checkbox"/> 41225 <input checked="" type="checkbox"/> 41325 | 25 - 26 mm                 | 10 |
|          |   | KT 26 | <input type="checkbox"/> 41226 <input checked="" type="checkbox"/> 41326 | 26 - 27 mm                 | 10 |
|          |   | KT 27 | <input type="checkbox"/> 41227 <input checked="" type="checkbox"/> 41327 | 27 - 28 mm                 | 10 |
|          |   | KT 28 | <input type="checkbox"/> 41228 <input checked="" type="checkbox"/> 41328 | 28 - 29 mm                 | 10 |
|          |   | KT 29 | <input type="checkbox"/> 41229 <input checked="" type="checkbox"/> 41329 | 29 - 30 mm                 | 10 |
|          |   | KT 30 | <input type="checkbox"/> 41230 <input checked="" type="checkbox"/> 41330 | 30 - 31 mm                 | 10 |
|          |   | KT 31 | <input type="checkbox"/> 41231 <input checked="" type="checkbox"/> 41331 | 31 - 32 mm                 | 10 |
|          |   | KT 32 | <input type="checkbox"/> 41232 <input checked="" type="checkbox"/> 41332 | 32 - 33 mm                 | 10 |
|          |   | KT 33 | <input type="checkbox"/> 41233 <input checked="" type="checkbox"/> 41333 | 33 - 34 mm                 | 10 |
|          |   | KT 34 | <input type="checkbox"/> 41234 <input checked="" type="checkbox"/> 41334 | 34 - 35 mm                 | 10 |

\*Only valid for grey product types



# KT-DPF | KTMB

## Grommets, multi-range



KT-DPF / KTMB small



KT-DPF-B



| Type | Order No. | Size<br>KT | Clamping range | PU | Description |
|------|-----------|------------|----------------|----|-------------|
|------|-----------|------------|----------------|----|-------------|

|          |   |          |               |    |   |
|----------|---|----------|---------------|----|---|
| KT-DPF-A | <input type="checkbox"/> 41260<br><input checked="" type="checkbox"/> 41360 | KT small | 3 - 12 mm     | 10 |  <p>KT-DPF-A</p>             |
| KT-DPF-B | <input type="checkbox"/> 41261<br><input checked="" type="checkbox"/> 41361 | KT large | 4 - 18 mm     | 10 |   |
| KT-DPF-C | <input type="checkbox"/> 41262<br><input checked="" type="checkbox"/> 41362 | KT large | 14 - 26 mm    | 10 |  <p>KT-DPF-C</p>           |
| KTMB-A   | 41432   | KT small | 2.5 - 6.5 mm  | 10 |   |
| KTMB-B   | 41434   | KT small | 4 - 7.5 mm    | 10 |  <p>KTMB-D</p>             |
| 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 |  <p>Cross section KTMB</p> |
| 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 |  <p>KTMB-I</p>             |
| KTMB-J   | 41475   | KT large | 28 - 33 mm    | 10 |   |
| KTMB-K   | 41480   | KT large | 2x 13 - 18 mm | 10 |  <p>KTMB-K</p>             |

\*Only valid for grey product types

### Product description

The KT-DPF / KTMB grommets accept a wide range of cable diameters. A great benefit when the exact cable diameter is not known in advance. The KTMB grommets are not split and therefore only usable for cables without connectors. Cutting of KT-DPF grommets: Cable diameter less 20%.

### Specifications grey

|                  |                               |
|------------------|-------------------------------|
| Material         | Elastomer                     |
| Flame class      | UL94-Vo, self-extinguishing   |
| IP rating        | IP54                          |
| NEMA type rating | NEMA type 12 (acc. to UL 50E) |
| Temperature      | - 40°C to + 90°C (static)     |
| Properties       | Halogen-free, silicone-free   |

### Specifications black

|                  |                               |
|------------------|-------------------------------|
| Material         | Elastomer                     |
| Flame class      | UL94-HB                       |
| IP rating        | IP54                          |
| NEMA type rating | NEMA type 12 (acc. to UL 50E) |
| Temperature      | - 30°C to + 90°C (static)     |
| Properties       | Higher chemical resistance    |

### KMS Cable template

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

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

Order No. 39800



# DT

## Membrane cable grommets



1

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

### Product description

The DT cable grommets are designed for cables without preassembled connectors. A large number of cables can be routed utilising minimal space.

DT grommets are designed to fit in KT large grommet spaces of the following products:

KEL-U/KEL-ER/KEL (8 - 34) | KVT (38 - 42)

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

### Advantages & benefits

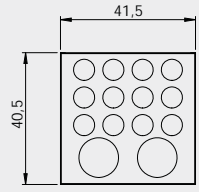
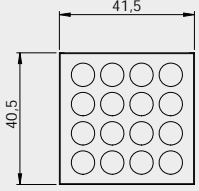
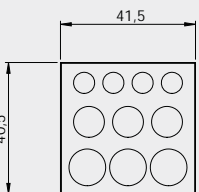
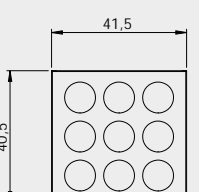
- Combination of routing pre-terminated cables and cables without connectors with one cable entry frame
- Enables sub-assembly of cable harnesses
- High cable density

### Specifications

|                  |                               |
|------------------|-------------------------------|
| Material         | Elastomer                     |
| Flame class      | UL94-V0, self-extinguishing   |
| IP rating        | IP54                          |
| NEMA type rating | NEMA type 12 (acc. to UL 50E) |
| Temperature      | - 40°C to + 90°C (static)     |
| Properties       | Halogen-free, silicone-free   |

### Accessories

ST-B Plugs 76

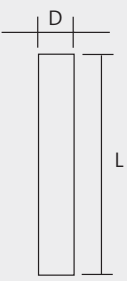
|   |      |       |   |    |
|---|------|-------|---|----|
|    | DT 1 | 41500 | 12× max. 6.5 mm<br>2× max. 12.2 mm                  | 10 |
|  | DT 2 | 41510 | 16× max. 7.1 mm                                     | 10 |
|  | DT 3 | 41520 | 4× max. 6.5 mm<br>3× max. 9.5 mm<br>3× max. 11.3 mm | 10 |
|  | DT 4 | 41530 | 9× max. 9.5 mm                                      | 10 |



# ST

## Plugs for cable grommets



| Type                                      | Order No. | Diameter<br>D | Length<br>L | PU  | Description  |
|---|-----------|---------------|-------------|-----|--|
| ST 2                                      | 42909     | 2 mm          | 25 mm       | 25  |  |
| ST 3                                      | 42901     | 3 mm          | 25 mm       | 25  |  |
| ST 4                                      | 42908     | 4 mm          | 25 mm       | 25  |  |
| ST 5                                      | 42906     | 5 mm          | 25 mm       | 25  |  |
| ST 6                                      | 42903     | 6 mm          | 25 mm       | 25  |  |
| ST 7                                      | 42905     | 7 mm          | 25 mm       | 25  |  |
| ST 8                                      | 42899     | 8 mm          | 20 mm       | 25  |  |
| ST 9                                      | 42897     | 9 mm          | 20 mm       | 25  |  |
| ST 10                                     | 42895     | 10 mm         | 20 mm       | 25  |  |
| ST 11                                     | 42893     | 11 mm         | 20 mm       | 25  |  |
| ST 12                                     | 42891     | 12 mm         | 20 mm       | 25  |  |
| ST 13                                     | 42889     | 13 mm         | 20 mm       | 25  |  |
| ST 14                                     | 42887     | 14 mm         | 20 mm       | 25  |  |
| ST 15                                     | 42885     | 15 mm         | 20 mm       | 25  |  |
| ST 16                                     | 42883     | 16 mm         | 20 mm       | 25  |  |
| ST 17                                     | 42881     | 17 mm         | 20 mm       | 25  |  |
| ST ASI                                    | 42877     | -             | 25 mm       | 25  |  |
| <b>NEW</b> Plug for KEL threaded bushings | 99142     | 10 mm         | 4 mm        | 100 |  |

### Product description

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

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

### Advantages & benefits

- Sealing unused cable grommets

### Specifications

|                  |                               |
|------------------|-------------------------------|
| Material         | Polyamide (PA), white         |
| Flame class      | UL94-Vo, self-extinguishing   |
| IP rating        | IP rating of grommets remains |
| NEMA type rating | NEMA type 12 (acc. to UL 50E) |
| Temperature      | - 40°C to + 120°C             |
| Properties       | Halogen-free, silicone-free   |

### Compatible with

|                   |         |
|-------------------|---------|
| KT Cable grommets | 44 - 46 |
| QT Cable grommets | 56      |

# KEL-QUICK

## Cable entry frames



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

### Product description

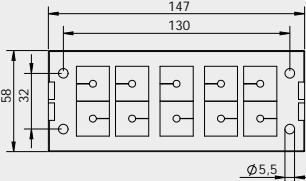
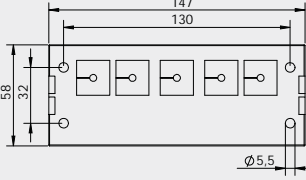
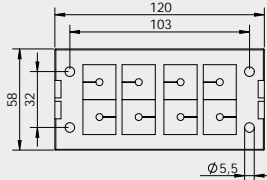
The KEL-QUICK range is a compact system to route and seal pre-terminated cables.

After populating the entry frame with QT grommets and cables, the two halves of the cable entry frame are snapped together without using tools.

KEL-QUICK frames can either be screw mounted or simply snapped into the KEL-SNAP frame. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Fast and easy assembly and when used with the KEL-SNAP frame, mounting without tools possible
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets

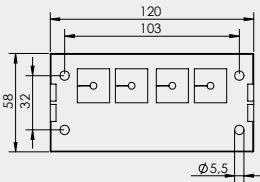
|   |                 |       |          |       |    |
|---|-----------------|-------|----------|-------|----|
|    | KEL-QUICK 24 10 | 42410 | 36 × 112 | 10 QT | 10 |
|  | KEL-QUICK 24 5  | 42415 | 36 × 112 | 5 QT  | 10 |
|  | KEL-QUICK 16 8  | 42418 | 36 × 86  | 8 QT  | 10 |

# KEL-QUICK

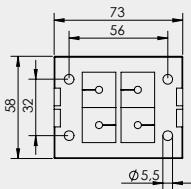
## Cable entry frames



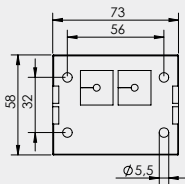
| Description | Type | Order No. | Cut-out [mm] | Grommets | PU |
|-------------|------|-----------|--------------|----------|----|
|-------------|------|-----------|--------------|----------|----|



|                |       |         |      |    |
|----------------|-------|---------|------|----|
| KEL-QUICK 16 4 | 42414 | 36 × 86 | 4 QT | 10 |
|----------------|-------|---------|------|----|



|              |       |         |      |    |
|--------------|-------|---------|------|----|
| KEL-QUICK-B4 | 42434 | 36 × 46 | 4 QT | 10 |
|--------------|-------|---------|------|----|



|              |       |         |      |    |
|--------------|-------|---------|------|----|
| KEL-QUICK-B2 | 42430 | 36 × 46 | 2 QT | 10 |
|--------------|-------|---------|------|----|

### Specifications

|                        |   |
|------------------------|---|
| Material               | Polyamide (PA)  |
| Flame class            | UL94-Vo, self-extinguishing                                   |
| IP rating              | IP54, with gasket and correct selection of the cable grommets |
| Temperature Properties | - 40°C to + 140°C (static)                                    |
| Drilling template      | See Page 192 - 193  |
| Frame depth            | 17 mm   |

### Accessories

|                          |           |
|--------------------------|-----------|
| QT Cable grommets        | 56        |
| KEL-SNAP Mounting frames | 36 - 37   |
| KEL-EMC Cable collectors | 122 - 124 |
| FP Flange plates         | 152 - 157 |

# QVT

## Split cable glands



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

### Product description

QVT is a circular split frame for quick and easy installation of pre-terminated cables or complete cable harnesses. Because of its extremely compact design, the QVT range is especially suitable for small machines, devices and instruments.

Polyamide locknuts as well as a sealing ring are included in the shipment.

### Advantages & benefits

- Compact design
- Routing of pre-terminated cables
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- Suitable for metric hole sizes
- Locknut is included

### Specifications

|                   |   |
|-------------------|---|
| Material          | Polycarbonate (PC)  |
| Colour            | grey (similar RAL 7035)                                       |
| Flame class       | UL94-Vo, self-extinguishing                                   |
| IP rating         | IP54, with gasket and correct selection of the cable grommets |
| Temperature       | - 30°C to + 100°C (static)                                    |
| Properties        | Halogen-free, silicone-free                                   |
| Cut-out dimension | Metric sizes  |

### Accessories

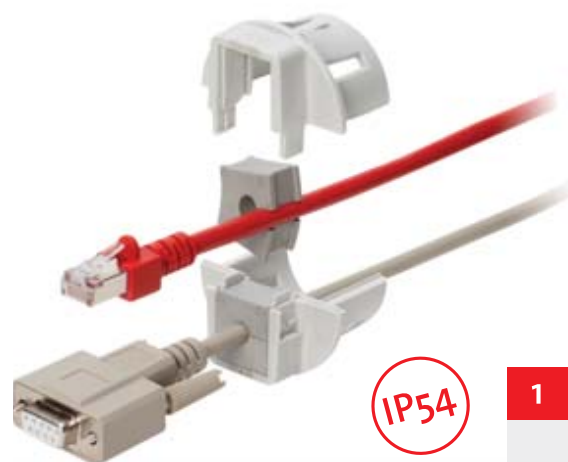
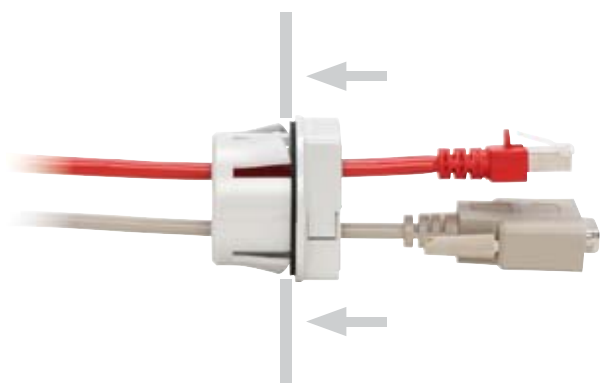
|                   |           |
|-------------------|-----------|
| QT Cable grommets | 56        |
| KVT-EMC Brackets  | 125       |
| KGM Locknuts      | 162 - 163 |

|  |          |       |        |                            |    |
|--|----------|-------|--------|----------------------------|----|
|  | QVT 16*  | 45692 | 1 × QT | M16 × 1.5<br>Length: 13 mm | 10 |
|  | QVT 20   | 45695 | 1 × QT | M20 × 1.5<br>Length: 13 mm | 10 |
|  | QVT 25   | 45702 | 1 × QT | M25 × 1.5<br>Length: 13 mm | 10 |
|  | QVT 32   | 45711 | 1 × QT | M32 × 1.5<br>Length: 13 mm | 10 |
|  | QVT 40 2 | 45715 | 2 × QT | M40 × 1.5<br>Length: 13 mm | 10 |
|  | QVT 50 4 | 45722 | 4 × QT | M50 × 1.5<br>Length: 13 mm | 10 |

\* Max. cable diameter of 10 mm

# QVT-CLICK

## Pluggable split cable glands



| Type | Order No. | Cable Grommets | Cut-out* diameter | PU | Description |
|------|-----------|----------------|-------------------|----|-------------|
|------|-----------|----------------|-------------------|----|-------------|

|                |       |               |         |    |  |
|----------------|-------|---------------|---------|----|--|
| QVT-CLICK 25   | 45730 | 1 × QT        | 25.5 mm | 10 |  |
| QVT-CLICK 32   | 45732 | 1 × QT        | 32.5 mm | 10 |  |
| QVT-CLICK 40 2 | 45734 | 2 × QT        | 40.5 mm | 10 |  |
| QVT-CLICK Tool | 61435 | Mounting tool |         | 1  |  |

\*Please consider any paint layers or powder coatings!

### Product description

QVT-CLICK is a circular split frame for quick and easy installation of pre-terminated cables or complete cable harnesses. The QVT-CLICK can be assembled without tools from the front side of the enclosure wall. Because of its extremely compact design, the QVT-CLICK range is especially suitable for small machines, devices and instruments.

A sealing ring is included in the shipment.

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



### Advantages & benefits

- Fast and easy mounting from the front side
- Compact design
- Routing of pre-terminated cables
- Retrofits, repairs and maintenance can be done much more easily and quickly
- Warranty on pre-terminated cables remains
- Fast and easy assembly
- For wall thickness 1.5 - 2.5 mm

### Specifications

|             |   |
|-------------|---|
| Material    | Polycarbonate (PC)  |
| Colour      | grey (similar RAL 7035)                                       |
| Flame class | UL94-Vo, self-extinguishing                                   |
| IP rating   | IP54, with gasket and correct selection of the cable grommets |
| Temperature | - 30°C to + 100°C (static)                                    |
| Properties  | Halogen-free, silicone-free                                   |

### Accessories

|                   |                 |
|-------------------|-----------------|
| QT Cable grommets | 56              |
| QVT-CLICK Tool    | Order No. 61435 |

# KEL-QTA

## Split cable entry plates



1

### Product description

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

### Advantages & benefits

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

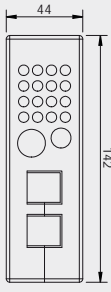
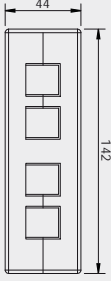
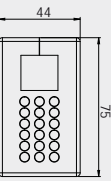
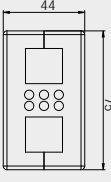
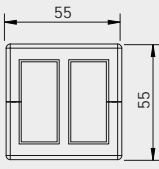
### Specifications

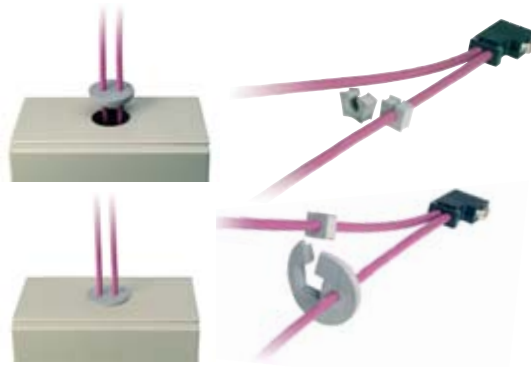
|             |   |
|-------------|---|
| Material    | Elastomer   |
| Flame class | UL94-Vo, self-extinguishing                           |
| IP rating   | IP54, with correct selection of the cable grommets QT |
| Temperature | - 40°C to + 90°C (static)                             |
| Properties  | Halogen-free, silicone-free                           |

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

### Accessories

|                   |           |
|-------------------|-----------|
| QT Cable grommets | 56        |
| ST-B Plugs        | 76        |
| FP Flange plates  | 152 - 157 |

| Description   | Type                | Order No. Type A | Order No. Type B | Cut-out [mm] | Cables   | PU |
|---|---------------------|------------------|------------------|--------------|--|----|
|   | KEL-QTA 24 2 -DP 18 | 43642            | 43643            | 112 × 36     | pre-terminated 2× 3 - 15 mm<br>without connector 16× max. 7 mm<br>1× max. 12 mm<br>1× max. 16 mm | 10 |
|  | KEL-QTA 24 4        | 43644            | 43645            | 112 × 36     | pre-terminated 4× 3 - 15 mm  | 10 |
|  | KEL-QTA 10 1 -DP 18 | 43655            | 43658            | 65 × 36      | pre-terminated 1× 3 - 15 mm<br>without connector 18× max. 5 mm                                   | 10 |
|  | KEL-QTA 10 2 -DP 6  | 43656            | 43659            | 65 × 36      | pre-terminated 2× 3 - 15 mm<br>without connector 6× max. 5 mm                                    | 10 |
|  | KEL-QTA-B4          | 43660            | -                | 46 × 46      | pre-terminated 4× 3 - 15 mm  |    |



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

### Product description

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

### Advantages & benefits

- Fast and easy assembly without tools
- Increased cable density by using multi-position grommets
- Simple assembly and disassembly in case of change or service
- Routing of cables with and without connectors in a high density

### Specifications

|                   |  |
|-------------------|--|
| Material          | Elastomer  |
| Flame class       | UL94-Vo, self-extinguishing                                    |
| IP rating (QTA)   | IP54, with correct selection of the cable grommets (QT single) |
| Temperature       | - 40°C to + 90°C (static)                                      |
| Properties        | Halogen-free, silicone-free                                    |
| Cut-out dimension | Metric sizes   |

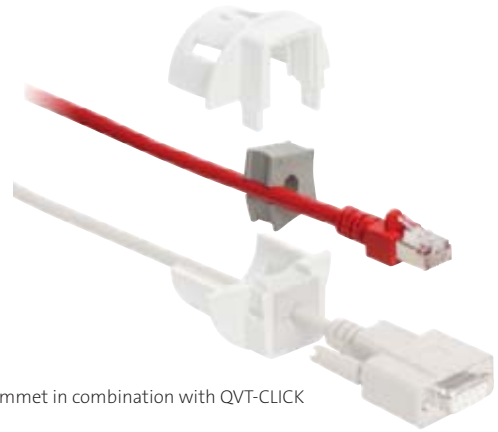
|         |                                 |
|---------|---------------------------------|
| Type A: | For wall thickness 1.5 - 2.5 mm |
| Type B: | For wall thickness 2.8 - 4 mm   |

### Accessories

QT Cable grommets 56

# QT

## Grommets



QT grommet in combination with QVT-CLICK

1

### Product description

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

KEL-QUICK (50 - 51) | QVT/QVT-CLICK (52 - 53) |  
KEL-QTA/KEL-QTE (54 - 55)

### Assembly note





When installing the grommets, the flat side should be facing the middle of the frame. This allows the flat sides of adjacent grommets to match up and provide a secure seal.

### Specifications

|             |                             |
|-------------|-----------------------------|
| Material    | Elastomer                   |
| Flame class | UL94-Vo, self-extinguishing |
| IP rating   | IP54                        |
| Temperature | - 40°C to+ 90°C (static)    |
| Properties  | Halogen-free, silicone-free |

### Accessories

ST Plugs 49

| Type     | Order No.<br>grey | Clamping range  | PU | Description   |
|----------|-------------------|-----------------|----|---|
| QTB      | 42540             | Blank grommet   | 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             | 2× Ø 3 mm       | 10 |   |
| QT 2 4   | 42568             | 2× Ø 4 mm       | 10 |   |
| QT 2 5   | 42570             | 2× Ø 5 mm       | 10 |  |
| QT 2 5.5 | 42571             | 2× Ø 5,5 mm     | 10 |   |
| QT 2 6   | 42572             | 2× Ø 6 mm       | 10 |   |
| QT 2 6.5 | 42576             | 2× Ø 6,5 mm     | 10 |   |
| QT 2 7   | 42578             | 2× Ø 7 mm       | 10 |   |
| QT 4 3   | 42580             | 4× Ø 3 mm       | 10 |   |
| QT 4 4   | 42582             | 4× Ø 4 mm       | 10 |   |
| QT 4 4.5 | 42583             | 4× Ø 4,5 mm     | 10 |  |
| QT 4 5   | 42584             | 4× Ø 5 mm       | 10 |   |
| QT 4 5.5 | 42585             | 4× Ø 5,5 mm     | 10 |   |
| QT 4 6   | 42586             | 4× Ø 6 mm       | 10 |   |
| QT-ASI 1 | 42573             | 1× ASI-cable    | 10 |   |
| QT-ASI 2 | 42574             | 2× ASI-cable    | 10 |   |
| QT tele  | 42575             | Telephone cable | 10 |   |
|          |                   |                 |    |   |



## KEL-BES

## Brush frames for cable entry



Suitable for cabinet construction ...



... as well as for energy and building technology.



Now also available as round split version.



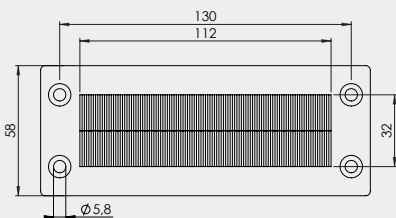
## Description

## Type

## Order No.

## Cut-out

## PU

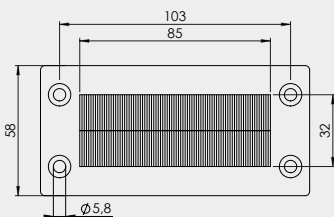


KEL-BES 24

51515

36 x 112 mm

10

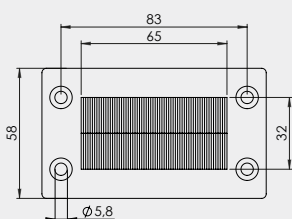


KEL-BES 16

51510

36 x 86 mm

10

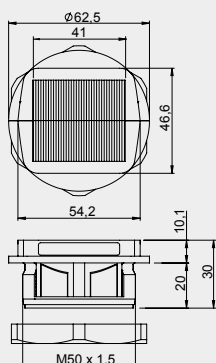


KEL-BES 10

51505

36 x 65 mm

10



NEW

KEL-BES-S 50

51540

M50 x 1.5

10

## Product description

Cable entry frames KEL-BES for routing cables into network cabinets, control boxes and control cabinets. KEL-BES is also an ideal solution for entry and exit of cables that are routed inside raised floors, e.g. in computer centres. The KEL-BES frames match exactly the cut-out dimensions for 10-, 16- or 24-pin standard industrial connectors.

For round metric cut-outs M50 icotek now offers the split KEL-BES-S 50. It can be either directly snapped into the cut-out or screwed with a locknut.

## Advantages &amp; benefits

- Fast and easy assembly
- Versatile in use
- Thermal protection, separation of cold and warm air
- Allows reduced airflow while filtering out dust, hair and larger particulate matter
- Visual screening
- Protects cables against wear due to sharp edges of the cutout

## Specifications

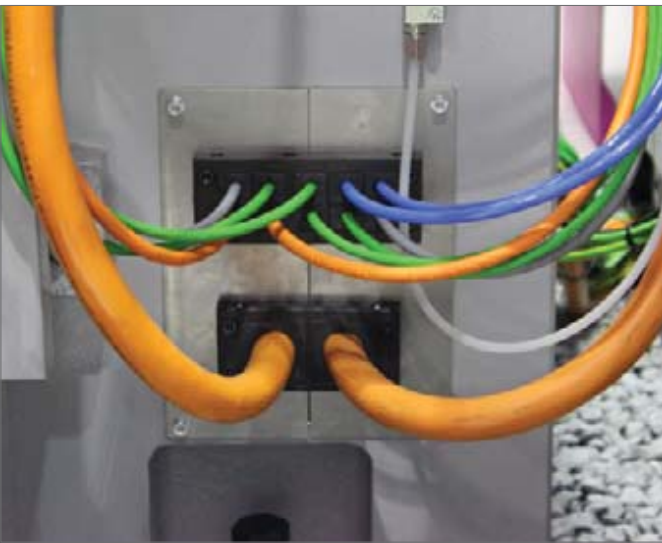
|             |   |
|-------------|---|
| Material    | Frame, rectangular: Polyamide (PA)<br>Frame, round: Polycarbonate (PC)<br>(Flame class UL94-V0)<br>Brushes: Polyamide (PA)<br>Brush profile: sheet steel, zinc plated |
| Temperature | - 20°C to + 90°C  |
| Properties  | Halogen-free, silicone-free   |
| Frame depth | 10 mm   |

## Accessories

KEL-EMC-PF Cable collectors 123

## Typical applications

Cable entry systems for pre-terminated cables



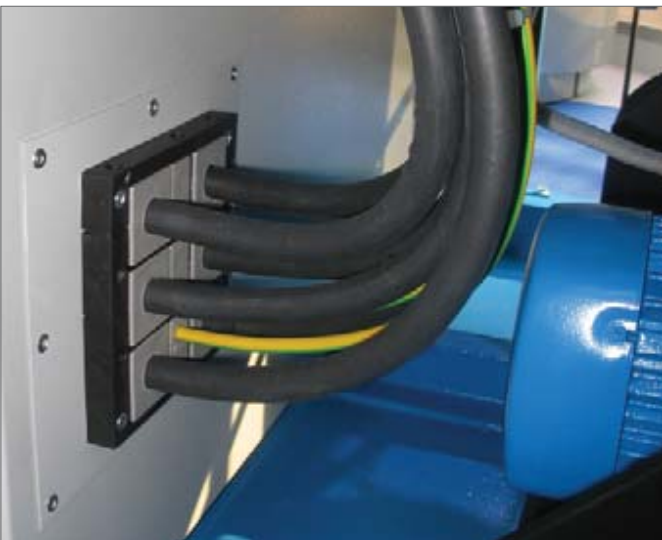
**KEL-U 24|10** - Page 8 / **KEL-U 16|2** - Page 10

Routing of 12 cables with various diameters (some of them assembled with connectors) into the body of a grinding machine.



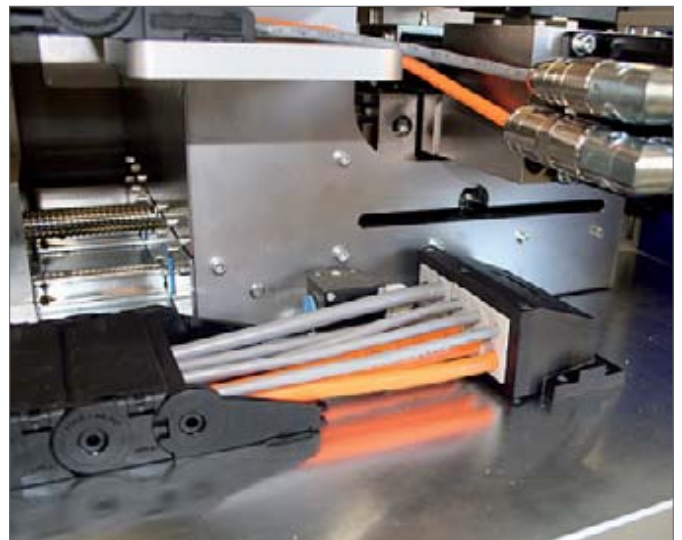
**KEL 16|8** - Page 10

Routing of several pre-terminated lines into the electrical enclosure of a tension measuring machine.



**KEL 24|12-2MT** - Page 24

Routing of 6 large cables up to 35 mm with one cable entry frame.



**KEL-FG A10** - Page 28

Used in combination with drag chains to provide strain relief and compact, high density cable entry into an integrated switch cabinet.



**KEL-JUMBO 2** - Page 34 / **KEL 24|x** - Page 18  
Routing of conduits and large cables between vehicle body and chassis



**KVT 50-W90** - Page 42  
Low profile 90 degree routing of a terminated cable from a control panel into the machine



**KEL-QUICK-B4** - Page 51  
Routing of cables with connectors into a control panel / IPC



**KEL-QUICK 24|10** - Page 50 / **KEL-SNAP 24** - Page 37  
Routing of corrugated conduits into an external enclosure of a construction machine. Tool-free mounting/unmounting with snap frame

# 2 Cable entry plates for cables without connectors



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

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

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

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



High cable density



Fast and easy, partially tool-free assembly

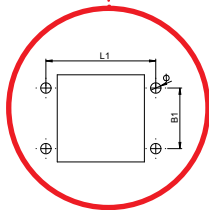


High flexibility when routing rigid cables

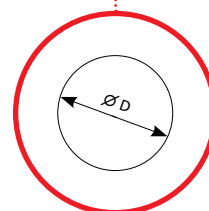
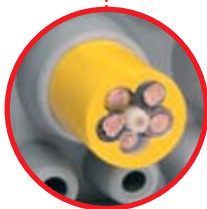


IP64 to IP68 rated protection, double cable sealing on front and back side (KEL-DPU / KEL-DPZ)

Compact, space-saving design



Many cut-outs acc. to industrial standard dimensions



For metric cut-outs M25 - M85 (KEL-DPZ round / KEL-DP round / KEL-DPF)

## Product range



KEL-DPU

KEL-DPZ

KEL-DPZ round

KEL-DP

KEL-DP round

KEL-JUMBO flex











KEL-ULTRA flex

KEL-DPF

## Product group 2

### Cable entry plates for cables without connectors

## Chapter content

|   |  |   |   |
|---|--|---|---|
|  <p>IP66</p>   | <p><b>Cable entry plates   IP66</b><br/>screw/snap-in mounting, high strain relief</p> <p>KEL-DPU 24</p> <p><b>NEW</b></p> <p>62 - 63</p>          |                | <p><b>Plugs for membranes</b></p> <p>ST-B</p> <p>76</p>   |
|  <p>IP66</p>   | <p><b>Cable entry plates   IP66</b><br/>screw mounting</p> <p>KEL-DPZ 24 / KEL-DPZ-B / KEL-DPZ-E / KEL-DPZ-KL</p> <p><b>NEW</b></p> <p>64 - 68</p> |  <p>IP68</p>   | <p><b>Cable entry grommets   IP68</b><br/>M25 - M85, for cable diameters up to 70 mm</p> <p>KEL-DPF</p> <p><b>NEW</b></p> <p>77</p> |
|                | <p><b>Typical applications</b><br/>icotek cable entry systems<br/>for cables without connectors</p> <p>69</p>                                      |  <p>IP54</p>   | <p><b>Cable entry grommets   IP54</b><br/>screw mounting, for cable diameters up to 68 mm</p> <p>KEL-JUMBO flex</p> <p>78</p>       |
|  <p>IP68</p> | <p><b>Cable entry plates, round   IP68</b><br/>with thread and locknut M32 - M63</p> <p>KEL-DPZ round</p> <p>70 - 71</p>                           |  <p>IP66</p> | <p><b>Cable entry grommets   IP66</b><br/>screw mounting, for cable diameters up to 115 mm</p> <p>KEL-ULTRA flex</p> <p>79</p>      |
|  <p>IP64</p> | <p><b>Cable entry plates   IP64</b><br/>plug-in mounting</p> <p>KEL-DP 24 / KEL-DP-E</p> <p>72 - 73</p>  |   |   |
|  <p>IP65</p> | <p><b>Cable entry plates, round   IP65</b><br/>plug-in mounting, M25 - M50</p> <p>KEL-DP round</p> <p><b>NEW</b></p> <p>74 - 75</p>                |   |   |

# KEL-DPU 24

Heavy-duty cable entry plates with high strain relief



Also available in black.



Also available with threaded bushings.



Tool-free assembly possible due to snap-in function

## Product description

KEL-DPU entry plates are designed to route and seal cables without connectors (from 3.2 mm to 20.5 mm in diameter) in limited space with IP65 / IP66 / up to NEMA type 4X ratings.

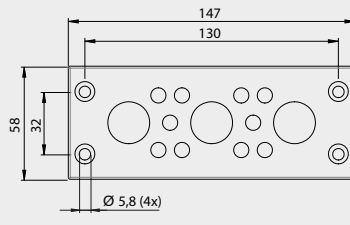
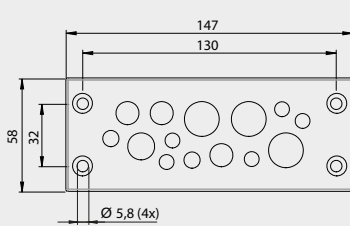
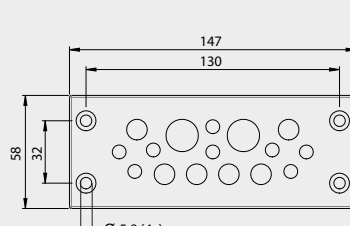
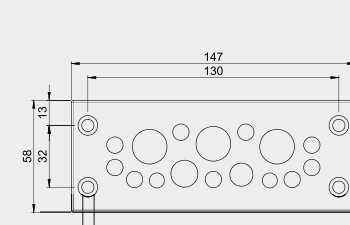
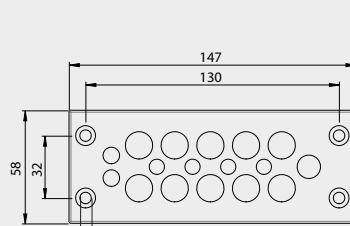
The KEL-DPU is particularly characterised by its solid robust frame and the increased strain relief of the routed cables.

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

The assembly of the KEL-DPU with cables or pneumatic hoses can be done quick and easy. Simply make a small hole in the thin membrane and push the cables through.

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



| Description  | Type                        | Order No.   | Number of cables  | PU |
|--|-----------------------------|---|---|----|
|   | KEL-DPU 24 13               | <input type="checkbox"/> 43940<br><input checked="" type="checkbox"/> 50940 | 10x 3.2 - 6.3 mm<br>3x 16 - 20.5 mm   | 10 |
|  | <b>NEW</b><br>KEL-DPU 24 14 | <input type="checkbox"/> 43944<br><input checked="" type="checkbox"/> 50944 | 5x 3.2 - 6.3 mm<br>2x 4 - 7.5 mm<br>3x 5.5 - 10.5 mm<br>1x 8 - 12.5 mm<br>3x 12 - 16.2 mm | 10 |
|  | KEL-DPU 24 16               | <input type="checkbox"/> 43936<br><input checked="" type="checkbox"/> 50936 | 8x 3.2 - 5.5 mm<br>6x 5 - 8.5 mm<br>2x 9.5 - 14.5 mm                                      | 10 |
|  | KEL-DPU 24 16-1             | <input type="checkbox"/> 43932<br><input checked="" type="checkbox"/> 50932 | 2x 3.2 - 6.3 mm<br>9x 4 - 7.5 mm<br>1x 5.5 - 10.5 mm<br>1x 8 - 12.5 mm<br>3x 12 - 16.2 mm | 10 |
|  | KEL-DPU 24 17               | <input type="checkbox"/> 43934<br><input checked="" type="checkbox"/> 50934 | 4x 3.2 - 6.3 mm<br>2x 4 - 7.5 mm<br>1x 5.5 - 10.5 mm<br>10x 8 - 12.5 mm                   | 10 |

\* Only valid for grey product types

# KEL-DPU 24

## Heavy-duty cable entry plates with high strain relief



Membrane on front

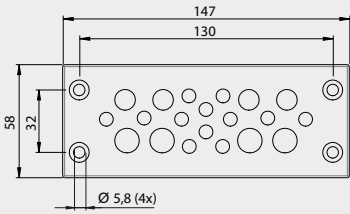
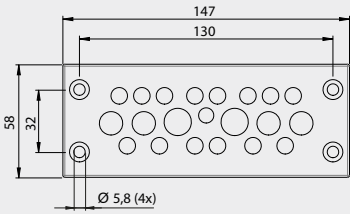
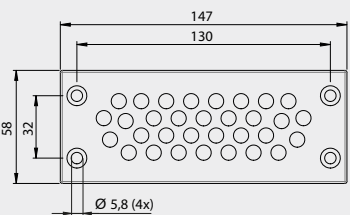


Conical shape on back provides additional sealing and strain relief



Resistant against industrial detergents (ECOLAB certified)



| Type          | Order No.   | Number of cables  | PU | Description   |
|---------------|---|---|----|---|
| KEL-DPU 24 20 | <input type="checkbox"/> 43938<br><input checked="" type="checkbox"/> 50938 | 12× 3.2 - 5.5 mm<br>8× 5 - 10.5 mm                                      | 10 |   |
| KEL-DPU 24 21 | <input type="checkbox"/> 43930<br><input checked="" type="checkbox"/> 50930 | 1× 3.2 - 6.3 mm<br>14× 4 - 7.5 mm<br>4× 5.5 - 10.5 mm<br>2× 8 - 12.5 mm | 10 |  |
| KEL-DPU 24 32 | <input type="checkbox"/> 43942<br><input checked="" type="checkbox"/> 50942 | 32× 3.2 - 6.3 mm  | 10 |  |

### Advantages & benefits

- Snap or screw mounting possible
- High strength & stability
- High strain relief
- Fast and easy assembly
- High cable density
- Dual cable sealing with IP65/IP66/up to NEMA type 4X
- Hygienic design - free of dirt-collecting recesses

### Specifications

|                    |   |
|--------------------|---|
| Material           | Frame: Polypropylene (PP)<br>Sealing plate: Elastomer   |
| Colour             | <input type="checkbox"/> grey (similar RAL 7035)<br><input checked="" type="checkbox"/> black |
| Flame class        | UL94-Vo, self-extinguishing   |
| IP rating          | IP65/IP66 (certified acc. to EN 60529)  |
| NEMA type rating   | NEMA type 4X (acc. to UL 50E)   |
| Temperature        | - 40°C to + 90°C (static)   |
| Properties         | Halogen-free, silicone-free   |
| Cut-out dimensions | 36 × 112 mm / page 192 - 193  |
| Plate depth        | 14 mm   |
| For wall thickness | 1.5 - 2 mm (snap-in mounting)   |

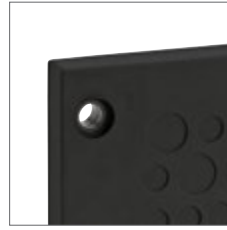
### Accessories

|                             |           |
|-----------------------------|-----------|
| ST-B Plugs                  | 76        |
| KEL-EMC-PF Cable collectors | 123       |
| FP Flanged plates           | 152 - 157 |

\* Only valid for grey product types

# KEL-DPZ 24

## Cable entry plates



Also available in black.



Also available with threaded bushings.



Membrane on front



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

### Product description

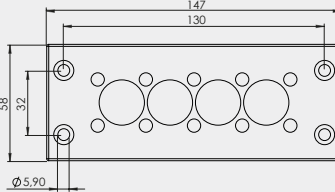
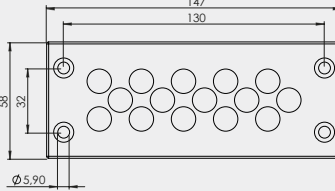
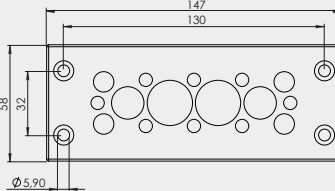
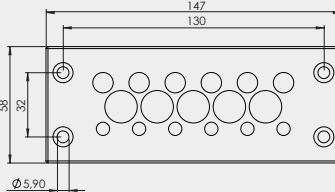
KEL-DPZ entry plates are designed to route and seal up to 121 cables without connectors or fibre optics (from 1.5 mm to 22 mm in diameter) in limited space.

The KEL-DPZ products are a cost and time saving alternative to traditional cable glands.

The assembly of the KEL-DPZ 24 with cables or pneumatic hoses can be done quick and easy. Simply make a small hole in the thin membrane, push the cables through. The KEL-DPZ 24 provides strain relief and protection up to IP66 / NEMA type 12.

The size DPZ 24 matches exactly the cut-out dimensions of 24-pin standard industrial connectors.

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

|  |                      |  |   |    |
|--|----------------------|--|---|----|
|    | <b>KEL-DPZ 24 14</b> | <input type="checkbox"/> 43700<br><input type="checkbox"/> 50700 | 10× 3.2 - 6.5 mm<br>4× 16 - 22 mm                                   | 10 |
|  | <b>KEL-DPZ 24 15</b> | <input type="checkbox"/> 43720<br><input type="checkbox"/> 50720 | 15× 7.2 - 12 mm   | 10 |
|  | <b>KEL-DPZ 24 16</b> | <input type="checkbox"/> 43725<br><input type="checkbox"/> 50725 | 8× 3.2 - 6.5 mm<br>4× 5 - 9.7 mm<br>2× 9 - 16.2 mm<br>2× 16 - 22 mm | 10 |
|  | <b>KEL-DPZ 24 17</b> | <input type="checkbox"/> 43705<br><input type="checkbox"/> 50705 | 6× 3.2 - 6.5 mm<br>6× 5 - 10.2 mm<br>5× 9 - 16.2 mm                 | 10 |

\* Only valid for grey product types





# KEL-DPZ 24

## Cable entry plates



Conical shape on back provides additional sealing and strain relief



| Type           | Order No.          | Number of cables                                      | PU | Description |
|----------------|--------------------|---|----|-------------|
| KEL-DPZ 24 25  | □ 43710<br>■ 50710 | 12x 3.2 - 6.5 mm<br>7x 4.8 - 9.7 mm<br>6x 7.5 - 12 mm | 10 |             |
| KEL-DPZ 24 32  | □ 43730<br>■ 50730 | 21x 3.2 - 6.5 mm<br>8x 5 - 10.2 mm<br>3x 7.5 - 12 mm  | 10 |             |
| KEL-DPZ 24 42  | □ 43715<br>■ 50715 | 42x 3.2 - 6.5 mm                                      | 10 |             |
| KEL-DPZ 24 121 | □ 43735<br>■ 50735 | 119x 1.5 - 2.6 mm<br>2x 2.5 - 5 mm                    | 10 |             |



### Advantages & benefits

- Fast and easy assembly
- High cable density
- Dual sealing according to IP65/IP66/NEMA type 12
- Automatic sealing and strain relief for the cable
- Hygienic design

### Specifications

|                    |   |
|--------------------|---|
| Material           | Frame: Polyamide (PA)<br>Sealing plate: Elastomer |
| Colour             | □ grey (similar RAL 7035)<br>■ black              |
| Flame class        | UL94-V0, self-extinguishing                       |
| IP rating          | IP65/IP66 (certified acc. to EN 60529)            |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)                     |
| Temperature        | - 40°C to + 90°C (static)                         |
| Properties         | Halogen-free, silicone-free                       |
| Cut-out dimensions | 36 × 112 mm / page 192 - 193                      |
| Plate depth        | 14 mm   |

### Accessories

|                             |           |
|-----------------------------|-----------|
| ST-B Plugs                  | 76        |
| KEL-EMC-PF Cable collectors | 123       |
| FP Flanged plates           | 152 - 157 |

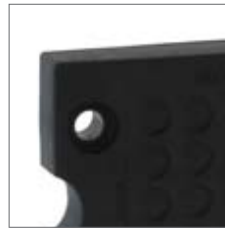
\* Only valid for grey product types.

# KEL-DPZ-B

## Cable entry plates



IP66



Also available in black.



Also available with threaded bushings.



Membrane on front

### Product description

The KEL-DPZ-B entry plates are designed for routing cables without connectors.

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

With an area of only 46 × 46 mm, up to 25 cables can be easily routed and sealed.

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

### Advantages & benefits

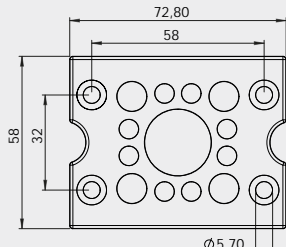
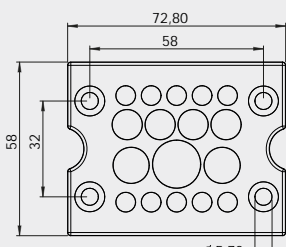
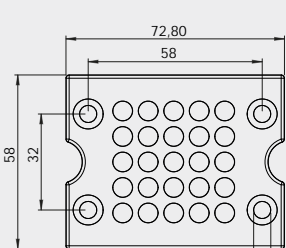
- Space saving shape
- Dual sealing of cables according to IP66/NEMA type 12
- High cable density
- Fast and easy assembly
- Hygienic design

### Specifications

|                    |   |
|--------------------|---|
| Material           | Frame: Polyamide (PA)<br>Sealing plate: Elastomer |
| Colour             | ■ grey (similar RAL 7035)<br>■ black              |
| Flame class        | UL94-Vo, self-extinguishing                       |
| IP rating          | IP66 (certified acc. to EN 60529)                 |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)                     |
| Temperature        | - 40°C to + 90°C (static)                         |
| Properties         | Halogen-free, silicone-free                       |
| Cut-out dimensions | 46 × 46 mm  |
| Plate depth        | 10 mm   |

### Accessories

|                   |           |
|-------------------|-----------|
| ST-B Plugs        | 76        |
| FP Flanged plates | 152 - 157 |

| Description   | Type         | Order No.          | Number of cables   | PU |
|---|--------------|--------------------|--|----|
|   | KEL-DPZ-B 13 | ■ 43794            | 8× 3.2 - 6.5 mm<br>4× 5 - 10.2 mm<br>1× 16 - 22 mm                     | 10 |
|   |              | ■ 50794            |  |    |
|  | KEL-DPZ-B 17 | ■ 43796            | 10× 3.2 - 6.5 mm<br>4× 5 - 10.2 mm<br>2× 7.5 - 12 mm<br>1× 9 - 16.2 mm | 10 |
|   |              | ■ 50796            |  |    |
|  | KEL-DPZ-B 25 | ■ 43798<br>■ 50798 | 25× 3.2 - 6.5 mm   | 10 |

\* Only valid for grey product types



## KEL-DPZ-E

### Cable entry plates



Conical shape on back provides additional sealing and strain relief



Also available in black.



IP66

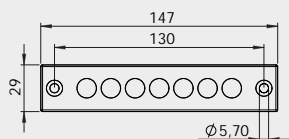
#### Description

#### Type

#### Order No.

#### Number of cables

#### PU

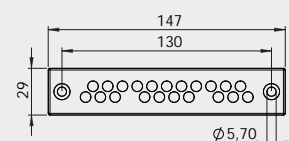


KEL-DPZ-E 112|7

□ 43780  
■ 50780

7x 7.5 - 12 mm

10



KEL-DPZ-E 112|21

□ 43790  
■ 50790

21x 3.2 - 6.5 mm

10

## Product description

KEL-DPZ-E is designed for routing cables without connectors without connectors in very small space.

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

With an area of only 18 × 112 mm, up to 21 cables can be easily routed and sealed.

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

## Advantages & benefits

- Space saving shape
- Dual sealing of cables according to IP66/NEMA type 12
- High cable density
- Fast and easy assembly
- Hygienic design

## Specifications

|                    |   |
|--------------------|---|
| Material           | Frame: Polyamide (PA)<br>Sealing plate: Elastomer |
| Colour             | □ grey (similar RAL 7035)<br>■ black              |
| Flame class        | UL94-Vo, self-extinguishing                       |
| IP rating          | IP66 (certified acc. to EN 60529)                 |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)                     |
| Temperature        | - 40°C to + 90°C (static)                         |
| Properties         | Halogen-free, silicone-free                       |
| Cut-out dimensions | 18 × 112 mm / page 192 - 193                      |
| Plate depth        | 14 mm   |

## Accessories

|                             |     |
|-----------------------------|-----|
| ST-B Plugs                  | 76  |
| KEL-EMC-PF Cable collectors | 123 |

\* Only valid for grey product types

# KEL-DPZ-KL

## Cable entry plates



IP65



Also available in black.



Membrane on front



Conical shape on back provides additional sealing and strain relief

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

### Product description

The cable entry plate KEL-DPZ-KL is designed for routing up to 72 cables without connectors.

The assembly of the KEL-DPZ-KL with cables or pneumatic hoses can be done quick and easy. Simply make a small hole in the thin membrane, push the cables through. The KEL-DPZ-KL provides strain relief and protection IP65 / NEMA type 12.

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

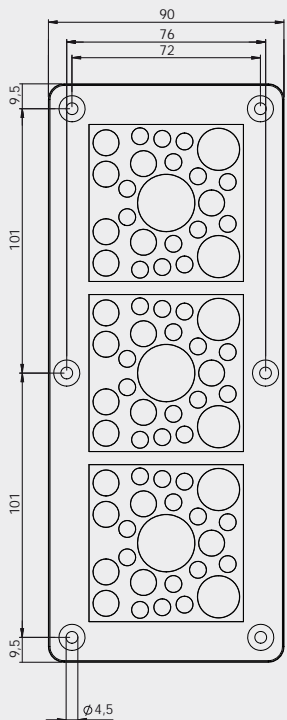
The KEL-DPZ-KL matches on terminal boxes KL by Rittal.

### Advantages & benefits

- Space saving shape
- Dual sealing of cables according to IP65/NEMA type 12
- High cable density
- Fast and easy assembly
- Hygienic design

### Specifications

|                    |   |
|--------------------|---|
| Material           | Frame: Stainless steel V2A, moulded with elastomer<br>Sealing plate: Elastomer<br>Screws: Stainless steel V2A |
| Colour             | <input type="checkbox"/> grey (similar RAL 7035)<br><input checked="" type="checkbox"/> black                 |
| Flame class        | UL94-Vo, self-extinguishing   |
| IP rating          | IP65 (certified acc. to EN 60529)   |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)   |
| Temperature        | - 40°C to + 90°C (static)   |
| Properties         | Halogen-free, silicone-free   |
| Cut-out dimensions | 192 × 62 mm   |
| Plate depth        | 4 mm  |

|  |              |   |  |   |
|--|--------------|---|--|---|
|  | KEL-DPZ-KL72 | <input type="checkbox"/> 43675.001<br><input checked="" type="checkbox"/> 43675.101 | 42x 3.2 - 6.5 mm<br>21x 5 - 10.2 mm<br>6x 9 - 16.2 mm<br>3x 16 - 22 mm | 1 |
|  |              | * Only valid for grey product types   |  |   |

### Accessories

ST-B Plugs 76

# Typical applications

## Cable entry plates for cables without connectors



**KEL-DPZ 24|x** - Page 64 - 65

Routing of numerous cables with varying cable diameter sizes into a machine control cabinet. IP65 sealing is achieved. Additional membranes are available for future routing.



**KEL-DPZ 24|25** - Page 65

Routing of a large number of cables into the enclosure of a checkweigher. High cable density in a small space.



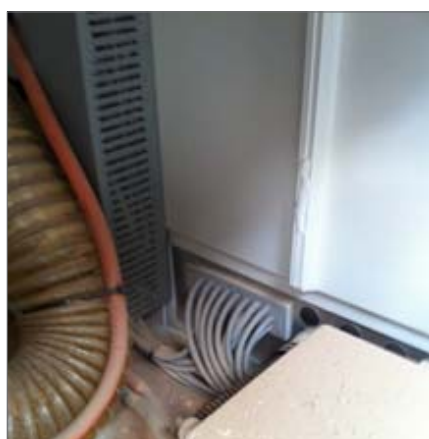
**KEL-DPZ-B25** - Page 66

Entering of cable bundle in a small space with high IP66 rating.



**KEL-DPZ-B25** - Page 66 / **KEL 24|7** - Page 18

Combination of split and push-through-systems for the routing of cables in an integrated switch cabinet. Additional grommets and membranes are available for future routing.



**KEL-DP 24|50** - Page 72

Entering a large number of cables without connectors through a small space.



**KEL-DP 50|16** - Page 75

Routing of cables, conduits and pipes with a single cable entry plate.

# KEL-DPZ round Cable entry plates



Also available in black.



Membrane on front



Conical shape on back provides additional sealing and strain relief

| Type | Order No. | Number of cables | Thread metric | External diameter | Mounting height | PU |
|------|-----------|------------------|---------------|-------------------|-----------------|----|
|------|-----------|------------------|---------------|-------------------|-----------------|----|

## Product description

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

The assembly of the KEL-DPZ round with cables or pneumatic hoses can be done quick and easy. Simply make a small hole in the thin membrane, push the cables through. The KEL-DPZ round provides strain relief and protection IP66 / IP67 / IP68 / NEMA type 4X.

The round versions of the KEL-DPZ series have a thread to fit in metric cut-outs from M32 to M63. Thus cut-outs for metric cable glands can be used.

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

|                |  |  |           |       |      |    |
|----------------|--|--|-----------|-------|------|----|
| KEL-DPZ 32 4   | <input type="checkbox"/> 43732<br><input type="checkbox"/> 50732 | 3× 3.2 - 6.5 mm<br>1× 7.2 - 12.5 mm                  | M32 × 1.5 | 44 mm | 8 mm | 10 |
| KEL-DPZ 32 4-2 | <input type="checkbox"/> 43733<br><input type="checkbox"/> 50733 | 4× 5 - 9.5 mm  | M32 × 1.5 | 44 mm | 8 mm | 10 |
| KEL-DPZ 32 7   | <input type="checkbox"/> 43734<br><input type="checkbox"/> 50734 | 7× 3.2 - 6.5 mm                                      | M32 × 1.5 | 44 mm | 8 mm | 10 |
| KEL-DPZ 40 8   | <input type="checkbox"/> 43741<br><input type="checkbox"/> 50741 | 4× 3.2 - 6.5 mm<br>4× 5 - 10.2 mm                    | M40 × 1.5 | 52 mm | 8 mm | 10 |
| KEL-DPZ 50 8   | <input type="checkbox"/> 43750<br><input type="checkbox"/> 50750 | 5× 5 - 10.2 mm<br>3× 7.2 - 12.5 mm                   | M50 × 1.5 | 62 mm | 8 mm | 10 |
| KEL-DPZ 50 10  | <input type="checkbox"/> 43751<br><input type="checkbox"/> 50751 | 7× 3.2 - 6.5 mm<br>2× 5 - 10.2 mm<br>1× 16 - 22.2 mm | M50 × 1.5 | 62 mm | 8 mm | 10 |
| KEL-DPZ 50 12  | <input type="checkbox"/> 43752<br><input type="checkbox"/> 50752 | 4× 3.2 - 6.5 mm<br>8× 5 - 10.2 mm                    | M50 × 1.5 | 62 mm | 8 mm | 10 |

\* Only valid for grey product types



## KEL-DPZ round Cable entry plates



IP68

| Type | Order No. | Number of cables | Thread metric | External diameter | Mounting height | PU |
|------|-----------|------------------|---------------|-------------------|-----------------|----|
|------|-----------|------------------|---------------|-------------------|-----------------|----|

|               |   |  |           |       |      |    |
|---------------|---|--|-----------|-------|------|----|
| KEL-DPZ 50 19 | <input type="checkbox"/> 43758<br><input checked="" type="checkbox"/> 50758 | 19x 3.2 - 6.5 mm   | M50 x 1.5 | 62 mm | 8 mm | 10 |
| KEL-DPZ 50 78 | <input type="checkbox"/> 43756<br><input checked="" type="checkbox"/> 50756 | 76x 1.5 - 2.6 mm<br>2x 2.5 - 5 mm                                      | M50 x 1.5 | 62 mm | 8 mm | 10 |
| KEL-DPZ 63 9  | <input type="checkbox"/> 43760<br><input checked="" type="checkbox"/> 50760 | 1x 3.2 - 6.5 mm<br>3x 5 - 10.2 mm<br>4x 9 - 16.2 mm<br>1x 16 - 22.2 mm | M63 x 1.5 | 75 mm | 8 mm | 10 |
| KEL-DPZ 63 13 | <input type="checkbox"/> 43761<br><input checked="" type="checkbox"/> 50761 | 4x 3.2 - 6.5 mm<br>4x 5 - 10.2 mm<br>5x 9 - 16.2 mm                    | M63 x 1.5 | 75 mm | 8 mm | 10 |
| KEL-DPZ 63 14 | <input type="checkbox"/> 43762<br><input checked="" type="checkbox"/> 50762 | 14x 5 - 10.2 mm  | M63 x 1.5 | 75 mm | 8 mm | 10 |
| KEL-DPZ 63 35 | <input type="checkbox"/> 43763<br><input checked="" type="checkbox"/> 50763 | 35x 3.2 - 6.5 mm   | M63 x 1.5 | 75 mm | 8 mm | 10 |

### Advantages & benefits

- Quick and easy tool-free assembly
- High cable density
- Automatic sealing and strain relief for the cable
- Suitable for metric cut-outs
- Polyamide locknuts are included in the shipment
- Dual sealing of cables according to IP66 / IP67 / IP68 / up to NEMA type 4X
- Hygienic design - free of dirt-collecting recesses

### Specifications

|                  |   |
|------------------|---|
| Material         | Thread frame: Polyamide (PA)  |
| Colour           | Sealing plate: Elastomer<br><input type="checkbox"/> grey (similar RAL 7035)<br><input checked="" type="checkbox"/> black |
| Flame class      | UL94-Vo, self-extinguishing   |
| IP rating        | IP66/IP67/IP68 (certified acc. to EN 60529)   |
| NEMA type rating | NEMA type 4X (acc. to UL 50E)   |
| Temperature      | - 40°C to + 90°C (static)   |
| Properties       | Halogen-free, silicone-free   |
| Cut-out dim.     | Metric sizes  |
| Thread length    | 14 mm   |
| Plate depth      | 8 mm  |

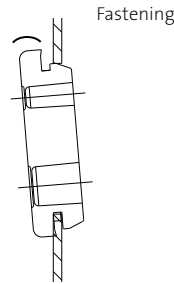
### Accessories

|                   |           |
|-------------------|-----------|
| ST-B Plugs        | 76        |
| FP Flanged plates | 152 - 157 |
| MP Module plates  | 148 - 149 |

\* Only valid for grey product types

# KEL-DP 24

## Cable entry plates



Also available in black.



### Product description

KEL-DP entry plates are designed for routing cables without connectors.

The KEL-DP products are a cost saving alternative to traditional cable glands. Simply make a small hole in the thin membrane and push the cables through. The KEL-DP 24 provides protection IP64 / NEMA Type 12.

A special rib ensures a centred fit in the cut-outs. ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

### Advantages & benefits

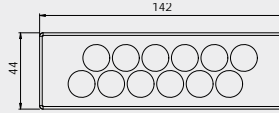
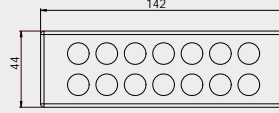
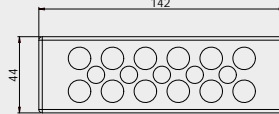
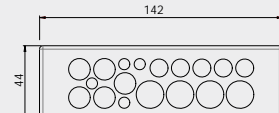
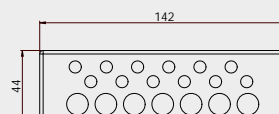
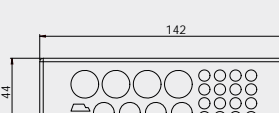
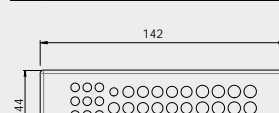
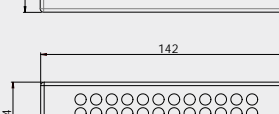
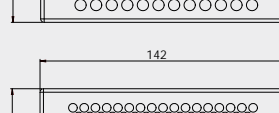
- Fast and easy assembly, no tools required
- High cable density
- Cost-effective
- Hygienic design
  - free of dirt-collecting recesses
- For wall thickness 1.5 - 4 mm

### Specifications

|                    |   |
|--------------------|---|
| Material           | Elastomer   |
| Colour             | <input type="checkbox"/> grey (similar RAL 7035)<br><input checked="" type="checkbox"/> black |
| Flame class        | UL94-Vo, self-extinguishing   |
| IP rating          | IP64 (certified acc. to EN 60529)   |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)   |
| Temperature        | - 40°C to + 90°C (static)   |
| Properties         | Halogen-free, silicone-free   |
| Cut-out dimensions | 36 × 112 mm   |
| Plate depth        | 5 mm  |
| Type A:            | For wall thickness 1.5 - 2.5 mm   |
| Type B:            | For wall thickness 2.8 - 4 mm   |

### Accessories

|                   |           |
|-------------------|-----------|
| ST-B Plugs        | 76        |
| FP Flanged plates | 152 - 157 |

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

\* Only valid for grey product types



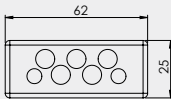
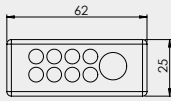
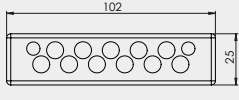
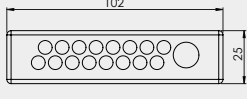
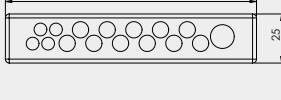
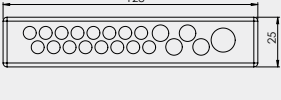
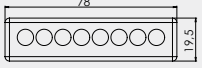
# KEL-DP-E

## Cable entry plates



Also available in black.



| Type            | Order No.   | Cut-out [mm]             | Number of cables                                     | PU | Description   |
|-----------------|---|--------------------------|--|----|---|
| KEL-DP-E 46 7   | <input type="checkbox"/> 43585<br><input checked="" type="checkbox"/> 50585 | 46 × 18                  | 5× max. 8.3 mm<br>2× max. 6.5 mm                     | 10 |    |
| KEL-DP-E 46 9   | <input type="checkbox"/> 43587<br><input checked="" type="checkbox"/> 50587 | 46 × 18                  | 8× max. 6.5 mm<br>1× max. 12.1 mm                    | 10 |  |
| KEL-DP-E 86 13  | <input type="checkbox"/> 43581<br><input checked="" type="checkbox"/> 50581 | 85 × 16                  | 11× max. 8.3 mm<br>2× max. 6.5 mm                    | 10 |  |
| KEL-DP-E 86 17  | <input type="checkbox"/> 43583<br><input checked="" type="checkbox"/> 50583 | 85 × 16                  | 16× max. 6.5 mm<br>1× max. 12.1 mm                   | 10 |  |
| KEL-DP-E 112 16 | <input type="checkbox"/> 43576<br><input checked="" type="checkbox"/> 50576 | 112 × 18                 | 4× max. 6.5 mm<br>11× max. 8.3 mm<br>1× max. 12.1 mm | 10 |  |
| KEL-DP-E 112 21 | <input type="checkbox"/> 43578<br><input checked="" type="checkbox"/> 50578 | 112 × 18                 | 16× max. 6.5 mm<br>4× max. 8.3 mm<br>1× max. 12.1 mm | 10 |  |
| KEL-DP-S 69 8   | <input type="checkbox"/> 43591<br><input checked="" type="checkbox"/> 50591 | 69 × 10<br>Edge radii Rz | 8× max. 7.5 mm                                       | 10 |  |

\* Only valid for grey product types

### Product description

KEL-DP-E entry plates are designed for routing cables without connectors. The KEL-DP products are a cost saving alternative to traditional cable glands.

Simply make a small hole in the thin membrane and push the cables through. The KEL-DP-E provides protection IP64 / NEMA Type 12.

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

A special rib ensures a centred fit in the cut-outs.

### Advantages & benefits

- Fast and easy assembly, no tools required
- High cable density
- Cost-effective
- Hygienic design
  - free of dirt-collecting recesses
- For wall thickness 1.5 - 2.5 mm

### Specifications

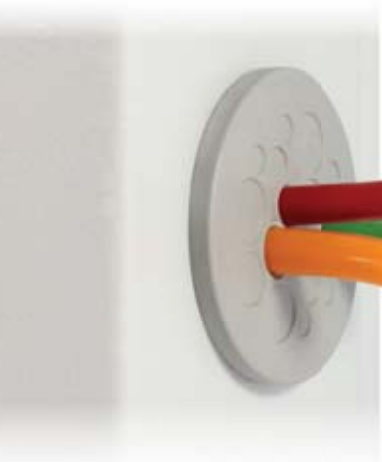
|                  |   |
|------------------|---|
| Material         | Elastomer   |
| Colour           | <input type="checkbox"/> grey (similar RAL 7035)<br><input checked="" type="checkbox"/> black |
| Flame class      | UL94-Vo, self-extinguishing   |
| IP rating        | IP64 (certified acc. to EN 60529)   |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)   |
| Temperature      | - 40°C to + 90°C (static)   |
| Properties       | Halogen-free, silicone-free   |
| Plate depth      | 5 mm  |

### Accessories

ST-B Plugs 76

# KEL-DP round

## Cable entry plates



IP65



Also available in black.



Membrane on front



Special fixing ribs ensure a centred fit.

| Type | Order No. Type A | Order No. Type B | Number of cables | Cut-out | External diameter DA | PU |
|------|------------------|------------------|------------------|---------|----------------------|----|
|------|------------------|------------------|------------------|---------|----------------------|----|

### Product description

2

KEL-DP entry plates are designed for routing cables without connectors.

The KEL-DP products are a cost saving alternative to traditional cable glands.

Simply make a small hole in the thin membrane and push the cables through. The KEL-DP round provides protection IP65 / NEMA Type 12.

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

A special rib ensures a centred fit in the cut-outs.

### Advantages & benefits

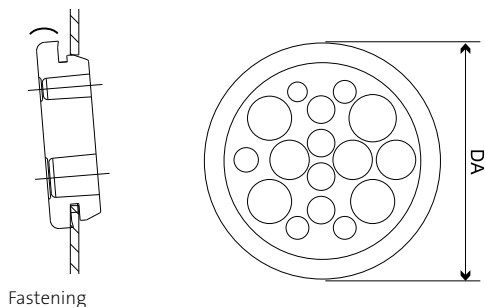
- Fast and easy assembly, no tools required
- High cable density
- Cost-effective
- For wall thickness 1,5 - 4 mm
- Hygienic design - free of dirt-collecting recesses

|                         |   |   |  |         |       |    |
|-------------------------|---|---|--|---------|-------|----|
| KEL-DP 25 4             | <input type="checkbox"/> 43533<br><input checked="" type="checkbox"/> 50533 | -   | 4× max. 8 mm   | ø 25 mm | 32 mm | 10 |
| KEL-DP 25 6             | <input type="checkbox"/> 43531<br><input checked="" type="checkbox"/> 50531 | -   | 4× max. 5.2 mm<br>2× max. 9.4 mm                                       | ø 25 mm | 32 mm | 10 |
| KEL-DP 32 10            | <input type="checkbox"/> 43532<br><input checked="" type="checkbox"/> 50532 | <input type="checkbox"/> 43560<br><input checked="" type="checkbox"/> 50560 | 6× max. 5.2 mm<br>2× max. 6.4 mm<br>2× max. 9.4 mm                     | ø 32 mm | 38 mm | 10 |
| <b>NEW</b> KEL-DP 40 9  | <input type="checkbox"/> 43536  | <input type="checkbox"/> 43561  | 8× max. 9.5 mm<br>1× max. 11.3 mm                                      | ø 40 mm | 50 mm | 10 |
| <b>NEW</b> KEL-DP 40 16 | <input type="checkbox"/> 43537  | <input type="checkbox"/> 43563  | 2× max. 5.3 mm<br>10× max. 6.3 mm<br>2× max. 9.5 mm<br>2× max. 11.3 mm | ø 40 mm | 50 mm | 10 |
| <b>NEW</b> KEL-DP 40 17 | <input type="checkbox"/> 43538  | <input type="checkbox"/> 43565  | 1× max. 4 mm<br>16× max. 7.2 mm  | ø 40 mm | 50 mm | 10 |

\* Only valid for grey product types



# KEL-DP round Cable entry plates



Fastening



| Type | Order No. Type A | Order No. Type B | Number of cables | Cut-out | External diameter DA | PU |
|------|------------------|------------------|------------------|---------|----------------------|----|
|------|------------------|------------------|------------------|---------|----------------------|----|

|              |   |   |   |         |       |    |
|--------------|---|---|---|---------|-------|----|
| KEL-DP 50 9  | <input type="checkbox"/> 43554<br><input checked="" type="checkbox"/> 50554 | <input type="checkbox"/> 43568<br><input checked="" type="checkbox"/> 50568 | 5× max. 7 mm<br>4× max. 18 mm   | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 11 | <input type="checkbox"/> 43555<br><input checked="" type="checkbox"/> 50555 | <input type="checkbox"/> 43569<br><input checked="" type="checkbox"/> 50569 | 7× max. 7.2 mm<br>3× max. 11.2 mm<br>1× max. 22.5 mm                              | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 12 | <input type="checkbox"/> 43551<br><input checked="" type="checkbox"/> 50551 | <input type="checkbox"/> 43562<br><input checked="" type="checkbox"/> 50562 | 10× max. 9.2 mm<br>2× max. 11.2 mm  | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 16 | <input type="checkbox"/> 43550<br><input checked="" type="checkbox"/> 50550 | <input type="checkbox"/> 43564<br><input checked="" type="checkbox"/> 50564 | 4× max. 5.3 mm<br>5× max. 6.3 mm<br>3× max. 9.5 mm<br>4× max. 11.3 mm             | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 18 | <input type="checkbox"/> 43553<br><input checked="" type="checkbox"/> 50553 | <input type="checkbox"/> 43567<br><input checked="" type="checkbox"/> 50567 | 2× max. 4 mm<br>2× max. 6 mm<br>4× max. 7.2 mm<br>5× max. 9.4 mm<br>5× max. 12 mm | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 20 | <input type="checkbox"/> 43552<br><input checked="" type="checkbox"/> 50552 | <input type="checkbox"/> 43566<br><input checked="" type="checkbox"/> 50566 | 16× max. 6.3 mm<br>4× max. 9.3 mm   | ∅ 50 mm | 60 mm | 10 |
| KEL-DP 50 35 | <input type="checkbox"/> 43556<br><input checked="" type="checkbox"/> 50556 | <input type="checkbox"/> 43570<br><input checked="" type="checkbox"/> 50570 | 35× max. 5.2 mm   | ∅ 50 mm | 60 mm | 10 |

\* Only valid for grey product types

## Specifications

|                    |   |
|--------------------|---|
| Material           | Elastomer   |
| Colour             | <input type="checkbox"/> grey (similar RAL 7035)<br><input checked="" type="checkbox"/> black |
| Flame class        | UL94-Vo, self-extinguishing   |
| IP rating          | IP65 (certified acc. to EN 60529)   |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)   |
| Temperature        | - 40°C to + 90°C (static)   |
| Properties         | Halogen-free, silicone-free   |
| Cut-out dimensions | Metric sizes  |
| Plate depth        | 5 mm  |

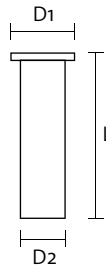
|         |                                 |
|---------|---------------------------------|
| Type A: | For wall thickness 1.5 - 2.5 mm |
| Type B: | For wall thickness 2.8 - 4 mm   |

## Accessories

|                   |           |
|-------------------|-----------|
| ST-B Plugs        | 76        |
| FP Flanged plates | 152 - 157 |

# ST-B

## Plugs for membranes



2

### Product description

Plugs ST-B are used to seal already pierced membranes in various cable entry plates (KEL-DPU / KEL-DPZ / KEL-DP / KEL-QTA-DP) and DT grommets.

Perfect for applications where cables have been removed.

The IP rating of the cable entry plate remains.

### Advantages & benefits

- Sealing of pierced cable entry membranes which are no longer in use

### Specifications

Material **Polyamide (PA), white**  
 Flame class **UL94-Vo, self-extinguishing**  
 Temperature **- 40°C to + 120°C**  
 Properties **Halogen-free, silicone-free**

### Compatible with

KEL-DPU Cable entry plates 62 - 63  
 KEL-DPZ Cable entry plates 64 - 71  
 KEL-DP Cable entry plates 72 - 75  
 DT Cable entry grommets 48  
 KEL-QTA-DP Cable entry plates 54

| Type                         | Order No.    | Diameter D1  | Diameter D2 | Length L | PU |
|------------------------------|--------------|--|-------------|----------|----|
| ST-B 6                       | 42806        | 8 mm   | 6 mm        | 16 mm    | 25 |
| ST-B 10                      | 42810        | 12 mm  | 10 mm       | 16 mm    | 25 |
| ST-B 12                      | 42812        | 15 mm  | 12 mm       | 16 mm    | 25 |
| ST-B 16                      | 42816        | 19 mm  | 16 mm       | 16 mm    | 25 |
| ST-B 22                      | 42822        | 25 mm  | 22 mm       | 21 mm    | 25 |
| <b>Assortment ST-B Plugs</b> | <b>42801</b> | <b>5x ST-B 6   5x ST-B 10   2x ST-B 12   1x ST-B 16   1x ST-B 22</b> |             |          |    |



## KEL-DPF

### Cable entry grommets



IP68

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

NEW

### Wrenches

#### for M75/M85 plastic locknuts

For mounting the new KEL-DPF sizes we offer suitable wrenches with widths for M75 and M85 plastic locknuts. Material: aluminium

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



\* Only valid for grey product types

## Product description

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

### Cutting of DPF grommets:

- Cable diameter less 25%. The corresponding diameters are marked on the grommet

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

## Advantages & benefits

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

## Specifications

|                    |   |
|--------------------|---|
| Material           | Thread frame: Polyamide (PA)<br>Pyramid: Elastomer  |
| Colour             | <input type="checkbox"/> grey (similar RAL 7035)<br><input checked="" type="checkbox"/> black |
| Flame class        | UL94-Vo, self-extinguishing   |
| IP rating          | IP66/ IP68 (certified acc. to EN 60529)   |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)   |
| Temperature        | - 40°C to + 90°C (static)   |
| Properties         | Halogen-free, silicone-free   |
| Thread length      | 14 mm   |
| Cut-out dimensions | Metric sizes  |

## Accessories

|                   |           |
|-------------------|-----------|
| FP Flanged plates | 152 - 157 |
| MP Module plates  | 148 - 149 |

# KEL-JUMBO flex

## Cable entry grommets



### Product description

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

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

#### Cutting of KEL-JUMBO flex grommets:

- Cable diameter less 25%
- The corresponding diameters are marked on the grommet

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

### Advantages & benefits

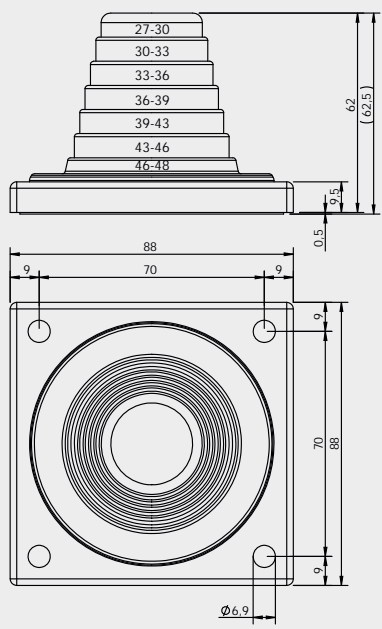
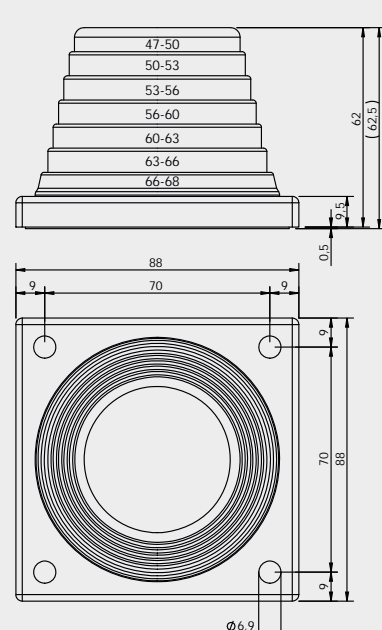
- Quick assembly
- Grommets allow dynamic and flexible movement of rigid cables
- Compact installation area (88 × 88 mm)

### Specifications

|                    |   |
|--------------------|---|
| Material           | Frame: Polyamide (PA)<br>Pyramid: Elastomer |
| Flame class        | UL94-Vo, self-extinguishing                 |
| IP rating          | IP54  |
| NEMA type rating   | NEMA type 12 (acc. to UL 50E)               |
| Temperature        | - 40°C to + 90°C (static)                   |
| Properties         | Halogen-free, silicone-free                 |
| Cut-out dimensions | Round, $\varnothing$ -cable +20%            |

### Accessories

|                  |           |
|------------------|-----------|
| MP Module plates | 148 - 149 |
| BP Blank plates  | 158 - 159 |

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



# KEL-ULTRA flex

## Cable entry grommets



| Type | Order No. | Sealing range | PU |
|------|-----------|---------------|----|
|------|-----------|---------------|----|

|  |              |  |          |
|--|--------------|--|----------|
| <b>KEL-ULTRA flex 1</b><br>incl. Fixing screws | <b>42630</b> | <b>25 - max. 90 mm cable diameter</b>  | <b>1</b> |
| <b>KEL-ULTRA flex 2</b><br>incl. Fixing screws | <b>42631</b> | <b>75 - max. 115 mm cable diameter</b> | <b>1</b> |

### Product description

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

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

### Advantages & benefits

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

### Specifications

|                   |   |
|-------------------|---|
| Material          | <b>Pyramid: Elastomer</b><br><b>Fixing metal ring: Steel, zinc-plated</b><br><b>Blind plate: Steel, zinc-plated</b> |
| Flame class       | <b>UL94-Vo, self-extinguishing</b>  |
| IP rating         | <b>IP66, when fastened with 8 screws (certified acc. to EN 60529)</b>   |
| NEMA type rating  | <b>NEMA type 12 (acc. to UL 50E)</b>  |
| Temperature       | <b>- 40°C to + 90°C (static)</b>  |
| Properties        | <b>Halogen-free, silicone-free</b>  |
| Cut-out dimension | <b>Round, Ø-cable +30%, max. Ø 140 mm</b>   |

### Accessories

|                  |           |
|------------------|-----------|
| MP Module plates | 148 - 149 |
| BPM Blank plates | 159       |

# 3 Strain relief & cable management

GL

HL3  
EN 45545-2

UV  
ISO 4892-2A

ECOLAB  
certified

RoHS  
compliant

Made in  
Germany

UL-94 Vo

+140°C  
-40°C

By using icotek strain relief systems the user can quickly assemble, organise and provide strain relief for cables according to EN 62444.

The strain relief plates are available in several sizes. The cable density can be greatly increased by using spacers for multilayer mounting.

The systems can be used for organising and securing cables in machines, switch cabinets, enclosures and dynamic drag chains. Due to the wide variety of mounting requirements, options range from DIN rail snap-mount, C-rail to screw mount.

Securing the cables is done quickly and inexpensively with standard cable ties. The shape of the strain relief securely holds cable tie and cable.



High cable density,  
multilayer mounting  
possible



Fast and easy, partially  
tool-free mounting



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



Available in  
various sizes



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



## Product range



KZL



SFZL



ZL



ZL-AB



ZL 03 04 05



DH



KLB / KBH



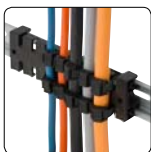

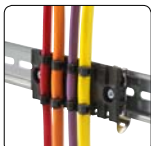






KB



# Product group 3

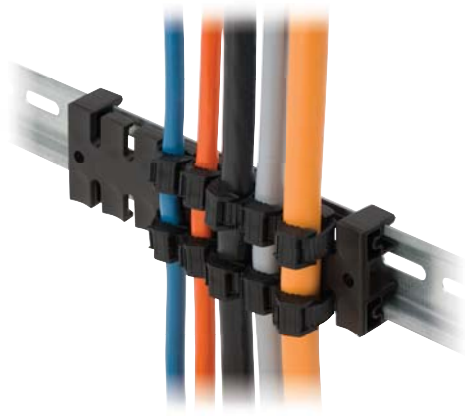
## Strain relief & cable management

### Chapter content

|  |   |    |         |
|--|---|----|---------|
|     | <b>Strain relief plates</b><br>for 35 mm DIN rail / C-rail snap mount       |    |         |
|  | KZL   | 82 |         |
|     | <b>Strain relief plates</b><br>for 35 mm DIN rail snap mount                |    |         |
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|     | <b>Strain relief plates</b><br>for screw mount                              |    |         |
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|   | <b>Strain relief plates</b><br>for screw mount, with bushings               |    |         |
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|    | <b>Spacers</b><br>for multilayer mounting of strain relief plates           |    |         |
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|    | <b>Cable ties</b><br>KB black / KB natural                                  |    | 88 - 89 |
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|  | <b>Holder for hook-and-loop cable ties</b><br>various mounting types<br>KBH |    | 91      |

# KZL

## Strain relief plates for mounting rails



### Product description

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

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

KZL Strain relief plates are available for 30 mm DIN rails (C-rails) or 35 mm DIN rails.

### Advantages & benefits

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

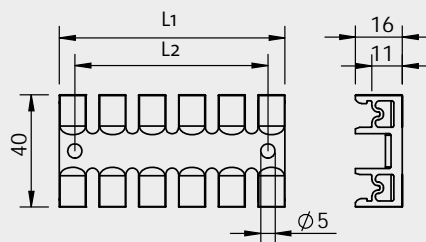
### Specifications

Material: Polyamide (PA)  
 Flame class: UL94-Vo, self-extinguishing  
 Temperature: - 40°C to + 140°C (static)  
 Properties: Halogen-free, silicone-free

### Accessories

KB Cable ties 88 - 89

| Type    | Order No. for H-rails | Order No. for C-rails | Length L1 | Length L2 | No. of teeth | PU |
|---------|-----------------------|-----------------------|-----------|-----------|--------------|----|
| KZL 11  |                       | 32250                 | 11.5 mm   | -         | 1            | 10 |
| KZL 39  | 32260                 | 32261                 | 38.5 mm   | 28.3 mm   | 3            | 10 |
| KZL 80  | 32262                 | 32263                 | 79.5 mm   | 68 mm     | 6            | 10 |
| KZL 140 | 32264                 | 32265                 | 139.5 mm  | 128.1 mm  | 9            | 10 |



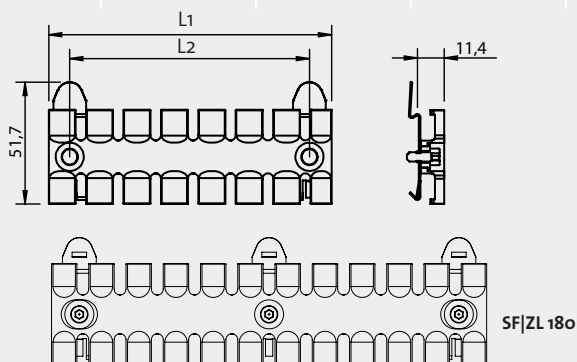
# SF|ZL

Strain relief plates for 35 mm DIN rail



| Type | Order No. | Length L1 | Length L2 | No. of teeth | PU |
|------|-----------|-----------|-----------|--------------|----|
|------|-----------|-----------|-----------|--------------|----|

|           |       |          |          |    |    |
|-----------|-------|----------|----------|----|----|
| SF ZL 39  | 32351 | 38.5 mm  | 19.5 mm  | 3  | 10 |
| SF ZL 60  | 32352 | 59.5 mm  | 43.5 mm  | 4  | 10 |
| SF ZL 70  | 32353 | 69.1 mm  | 43.5 mm  | 5  | 10 |
| SF ZL 87  | 32354 | 86.5 mm  | 68 mm    | 6  | 10 |
| SF ZL 103 | 32355 | 102.5 mm | 84 mm    | 7  | 10 |
| SF ZL 121 | 32356 | 121 mm   | 102.5 mm | 8  | 10 |
| SF ZL 140 | 32357 | 139.5 mm | 121 mm   | 9  | 10 |
| SF ZL 180 | 32358 | 180 mm   | 157 mm   | 12 | 10 |



## Product description

The strain relief plate SF|ZL is used for assembly on 35 mm DIN rails. It can be used for strain relief of cables and conduits.

The SF|ZL range is based upon the strain relief plate ZL, which is mounted on snap feet for 35 mm DIN rails.

3

## Advantages & benefits

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

## Specifications

Material ZL: Polyamide (PA)  
 SF-foot: Spring steel  
 Flame class UL94-Vo, self-extinguishing  
 Temperature -40°C to +140°C (static)  
 Properties Halogen-free, silicone-free

## Accessories

KB Cable ties 88 - 89  
 ZL|SB-EMC Shield plates 129

# ZL

## Strain relief plates for screw assembly



### Product description

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

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

For multilayer installation please use DH spacers, see Page 85.

### Advantages & benefits

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

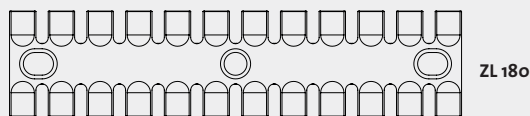
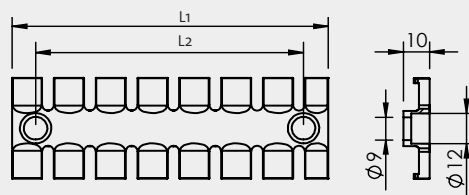
### Specifications

Material Polyamide (PA)  
 Flame class UL94-Vo, self-extinguishing  
 Temperature - 40°C to + 140°C (static)  
 Properties Halogen-free, silicone-free

### Accessories

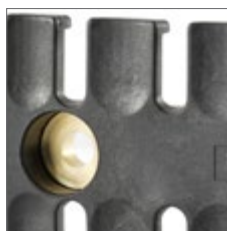
DH Spacers 87  
 KB Cable ties 88 - 89  
 ZL|SB-EMC Shield plates 129

| Type   | Order No. | Length L1 | Length L2 | No. of teeth | PU |
|--------|-----------|-----------|-----------|--------------|----|
| ZL 39  | 32222     | 38.5 mm   | 19.5 mm   | 3            | 10 |
| ZL 60  | 32224     | 59.5 mm   | 43.5 mm   | 4            | 10 |
| ZL 70  | 32226     | 69.1 mm   | 43.5 mm   | 5            | 10 |
| ZL 87  | 32228     | 86.5 mm   | 68 mm     | 6            | 10 |
| ZL 103 | 32230     | 102.5 mm  | 84 mm     | 7            | 10 |
| ZL 121 | 32232     | 121 mm    | 102.5 mm  | 8            | 10 |
| ZL 140 | 32234     | 139.5 mm  | 121 mm    | 9            | 10 |
| ZL 180 | 32236     | 180 mm    | 157 mm    | 12           | 10 |

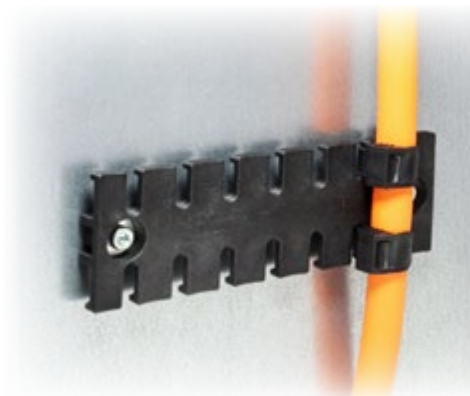
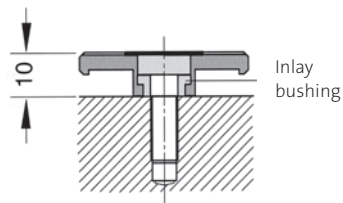


# ZL-AB

## Strain relief plates for screw assembly



Inlay bushings also available in brass.



| Type      | Order No.     |                |               | Length   |          | No. of teeth | PU |
|-----------|---------------|----------------|---------------|----------|----------|--------------|----|
|           | for M4 screws | for M5 screws  | for M6 screws | L1       | L2       |              |    |
| ZL 39 AB  | 32270         | 32280<br>32360 | 32290         | 38.5 mm  | 19.5 mm  | 3            | 10 |
| ZL 60 AB  | 32271         | 32281<br>32361 | 32291         | 59.5 mm  | 43.5 mm  | 4            | 10 |
| ZL 70 AB  | 32272         | 32282<br>32362 | 32292         | 69.1 mm  | 43.5 mm  | 5            | 10 |
| ZL 87 AB  | 32273         | 32283<br>32363 | 32293         | 86.5 mm  | 68 mm    | 6            | 10 |
| ZL 103 AB | 32275         | 32284<br>32364 | 32294         | 102.5 mm | 84 mm    | 7            | 10 |
| ZL 121 AB | 32277         | 32285<br>32365 | 32295         | 121 mm   | 102.5 mm | 8            | 10 |
| ZL 140 AB | 32274         | 32286<br>32366 | 32296         | 139.5 mm | 121 mm   | 9            | 10 |
| ZL 180 AB | 32276         | 32287<br>32367 | 32297         | 180 mm   | 157 mm   | 12           | 10 |

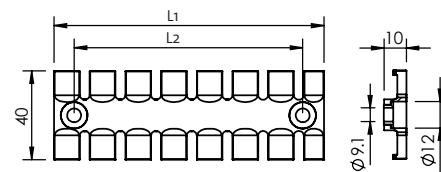
### Product description

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

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

### Advantages & benefits

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



### Specifications

Material ZL: Polyamide (PA)  
 Bushing:  
 □ Aluminium  
 ■ Brass (BR)  
 Flame class UL94-Vo, self-extinguishing  
 Temperature - 40°C to + 140°C (static)  
 Properties Halogen-free, silicone-free

### Accessories

KB Cable ties 88 - 89  
 ZL|SB-EMC Shield plates 129

## ZL 03 | 04 | 05

Strain relief plates for screw assembly



### Product description

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

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

### Advantages & benefits

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

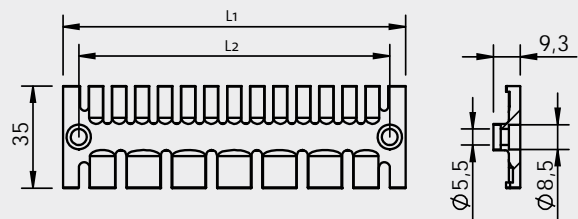
### Specifications

Material **Polyamide (PA)**  
 Flame class **UL94-Vo, self-extinguishing**  
 Temperature **- 40°C to + 140°C (static)**  
 Properties **Halogen-free, silicone-free**

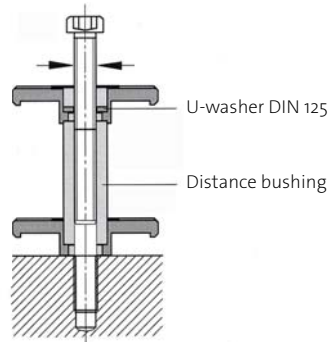
### Accessories

DH Spacers **87**  
 KB Cable ties **88 - 89**

| Type  | Order No. | Length<br>L1 | Length<br>L2 | No. of<br>teeth | PU |
|-------|-----------|--------------|--------------|-----------------|----|
| ZL 03 | 32112     | 63.4 mm      | 42 mm        | 4 7             | 10 |
| ZL 04 | 32114     | 95 mm        | 74.5 mm      | 6 11            | 10 |
| ZL 05 | 32116     | 119 mm       | 108 mm       | 7 13            | 10 |



# DH Spacers



| Type  | Order No. | Fits with       | Length | Diameter |       | PU |
|-------|-----------|-----------------|--------|----------|-------|----|
|       |           |                 |        | inner    | outer |    |
| DH 30 | 32251     | ZL 03   04   05 | 30 mm  | 5.2 mm   | 7 mm  | 10 |
| DH 32 | 32252     | ZL              | 32 mm  | 6.2 mm   | 12 mm | 10 |

## Product description

Due to DH spacers strain relief plates can be mounted in multi-layers to achieve an increase of the cable density.

## Advantages & benefits

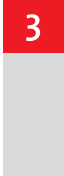
- Increase of cable density

## Specifications

Material **Aluminium**

## Compatible with

ZL Strain relief plates 84  
 ZL 03|04|05 Strain relief plates 86

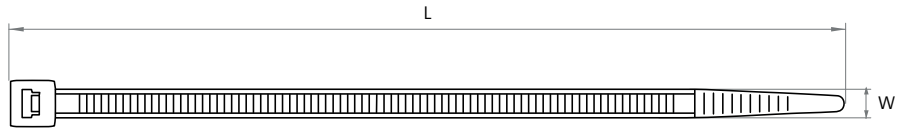


# KB black

## Cable ties



KBW 9



### Product description

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

Use highly flexible and robust power cable ties KB 28 for special requirements.

### Specifications KB 28

Material Polyamide 12 (PA), black  
 Flame class UL94-V2  
 Temperature - 40°C to + 100°C  
 Properties Oil- and mould-resistant, highly flexible

### Specifications KB black

Material Polyamide 6.6 (PA), black  
 Flame class UL94-V2  
 Temperature - 40°C to + 100°C  
 Properties UV-resistant, particularly suitable for outdoor use

| Type      | Order No. | Length<br>L                    | Width<br>W | Bundling<br>range | Tensile<br>strength | PU  |   |
|-----------|-----------|--------------------------------|------------|-------------------|---------------------|-----|---|
| KB 28     | 61225     | 178 mm                         | 9 mm       | 28 mm             | 350 N               | 100 |   |
| KB 20 bk  | 61215     | 98 mm                          | 2.5 mm     | 20 mm             | 60 N                | 100 |   |
| KB 25 bk  | 61220     | 140 mm                         | 3.6 mm     | 25 mm             | 130 N               | 100 |   |
| KB 30 bk  | 61230     | 160 mm                         | 4.5 mm     | 30 mm             | 180 N               | 100 |   |
| KB 45 bk  | 61235     | 178 mm                         | 4.8 mm     | 45 mm             | 220 N               | 100 |   |
| KB 55 bk  | 61240     | 200 mm                         | 4.8 mm     | 50 mm             | 220 N               | 100 |   |
| KB 75 bk  | 61245     | 290 mm                         | 4.8 mm     | 75 mm             | 220 N               | 100 |   |
| KB 100 bk | 61250     | 360 mm                         | 4.8 mm     | 100 mm            | 220 N               | 100 |   |
| KBW 9     | 61300     | Processing tool for cable ties |            |                   |                     |     | 1 |

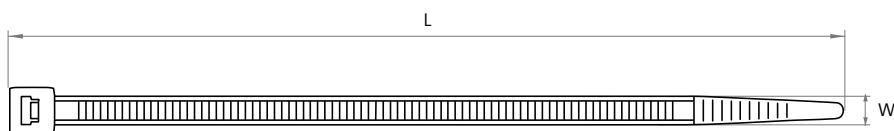
3



## KB natural Cable ties



KBW 9



| Type      | Order No. | Length<br>L                    | Width<br>W | Bundling<br>range | Tensile<br>strength | PU  |
|-----------|-----------|--------------------------------|------------|-------------------|---------------------|-----|
| KB 15 nc  | 6115      | 75 mm                          | 2.2 mm     | 15 mm             | 60 N                | 100 |
| KB 20 nc  | 61120     | 98 mm                          | 2.5 mm     | 20 mm             | 60 N                | 100 |
| KB 22 nc  | 61125     | 135 mm                         | 2.6 mm     | 22 mm             | 80 N                | 100 |
| KB 25 nc  | 61130     | 140 mm                         | 3.6 mm     | 25 mm             | 130 N               | 100 |
| KB 30 nc  | 61135     | 160 mm                         | 4.5 mm     | 30 mm             | 180 N               | 100 |
| KB 45 nc  | 61140     | 178 mm                         | 4.8 mm     | 45 mm             | 220 N               | 100 |
| KB 50 nc  | 61145     | 200 mm                         | 2.6 mm     | 50 mm             | 80 N                | 100 |
| KB 55 nc  | 61150     | 200 mm                         | 4.8 mm     | 50 mm             | 220 N               | 100 |
| KB 75 nc  | 61155     | 290 mm                         | 4.8 mm     | 75 mm             | 220 N               | 100 |
| KB 100 nc | 61160     | 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, e.g. for achieving strain relief.

### Specifications

|             |                             |
|-------------|-----------------------------|
| Material    | Polyamide 6.6 (PA), natural |
| Flame class | UL94-V2                     |
| Temperature | - 40°C to + 100°C           |
| Properties  | Oil- and mould-resistant    |

## KLKB / KLB

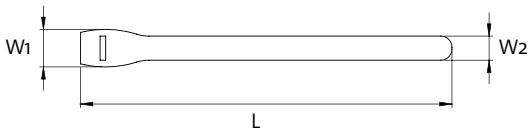
### Hook-and-loop cable ties



### Product description

Cable ties with hook-and-loop fasteners are a more and more common fixing mode for cables. They are used instead of standard cable ties, because they can be easily closed and opened several times. The soft material is gentle on cables, especially where vibrations are present.

Hook-and-loop cable ties are available individually (KLKB) in four different sizes or as a continuous roll (KLB) in four different sizes.



### Advantages

- Reusable
- Adaptable
- The cable tie material is gentle on cables, especially if there are vibrations

### Specifications

Material **Polypropylene + Velours PA**  
 Colour **black**  
 Flame class **UL94-V2**  
 Temperature **-30°C to +80°C**

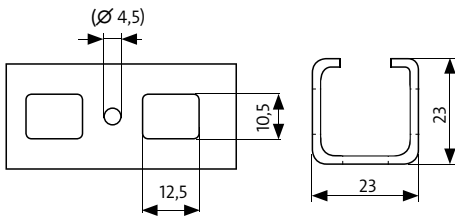
### Accessories

KBH Holder for hook-and-loop fastener 91

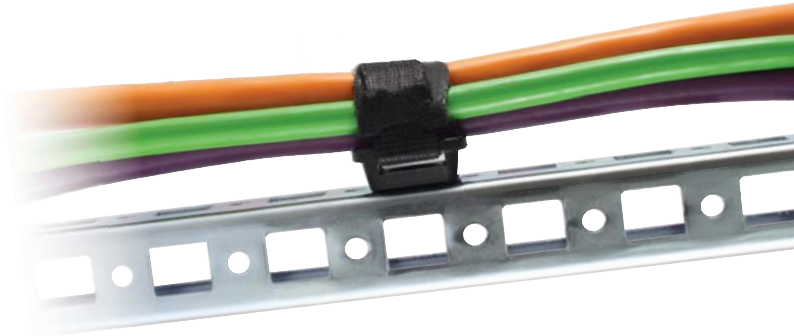
| Type             | Size [mm] |    |    | Order No. | PU   |
|------------------|-----------|----|----|-----------|------|
|                  | L         | W1 | W2 |           |      |
| KLKB 200 × 7 bk  | 200       | 13 | 7  | 61021     | 100  |
| KLKB 200 × 13 bk | 200       | 20 | 13 | 61022     | 100  |
| KLKB 230 × 13 bk | 230       | 20 | 13 | 61023     | 100  |
| KLKB 300 × 17 bk | 300       | 25 | 17 | 61024     | 100  |
| KLB 10 bk        |           |    | 10 | 61011     | 25 m |
| KLB 15 bk        |           |    | 15 | 61012     | 25 m |
| KLB 20 bk        |           |    | 20 | 61013     | 25 m |
| KLB 25 bk        |           |    | 25 | 61014     | 25 m |

# KBH

## Holder for hook-and-loop fastener



23 × 23 mm mounting rail



| Description   | Type       | Order No. | fits KLKB   KLB                         | Compatible with          | PU  |
|---|------------|-----------|---|--------------------------|-----|
| <b>Holder for hook-and-loop fastener, screwable</b>                                 |            |           |   |                          |     |
|   | KBH-S      | ■ 61019   | KLKB 200 × 7<br>KLKB 200 × 13<br>KLB 10 | 23 × 23 mm mounting rail | 100 |
|  | KBH-SB     | ■ 61002   | KLKB 200 × 7                            | universal                | 100 |
| <b>Holder for hook-and-loop fastener, pluggable</b>                                 |            |           |   |                          |     |
|  | KBH-R      | ■ 61018   | KLKB 200 × 7<br>KLKB 200 × 13<br>KLB 10 | 23 × 23 mm mounting rail | 100 |
|  | KBH-RBA nc | □ 61003   | KLKB 200 × 7                            | drill-hole<br>Ø 6 mm     | 100 |
|  | KBH-RBB    | ■ 61004   | KLKB 200 × 7                            | drill-hole<br>Ø 6.5 mm   | 100 |

\* Only KBH-S / KBH-R

### Product description

These holders can be used in combination with cable ties with hook-and-loop fastener KLKB and hook-and-loop tape KLB.

Large variety of holders provides unique and numerous mounting possibilities.

### Advantages

- Assembly within seconds
- Secure hold
- Flexible usage

### Specifications KBH-S / KBH-R

|             |                             |
|-------------|-----------------------------|
| Material    | Polyamide (PA)              |
| Colour      | ■ black                     |
| Flame class | UL94-Vo, self-extinguishing |
| Temperature | - 40°C to + 110°C           |
| Properties  | Halogen-free, silicone-free |

### Specifications KBH-SB / KBH-RBA

|             |  |
|-------------|--|
| Material    | Polyamide (PA)                         |
| Colour      | ■ black (KBH-SB)<br>□ nc (KBH-RBA)     |
| Flame class | UL94-V2                                |
| Temperature | - 40°C to + 85°C (short-term to 110°C) |

### Specifications KBH-RBB

|             |                   |
|-------------|-------------------|
| Material    | Polyamide (PA)    |
| Colour      | ■ black           |
| Temperature | - 40°C to + 120°C |

### Compatible with

KLKB / KLB Cable ties with hook-and-loop fastener 90

# 4

## EMC cable shielding

### Shield clamps & earthing components

For process measurement and control equipment an increasingly higher level of protection against failure is required. The shielding and earthing of the cable shields are very important. The area where the cable shield is connected to the cabinet earth is a critical point. It is very important that the connection has a low resistance.

icotek EMC products therefore provide a good solution. The SKL shield clamps offer a large contact area to the cable shield (see figure A). In comparison to conventional shield brackets (see figure B) an up to 50% higher

contact area can be achieved when using the SKL line. The specified clamping range can be exceeded up to 10%.

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

Available in various sizes

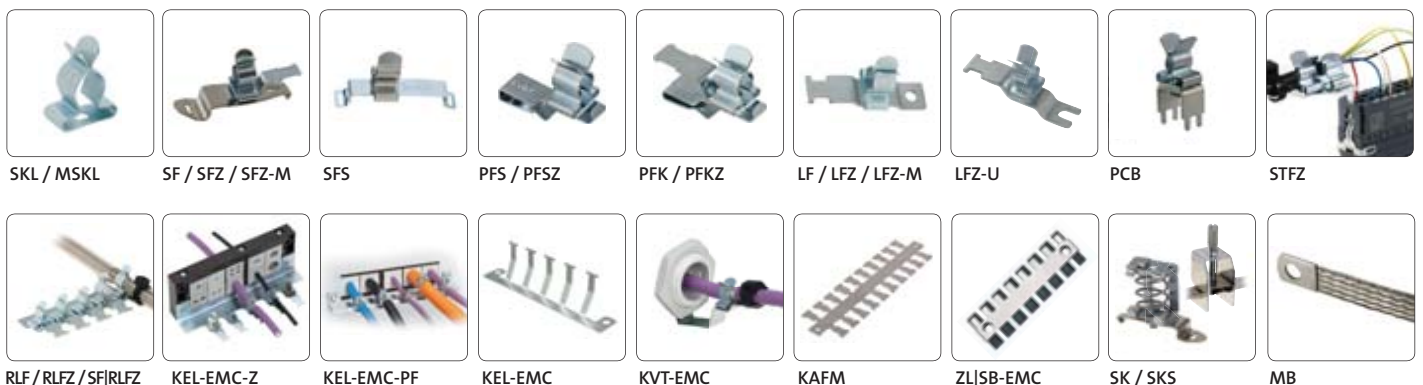
High cable density possible

Wide variety in mounting types:  
DIN rail / C-rail snap mount,  
screw mount, ...

Large contact area to the cable shield.  
Shield and cable strands  
won't be squeezed

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

#### Product range



# Product group 4

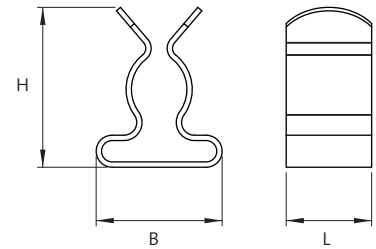
EMC cable shielding

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|  | <b>Shield clamps</b><br>for printed circuit boards<br>PCB SKL  | 112       |  |   |           |

# SKL

## EMC Shield clamps, single



### Product description

SKL shield clamps are easy to use and effective in earthing single cables.

Shield clamps can be easily attached via screw or rivet.

### Advantages & benefits

- Large contact area
- Easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free
- Designed for high density applications

### Specifications

**Material**

SKL-clamp Spring steel, zinc plated



| Type      | Order No. | Clamping range [mm] | Dimensions L × B × H [mm] | Fixing hole                        | PU |
|-----------|-----------|---------------------|---------------------------|------------------------------------|----|
| SKL 1.5-3 | 36200     | 1.5 - 3 mm          | 8 × 11.8 × 13             | 3.1 mm                             | 50 |
| SKL 3-6   | 36202     | 3 - 6 mm            | 8 × 11.8 × 13.6           | 3.1 mm                             | 50 |
| SKL 6-8   | 36204     | 6 - 8 mm            | 8 × 11.8 × 15             | 3.1 mm                             | 50 |
| SKL 8-11  | 36205     | 8 - 11 mm           | 8 × 14 × 20               | 3.1 mm                             | 50 |
| SKL 12-16 | 36206     | 12 - 16 mm          | 8 × 21 × 27.5             | 3.1 mm                             | 50 |
| SKL 17-22 | 36207     | 17 - 22 mm          | 8 × 26.5 × 34.5           | 3.1 mm                             | 50 |
| SKL 23-29 | 36208     | 23 - 29 mm          | 8 × 35 × 39.5             | 3.1 mm                             | 50 |
| SKL 30-37 | 36209     | 30 - 37 mm          | 11 × 48.3 × 54.7          | 3.1 mm                             | 5  |
| SKL 38-48 | 36213     | 38 - 48 mm          | 13 × 55 × 67              | 2 × 4.1 mm<br>Hole spacing: 9.2 mm | 5  |

## MSKL

EMC Shield clamps  
with large clamping range

MSKL 3-12  
Cable shielding for diameters 3 - 12 mm  
with only one clamp size.



| Type  | Order No. | Clamping range<br>[mm] | Dimensions<br>L x W x H [mm] | Mounting<br>type                   | PU |
|---|-----------|------------------------|------------------------------|------------------------------------|----|
| <b>MSKL for screw mounting (M3) or riveting:</b>  |           |                        |                              |                                    |    |
| MSKL 3-12   | 37600     | 3 - 12 mm              | 8 x 15.1 x 20.5              | Screw/rivet,<br>Fixing hole 3.2 mm | 50 |
| MSKL 8-18   | 37602     | 8 - 18 mm              | 8 x 20 x 27                  | Screw/rivet,<br>Fixing hole 3.2 mm | 50 |
|  LFZ-M MSKL 3-12 |           |                        |                              |                                    |    |
| <b>MSKL for screw mounting (M4):</b>  |           |                        |                              |                                    |    |
| LFZ-M MSKL 3-12<br>with strain relief   | 37612     | 3 - 12 mm              | 46.3 x 15.1 x 26             | Screw,<br>Fixing hole 4.2 mm       | 10 |
| LFZ-M MSKL 8-18<br>with strain relief   | 37614     | 8 - 18 mm              | 46.3 x 20 x 32               | Screw,<br>Fixing hole 4.2 mm       | 10 |
| LF MSKL 3-12  | 37608     | 3 - 12 mm              | 24 x 15.1 x 26               | Screw,<br>Fixing hole 4.2 mm       | 10 |
| LF MSKL 8-18  | 37610     | 8 - 18 mm              | 24 x 20 x 32                 | Screw,<br>Fixing hole 4.2 mm       | 10 |
|  SFZ-M MSKL 3-12 |           |                        |                              |                                    |    |
| <b>MSKL for snap mounting on 35 mm DIN rail shape H:</b>  |           |                        |                              |                                    |    |
| SFZ-M MSKL 3-12<br>with strain relief   | 37620     | 3 - 12 mm              | 60.5 x 15.1 x 26             | 35 mm<br>DIN rail shape H          | 10 |
| SFZ-M MSKL 8-18<br>with strain relief   | 37622     | 8 - 18 mm              | 60.5 x 20 x 32               | 35 mm<br>DIN rail shape H          | 10 |
| SF MSKL 3-12  | 37616     | 3 - 12 mm              | 50.5 x 15.1 x 26             | 35 mm<br>DIN rail shape H          | 10 |
| SF MSKL 8-18  | 37618     | 8 - 18 mm              | 50.5 x 20 x 32               | 35 mm<br>DIN rail shape H          | 10 |

## Product description

The shield clamps MSKL are easy to use and effective in earthing single cables.

Due to its special design the clamping ranges of the MSKL are very large while the dimensions are comparatively small. (Example: MSKL 3-12, assembled with a 12 mm cable shield: width 26.25 mm).

The types LFZ-M|MSKL and SFZ-M|MSKL allow cables to be secured with a cable tie. Strain relief in accordance with EN 62444 is achieved.

MSKL shield clamps can be easily attached on DIN rails shape H or via screw or rivet, depending on the specific types.

## Advantages &amp; benefits

- Large clamping areas, therefore less product sizes needed to cover a large cable diameter range
- Space-saving design, even when fully assembled
- Large contact area
- Simple mounting, easy assembly
- Partially with integrated strain relief
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free

## Specifications

## Material

|               |                                       |
|---------------|---------------------------------------|
| MSKL-clamp    | Spring steel, zinc plated             |
| LF/LFZ-M-foot | Sheet steel, galvanically zinc plated |
| SF/SFZ-M-foot | Spring steel                          |

## Accessories

Cable ties 88 - 89

# SFZ|SKL

## EMC Shield clamps for 35 mm DIN rail



### Product description

The shield clamps SFZ|SKL are easy to use and effective in earthing single cables in combination with strain relief.

Cables are secured with a cable tie. Strain relief in accordance with EN 62444 is achieved.

For assembly on 35 mm DIN rails.

### Advantages & benefits

- Simple and tool-free mounting, easy assembly
- Shock and vibration resistant, maintenance free
- Strain relief of the cable and earthing in a single device
- Large contact area
- The spring design requires no adjustments and will permanently maintain contact to the cable shield

### Specifications

**Material**

SKL-clamp      Spring steel, zinc plated  
 SF- / SFZ-foot      Spring steel

### Accessories

Cable ties      88 - 89

| Type          | Order No. | Shield diameter | PU |
|---------------|-----------|-----------------|----|
| SFZ SKL 1.5-3 | 36850     | 1.5 - 3 mm      | 10 |
| SFZ SKL 3-6   | 36855     | 3 - 6 mm        | 10 |
| SFZ SKL 6-8   | 36860     | 6 - 8 mm        | 10 |
| SFZ SKL 8-11  | 36865     | 8 - 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 |



# SF|SKL

## EMC Shield clamps for 35 mm DIN rail



SF|SKL 38-48



SF|SKL

| Type | Order No. | Shield diameter | PU |
|------|-----------|-----------------|----|
|------|-----------|-----------------|----|

|                            |       |  |    |
|----------------------------|-------|--|----|
| SF SKL 1.5-3               | 36243 | 1.5 - 3 mm                             | 10 |
| SF SKL 3-6                 | 36244 | 3 - 6 mm                               | 10 |
| SF SKL 6-8                 | 36245 | 6 - 8 mm                               | 10 |
| SF SKL 8-11                | 36246 | 8 - 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 SKL 30-37               | 36250 | 30 - 37 mm                             | 10 |
| SF SKL 38-48               | 36252 | 38 - 48 mm                             | 10 |
| SF single M4               | 36230 | Snap foot, single with screw thread M4 | 10 |
| <b>NEW</b><br>SF single M5 | 36221 | Snap foot, single with screw thread M5 | 10 |

### Product description

The shield clamps SF|SKL are easy to use and effective in earthing single cables.

For assembly on 35 mm DIN rails.

### Advantages & benefits

- Large contact area
- Simple and tool-free mounting, easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free

### Specifications

**Material**  
SKL-clamp Spring steel, zinc plated  
SF-foot Spring steel



# SFS|SKL

EMC Shield clamps for 35 mm DIN rail



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

## 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 maximises space utilisation. Suitable for applications that require EMC shielding close to connection points or controller inputs.

## Advantages & benefits

- Designed for high density applications
- Simple and tool-free mounting, easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Large contact area
- Shock and vibration resistant, maintenance free

## Specifications

**Material**  
 SKL-clamp Spring steel, zinc plated  
 SFS-foot Spring steel



SFS single

EMC  
ServiceBox



**NEW**

EMC ServiceBox multi  
Order No. 880o6



EMC ServiceBox for SKL Shield clamps



Product description

The suitable EMC clamp is always readily available!

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

Order No. 880o2

Content

SKL for TS35 DIN rails:

|                                   |         |
|-----------------------------------|---------|
| Type SF SKL - sizes: 1.5 - 29 mm  | 7 × SKL |
| Type SFZ SKL - sizes: 1.5 - 29 mm | 6 × SKL |
| Type SFS SKL - sizes: 1.5 - 8 mm  | 3 × SKL |

SKL for assembly via screws:

|                                      |         |
|--------------------------------------|---------|
| Type LF SKL - sizes: 1.5 - 29 mm     | 7 × SKL |
| Type LFZ SKL - sizes: 1.5 - 29 mm    | 7 × SKL |
| Type LFZ-U4 SKL - sizes: 1.5 - 11 mm | 4 × SKL |

SKL for 10 × 3 bus bar:

|                                   |         |
|-----------------------------------|---------|
| Typ PFS SKL - sizes: 1.5 - 22 mm  | 6 × SKL |
| Typ PFSz SKL - sizes: 1.5 - 11 mm | 4 × SKL |
| Typ PFSz SKL 32                   | 1 × SKL |
| Typ PFSz2 SKL 23 / 41             | 2 × SKL |

SKL for clipping on metal sheets:

|                                   |         |
|-----------------------------------|---------|
| Type PFKZ-A SKL - sizes: 3 - 6 mm | 1 × SKL |
| Type PFKZ2-A SKL 23               | 1 × SKL |
| Type PFKZ-B SKL 14                | 1 × SKL |

EMC - Accessories:

|                               |         |
|-------------------------------|---------|
| RLFZ - Clamp assembly 5 × SKL | 1 piece |
|-------------------------------|---------|

# PFSZ|SKL

## EMC Shield clamps for bus bar



### Product description

Comparable with the PFS|SKL range, the PFSZ|SKL shield clamps are easy to use and effective in earthing single cables. They are used for mounting on 10 x 3 mm bus bars.

The PFSZ range provides the possibility to fix the cable with a cable tie. Strain relief in accordance with EN 62444 is achieved.

### Advantages & benefits

- Integrated strain relief
- Large contact area
- Simple and tool-free mounting, easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free

### Specifications

**Material**

- SKL-clamp Spring steel, zinc plated
- PFSZ-foot Spring steel
- Bus bar Cu, tin plated, current load 140 A

### Accessories

- Cable ties 88 - 89
- KEL-EMC-PF Bracket 123

| Type                         | Order No.    | Shield diameter          | PU       |
|------------------------------|--------------|--------------------------|----------|
| PFSZ SKL 1.5-3               | 36787.1      | 1.5 - 3 mm               | 10       |
| PFSZ SKL 3-6                 | 36787.2      | 3 - 6 mm                 | 10       |
| PFSZ SKL 6-8                 | 36787.3      | 6 - 8 mm                 | 10       |
| PFSZ SKL 8-11                | 36787.4      | 8 - 11 mm                | 10       |
| <b>Bus bar<br/>10 x 3 mm</b> | <b>36100</b> | <b>10 x 3 x 1000 mm*</b> | <b>1</b> |

\* Other lengths available on request

# PFS|SKL EMC Shield clamps for bus bar



| Type                 | Order No. | Shield diameter   | PU |
|----------------------|-----------|-------------------|----|
| PFS SKL 1.5-3        | 36786.1   | 1.5 - 3 mm        | 10 |
| PFS SKL 3-6          | 36786.2   | 3 - 6 mm          | 10 |
| PFS SKL 6-8          | 36786.3   | 6 - 8 mm          | 10 |
| PFS SKL 8-11         | 36786.4   | 8 - 11 mm         | 10 |
| PFS SKL 12-16        | 36786.5   | 12 - 16 mm        | 10 |
| PFS SKL 17-22        | 36786.6   | 17 - 22 mm        | 10 |
| Bus bar<br>10 x 3 mm | 36100     | 10 x 3 x 1000 mm* | 1  |

\* Other lengths available on request

## Product description

PFS|SKL shield clamps are easy to use and effective in earthing single cables.

The PFS|SKL is mounted by snapping on a 10 x 3 mm bus bar.

## Advantages & benefits

- Large contact area
- Simple and tool-free mounting, easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free
- Designed for high density applications

## Specifications

**Material**  
 SKL-clamp Spring steel, zinc plated  
 PFS-foot Spring steel  
 Bus bar Cu, tin plated, current load 140 A

## Accessories

KEL-EMC-PF Bracket 123

# PFSZ2|SKL

## EMC Shield clamps for bus bar, double



### Product description

Comparable with the PFS2|SKL range, the PFSZ2|SKL shield clamps are easy to use and effective in earthing single cables. They are used for mounting on 10 x 3 mm bus bars.

The PFSZ2 range provides possibility to fix the cables with cable ties. Strain relief in accordance with EN 62444 is achieved.

### Advantages & benefits

- Integrated strain relief
- Large contact area
- Simple and tool-free mounting, easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free

### Specifications

**Material**

SKL-clamp    **Spring steel, zinc plated**  
 PFSZ2-foot    **Spring steel**  
 Bus bar    **Cu, tin plated, current load 140 A**

### Accessories

Cable ties    88 - 89

| Type              | Shield diameter Pos. 1 | Shield diameter Pos. 2 | Order No. | PU |
|-------------------|------------------------|------------------------|-----------|----|
| PFSZ2 SKL 01      | blank                  | 1.5 - 3 mm             | 36789.01  | 10 |
| PFSZ2 SKL 02      | blank                  | 3 - 6 mm               | 36789.02  | 10 |
| PFSZ2 SKL 03      | blank                  | 6 - 8 mm               | 36789.03  | 10 |
| PFSZ2 SKL 04      | blank                  | 8 - 11 mm              | 36789.04  | 10 |
| PFSZ2 SKL 10      | 1.5 - 3 mm             | blank                  | 36789.10  | 10 |
| PFSZ2 SKL 11      | 1.5 - 3 mm             | 1.5 - 3 mm             | 36789.11  | 10 |
| PFSZ2 SKL 12      | 1.5 - 3 mm             | 3 - 6 mm               | 36789.12  | 10 |
| PFSZ2 SKL 13      | 1.5 - 3 mm             | 6 - 8 mm               | 36789.13  | 10 |
| PFSZ2 SKL 14      | 1.5 - 3 mm             | 8 - 11 mm              | 36789.14  | 10 |
| PFSZ2 SKL 20      | 3 - 6 mm               | blank                  | 36789.20  | 10 |
| PFSZ2 SKL 21      | 3 - 6 mm               | 1.5 - 3 mm             | 36789.21  | 10 |
| PFSZ2 SKL 22      | 3 - 6 mm               | 3 - 6 mm               | 36789.22  | 10 |
| PFSZ2 SKL 23      | 3 - 6 mm               | 6 - 8 mm               | 36789.23  | 10 |
| PFSZ2 SKL 24      | 3 - 6 mm               | 8 - 11 mm              | 36789.24  | 10 |
| PFSZ2 SKL 30      | 6 - 8 mm               | blank                  | 36789.30  | 10 |
| PFSZ2 SKL 31      | 6 - 8 mm               | 1.5 - 3 mm             | 36789.31  | 10 |
| PFSZ2 SKL 32      | 6 - 8 mm               | 3 - 6 mm               | 36789.32  | 10 |
| PFSZ2 SKL 33      | 6 - 8 mm               | 6 - 8 mm               | 36789.33  | 10 |
| PFSZ2 SKL 34      | 6 - 8 mm               | 8 - 11 mm              | 36789.34  | 10 |
| PFSZ2 SKL 40      | 8 - 11 mm              | blank                  | 36789.40  | 10 |
| PFSZ2 SKL 41      | 8 - 11 mm              | 1.5 - 3 mm             | 36789.41  | 10 |
| PFSZ2 SKL 42      | 8 - 11 mm              | 3 - 6 mm               | 36789.42  | 10 |
| PFSZ2 SKL 43      | 8 - 11 mm              | 6 - 8 mm               | 36789.43  | 10 |
| Bus bar 10 x 3 mm |                        | 10 x 3 x 1000 mm*      | 36100     | 1  |

\* Other lengths available on request

# PFS2|SKL

## EMC Shield clamps for bus bar, double



| Type              | Shield diameter Pos. 1 | Shield diameter Pos. 2 | Order No. | PU |
|-------------------|------------------------|------------------------|-----------|----|
| PFS2 SKL 01       | blank                  | 1.5 - 3 mm             | 36788.01  | 10 |
| PFS2 SKL 02       | blank                  | 3 - 6 mm               | 36788.02  | 10 |
| PFS2 SKL 03       | blank                  | 6 - 8 mm               | 36788.03  | 10 |
| PFS2 SKL 04       | blank                  | 8 - 11 mm              | 36788.04  | 10 |
| PFS2 SKL 10       | 1.5 - 3 mm             | blank                  | 36788.10  | 10 |
| PFS2 SKL 11       | 1.5 - 3 mm             | 1.5 - 3 mm             | 36788.11  | 10 |
| PFS2 SKL 12       | 1.5 - 3 mm             | 3 - 6 mm               | 36788.12  | 10 |
| PFS2 SKL 13       | 1.5 - 3 mm             | 6 - 8 mm               | 36788.13  | 10 |
| PFS2 SKL 14       | 1.5 - 3 mm             | 8 - 11 mm              | 36788.14  | 10 |
| PFS2 SKL 20       | 3 - 6 mm               | blank                  | 36788.20  | 10 |
| PFS2 SKL 21       | 3 - 6 mm               | 1.5 - 3 mm             | 36788.21  | 10 |
| PFS2 SKL 22       | 3 - 6 mm               | 3 - 6 mm               | 36788.22  | 10 |
| PFS2 SKL 23       | 3 - 6 mm               | 6 - 8 mm               | 36788.23  | 10 |
| PFS2 SKL 24       | 3 - 6 mm               | 8 - 11 mm              | 36788.24  | 10 |
| PFS2 SKL 30       | 6 - 8 mm               | blank                  | 36788.30  | 10 |
| PFS2 SKL 31       | 6 - 8 mm               | 1.5 - 3 mm             | 36788.31  | 10 |
| PFS2 SKL 32       | 6 - 8 mm               | 3 - 6 mm               | 36788.32  | 10 |
| PFS2 SKL 33       | 6 - 8 mm               | 6 - 8 mm               | 36788.33  | 10 |
| PFS2 SKL 34       | 6 - 8 mm               | 8 - 11 mm              | 36788.34  | 10 |
| PFS2 SKL 40       | 8 - 11 mm              | blank                  | 36788.40  | 10 |
| PFS2 SKL 41       | 8 - 11 mm              | 1.5 - 3 mm             | 36788.41  | 10 |
| PFS2 SKL 42       | 8 - 11 mm              | 3 - 6 mm               | 36788.42  | 10 |
| PFS2 SKL 43       | 8 - 11 mm              | 6 - 8 mm               | 36788.43  | 10 |
| Bus bar 10 × 3 mm |                        | 10 × 3 × 1000 mm*      | 36100     | 1  |

\* Other lengths available on request

### Product description

PFS2|SKL shield clamps are easy to use and effective in earthing 2 single cables.

The PFS2|SKL is mounted by snapping on a 10 × 3 mm bus bar.

### Advantages & benefits

- Large contact area
- Simple and tool-free mounting, easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free
- Designed for high density applications

### Specifications

|                 |                                    |
|-----------------|------------------------------------|
| <b>Material</b> |                                    |
| SKL-clamp       | Spring steel, zinc plated          |
| PFS2-foot       | Spring steel                       |
| Bus bar         | Cu, tin plated, current load 140 A |



# LFZ|SKL

## EMC Shield clamps for screw assembly



### Product description

LFZ|SKL shield clamps are easy to use and effective in earthing single cables.

Cables are secured with a cable tie. Strain relief in accordance with EN 62444 is achieved.

LFZ|SKL shield clamps are easily attached to mounting plates via screw.

| Type          | Order No. | Shield diameter | Fixing hole | PU |
|---------------|-----------|-----------------|-------------|----|
| LFZ SKL 1.5-3 | 36910     | 1.5 - 3 mm      | 4.2 mm      | 10 |
| LFZ SKL 3-6   | 36915     | 3 - 6 mm        | 4.2 mm      | 10 |
| LFZ SKL 6-8   | 36920     | 6 - 8 mm        | 4.2 mm      | 10 |
| LFZ SKL 8-11  | 36925     | 8 - 11 mm       | 4.2 mm      | 10 |
| LFZ SKL 12-16 | 36930     | 12 - 16 mm      | 4.2 mm      | 10 |
| LFZ SKL 17-22 | 36935     | 17 - 22 mm      | 4.2 mm      | 10 |
| LFZ SKL 23-29 | 36940     | 23 - 29 mm      | 4.2 mm      | 10 |

### Advantages & benefits

- Integrated strain relief
- Large contact area
- Simple assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free

### Specifications

**Material**

SKL-clamp Spring steel, zinc plated  
 LFZ-foot Sheet steel, galvanically zinc plated  
 Fixing hole 4.2 mm for screw M4

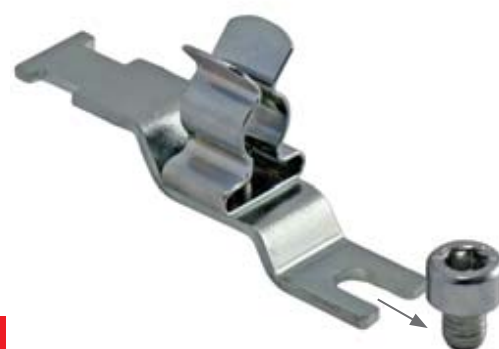
### Accessories

Cable ties 88 - 89



# LFZ-U|SKL

## EMC Shield clamps for screw assembly



| Type | Order No. | Shield diameter | Fixing hole | PU |
|------|-----------|-----------------|-------------|----|
|------|-----------|-----------------|-------------|----|

### LFZ-U|SKL for M4 screws:

|                  |         |            |        |    |
|------------------|---------|------------|--------|----|
| LFZ-U4 SKL 1.5-3 | 36886.1 | 1.5 - 3 mm | 4.2 mm | 10 |
| LFZ-U4 SKL 3-6   | 36886.2 | 3 - 6 mm   | 4.2 mm | 10 |
| LFZ-U4 SKL 6-8   | 36886.3 | 6 - 8 mm   | 4.2 mm | 10 |
| LFZ-U4 SKL 8-11  | 36886.4 | 8 - 11 mm  | 4.2 mm | 10 |

### LFZ-U|SKL for M5 screws:

|                  |         |            |        |    |
|------------------|---------|------------|--------|----|
| LFZ-U5 SKL 1.5-3 | 36887.1 | 1.5 - 3 mm | 5.2 mm | 10 |
| LFZ-U5 SKL 3-6   | 36887.2 | 3 - 6 mm   | 5.2 mm | 10 |
| LFZ-U5 SKL 6-8   | 36887.3 | 6 - 8 mm   | 5.2 mm | 10 |
| LFZ-U5 SKL 8-11  | 36887.4 | 8 - 11 mm  | 5.2 mm | 10 |

## Product description

LFZ-U|SKL shield clamps are used, where the shield of single cables must be connected to the earth potential.

LFZ-U|SKL shield clamps are easy to use and effective in grounding single cables. Cables are secured with a cable tie. Strain relief in accordance with EN 62444 is achieved.

Shield clamps are easily attached to mounting plates via screw. The shield clamp LFZ-U|SKL is available for M4 or M5 screws. During assembly it is sufficient to loosen the existing screw slightly to be able to slide the clamp underneath before re-tightening the screw.

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## Advantages & benefits

- Integrated strain relief
- Large contact area
- Simple and quick assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free

## Specifications

|                 |   |
|-----------------|---|
| <b>Material</b> |   |
| SKL-clamp       | Spring steel, zinc plated                     |
| LFZ-foot        | Sheet steel, galvanically zinc plated         |
|                 | Fixing hole 4.2 mm / 5.2 mm for screw M4 / M5 |

## Accessories

Cable ties 88 - 89

# LF|SKL

## EMC Shield clamps for screw assembly



### Product description

LF|SKL shield clamps are easy to use and effective in earthing single cables.

Shield clamps are easily attached to mounting plates via screw.

### Advantages & benefits

- Large contact area
- Simple assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free
- Designed for high density applications

### Specifications

**Material**

SKL-clamp    Spring steel, zinc plated  
 LF-foot      Sheet steel, galvanically zinc plated  
 Fixing hole 4.2 mm for screw M4

| Type         | Order No. | Shield diameter | Fixing hole | PU |
|--------------|-----------|-----------------|-------------|----|
| LF SKL 1.5-3 | 36251     | 1.5 - 3 mm      | 4.2 mm      | 10 |
| LF SKL 3-6   | 36253     | 3 - 6 mm        | 4.2 mm      | 10 |
| LF SKL 6-8   | 36255     | 6 - 8 mm        | 4.2 mm      | 10 |
| LF SKL 8-11  | 36256     | 8 - 11 mm       | 4.2 mm      | 10 |
| LF SKL 12-16 | 36257     | 12 - 16 mm      | 4.2 mm      | 10 |
| LF SKL 17-22 | 36258     | 17 - 22 mm      | 4.2 mm      | 10 |
| LF SKL 23-29 | 36259     | 23 - 29 mm      | 4.2 mm      | 10 |

# EMC Test results



## Leakage and Impedance

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

icotek EMC shield clamps are proven to absorb electromagnetic interferences.

- Electrical impedance values:
- from 10 kHz to 100 MHz under 20 Ohm
  - up to 1.000 MHz under 120 Ohm

The unique design of icotek shield clamps effectively reduce high frequency interferences.

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## Contact area

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

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

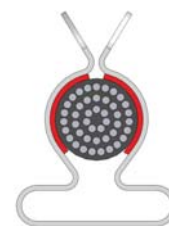


Figure A: SKL-line

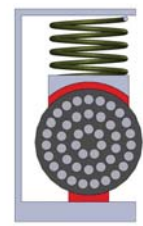
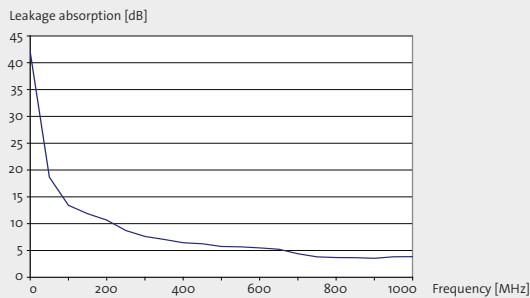
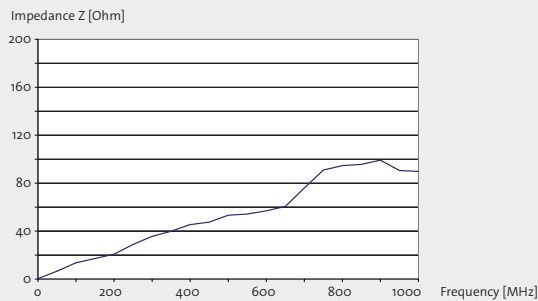
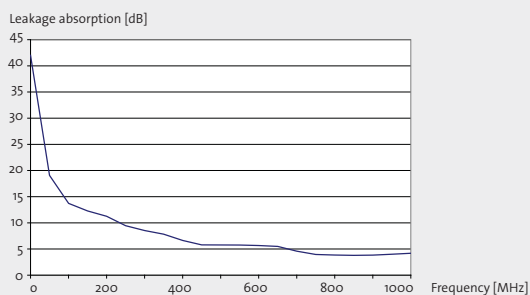
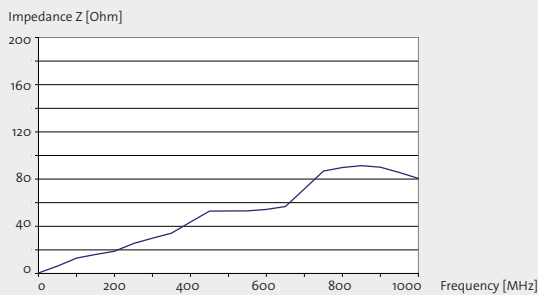


Figure B: Conventional systems

LF|SKL 8-11

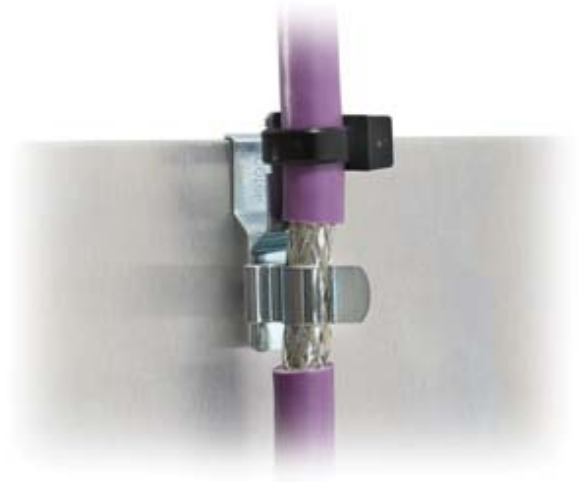


SF|SKL 6-8



# PFKZ|SKL

EMC Shield clamps, pluggable



## Product description

Comparable with the PFK|SKL range, the PFKZ|SKL shield clamps are easy to use and effective in earthing single cables. The PFKZ range provides possibility to affix the cable with a cable tie. Strain relief in accordance with EN 62444 is achieved.

PFKZ|SKL clamps are used where a screw connection is either not possible or wanted. The PFKZ|SKL is simply clamped on the sheet. The claws provide a secure grip, even in case of vibrations.

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## Advantages & benefits

- Integrated strain relief
- Large contact area
- Simple and tool-free mounting, easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free

## Specifications

### Material

SKL-clamp Spring steel, zinc plated  
 PFKZ-foot Spring steel

Type A: For wall/sheet thickness 1.5 - 2 mm  
 Type B: For wall/sheet thickness 2 - 3 mm

## Accessories

Cable ties 88 - 89

| Type   | Order No. | Shield diameter | PU |
|--|-----------|-----------------|----|
| <b>PFKZ SKL - Type A (for wall/sheet thickness 1.5 - 2 mm)</b> |           |                 |    |
| PFKZ-A SKL 1.5-3   | 36779.1   | 1.5 - 3 mm      | 10 |
| PFKZ-A SKL 3-6   | 36779.2   | 3 - 6 mm        | 10 |
| PFKZ-A SKL 6-8   | 36779.3   | 6 - 8 mm        | 10 |
| PFKZ-A SKL 8-11  | 36779.4   | 8 - 11 mm       | 10 |
| <b>PFKZ SKL - Type B (for wall/sheet thickness 2 - 3 mm)</b>   |           |                 |    |
| PFKZ-B SKL 1.5-3   | 36783.1   | 1.5 - 3 mm      | 10 |
| PFKZ-B SKL 3-6   | 36783.2   | 3 - 6 mm        | 10 |
| PFKZ-B SKL 6-8   | 36783.3   | 6 - 8 mm        | 10 |
| PFKZ-B SKL 8-11  | 36783.4   | 8 - 11 mm       | 10 |

# PFK|SKL

## EMC Shield clamps, pluggable



Secure grip on metal sheets due to mounting claws



| Type  | Order No. | Shield diameter | PU |
|---|-----------|-----------------|----|
| <b>PFK SKL - Type A (for wall/sheet thickness 1.5 - 2 mm)</b> |           |                 |    |
| PFK-A SKL 1.5-3   | 36778.1   | 1.5 - 3 mm      | 10 |
| PFK-A SKL 3-6   | 36778.2   | 3 - 6 mm        | 10 |
| PFK-A SKL 6-8   | 36778.3   | 6 - 8 mm        | 10 |
| PFK-A SKL 8-11  | 36778.4   | 8 - 11 mm       | 10 |
| <b>PFK SKL - Type B (for wall/sheet thickness 2 - 3 mm)</b>   |           |                 |    |
| PFK-B SKL 1.5-3   | 36782.1   | 1.5 - 3 mm      | 10 |
| PFK-B SKL 3-6   | 36782.2   | 3 - 6 mm        | 10 |
| PFK-B SKL 6-8   | 36782.3   | 6 - 8 mm        | 10 |
| PFK-B SKL 8-11  | 36782.4   | 8 - 11 mm       | 10 |

### Product description

PFK|SKL shield clamps are easy to use and effective in earthing single cables.

PFK|SKL clamps are used where a screw connection is either not possible or wanted. The PFK|SKL is simply clamped on the sheet. The claws provide a secure grip, even in case of vibrations.

### Advantages & benefits

- Large contact area
- Simple and tool-free mounting, easy assembly
- Shock and vibration resistant, maintenance free
- The spring design requires no adjustments and will permanently maintain contact to the cable shield

### Specifications

**Material**  
 SKL-clamp Spring steel, zinc plated  
 PFK-foot Spring steel

Type A: For wall/sheet thickness 1.5 - 2 mm  
 Type B: For wall/sheet thickness 2 - 3 mm

# PFKZ2|SKL

EMC Shield clamps, pluggable, double



Secure grip on metal sheets due to mounting claws

## Product description

Comparable with the PFK2|SKL range, the PFKZ2|SKL shield clamps are easy to use and effective in earthing 2 single cables. The PFKZ range provides the possibility to affix the cable with a cable tie. Strain relief in accordance with EN 62444 is achieved.

PFKZ2|SKL clamps are used where a screw connection is either not possible or wanted. The PFKZ2|SKL is simply clamped on the sheet. The claws provide a secure grip, even in case of vibrations.

4

## Advantages & benefits

- Integrated strain relief
- Large contact area
- Simple and tool-free mounting, easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free
- Designed for high density applications

## Specifications

### Material

SKL-clamp    **Spring steel, zinc plated**  
 PFKZ2-foot   **Spring steel**

Type A:        **For wall/sheet thickness 1.5 - 2 mm**  
 Type B:        **For wall/sheet thickness 2 - 3 mm**

## Accessories

Cable ties        88 - 89

| Type A                             | Order No. Type A | Type B         | Order No. Type B | Shield diameter Pos. 1 | Shield diameter Pos. 2 | PU |
|------------------------------------|------------------|----------------|------------------|------------------------|------------------------|----|
| <b>Sheet thickness 1.5 - 2 mm:</b> |                  |                |                  |                        |                        |    |
| PFKZ2-A SKL 01                     | 36781.01         | PFKZ2-B SKL 01 | 36785.01         | blank                  | 1.5 - 3 mm             | 10 |
| PFKZ2-A SKL 02                     | 36781.02         | PFKZ2-B SKL 02 | 36785.02         | blank                  | 3 - 6 mm               | 10 |
| PFKZ2-A SKL 03                     | 36781.03         | PFKZ2-B SKL 03 | 36785.03         | blank                  | 6 - 8 mm               | 10 |
| PFKZ2-A SKL 04                     | 36781.04         | PFKZ2-B SKL 04 | 36785.04         | blank                  | 8 - 11 mm              | 10 |
| <b>Sheet thickness 2 - 3 mm:</b>   |                  |                |                  |                        |                        |    |
| PFKZ2-A SKL 10                     | 36781.10         | PFKZ2-B SKL 10 | 36785.10         | 1.5 - 3 mm             | blank                  | 10 |
| PFKZ2-A SKL 11                     | 36781.11         | PFKZ2-B SKL 11 | 36785.11         | 1.5 - 3 mm             | 1.5 - 3 mm             | 10 |
| PFKZ2-A SKL 12                     | 36781.12         | PFKZ2-B SKL 12 | 36785.12         | 1.5 - 3 mm             | 3 - 6 mm               | 10 |
| PFKZ2-A SKL 13                     | 36781.13         | PFKZ2-B SKL 13 | 36785.13         | 1.5 - 3 mm             | 6 - 8 mm               | 10 |
| PFKZ2-A SKL 14                     | 36781.14         | PFKZ2-B SKL 14 | 36785.14         | 1.5 - 3 mm             | 8 - 11 mm              | 10 |
| PFKZ2-A SKL 20                     | 36781.20         | PFKZ2-B SKL 20 | 36785.20         | 3 - 6 mm               | blank                  | 10 |
| PFKZ2-A SKL 21                     | 36781.21         | PFKZ2-B SKL 21 | 36785.21         | 3 - 6 mm               | 1.5 - 3 mm             | 10 |
| PFKZ2-A SKL 22                     | 36781.22         | PFKZ2-B SKL 22 | 36785.22         | 3 - 6 mm               | 3 - 6 mm               | 10 |
| PFKZ2-A SKL 23                     | 36781.23         | PFKZ2-B SKL 23 | 36785.23         | 3 - 6 mm               | 6 - 8 mm               | 10 |
| PFKZ2-A SKL 24                     | 36781.24         | PFKZ2-B SKL 24 | 36785.24         | 3 - 6 mm               | 8 - 11 mm              | 10 |
| PFKZ2-A SKL 30                     | 36781.30         | PFKZ2-B SKL 30 | 36785.30         | 6 - 8 mm               | blank                  | 10 |
| PFKZ2-A SKL 31                     | 36781.31         | PFKZ2-B SKL 31 | 36785.31         | 6 - 8 mm               | 1.5 - 3 mm             | 10 |
| PFKZ2-A SKL 32                     | 36781.32         | PFKZ2-B SKL 32 | 36785.32         | 6 - 8 mm               | 3 - 6 mm               | 10 |
| PFKZ2-A SKL 33                     | 36781.33         | PFKZ2-B SKL 33 | 36785.33         | 6 - 8 mm               | 6 - 8 mm               | 10 |
| PFKZ2-A SKL 34                     | 36781.34         | PFKZ2-B SKL 34 | 36785.34         | 6 - 8 mm               | 8 - 11 mm              | 10 |
| PFKZ2-A SKL 40                     | 36781.40         | PFKZ2-B SKL 40 | 36785.40         | 8 - 11 mm              | blank                  | 10 |
| PFKZ2-A SKL 41                     | 36781.41         | PFKZ2-B SKL 41 | 36785.41         | 8 - 11 mm              | 1.5 - 3 mm             | 10 |
| PFKZ2-A SKL 42                     | 36781.42         | PFKZ2-B SKL 42 | 36785.42         | 8 - 11 mm              | 3 - 6 mm               | 10 |
| PFKZ2-A SKL 43                     | 36781.43         | PFKZ2-B SKL 43 | 36785.43         | 8 - 11 mm              | 6 - 8 mm               | 10 |

# PFK2|SKL

## EMC Shield clamps, pluggable, double



| Type A | Order No. Type A | Type B | Order No. Type B | Shield diameter Pos. 1 | Shield diameter Pos. 2 | PU |
|--------|------------------|--------|------------------|------------------------|------------------------|----|
|--------|------------------|--------|------------------|------------------------|------------------------|----|

| Sheet thickness 1.5 - 2 mm: |          | Sheet thickness 2 - 3 mm: |          |            |            |    |
|-----------------------------|----------|---------------------------|----------|------------|------------|----|
| PFK2-A SKL 01               | 36780.01 | PFK2-B SKL 01             | 36784.01 | blank      | 1.5 - 3 mm | 10 |
| PFK2-A SKL 02               | 36780.02 | PFK2-B SKL 02             | 36784.02 | blank      | 3 - 6 mm   | 10 |
| PFK2-A SKL 03               | 36780.03 | PFK2-B SKL 03             | 36784.03 | blank      | 6 - 8 mm   | 10 |
| PFK2-A SKL 04               | 36780.04 | PFK2-B SKL 04             | 36784.04 | blank      | 8 - 11 mm  | 10 |
| PFK2-A SKL 10               | 36780.10 | PFK2-B SKL 10             | 36784.10 | 1.5 - 3 mm | blank      | 10 |
| PFK2-A SKL 11               | 36780.11 | PFK2-B SKL 11             | 36784.11 | 1.5 - 3 mm | 1.5 - 3 mm | 10 |
| PFK2-A SKL 12               | 36780.12 | PFK2-B SKL 12             | 36784.12 | 1.5 - 3 mm | 3 - 6 mm   | 10 |
| PFK2-A SKL 13               | 36780.13 | PFK2-B SKL 13             | 36784.13 | 1.5 - 3 mm | 6 - 8 mm   | 10 |
| PFK2-A SKL 14               | 36780.14 | PFK2-B SKL 14             | 36784.14 | 1.5 - 3 mm | 8 - 11 mm  | 10 |
| PFK2-A SKL 20               | 36780.20 | PFK2-B SKL 20             | 36784.20 | 3 - 6 mm   | blank      | 10 |
| PFK2-A SKL 21               | 36780.21 | PFK2-B SKL 21             | 36784.21 | 3 - 6 mm   | 1.5 - 3 mm | 10 |
| PFK2-A SKL 22               | 36780.22 | PFK2-B SKL 22             | 36784.22 | 3 - 6 mm   | 3 - 6 mm   | 10 |
| PFK2-A SKL 23               | 36780.23 | PFK2-B SKL 23             | 36784.23 | 3 - 6 mm   | 6 - 8 mm   | 10 |
| PFK2-A SKL 24               | 36780.24 | PFK2-B SKL 24             | 36784.24 | 3 - 6 mm   | 8 - 11 mm  | 10 |
| PFK2-A SKL 30               | 36780.30 | PFK2-B SKL 30             | 36784.30 | 6 - 8 mm   | blank      | 10 |
| PFK2-A SKL 31               | 36780.31 | PFK2-B SKL 31             | 36784.31 | 6 - 8 mm   | 1.5 - 3 mm | 10 |
| PFK2-A SKL 32               | 36780.32 | PFK2-B SKL 32             | 36784.32 | 6 - 8 mm   | 3 - 6 mm   | 10 |
| PFK2-A SKL 33               | 36780.33 | PFK2-B SKL 33             | 36784.33 | 6 - 8 mm   | 6 - 8 mm   | 10 |
| PFK2-A SKL 34               | 36780.34 | PFK2-B SKL 34             | 36784.34 | 6 - 8 mm   | 8 - 11 mm  | 10 |
| PFK2-A SKL 40               | 36780.40 | PFK2-B SKL 40             | 36784.40 | 8 - 11 mm  | blank      | 10 |
| PFK2-A SKL 41               | 36780.41 | PFK2-B SKL 41             | 36784.41 | 8 - 11 mm  | 1.5 - 3 mm | 10 |
| PFK2-A SKL 42               | 36780.42 | PFK2-B SKL 42             | 36784.42 | 8 - 11 mm  | 3 - 6 mm   | 10 |
| PFK2-A SKL 43               | 36780.43 | PFK2-B SKL 43             | 36784.43 | 8 - 11 mm  | 6 - 8 mm   | 10 |

### Product description

PFK2|SKL shield clamps are easy to use and effective in earthing 2 single cables.

PFK2|SKL clamps are used where a screw connection is either not possible or wanted. The PFK2|SKL is simply clamped on the sheet. The claws provide a secure grip, even in case of vibrations.

### Advantages & benefits

- Large contact area
- Simple and tool-free mounting, easy assembly
- Shock and vibration resistant, maintenance free
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications

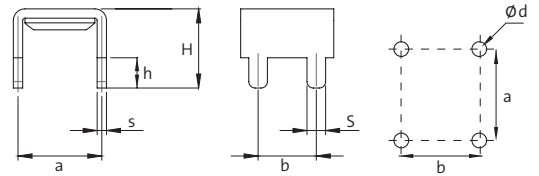
### Specifications

**Material**  
 SKL-clamp Spring steel, zinc plated  
 PFK2-foot Spring steel

Type A: For wall/sheet thickness 1.5 - 2 mm  
 Type B: For wall/sheet thickness 2 - 3 mm

# PCB|SKL

EMC Shield clamps for printed circuit boards



## Product description

PCB|SKL shield clamps are easy to use and effective in earthing single cables.

PCB|SKL consist of SKL clamps, fixed on a soldering foot that enables assembly on printed circuit boards. There are various designs to choose from.

| Type | Order No. | Height H [mm] | Width s [mm] | Pin h [mm] | Pin S [mm] | Grid a x b [mm] | Drill-hole d [mm] | PU |
|------|-----------|---------------|--------------|------------|------------|-----------------|-------------------|----|
|------|-----------|---------------|--------------|------------|------------|-----------------|-------------------|----|

|   |         |      |     |     |     |          |       |    |
|---|---------|------|-----|-----|-----|----------|-------|----|
| PCB-4-V-6,8 SKL 1.5-3<br>(Clamping range 1.5 - 3 mm)  | 36650.1 | 6.8  | 0.8 | 2.6 | 1.6 | 7.2 x 5  | Ø 1.8 | 10 |
| PCB-4-V-6,8 SKL 3-6<br>(Clamping range 3 - 6 mm)      | 36650.2 | 6.8  | 0.8 | 2.6 | 1.6 | 7.2 x 5  | Ø 1.8 | 10 |
| PCB-4-V-6,8 SKL 6-8<br>(Clamping range 6 - 8 mm)      | 36650.3 | 6.8  | 0.8 | 2.6 | 1.6 | 7.2 x 5  | Ø 1.8 | 10 |
| PCB-4-V-12,5 SKL 1.5-3<br>(Clamping range 1.5 - 3 mm) | 36656.1 | 12.5 | 1   | 4   | 1.6 | 10.1 x 5 | Ø 1.8 | 10 |
| PCB-4-V-12,5 SKL 3-6<br>(Clamping range 3 - 6 mm)     | 36656.2 | 12.5 | 1   | 4   | 1.6 | 10.1 x 5 | Ø 1.8 | 10 |
| PCB-4-V-12,5 SKL 6-8<br>(Clamping range 6 - 8 mm)     | 36656.3 | 12.5 | 1   | 4   | 1.6 | 10.1 x 5 | Ø 1.8 | 10 |

4

## Advantages & benefits

- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Large contact area

## Specifications

**Material**  
 SKL-clamp Spring steel, zinc plated  
 PCB-foot Brass, tin plated



# STFZ|SKL

## EMC Terminal clamp for peripheral modules



STFZ-SP|SKL



STFZ-U|SKL



STFZ|SKL

### Application terminal clamp

#### STFZ|SKL

- **Bosch Rexroth**  
IP20 Inline Module
  - **PHOENIX CONTACT**  
All terminals of the INLINE range.  
The terminals 1.4 and 2.4 must not be used for signal I/O.
  - **Pilz**  
All PSSu-Modules with shield terminals 13 and 23
  - **Siemens**  
All terminals of the ET200s range.  
Terminals 4 and 8 must not be used for signal I/O.
  - **TURCK**  
For terminals of the BL20 I/O system.
  - **VIPA SLIO**  
All terminals of the SLIO range. Terminals 4+8 must not be used for signal I/O.
  - **WAGO**  
All terminals of the WAGO I/O Systems 750.  
Terminals 4 and 8 must not be used for signal I/O.
  - **Rockwell Automation / Allen-Bradley**  
Series 1734
- Further manufacturers upon request.

#### STFZ-U|SKL

- **BECKHOFF**  
EL 3122, ES 3122, ES 9100, ES 9410, KL 1114, KS 2134

#### STFZ-SP|SKL

- **Siemens**  
SIMATIC ET 200SP

#### Product description

The EMC terminal clamps STFZ|SKL combine the functions strain relief, cable guidance and earthing of signal cables. Available in two versions for 1 or 2 lines.

The STFZ2|SKL is used for analogue I/O modules using two actuators / sensors.

The STFZ EMC terminal clamp is compatible to bus modules listed on the left side.

For the SIMATIC ET 200SP module by Siemens icotek has developed a special terminal clamp STFZ-SP for 1 or 2 lines.

4

#### Product description

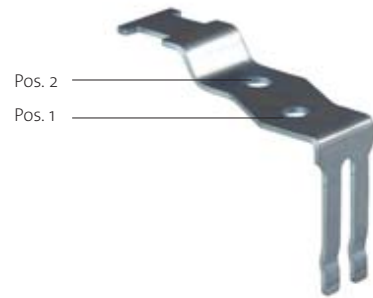
STFZ I/O Insert Tool for quick and easy mounting of STFZ terminal clamps.

Order No. 61430



## STFZ | STFZ2

EMC Terminal clamp, single and double for various brands



### Product description

The STFZ|SKL EMC terminal clamp provides strain relief, cable guidance and earthing for decentralised bus modules (see compatibility table page 113).

The STFZ2|SKL is used for analogue I/O modules using two actuators / sensors.

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

SKL 1.5-3 | SKL 3-6 | SKL 6-8

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### Advantages & benefits

- Earthing of signal cables close to the terminal
- Strain relief and cable management directly on the bus module

### Specifications

**Material**

SKL-clamp Spring steel, zinc plated

STFZ-foot Spring steel

### Accessories

Cable ties 88 - 89

STFZ I/O Insert Tool 113

| Type                                     | Shield diameter Pos. 1 | Shield diameter Pos. 2 | Order No. | PU |
|--|------------------------|------------------------|-----------|----|
| <b>STFZ SKL with one shield clamp:</b>   |                        |                        |           |    |
| STFZ SKL 1.5-3                           | 1.5 - 3 mm             | -                      | 37510.1   | 10 |
| STFZ SKL 3-6                             | 3 - 6 mm               | -                      | 37510.2   | 10 |
| STFZ SKL 6-8                             | 6 - 8 mm               | -                      | 37510.3   | 10 |
| <b>STFZ2 SKL with two shield clamps:</b> |                        |                        |           |    |
| STFZ2 01                                 | blank                  | 1.5 - 3 mm             | 37505.01  | 10 |
| STFZ2 02                                 | blank                  | 3 - 6 mm               | 37505.02  | 10 |
| STFZ2 03                                 | blank                  | 6 - 8 mm               | 37505.03  | 10 |
| STFZ2 10                                 | 1.5 - 3 mm             | blank                  | 37505.10  | 10 |
| STFZ2 11                                 | 1.5 - 3 mm             | 1.5 - 3 mm             | 37505.11  | 10 |
| STFZ2 12                                 | 1.5 - 3 mm             | 3 - 6 mm               | 37505.12  | 10 |
| STFZ2 13                                 | 1.5 - 3 mm             | 6 - 8 mm               | 37505.13  | 10 |
| STFZ2 20                                 | 3 - 6 mm               | blank                  | 37505.20  | 10 |
| STFZ2 21                                 | 3 - 6 mm               | 1.5 - 3 mm             | 37505.21  | 10 |
| STFZ2 22                                 | 3 - 6 mm               | 3 - 6 mm               | 37505.22  | 10 |
| STFZ2 23                                 | 3 - 6 mm               | 6 - 8 mm               | 37505.23  | 10 |
| STFZ2 30                                 | 6 - 8 mm               | blank                  | 37505.30  | 10 |
| STFZ2 31                                 | 6 - 8 mm               | 1.5 - 3 mm             | 37505.31  | 10 |
| STFZ2 32                                 | 6 - 8 mm               | 3 - 6 mm               | 37505.32  | 10 |
| STFZ2 33                                 | 6 - 8 mm               | 6 - 8 mm               | 37505.33  | 10 |



# STFZ-U | STFZ-SP | STFZ2-SP

## EMC Terminal clamp, single and double for Siemens & Beckhoff modules



| Type | Shield diameter Pos. 1 | Shield diameter Pos. 2 | Order No. | PU |
|------|------------------------|------------------------|-----------|----|
|------|------------------------|------------------------|-----------|----|

**STFZ-SP|SKL / STFZ-U|SKL with one shield clamp:**

|                   |            |   |         |    |
|-------------------|------------|---|---------|----|
| STFZ-SP SKL 1.5-3 | 1.5 - 3 mm | - | 37512.1 | 10 |
| STFZ-U SKL 1.5-3  | 1.5 - 3 mm | - | 37514.1 | 10 |
| STFZ-SP SKL 3-6   | 3 - 6 mm   | - | 37512.2 | 10 |
| STFZ-U SKL 3-6    | 3 - 6 mm   | - | 37514.2 | 10 |
| STFZ-SP SKL 6-8   | 6 - 8 mm   | - | 37512.3 | 10 |
| STFZ-U SKL 6-8    | 6 - 8 mm   | - | 37514.3 | 10 |

**STFZ2-SP|SKL with two shield clamps:**

|             |            |            |          |    |
|-------------|------------|------------|----------|----|
| STFZ2-SP 01 | blank      | 1.5 - 3 mm | 37507.01 | 10 |
| STFZ2-SP 02 | blank      | 3 - 6 mm   | 37507.02 | 10 |
| STFZ2-SP 03 | blank      | 6 - 8 mm   | 37507.03 | 10 |
| STFZ2-SP 10 | 1.5 - 3 mm | blank      | 37507.10 | 10 |
| STFZ2-SP 11 | 1.5 - 3 mm | 1.5 - 3 mm | 37507.11 | 10 |
| STFZ2-SP 12 | 1.5 - 3 mm | 3 - 6 mm   | 37507.12 | 10 |
| STFZ2-SP 13 | 1.5 - 3 mm | 6 - 8 mm   | 37507.13 | 10 |
| STFZ2-SP 20 | 3 - 6 mm   | blank      | 37507.20 | 10 |
| STFZ2-SP 21 | 3 - 6 mm   | 1.5 - 3 mm | 37507.21 | 10 |
| STFZ2-SP 22 | 3 - 6 mm   | 3 - 6 mm   | 37507.22 | 10 |
| STFZ2-SP 23 | 3 - 6 mm   | 6 - 8 mm   | 37507.23 | 10 |
| STFZ2-SP 30 | 6 - 8 mm   | blank      | 37507.30 | 10 |
| STFZ2-SP 31 | 6 - 8 mm   | 1.5 - 3 mm | 37507.31 | 10 |
| STFZ2-SP 32 | 6 - 8 mm   | 3 - 6 mm   | 37507.32 | 10 |
| STFZ2-SP 33 | 6 - 8 mm   | 6 - 8 mm   | 37507.33 | 10 |

### Product description

The STFZ-SP|SKL EMC terminal clamp provides strain relief, cable guidance and earthing for decentralised bus modules SIMATIC ET 200SP by Siemens. STFZ2-SP|SKL is a version for analogue I/O modules using two actuators / sensors. STFZ-U terminal clamps for various Beckhoff modules (see page 113).

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

SKL 1.5-3 | SKL 3-6 | SKL 6-8

### Advantages & benefits

- Earthing of signal cables close to the terminal
- Strain relief and cable management directly on the bus module

### Specifications

**Material**  
 SKL-clamp Spring steel, zinc plated  
 STFZ-SP-foot Spring steel

### Accessories

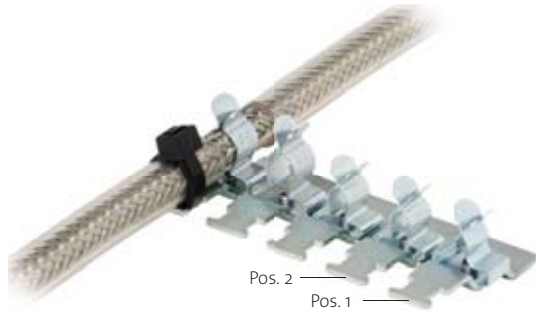
Cable ties 88 - 89  
 STFZ I/O Insert Tool 113



STFZ-U|SKL

# RLFZ

## EMC Clamp assembly with strain relief



| Type       | Order No. (unfitted) | Number of shield clamps | Length   | Width   | PU |
|------------|----------------------|-------------------------|----------|---------|----|
| RLFZ (x3)  | 38005                | 3× SKL                  | 41.2 mm  | 44.4 mm | 1  |
| RLFZ (x4)  | 38010                | 4× SKL                  | 56.8 mm  | 44.4 mm | 1  |
| RLFZ (x5)  | 38015                | 5× SKL                  | 72.4 mm  | 44.4 mm | 1  |
| RLFZ (x6)  | 38020                | 6× SKL                  | 88 mm    | 44.4 mm | 1  |
| RLFZ (x7)  | 38025                | 7× SKL                  | 103.6 mm | 44.4 mm | 1  |
| RLFZ (x8)  | 38030                | 8× SKL                  | 119.2 mm | 44.4 mm | 1  |
| RLFZ (x9)  | 38035                | 9× SKL                  | 134.8 mm | 44.4 mm | 1  |
| RLFZ (x10) | 38040                | 10× SKL                 | 150.4 mm | 44.4 mm | 1  |
| RLFZ (x11) | 38045                | 11× SKL                 | 166 mm   | 44.4 mm | 1  |
| RLFZ (x12) | 38050                | 12× SKL                 | 181.6 mm | 44.4 mm | 1  |

### 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 EN 62444 is achieved.

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

The EMC shield clamps as listed below are available to mount:  
SKL 1.5-3 | SKL 3-6 | SKL 6-8 | SKL 8-11

### Advantages & benefits

- Designed for high density applications
- Possibility to configure custom specific EMC clamp assemblies
- Separate strain relief and EMC shielding
- Online design tool for EMC Clamp assembly

### Specifications

**Material**  
SKL-clamp Spring steel, zinc plated  
RLFZ-foot Sheet steel, galvanically zinc plated

### Accessories

Cable ties 88 - 89

# SF|RLFZ

## EMC Clamp assembly for 35 mm DIN rail



| Type          | Order No. (unfitted) | Number of shield clamps | Length   | Width   | PU |
|---------------|----------------------|-------------------------|----------|---------|----|
| SF RLFZ (x3)  | 38105                | 3× SKL                  | 41.2 mm  | 70.7 mm | 1  |
| SF RLFZ (x4)  | 38110                | 4× SKL                  | 56.8 mm  | 70.7 mm | 1  |
| SF RLFZ (x5)  | 38115                | 5× SKL                  | 72.4 mm  | 70.7 mm | 1  |
| SF RLFZ (x6)  | 38120                | 6× SKL                  | 88 mm    | 70.7 mm | 1  |
| SF RLFZ (x7)  | 38125                | 7× SKL                  | 103.6 mm | 70.7 mm | 1  |
| SF RLFZ (x8)  | 38130                | 8× SKL                  | 119.2 mm | 70.7 mm | 1  |
| SF RLFZ (x9)  | 38135                | 9× SKL                  | 134.8 mm | 70.7 mm | 1  |
| SF RLFZ (x10) | 38140                | 10× SKL                 | 150.4 mm | 70.7 mm | 1  |
| SF RLFZ (x11) | 38145                | 11× SKL                 | 166 mm   | 70.7 mm | 1  |
| SF RLFZ (x12) | 38150                | 12× SKL                 | 181.6 mm | 70.7 mm | 1  |

### Product description

The SF|RLFZ range is based upon the RLFZ clamp assembly, which is mounted on snap feet for 35 mm DIN rails shape H.

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

The EMC shield clamps as listed below are available to mount:  
SKL 1.5-3 | SKL 3-6 | SKL 6-8 | SKL 8-11

### Advantages & benefits

- Designed for high density applications
- Possibility to configure custom specific EMC clamp assemblies
- Separate strain relief and EMC shielding
- Simple and tool-free mounting, easy assembly

### Specifications

**Material**  
SKL-clamp    Spring steel, zinc plated  
RLFZ-foot    Sheet steel, galvanically zinc plated

### Accessories

Cable ties    88 - 89

# RLF

## EMC Clamp assembly



### Product description

Comparable with the RLFZ clamp assembly, just without strain relief.

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

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

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

| Type      | Order No. (unfitted) | Number of shield clamps | Length   | Width | PU |
|-----------|----------------------|-------------------------|----------|-------|----|
| RLF (x3)  | 36965                | 3× SKL                  | 46.2 mm  | 24 mm | 1  |
| RLF (x4)  | 36984                | 4× SKL                  | 60.8 mm  | 24 mm | 1  |
| RLF (x5)  | 36958                | 5× SKL                  | 72.4 mm  | 24 mm | 1  |
| RLF (x6)  | 36952                | 6× SKL                  | 88 mm    | 24 mm | 1  |
| RLF (x7)  | 36963                | 7× SKL                  | 103.6 mm | 24 mm | 1  |
| RLF (x8)  | 36953                | 8× SKL                  | 119.2 mm | 24 mm | 1  |
| RLF (x9)  | 36985                | 9× SKL                  | 140.8 mm | 24 mm | 1  |
| RLF (x10) | 36954                | 10× SKL                 | 150.4 mm | 24 mm | 1  |
| RLF (x11) | 36955                | 11× SKL                 | 166 mm   | 24 mm | 1  |
| RLF (x12) | 36962                | 12× SKL                 | 181.6 mm | 24 mm | 1  |

### Advantages & benefits

- Designed for high density applications
- Possibility to configure custom specific EMC clamp assemblies
- Online design tool for EMC Clamp assembly

### Specifications

**Material**

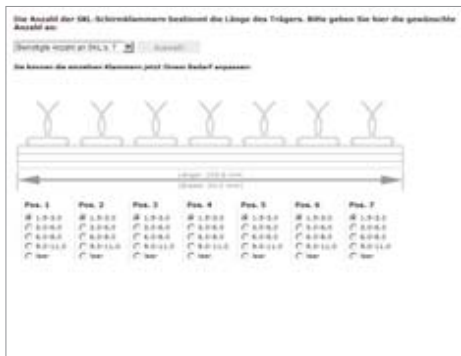
SKL-clamp    Spring steel, zinc plated  
 RLF-foot    Stainless steel



**EMC shield clamp design tool**

By using the EMC design tool (located at [www.icotek.com](http://www.icotek.com)) you can create an EMC shield clamp assembly configuration specifically for your application.

The following drawings are examples for configurations with 7 and 8 shield clamps.



**Example 1:**  
Clamp assembly 7-piece with SKL 1.5 - 3 mm



**Example 2:**  
Clamp assembly 8-piece with integrated strain relief and different SKL shield clamps



**Product description**

The design tool located at [www.icotek.com](http://www.icotek.com) enables numerous configurations to be utilised on a single carrier which reduces time and material costs.

You can quickly configure your own “standard” EMC shield clamp assembly.

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 & benefits**

- User designed carrier configuration with SKL shield clamps
- Cost-effective even for small quantities
- Design online at [www.icotek.com](http://www.icotek.com)

**Specifications**

**Material**  
Clamp assembly Sheet steel, galvanically zinc plated  
SKL-clamp Spring steel, zinc plated

# EMC

## Customised solutions



### Product description

In addition to our standard product offering we offer customised solutions for your application – even for small quantities!

A wide range of standard clamp assemblies are already available (see pages 116 - 118).

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

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



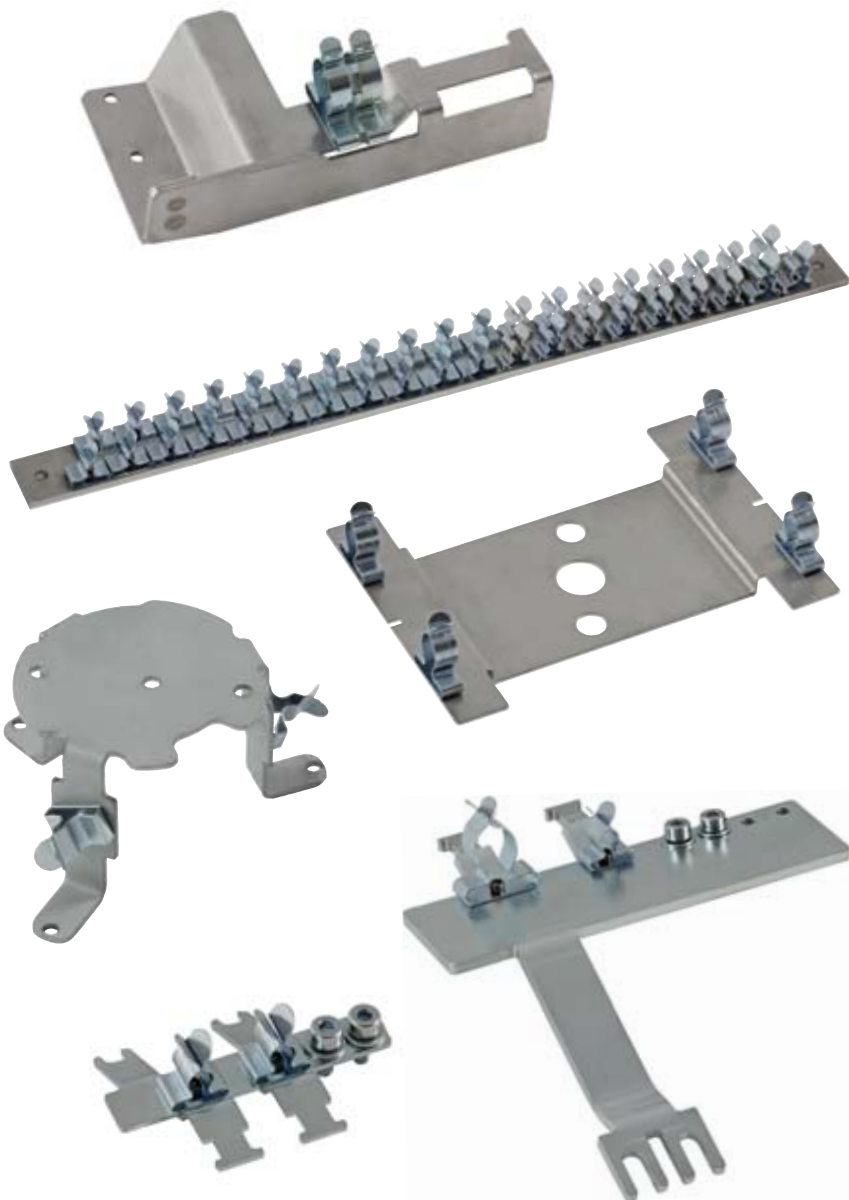


### Advantages & benefits

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

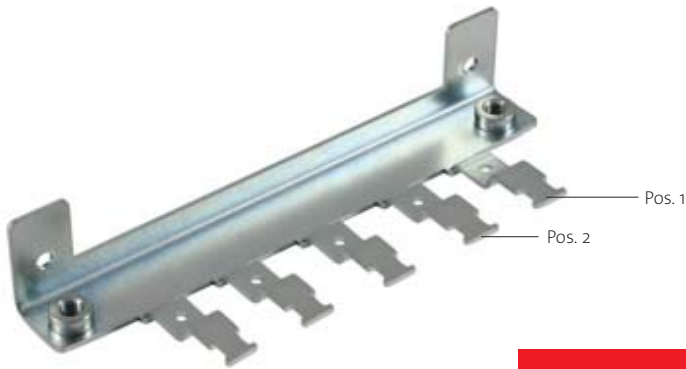
### Specifications

|                 |                            |
|-----------------|----------------------------|
| <b>Material</b> |                            |
| Carrier         | According to specification |
| SKL-clamp       | Spring steel, zinc-plated  |



# KEL-EMC-Z

## Cable assembly with strain relief



| Type | Order No. | No. of teeth | Fastening | Fits with | PU |
|------|-----------|--------------|-----------|-----------|----|
|------|-----------|--------------|-----------|-----------|----|

|                |       |   |           |   |   |
|----------------|-------|---|-----------|---|---|
| KEL-EMC-Z 16 4 | 36525 | 4 | long side | KEL-E4<br>KEL 16 x<br>KEL-U 16 x<br>KEL-ER 16 x<br>KEL-QUICK 16 | 1 |
| KEL-EMC-Z 24 5 | 36527 | 5 | long side | KEL-E5<br>KEL 24 x<br>KEL-U 24 x<br>KEL-ER 24 x<br>KEL-QUICK 24 | 1 |

### Product description

Cable entry, EMC shielding and strain relief – all in one location!

Cables pass through the KEL cable entry and insert directly to the EMC clamps and strain relief.

Simply insert the cable shield into the shield clamp and secure the cable jacket to the strain relief. Two separate functions according to regulations – carried out quickly and easily!

Custom configurations are available for shield clamps up to 16 mm in diameter with minimal order quantities and lead time.

### Advantages & benefits

- Large surface contact between cable shield and housing, especially on conductive coated surfaces
- Sealing by outer cable jacket – EMC shielding by cable shield (in acc. with regulations)
- Easily combines cable routing, EMC and strain relief due to the use of the same mounting holes
- Available without SKL shield clamps if only additional strain relief is required
- Mounting hole for earthing tape or PE connection

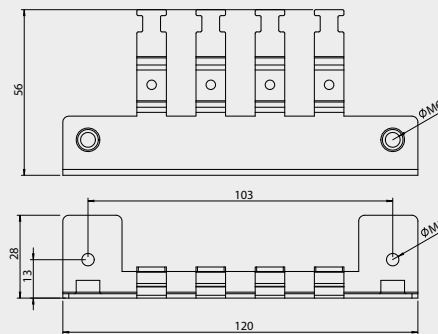
### Specifications

Material Sheet steel, zinc plated

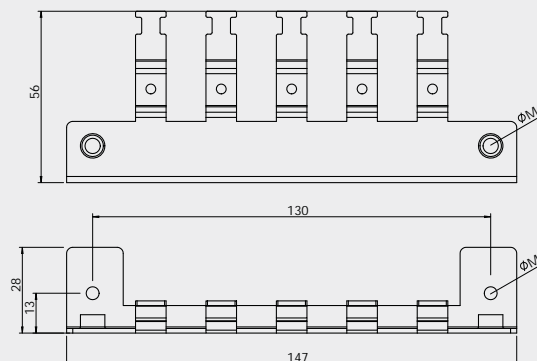
### Compatible with

|                              |         |
|------------------------------|---------|
| KEL-U Cable entry frames     | 8 - 14  |
| KEL-ER Cable entry frames    | 9 - 17  |
| KEL Cable entry frames       | 16 - 27 |
| KEL-QUICK Cable entry frames | 50 - 51 |

KEL-EMC-Z 16|4

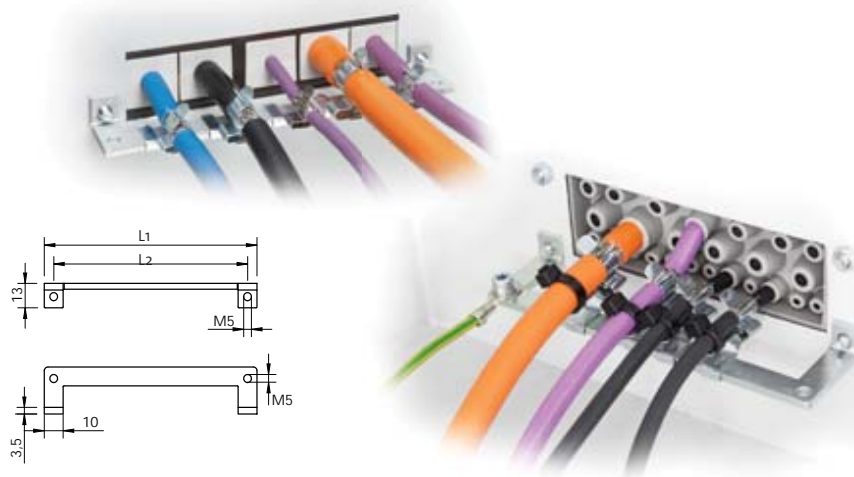


KEL-EMC-Z 24|5



## KEL-EMC-PF

### Cable assembly, bracket version



| Type          | Fits with  | Order No. | Length<br>L1 | Length<br>L2 | PU |
|---------------|--|-----------|--------------|--------------|----|
| KEL-EMC-PF B4 | KEL-E2<br>KEL-B<br>KEL-U-B<br>KEL-ER-B                                       | 39150     | 68 mm        | 58 mm        | 1  |
| KEL-EMC-PF 10 | KEL-E3<br>KEL 10 x<br>KEL-U 10 x<br>KEL-ER 10 x                              | 39160     | 93 mm        | 83 mm        | 1  |
| KEL-EMC-PF 16 | KEL-E4<br>KEL 16 x<br>KEL-U 16 x<br>KEL-ER 16 x                              | 39170     | 113 mm       | 103 mm       | 1  |
| KEL-EMC-PF 24 | KEL-E5<br>KEL 24 x<br>KEL-U 24 x<br>KEL-ER 24 x<br>KEL-DPZ 24 x<br>KEL-DPZ-E | 39180     | 140 mm       | 130 mm       | 1  |

### Product description

The EMC bracket combined with the matching PFS|SKL EMC shield clamp is perfect in conjunction with the KEL cable entry frame for alleviating interferences due to shields.

The EMC clamp is assembled inside the control cabinet. For this process the fixing screws for the assembly of the KEL frame on the control cabinet are used. A female screw thread M5 is already integrated in the KEL-EMC-PF bracket.

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

### Advantages & benefits

- Supports a wide range of cable and wire sizes
- Large surface contact of the cable shield
- Permanent spring pressure on the cable shield
- Fast and easy assembly

### Specifications

Material Sheet steel, galvanically zinc plated

### Compatible with

|                              |         |
|------------------------------|---------|
| KEL-U Cable entry frames     | 8 - 14  |
| KEL-ER Cable entry frames    | 9 - 17  |
| KEL Cable entry frames       | 16 - 27 |
| KEL-QUICK Cable entry frames | 50 - 51 |
| KEL-BES Brush frames         | 57      |
| KEL-DPU Cable entry plates   | 62 - 63 |
| KEL-DPZ Cable entry plates   | 64 - 67 |
| PFSZ SKL Shield clamps       | 100     |
| PFS SKL Shield clamps        | 101     |

# KEL-EMC

## Cable assembly



| Type         | Order No. | No. of teeth | Fastening   | Fits with  | PU |
|--------------|-----------|--------------|-------------|--|----|
| KEL-EMC-B    | 36520     | 2            | long side   | KEL-E2<br>KEL(-U)-B x<br>KEL-ER-B x<br>KEL-QUICK-B2   B4   | 5  |
| KEL-EMC 10   | 36522     | 3            | long side   | KEL-E3<br>KEL(-U) 10 x<br>KEL-ER 10 x  | 5  |
| KEL-EMC 16 4 | 36524     | 4            | long side   | KEL-E4<br>KEL(-U) 16 x<br>KEL-ER 16 x<br>KEL-QUICK 16  | 5  |
| KEL-EMC 24 5 | 36526     | 5            | long side   | KEL-E5<br>KEL(-U) 24 x<br>KEL-ER 24 x<br>KEL-QUICK 24  | 5  |
| KEL-EMC F    | 39110     | 3            | narrow side | KEL(-U)-B x<br>KEL-ER-B x<br>KEL(-U) 10 x<br>KEL-ER 10 x<br>KEL(-U) 16 x<br>KEL-ER 16 x<br>KEL(-U) 24 x<br>KEL-ER 24 x | 5  |

### Product description

Installation of pre-terminated cables without shield interruption.

### Advantages & benefits

- Direct, easy and quick contact to the enclosure
- Space saving, usable for up to 10 cables with the two row model
- Replacement for EMC cable glands, even for pre-terminated cables
- Low resistance shield contact

### Specifications

Material **Stainless steel**

### Compatible with

- KEL-U Cable entry frames 8 - 14
- KEL-ER Cable entry frames 9 - 17
- KEL Cable entry frames 16 - 27
- KEL-QUICK Cable entry frames 50 - 51

# KVT-EMC

## EMC bracket for cable glands



| Type | Order No. | Shield diameter | PU |
|------|-----------|-----------------|----|
|------|-----------|-----------------|----|

|                      |         |            |   |
|----------------------|---------|------------|---|
| KVT-EMC-25 SKL 1.5-3 | 37180.1 | 1.5 - 3 mm | 5 |
| KVT-EMC-25 SKL 3-6   | 37180.2 | 3 - 6 mm   | 5 |
| KVT-EMC-25 SKL 6-8   | 37180.3 | 6 - 8 mm   | 5 |
| KVT-EMC-25 SKL 8-11  | 37180.4 | 8 - 11 mm  | 5 |
| KVT-EMC-32 SKL 1.5-3 | 37181.1 | 1.5 - 3 mm | 5 |
| KVT-EMC-32 SKL 3-6   | 37181.2 | 3 - 6 mm   | 5 |
| KVT-EMC-32 SKL 6-8   | 37181.3 | 6 - 8 mm   | 5 |
| KVT-EMC-32 SKL 8-11  | 37181.4 | 8 - 11 mm  | 5 |

### Product description

The KVT-EMC brackets in combination with the split cable glands KVT and QVT combine routing, EMC shielding and strain relief. The connection to the earth potential is possible via the cabinet wall or an earthing tape.

Cables pass through the split cable glands and insert directly into the EMC clamps.

Separate functions according to regulations – carried out quickly and easily!

### Advantages & benefits

- Simple and tool free assembly
- Large contact area
- Subsequent assembly possible
- Additional M5 hole for earthing tape

### Specifications

Material Sheet steel, zinc plated

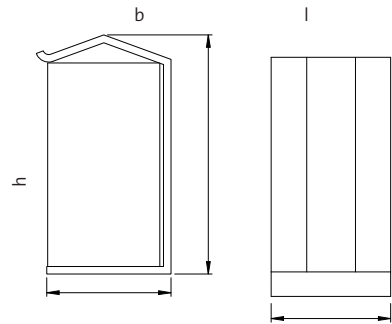
### Compatible with

KVT Split cable glands 38 - 42  
 QVT Split cable glands 52

# SK EMC Shield brackets



Dimensions SK bracket (without mounting foot):



| Description | Type | Order No. | Shield diameter | Dimensions l x b x h [mm] | PU |
|-------------|------|-----------|-----------------|---------------------------|----|
|-------------|------|-----------|-----------------|---------------------------|----|

## Product description

SK shield brackets can be used where the shield of single cables has to be earthed.

SK shield brackets 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 & benefits

- Simple assembly on TS35 DIN rails and 10 x 3 mm bus bars
- Various sizes and possibilities for mounting



SC foot single for C-rail (PU: 10) Order No. 36220

## Specifications

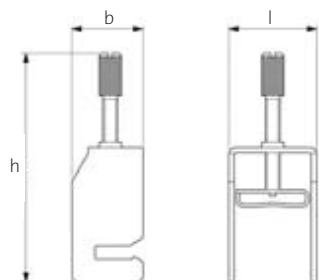
**Material**  
 SK-bracket Sheet steel, galvanically zinc plated  
 SF-foot Spring steel

## Accessories




Bus bar 10 x 3 103

| For direct mounting (M4-screw included): |              |       |             |              |    |
|--|--------------|-------|-------------|--------------|----|
|  | 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 |
| For 35 mm DIN-rail shape H:              |              |       |             |              |    |
|  | 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 |
| For 10 x 3 mm bus bar:                   |              |       |             |              |    |
|  | 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 |
|  | SS SK 15-32  | 36238 | 15 - 32 mm  | 32 x 36 x 64 | 10 |
| For 35 mm DIN-rail shape C:              |              |       |             |              |    |
|  | SC SK 3-8    | 36696 | 3 - 8 mm    | 18 x 14 x 26 | 10 |
|  | SC SK 4-13.5 | 36700 | 4 - 13.5 mm | 20 x 20 x 31 | 10 |
|  | SC SK 10-20  | 36704 | 10 - 20 mm  | 26 x 24 x 40 | 10 |
|  | SC SK 15-32  | 36708 | 15 - 32 mm  | 32 x 36 x 64 | 10 |

# SKS EMC Shield brackets



| Type | Order No. | Shield diameter | Dimensions l × b × h [mm] | PU | Description |
|------|-----------|-----------------|---------------------------|----|-------------|
|------|-----------|-----------------|---------------------------|----|-------------|

|           |       |            |                  |    |   |
|-----------|-------|------------|------------------|----|---|
| SKS 2-5   | 36282 | 2 - 5 mm   | 9 × 19.5 × 47    | 10 |   |
| SKS 3-8   | 36283 | 3 - 8 mm   | 12 × 19.5 × 49   | 10 |  |
| SKS 3-14  | 36284 | 3 - 14 mm  | 17.5 × 19.5 × 60 | 10 |  |
| SKS 3-20  | 36285 | 3 - 20 mm  | 24.5 × 19.5 × 75 | 10 |  |
| SKS 5-28  | 36286 | 5 - 28 mm  | 31 × 20 × 93     | 10 |  |
| SKS 20-35 | 36287 | 20 - 35 mm | 41 × 20 × 107    | 10 |  |

## Product description

SKS shield brackets can be used where the shield of single cables has to be earthed.

SKS shield brackets can be assembled on 10 × 3 mm bus bars.

## Advantages & benefits

- One SKS shield bracket supports a wide range of cables
- Simple assembly on 10 × 3 mm bus bars

## Specifications

**Material**  
SKS-bracket Sheet steel, galvanically zinc plated

## Accessories

Bus bar 10 × 3 103

# KAFM-EMC

## EMC Strain relief plates



Type SF: Mounted on snap foot for DIN-rail shape H



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



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

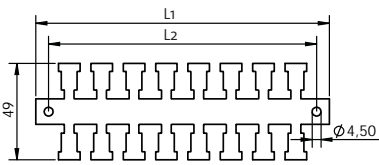


Type DH: Mounted on bushing for flexible fixation on bottom sheet

### Product description

The EMC strain relief plate KAFM is practical for earthing interferences on the cable shield.

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



### Specifications

Material **Stainless steel**

### Accessories

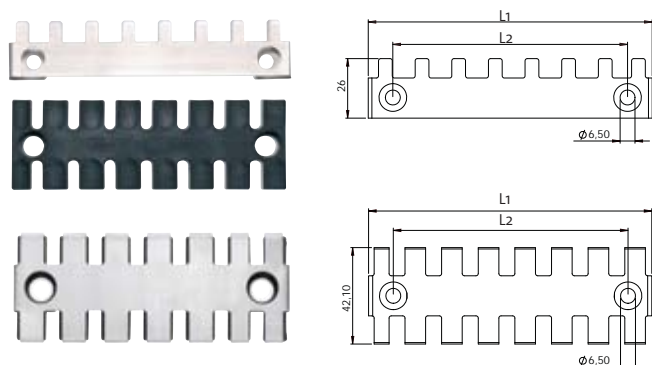
Cable ties **88 - 89**

| Type                   | Order No. | Order No.                                    | Order No. | Order No. | Order No.  | Length<br>L1 | Length<br>L2 | No. of<br>teeth |
|------------------------|-----------|--|-----------|-----------|------------|--------------|--------------|-----------------|
|                        | Type SF   | Type SK                                      | Type SC   | Type DH   | loose rail |              |              |                 |
| 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          | 978          | 59              |
| KAFM 59<br>zinc plated | 36459     | -  | -         | -         | 36562      | 990          | 978          | 59              |
| 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 × 16 DIN 912                              |           |           |            |              |              |                 |
| Washer                 | 42100     | Washer ø 4.3 mm DIN 125                      |           |           |            |              |              |                 |



## ZL|SB-EMC

### Shield plate for ZL strain relief plates



| Type            | Model      | Order No. | Fits with | Length |          | PU |
|-----------------|------------|-----------|-----------|--------|----------|----|
|                 |            |           |           | L1     | L2       |    |
| ZL 39 SB-EMC-1  | single-row | 36322     | ZL 39     | 42 mm  | 19.5 mm  | 10 |
| ZL 39 SB-EMC-2  | double-row | 37150     | ZL 39     | 42 mm  | 19.5 mm  | 10 |
| ZL 60 SB-EMC-1  | single-row | 36328     | ZL 60     | 64 mm  | 43.5 mm  | 10 |
| ZL 60 SB-EMC-2  | double-row | 37152     | ZL 60     | 64 mm  | 43.5 mm  | 10 |
| ZL 87 SB-EMC-1  | single-row | 36324     | ZL 87     | 90 mm  | 68 mm    | 10 |
| ZL 87 SB-EMC-2  | double-row | 37154     | ZL 87     | 90 mm  | 68 mm    | 10 |
| ZL 103 SB-EMC-1 | single-row | 36332     | ZL 103    | 106 mm | 84 mm    | 10 |
| ZL 103 SB-EMC-2 | double-row | 37156     | ZL 103    | 106 mm | 84 mm    | 10 |
| ZL 121 SB-EMC-1 | single-row | 36330     | ZL 121    | 124 mm | 102.5 mm | 10 |
| ZL 121 SB-EMC-2 | double-row | 37158     | ZL 121    | 124 mm | 102.5 mm | 10 |
| ZL 140 SB-EMC-1 | single-row | 36326     | ZL 140    | 142 mm | 121 mm   | 10 |
| ZL 140 SB-EMC-2 | double-row | 37159     | ZL 140    | 142 mm | 121 mm   | 10 |

### Product description

The shield plates ZL|SB-EMC provide earth shielding in addition to strain relief.

Affix the corresponding shield plates to ZL strain relief plates. The shield plate contacts the cable shield with the earth potential.

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

ZL strain relief plates offered separately.

### Specifications

Material  
Shield plate **Stainless steel**

### Compatible with

SF|ZL Strain relief plates 83  
ZL Strain relief plates 84  
ZL-AB Strain relief plates 85

# MB

## Earthing tapes



### Product description

Manufactured with highly flexible E-Cu stranded wires with connecting end pads made of tinned copper strips.

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

Earthing Tapes are available with M6 or M8 connections and in some sizes with both connection sizes combined.

| Type            | Order No. | Length L [mm] | Cross-section mm <sup>2</sup> | Hole size | PU |
|-----------------|-----------|---------------|-------------------------------|-----------|----|
| MB 100 6 M6     | 32700     | 100           | 6                             | M6        | 1  |
| MB 150 6 M6     | 32701     | 150           | 6                             | M6        | 1  |
| MB 200 6 M6     | 32702     | 200           | 6                             | M6        | 1  |
| MB 250 6 M6     | 32706     | 250           | 6                             | M6        | 1  |
| MB 300 6 M6     | 32703     | 300           | 6                             | M6        | 1  |
| MB 400 6 M6     | 32704     | 400           | 6                             | M6        | 1  |
| MB 500 6 M6     | 32705     | 500           | 6                             | M6        | 1  |
| MB 100 10 M6    | 32730     | 100           | 10                            | M6        | 1  |
| MB 100 10 M8    | 32731     | 100           | 10                            | M8        | 1  |
| MB 150 10 M8    | 32732     | 150           | 10                            | M8        | 1  |
| MB 200 10 M6    | 32733     | 200           | 10                            | M6        | 1  |
| MB 200 10 M8    | 32734     | 200           | 10                            | M8        | 1  |
| MB 200 10 M6+M8 | 32741     | 200           | 10                            | M6 + M8   | 1  |
| MB 250 10 M6+M8 | 32742     | 250           | 10                            | M6 + M8   | 1  |
| MB 300 10 M6    | 32735     | 300           | 10                            | M6        | 1  |
| MB 300 10 M8    | 32736     | 300           | 10                            | M8        | 1  |
| MB 300 10 M6+M8 | 32743     | 300           | 10                            | M6 + M8   | 1  |
| MB 400 10 M6    | 32737     | 400           | 10                            | M6        | 1  |
| MB 400 10 M8    | 32738     | 400           | 10                            | M8        | 1  |
| MB 500 10 M6    | 32739     | 500           | 10                            | M6        | 1  |
| MB 100 16 M6    | 32760     | 100           | 16                            | M6        | 1  |
| MB 100 16 M8    | 32761     | 100           | 16                            | M8        | 1  |
| MB 150 16 M6    | 32762     | 150           | 16                            | M6        | 1  |
| MB 150 16 M8    | 32763     | 150           | 16                            | M8        | 1  |
| MB 200 16 M6    | 32764     | 200           | 16                            | M6        | 1  |
| MB 200 16 M8    | 32765     | 200           | 16                            | M8        | 1  |

# MB Earthing tapes



Connecting end pads (copper)



| Type            | Order No. | Length<br>L [mm] | Cross-section<br>mm <sup>2</sup> | Hole size | PU |
|-----------------|-----------|------------------|----------------------------------|-----------|----|
| MB 200 16 M6+M8 | 32773     | 200              | 16                               | M6 + M8   | 1  |
| MB 250 16 M8    | 32766     | 250              | 16                               | M8        | 1  |
| MB 250 16 M6+M8 | 32774     | 250              | 16                               | M6 + M8   | 1  |
| MB 300 16 M6    | 32767     | 300              | 16                               | M6        | 1  |
| MB 300 16 M8    | 32768     | 300              | 16                               | M8        | 1  |
| MB 300 16 M6+M8 | 32775     | 300              | 16                               | M6 + M8   | 1  |
| MB 350 16 M8    | 32769     | 350              | 16                               | M8        | 1  |
| MB 400 16 M8    | 32770     | 400              | 16                               | M8        | 1  |
| MB 500 16 M8    | 32771     | 500              | 16                               | M8        | 1  |
| MB 600 16 M8    | 32772     | 600              | 16                               | M8        | 1  |
| MB 100 25 M10   | 32800     | 100              | 25                               | M10       | 1  |
| MB 150 25 M10   | 32801     | 150              | 25                               | M10       | 1  |
| MB 200 25 M8    | 32802     | 200              | 25                               | M8        | 1  |
| MB 200 25 M10   | 32803     | 200              | 25                               | M10       | 1  |
| MB 250 25 M8    | 32804     | 250              | 25                               | M8        | 1  |
| MB 250 25 M10   | 32805     | 250              | 25                               | M10       | 1  |
| MB 300 25 M8    | 32806     | 300              | 25                               | M8        | 1  |
| MB 300 25 M10   | 32807     | 300              | 25                               | M10       | 1  |
| MB 350 25 M10   | 32808     | 350              | 25                               | M10       | 1  |
| MB 400 25 M8    | 32809     | 400              | 25                               | M8        | 1  |
| MB 500 25 M8    | 32810     | 500              | 25                               | M8        | 1  |
| MB 600 25 M8    | 32811     | 600              | 25                               | M8        | 1  |

## Advantages & benefits

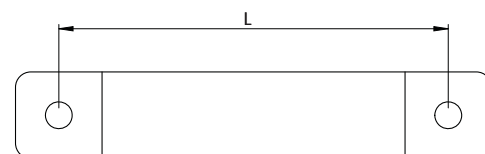
- Available in a variety of lengths and cross-sections
- Cost-effective in comparison to PE conductors
- Low impedances

## Specifications

Material **Cu-ETP with connecting end pads**  
 Pads made of tinned copper strips

## Current load

| Cross-section:     | Current load: |
|--------------------|---------------|
| 6 mm <sup>2</sup>  | 40-50 A       |
| 10 mm <sup>2</sup> | 75-105 A      |
| 16 mm <sup>2</sup> | 100-150 A     |
| 25 mm <sup>2</sup> | 145-195 A     |
| 35 mm <sup>2</sup> | 170-235 A     |



# 5

## CONFiX Cable conduit system



CONFiX FWS

CONFiX SH

CONFiX WST

The 90° angled conduit fitting CONFiX FWS is perfect for installation of parallel corrugated cable protection conduits, e.g. in machines, control panels or control cabinets. The liftable cover is tightly fixed by a hinge to the mounting box. Therefore, the system is very easy to handle.

Corrugated conduits CONFiX WS for cable routing are used where cables have to be protected from mechanical damage or certain weather conditions.

In addition, icotek offers split corrugated conduits CONFiX WST for routing pre-terminated cables and corresponding conduit clips CONFiX SH.

### CONFiX FWS Assembly

Installation of CONFiX FWS is quick and easy:

1. Use top screw(s) to mount the FWS
2. Insert conduit
3. Secure and complete installation with two side screws



1 Fix



2 Insert



3 Lock

### Advantages & benefits ...

#### 1. Fast and easy assembly

The liftable cover of the bulkhead fitting CONFiX FWS is tightly fixed by a hinge to the mounting box. The system is therefore very easy to mount.

#### 2. Easy to maintain

The split version of the corrugated conduits CONFiX WST offers the possibility of routing standard or pre-terminated cables in harsh environments.

#### 3. Flexible

The corrugated conduits CONFiX WS can be used for various applications, depending on the material. UV resistant polyamide conduits for high mechanical requirements (indoor and outdoor use), polypropylene conduits with high resistance against acids / alkalis.

## Product group 5

CONFiX Cable conduit system

### Chapter content



**Bulkhead fittings, split** | IP54  
for conduit screw connections /  
direct conduit pickup

CONFiX FWS

134 - 135



**Corrugated conduits**  
NW 7.5 - NW 50

CONFiX WS

136 - 137



**Corrugated conduits, split**  
for cables with connectors  
NW 10 - NW 70

CONFiX WST

138



**Conduit clips**  
for split corrugated conduits CONFiX WST

CONFiX SH

139

# CONFIX FWS-A

Bulkhead fittings for conduit screw connections



Metric internal thread for conduit screw connections

## Product description

The 90° angled conduit fitting CONFiX FWS is for installation of parallel corrugated cable protection conduits, e.g. in machines, control panels or control cabinets.

The liftable cover is tightly fixed by a hinge. Therefore, the system is fast and easy to install.

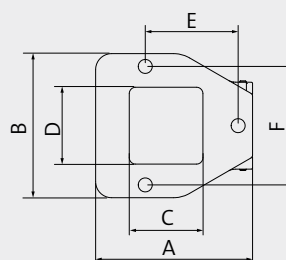
CONFIX FWS is offered in the following versions:

CONFIX FWS-A with metric internal thread M16 to M50

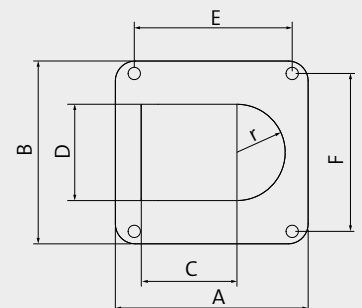
CONFIX FWS-B with a grooved conduit clip for types with sizes NW 13, 17, 23, 29, 37 and 50.

The available colours are grey (RAL 7011) and black (RAL 9005).

| Type           | Internal Thread | Hole Ø [mm] | Size (A × B) [mm] | Cut-out (C × D) [mm]    | Drill. Templ. (E × F) [mm] | Order No.          | PU |
|----------------|-----------------|-------------|-------------------|-------------------------|----------------------------|--------------------|----|
| CONFIX FWS-A16 | M16 × 1.5       | 3 × 4.3     | 49 × 45           | 22 × 22.6               | 29 × 37                    | ■ 31380<br>■ 31381 | 10 |
| CONFIX FWS-A20 | M20 × 1.5       | 3 × 4.3     | 49 × 45           | 22 × 22.6               | 29 × 37                    | ■ 31383<br>■ 31384 | 10 |
| CONFIX FWS-A25 | M25 × 1.5       | 3 × 6.6     | 67 × 63           | 37 × 28                 | 41.5 × 51.5                | ■ 31386<br>■ 31387 | 10 |
| CONFIX FWS-A32 | M32 × 1.5       | 4 × 6.6     | 85.5 × 76         | 41.9 × 40<br>r = 20     | 64.5 × 64.5                | ■ 31389<br>■ 31390 | 10 |
| CONFIX FWS-A40 | M40 × 1.5       | 4 × 6.6     | 97 × 92           | 48.3 × 48.4<br>r = 24.2 | 79.5 × 79.5                | ■ 31392<br>■ 31393 | 5  |
| CONFIX FWS-A50 | M50 × 1.5       | 4 × 6.6     | 111.5 × 100.5     | 53 × 60.5<br>r = 30.25  | 87.5 × 87.5                | ■ 31395<br>■ 31396 | 5  |



Size / Drilling template FWS-A 16 to 25



Size / Drilling template FWS-A 32 to 50

## Accessories

CONFIX WS conduits 136 - 137

# CONFIX FWS-B

Bulkhead fittings for direct conduit pickup



Grooved conduit clip



Fixed cover due to hinges



| Type            | Dimension* | Hole Ø [mm] | Size (A × B) [mm] | Cut-out (C × D) [mm]    | Drill. Templ. (E × F) [mm] | Order No.          | PU |
|-----------------|------------|-------------|-------------------|-------------------------|----------------------------|--------------------|----|
| CONFIX FWS-B 11 | NW 13      | 3 × 4.3     | 49 × 45           | 22 × 22.6               | 29 × 37                    | ■ 31410<br>■ 31411 | 10 |
| CONFIX FWS-B 16 | NW 17      | 3 × 4.3     | 49 × 45           | 22 × 22.6               | 29 × 37                    | ■ 31413<br>■ 31414 | 10 |
| CONFIX FWS-B 21 | NW 23      | 3 × 6.6     | 67 × 63           | 37 × 28                 | 41.5 × 51.5                | ■ 31416<br>■ 31417 | 10 |
| CONFIX FWS-B 29 | NW 29      | 4 × 6.6     | 85.5 × 76         | 41.9 × 40<br>r = 20     | 64.5 × 64.5                | ■ 31419<br>■ 31420 | 10 |
| CONFIX FWS-B 36 | NW 37      | 4 × 6.6     | 97 × 92           | 48.3 × 48.4<br>r = 24.2 | 79.5 × 79.5                | ■ 31422<br>■ 31423 | 5  |
| CONFIX FWS-B 48 | NW 50      | 4 × 6.6     | 111.5 × 100.5     | 53 × 60.5<br>r = 30.25  | 87.5 × 87.5                | ■ 31425<br>■ 31426 | 5  |

## Advantages & benefits

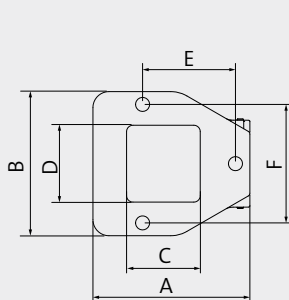
- Hinged cover
- Fast and easy installation
- Functional design
- Protection class IP54

## Specifications

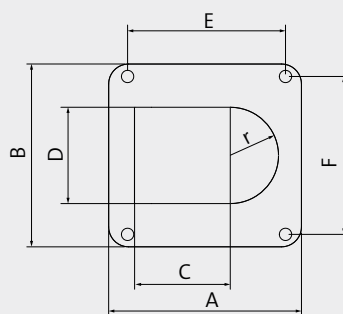
|             |   |
|-------------|---|
| Material    | Polycarbonate (PC)                      |
| Colour      | ■ grey (RAL 7011)<br>■ black (RAL 9005) |
| IP rating   | IP54                                    |
| Flame class | UL94-Vo, self-extinguishing             |
| Temperature | -30°C to +100°C (static)                |
| Properties  | Halogen free, silicone free             |

## Accessories

CONFIX WS conduits 136 - 137



Size / Drilling template  
FWS-B 11 to 21



Size / Drilling template  
FWS-B 29 to 48

\* For parallel corrugated cable protection conduit with dimension (NW)

# CONFiX WS

## Corrugated conduits



Compatible with CONFiX FWS-B

### Product description

Parallel corrugated conduits for cable routing are used where cables have to be protected from mechanical damage or certain weather conditions.

icotek provides conduits in sizes NW 7.5, 8.5, 10, 13, 17, 23, 29, 37, and 50. Conduits from size NW 13 can be mounted with CONFiX FWS bulkhead fittings.

Parallel corrugated conduits are available in 3 different versions:

- **CONFiX WS-PA:** Polyamide conduit for high mechanical requirements (e.g. engine compartments, car bodies, construction machines, ship building, rail transportation technology, switch cabinets).  
→ Suitable for ground installation
- **CONFiX WS-PAL (light):** Polyamide conduit for high mechanical requirements  
→ Suitable for suspended installation
- **CONFiX WS-PP:** Polypropylene conduit for use in engine compartments, car bodies and for static installation at machinery and plant engineering.  
→ Advantages: Cost-effective, flame class UL94-V2, temperature resistant, resistant to chemicals

| Type                  | External Ø | Internal Ø | Compatible with: | Order No. | PU (Length) |
|-----------------------|------------|------------|------------------|-----------|-------------|
| CONFiX WS-G-PA-NW 7.5 | Ø 10 mm    | Ø 6.7 mm   | -                | ■ 31550   | 50 m        |
| CONFiX WS-B-PA-NW 7.5 | Ø 10 mm    | Ø 6.7 mm   | -                | ■ 31570   | 50 m        |
| CONFiX WS-G-PA-NW 8.5 | Ø 11.7 mm  | Ø 8.4 mm   | -                | ■ 31552   | 50 m        |
| CONFiX WS-B-PA-NW 8.5 | Ø 11.7 mm  | Ø 8.4 mm   | -                | ■ 31572   | 50 m        |
| CONFiX WS-G-PA-NW 10  | Ø 13 mm    | Ø 9.9 mm   | -                | ■ 31554   | 50 m        |
| CONFiX WS-B-PA-NW 10  | Ø 13 mm    | Ø 9.9 mm   | -                | ■ 31574   | 50 m        |
| CONFiX WS-G-PA-NW 13  | Ø 15.8 mm  | Ø 12.7 mm  | CONFiX FWS-B 11  | ■ 31556   | 50 m        |
| CONFiX WS-B-PA-NW 13  | Ø 15.8 mm  | Ø 12.7 mm  | CONFiX FWS-B 11  | ■ 31576   | 50 m        |
| CONFiX WS-G-PA-NW 17  | Ø 21.2 mm  | Ø 16.6 mm  | CONFiX FWS-B 16  | ■ 31558   | 50 m        |
| CONFiX WS-B-PA-NW 17  | Ø 21.2 mm  | Ø 16.6 mm  | CONFiX FWS-B 16  | ■ 31578   | 50 m        |
| CONFiX WS-G-PA-NW 23  | Ø 28.3 mm  | Ø 23.2 mm  | CONFiX FWS-B 21  | ■ 31560   | 50 m        |
| CONFiX WS-B-PA-NW 23  | Ø 28.3 mm  | Ø 23.2 mm  | CONFiX FWS-B 21  | ■ 31580   | 50 m        |
| CONFiX WS-G-PA-NW 29  | Ø 34.5 mm  | Ø 29 mm    | CONFiX FWS-B 29  | ■ 31562   | 25 m        |
| CONFiX WS-B-PA-NW 29  | Ø 34.5 mm  | Ø 29 mm    | CONFiX FWS-B 29  | ■ 31582   | 25 m        |
| CONFiX WS-G-PA-NW 37  | Ø 42.4 mm  | Ø 36 mm    | CONFiX FWS-B 36  | ■ 31564   | 25 m        |
| CONFiX WS-B-PA-NW 37  | Ø 42.4 mm  | Ø 36 mm    | CONFiX FWS-B 36  | ■ 31584   | 25 m        |
| CONFiX WS-G-PA-NW 50  | Ø 54 mm    | Ø 47.7 mm  | CONFiX FWS-B 48  | ■ 31566   | 25 m        |
| CONFiX WS-B-PA-NW 50  | Ø 54 mm    | Ø 47.7 mm  | CONFiX FWS-B 48  | ■ 31586   | 25 m        |



# CONFIX WS

## Corrugated conduits



| Type                   | External Ø | Internal Ø | Compatible with: | Order No. | PU (Length) |
|------------------------|------------|------------|------------------|-----------|-------------|
| CONFIX WS-B-PAL-NW 7,5 | Ø 10 mm    | Ø 6.7 mm   | -                | ■ 31590   | 50 m        |
| CONFIX WS-B-PAL-NW 8,5 | Ø 11.5 mm  | Ø 8.5 mm   | -                | ■ 31592   | 50 m        |
| CONFIX WS-B-PAL-NW 10  | Ø 13.2 mm  | Ø 10.1 mm  | -                | ■ 31594   | 50 m        |
| CONFIX WS-B-PAL-NW 13  | Ø 16 mm    | Ø 13 mm    | CONFIX FWS-B 11  | ■ 31596   | 50 m        |
| CONFIX WS-B-PAL-NW 17  | Ø 21.2 mm  | Ø 17.1 mm  | CONFIX FWS-B 16  | ■ 31598   | 50 m        |
| CONFIX WS-B-PAL-NW 23  | Ø 28.4 mm  | Ø 23.5 mm  | CONFIX FWS-B 21  | ■ 31600   | 50 m        |
| CONFIX WS-B-PAL-NW 29  | Ø 34.5 mm  | Ø 29.4 mm  | CONFIX FWS-B 29  | ■ 31602   | 25 m        |
| CONFIX WS-B-PAL-NW 37  | Ø 42.2 mm  | Ø 36.7 mm  | CONFIX FWS-B 36  | ■ 31604   | 25 m        |
| CONFIX WS-B-PAL-NW 50  | Ø 54 mm    | Ø 48.1 mm  | CONFIX FWS-B48   | ■ 31606   | 25 m        |
| CONFIX WS-B-PP-NW 7,5  | Ø 9.9 mm   | Ø 6.9 mm   | -                | ■ 31610   | 50 m        |
| CONFIX WS-B-PP-NW 8,5  | Ø 11.6 mm  | Ø 8.5 mm   | -                | ■ 31612   | 50 m        |
| CONFIX WS-B-PP-NW 10   | Ø 12.7 mm  | Ø 10.1 mm  | -                | ■ 31614   | 50 m        |
| CONFIX WS-B-PP-NW 13   | Ø 15.8 mm  | Ø 12.9 mm  | CONFIX FWS-B 11  | ■ 31616   | 50 m        |
| CONFIX WS-B-PP-NW 17   | Ø 21 mm    | Ø 16.8 mm  | CONFIX FWS-B 16  | ■ 31618   | 50 m        |
| CONFIX WS-B-PP-NW 23   | Ø 28 mm    | Ø 23.7 mm  | CONFIX FWS-B 21  | ■ 31620   | 50 m        |
| CONFIX WS-B-PP-NW 29   | Ø 33.9 mm  | Ø 29.3 mm  | CONFIX FWS-B 29  | ■ 31622   | 25 m        |
| CONFIX WS-B-PP-NW 37   | Ø 42 mm    | Ø 36.7 mm  | CONFIX FWS-B 36  | ■ 31624   | 25 m        |
| CONFIX WS-B-PP-NW 50   | Ø 53.6 mm  | Ø 47.8 mm  | CONFIX FWS-B 48  | ■ 31626   | 25 m        |

\* For parallel corrugated cable protection conduit with dimension (NW)

### Specifications WS-PA

Material Polyamide (PA)  
 Colour ■ black  
 ■ grey  
 Flame class UL94-HB  
 Temperature -40°C to +120°C  
 Properties Halogen free, UV resistant, according to EN ISO 8580

### Specifications WS-PAL

Material Polyamide (PA)  
 Colour ■ black  
 Flame class UL94-HB  
 Temperature -40°C to +120°C  
 Properties Halogen free, UV resistant according to EN ISO 8580

### Specifications WS-PP

Material Polypropylene (PP)  
 Colour ■ black  
 Flame class UL94-V2, self-extinguishing  
 Temperature -40°C to +135°C  
 Properties Halogen free, high resistance against acids / alkalis

### Compatible with

CONFIX FWS Bulkhead fitting 134 - 135

# CONFIX WST

## Split corrugated conduits



Individual lengths are possible!

### Product description

The CONFiX WST is a two piece corrugated conduit. Perfect for routing cables with or without connectors in rough environments.

In conjunction with e.g. KVT-W90, a high degree of flexibility is achieved. Numerous conduit sizes can be used thanks to the wide variety of split grommets offered (see KT grommets on pages 44 - 46).

**The length of the CONFiX WST split corrugated conduit can be customized to your application. All conduits are available by the meter (0.5 m steps).**

| Type             | Order No. | Internal diameter | External diameter | Compatible grommets | Dimensions | Ring length* |
|------------------|-----------|-------------------|-------------------|---------------------|------------|--------------|
| CONFIX WST NW 10 | 31200     | 8.7 mm            | 13.6 mm           | KT 13<br>KTRS 13    | 10 mm      | 50 m*        |
| CONFIX WST NW 14 | 31210     | 12.5 mm           | 18.5 mm           | KT 18               | 14 mm      | 50 m*        |
| CONFIX WST NW 20 | 31220     | 19.5 mm           | 25.5 mm           | KT 25               | 20 mm      | 50 m*        |
| CONFIX WST NW 23 | 31230     | 24.2 mm           | 31 mm             | KT 30               | 23 mm      | 50 m*        |
| CONFIX WST NW 37 | 31240     | 31 mm             | 41.4 mm           | KTMB-P              | 37 mm      | 25 m*        |
| CONFIX WST NW 45 | 31250     | 42.7 mm           | 54 mm             | KTMB-Q              | 45 mm      | 25 m*        |
| CONFIX WST NW 70 | 31260     | 66.5 mm           | 79.8 mm           | KTMB-S              | 70 mm      | 10 m*        |

\* All conduits are also available by the metre (0.5 m steps).

5

### Advantages & benefits

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

### Specifications

Material Polypropylene, black  
 Flame class UL94-HB  
 Temperature - 40°C to + 105°C  
 Properties UV resistant

### Compatible with

|   |         |
|---|---------|
| CONFIX SH Conduit clip                        | 139     |
| Cable entry systems for pre-terminated cables | 8 - 57  |
| Cable entry systems for standard cables       | 60 - 79 |



## CONFiX SH

Conduit clips for WST



| Type | Order No. | Suitable conduit | Fixing hole | Width [mm] | Height [mm] | PU |
|------|-----------|------------------|-------------|------------|-------------|----|
|------|-----------|------------------|-------------|------------|-------------|----|

|              |       |       |    |      |      |    |
|--------------|-------|-------|----|------|------|----|
| CONFiX SH 10 | 31300 | NW 10 | M3 | 18.5 | 21   | 10 |
| CONFiX SH 14 | 31310 | NW 14 | M3 | 24   | 25.5 | 10 |
| CONFiX SH 20 | 31320 | NW 20 | M5 | 35   | 36   | 10 |
| CONFiX SH 23 | 31330 | NW 23 | M5 | 42   | 43.5 | 10 |
| CONFiX SH 37 | 31340 | NW 37 | M6 | 55   | 56.5 | 10 |
| CONFiX SH 45 | 31350 | NW 45 | M6 | 67   | 68   | 10 |
| CONFiX SH 70 | 31360 | NW 70 | M6 | 100  | 101  | 10 |

### Product description

CONFiX SH Conduit clips are a one-piece clamping system to provide secure mounting points for corrugated conduit systems.

The clips are secured to their mounting position through a central mounting point with a hexagonal counter-bore.

### Specifications

Material Polyamide (PA), black  
 Flame class UL94-V2, self-extinguishing  
 Temperature - 40°C to + 140°C  
 Properties Halogen free, silicone free

### Compatible with

CONFiX WST  
 Split corrugated conduit 138

# 6

## Enclosure accessories

### Base plates, flanged plates & accessories

#### KDR - Enclosure base plates

##### for dust-proof cable routing

Electronic enclosures which are used in industrial manufacturing processes have to be reliably protected against dirt and dust ingress. The conductivity of dust and dirt accumulations can otherwise lead to short circuits and their thermal insulation properties can cause overheating of single components. Machine downtime and, at worst, electric shock or fire accidents may be the result.

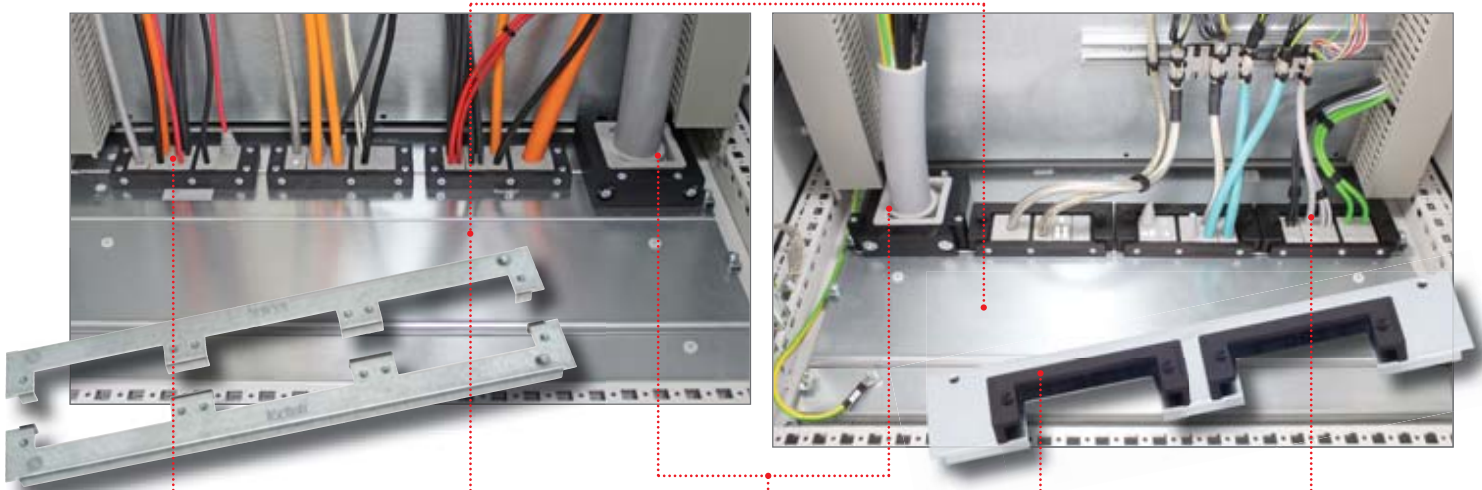
The base of an enclosure can be a weak point when cables and wires are not adequately sealed, and thus the protection of the enclosure cannot be maintained. Components for ventilation and air-conditioning generate an air flow which sucks the dust into the enclosure and spreads it. The icotek base plates KDR-ESR and KDR 2 provide the perfect solution for such problems.

#### KDR 2

for centrally split KEL cable entry frames

#### KDR-ESR

for U-shaped split KEL-U cable entry frames



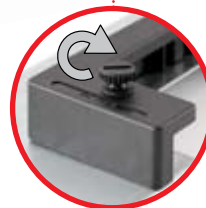
Routing of pre-terminated cables of up to 35 mm in diameter (KEL 24)



During assembly, almost the complete base of the enclosure can be used for installation of cables



Routing of supply lines with diameters up to 65 mm (KEL-JUMBO)



Fast and tool-free mounting of KEL-U cable entry frames



Routing of pre-terminated cables of up to 35 mm in diameter (KEL-U 24 / KEL-U 16)

#### Other enclosure accessories

Perfect for retrofitting without disconnecting the lines!



Brush frames



Module plates



Flanged plates



Blank plates



Mounting rail supports




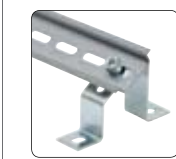
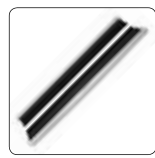






Locknuts

# Product group 6

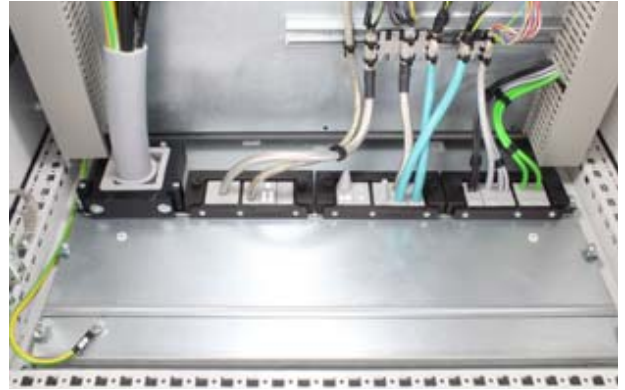
Enclosure accessories

## Chapter content

|   |  |                  |  |  |                  |
|---|--|------------------|--|--|------------------|
|    | <p><b>Enclosure base plates   IP54</b><br/>with slide frames<br/>for cable entry frames</p> <p>KDR-ESR</p> | <p>142 - 143</p> |  | <p><b>Blank plates   IP54 / IP64</b></p> <p>BPK / BPK-RF / BPM / BPK-SNAP</p>          | <p>158 - 160</p> |
|    | <p><b>Enclosure base plates   IP54</b><br/>split, for cable entry frames</p> <p>KDR2</p>                   | <p>144 - 145</p> |  | <p><b>Supports</b><br/>for DIN rails and bus bars</p> <p>MF</p>                        | <p>161</p>       |
|    | <p><b>Enclosure base plates</b><br/>with brush grommets</p> <p>KDR-BES</p>                                 | <p>146 - 147</p> |  | <p><b>Hexagonal Locknuts</b><br/>M16 - M85</p> <p>KGM / GM / GMT</p> <p><b>NEW</b></p> | <p>162 - 163</p> |
|   | <p><b>Module plates</b><br/>for cable entry components</p> <p>MP</p>                                       | <p>148 - 149</p> |  |  |                  |
|  | <p><b>Enclosure base plates   IP54</b><br/>for MP module plates</p> <p>KDR-BMP</p>                         | <p>150 - 151</p> |  |  |                  |
|  | <p><b>Flanged plates for enclosures</b><br/>for cable entry components</p> <p>FP-AE / FP-KL / FP-BG</p>    | <p>152 - 157</p> |  |  |                  |

# KDR-ESR

Enclosure base plate with slide frames



## KDR-ESR Assembly

### Product description

The KDR-ESR is a one-piece plate to be assembled on enclosure bases. Slide frames for the KEL cable entry frames are already pre-assembled.

After installing all cables into the KEL frames, they are easily and quickly inserted into the slide frames and fixed. During maintenance, the KEL frames are removed without tools from the slide frames. Due to the combination KDR-ESR and KEL cable entry frames, a rating of IP54 is achieved (with correct selection of cable grommets). Slide frames which are no longer required, are closed with BPK-SNAP blank plates.

### Advantages & benefits

- Easy assembly and removal
- During assembly, almost the complete base of the enclosure can be used for installation of cables
- Even large connectors can be installed easily
- The base plate KDR-ESR is designed for Rittal enclosures TS8. Other sizes can be supplied on request
- No additional sheet metal work required
- Retrofitting possible without disconnecting cables. Everything can be built around the cables

### Specifications

|                        |   |
|------------------------|---|
| Material               | <b>Base plate: Sheet steel, zinc-plated</b><br><b>KDR-ESR Frame: Polyamide (PA)</b> |
| Flame class            | <b>UL94-Vo, self-extinguishing</b>  |
| IP rating              | <b>IP54, with gasket and correct selection of cable entry devices</b>               |
| Temperature Properties | <b>- 40°C to + 90°C (static)</b><br><b>Halogen free, silicone free</b>              |

### Compatible with

|                                    |        |
|------------------------------------|--------|
| KEL(-U) 16 / 24 Cable entry frames | 8 - 19 |
| KEL-JUMBO Cable entry frames       | 34     |
| BPK-SNAP 16 / 24 Blank plates      | 160    |

## KDR-ESR Assembly



1  
The base plate is fixed in the enclosure floor. The KEL cable entry frames are fitted.



2  
The KEL cable entry frames are screwed together after fitting.



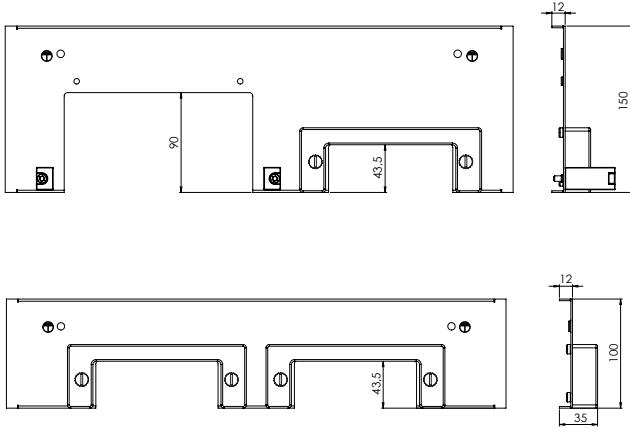
3  
Afterwards the KEL frames are pushed into the Slide frames and fixed with the knurled screws.



4  
Finally, the middle base plate which is part of the standard enclosure, moves together with the KDR-ESR plates.

# KDR-ESR

## Enclosure base plate with slide frames



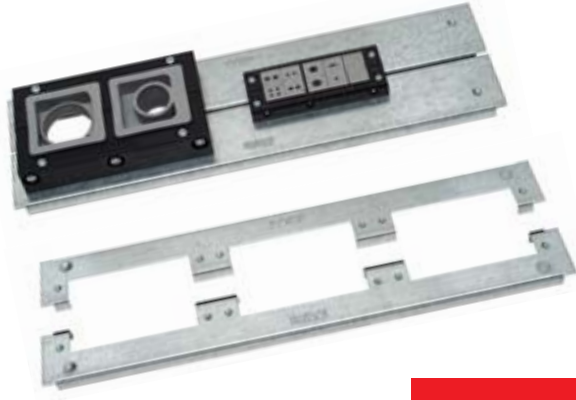
Sealing tape  
Order No. 42999 (PU: 1 m)

| Enclosure type | Enclosure width                 | Total length base plate | Sight size of base plate opening | No. of possible cable entries |         |                |                | Order No. |
|----------------|---------------------------------|-------------------------|----------------------------------|-------------------------------|---------|----------------|----------------|-----------|
|                |                                 |                         |                                  | JUMBO 1                       | JUMBO 2 | KEL(-U) 16 ... | KEL(-U) 24 ... |           |
| TS8            | 600 mm                          | 458 mm                  | 435 mm                           | -                             | -       | -              | 2              | 43079     |
|                | 600 mm                          | 458 mm                  | 435 mm                           | -                             | 1       | -              | 1              | 43070     |
|                | 600 mm                          | 458 mm                  | 435 mm                           | 1                             | -       | 2              | -              | 43071     |
| TS8            | 800 mm                          | 658 mm                  | 635 mm                           | -                             | -       | 1              | 3              | 43080     |
|                | 800 mm                          | 658 mm                  | 635 mm                           | 1                             | -       | -              | 3              | 43072     |
|                | 800 mm                          | 658 mm                  | 635 mm                           | -                             | 1       | -              | 2              | 43073     |
| TS8            | 1000 mm<br>without division bar | 858 mm                  | 835 mm                           | -                             | -       | -              | 5              | 43081     |
|                | 1000 mm<br>without division bar | 858 mm                  | 835 mm                           | 1                             | -       | -              | 4              | 43074     |
|                | 1000 mm<br>without division bar | 858 mm                  | 835 mm                           | -                             | 1       | -              | 3              | 43075     |
| TS8            | 1000 mm*<br>with division bar   | 420 mm                  | 398 mm                           | -                             | -       | -              | 2              | 43082     |
|                | 1000 mm*<br>with division bar   | 420 mm                  | 398 mm                           | 1                             | -       | -              | 1              | 43076     |
|                | 1000 mm*<br>with division bar   | 420 mm                  | 398 mm                           | -                             | 1       | -              | 1              | 43077     |
| TS8            | 1200 mm*                        | 518 mm                  | 495 mm                           | -                             | -       | -              | 3              | 43083     |
|                | 1200 mm*                        | 518 mm                  | 495 mm                           | 1                             | -       | -              | 2              | 43078     |
|                | 1200 mm*                        | 518 mm                  | 495 mm                           | -                             | 1       | -              | 1              | 43084     |

\* in case both fields of the enclosure are equipped, 2 complete base plates are necessary.

## KDR 2

### Split enclosure base plates



## KDR 2 Assembly

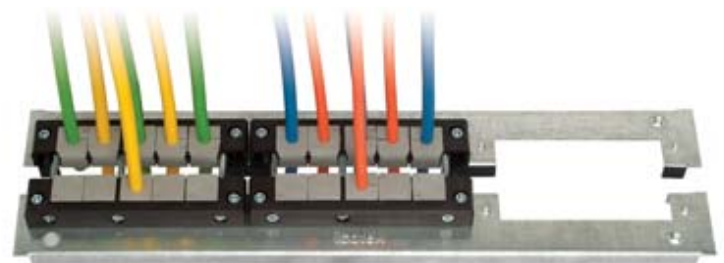
### Product description

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 & benefits

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



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



The frame parts with grommets have to be built up before final assembly, i.e. before screwing the system together.

Screwing of the cable entry frames tightens both parts of the split base plate.

### Specifications

Material Sheet steel, zinc-plated

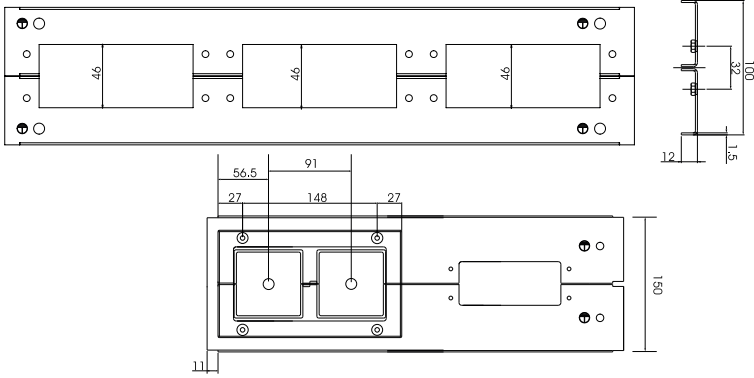
### Compatible with

|                              |     |
|------------------------------|-----|
| KEL 24 Cable entry frames    | 18  |
| KEL-JUMBO Cable entry frames | 34  |
| BPM Blank plates metal       | 159 |



# KDR 2

## Split enclosure base plates



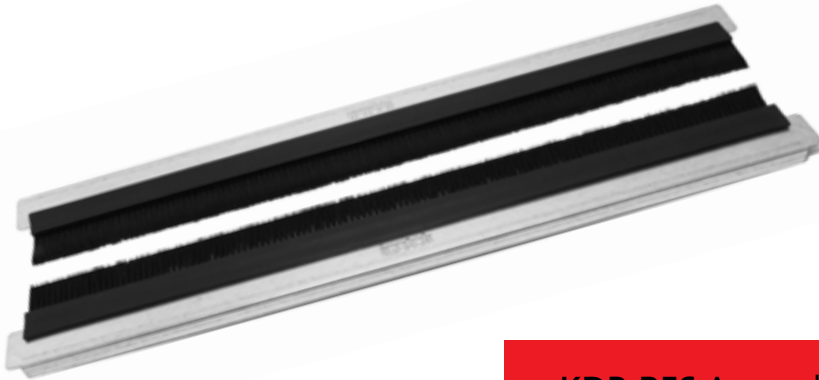
Sealing tape  
Order No. 42999 (PU: 1 m)

| Enclosure type | Enclosure 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                  | 435 mm                           | -                             | -       | 3          | 42924     |
|                |                                 |                         |                                  | 1                             | -       | 2          | 42953     |
|                |                                 |                         |                                  | -                             | 1       | 1          | 42941     |
| TS 8           | 800 mm                          | 658 mm                  | 635 mm                           | -                             | -       | 4          | 42922     |
|                |                                 |                         |                                  | 1                             | -       | 3          | 42954     |
|                |                                 |                         |                                  | -                             | 1       | 2          | 42945     |
| TS 8           | 1000 mm<br>without division bar | 858 mm                  | 835 mm                           | -                             | -       | 5          | 42923     |
|                |                                 |                         |                                  | 1                             | -       | 4          | 42955     |
|                |                                 |                         |                                  | -                             | 1       | 3          | 42952     |
| TS 8           | 1000 mm*<br>with division bar   | 420 mm                  | 398 mm                           | -                             | -       | 2          | 42958     |
|                |                                 |                         |                                  | 1                             | -       | 1          | 42957     |
|                |                                 |                         |                                  | -                             | 1       | 1          | 42959     |
| TS 8           | 1200 mm*                        | 518 mm                  | 495 mm                           | -                             | -       | 3          | 42920     |
|                |                                 |                         |                                  | 1                             | -       | 2          | 42956     |
|                |                                 |                         |                                  | -                             | 1       | 1          | 42943     |

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

## KDR-BES

Enclosure base plate with brush grommets



For standard cut-outs:  
KEL-BES - see page 57

### KDR-BES Assembly

#### Product description

The new 2-piece enclosure base plates KDR-BES are supplied with preassembled brush grommets.

The base plates are installed with standard Rittal clips.

Depending on the maximum cable diameter to be routed, the 2 halves of the brush base plate are aligned further or closer to each other.

The base plates KDR-BES are perfect for protection of the enclosure interiors against dirt.

#### Advantages & benefits

- During assembly, almost the complete base of the enclosure can be used for installation of cables.
- Retrofitting is possible without disconnecting of cables. All can be installed around the cables.
- The base plates KDR-BES are designed for Rittal enclosures TS8. Other sizes can be supplied on request.

#### Specifications

|                        |  |
|------------------------|--|
| Material               | <b>Base plate: Sheet steel, zinc-plated</b><br><b>Brush grommets: Polyamide (PA)</b> |
| Temperature Properties | <b>- 20°C to + 90°C (static)</b><br><b>Halogen free, silicone free</b>               |

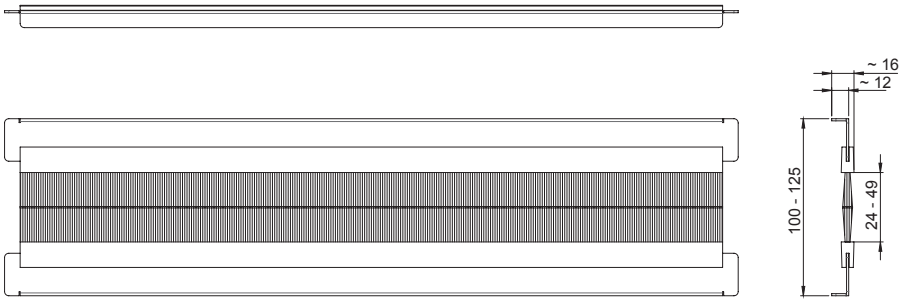


#### Accessories

ZL Strain relief plates 82 - 86

# KDR-BES

Enclosure base plate  
with brush grommets

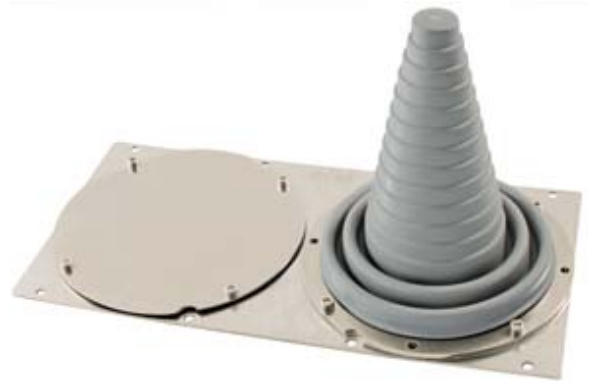


| Type             | Enclosure type | Enclosure width                 | Total length base plate | Sight size of base plate opening | Order No. |
|------------------|----------------|---------------------------------|-------------------------|----------------------------------|-----------|
| KDR-BES-TS8-600  | TS8            | 600 mm                          | 458 mm                  | 435 mm                           | 58000     |
| KDR-BES-TS8-800  | TS8            | 800 mm                          | 658 mm                  | 635 mm                           | 58006     |
| KDR-BES-TS8-1000 | TS8            | 1000 mm<br>without division bar | 858 mm                  | 835 mm                           | 58012     |
| KDR-BES-TS8-1200 | TS8            | 1200 mm*                        | 518 mm                  | 495 mm                           | 58018     |

\* in case both fields of the enclosure are equipped, 2 complete base plates are necessary.

# MP

## Module plates



### MP Applications

#### Product description

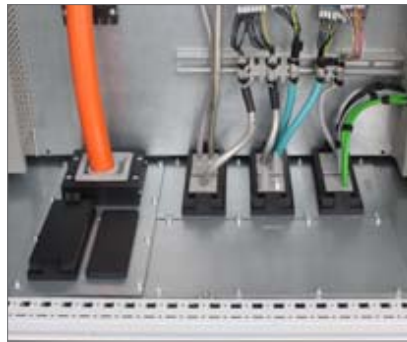
The module plates have cut-outs for fixing the KEL range cable entry systems KEL 24, KEL-U 24, KEL-JUMBO, KEL-DPF, KEL-JUMBO flex and KEL-ULTRA flex.

The module plates can be installed on:

- Separation walls by Rittal
- closed enclosure bases and roofs (various manufacturers)
- Bases of Lohmeier enclosures
- Bases of Rittal enclosures via KDR-BMP base plates

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

Module plates are supplied with a gasket.



Cable routing via module plates in the base of a Rittal TS 8 enclosure. Mounting with icotek base plate KDR BMP.



Cable routing through the divider panel of a Rittal TS8 baying enclosure system via module plates.



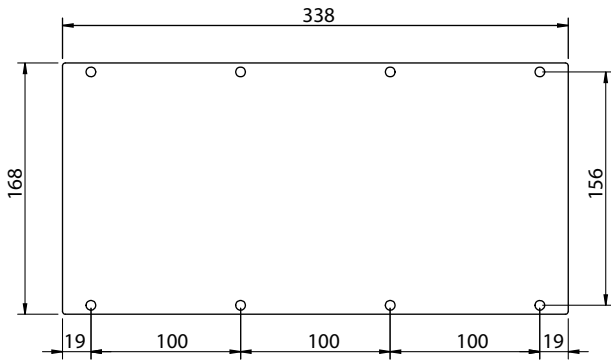
Routing of several cables with and without connectors through a closed enclosure roof via module plates. Cut-out size 314 x 144 mm.



Routing of a rigid supply line through a closed enclosure roof via module plates. Cut-out size 314 x 144 mm.

# MP

## Module plates



| Description | Type | Order No. | Compatible with |
|-------------|------|-----------|-----------------|
|-------------|------|-----------|-----------------|

|  |      |       |  |
|--|------|-------|--|
|  | MP 0 | 43882 | Module plate, blank                      |
|  | MP 1 | 43891 | 3x KEL(-U) 24 x                          |
|  | MP 2 | 43890 | 4x KEL(-U) 24 x                          |
|  | MP 3 | 43886 | 1x KEL-JUMBO 1<br>1x KEL-JUMBO 2         |
|  | MP 4 | 43888 | 2x KEL-JUMBO 1                           |
|  | MP 5 | 43887 | 2x KEL(-U) 24 x<br>1x KEL-JUMBO 1        |
|  | MP 6 | 43883 | 5x cut-out M50<br>for KEL-DPF or KEL-DPZ |
|  | MP 7 | 43889 | Cut-out<br>3x KEL-JUMBO flex             |
|  | MP 8 | 43894 | Cut-out<br>2x KEL-ULTRA flex             |

### Specifications

Material Sheet steel, zinc-plated  
Aluminium (Order No. 43883)  
Dimension 338 x 168 x 2 mm

### Compatible with

- KEL 24 Cable entry frames 18
- KEL-U 24 Cable entry frames 8
- KEL-SNAP snap frames 36 - 37
- KEL-JUMBO Cable entry frames 34
- KEL-DPF Cable entry grommets 77
- KEL-JUMBO flex Cable entry ins. 78
- KEL-ULTRA flex Cable entry ins. 79
- Blank plates 158 - 160

# KDR-BMP

Enclosure base plates  
for module plates



## Product description

The KDR-BMP base plates are ideally suited for Rittal TS enclosures and can be used instead of the 3 piece standard clips base plates. Rittal standard mounting clips are used for fixing the plate.

On KDR-BMP base plates, our MP Module Plates MPo-MP8 can be easily mounted and used for installation of cable entry components.

## Advantages & benefits

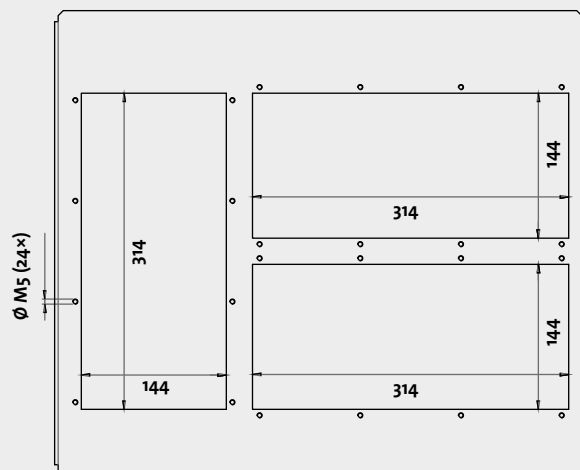
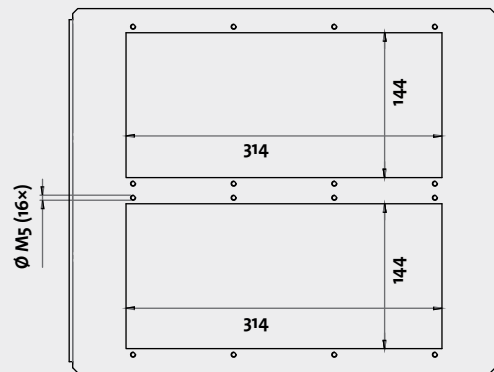
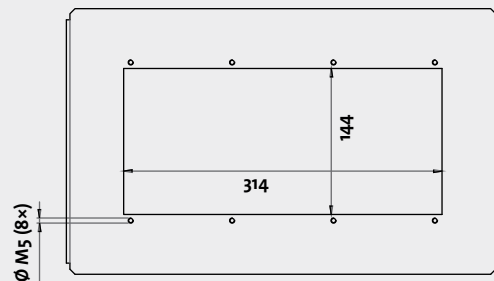
- Very simple mounting
- No sheet metal work required

## Specifications

|           |  |
|-----------|--|
| Material  | Sheet steel, zinc-plated                                       |
| IP rating | IP54, with gasket and correct selection of cable entry devices |

## Compatible with

MP Module plates 148 - 149



# KDR-BMP

Enclosure base plates  
for module plates



| Type                                  | Enclosure type | Enclosure width              | Enclosure depth | No. of cut-outs for module plates | Order No. |
|---------------------------------------|----------------|------------------------------|-----------------|-----------------------------------|-----------|
| KDR-BMP 600/400                       | TS8            | 600 mm                       | 400 mm          | 1                                 | 43300     |
| KDR-BMP 600/500                       |                | 600 mm                       | 500 mm          | 2                                 | 43302     |
| KDR-BMP 600/600                       |                | 600 mm                       | 600 mm          | 2                                 | 43304     |
| KDR-BMP 800/400                       | TS8            | 800 mm                       | 400 mm          | 1                                 | 43306     |
| KDR-BMP 800/500                       |                | 800 mm                       | 500 mm          | 3                                 | 43308     |
| KDR-BMP 800/600                       |                | 800 mm                       | 600 mm          | 3                                 | 43310     |
| KDR-BMP 1000/400                      | TS8            | 1000 mm<br>with division bar | 400 mm          | 1                                 | 43312     |
| KDR-BMP 1000/500                      |                | 1000 mm<br>with division bar | 500 mm          | 2                                 | 43314     |
| KDR-BMP 1000/600                      |                | 1000 mm<br>with division bar | 600 mm          | 2                                 | 43316     |
| KDR-BMP 1200/400                      | TS8            | 1200 mm<br>with division bar | 400 mm          | 1                                 | 43318     |
| KDR-BMP 1200/500                      |                | 1200 mm<br>with division bar | 500 mm          | 2 × 3                             | 43320     |
| KDR-BMP 1200/600<br>for left section  |                | 1200 mm<br>with division bar | 600 mm          | 3                                 | 43322     |
| KDR-BMP 1200/600<br>for right section |                | 1200 mm<br>with division bar | 600 mm          | 3                                 | 43324     |

## FP-AE

### Flanged plates for compact enclosures



#### Description

### Product description

We supply complete flanged plates FP with 112 × 36 mm cut-outs for compact enclosures of the AE series. The cut-outs, as well as the drilling template, conform to the standard cut-outs for 24-pole industrial connectors.

All flanged plates are RAL 7035 powder-coated. Please use the gaskets of the standard plates. Enclosures are supplied with gaskets and screws.

We recommend fastening the cable entry systems with a torque of 1.5 - 2.0 Nm.

### Advantages & benefits

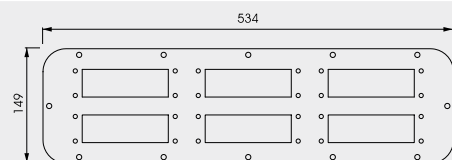
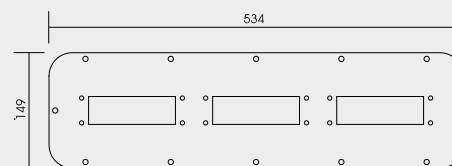
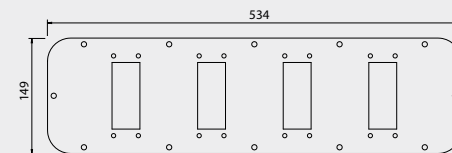
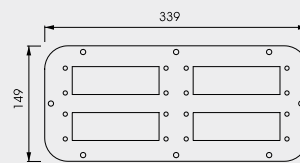
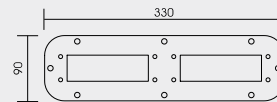
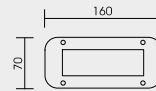
- No expensive extra sheet metal work is required
- High cable density is achieved by using KEL, KEL-U, KEL-DPZ or KEL-DP
- Reduce labour costs by using cable entry systems KEL, KEL-U, KEL-DPZ or KEL-DP compared to the assembly of conventional cable glands

### Specifications

Material **Sheet steel, powder coated**

### Compatible with

|                               |           |
|-------------------------------|-----------|
| KEL Cable entry frames        | 18 - 19   |
| KEL-U Cable entry frames      | 8 - 10    |
| KEL-SNAP Mounting frames      | 36 - 37   |
| KEL-QTA 24 Cable entry frames | 54 - 55   |
| KEL-DPU 24 Cable entry plates | 62 - 63   |
| KEL-DPZ 24 Cable entry plates | 64 - 65   |
| KEL-DP 24 Cable entry plates  | 72        |
| Blank plates                  | 158 - 159 |





# FP-AE

## Flanged plates for compact enclosures



| Type   | Order No.<br>RAL 7035 | Compatible with:<br>(Product Group 1)           | Compatible with:<br>(Product Group 2) | Size<br>FP | Compatible with<br>(e.g. for Rittal)   |
|--|-----------------------|---|---------------------------------------|------------|--|
| FP-AE 160 70<br>with 1 cut-out 36 x 112 mm     | 43836                 | KEL-QTA 24                                      | KEL-DP 24                             | 1          | AE 1032<br>AE 1035   |
| FP-AE-24 330 90<br>with 2 cut-outs 36 x 112 mm | 43838                 | KEL 24<br>KEL-U 24<br>KEL-QTA 24                | KEL-DPZ 24<br>KEL-DPU 24<br>KEL-DP 24 | 3          | AE 1030<br>AE 1031<br>AE 1038<br>AE 1380   |
| FP-AE-16 330 90<br>with 2 cut-outs 36 x 86 mm  | 43861                 | KEL 16<br>KEL-U 16                              |                                       | 3          |  |
| FP-AE 339 149<br>with 2 cut-outs 36 x 112 mm   | 43840                 | KEL 24<br>KEL-U 24<br>KEL-SNAP 24<br>KEL-QTA 24 | KEL-DPZ 24<br>KEL-DPU 24<br>KEL-DP 24 | 4          | AE 1037   CS 9751.125<br>AE 1045   CS 9751.145<br>AE 1050   CS 9751.165<br>AE 1057   CS 9752.125<br>AE 1100  <br>AE 1110   TP 6710<br>AE 1114   TP 6712<br>AE 1130   TP 6714<br>AE 1213   TP 6716<br>AE 1338<br>AE 1350                                    |
| FP-AE 339 149<br>with 4 cut-outs 36 x 112 mm   | 43846                 | KEL 24<br>KEL-U 24<br>KEL-QTA 24                | KEL-DPZ 24<br>KEL-DPU 24<br>KEL-DP 24 | 4          |  |
| FP-AE 534 149<br>with 4 cut-outs 36 x 86 mm    | 43871                 | KEL 16<br>KEL-U 16<br>KEL-SNAP 16               |                                       | 5          | AE 1039   EL 1919<br>AE 1054   EL 1926<br>AE 1055  <br>AE 1058   IN 1076.290<br>AE 1060  <br>AE 1073   TP 6711<br>AE 1076   TP 6713<br>AE 1077   TP 6715<br>AE 1090   TP 6717<br>AE 1180<br>AE 1260<br>AE 1280<br>AE 1339<br>AE 1360<br>AE 1376<br>AE 1958 |
| FP-AE 534 149<br>with 3 cut-outs 36 x 112 mm   | 43842                 | KEL 24<br>KEL-U 24<br>KEL-SNAP 24<br>KEL-QTA 24 | KEL-DPZ 24<br>KEL-DPU 24<br>KEL-DP 24 | 5          |  |
| FP-AE 534 149<br>with 6 cut-outs 36 x 112 mm   | 43848                 | KEL 24<br>KEL-U 24<br>KEL-QTA 24                | KEL-DPZ 24<br>KEL-DPU 24<br>KEL-DP 24 | 5          |  |

## FP-KL

### Flanged plates for terminal boxes



Cable entry plate for Rittal KL:  
KEL-DPZ-KL - see page 66

#### Description

### Product description

The FP flanged plates type KL, designed to fit the Rittal KL series terminal boxes, are installed in combination with a cable entry system for either pre-terminated or standard cables. FP flanged plates are pre-cut, pre-drilled and painted for easy and quick installation of icotek cable routing products.

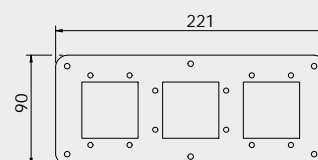
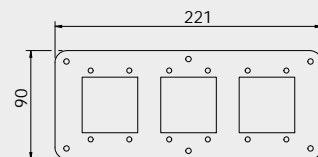
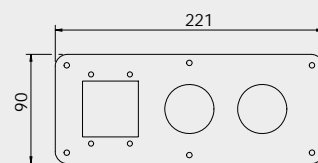
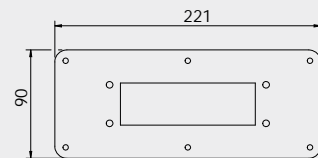
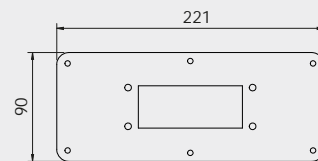
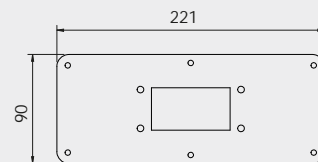
We recommend fastening the cable entry systems with a torque of 1.5 - 2.0 Nm.

### Specifications

Material **Sheet steel, powder coated**

### Compatible with

|                               |           |
|-------------------------------|-----------|
| KEL Cable entry frames        | 18 - 21   |
| KEL-U Cable entry frames      | 8 - 14    |
| KEL-SNAP Mounting frames      | 36 - 37   |
| KEL-QTA 24 Cable entry frames | 54        |
| KEL-DPU Cable entry plates    | 62 - 63   |
| KEL-DPZ Cable entry plates    | 64 - 71   |
| KEL-DP 24 Cable entry plates  | 72        |
| KEL-DPF Cable entry grommets  | 77        |
| Blank plates                  | 158 - 159 |



# FP-KL

## Flanged plates for terminal boxes



| Type  | Order No.<br>RAL 7035 | Flanged plates<br>compatible with  | Size<br>FP | Compatible with<br>(e.g. for Rittal) |
|---|-----------------------|--|------------|--------------------------------------|
| FP-KL 221x90 10<br>with 1 cut-out 36 x 65 mm  | 43853                 | KEL 10<br>KEL-U 10<br>KEL-SNAP 10  | 2          | Terminal boxes Type KL               |
| FP-KL 221x90 16<br>with 1 cut-out 36 x 86 mm  | 43855                 | KEL 16<br>KEL-U 16<br>KEL-SNAP 16  | 2          | Terminal boxes Type KL               |
| FP-KL 221x90 24<br>with 1 cut-out 36 x 112 mm | 43834                 | KEL 24<br>KEL-U 24<br>KEL-SNAP 24<br>KEL-QTA 24<br>KEL-DPZ 24<br>KEL-DPU 24<br>KEL-DP 24 | 2          | Terminal boxes Type KL               |
| FP-KL 221x90 A<br>with 3 cut-outs             | 43852                 | KEL-B<br>KEL-U-B<br>KEL-SNAP-B<br>KEL-DPZ-B<br>KEL-DPZ 40<br>KEL-DPF 40                  | 2          | Terminal boxes Type KL               |
| FP-KL 221x90 B<br>with 3 cut-outs 46 x 46 mm  | 43854                 | Use with<br>2x KEL-SNAP-B and<br>1x KEL-DPZ-B  | 2          | Terminal boxes Type KL               |
| FP-KL 221x90 C<br>with 3 cut-outs 46 x 46 mm  | 43856                 | KEL-B<br>KEL-U-B<br>KEL-DPZ-B  | 2          | Terminal boxes Type KL               |

## FP-BG

### Flanged plates for bus enclosures



#### Description

### Product description

The FP flanged plates type BG, designed to fit the Rittal BG series enclosures, have up to 3 cut-outs that match the dimensions of the standard cut-outs for the 24-pole industrial connectors. These flanged plates are installed in combination with a cable entry system for either pre-terminated cables (KEL 24 or KEL-U 24) or standard cables (KEL-DPZ 24, KEL-DPU 24 or KEL-DP 24).

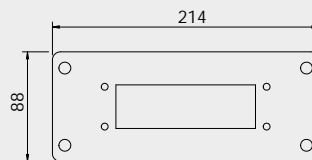
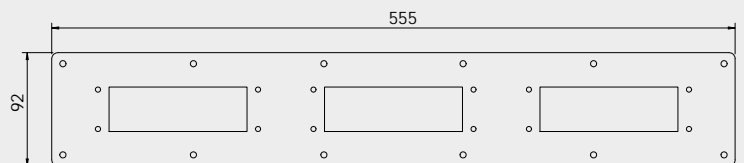
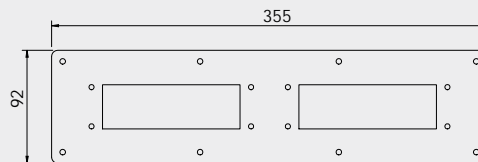
We recommend fastening the cable entry systems with a torque of 1.5 - 2.0 Nm.

### Specifications

Material **Sheet steel, powder coated**

### Compatible with

|                               |           |
|-------------------------------|-----------|
| KEL 24 Cable entry frames     | 18        |
| KEL-U 24 Cable entry frames   | 8         |
| KEL-SNAP Mounting frames      | 36 - 37   |
| KEL-QTA 24 Cable entry frames | 54 - 55   |
| KEL-DPU 24 Cable entry plates | 62 - 63   |
| KEL-DPZ 24 Cable entry plates | 64 - 65   |
| KEL-DP 24 Cable entry plates  | 72        |
| Blank plates                  | 158 - 159 |



# FP-BG

## Flanged plates for bus enclosures



| Type  | Order No.<br>RAL 7035 | Flanged plates<br>compatible with  | Size<br>FP. | Compatible with<br>(e.g. for Rittal)      |
|---|-----------------------|--|-------------|---|
| FP-BG 355x92<br>with 2 cut-outs 36 x 112 mm | 43866                 | KEL 24<br>KEL-U 24<br>KEL-SNAP 24<br>KEL-QTA 24<br>KEL-DPZ 24<br>KEL-DPU 24<br>KEL-DP 24 | -           | BG 1558.510                               |
| FP-BG 555x92<br>with 3 cut-outs 36 x 112 mm | 43865                 | KEL 24<br>KEL-U 24<br>KEL-SNAP 24<br>KEL-QTA 24<br>KEL-DPZ 24<br>KEL-DPU 24<br>KEL-DP 24 | 6           | BG 1050.900<br>BG 1559.510<br>IN 1510.280 |
| FP-FL 21<br>with 1 cut-out 36 x 112 mm      | 43832                 | KEL 24<br>KEL-U 24<br>KEL-SNAP 24<br>KEL-QTA 24<br>KEL-DPZ 24<br>KEL-DPU 24<br>KEL-DP 24 | -           | Fibox plates                              |
|   |                       |  |             |   |
|   |                       |  |             |   |
|   |                       |  |             |   |

# BPK

## Blank plates, plastic



BPK-RF: Snap function, tool-free assembly



BPK: screwable

### Product description

BPK Blank plates seal cut-outs for standard 10-pole / 16-pole / 24-pole industrial connectors with IP rating up to IP64.

Plastic blank plates are available in two different versions:

- Type BPK: Blank plates for screw connection
- Type BPK-RF A: Blank plates for snapping into metal sheet plates up to a thickness from 1.5 to 3 mm

### Advantages & benefits

- Fast mounting of the blank plates BPK-RF range by snapping into the cut-out
- Integrated circular sealing (up to IP64)

### Specifications

|                        |   |
|------------------------|---|
| Material               | Polypropylene (PP)<br>Circular sealing: Elastomer         |
| Flame class            | UL94-V0   |
| IP rating              | BPK: IP64<br>BPK-RF A: IP54                               |
| Temperature Properties | - 30°C to + 140°C (static)<br>Halogen free, silicone free |

### Compatible with

FP Flanged plates 152 - 157

| Type  | Order No. | Blank plate for KEL cut-out                     | Dimensions  | PU |
|---|-----------|---|-------------|----|
| <b>BPK Blank plates for screw connection:</b>       |           |   |             |    |
| BPK-B   | 42010     | KEL-B<br>KEL-U-B<br>KEL-ER-B                    | 76 × 53 mm  | 10 |
| BPK 10  | 42015     | KEL 10<br>KEL-U 10<br>KEL-ER 10                 | 101 × 53 mm | 10 |
| BPK 16  | 42016     | KEL 16<br>KEL-U 16<br>KEL-ER 16<br>KEL-QUICK 16 | 121 × 53 mm | 10 |
| BPK 24  | 42024     | KEL 24<br>KEL-U 24<br>KEL-ER 24<br>KEL-QUICK 24 | 148 × 53 mm | 10 |
| <b>BPK Blank plates for snapping into cut-outs:</b> |           |   |             |    |
| BPK-B-RF A  | 42010.002 | KEL-B<br>KEL-U-B                                | 76 × 53 mm  | 10 |
| BPK 10-RF A   | 42015.002 | KEL 10<br>KEL-U 10                              | 101 × 53 mm | 10 |
| BPK 16-RF A   | 42016.002 | KEL 16<br>KEL-U 16<br>KEL-QUICK 16              | 121 × 53 mm | 10 |
| BPK 24-RF A   | 42024.002 | KEL 24<br>KEL-U 24<br>KEL-QUICK 24              | 148 × 53 mm | 10 |
| BPK-JFX   | 42620     | KEL-JUMBO flex                                  | 88 × 88 mm  | 5  |

# BPM

## Blank plates, metal



| Type                 | Order No.      | Blank plate for<br>KEL cut-out           | Dimensions                | PU |
|----------------------|----------------|--|---------------------------|----|
| BPM-B                | 42013          | KEL-B<br>KEL-U-B<br>KEL-QUICK-B          | 75 × 58 mm                | 10 |
| BPM 6<br>BPM 6 V2A   | 42011<br>41991 | standard 6-pole industrial<br>connectors | 90 × 52 mm                | 10 |
| BPM 10<br>BPM 10 V2A | 42014<br>41992 | KEL 10<br>KEL-U 10                       | 99 × 58 mm                | 10 |
| BPM-FG B             | 42012          | KEL-FG B                                 | 80 × 58 mm                | 10 |
| BPM 16<br>BPM 16 V2A | 42025<br>41994 | KEL 16<br>KEL-U 16<br>KEL-QUICK 16       | 118 × 56 mm               | 10 |
| BPM 16-E             | 42023          | KEL 16-E                                 | 120 × 87 mm               | 10 |
| BPM 16-MT            | 42026          | KEL 16-MT                                | 120 × 102 mm              | 10 |
| BPM 16-2MT           | 42031          | KEL 16-2MT                               | 120 × 146 mm              | 10 |
| BPM 24<br>BPM 24 V2A | 42027<br>41995 | KEL 24<br>KEL-U 24<br>KEL-QUICK 24       | 145 × 56 mm               | 10 |
| BPM 24-E             | 42029          | KEL 24-E                                 | 143 × 83 mm               | 10 |
| BPM 24-MT            | 42028          | KEL 24-MT                                | 147 × 102 mm              | 1  |
| BPM-JUMBO<br>flex    | 42033          | KEL-JUMBO flex                           | 88 × 88 mm                | 1  |
| BPM-JUMBO 1          | 42030          | KEL-JUMBO 1                              | 116 × 110 mm              | 1  |
| BPM-JUMBO 2          | 42032          | KEL-JUMBO 2                              | 200 × 116 mm              | 1  |
| BPM-ULTRA            | 42633          | KEL-ULTRA flex                           | ∅ 168 mm<br>Width: 1,5 mm | 1  |

### Product description

Blank plates to close cut-outs for standard 6-pole / 10-pole / 16-pole / 24-pole industrial connectors.

Blank plates are supplied with a gasket.

### Specifications

|           |                    |
|-----------|--------------------|
| Material  | Steel, zinc-plated |
|           | Width 2 mm         |
| IP rating | IP54               |

### Compatible with

|                         |           |
|-------------------------|-----------|
| KDR 2 Split base plates | 144 - 145 |
| FP Flanged plates       | 152 - 157 |
| MP Module plates        | 148 - 149 |

# BPK-SNAP

Blank plates for KEL-SNAP frames



## Product description

Blank plate BPK-SNAP to close cut-outs of pre-assembled KEL-SNAP frames.

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

The BPK-SNAP blank plate is simply snapped on the KEL frame. There is no tool needed to remove it.

BPK-SNAP 16 and BPK-SNAP 24 for closing cut-outs of the KEL-SNAP mounting frames and unused Slide frames of the KDR-ESR base plates.

## Specifications

|             |                           |
|-------------|---------------------------|
| Material    | Polyethylene (PE)         |
| Flame class | UL94-HB                   |
| IP rating   | IP54                      |
| Temperature | - 40°C to + 80°C (static) |
| Properties  | Silicone free             |

## Compatible with

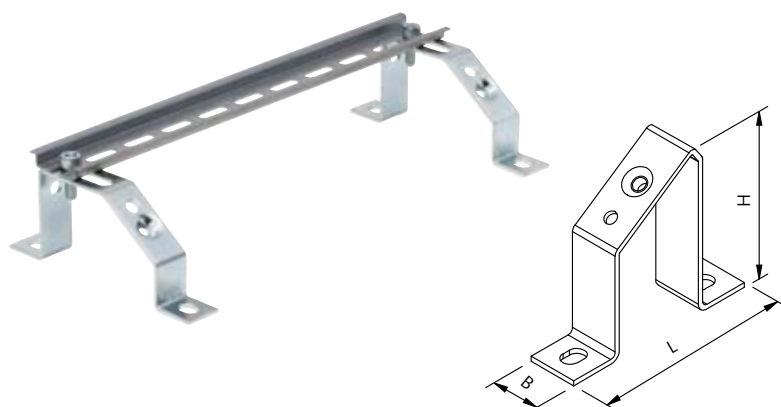
|                                      |           |
|--------------------------------------|-----------|
| KEL-SNAP Mounting frames             | 36 - 37   |
| KDR-ESR Base plate with Slide frames | 142 - 143 |

| Type        | Order No. | Blank plate compatible with | Dimensions<br>l x b x h | PU |
|-------------|-----------|-----------------------------|-------------------------|----|
| BPK-SNAP-B  | 42003     | KEL-SNAP-B4                 | 58 x 72.8 x 17 mm       | 10 |
| BPK-SNAP 10 | 42004     | KEL-SNAP 10                 | 58 x 98.3 x 17 mm       | 10 |
| BPK-SNAP 16 | 42007     | KEL-SNAP 16                 | 58 x 120 x 17 mm        | 10 |
| BPK-SNAP 24 | 42017     | KEL-SNAP 24                 | 58 x 147 x 17 mm        | 10 |



# MF

## Supports for DIN rails and bus bars



| Description | Type | Version | Order No.<br>without Clip | Order No.<br>with Clip | Dimension<br>[L × B × H] | PU |
|-------------|------|---------|---------------------------|------------------------|--------------------------|----|
|-------------|------|---------|---------------------------|------------------------|--------------------------|----|

|        |   |                      |        |       |       |                   |    |
|--------|---|----------------------|--------|-------|-------|-------------------|----|
| Type A |   | MF-A49               | Type A | 36056 | 36058 | 80 × 20 × 49 mm   | 10 |
|        |    | MF-A68               | Type A | 36064 | 36066 | 80 × 20 × 68 mm   | 10 |
|        |  | MF-A88               | Type A | 36072 | 36074 | 80 × 20 × 88 mm   | 10 |
| Type B |  | MF-B20               | Type B | 36000 | 36002 | 80 × 20 × 20 mm   | 10 |
|        |   | MF-B30               | Type B | 36008 | 36010 | 80 × 20 × 30 mm   | 10 |
|        |   | MF-B50               | Type B | 36016 | 36018 | 80 × 20 × 50 mm   | 10 |
| Type C |  | MF-B90               | Type B | 36024 | 36026 | 80 × 20 × 90 mm   | 10 |
|        |   | MF-C40               | Type C | 36032 | 36034 | 40 × 18 × 40 mm   | 10 |
| Type D |   | MF-C53               | Type C | 36040 | 36042 | 40 × 18 × 53 mm   | 10 |
|        |   | MF-D49               | Type D | 36048 | 36050 | 120 × 20 × 49 mm  | 10 |
|        |   | Bus bar<br>10 × 3 mm | -      | 36100 | -     | 10 × 3 × 1000 mm* | 1  |

\* Other lengths available on request

### Product description

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

A mounting clip is used for fastening the bus bar to the supports. The support has M6 female screw threads to affix the mounting clip of the DIN rail with a M6 screw.

Mounting clip  
Order No. 36150

### Advantages & benefits

- Wide variety of supports with different sizes and designs
- Simple assembly of TS35 DIN rails and 10 × 3 mm bus bars
- Support type D provides possibility to affix 2 TS335 DIN rails

### Specifications

Material Sheet steel, galvanically zinc-plated

### Accessories

Bus bar Order No. 36100  
Mounting clip Order No. 36150

# KGM | GMT

## Locknuts



Type KGM: Standard nut, plastic

### Product description

Hexagonal locknut with metric threads for attaching components together.

For routing SUB-D, DVI or PROFIBUS connectors in combination with the split cable glands KVT / QVT, special locknuts with suitable cut-outs are required:

**KGM-SUB-D9** fits D-Sub 9 connectors  
(Required wall cut-out: Ø 36 mm)

**KGM-PB** fits DVI and PROFIBUS connectors  
(Required wall cut-out: Ø 42 mm)

**KGM-SUB-D25** fits SUB-D25 connectors  
(Required wall cut-out: Ø 50 mm)

Split hexagonal locknuts GMT for use in combination with split cable glands KVT/QVT whenever pre-terminated cables are routed inside cable protection conduits through a machine or cabinet wall. Suitable for split corrugated conduits CONFIX WST.

6



**NEW**

### Wrenches for M75/M85 plastic locknuts

For mounting the new KEL-DPF sizes we offer suitable wrenches with widths for M75 and M85 plastic locknuts. Material: aluminium

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

| Thread | Type | Order No. | Material | Height [mm] | Wrench size | Diagonal [mm] | Cut-out a×b[mm] | PU |
|--------|------|-----------|----------|-------------|-------------|---------------|-----------------|----|
|--------|------|-----------|----------|-------------|-------------|---------------|-----------------|----|

#### Type KGM: Standard nut, plastic

|            |           |  |                                |     |         |        |       |    |   |
|------------|-----------|--|--------------------------------|-----|---------|--------|-------|----|---|
| M16 × 1.5  | KGM 16    | <input type="checkbox"/> 52272<br><input type="checkbox"/> 52283 | PA                             | 4.3 | SW 22.8 | 28.2   | -     | 10 |   |
| M20 × 1.5  | KGM 20    | <input type="checkbox"/> 52273<br><input type="checkbox"/> 52283 | PA                             | 7   | SW 26   | 28.2   | -     | 10 |   |
| M25 × 1.5  | KGM 25    | <input type="checkbox"/> 52274<br><input type="checkbox"/> 52284 | PA                             | 7   | SW 32   | 36     | -     | 10 |   |
| M32 × 1.5  | KGM 32    | <input type="checkbox"/> 52275<br><input type="checkbox"/> 52285 | PA                             | 7   | SW 41   | 46     | -     | 10 |   |
| M40 × 1.5  | KGM 40    | <input type="checkbox"/> 52276<br><input type="checkbox"/> 52286 | PA                             | 7   | SW 50   | 56     | -     | 10 |   |
| M50 × 1.5  | KGM 50    | <input type="checkbox"/> 52277<br><input type="checkbox"/> 52287 | PA                             | 8.5 | SW 60   | 66     | -     | 10 |   |
| M63 × 1.5  | KGM 63    | <input type="checkbox"/> 52278<br><input type="checkbox"/> 52288 | PA                             | 8.5 | SW 75   | 83     | -     | 5  |   |
| <b>NEW</b> | M75 × 1.5 | KGM 75   | <input type="checkbox"/> 52289 | PA  | 8.5     | SW 85  | 93.1  | -  | 5 |
| <b>NEW</b> | M85 × 2   | KGM 85   | <input type="checkbox"/> 52290 | PA  | 10      | SW 100 | 109.5 | -  | 5 |

# KGM | GMT Locknuts



Type KGM: SUB-D9, PB, SUB-D25



Type GMT: Split locknut



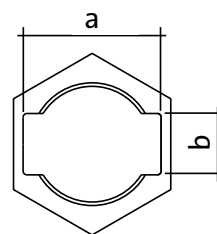
| Thread | Type | Order No. | Material | Height [mm] | Wrench size | Diagonal [mm] | Cut-out a×b[mm] | PU |
|--------|------|-----------|----------|-------------|-------------|---------------|-----------------|----|
|--------|------|-----------|----------|-------------|-------------|---------------|-----------------|----|

**Type KGM: PB, SUB-D9, SUB-D25**

|           |             |                    |    |   |       |    |         |    |
|-----------|-------------|--------------------|----|---|-------|----|---------|----|
| M32 × 1.5 | KGM-SUB-D9  | ■ 45105<br>■ 45106 | PC | 7 | SW 41 | 46 | 35 × 16 | 10 |
| M40 × 1.5 | KGM-PB      | ■ 45107<br>■ 45109 | PC | 8 | SW 50 | 55 | 43 × 17 | 10 |
| M50 × 1.5 | KGM-SUB-D25 | ■ 45108<br>■ 45110 | PC | 8 | SW 60 | 66 | 55 × 16 | 10 |

**Type GMT: Split locknut**

|           |        |         |    |    |       |    |   |    |
|-----------|--------|---------|----|----|-------|----|---|----|
| M20 × 1.5 | GMT 20 | ■ 31110 | PA | 9  | SW 27 | 29 | - | 10 |
| M25 × 1.5 | GMT 25 | ■ 31100 | PA | 9  | SW 32 | 35 | - | 10 |
| M32 × 1.5 | GMT 32 | ■ 31120 | PA | 12 | SW 40 | 44 | - | 10 |
| M50 × 1.5 | GMT 50 | ■ 31140 | PA | 15 | SW 63 | 69 | - | 10 |



## Specifications

|             |                                      |
|-------------|--------------------------------------|
| Material    | Polyamide (PA) / Polycarbonate (PC)  |
| Colour      | ■ grey (similar RAL 7035)<br>■ black |
| Flame class | UL94-Vo, self-extinguishing          |
| Temperature | - 30°C to + 120°C                    |
| Properties  | Halogen free, silicone free          |

## Compatible with

|                              |         |
|------------------------------|---------|
| KVT, KVT-SNAP, KVT-W90       |         |
| Split cable glands           | 38 - 42 |
| QVT Split cable glands       | 52      |
| KEL-DPZ Cable entry plates   | 70 - 71 |
| KEL-DPF Cable entry grommets | 77      |

# 7

## Cable entry systems

for potentially explosive atmospheres



### Directive 2014/34/EU (ATEX)

ATEX stands for "ATmosphères EXplosives" and is the short name for the European Directive 2014/34/EU, regulating the market launch of explosion protected electrical and non-electrical devices, components and protection systems. Since July 1, 2003 in effect, it applies to all new equipment and protective devices. The directive is aimed at manufacturers and importers in the 27 member states of the EU as well as the 4 EFTA member states and Turkey.

The ATEX directive applies to all electrical and non-electrical equipment and protective systems intended for use in potentially explosive atmospheres.

Moreover, the directive includes controlling, monitoring or regulating equipment which may be located outside of explosive atmospheres, but ensures the safe operation of devices and safety systems inside.

The ATEX directive applies to all explosive industrial atmospheres, including mining. The directive describes basic safety and health requirements for equipment and components intended for use in potentially explosive atmospheres. It describes procedures to demonstrate conformity with the directive. Depending on the risk area in which the product is used, (conformity assessment procedures) requirements and procedures for assessing fulfilment are different.

Since 2003, every new Ex device must be certified according to the EU Directive, labelled with the CE marking and the special marks for prevention of explosions. icotek has certified a wide variety of products.

All devices, components and protective systems intended for use in potentially explosive atmospheres, have to comply with the European Directive 2014/34/EU.

### Important notice!

**Only intended for fixed installation of cables!**

The cable entry is only suitable for fixed installation of cables where strain and torsional loading on the cable is not possible.

### The ATEX directive 2014/34/EU regulates:

- Product approval
- Conformity procedure (consisting of EC type examination, quality control and EC declaration of conformity)
- CE marking of conformity for equipment and protective systems

For use in potentially explosive atmospheres, icotek offers a wide range of cable entry systems for zones G (gas) and D (dust) in equipment group II, category 2 + 3, certified to the ATEX directive.













The icotek cable entry systems comply with the EU Directive 2014/34/EU (ATEX) for equipment and protective systems intended for use in potentially explosive atmospheres of zones 1, 2, 21 and 22.



# Product group 7

Cable entry systems for potentially explosive atmospheres

## Chapter content

|   |   |  |   |
|---|---|--|---|
|    | <p><b>Split ATEX cable entry frames</b>   IP65 / IP54<br/>for cable diameters up to 35 mm</p> <p>KEL-ER 24 / KEL-ER 16 / KEL-ER 10 / KEL-ER-B / KEL-ER-E<br/>KEL-U 24 / KEL-U 16 / KEL-U 10 / KEL-U-B / KEL-E</p> <p><b>NEW</b> 166 - 169</p> |    | <p><b>Split ATEX cable glands</b>   IP54<br/>M80, for cable diameters up to 35 mm</p> <p>KVT 80</p> <p>176</p>  |
|    | <p><b>Centrally split ATEX cable entry frames</b>   IP54<br/>for cable diameters up to 35 mm</p> <p>KEL 24 / KEL 16 / KEL 10 / KEL-B</p> <p>170</p>   |    | <p><b>Grommets and plugs</b>   IP65 / IP54<br/>cable diameter range 2 - 75 mm</p> <p>KT small / KT large / KT-DPF / KTMB / KTMB 183 / DT / FT / KTF / ST</p> <p>177 - 178</p> |
|    | <p><b>Extended split ATEX cable entry frames</b>   IP54<br/>for cable diameters up to 35 mm</p> <p>KEL 24-E / KEL 24-MT / KEL 24-2MT<br/>KEL 16-E / KEL 16-MT / KEL 16-2MT</p> <p><b>NEW</b> 171 - 172</p>                                    |    | <p><b>ATEX Cable entry plates</b>   IP66<br/>screw/snap-in mounting</p> <p>KEL-DPU 24</p> <p><b>NEW</b> 179</p>   |
|  | <p><b>Split ATEX cable entry frames for flat cables</b>   IP54<br/>&amp; round cables up to 16 mm in diameter</p> <p>KEL-FL</p> <p>173</p>  |  | <p><b>ATEX Cable entry plates</b>   IP66<br/>screw mounting</p> <p>KEL-DPZ-KL / KEL-DPZ 24 / KEL-DPZ-B / KEL-DPZ-E</p> <p><b>NEW</b> 180 - 181</p>                            |
|  | <p><b>Split ATEX cable entry frames</b>   IP54<br/>for cable diameters up to 75 mm</p> <p>KEL 183 / KEL 183-E</p> <p><b>NEW</b> 174</p>   |  | <p><b>ATEX Cable entry plates, round</b>   IP68<br/>M32 - M63</p> <p>KEL-DPZ round</p> <p>182</p>   |
|  | <p><b>Split ATEX cable entry frames</b>   IP54<br/>for cable diameters up to 65 mm</p> <p>KEL-JUMBO</p> <p><b>NEW</b> 175</p>   |  | <p><b>ATEX Cable entry grommets</b>   IP68<br/>M25 - M85, for cable diameters up to 70 mm</p> <p>KEL-DPF</p> <p><b>NEW</b> 183</p>  |



# KEL-U ATEX

## Cable entry frames



IP54



Also available with stainless steel screws (V2A).



Also available with threaded bushings.

### Product description

Split cable entry system for routing cables with connectors providing an IP54 / up to NEMA type 12 rating. Routing and sealing for cable diameters from 2 to 35 mm. The new cable entry system is easy to install. Cable grommets are placed into compartments in the frame and are securely fixed to the frame during assembly. The KEL-U frames match exactly the cut-out dimensions for 24-, 16- and 10-pin standard industrial connectors. The KEL-ER-B matches cut-out dimensions of 46x46 mm measuring instruments. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Fast and easy assembly
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- High stability, vibration resistant

### Specifications

|                  |  |
|------------------|--|
| Material         | Polyamide (PA)   |
| Flame class      | UL94-Vo, self-extinguishing  |
| IP rating        | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)  |
| Temperature      | - 30°C to + 90°C (static)  |
| Equipment group  | II   |
| Category         | 2G, 3G, 2D, 3D   |
| Zone             | 1 + 21, 2+22   |
| Test standard    | EN 60079-0   |
| Properties       | Halogen-free, silicone-free  |
| Frame depth      | 17 mm  |

### Accessories

Cable grommets 44 - 48

| Type                                | Order No. | Cut-out     | Grommets<br>small   large | PU |
|-------------------------------------|-----------|-------------|---------------------------|----|
| KEL-U 24 10 ATEX                    | 49455     | 36 × 112 mm | 10 -                      | 10 |
| KEL-U 24 10 ATEX<br>with V2A screws | 49455.200 | 36 × 112 mm | 10 -                      | 10 |
| KEL-U 24 7 ATEX                     | 49456     | 36 × 112 mm | 6 1                       | 10 |
| KEL-U 24 7 ATEX<br>with V2A screws  | 49456.200 | 36 × 112 mm | 6 1                       | 10 |
| KEL-U 24 4 ATEX                     | 49457     | 36 × 112 mm | 2 2                       | 10 |
| KEL-U 24 4 ATEX<br>with V2A screws  | 49457.200 | 36 × 112 mm | 2 2                       | 10 |
| KEL-U 16 8 ATEX                     | 49458     | 36 × 86 mm  | 8 -                       | 10 |
| KEL-U 16 8 ATEX<br>with V2A screws  | 49458.200 | 36 × 86 mm  | 8 -                       | 10 |
| KEL-U 16 5 ATEX                     | 49459     | 36 × 86 mm  | 4 1                       | 10 |
| KEL-U 16 5 ATEX<br>with V2A screws  | 49459.200 | 36 × 86 mm  | 4 1                       | 10 |
| KEL-U 16 2 ATEX                     | 49460     | 36 × 86 mm  | - 2                       | 10 |
| KEL-U 16 2 ATEX<br>with V2A screws  | 49460.200 | 36 × 86 mm  | - 2                       | 10 |
| KEL-U 10 6 ATEX                     | 49461     | 36 × 65 mm  | 6 -                       | 10 |
| KEL-U 10 6 ATEX<br>with V2A screws  | 49461.200 | 36 × 65 mm  | 6 -                       | 10 |
| KEL-U 10 3 ATEX                     | 49462     | 36 × 65 mm  | 2 1                       | 10 |
| KEL-U 10 3 ATEX<br>with V2A screws  | 49462.200 | 36 × 65 mm  | 2 1                       | 10 |
| KEL-U-B4 ATEX                       | 49463     | 46 × 46 mm  | 4 -                       | 10 |
| KEL-U-B4 ATEX<br>with V2A screws    | 49463.200 | 46 × 46 mm  | 4 -                       | 10 |
| KEL-U-B1 ATEX                       | 49464     | 46 × 46 mm  | - 1                       | 10 |
| KEL-U-B1 ATEX<br>with V2A screws    | 49464.200 | 46 × 46 mm  | - 1                       | 10 |



# KEL-ER ATEX

## Cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



Also available with threaded bushings.



| Type                                 | Order No. | Cut-out     | Grommets<br>small   large | PU |
|--------------------------------------|-----------|-------------|---------------------------|----|
| KEL-ER 24 10 ATEX                    | 49228     | 36 × 112 mm | 10 -                      | 10 |
| KEL-ER 24 10 ATEX<br>with V2A screws | 49228.200 | 36 × 112 mm | 10 -                      | 10 |
| KEL-ER 24 7 ATEX                     | 49230     | 36 × 112 mm | 6 1                       | 10 |
| KEL-ER 24 7 ATEX<br>with V2A screws  | 49230.200 | 36 × 112 mm | 6 1                       | 10 |
| KEL-ER 24 4 ATEX                     | 49229     | 36 × 112 mm | 2 2                       | 10 |
| KEL-ER 24 4 ATEX<br>with V2A screws  | 49229.200 | 36 × 112 mm | 2 2                       | 10 |
| KEL-ER 16 8 ATEX                     | 49223     | 36 × 86 mm  | 8 -                       | 10 |
| KEL-ER 16 8 ATEX<br>with V2A screws  | 49223.200 | 36 × 86 mm  | 8 -                       | 10 |
| KEL-ER 16 5 ATEX                     | 49222     | 36 × 86 mm  | 4 1                       | 10 |
| KEL-ER 16 5 ATEX<br>with V2A screws  | 49222.200 | 36 × 86 mm  | 4 1                       | 10 |
| KEL-ER 16 2 ATEX                     | 49221     | 36 × 86 mm  | - 2                       | 10 |
| KEL-ER 16 2 ATEX<br>with V2A screws  | 49221.200 | 36 × 86 mm  | - 2                       | 10 |
| KEL-ER 10 6 ATEX                     | 49227     | 36 × 65 mm  | 6 -                       | 10 |
| KEL-ER 10 6 ATEX<br>with V2A screws  | 49227.200 | 36 × 65 mm  | 6 -                       | 10 |
| KEL-ER 10 3 ATEX                     | 49226     | 36 × 65 mm  | 2 1                       | 10 |
| KEL-ER 10 3 ATEX<br>with V2A screws  | 49226.200 | 36 × 65 mm  | 2 1                       | 10 |
| KEL-ER-B4 ATEX                       | 49224     | 46 × 46 mm  | 4 -                       | 10 |
| KEL-ER-B4 ATEX<br>with V2A screws    | 49224.200 | 46 × 46 mm  | 4 -                       | 10 |
| KEL-ER-B1 ATEX                       | 49225     | 46 × 46 mm  | - 1                       | 10 |
| KEL-ER-B1 ATEX<br>with V2A screws    | 49225.200 | 46 × 46 mm  | - 1                       | 10 |

### Product description

Split cable entry system for routing and sealing cables with connectors, providing an IP65 / up to NEMA type 4X rating and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15) and 16 to 35 mm (KT 16 - 34). The new cable entry system is easy to install. Cable grommets are placed into compartments in the frame and are securely fixed to the frame during assembly. The KEL-ER frames match exactly the cut-out dimensions for 24-, 16- and 10-pin standard industrial connectors. The KEL-ER-B matches cut-out dimensions of 46×46 mm measuring instruments. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty of pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Vibration resistant

### Specifications

|                  |   |
|------------------|---|
| Material         | Polyamide (PA)  |
| Flame class      | UL94-Vo, self-extinguishing   |
| IP rating        | IP65, with gasket and correct selection of single grommets (certified acc. to EN 60529) |
| NEMA type rating | NEMA type 4X (acc. to UL 50E)   |
| Temperature      | - 30°C to + 90°C (static)   |
| Equipment group  | II  |
| Category         | 2G, 3G, 2D, 3D  |
| Zone             | 1 + 21, 2+22  |
| Test standard    | EN 60079-0  |
| Properties       | Halogen-free, silicone-free   |
| Frame depth      | 17 mm   |

### Accessories

KT Cable grommets 44 - 46

# KEL-E ATEX

## Cable entry frames



IP54



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



Also available with threaded bushings.

### Product description

Split cable entry system for routing cables with connectors, providing an IP54 / up to NEMA type 12 rating. Routing, sealing and providing strain relief for cable diameters from 2 to 17 mm. The KEL-E version is particularly suited for flat connectors. The small frame is ideal for applications with limited space. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Space saving shape
- Perfect for D-Sub connectors
- Vibration resistant

### Specifications

|                  |  |
|------------------|--|
| Material         | Polyamide (PA)   |
| Flame class      | UL94-Vo, self-extinguishing  |
| IP rating        | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)  |
| Temperature      | - 30°C to + 90°C (static)  |
| Equipment group  | II   |
| Category         | 2G, 3G, 2D, 3D   |
| Zone             | 1 + 21, 2+22   |
| Test standard    | EN 60079-0   |
| Properties       | Halogen-free, silicone-free  |
| Frame depth      | 17 mm  |

### Accessories

Cable grommets 44 - 47

| Type                        | Order No. | Cut-out     | Grommets small   large | PU |
|-----------------------------|-----------|-------------|------------------------|----|
| KEL-E2 ATEX                 | 49150     | 43 × 24 mm  | 2 -                    | 10 |
| KEL-E2 ATEX with V2A screws | 49150.200 | 43 × 24 mm  | 2 -                    | 10 |
| KEL-E3 ATEX                 | 49152     | 65 × 24 mm  | 3 -                    | 10 |
| KEL-E3 ATEX with V2A screws | 49152.200 | 65 × 24 mm  | 3 -                    | 10 |
| KEL-E4 ATEX                 | 49154     | 86 × 24 mm  | 4 -                    | 10 |
| KEL-E4 ATEX with V2A screws | 49154.200 | 86 × 24 mm  | 4 -                    | 10 |
| KEL-E5 ATEX                 | 49156     | 112 × 24 mm | 5 -                    | 10 |
| KEL-E5 ATEX with V2A screws | 49156.200 | 112 × 24 mm | 5 -                    | 10 |





## KEL-ER-E ATEX Cable entry frames



V2A  
anti-corrosive

Also available with stainless steel screws (V2A).



Also available with threaded bushings.



IP65

| Type                              | Order No. | Cut-out  | Grommets small   large | PU |
|-----------------------------------|-----------|----------|------------------------|----|
| KEL-ER-E2 ATEX                    | 49470     | 43 × 24  | 2 -                    | 10 |
| KEL-ER-E2 ATEX<br>with V2A screws | 49470.200 | 43 × 24  | 2 -                    | 10 |
| KEL-ER-E3 ATEX                    | 49471     | 65 × 24  | 3 -                    | 10 |
| KEL-ER-E3 ATEX<br>with V2A screws | 49471.200 | 65 × 24  | 3 -                    | 10 |
| KEL-ER-E4 ATEX                    | 49472     | 86 × 24  | 4 -                    | 10 |
| KEL-ER-E4 ATEX<br>with V2A screws | 49472.200 | 86 × 24  | 4 -                    | 10 |
| KEL-ER-E5 ATEX                    | 49473     | 112 × 24 | 5 -                    | 10 |
| KEL-ER-E5 ATEX<br>with V2A screws | 49473.200 | 112 × 24 | 5 -                    | 10 |

### Product description

Split cable entry system for routing and sealing cables with connectors, providing an IP65 / up to NEMA type 12 rating for cable diameters from 2 to 16 mm (KT 2 - 15). It is particularly suited for flat connectors. The small frame is ideal for applications with limited space.

The cable entry system is easy to install. Cable grommets are placed into compartments in the frame and are securely fixed to the frame during assembly. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- Space saving shape
- Optimal for D-Sub connectors
- Vibration resistant

### Specifications

|                  |   |
|------------------|---|
| Material         | Polyamide (PA)  |
| Flame class      | UL94-V0, self-extinguishing   |
| IP rating        | IP65, with gasket and correct selection of single grommets (certified acc. to EN 60529) |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)   |
| Temperature      | - 30°C to + 90°C (static)   |
| Equipment group  | II  |
| Category         | 2G, 3G, 2D, 3D  |
| Zone             | 1 + 21, 2+22  |
| Test standard    | EN 60079-0  |
| Properties       | Halogen-free, silicone-free   |
| Frame depth      | 17 mm   |

### Accessories

|                   |    |
|-------------------|----|
| KT Cable grommets | 44 |
|-------------------|----|

# KEL ATEX

## Cable entry frames



IP54



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



Also available with threaded steel bushings.

### Product description

Centrally split cable entry system for routing cables with connectors, providing an IP54 / up to NEMA type 12 rating. The slitted grommet matching the cable diameter is placed around the cable and inserted into the cable entry frame. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed. The split cable entry frames KEL match exactly the cut-out dimensions of 24-/16-/10-pin standard industrial connectors. The KEL-B matches exactly the cut-out dimensions of 46x46 mm measuring instruments. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty of pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Vibration resistant

### Specifications

|                  |  |
|------------------|--|
| Material         | Polyamide (PA)   |
| Flame class      | UL94-Vo, self-extinguishing  |
| IP rating        | IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529) |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)  |
| Temperature      | -30°C to +90°C (static)  |
| Equipment group  | II   |
| Category         | 2G, 3G, 2D, 3D   |
| Zone             | 1 + 21, 2+22   |
| Test standard    | EN 60079-0   |
| Properties       | Halogen-free, silicone-free  |
| Frame depth      | 17 mm  |

### Accessories

|                |         |
|----------------|---------|
| Cable grommets | 44 - 48 |
|----------------|---------|

| Type                              | Order No. | Cut-out     | Grommets<br>small   large | PU |
|-----------------------------------|-----------|-------------|---------------------------|----|
| KEL 24 10 ATEX                    | 49109     | 36 × 112 mm | 10 -                      | 10 |
| KEL 24 10 ATEX<br>with V2A screws | 49109.200 | 36 × 112 mm | 10 -                      | 10 |
| KEL 24 7 ATEX                     | 49111     | 36 × 112 mm | 6 1                       | 10 |
| KEL 24 7 ATEX<br>with V2A screws  | 49111.200 | 36 × 112 mm | 6 1                       | 10 |
| KEL 24 5 ATEX                     | 49112     | 36 × 112 mm | 5 -                       | 10 |
| KEL 24 5 ATEX<br>with V2A screws  | 49112.200 | 36 × 112 mm | 5 -                       | 10 |
| KEL 24 4 ATEX                     | 49110     | 36 × 112 mm | 2 2                       | 10 |
| KEL 24 4 ATEX<br>with V2A screws  | 49110.200 | 36 × 112 mm | 2 2                       | 10 |
| KEL 16 8 ATEX                     | 49104     | 36 × 86 mm  | 8 -                       | 10 |
| KEL 16 8 ATEX<br>with V2A screws  | 49104.200 | 36 × 86 mm  | 8 -                       | 10 |
| KEL 16 5 ATEX                     | 49103     | 36 × 86 mm  | 4 1                       | 10 |
| KEL 16 5 ATEX<br>with V2A screws  | 49103.200 | 36 × 86 mm  | 4 1                       | 10 |
| KEL 16 4 ATEX                     | 49102     | 36 × 86 mm  | 4 -                       | 10 |
| KEL 16 4 ATEX<br>with V2A screws  | 49102.200 | 36 × 86 mm  | 4 -                       | 10 |
| KEL 16 2 ATEX                     | 49101     | 36 × 86 mm  | - 2                       | 10 |
| KEL 16 2 ATEX<br>with V2A screws  | 49101.200 | 36 × 86 mm  | - 2                       | 10 |
| KEL 10 6 ATEX                     | 49108     | 36 × 65 mm  | 6 -                       | 10 |
| KEL 10 6 ATEX<br>with V2A screws  | 49108.200 | 36 × 65 mm  | 6 -                       | 10 |
| KEL 10 3 ATEX                     | 49107     | 36 × 65 mm  | 2 1                       | 10 |
| KEL 10 3 ATEX<br>with V2A screws  | 49107.200 | 36 × 65 mm  | 2 1                       | 10 |
| KEL-B4 ATEX                       | 49105     | 46 × 46 mm  | 4 -                       | 10 |
| KEL-B4 ATEX<br>with V2A screws    | 49105.200 | 46 × 46 mm  | 4 -                       | 10 |
| KEL-B1 ATEX                       | 49106     | 46 × 46 mm  | - 1                       | 10 |
| KEL-B1 ATEX<br>with V2A screws    | 49106.200 | 46 × 46 mm  | - 1                       | 10 |



# KEL 24-E/-MT/-2MT ATEX

## Cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



Also available with threaded bushings.



| Type | Order No. | Cut-out | Grommets<br>small   large | PU |
|------|-----------|---------|---------------------------|----|
|------|-----------|---------|---------------------------|----|

|                                   |           |              |      |   |
|-----------------------------------|-----------|--------------|------|---|
| KEL 24 15-E                       | 49158     | 66 × 112 mm  | 15 - | 1 |
| KEL 24 15-E<br>with V2A screws    | 49158.200 | 66 × 112 mm  | 15 - | 1 |
| KEL 24 12-E                       | 49160     | 66 × 112 mm  | 11 1 | 1 |
| KEL 24 12-E<br>with V2A screws    | 49160.200 | 66 × 112 mm  | 11 1 | 1 |
| KEL 24 9-E                        | 49162     | 66 × 112 mm  | 7 2  | 1 |
| KEL 24 9-E<br>with V2A screws     | 49162.200 | 66 × 112 mm  | 7 2  | 1 |
| KEL 24 10-E                       | 49164     | 66 × 112 mm  | 10 - | 1 |
| KEL 24 10-E<br>with V2A screws    | 49164.200 | 66 × 112 mm  | 10 - | 1 |
| KEL 24 20-MT                      | 49166     | 82 × 112 mm  | 20 - | 1 |
| KEL 24 20-MT<br>with V2A screws   | 49166.200 | 82 × 112 mm  | 20 - | 1 |
| KEL 24 17-MT                      | 49168     | 82 × 112 mm  | 16 1 | 1 |
| KEL 24 17-MT<br>with V2A screws   | 49168.200 | 82 × 112 mm  | 16 1 | 1 |
| KEL 24 14-MT                      | 49170     | 82 × 112 mm  | 12 2 | 1 |
| KEL 24 14-MT<br>with V2A screws   | 49170.200 | 82 × 112 mm  | 12 2 | 1 |
| KEL 24 11-MT                      | 49172     | 82 × 112 mm  | 8 3  | 1 |
| KEL 24 11-MT<br>with V2A screws   | 49172.200 | 82 × 112 mm  | 8 3  | 1 |
| KEL 24 8-MT                       | 49174     | 82 × 112 mm  | 4 4  | 1 |
| KEL 24 8-MT<br>with V2A screws    | 49174.200 | 82 × 112 mm  | 4 4  | 1 |
| KEL 24 30-2 MT                    | 49176     | 126 × 112 mm | 30 - | 1 |
| KEL 24 30-2 MT<br>with V2A screws | 49176.200 | 126 × 112 mm | 30 - | 1 |
| KEL 24 27-2 MT                    | 49178     | 126 × 112 mm | 26 1 | 1 |
| KEL 24 27-2 MT<br>with V2A screws | 49178.200 | 126 × 112 mm | 26 1 | 1 |
| KEL 24 24-2 MT                    | 49180     | 126 × 112 mm | 22 2 | 1 |
| KEL 24 24-2 MT<br>with V2A screws | 49180.200 | 126 × 112 mm | 22 2 | 1 |
| KEL 24 21-2 MT                    | 49182     | 126 × 112 mm | 18 3 | 1 |
| KEL 24 21-2 MT<br>with V2A screws | 49182.200 | 126 × 112 mm | 18 3 | 1 |
| KEL 24 12-2 MT                    | 49184     | 126 × 112 mm | 6 6  | 1 |
| KEL 24 12-2 MT<br>with V2A screws | 49184.200 | 126 × 112 mm | 6 6  | 1 |

### Product description

The cable entry frames KEL 24-E/-MT/-2MT series are KEL frames extended with one or two additional middle frames for routing additional cables.

Thus allowing the quick, easy and cost effective routing solution for up to 120 cables in hazardous areas.

A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High cable density
- Vibration resistant

### Specifications

|                 |   |
|-----------------|---|
| Material        | Polyamide (PA)  |
| Flame class     | UL94-Vo, self-extinguishing                               |
| IP rating       | IP54, with gasket and correct selection of cable grommets |
| Temperature     | - 30°C to + 90°C (static)                                 |
| Equipment group | II  |
| Category        | 2G, 3G, 2D, 3D  |
| Zone            | 1 + 21, 2+22  |
| Test standard   | EN 60079-0  |
| Properties      | Halogen-free, silicone-free                               |
| Frame depth     | 17 mm   |

### Accessories

Cable grommets 44 - 48



IP54



ECOLAB certified

RoHS compliant

Made in Germany

# KEL 16-E/-MT/-2MT ATEX

## Cable entry frames



V2A anti-corrosive  
Also available with stainless steel screws (V2A).



Also available with threaded bushings.

| Type | Order No. | Cut-out | Grommets<br>small   large | PU |
|------|-----------|---------|---------------------------|----|
|------|-----------|---------|---------------------------|----|

### Product description

The cable entry frames KEL 16-E/-MT/-2MT series are KEL frames extended with one or two additional middle frames for routing additional cables.

Thus allowing the quick, easy and cost effective routing solution for up to 96 cables in hazardous areas.

A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High cable density
- Vibration resistant

### Specifications

|                 |   |
|-----------------|---|
| Material        | Polyamide (PA)  |
| Flame class     | UL94-Vo, self-extinguishing                               |
| IP rating       | IP54, with gasket and correct selection of cable grommets |
| Temperature     | - 30°C to + 90°C (static)                                 |
| Equipment group | II  |
| Category        | 2G, 3G, 2D, 3D  |
| Zone            | 1 + 21, 2+22  |
| Test standard   | EN 60079-0  |
| Properties      | Halogen-free, silicone-free                               |
| Frame depth     | 17 mm   |

### Accessories

Cable grommets 44 - 48

|                                     |           |             |      |   |
|-------------------------------------|-----------|-------------|------|---|
| KEL 16 12-E ATEX                    | 49538     | 66 × 86 mm  | 12 - | 1 |
| KEL 16 12-E ATEX with V2A screws    | 49538.200 | 66 × 86 mm  | 12 - | 1 |
| KEL 16 6-E ATEX                     | 49539     | 66 × 86 mm  | 4 2  | 1 |
| KEL 16 6-E ATEX with V2A screws     | 49539.200 | 66 × 86 mm  | 4 2  | 1 |
| KEL 16 16-MT ATEX                   | 49540     | 82 × 86 mm  | 16 - | 1 |
| KEL 16 16-MT ATEX with V2A screws   | 49540.200 | 82 × 86 mm  | 16 - | 1 |
| KEL 16 10-MT ATEX                   | 49541     | 82 × 86 mm  | 8 2  | 1 |
| KEL 16 10-MT ATEX with V2A screws   | 49541.200 | 82 × 86 mm  | 8 2  | 1 |
| KEL 16 4-MT ATEX                    | 49542     | 82 × 86 mm  | - 4  | 1 |
| KEL 16 4-MT ATEX with V2A screws    | 49542.200 | 82 × 86 mm  | - 4  | 1 |
| KEL 16 24-2 MT ATEX                 | 49543     | 126 × 86 mm | 24 - | 1 |
| KEL 16 24-2 MT ATEX with V2A screws | 49543.200 | 126 × 86 mm | 24 - | 1 |
| KEL 16 12-2 MT ATEX                 | 49544     | 126 × 86 mm | 8 4  | 1 |
| KEL 16 12-2 MT ATEX with V2A screws | 49544.200 | 126 × 86 mm | 8 4  | 1 |
| KEL 16 6-2 MT ATEX                  | 49545     | 126 × 86 mm | - 6  | 1 |
| KEL 16 6-2 MT ATEX with V2A screws  | 49545.200 | 126 × 86 mm | - 6  | 1 |



## KEL-FL ATEX

### Cable entry frames for flat cables



IP54

| Type          | Order No. | Cut-out     | Grommets<br>KT   FT | PU |
|---------------|-----------|-------------|---------------------|----|
| KEL-FL A ATEX | 49479     | 43 × 24 mm  | 0× KT<br>1× FT-1    | 10 |
| KEL-FL B ATEX | 49480     | 65 × 24 mm  | 0× KT<br>1× FT-2    | 10 |
| KEL-FL C ATEX | 49481     | 65 × 24 mm  | 1× KT<br>1× FT-1    | 10 |
| KEL-FL D ATEX | 49482     | 86 × 24 mm  | 0× KT<br>1× FT-3    | 10 |
| KEL-FL E ATEX | 49483     | 86 × 24 mm  | 1× KT<br>1× FT-2    | 10 |
| KEL-FL F ATEX | 49484     | 86 × 24 mm  | 0× KT<br>2× FT-1    | 10 |
| KEL-FL G ATEX | 49485     | 86 × 24 mm  | 2× KT<br>1× FT-1    | 10 |
| KEL-FL H ATEX | 49486     | 112 × 24 mm | 2× KT<br>1× FT-2    | 10 |
| KEL-FL I ATEX | 49487     | 112 × 24 mm | 1× KT<br>2× FT-1    | 10 |
| KEL-FL J ATEX | 49488     | 112 × 24 mm | 3× KT<br>1× FT-1    | 10 |
| KEL-FL K ATEX | 49489     | 112 × 24 mm | 1× FT-1<br>1× FT-2  | 10 |
| KEL-FL L ATEX | 49490     | 112 × 24 mm | 1× FT-4             | 10 |

### Product description

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

Innovative construction of the grommets compensates for manufacturing inconsistencies in flat cables. Split KT grommets can be utilised to additionally route round cables with connectors. A flat rubber gasket is included in the shipment.

### Advantages & benefits

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

### Specifications

|                 |   |
|-----------------|---|
| Material        | Polyamide (PA)  |
| Flame class     | UL94-Vo, self-extinguishing                               |
| IP rating       | IP54, with gasket and correct selection of cable grommets |
| Temperature     | -30°C to +90°C (static)                                   |
| Equipment group | II  |
| Category        | 2G, 3G, 2D, 3D  |
| Zone            | 1 + 21, 2+22  |
| Test standard   | EN 60079-0  |
| Properties      | Halogen-free, silicone-free                               |
| Frame depth     | 17 mm   |

### Accessories

|                         |         |
|-------------------------|---------|
| Cable grommets, small   | 44 - 47 |
| FT Cable grommets, flat | 31      |



# KEL 183 | KEL 183-E ATEX

## Cable entry frames



KEL 183



KEL 183-E

### Product description

The split cable entry frame KEL 183 enables the user to route cables and tubes with a diameter of up to 75 mm (depending on the frame type) and to seal them in accordance with IP54 / up to NEMA type 12.

For cables up to 35 mm the cable grommets KT can be used. With these split cable grommets, pre-terminated cables can be routed. For cables up to 75 mm we have created the grommets KTMB for KEL 183. Those are not split and have a defined area for pushing the cable through. A flat rubber gasket is included in the shipment.

### Advantages & benefits

- Installation of cables up to 75 mm in diameter
- Grommets allow rigid cables to be properly positioned and oriented during the installation process.
- Retrofits, repairs and maintenance can be done much more easily and quickly

### Specifications

|                  |   |
|------------------|---|
| Material         | Polyamide (PA)  |
| Flame class      | UL94-Vo, self-extinguishing                               |
| IP rating        | IP54, with gasket and correct selection of cable grommets |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)                             |
| Temperature      | - 30°C to + 90°C (static)                                 |
| Equipment group  | II  |
| Category         | 2G, 3G, 2D, 3D  |
| Zone             | 1 + 21, 2+22  |
| Test standard    | EN 60079-0  |
| Properties       | Halogen-free, silicone-free                               |
| Frame depth      | 17 mm   |

### Accessories

|                         |         |
|-------------------------|---------|
| KTMB 183 Cable grommets | 33      |
| Cable grommets          | 44 - 48 |

| Type                                | Order No. | Cut-out     | Grommets<br>KT 183   KT large | PU |
|-------------------------------------|-----------|-------------|-------------------------------|----|
| KEL 183 2 ATEX                      | 49496     | 180 × 80 mm | 2 -                           | 1  |
| KEL 183 2 ATEX<br>with V2A screws   | 49496.200 | 180 × 80 mm | 2 -                           | 1  |
| KEL 183 5 ATEX                      | 49497     | 180 × 80 mm | 1 4                           | 1  |
| KEL 183 5 ATEX<br>with V2A screws   | 49497.200 | 180 × 80 mm | 1 4                           | 1  |
| KEL 183 8 ATEX                      | 49498     | 180 × 80 mm | - 8                           | 1  |
| KEL 183 8 ATEX<br>with V2A screws   | 49498.200 | 180 × 80 mm | - 8                           | 1  |
| KEL 183-E4 ATEX                     | 49499     | 180 × 42 mm | - 4                           | 1  |
| KEL 183-E4 ATEX<br>with V2A screws  | 49499.200 | 180 × 42 mm | - 4                           | 1  |
| KEL 183-E16 ATEX                    | 49500     | 180 × 42 mm | 16 KT small                   | 1  |
| KEL 183-E16 ATEX<br>with V2A screws | 49500.200 | 180 × 42 mm | 16 KT small                   | 1  |



V2A  
anti-corrosive

Also available with stainless steel screws (V2A).



IP54

| Type                                | Order No. | Cut-out       | Grommets<br>KTF | PU |
|-------------------------------------|-----------|---------------|-----------------|----|
| KEL-JUMBO 1 ATEX                    | 49506     | 78 × 80,5 mm  | 1               | 1  |
| KEL-JUMBO 1 ATEX<br>with V2A screws | 49506.200 | 78 × 80,5 mm  | 1               | 1  |
| KEL-JUMBO 2 ATEX                    | 49507     | 168 × 80,5 mm | 2               | 1  |
| KEL-JUMBO 2 ATEX<br>with V2A screws | 49507.200 | 168 × 80,5 mm | 2               | 1  |

## Product description

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

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

We recommend round cut-outs, which can be made using standard punching tools.

Suggested cut-out: cable diameter +15 - 20%.  
A flat rubber gasket is included in the shipment.

## Advantages & benefits

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

## Specifications

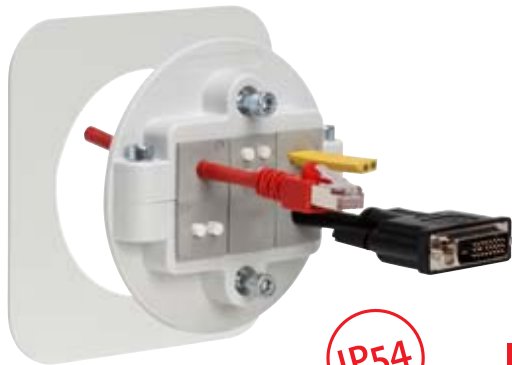
|                  |   |
|------------------|---|
| Material         | Polyamide (PA)  |
| Flame class      | UL94-Vo, self-extinguishing                               |
| IP rating        | IP54, with gasket and correct selection of cable grommets |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)                             |
| Temperature      | -30°C to +90°C (static)                                   |
| Equipment group  | II  |
| Category         | 2G, 3G, 2D, 3D  |
| Zone             | 1 + 21, 2+22  |
| Test standard    | EN 60079-0  |
| Properties       | Halogen-free, silicone-free                               |
| Frame depth      | 35 mm   |

## Accessories

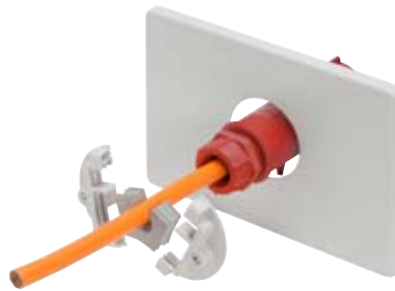
KTF Cable grommets 35

# KVT 80 ATEX

## Split cable glands



IP54



| Type | Order No. | Cut-out | Grommets<br>small   large | PU |
|------|-----------|---------|---------------------------|----|
|------|-----------|---------|---------------------------|----|

### Product description

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

### Advantages & benefits

- Insertion of pre-terminated cables
- Warranty of pre-terminated cables remains
- Easy and quick retrofitting and maintenance
- High cable density, wide variety of grommets
- Quick and easy assembly from the front side

### Note

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

### Specifications

|                  |  |
|------------------|--|
| Material         | Polycarbonate (PC)   |
| Colour           | <input type="checkbox"/> grey (similar RAL 7035)<br><input type="checkbox"/> black         |
| Flame class      | UL94-Vo, self-extinguishing  |
| IP rating        | IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529) |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)  |
| Temperature      | -30°C to +90°C (static)  |
| Equipment group  | II   |
| Category         | 2G, 3G, 2D, 3D   |
| Zone             | 1 + 21, 2+22   |
| Test standard    | EN 60079-0   |
| Properties       | Halogen-free, silicone-free  |

|               |  |         |     |   |
|---------------|--|---------|-----|---|
| KVT 80 3 ATEX | <input type="checkbox"/> 49120<br><input type="checkbox"/> 49123 | ∅ 80 mm | 2 1 | 1 |
| KVT 80 6 ATEX | <input type="checkbox"/> 49121<br><input type="checkbox"/> 49122 | ∅ 80 mm | 6 - | 1 |

\*Only valid for grey product types

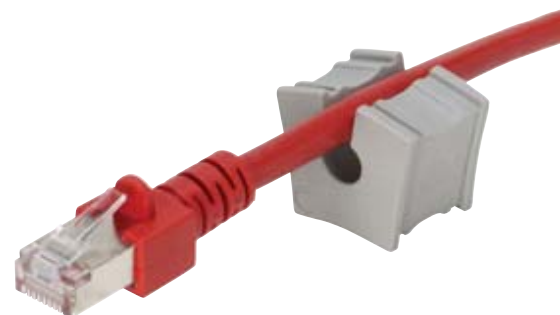
### Accessories

Cable grommets 44 - 48



# KT ATEX

## Cable grommets



| Type | Page | Clamping range | Description |
|------|------|----------------|-------------|
|------|------|----------------|-------------|

|                 |    |                        |  |
|-----------------|----|------------------------|--|
| BTK             | 44 | Blank grommet          |  |
| KT 2 - KT 15    | 44 | 2 - 16 mm              |  |
| KTs 16 - KT 17  | 44 | 16 - 17 mm             |  |
| KT S1           | 44 |                        |  |
| KT oval         | 44 | approx. 8 × 4 mm       |  |
| KT tele         | 44 | Telephone cable        |  |
| KT tele1        | 44 | Data cable RJ12        |  |
| KT tele2        | 44 | Data cable RJ10 / RJ45 |  |
| KT 2 2 - KT 2 8 | 45 | 2× Ø 2 mm - 2× Ø 8 mm  |  |
| KT 4 2 - KT 4 6 | 45 | 4× Ø 2 mm - 4× Ø 6 mm  |  |
| KT-ASI          | 45 | 1 ASI-cable            |  |
| KT-ASI2 r       | 45 | 2 ASI-cables           |  |
| KT-ASI2 l       | 45 | 2 ASI-cables           |  |
| ATG             | 46 | Adapter grommet        |  |
| BTG             | 46 | Blank grommet          |  |
| KT 16 - KT 34   | 46 | 16 - 35 mm             |  |

### Product description

Cable grommets KT are used with the following ATEX cable entry frames:

KEL-U ATEX/KEL-ER ATEX/KEL ATEX (166 - 175)  
KVT 8o ATEX (176)

The model range KT is designed for cable diameters from 2 to 35 mm.

### Specifications

|                 |                             |
|-----------------|-----------------------------|
| Material        | Elastomer                   |
| Flame class     | UL94-Vo, self-extinguishing |
| Temperature     | - 30°C to + 90°C (static)   |
| Equipment group | II                          |
| Category        | 2G, 3G, 2D, 3D              |
| Zone            | 1 + 21, 2+22                |
| Test standard   | EN 60079-0                  |
| Properties      | Halogen-free, silicone-free |



# KT-DPF | KTMB | DT ATEX

## Cable grommets, multi-range



### Product description

The KTMB / KT-DPF grommets accept a wide range of cable diameters. A great benefit when the exact cable diameter is not known in advance. The KTMB grommets are not split and therefore only usable for cables without connectors. Cutting of KT-DPF grommets: Cable diameter less 20%.

The DT cable grommets are designed for cables without connectors. A large number of cables can be routed utilising minimal space. DT grommets are designed to fit in KT large grommet spaces.

### Advantages & benefits

- Combination of routing cables with and without connectors with one cable entry frame
- Enables sub-assembly of cable harnesses
- High cable density (DT)
- Grommets allow dynamic and flexible movement of rigid cables

### Specifications

|                 |                             |
|-----------------|-----------------------------|
| Material        | Elastomer                   |
| Flame class     | UL94-Vo, self-extinguishing |
| Temperature     | - 30°C to + 90°C (static)   |
| Equipment group | II                          |
| Category        | 2G, 3G, 2D, 3D              |
| Zone            | 1 + 21, 2+22                |
| Test standard   | EN 60079-0                  |
| Properties      | Halogen-free, silicone-free |

| Description | Type | Page | Clamping range |
|-------------|------|------|----------------|
|-------------|------|------|----------------|

|                  |                             |                  |   |
|------------------|-----------------------------|------------------|---|
|                  | KT-DPF-A                    | 47               | 3 - 12 mm   |
|                  | KT-DPF-B                    | 47               | 4 - 18 mm   |
|                  | KT-DPF-C                    | 47               | 14 - 26 mm  |
|                  | KTMB-A                      | 47               | 2.5 - 6.5 mm  |
|                  | KTMB-B                      | 47               | 4 - 7.5 mm  |
|                  | KTMB-C                      | 47               | 6.5 - 10 mm   |
|                  | KTMB-D                      | 47               | 9.5 - 13 mm   |
|                  | KTMB-E                      | 47               | 13 - 16 mm  |
|                  | KTMB-G                      | 47               | 13 - 18 mm  |
|                  | KTMB-H                      | 47               | 18 - 23 mm  |
|                  | KTMB-I                      | 47               | 23 - 28 mm  |
|                  | KTMB-J                      | 47               | 28 - 33 mm  |
|                  | KTMB-K                      | 47               | 2x 13 - 18 mm                                       |
|                  |                             | KTMB-O (KEL 183) | 33  |
| KTMB-P (KEL 183) |                             | 33               | 34 - 44 mm  |
| KTMB-Q (KEL 183) |                             | 33               | 44 - 54 mm  |
| KTMB-R (KEL 183) |                             | 33               | 54 - 64 mm  |
| KTMB-S (KEL 183) |                             | 33               | 64 - 75 mm  |
|                  | DT 1                        | 48               | 12x max. 6.5 mm<br>2x max. 12.2 mm                  |
|                  | DT 2                        | 48               | 16x max. 7.1 mm                                     |
|                  | DT 3                        | 48               | 4x max. 6.5 mm<br>3x max. 9.5 mm<br>3x max. 11.3 mm |
|                  | DT 4                        | 48               | 9x max. 9.5 mm                                      |
|                  | FT-1 x - FT-4 x (KEL-FT)    | 31               | Flat cables   |
|                  | KTF oo (KEL-JUMBO)          | 35               | Blank grommet                                       |
|                  | KTA (KEL-JUMBO)             | 35               | Adapter grommet                                     |
|                  | KTF 34 - KTF 62 (KEL-JUMBO) | 35               | 33 - 65 mm  |



## KEL-DPU ATEX

### Cable entry plates



Membrane on front



Conical shape on back provides additional sealing



Tool-free assembly possible due to snap-in function



IP66

| Type                 | Order No.          | Cut-out     | Number of cables  | PU |
|----------------------|--------------------|-------------|---|----|
| KEL-DPU 24 13 ATEX   | □ 49513<br>■ 49521 | 36 × 112 mm | 10× 3.2 - 6.3 mm<br>3× 16 - 20.5 mm   | 10 |
| KEL-DPU 24 14 ATEX   | □ 49514<br>■ 49522 | 36 × 112 mm | 5× 3.2 - 6.3 mm<br>2× 4 - 7.5 mm<br>3× 5.5 - 10.5 mm<br>1× 8 - 12.5 mm<br>3× 12 - 16.2 mm | 10 |
| KEL-DPU 24 16 ATEX   | □ 49516<br>■ 49524 | 36 × 112 mm | 8× 3.2 - 5.5 mm<br>6× 5 - 8.5 mm<br>2× 9.5 - 14.5 mm                                      | 10 |
| KEL-DPU 24 16-1 ATEX | □ 49515<br>■ 49523 | 36 × 112 mm | 2× 3.2 - 6.3 mm<br>9× 4 - 7.5 mm<br>1× 5.5 - 10.5 mm<br>1× 8 - 12.5 mm<br>3× 12 - 16.2 mm | 10 |
| KEL-DPU 24 17 ATEX   | □ 49517<br>■ 49525 | 36 × 112 mm | 4× 3.2 - 6.3 mm<br>2× 4 - 7.5 mm<br>1× 5.5 - 10.5 mm<br>10× 8 - 12.5 mm                   | 10 |
| KEL-DPU 24 20 ATEX   | □ 49518<br>■ 49526 | 36 × 112 mm | 12× 3.2 - 5.5 mm<br>8× 5 - 10.5 mm  | 10 |
| KEL-DPU 24 21 ATEX   | □ 49519<br>■ 49527 | 36 × 112 mm | 1× 3.2 - 6.3 mm<br>14× 4 - 7.5 mm<br>4× 5.5 - 10.5 mm<br>2× 8 - 12.5 mm                   | 10 |
| KEL-DPU 24 32 ATEX   | □ 49520<br>■ 49528 | 36 × 112 mm | 32× 3.2 - 6.3 mm  | 10 |

\* Only valid for grey product types

### Product description

KEL-DPU entry plates are designed to route and seal cables without connectors (from 3.2 mm to 20.5 mm in diameter) in limited space with IP65 / IP66 / up to NEMA type 4X ratings. The KEL-DPU is particularly characterised by its robust frame.

The KEL-DPU 24 matches exactly the cut-out dimensions of 24-pin standard industrial connectors. For optional screw assembly just pierce the membranes on the screw holes with the screw itself. The assembly of the KEL-DPU with cables or pneumatic hoses can be done quick and easy. Simply make a small hole in the thin membrane and push the cables through.

### Advantages & benefits

- Snap or screw mounting possible
- Very high stability
- Fast and easy assembly
- High cable density
- Dual cable sealing with IP65/IP66/up to NEMA type 4X
- Hygienic design - free of dirt-collecting recesses

### Specifications

|                  |   |
|------------------|---|
| Material         | Frame: Polypropylene (PP)<br>Sealing plate: Elastomer |
| Colour           | □ grey (similar RAL 7035)<br>■ black                  |
| Flame class      | UL94-Vo, self-extinguishing                           |
| IP rating        | IP65/IP66 (certified acc. to EN 60529)                |
| NEMA type rating | NEMA type 4X (acc. to UL 50E)                         |
| Temperature      | - 30°C to + 90°C (static)                             |
| Equipment group  | II  |
| Category         | 2G, 3G, 2D, 3D  |
| Zone             | 1 + 21, 2+22  |
| Test standard    | EN 60079-0  |
| Properties       | Halogen-free, silicone-free                           |



# KEL-DPZ-KL ATEX

## Cable entry plates



IP65



Membrane on front



Conical shape on back provides additional sealing.

### Product description

The cable entry plate KEL-DPZ-KL is designed for routing up to 72 cables without connectors.

The assembly of the KEL-DPZ-KL with cables or pneumatic hoses can be done quick and easy. Simply make a small hole in the thin membrane, push the cables through. The KEL-DPZ-KL provides strain relief and protection IP65 / NEMA type 12.

The KEL-DPZ-KL matches on terminal boxes KL from Rittal.

### Advantages & benefits

- Space saving shape
- Dual sealing of cables according to IP65/NEMA type 12
- High cable density
- Fast and easy assembly
- Hygienic design

### Specifications

|                  |   |
|------------------|---|
| Material         | Support: Stainless steel V2A, moulded with elastomer<br>Sealing plate: Elastomer<br>Screws: Stainless steel V2A |
| Colour           | <input type="checkbox"/> grey (similar RAL 7035)<br><input checked="" type="checkbox"/> black                   |
| Flame class      | UL94-Vo   |
| IP rating        | IP65 (certified acc. to EN 60529)   |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)   |
| Temperature      | - 30°C to + 90°C (static)   |
| Equipment group  | II  |
| Category         | 2G, 3G, 2D, 3D  |
| Zone             | 1 + 21, 2+22  |
| Test standard    | EN 60079-0  |
| Properties       | Halogen-free, silicone-free   |

| Type               | Order No.   | Cut-out     | Number of cables   | PU |
|--------------------|---|-------------|--|----|
| KEL-DPZ-KL 72 ATEX | <input type="checkbox"/> 49556.001<br><input checked="" type="checkbox"/> 49556.101 | 192 x 62 mm | 42x 3.2 - 6.5 mm<br>21x 5 - 10.2 mm<br>6x 9 - 16.2 mm<br>3x 16 - 22 mm | 1  |

\* Only valid for grey product types



# KEL-DPZ ATEX

## Cable entry plates



Membrane on front



Conical shape on back provides additional sealing.



| Type                  | Order No.          | Cut-out     | Number of cables   | PU |
|-----------------------|--------------------|-------------|--|----|
| KEL-DPZ 24 14 ATEX    | ☐ 49201<br>■ 49211 | 36 × 112 mm | 10× 3.2 - 6.5 mm<br>4× 16 - 22 mm                                      | 10 |
| KEL-DPZ 24 15 ATEX    | ☐ 49205<br>■ 49215 | 36 × 112 mm | 15× 7.2 - 12 mm  | 10 |
| KEL-DPZ 24 16 ATEX    | ☐ 49206<br>■ 49216 | 36 × 112 mm | 8× 3.2 - 6.5 mm<br>4× 5 - 9.7 mm<br>2× 9 - 16.2 mm<br>2× 16 - 22 mm    | 10 |
| KEL-DPZ 24 17 ATEX    | ☐ 49202<br>■ 49212 | 36 × 112 mm | 6× 3.2 - 6.5 mm<br>6× 5 - 10.2 mm<br>5× 9 - 16.2 mm                    | 10 |
| KEL-DPZ 24 25 ATEX    | ☐ 49203<br>■ 49213 | 36 × 112 mm | 12× 3.2 - 6.5 mm<br>7× 4.8 - 9.7 mm<br>6× 7.5 - 12 mm                  | 10 |
| KEL-DPZ 24 32 ATEX    | ☐ 49207<br>■ 49217 | 36 × 112 mm | 21× 3.2 - 6.5 mm<br>8× 5 - 10.2 mm<br>3× 7.5 - 12 mm                   | 10 |
| KEL-DPZ 24 42 ATEX    | ☐ 49204<br>■ 49214 | 36 × 112 mm | 42× 3.2 - 6.5 mm   | 10 |
| KEL-DPZ 24 121 ATEX   | ☐ 49208<br>■ 49218 | 36 × 112 mm | 119× 1.5 - 2.6 mm<br>2× 2.5 - 5 mm                                     | 10 |
| KEL-DPZ-B 13 ATEX     | ☐ 49311<br>■ 49317 | 46 × 46 mm  | 8× 3.2 - 6.5 mm<br>4× 5 - 10.2 mm<br>1× 16 - 22 mm                     | 10 |
| KEL-DPZ-B 17 ATEX     | ☐ 49312<br>■ 49318 | 46 × 46 mm  | 10× 3.2 - 6.5 mm<br>4× 5 - 10.2 mm<br>2× 7.5 - 12 mm<br>1× 9 - 16.2 mm | 10 |
| KEL-DPZ-B 25 ATEX     | ☐ 49313<br>■ 49319 | 36 × 112 mm | 25× 3.2 - 6.5 mm   | 10 |
| KEL-DPZ-E 112 7 ATEX  | ☐ 49301<br>■ 49306 | 18 × 112 mm | 7× 7.5 - 12 mm   | 10 |
| KEL-DPZ-E 112 21 ATEX | ☐ 49302<br>■ 49307 | 18 × 112 mm | 21× 3.2 - 6.5 mm   | 10 |

\*Only valid for grey product types

### Product description

KEL-DPZ 24, KEL-DPZ-B and KEL-DPZ-E cable entry plates are designed to route and seal cables without connectors (from 1.5 mm to 22 mm in diameter) in limited space.

The assembly of the KEL-DPZ with cables or pneumatic hoses can be done quick and easy. Simply make a small hole in the thin membrane, push the cables through and it's immediately sealed (IP65 / IP66).

### Advantages & benefits

- Assembly within seconds
- High cable density
- Dual sealing of cables according to IP65 / IP66
- Space saving shapes

### Specifications

|                  |   |
|------------------|---|
| Material         | Frame: Polyamide (PA)<br>Sealing plate: Elastomer |
| Colour           | ☐ grey (similar RAL 7035)<br>■ black              |
| Flame class      | UL94-Vo, self-extinguishing                       |
| IP rating        | IP65/IP66 (certified acc. to EN 60529)            |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)                     |
| Temperature      | - 30°C to + 90°C (static)                         |
| Equipment group  | II  |
| Category         | 2G, 3G, 2D, 3D                                    |
| Zone             | 1 + 21, 2+22                                      |
| Test standard    | EN 60079-0  |
| Properties       | Halogen-free, silicone-free                       |

# KEL-DPZ ATEX

## Cable entry plates, round



Membrane on front



Conical shape on back provides additional sealing

### Product description

KEL-DPZ round entry plates are designed to route and seal cables without connectors (from 1.5 mm to 22 mm in diameter) in limited space. The assembly of the KEL-DPZ with cables or pneumatic hoses can be done quick and easy. Simply make a small hole in the thin membrane, push the cables through and it's immediately sealed with IP68.

The round versions of the KEL-DPZ series have a thread to fit in metric cut-outs from M32 to M63. Thus cut-outs for metric cable glands can be used.

### Advantages & benefits

- Assembly within seconds
- High cable density
- Dual sealing of cables according to IP68
- Suitable for metric cut-outs
- Polyamide locknuts are included in the shipment

### Specifications

|                  |   |
|------------------|---|
| Material         | Thread frame: Polyamide (PA)  |
| Colour           | Sealing plate: Elastomer<br><input type="checkbox"/> grey (similar RAL 7035)<br><input checked="" type="checkbox"/> black |
| Flame class      | UL94-Vo, self-extinguishing   |
| IP rating        | IP66/IP67/IP68 (certified acc. to EN 60529)   |
| NEMA type rating | NEMA type 4X (acc. to UL 50E)   |
| Temperature      | - 30°C to + 90°C (static)   |
| Equipment group  | II  |
| Category         | 2G, 3G, 2D, 3D  |
| Zone             | 1 + 21, 2+22  |
| Test standard    | EN 60079-0  |
| Properties       | Halogen-free, silicone-free   |
| Thread length    | 14 mm   |
| Plate depth      | 8 mm  |

| Type                | Order No.   | Number of cables   | Thread metric | External diameter | PU |
|---------------------|---|--|---------------|-------------------|----|
| KEL-DPZ 32 4 ATEX   | <input type="checkbox"/> 49420<br><input checked="" type="checkbox"/> 49440 | 3× 3.2 - 6.5 mm<br>1× 7.2 - 12.5 mm                                    | M32 × 1.5     | 44 mm             | 10 |
| KEL-DPZ 32 4-2 ATEX | <input type="checkbox"/> 49421<br><input checked="" type="checkbox"/> 49441 | 4× 5 - 9.5 mm  | M32 × 1.5     | 44 mm             | 10 |
| KEL-DPZ 32 7 ATEX   | <input type="checkbox"/> 49422<br><input checked="" type="checkbox"/> 49442 | 7× 3.2 - 6.5 mm  | M32 × 1.5     | 44 mm             | 10 |
| KEL-DPZ 40 8 ATEX   | <input type="checkbox"/> 49423<br><input checked="" type="checkbox"/> 49443 | 4× 3.2 - 6.5 mm<br>4× 5 - 10.2 mm                                      | M40 × 1.5     | 52 mm             | 10 |
| KEL-DPZ 50 8 ATEX   | <input type="checkbox"/> 49424<br><input checked="" type="checkbox"/> 49444 | 5× 5 - 10.2 mm<br>3× 7.2 - 12.5 mm                                     | M50 × 1.5     | 62 mm             | 10 |
| KEL-DPZ 50 10 ATEX  | <input type="checkbox"/> 49425<br><input checked="" type="checkbox"/> 49445 | 7× 3.2 - 6.5 mm<br>2× 5 - 10.2 mm<br>1× 16 - 22.2 mm                   | M50 × 1.5     | 62 mm             | 10 |
| KEL-DPZ 50 12 ATEX  | <input type="checkbox"/> 49426<br><input checked="" type="checkbox"/> 49446 | 4× 3.2 - 6.5 mm<br>8× 5 - 10.2 mm                                      | M50 × 1.5     | 62 mm             | 10 |
| KEL-DPZ 50 19 ATEX  | <input type="checkbox"/> 49428<br><input checked="" type="checkbox"/> 49448 | 19× 3.2 - 6.5 mm   | M50 × 1.5     | 62 mm             | 10 |
| KEL-DPZ 50 78 ATEX  | <input type="checkbox"/> 49427<br><input checked="" type="checkbox"/> 49447 | 76× 1.5 - 2.6 mm<br>2× 2.5 - 5 mm                                      | M50 × 1.5     | 62 mm             | 10 |
| KEL-DPZ 63 9 ATEX   | <input type="checkbox"/> 49429<br><input checked="" type="checkbox"/> 49449 | 1× 3.2 - 6.5 mm<br>3× 5 - 10.2 mm<br>4× 9 - 16.2 mm<br>1× 16 - 22.2 mm | M63 × 1.5     | 75 mm             | 10 |
| KEL-DPZ 63 13 ATEX  | <input type="checkbox"/> 49430<br><input checked="" type="checkbox"/> 49450 | 4× 3.2 - 6.5 mm<br>4× 5 - 10.2 mm<br>5× 9 - 16.2 mm                    | M63 × 1.5     | 75 mm             | 10 |
| KEL-DPZ 63 14 ATEX  | <input type="checkbox"/> 49432<br><input checked="" type="checkbox"/> 49452 | 14× 5 - 10.2 mm  | M63 × 1.5     | 75 mm             | 10 |
| KEL-DPZ 63 35 ATEX  | <input type="checkbox"/> 49431<br><input checked="" type="checkbox"/> 49451 | 35× 3.2 - 6.5 mm   | M63 × 1.5     | 75 mm             | 10 |

\*Only valid for grey product types



## KEL-DPF ATEX

### Cable entry grommets



| Type                  | Order No.          | Thread metric | Clamping range | External dimension | PU |
|-----------------------|--------------------|---------------|----------------|--------------------|----|
| KEL-DPF 25 3-12 ATEX  | ☐ 49401<br>■ 49410 | M25 × 1.5     | 3 - 12 mm      | 39 mm              | 5  |
| KEL-DPF 32 6-18 ATEX  | ☐ 49402<br>■ 49411 | M32 × 1.5     | 6 - 18 mm      | 46 mm              | 5  |
| KEL-DPF 40 12-27 ATEX | ☐ 49403<br>■ 49412 | M40 × 1.5     | 12 - 27 mm     | 54 mm              | 5  |
| KEL-DPF 50 22-36 ATEX | ☐ 49404<br>■ 49413 | M50 × 1.5     | 22 - 36 mm     | 64 mm              | 5  |
| KEL-DPF 63 27-50 ATEX | ☐ 49405<br>■ 49414 | M63 × 1.5     | 27 - 50 mm     | 77 mm              | 5  |
| KEL-DPF 75 39-60 ATEX | ☐ 49534<br>■ 49535 | M75 × 1.5     | 39 - 60 mm     | 89 mm              | 5  |
| KEL-DPF 85 48-70 ATEX | ☐ 49536<br>■ 49537 | M85 × 2       | 48 - 70 mm     | 99 mm              | 5  |

### Product description

The KEL-DPF was developed particularly for routing large or unknown size of service cables into the switch cabinet. Due to the flexibility and unique pyramid shape, cable entry and flexible positioning is much easier compared to using conventional cable glands.

Cutting of DPF grommets:

- Cable diameter less 25%
- The corresponding diameters are marked on the grommet

### Advantages & benefits

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

### Specifications

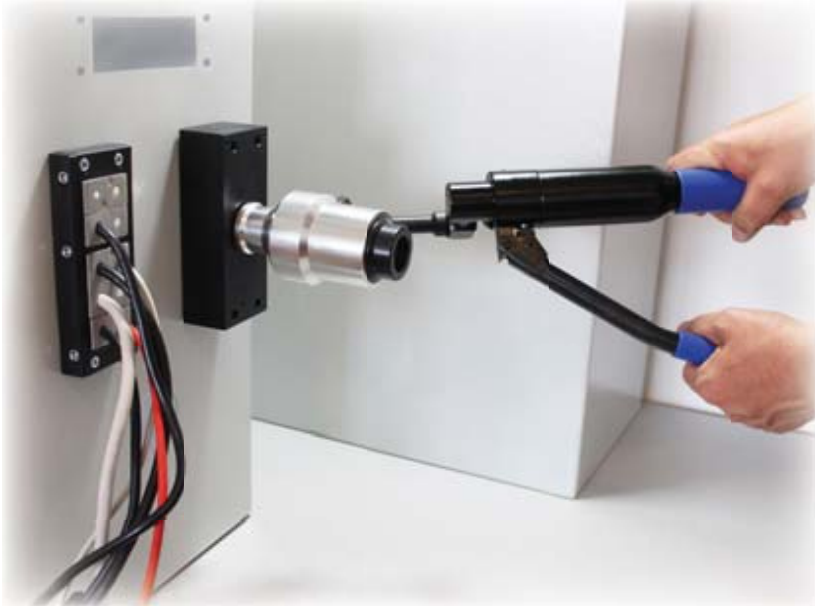
|                  |  |
|------------------|--|
| Material         | Thread frame: Polyamide (PA)<br>Pyramid: Elastomer |
| Colour           | ☐ grey (similar RAL 7035)<br>■ black               |
| Flame class      | UL94-Vo, self-extinguishing                        |
| IP rating        | IP66/IP67/IP68<br>(certified acc. to EN 60529)     |
| NEMA type rating | NEMA type 12 (acc. to UL 50E)                      |
| Temperature      | - 30°C to + 90°C (static)                          |
| Equipment group  | II   |
| Category         | 2G, 3G, 2D, 3D                                     |
| Zone             | 1 + 21, 2+22                                       |
| Test standard    | EN 60079-0   |
| Properties       | Halogen-free, silicone-free                        |
| Thread length    | 14 mm  |

\*Only valid for grey product types



# icotek TOOLS

## Punch drivers, knockout punches & useful tools



icotek now offers a small-sized hand hydraulic punch driver without a hose which allows quick and easy punching of rectangular, square or round holes. When you have to punch several holes, this hand hydraulic punch driver is much faster than manual wrench-style punches.

icotek also offers round knockout punches for cut-outs PG16, M16, M20, M25, M32, M40, M50, M63, M75 and M85. This self-centering knockout punches split slugs into 3 pieces for easy slug removal. For installation of pushbuttons and round switches icotek offers a 22.5 mm punch with integrated twist protection notch.

Among the round punches icotek also offers rectangular and square punches and dies, for cut-out sizes of 10-, 16-, and 24- multi-pin industrial connectors as well as for most icotek cable entry systems.

## Advantages & benefits ...

### 1. Maximum flexibility

Due to its high hydraulic force the compact, lightweight hand hydraulic punch driver makes it easy to punch holes into stainless V2A steel, mild steel, aluminium or plastics. The cylinder of the punch driver rotates 360° on 3 axles. Therefore, maximum flexibility even in hard-to-reach places is provided.

### 2. Multi-fold slug splitting

The special cutting geometry of the round punches reduces the cutting pressure and therefore the required effort. The punch splits slugs into several pieces for easy slug removal (type related).

### 3. Perfect for icotek cable entry components

The metric round, rectangular & square knockout punches can be used for industrial standard cut-outs of heavy multi-pin connectors and many icotek cable entry components.





# Product group 8

icotek TOOLS

## Chapter content



**Punch driver sets**  
Hand hydraulic punch driver  
& round knockout die set, metric

NEW

186



**Rectangular & square punches**  
for cut-outs of heavy multi-pin industrial  
connectors and many icotek cable entry  
components

NEW

187



**Round punches**  
for cut-outs PG 16, M16 - M85

NEW

188



**Helpful tools**  
Tools for assembly & cable management

NEW

189

# Punch driver sets

Hand hydraulic punch driver & metric punches



## Product description

The compact, lightweight hand hydraulic punch driver makes it easy to punch holes into stainless V2A steel, mild steel, aluminium or plastics with a max. sheet thickness of 3 mm (V2A: 2 mm), due to its high hydraulic force. The cylinder of the punch driver rotates 360° on 3 axles, so maximum flexibility even in hard-to-reach places is provided.

The punch driver can be used with all icotek punches and also with punches of other manufacturers.

## Advantages & benefits

- Maximum flexibility due to 360° head rotation
- High hydraulic force (60 kN, 600 bar) for easy punching
- Compact, lightweight aluminium design (2 kg)
- Fast and easy operation
- Punch driver also suitable for punches by other manufacturers

## Specifications

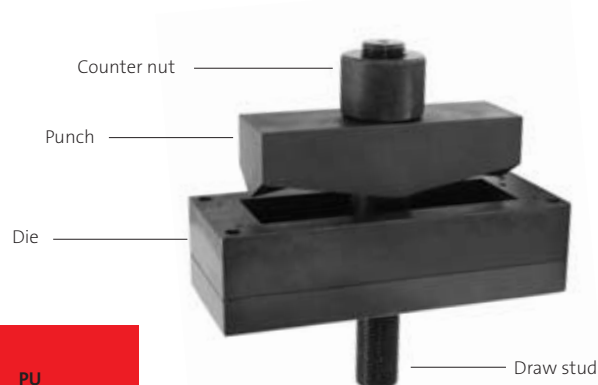
|                    |           |
|--------------------|-----------|
| Material           | Aluminium |
| Punching force     | 60 kN     |
| Operating pressure | 600 bar   |

## Accessories

|                              |     |
|------------------------------|-----|
| Round punches                | 187 |
| Rectangular & square punches | 188 |

| Type                       | Scope of delivery  | Order No. | PU |
|----------------------------|--|-----------|----|
| Punch driver set BASIC     | 1 hand hydraulic punch driver (weight: 2 kg)<br>1 draw stud Ø 9.5 mm (3/8" UNF) to Ø 19 mm (3/4" UNF), L: 110 mm<br>1 draw stud Ø 19 mm (3/4" UNF), L: 130 mm<br>1 spacer<br>1 tube lubricant<br>1 HSS co pilot drill (multi step drill)<br>1 robust plastic storage case  | 80000     | 1  |
| Punch driver set PRO 16-32 | 1 hand hydraulic punch driver (weight: 2 kg)<br>1 draw stud Ø 9.5 mm (3/8" UNF) to Ø 19 mm (3/4" UNF), L: 110 mm<br>1 draw stud Ø 19 mm (3/4" UNF), L: 130 mm<br>1 spacer<br>1 tube lubricant<br>1 HSS co pilot drill (multi step drill)<br>1 each knockout punch M16   M20   M25   M32<br>1 robust plastic storage case                   | 80005     | 1  |
| Punch driver set PRO 16-63 | 1 hand hydraulic punch driver (weight: 2 kg)<br>1 draw stud Ø 9.5 mm (3/8" UNF) to Ø 19 mm (3/4" UNF), L: 110 mm<br>1 draw stud Ø 19 mm (3/4" UNF), L: 130 mm<br>1 spacer<br>1 tube lubricant<br>1 HSS co pilot drill (multi step drill)<br>1 each knockout punch M16   M20   M25   M32   M40   M50   M63<br>1 robust plastic storage case | 80006     | 1  |

## Rectangular & square punches sized for heavy multi-pin industrial connectors & icotek cable entry systems



| Type                                   | Cut-out size | Max. sheet thickness | For cut-out of connector | Order No. | PU |
|--|--------------|----------------------|--------------------------|-----------|----|
| Punch 22x45                            | 22 x 45 mm   | 2.5 mm               |                          | 80059     | 1  |
| Punch E2                               | 24 x 43 mm   | 2.5 mm               |                          | 80055     | 1  |
| Punch E3                               | 24 x 65mm    | 2.5 mm               |                          | 80056     | 1  |
| Punch E4                               | 24 x 86mm    | 2.5 mm               |                          | 80057     | 1  |
| Punch E5                               | 24 x 112mm   | 2.5 mm               |                          | 80058     | 1  |
| Punch B                                | 46 x 46 mm   | 3 mm                 |                          | 80050     | 1  |
| Punch B<br>for stainless steel V2A     | 46 x 46 mm   | 2 mm                 |                          | 80150     | 1  |
| Punch 10                               | 36 x 65 mm   | 3 mm                 | 10-pin                   | 80051     | 1  |
| Punch 10<br>for stainless steel V2A    | 36 x 65 mm   | 2 mm                 | 10-pin                   | 80151     | 1  |
| Punch 16                               | 36 x 86 mm   | 3 mm                 | 16-pin                   | 80052     | 1  |
| Punch 16<br>for stainless steel V2A    | 36 x 86 mm   | 2 mm                 | 16-pin                   | 80152     | 1  |
| Punch 24                               | 36 x 112 mm  | 3 mm                 | 24-pin                   | 80053     | 1  |
| Punch 24<br>for stainless steel V2A    | 36 x 112 mm  | 2 mm                 | 24-pin                   | 80153     | 1  |
| Punch 24-XL                            | 46 x 112 mm  | 3 mm                 | 24-pin                   | 80054     | 1  |
| Punch 24-XL<br>for stainless steel V2A | 46 x 112 mm  | 2 mm                 | 24-pin                   | 80154     | 1  |

### Product description

Rectangular and square punches and dies make it easy to punch holes into stainless steel (V2A versions), mild steel, aluminium or plastics with a max. sheet thickness of 3 mm (V2A: max. 2 mm). Available for cut-outs sizes of 10-, 16-, and 24-multi-pin heavy industrial connectors and also for numerous special cut-outs. Therefore, the punches are suitable for most icotek cable entry systems. Centre punches are integrated in the die for exact drilling of mounting holes.

The punches are for hydraulic operation only.

### Advantages & benefits

- Centre punches for exact drilling of mounting holes
- Robust plastic storage case
- Suitable for hand hydraulic punch driver by icotek and other manufacturers

### Specifications

Material **Steel, hardened and burnished**

### Scope of delivery

Punch, die and draw stud,  
robust plastic storage case

### Compatible with

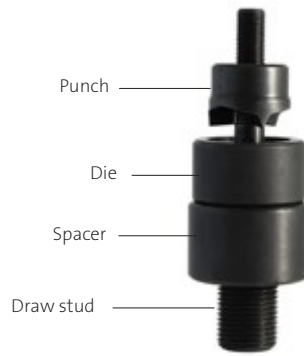
Hydraulic punch driver 186

# Round punches

for cut-outs PG 16, M16 - M85



Multi-fold slug splitting



NEW Punch set M16 - M63  
Order No. 80007

## Product description

Self-centering knockout punches for stainless steel (V2A versions), mild steel, aluminium and plastic walls with max. sheet thickness of 3 mm (V2A: max. 2 mm). Punches available for cut-outs PG 16, M16, M20, M25, M32, M40, M50, M63, M75 and M85. Cut-outs for icotek split cable glands and round cable entry plates can be punched.

The special cutting geometry of the punch reduces the cutting pressure and therefore the required effort. The punch splits slugs into several pieces (type related)\* for easy slug removal. For installation of round switches icotek offers a PG 16 punch with an integrated 3 mm twist protection notch.

The punches are designed for manual and hydraulic operation.

## Advantages & benefits

- Multiple splitting punches for easier slug removal / for easy punching
- Suitable with hand hydraulic punch driver by icotek or other manufacturers

## Specifications

Material Steel, hardened and burnished

## Scope of delivery

Punch and die (without draw stud)

## Compatible with

Hydraulic punch driver 186

| Type  | Cut-out diameter        | Max. sheet thickness | Thread Ø | Order No. | PU |
|---|-------------------------|----------------------|----------|-----------|----|
| <b>Punch M16</b>  | 16.2 mm                 | 2 mm                 | 9.5 mm   | 80020     | 1  |
| <b>Punch M16</b><br>for stainless steel V2A                                   | 16.2 mm                 | 2 mm                 | 9.5 mm   | 80120     | 1  |
| <b>Punch M20</b>  | 20.4 mm                 | 2 mm                 | 9.5 mm   | 80021     | 1  |
| <b>Punch M20</b><br>for stainless steel V2A                                   | 20.4 mm                 | 2 mm                 | 9.5 mm   | 80121     | 1  |
| <b>Punch M25</b>  | 25.4 mm                 | 2 mm                 | 9.5 mm   | 80022     | 1  |
| <b>Punch M25</b><br>for stainless steel V2A                                   | 25.4 mm                 | 2 mm                 | 9.5 mm   | 80122     | 1  |
| <b>Punch M32</b>  | 32.5 mm                 | 3 mm                 | 19 mm    | 80023     | 1  |
| <b>Punch M32</b><br>for stainless steel V2A                                   | 32.5 mm                 | 2 mm                 | 19 mm    | 80123     | 1  |
| <b>Punch M40</b>  | 40.5 mm                 | 3 mm                 | 19 mm    | 80024     | 1  |
| <b>Punch M40</b><br>for stainless steel V2A                                   | 40.5 mm                 | 2 mm                 | 19 mm    | 80124     | 1  |
| <b>Punch M50</b>  | 50.5 mm                 | 3 mm                 | 19 mm    | 80025     | 1  |
| <b>Punch M50</b><br>for stainless steel V2A                                   | 50.5 mm                 | 2 mm                 | 19 mm    | 80125     | 1  |
| <b>Punch M63</b>  | 63.5 mm                 | 3 mm                 | 19 mm    | 80026     | 1  |
| <b>Punch M63</b><br>for stainless steel V2A                                   | 63.5 mm                 | 2 mm                 | 19 mm    | 80126     | 1  |
| <b>Punch M75</b>  | 75.5 mm                 | 2 mm                 | 19 mm    | 80029     | 1  |
| <b>Punch M85</b>  | 86 mm                   | 2 mm                 | 19 mm    | 80030     | 1  |
| <b>Punch PG 16</b>  | 22.5 mm                 | 3 mm                 | 9.5 mm   | 80027     | 1  |
| <b>Punch PG 16</b><br>with twist protection notch                             | 22.5 mm<br>+ 3 mm notch | 3 mm                 | 9.5 mm   | 80028     | 1  |
| <b>Punch PG 16</b><br>with twist protection notch,<br>for stainless steel V2A | 22.5 mm<br>+ 3 mm notch | 2 mm                 | 9.5 mm   | 80128     | 1  |

\*Except punches M75/M85

## Useful tools for assembly & cable management

### KMS Cable template



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

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

Order No. 39800 | PU: 1



**NEW**

### Wrenches for plastic locknuts M75/M85

For mounting the new KEL-DPF sizes we offer suitable wrenches with widths for M75 and M85 plastic locknuts. Material: aluminium

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

### KBW 9 Cable tie pliers



A hand-operated tool for tightening and trimming cable ties. To operate, insert the free end of the installed cable tie into the gun and squeeze handles to tension the tie. To trim off excess tie, press cutting lever.

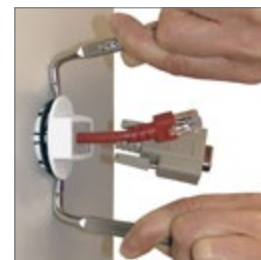
Order No. 61300 | PU: 1

### QVT-CLICK Tool Mounting tool



The QVT-CLICK Tool for quick and easy mounting of split cable glands QVT-CLICK (see page 53)

Order No. 61435 | PU: 2



### STFZ I/O Insert Tool Mounting tool



STFZ I/O Insert Tool for quick and easy mounting of STFZ terminal clamps (EMC shield clamps for peripheral modules, see page 115).

Order No. 61430 | PU: 1



# Appendix

## Technical data and comments



### At a glance ...

Technical data and drilling templates at a glance.

IP rating according to IEC/EN 60529 and flammability classification according to UL94.

Reference list, abbreviations and certificates.



# Appendix

Technical data and comments

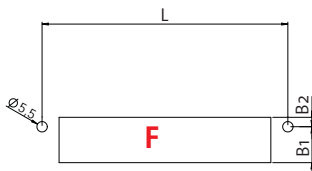
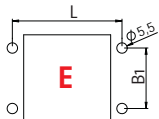
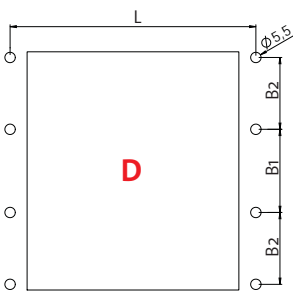
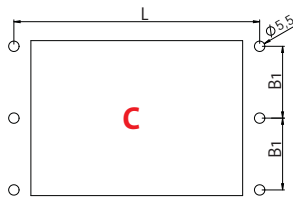
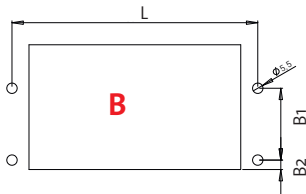
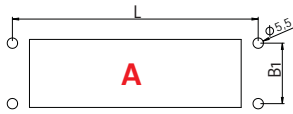
## Chapter content

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# Technical data

## Drilling templates



| Type   | Page  | Cut-out type | Drilling template [mm]                 |    |    | Cut-out h x l [mm]  |
|--|---|--------------|--|----|----|---|
|  |   |              | L                                      | B1 | B2 |   |
| KEL(-U/-ER) 24 x<br>KEL-FG A<br>KEL-QUICK 24<br>KEL-BES 24<br>KEL-DPZ 24 x<br>KEL-DPU 24 x | 8 - 9<br>28<br>50<br>57<br>64 - 65<br>62 - 63 | A            | 130                                    | 32 | -  | 112 x 36  |
| KEL-SNAP 24  | 37  | A            | 130                                    | 32 | -  | max. 112 x 46   |
| KEL(-U/-ER) 16 x<br>KEL-QUICK 16<br>KEL-BES 16   | 10 - 11<br>50 - 51<br>57                      | A            | 103                                    | 32 | -  | 86 x 36   |
| KEL-SNAP 16  | 36  | A            | 103                                    | 32 | -  | max. 86 x 46  |
| KEL(-U/-ER) 10 x<br>KEL-SNAP 10<br>KEL-BES 10  | 12 - 13<br>36<br>57                           | A            | 83                                     | 32 | -  | 65 x 36   |
| KEL 24 x-E<br>KEL 16 x-E   | 22<br>25                                      | B            | 130<br>103                             | 38 | 5  | 112 x 66<br>86 x 66                                       |
| KEL 24 x-MT<br>KEL 16 x-MT   | 23<br>26                                      | C            | 130<br>103                             | 38 | -  | 112 x 82<br>86 x 82                                       |
| KEL 24 x-2MT<br>KEL 16 x-2MT   | 24<br>27                                      | D            | 130<br>103                             | 44 | 38 | 112 x 126<br>86 x 126                                     |
| KEL(-U/-ER)-B<br>KEL-DPZ-B   | 14 - 15<br>66                                 | E            | 58                                     | 32 | -  | 46 x 46   |
| KEL-SNAP-B<br>KEL-QUICK-B  | 36<br>51                                      | E            | 56                                     | 32 | -  | 38 x 46   |
| KEL-FG B   | 29  | E            | 62.5                                   | 32 | -  | 36 x 46   |
| KEL(-ER)-E x<br>KEL-FL x   | 16 - 17<br>30                                 | F            | E2: 58<br>E3: 83<br>E4: 103<br>E5: 130 | 19 | 5  | E2: 43 x 24<br>E3: 65 x 24<br>E4: 86 x 24<br>E5: 112 x 24 |

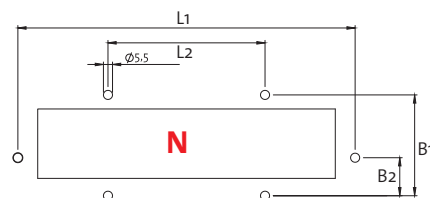
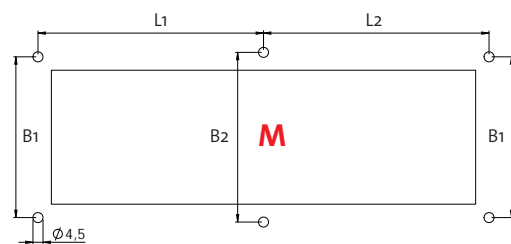
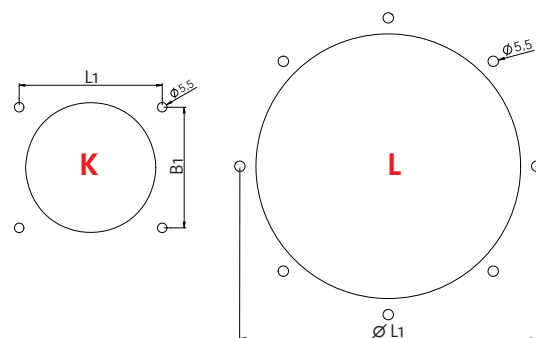
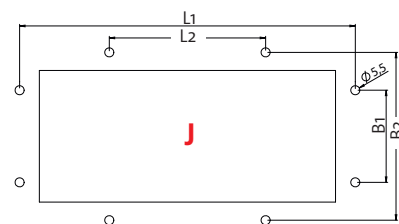
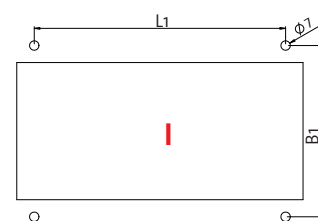
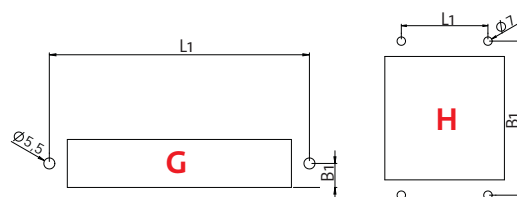




# Technical data

## Drilling templates

| Type           | Page | Cut-out type | Drilling template [mm] |     |       |     | Cut-out h x l [mm] |
|----------------|------|--------------|------------------------|-----|-------|-----|--------------------|
|                |      |              | L1                     | L2  | B1    | B2  |                    |
| KEL-DPZ-E      | 67   | G            | 130                    | -   | 9     | -   | 112 x 18           |
| KEL-JUMBO 1    | 34   | H            | 56.5                   | -   | 100.5 | -   | 78 x 80.5          |
| KEL-JUMBO 2    | 34   | I            | 147.5                  | -   | 100.5 | -   | 168 x 80.5         |
| KEL 183        | 32   | J            | 204                    | 95  | 56    | 102 | 180 x 80           |
| KEL 183-E      | 32   | N            | 204                    | 95  | 61    | 23  | 180 x 42           |
| KEL-JUMBO flex | 78   | K            | 70                     | -   | 70    | -   | ∅ 75.5             |
| KEL-ULTRA flex | 79   | L            | ∅ 157                  | -   | -     | -   | ∅ 140              |
| KEL-DPZ-KL     | 68   | M            | 101                    | 101 | 72    | 76  | 190 x 60           |



# Appendix

## Certificates

### Certificates

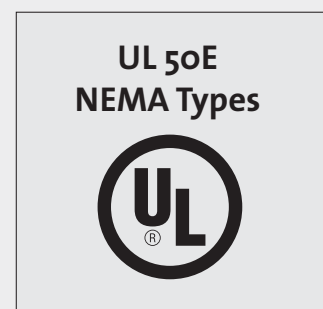
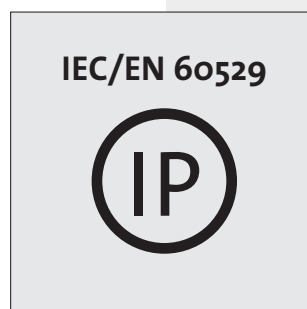
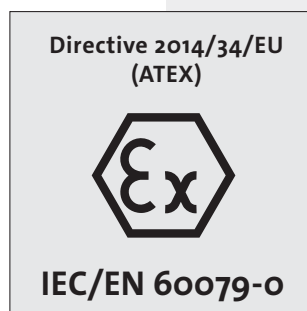
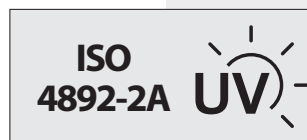
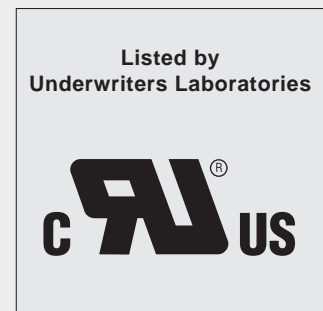
- **ISO 9001:2008**  
Management Certificate

Most of our products meet the following standards:

- **EN 45545-2**  
European railway standard
- **UL E 336024**  
Product safety certification for USA and Canada
- **GL**  
International safety standard for shipbuilding
- **Directive 2014/34/EU (ATEX) according to IEC/EN 60079-0**  
for use in potentially explosive atmospheres
- **IP according to IEC/EN 60529**  
Sealing rates for solid and water protection
- **NEMA according to UL 50E**  
Sealing rates for solid and liquid protection

Additional information / specifications are available in the download section of our website: [www.icotek.com](http://www.icotek.com)

Certificates are available upon request.



# Appendix Certificates

| Product                 | IP54 | IP64 | IP65 | IP66 | IP67 | IP68 | NEMA TYPE 12 | NEMA TYPE 4X | UL/UR | GL | HL3 EN 45545-2 | UV ISO 4892-2A | ECOLAB certified | ATEX | RoHS compliant | Flame class UL94 |    | Halogen free  |
|-------------------------|------|------|------|------|------|------|--------------|--------------|-------|----|----------------|----------------|------------------|------|----------------|------------------|----|---------------|
|                         | IP54 | IP64 | IP65 | IP66 | IP67 | IP68 | 12           | 4X           |       |    | HL3            |                |                  |      |                | HB               | Vo | Silicone free |
| <b>Product group 1:</b> |      |      |      |      |      |      |              |              |       |    |                |                |                  |      |                |                  |    |               |
| KEL 24/16/10/-B         | ■    |      |      |      |      |      | ■            |              | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL 24-E/-MT/-2MT       | ■    |      |      |      |      |      |              |              | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL 16-E/-MT/-2MT       | ■    |      |      |      |      |      |              |              |       |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-ER 24/16/10/-B      |      |      | ■    |      |      |      |              | ■            | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-U 24/16/10/-B       | ■    |      |      |      |      |      | ■            |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-E                   | ■    |      |      |      |      |      | ■            |              | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-ER-E                |      |      | ■    |      |      |      | ■            |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-FG A                | ■    |      |      |      |      |      |              |              |       | ■  | ■              | ■              | ■                |      | ■              |                  | ■  | ■             |
| KEL-FG B                | ■    |      |      |      |      |      |              |              |       | ■  | ■              | ■              | ■                |      | ■              |                  | ■  | ■             |
| KEL-SNAP                | ■    |      |      |      |      |      | ■            |              | ■     |    | ■              |                | ■                |      | ■              |                  | ■  | ■             |
| KVT gy                  | ■    |      |      |      |      |      | ■            |              | ■     | ■  |                |                | ■                |      | ■              |                  | ■  | ■             |
| KVT bk                  | ■    |      |      |      |      |      | ■            |              | ■     | ■  |                |                | ■                |      | ■              |                  | ■  | ■             |
| KVT 80 gy               | ■    |      |      |      |      |      | ■            |              | ■     |    | ■              |                | ■                | ■    | ■              |                  | ■  | ■             |
| KVT 80 bk               | ■    |      |      |      |      |      | ■            |              | ■     |    |                |                | ■                | ■    | ■              |                  | ■  | ■             |
| KVT-SNAP                | ■    |      |      |      |      |      |              |              | ■     | ■  | ■              |                | ■                |      | ■              |                  | ■  | ■             |
| KVT-W90 gy              | ■    |      |      |      |      |      |              |              | ■     | ■  | ■              |                | ■                |      | ■              |                  | ■  | ■             |
| KVT-W90 bk              | ■    |      |      |      |      |      |              |              | ■     | ■  |                |                | ■                |      | ■              |                  | ■  | ■             |
| KT small gy, single     | ■    |      | ■    |      |      |      | ■            | ■            | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KT small bk, single     | ■    |      | ■    |      |      |      |              |              |       |    |                | ■              | ■                | ■    | ■              | ■                |    |               |
| KT small gy, multi      | ■    |      |      |      |      |      | ■            |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KT small bk, multi      | ■    |      |      |      |      |      |              |              |       |    |                | ■              | ■                | ■    | ■              | ■                |    |               |
| KT large gy             | ■    |      | ■    |      |      |      | ■            | ■            | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KT large bk             | ■    |      | ■    |      |      |      |              |              |       |    |                | ■              | ■                | ■    | ■              | ■                |    |               |
| KTMB small/ large       | ■    |      |      |      |      |      | ■            | ■            | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KT-DPF small gy         | ■    |      |      |      |      |      | ■            |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KT-DPF small bk         | ■    |      |      |      |      |      |              |              |       |    |                | ■              | ■                | ■    | ■              | ■                |    |               |
| KT-DPF large gy         | ■    |      |      |      |      |      | ■            |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KT-DPF large bk         | ■    |      |      |      |      |      |              |              |       |    |                | ■              | ■                | ■    | ■              | ■                |    |               |
| DT                      | ■    |      |      |      |      |      | ■            |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| ST                      |      |      |      |      |      |      | ■            |              | ■     |    |                |                |                  |      | ■              |                  | ■  | ■             |
| KEL-FL                  | ■    |      |      |      |      |      |              |              | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| FT                      | ■    |      |      |      |      |      |              |              | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL 183                 | ■    |      |      |      |      |      | ■            |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL 183-E               | ■    |      |      |      |      |      |              |              |       |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KTMB 183                | ■    |      |      |      |      |      | ■            |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-JUMBO 1 & 2         | ■    |      |      |      |      |      | ■            |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KTF                     | ■    |      |      |      |      |      | ■            |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-QUICK 24/16/-B      | ■    |      |      |      |      |      |              |              | ■     |    | ■              |                | ■                |      | ■              |                  | ■  | ■             |
| QVT                     | ■    |      |      |      |      |      |              |              |       | ■  | ■              |                | ■                |      | ■              |                  | ■  | ■             |
| QVT-CLICK               | ■    |      |      |      |      |      |              |              |       |    | ■              |                | ■                |      | ■              |                  | ■  | ■             |
| KEL-QTA 24/10/-B/ round | ■    |      |      |      |      |      |              |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-QTE                 | ■    |      |      |      |      |      |              |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| QT                      | ■    |      |      |      |      |      |              |              | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-BES 24/16/10/ round |      |      |      |      |      |      |              |              |       |    |                |                |                  |      | ■              |                  | ■  | ■             |

# Appendix

## Certificates

| Product                 | IP54      | IP64 | IP65 | IP66 | IP67 | IP68 | NEMA TYPE 12 | NEMA TYPE 4X | UL/UR | GL | HL3 EN 45545-2 | UV ISO 4892-2A | ECOLAB certified | ATEX | RoHS compliant | Flame class UL94 |    | Halogen free  |
|-------------------------|-----------|------|------|------|------|------|--------------|--------------|-------|----|----------------|----------------|------------------|------|----------------|------------------|----|---------------|
|                         | IP rating |      |      |      |      |      | NEMA type    |              | UL/UR | GL | EN45545-2      | UV             | ECOLAB           | ATEX | RoHS           | Flame class UL94 |    | Halogen free  |
|                         | IP54      | IP64 | IP65 | IP66 | IP67 | IP68 | 12           | 4X           |       |    | HL3            |                |                  |      |                | HB               | Vo | Silicone free |
| <b>Product group 2:</b> |           |      |      |      |      |      |              |              |       |    |                |                |                  |      |                |                  |    |               |
| KEL-DPU 24 gy           |           |      | ■    | ■    |      |      |              | ■            | ■     |    | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPU 24 bk           |           |      | ■    | ■    |      |      |              | ■            | ■     |    |                | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPZ 24 gy           |           |      | ■    |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPZ 24 bk           |           |      | ■    |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPZ-B gy            |           |      |      | ■    |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPZ-B bk            |           |      |      | ■    |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPZ-E gy            |           |      |      | ■    |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPZ-E bk            |           |      |      | ■    |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPZ-KL gy           |           |      | ■    |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPZ-KL bk           |           |      | ■    |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPZ round gy        |           |      |      | ■    | ■    | ■    |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPZ round bk        |           |      |      | ■    | ■    | ■    |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DP 24 gy            |           | ■    |      |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DP 24 bk            |           | ■    |      |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DP-E gy             |           | ■    |      |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DP-E bk             |           | ■    |      |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DP round gy         |           |      | ■    |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DP round bk         |           |      | ■    |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| ST-B                    |           |      |      |      |      |      |              | ■            | ■     |    |                |                |                  |      | ■              |                  | ■  | ■             |
| KEL-DPF gy              |           |      | ■    |      |      | ■    |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-DPF bk              |           |      | ■    |      |      | ■    |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-JUMBO flex          | ■         |      |      |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| KEL-ULTRA flex          |           |      | ■    |      |      |      |              | ■            | ■     | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| <b>Product group 3:</b> |           |      |      |      |      |      |              |              |       |    |                |                |                  |      |                |                  |    |               |
| KZL                     |           |      |      |      |      |      |              |              |       | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| SF ZL                   |           |      |      |      |      |      |              |              |       | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| ZL                      |           |      |      |      |      |      |              |              |       | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| ZL-AB                   |           |      |      |      |      |      |              |              |       | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| ZL o3 o4 o5             |           |      |      |      |      |      |              |              |       | ■  | ■              | ■              | ■                | ■    | ■              |                  | ■  | ■             |
| <b>Product group 5:</b> |           |      |      |      |      |      |              |              |       |    |                |                |                  |      |                |                  |    |               |
| CONFIX FWS-A/-B gy      | ■         |      |      |      |      |      |              |              |       |    |                |                |                  |      | ■              |                  | ■  | ■             |
| CONFIX FWS-A/-B bk      | ■         |      |      |      |      |      |              |              |       |    |                |                |                  |      | ■              |                  | ■  | ■             |
| <b>Product group 6:</b> |           |      |      |      |      |      |              |              |       |    |                |                |                  |      |                |                  |    |               |
| KDR-ESR                 | ■         |      |      |      |      |      |              |              |       |    | ■              |                |                  |      | ■              |                  | ■  | ■             |
| KDR2 / KDR-BMP / MP     | ■         |      |      |      |      |      |              |              |       |    |                |                |                  |      | ■              |                  | ■  | ■             |
| BPK                     |           | ■    |      |      |      |      |              | ■            | ■     |    |                |                |                  |      | ■              |                  | ■  | ■             |
| BPK-RF                  | ■         |      |      |      |      |      |              | ■            | ■     |    |                |                |                  |      | ■              |                  | ■  | ■             |
| BPM                     | ■         |      |      |      |      |      |              |              |       |    |                |                |                  |      | ■              |                  | ■  | ■             |
| BPK-SNAP                | ■         |      |      |      |      |      |              |              |       |    |                |                |                  |      | ■              | ■                | ■  | ■             |
| KGM                     |           |      |      |      |      |      |              |              | ■     |    |                |                |                  |      | ■              |                  | ■  | ■             |
| KBH-S/KBH-R             |           |      |      |      |      |      |              |              |       |    | ■              | ■              |                  |      |                |                  | ■  | ■             |

## Appendix

### Flammability classification according to UL94



#### Flame class UL94-HB

Applying the horizontal burning test the material burns slowly. For parts with a thickness up to 3 mm the burning speed must not be faster than 3 inches/min and for parts with a thickness over 3 mm the burning speed must not be faster than 1.5 inches/mm.

Materials which burn faster are not UL certified.

#### Flame class UL94-V2

Applying the vertical burning test, the material must normally extinguish itself after 25 seconds or less, but max. after 30 seconds. The material may drop and cotton wool placed under the probe may inflame. The material must not glow longer than 60 seconds.

#### Flame class UL94-V1

Applying the vertical burning test, the material must normally extinguish itself after 25 seconds or less, but max. after 30 seconds. The material may drop and cotton wool placed under the probe may inflame. The material must not glow longer than 30 seconds.

#### Flame class UL94-V0

Applying the vertical burning test, the material must normally extinguish itself after 5 seconds or less, but max. after 10 seconds. The material may drop down, but cotton wool placed under the probe must not inflame. The material must not glow longer than 30 seconds.

# Appendix

## Sealing rates according to IEC/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. IP54).

### 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 12.5 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 standardised 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

### General reference notes

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

Please do your own examinations and tests to determine the practical suitability of the products for the usage intended.

Application, use and installation of the products is the customer's responsibility. Legal and regulatory provisions and any rights to third parties have to be observed.

Moreover our general terms and conditions, which can be requested from us, apply.

This catalogue was prepared with the greatest care. All technical data and information have been reviewed before printing. Due to continuous improvement and development of our production programme we reserve, modify products from this catalogue or to take out products from our product range. Therefore, technical information and products which are included in this catalogue may differ – without prior notice.

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# Appendix

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| 31100     | 163  | GMT 25 bk                | 31574     | 136  | CONFIX WS-B-PA-NW 10 bk   | 32280     | 85   | ZL 39 AB M5     | 32761     | 130  | MB 100 16 M8    |
| 31110     | 163  | GMT 20 bk                | 31576     | 136  | CONFIX WS-B-PA-NW 13 bk   | 32281     | 85   | ZL 60 AB M5     | 32762     | 130  | MB 150 16 M6    |
| 31120     | 163  | GMT 32 bk                | 31578     | 136  | CONFIX WS-B-PA-NW 17 bk   | 32282     | 85   | ZL 70 AB M5     | 32763     | 130  | MB 150 16 M8    |
| 31140     | 163  | GMT 50 bk                | 31580     | 136  | CONFIX WS-B-PA-NW 23 bk   | 32283     | 85   | ZL 87 AB M5     | 32764     | 130  | MB 200 16 M6    |
| 31200     | 138  | CONFIX WST NW 10         | 31582     | 136  | CONFIX WS-B-PA-NW 29 bk   | 32284     | 85   | ZL 103 AB M5    | 32765     | 130  | MB 200 16 M8    |
| 31210     | 138  | CONFIX WST NW 14         | 31584     | 136  | CONFIX WS-B-PA-NW 37 bk   | 32285     | 85   | ZL 121 AB M5    | 32766     | 131  | MB 250 16 M8    |
| 31220     | 138  | CONFIX WST NW 20         | 31586     | 136  | CONFIX WS-B-PA-NW 50 bk   | 32286     | 85   | ZL 140 AB M5    | 32767     | 131  | MB 300 16 M6    |
| 31230     | 138  | CONFIX WST NW 23         | 31590     | 137  | CONFIX WS-B-PAL-NW 75 bk  | 32287     | 85   | ZL 180 AB M5    | 32768     | 131  | MB 300 16 M8    |
| 31240     | 138  | CONFIX WST NW 37         | 31592     | 137  | CONFIX WS-B-PAL-NW 8,5 bk | 32290     | 85   | ZL 39 AB M6     | 32769     | 131  | MB 350 16 M8    |
| 31250     | 138  | CONFIX WST NW 45         | 31594     | 137  | CONFIX WS-B-PAL-NW 10 bk  | 32291     | 85   | ZL 60 AB M6     | 32770     | 131  | MB 400 16 M8    |
| 31260     | 138  | CONFIX WST NW 70         | 31596     | 137  | CONFIX WS-B-PAL-NW 13 bk  | 32292     | 85   | ZL 70 AB M6     | 32771     | 131  | MB 500 16 M8    |
| 31300     | 139  | CONFIX SH 10             | 31598     | 137  | CONFIX WS-B-PAL-NW 17 bk  | 32293     | 85   | ZL 87 AB M6     | 32772     | 131  | MB 600 16 M8    |
| 31310     | 139  | CONFIX SH 14             | 31600     | 137  | CONFIX WS-B-PAL-NW 23 bk  | 32294     | 85   | ZL 103 AB M6    | 32773     | 131  | MB 200 16 M6+M8 |
| 31320     | 139  | CONFIX SH 20             | 31602     | 137  | CONFIX WS-B-PAL-NW 29 bk  | 32295     | 85   | ZL 121 AB M6    | 32774     | 131  | MB 250 16 M6+M8 |
| 31330     | 139  | CONFIX SH 23             | 31604     | 137  | CONFIX WS-B-PAL-NW 37 bk  | 32296     | 85   | ZL 140 AB M6    | 32775     | 131  | MB 300 16 M6+M8 |
| 31340     | 139  | CONFIX SH 37             | 31606     | 137  | CONFIX WS-B-PAL-NW 50 bk  | 32297     | 85   | ZL 180 AB M6    | 32800     | 131  | MB 100 25 M10   |
| 31350     | 139  | CONFIX SH 45             | 31610     | 137  | CONFIX WS-B-PP-NW 7,5 bk  | 32351     | 83   | SF ZL 39        | 32801     | 131  | MB 150 25 M10   |
| 31360     | 139  | CONFIX SH 70             | 31612     | 137  | CONFIX WS-B-PP-NW 8,5 bk  | 32352     | 83   | SF ZL 60        | 32802     | 131  | MB 200 25 M8    |
| 31380     | 134  | CONFIX FWS-A 16 bk       | 31614     | 137  | CONFIX WS-B-PP-NW 10 bk   | 32353     | 83   | SF ZL 70        | 32803     | 131  | MB 200 25 M10   |
| 31381     | 134  | CONFIX FWS-A 16 gy       | 31616     | 137  | CONFIX WS-B-PP-NW 13 bk   | 32354     | 83   | SF ZL 87        | 32804     | 131  | MB 250 25 M8    |
| 31383     | 134  | CONFIX FWS-A 20 bk       | 31618     | 137  | CONFIX WS-B-PP-NW 17 bk   | 32355     | 83   | SF ZL 103       | 32805     | 131  | MB 250 25 M10   |
| 31384     | 134  | CONFIX FWS-A 20 gy       | 31620     | 137  | CONFIX WS-B-PP-NW 23 bk   | 32356     | 83   | SF ZL 121       | 32806     | 131  | MB 300 25 M8    |
| 31386     | 134  | CONFIX FWS-A 25 bk       | 31622     | 137  | CONFIX WS-B-PP-NW 29 bk   | 32357     | 83   | SF ZL 140       | 32807     | 131  | MB 300 25 M10   |
| 31387     | 134  | CONFIX FWS-A 25 gy       | 31624     | 137  | CONFIX WS-B-PP-NW 37 bk   | 32358     | 83   | SF ZL 180       | 32808     | 131  | MB 350 25 M10   |
| 31389     | 134  | CONFIX FWS-A 32 bk       | 31626     | 137  | CONFIX WS-B-PP-NW 50 bk   | 32360     | 85   | ZL 39 AB M5 BR  | 32809     | 131  | MB 400 25 M8    |
| 31390     | 134  | CONFIX FWS-A 32 gy       | 32112     | 86   | ZL 03                     | 32361     | 85   | ZL 60 AB M5 BR  | 32810     | 131  | MB 500 25 M8    |
| 31392     | 134  | CONFIX FWS-A 40 bk       | 32114     | 86   | ZL 04                     | 32362     | 85   | ZL 70 AB M5 BR  | 32811     | 131  | MB 600 25 M8    |
| 31393     | 134  | CONFIX FWS-A 40 gy       | 32116     | 86   | ZL 05                     | 32363     | 85   | ZL 87 AB M5 BR  | 36000     | 161  | MF-B20          |
| 31395     | 134  | CONFIX FWS-A 50 bk       | 32222     | 84   | ZL 39                     | 32364     | 85   | ZL 103 AB M5 BR | 36002     | 161  | MF-B20 Clip     |
| 31396     | 134  | CONFIX FWS-A 50 gy       | 32224     | 84   | ZL 60                     | 32365     | 85   | ZL 121 AB M5 BR | 36008     | 161  | MF-B30          |
| 31410     | 135  | CONFIX FWS-B 11 bk       | 32226     | 84   | ZL 70                     | 32366     | 85   | ZL 140 AB M5 BR | 36010     | 161  | MF-B30 Clip     |
| 31411     | 135  | CONFIX FWS-B 11 gy       | 32228     | 84   | ZL 87                     | 32367     | 85   | ZL 180 AB M5 BR | 36016     | 161  | MF-B50          |
| 31413     | 135  | CONFIX FWS-B 16 bk       | 32230     | 84   | ZL 103                    | 32700     | 130  | MB 100 6 M6     | 36018     | 161  | MF-B50 Clip     |
| 31414     | 135  | CONFIX FWS-B 16 gy       | 32232     | 84   | ZL 121                    | 32701     | 130  | MB 150 6 M6     | 36024     | 161  | MF-B90          |
| 31416     | 135  | CONFIX FWS-B 21 bk       | 32234     | 84   | ZL 140                    | 32702     | 130  | MB 200 6 M6     | 36026     | 161  | MF-B90 Clip     |
| 31417     | 135  | CONFIX FWS-B 21 gy       | 32236     | 84   | ZL 180                    | 32703     | 130  | MB 300 6 M6     | 36032     | 161  | MF-C40          |
| 31419     | 135  | CONFIX FWS-B 29 bk       | 32250     | 82   | KZL 11                    | 32704     | 130  | MB 400 6 M6     | 36034     | 161  | MF-C40 Clip     |
| 31420     | 135  | CONFIX FWS-B 29 gy       | 32251     | 87   | DH 30                     | 32705     | 130  | MB 500 6 M6     | 36040     | 161  | MF-C53          |
| 31422     | 135  | CONFIX FWS-B 36 bk       | 32252     | 87   | DH 32                     | 32706     | 130  | MB 250 6 M6     | 36042     | 161  | MF-C53 Clip     |
| 31423     | 135  | CONFIX FWS-B 36 gy       | 32260     | 82   | KZL 39 H                  | 32730     | 130  | MB 100 10 M6    | 36048     | 161  | MF-D49          |
| 31425     | 135  | CONFIX FWS-B48 bk        | 32261     | 82   | KZL 39 C                  | 32731     | 130  | MB 100 10 M8    | 36050     | 161  | MF-D49 Clip     |
| 31426     | 135  | CONFIX FWS-B48 gy        | 32262     | 82   | KZL 80 H                  | 32732     | 130  | MB 150 10 M8    | 36056     | 161  | MF-A49          |
| 31550     | 136  | CONFIX WS-G-PA-NW 7,5 gy | 32263     | 82   | KZL 80 C                  | 32733     | 130  | MB 200 10 M6    | 36058     | 161  | MF-A49 Clip     |
| 31552     | 136  | CONFIX WS-G-PA-NW 8,5 gy | 32264     | 82   | KZL 140 H                 | 32734     | 130  | MB 200 10 M8    | 36064     | 161  | MF-A68          |
| 31554     | 136  | CONFIX WS-G-PA-NW 10 gy  | 32265     | 82   | KZL 140 C                 | 32735     | 130  | MB 300 10 M6    | 36066     | 161  | MF-A68 Clip     |
| 31556     | 136  | CONFIX WS-G-PA-NW 13 gy  | 32270     | 85   | ZL 39 AB M4               | 32736     | 130  | MB 300 10 M8    | 36072     | 161  | MF-A88          |
| 31558     | 136  | CONFIX WS-G-PA-NW 17 gy  | 32271     | 85   | ZL 60 AB M4               | 32737     | 130  | MB 400 10 M6    | 36074     | 161  | MF-A88 Clip     |
| 31560     | 136  | CONFIX WS-G-PA-NW 23 gy  | 32272     | 85   | ZL 70 AB M4               | 32738     | 130  | MB 400 10 M8    | 36100     | 100  | Bus bar 10x3    |
| 31562     | 136  | CONFIX WS-G-PA-NW 29 gy  | 32273     | 85   | ZL 87 AB M4               | 32739     | 130  | MB 500 10 M6    | 36150     | 161  | Clip            |
| 31564     | 136  | CONFIX WS-G-PA-NW 37 gy  | 32274     | 85   | ZL 140 AB M4              | 32741     | 130  | MB 200 10 M6+M8 | 36200     | 94   | SKL 1,5-3       |
| 31566     | 136  | CONFIX WS-G-PA-NW 50 gy  | 32275     | 85   | ZL 103 AB M4              | 32742     | 130  | MB 250 10 M6+M8 | 36202     | 94   | SKL 3-6         |
| 31570     | 136  | CONFIX WS-B-PA-NW 7,5 bk | 32276     | 85   | ZL 180 AB M4              | 32743     | 130  | MB 300 10 M6+M8 | 36204     | 94   | SKL 6-8         |
| 31572     | 136  | CONFIX WS-B-PA-NW 8,5 bk | 32277     | 85   | ZL 121 AB M4              | 32760     | 130  | MB 100 16 M6    | 36205     | 94   | SKL 8-11        |



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| 36207     | 94   | SKL 17-22       | 36426     | 128  | KAFM 6 single          | 36704     | 126  | SC SK 10-20      | 36781.41  | 110  | PFKZ2-A SKL 41   |
| 36208     | 94   | SKL 23-29       | 36428     | 128  | KAFM 8 single          | 36708     | 126  | SC SK 15-32      | 36781.42  | 110  | PFKZ2-A SKL 42   |
| 36209     | 94   | SKL 30-37       | 36430     | 128  | KAFM 10 single         | 36778.1   | 109  | PFK-A SKL 1.5-3  | 36781.43  | 110  | PFKZ2-A SKL 43   |
| 36213     | 94   | SKL 38-48       | 36432     | 128  | KAFM 2 SK              | 36778.2   | 109  | PFK-A SKL 3-6    | 36782.1   | 109  | PFK-B SKL 1.5-3  |
| 36221     | 97   | SF single M5    | 36434     | 128  | KAFM 4 SK              | 36778.3   | 109  | PFK-A SKL 6-8    | 36782.2   | 109  | PFK-B SKL 3-6    |
| 36222     | 126  | SK 3-8          | 36436     | 128  | KAFM 6 SK              | 36778.4   | 109  | PFK-A SKL 8-11   | 36782.3   | 109  | PFK-B SKL 6-8    |
| 36224     | 126  | SK 4-13,5       | 36438     | 128  | KAFM 8 SK              | 36779.1   | 108  | PFKZ-A SKL 1.5-3 | 36782.4   | 109  | PFK-B SKL 8-11   |
| 36226     | 126  | SK 10-20        | 36440     | 128  | KAFM 10 SK             | 36779.2   | 108  | PFKZ-A SKL 3-6   | 36783.1   | 108  | PFKZ-B SKL 1.5-3 |
| 36228     | 126  | SK 15-32        | 36442     | 128  | KAFM 2 SF              | 36779.3   | 108  | PFKZ-A SKL 6-8   | 36783.2   | 108  | PFKZ-B SKL 3-6   |
| 36229     | 98   | SFS single      | 36444     | 128  | KAFM 4 SF              | 36779.4   | 108  | PFKZ-A SKL 8-11  | 36783.3   | 108  | PFKZ-B SKL 6-8   |
| 36230     | 97   | SF single M4    | 36446     | 128  | KAFM 6 SF              | 36780.01  | 111  | PFK2-A SKL 01    | 36783.4   | 108  | PFKZ-B SKL 8-11  |
| 36231     | 128  | SC single       | 36448     | 128  | KAFM 8 SF              | 36780.02  | 111  | PFK2-A SKL 02    | 36784.01  | 111  | PFK2-B SKL 01    |
| 36232     | 128  | SK single       | 36450     | 128  | KAFM 10 SF             | 36780.03  | 111  | PFK2-A SKL 03    | 36784.02  | 111  | PFK2-B SKL 02    |
| 36234     | 128  | Bushing         | 36452     | 128  | KAFM 16 SF             | 36780.04  | 111  | PFK2-A SKL 04    | 36784.03  | 111  | PFK2-B SKL 03    |
| 36235     | 126  | SS SK 3-8       | 36454     | 128  | KAFM 29 SF             | 36780.1   | 111  | PFK2-A SKL 10    | 36784.04  | 111  | PFK2-B SKL 04    |
| 36236     | 126  | SS SK 4-13,5    | 36458     | 128  | KAFM 59 SF             | 36780.11  | 111  | PFK2-A SKL 11    | 36784.1   | 111  | PFK2-B SKL 10    |
| 36237     | 126  | SS SK 10-20     | 36459     | 128  | KAFM 59 Zn SF          | 36780.12  | 111  | PFK2-A SKL 12    | 36784.11  | 111  | PFK2-B SKL 11    |
| 36238     | 126  | SS SK 15-32     | 36460     | 128  | KAFM 16 DH             | 36780.13  | 111  | PFK2-A SKL 13    | 36784.12  | 111  | PFK2-B SKL 12    |
| 36243     | 97   | SF SKL 1.5-3    | 36462     | 128  | KAFM 29 DH             | 36780.14  | 111  | PFK2-A SKL 14    | 36784.13  | 111  | PFK2-B SKL 13    |
| 36244     | 97   | SF SKL 3-6      | 36464     | 128  | KAFM 59 DH             | 36780.2   | 111  | PFK2-A SKL 20    | 36784.14  | 111  | PFK2-B SKL 14    |
| 36245     | 97   | SF SKL 6-8      | 36465     | 128  | KAFM 16 SC             | 36780.21  | 111  | PFK2-A SKL 21    | 36784.2   | 111  | PFK2-B SKL 20    |
| 36246     | 97   | SF SKL 8-11     | 36466     | 128  | KAFM 29 SC             | 36780.22  | 111  | PFK2-A SKL 22    | 36784.21  | 111  | PFK2-B SKL 21    |
| 36247     | 97   | SF SKL 12-16    | 36467     | 128  | KAFM 59 SC             | 36780.23  | 111  | PFK2-A SKL 23    | 36784.22  | 111  | PFK2-B SKL 22    |
| 36248     | 97   | SF SKL 17-22    | 36470     | 128  | KAFM 16 SK             | 36780.24  | 111  | PFK2-A SKL 24    | 36784.23  | 111  | PFK2-B SKL 23    |
| 36249     | 97   | SF SKL 23-29    | 36471     | 128  | KAFM 29 SK             | 36780.3   | 111  | PFK2-A SKL 30    | 36784.24  | 111  | PFK2-B SKL 24    |
| 36250     | 97   | SF SKL 30-37    | 36472     | 128  | KAFM 59 SK             | 36780.31  | 111  | PFK2-A SKL 31    | 36784.3   | 111  | PFK2-B SKL 30    |
| 36251     | 106  | LF SKL 1.5-3    | 36482     | 128  | KAFM 2 DH              | 36780.32  | 111  | PFK2-A SKL 32    | 36784.31  | 111  | PFK2-B SKL 31    |
| 36252     | 97   | SF SKL 38-48    | 36484     | 128  | KAFM 4 DH              | 36780.33  | 111  | PFK2-A SKL 33    | 36784.32  | 111  | PFK2-B SKL 32    |
| 36253     | 106  | LF SKL 3-6      | 36486     | 128  | KAFM 6 DH              | 36780.34  | 111  | PFK2-A SKL 34    | 36784.33  | 111  | PFK2-B SKL 33    |
| 36255     | 106  | LF SKL 6-8      | 36488     | 128  | KAFM 8 DH              | 36780.4   | 111  | PFK2-A SKL 40    | 36784.34  | 111  | PFK2-B SKL 34    |
| 36256     | 106  | LF SKL 8-11     | 36490     | 128  | KAFM 10 DH             | 36780.41  | 111  | PFK2-A SKL 41    | 36784.4   | 111  | PFK2-B SKL 40    |
| 36257     | 106  | LF SKL 12-16    | 36500     | 126  | SF SK 3-8              | 36780.42  | 111  | PFK2-A SKL 42    | 36784.41  | 111  | PFK2-B SKL 41    |
| 36258     | 106  | LF SKL 17-22    | 36502     | 126  | SF SK 4-13,5           | 36780.43  | 111  | PFK2-A SKL 43    | 36784.42  | 111  | PFK2-B SKL 42    |
| 36259     | 106  | LF SKL 23-29    | 36504     | 126  | SF SK 10-20            | 36781.01  | 110  | PFKZ2-A SKL 01   | 36784.43  | 111  | PFK2-B SKL 43    |
| 36282     | 127  | SKS 2-5         | 36506     | 126  | SF SK 15-32            | 36781.02  | 110  | PFKZ2-A SKL 02   | 36785.01  | 110  | PFKZ2-B SKL 01   |
| 36283     | 127  | SKS 3-8         | 36520     | 124  | KEL-EMC-B              | 36781.03  | 110  | PFKZ2-A SKL 03   | 36785.02  | 110  | PFKZ2-B SKL 02   |
| 36284     | 127  | SKS 3-14        | 36522     | 124  | KEL-EMC 10             | 36781.04  | 110  | PFKZ2-A SKL 04   | 36785.03  | 110  | PFKZ2-B SKL 03   |
| 36285     | 127  | SKS 3-20        | 36524     | 124  | KEL-EMC 16 4           | 36781.1   | 110  | PFKZ2-A SKL 10   | 36785.04  | 110  | PFKZ2-B SKL 04   |
| 36286     | 127  | SKS 5-28        | 36525     | 122  | KEL-EMC-Z 16 4         | 36781.11  | 110  | PFKZ2-A SKL 11   | 36785.1   | 110  | PFKZ2-B SKL 10   |
| 36287     | 127  | SKS 20-35       | 36526     | 124  | KEL-EMC 24 5           | 36781.12  | 110  | PFKZ2-A SKL 12   | 36785.11  | 110  | PFKZ2-B SKL 11   |
| 36322     | 129  | ZL 39 SB-EMC-1  | 36527     | 122  | KEL-EMC-Z 24 5         | 36781.13  | 110  | PFKZ2-A SKL 13   | 36785.12  | 110  | PFKZ2-B SKL 12   |
| 36324     | 129  | ZL 87 SB-EMC-1  | 36530     | 128  | KAFM 16 single         | 36781.14  | 110  | PFKZ2-A SKL 14   | 36785.13  | 110  | PFKZ2-B SKL 13   |
| 36326     | 129  | ZL 140 SB-EMC-1 | 36540     | 128  | KAFM 29 single         | 36781.2   | 110  | PFKZ2-A SKL 20   | 36785.14  | 110  | PFKZ2-B SKL 14   |
| 36328     | 129  | ZL 60 SB-EMC-1  | 36550     | 128  | KAFM 59 single         | 36781.21  | 110  | PFKZ2-A SKL 21   | 36785.2   | 110  | PFKZ2-B SKL 20   |
| 36330     | 129  | ZL 121 SB-EMC-1 | 36562     | 128  | KAFM 59 Zn single      | 36781.22  | 110  | PFKZ2-A SKL 22   | 36785.21  | 110  | PFKZ2-B SKL 21   |
| 36332     | 129  | ZL 103 SB-EMC-1 | 36650.1   | 112  | PCB-4-V-6,8 SKL 1.5-3  | 36781.23  | 110  | PFKZ2-A SKL 23   | 36785.22  | 110  | PFKZ2-B SKL 22   |
| 36400     | 128  | KAFM 10 SC      | 36650.2   | 112  | PCB-4-V-6,8 SKL 3-6    | 36781.24  | 110  | PFKZ2-A SKL 24   | 36785.23  | 110  | PFKZ2-B SKL 23   |
| 36412     | 128  | KAFM 2 SC       | 36650.3   | 112  | PCB-4-V-6,8 SKL 6-8    | 36781.3   | 110  | PFKZ2-A SKL 30   | 36785.24  | 110  | PFKZ2-B SKL 24   |
| 36414     | 128  | KAFM 4 SC       | 36656.1   | 112  | PCB-4-V-12,5 SKL 1.5-3 | 36781.31  | 110  | PFKZ2-A SKL 31   | 36785.3   | 110  | PFKZ2-B SKL 30   |
| 36416     | 128  | KAFM 6 SC       | 36656.2   | 112  | PCB-4-V-12,5 SKL 3-6   | 36781.32  | 110  | PFKZ2-A SKL 32   | 36785.31  | 110  | PFKZ2-B SKL 31   |
| 36418     | 128  | KAFM 8 SC       | 36656.3   | 112  | PCB-4-V-12,5 SKL 6-8   | 36781.33  | 110  | PFKZ2-A SKL 33   | 36785.32  | 110  | PFKZ2-B SKL 32   |
| 36422     | 128  | KAFM 2 single   | 36696     | 126  | SC SK 3-8              | 36781.34  | 110  | PFKZ2-A SKL 34   | 36785.33  | 110  | PFKZ2-B SKL 33   |



# Appendix

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| 36785.34  | 110  | PFKZ2-B SKL 34 | 36789.31  | 102  | PFSZ2 SKL 31         | 37181.1   | 125  | KVT-EMC-32 SKL 1.5-3 | 38005     | 116  | RLFZ (x3)     |
| 36785.4   | 110  | PFKZ2-B SKL 40 | 36789.32  | 102  | PFSZ2 SKL 32         | 37181.2   | 125  | KVT-EMC-32 SKL 3-6   | 38010     | 116  | RLFZ (x4)     |
| 36785.41  | 110  | PFKZ2-B SKL 41 | 36789.33  | 102  | PFSZ2 SKL 33         | 37181.3   | 125  | KVT-EMC-32 SKL 6-8   | 38015     | 116  | RLFZ (x5)     |
| 36785.42  | 110  | PFKZ2-B SKL 42 | 36789.34  | 102  | PFSZ2 SKL 34         | 37181.4   | 125  | KVT-EMC-32 SKL 8-11  | 38020     | 116  | RLFZ (x6)     |
| 36785.43  | 110  | PFKZ2-B SKL 43 | 36789.4   | 102  | PFSZ2 SKL 40         | 37505.01  | 114  | STFZ2 01             | 38025     | 116  | RLFZ (x7)     |
| 36786.1   | 101  | PFS SKL 1.5-3  | 36789.41  | 102  | PFSZ2 SKL 41         | 37505.02  | 114  | STFZ2 02             | 38030     | 116  | RLFZ (x8)     |
| 36786.2   | 101  | PFS SKL 3-6    | 36789.42  | 102  | PFSZ2 SKL 42         | 37505.03  | 114  | STFZ2 03             | 38035     | 116  | RLFZ (x9)     |
| 36786.3   | 101  | PFS SKL 6-8    | 36789.43  | 102  | PFSZ2 SKL 43         | 37505.1   | 114  | STFZ2 10             | 38040     | 116  | RLFZ (x10)    |
| 36786.4   | 101  | PFS SKL 8-11   | 36810     | 98   | SFS SKL 1.5-3        | 37505.11  | 114  | STFZ2 11             | 38045     | 116  | RLFZ (x11)    |
| 36786.5   | 101  | PFS SKL 12-16  | 36815     | 98   | SFS SKL 3-6          | 37505.12  | 114  | STFZ2 12             | 38050     | 116  | RLFZ (x12)    |
| 36786.6   | 101  | PFS SKL 17-22  | 36820     | 98   | SFS SKL 6-8          | 37505.13  | 114  | STFZ2 13             | 38105     | 117  | SF RLFZ (x3)  |
| 36787.1   | 100  | PFSZ SKL 1.5-3 | 36850     | 96   | SFZ SKL 1.5-3        | 37505.2   | 114  | STFZ2 20             | 38110     | 117  | SF RLFZ (x4)  |
| 36787.2   | 100  | PFSZ SKL 3-6   | 36855     | 96   | SFZ SKL 3-6          | 37505.21  | 114  | STFZ2 21             | 38115     | 117  | SF RLFZ (x5)  |
| 36787.3   | 100  | PFSZ SKL 6-8   | 36860     | 96   | SFZ SKL 6-8          | 37505.22  | 114  | STFZ2 22             | 38120     | 117  | SF RLFZ (x6)  |
| 36787.4   | 100  | PFSZ SKL 8-11  | 36865     | 96   | SFZ SKL 8-11         | 37505.23  | 114  | STFZ2 23             | 38125     | 117  | SF RLFZ (x7)  |
| 36788.01  | 103  | PFS2 SKL 01    | 36870     | 96   | SFZ SKL 12-16        | 37505.3   | 114  | STFZ2 30             | 38130     | 117  | SF RLFZ (x8)  |
| 36788.02  | 103  | PFS2 SKL 02    | 36875     | 96   | SFZ SKL 17-22        | 37505.31  | 114  | STFZ2 31             | 38135     | 117  | SF RLFZ (x9)  |
| 36788.03  | 103  | PFS2 SKL 03    | 36880     | 96   | SFZ SKL 23-29        | 37505.32  | 114  | STFZ2 32             | 38140     | 117  | SF RLFZ (x10) |
| 36788.04  | 103  | PFS2 SKL 04    | 36886.1   | 105  | LFZ-U4 SKL 1.5-3     | 37505.33  | 114  | STFZ2 33             | 38145     | 117  | SF RLFZ (x11) |
| 36788.1   | 103  | PFS2 SKL 10    | 36886.2   | 105  | LFZ-U4 SKL 3-6       | 37507.01  | 115  | STFZ2-SP 01          | 38150     | 117  | SF RLFZ (x12) |
| 36788.11  | 103  | PFS2 SKL 11    | 36886.3   | 105  | LFZ-U4 SKL 6-8       | 37507.02  | 115  | STFZ2-SP 02          | 39110     | 124  | KEL-EMC F     |
| 36788.12  | 103  | PFS2 SKL 12    | 36886.4   | 105  | LFZ-U4 SKL 8-11      | 37507.03  | 115  | STFZ2-SP 03          | 39150     | 123  | KEL-EMC-PF B4 |
| 36788.13  | 103  | PFS2 SKL 13    | 36887.1   | 105  | LFZ-U5 SKL 1.5-3     | 37507.1   | 115  | STFZ2-SP 10          | 39160     | 123  | KEL-EMC-PF 10 |
| 36788.14  | 103  | PFS2 SKL 14    | 36887.2   | 105  | LFZ-U5 SKL 3-6       | 37507.11  | 115  | STFZ2-SP 11          | 39170     | 123  | KEL-EMC-PF 16 |
| 36788.2   | 103  | PFS2 SKL 20    | 36887.3   | 105  | LFZ-U5 SKL 6-8       | 37507.12  | 115  | STFZ2-SP 12          | 39180     | 123  | KEL-EMC-PF 24 |
| 36788.21  | 103  | PFS2 SKL 21    | 36887.4   | 105  | LFZ-U5 SKL 8-11      | 37507.13  | 115  | STFZ2-SP 13          | 39800     | 43   | KMS Template  |
| 36788.22  | 103  | PFS2 SKL 22    | 36910     | 104  | LFZ SKL 1.5-3        | 37507.2   | 115  | STFZ2-SP 20          | 39900     | 44   | KTs 17 gy     |
| 36788.23  | 103  | PFS2 SKL 23    | 36915     | 104  | LFZ SKL 3-6          | 37507.21  | 115  | STFZ2-SP 21          | 39901     | 44   | KTs 16 gy     |
| 36788.24  | 103  | PFS2 SKL 24    | 36920     | 104  | LFZ SKL 6-8          | 37507.22  | 115  | STFZ2-SP 22          | 39902     | 45   | KT-ASI gy     |
| 36788.3   | 103  | PFS2 SKL 30    | 36925     | 104  | LFZ SKL 8-11         | 37507.23  | 115  | STFZ2-SP 23          | 39903     | 45   | KT-ASI bk     |
| 36788.31  | 103  | PFS2 SKL 31    | 36930     | 104  | LFZ SKL 12-16        | 37507.3   | 115  | STFZ2-SP 30          | 39904     | 45   | KT 2 5 bk     |
| 36788.32  | 103  | PFS2 SKL 32    | 36935     | 104  | LFZ SKL 17-22        | 37507.31  | 115  | STFZ2-SP 31          | 39905     | 45   | KT 2 6 bk     |
| 36788.33  | 103  | PFS2 SKL 33    | 36940     | 104  | LFZ SKL 23-29        | 37507.32  | 115  | STFZ2-SP 32          | 39906     | 45   | KT 2 4 gy     |
| 36788.34  | 103  | PFS2 SKL 34    | 36952     | 118  | RLF (x6)             | 37507.33  | 115  | STFZ2-SP 33          | 39907     | 45   | KT 2 4 gy     |
| 36788.4   | 103  | PFS2 SKL 40    | 36953     | 118  | RLF (x8)             | 37510.1   | 114  | STFZ SKL 1.5-3       | 39908     | 45   | KT 4 5 gy     |
| 36788.41  | 103  | PFS2 SKL 41    | 36954     | 118  | RLF (x10)            | 37510.2   | 114  | STFZ SKL 3-6         | 39909     | 45   | KT 4 4 gy     |
| 36788.42  | 103  | PFS2 SKL 42    | 36955     | 118  | RLF (x11)            | 37510.3   | 114  | STFZ SKL 6-8         | 39910     | 45   | KT 4 5 bk     |
| 36788.43  | 103  | PFS2 SKL 43    | 36958     | 118  | RLF (x5)             | 37512.1   | 115  | STFZ-SP SKL 1.5-3    | 39911     | 45   | KT 4 4 bk     |
| 36789.01  | 102  | PFSZ2 SKL 01   | 36962     | 118  | RLF (x12)            | 37512.2   | 115  | STFZ-SP SKL 3-6      | 39912     | 44   | KTs 16 bk     |
| 36789.02  | 102  | PFSZ2 SKL 02   | 36963     | 118  | RLF (x7)             | 37512.3   | 115  | STFZ-SP SKL 6-8      | 39913     | 44   | KTs 17 bk     |
| 36789.03  | 102  | PFSZ2 SKL 03   | 36965     | 118  | RLF (x3)             | 37514.1   | 115  | STFZ-U SKL 1.5-3     | 39914     | 45   | KT 4 3 gy     |
| 36789.04  | 102  | PFSZ2 SKL 04   | 36984     | 118  | RLF (x4)             | 37514.2   | 115  | STFZ-U SKL 3-6       | 39915     | 45   | KT 4 3 bk     |
| 36789.1   | 102  | PFSZ2 SKL 10   | 36985     | 118  | RLF (x9)             | 37514.3   | 115  | STFZ-U SKL 6-8       | 39916     | 45   | KT 2 7 bk     |
| 36789.11  | 102  | PFSZ2 SKL 11   | 37150     | 129  | ZL 39 SB-EMC-2       | 37600     | 95   | MSKL 3-12            | 39917     | 45   | KT 2 8 gy     |
| 36789.12  | 102  | PFSZ2 SKL 12   | 37152     | 129  | ZL 60 SB-EMC-2       | 37602     | 95   | MSKL 8-18            | 39918     | 45   | KT 2 8 bk     |
| 36789.13  | 102  | PFSZ2 SKL 13   | 37154     | 129  | ZL 87 SB-EMC-2       | 37608     | 95   | LFJ MSKL 3-12        | 39921     | 45   | KT-ASI2    gy |
| 36789.14  | 102  | PFSZ2 SKL 14   | 37156     | 129  | ZL 103 SB-EMC-2      | 37610     | 95   | LFJ MSKL 8-18        | 39922     | 45   | KT-ASI2 rl gy |
| 36789.2   | 102  | PFSZ2 SKL 20   | 37158     | 129  | ZL 121 SB-EMC-2      | 37612     | 95   | LFZ-M MSKL 3-12      | 39923     | 45   | KT-ASI2    bk |
| 36789.21  | 102  | PFSZ2 SKL 21   | 37159     | 129  | ZL 140 SB-EMC-2      | 37614     | 95   | LFZ-M MSKL 8-18      | 39924     | 45   | KT-ASI2 rl bk |
| 36789.22  | 102  | PFSZ2 SKL 22   | 37180.1   | 125  | KVT-EMC-25 SKL 1.5-3 | 37616     | 95   | SFJ MSKL 3-12        | 39929     | 44   | KT tele       |
| 36789.23  | 102  | PFSZ2 SKL 23   | 37180.2   | 125  | KVT-EMC-25 SKL 3-6   | 37618     | 95   | SFJ MSKL 8-18        | 39930     | 44   | KT oval       |
| 36789.24  | 102  | PFSZ2 SKL 24   | 37180.3   | 125  | KVT-EMC-25 SKL 6-8   | 37620     | 95   | SFZ-M MSKL 3-12      | 39931     | 44   | KT S1         |
| 36789.3   | 102  | PFSZ2 SKL 30   | 37180.4   | 125  | KVT-EMC-25 SKL 8-11  | 37622     | 95   | SFZ-M MSKL 8-18      | 39932     | 45   | KT 4 6 gy     |

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| 39933     | 45   | KT 4 6 bk   | 41304     | 44   | KT 4 bk     | 41510     | 48   | DT 2              | 42148.200 | 27   | KEL 16 12-2 MT V2A |
| 39934     | 44   | KT 2 gy     | 41305     | 44   | KT 5 bk     | 41520     | 48   | DT 3              | 42149     | 27   | KEL 16 24-2 MT     |
| 39935     | 45   | KT 2 2 gy   | 41306     | 44   | KT 6 bk     | 41530     | 48   | DT 4              | 42149.200 | 27   | KEL 16 24-2 MT V2A |
| 39936     | 45   | KT 2 2 bk   | 41307     | 44   | KT 7 bk     | 41991     | 159  | BPM 6 V2A         | 42162     | 19   | KEL 16 2           |
| 39937     | 45   | KT 4 2 gy   | 41308     | 44   | KT 8 bk     | 41992     | 159  | BPM 10 V2A        | 42162.200 | 19   | KEL 16 2 V2A       |
| 39938     | 45   | KT 4 2 bk   | 41309     | 44   | KT 9 bk     | 41994     | 159  | BPM 16 V2A        | 42164     | 19   | KEL 16 4           |
| 39939     | 45   | KT 2 3 gy   | 41310     | 44   | KT 10 bk    | 41995     | 159  | BPM 24 V2A        | 42164.200 | 19   | KEL 16 4 V2A       |
| 39940     | 45   | KT 2 3 bk   | 41311     | 44   | KT 11 bk    | 42003     | 160  | BPK-SNAP-B        | 42165     | 19   | KEL 16 5           |
| 41200     | 45   | KT 2 5 gy   | 41312     | 44   | KT 12 bk    | 42004     | 160  | BPK-SNAP 10       | 42165.200 | 19   | KEL 16 5 V2A       |
| 41201     | 45   | KT 2 6 gy   | 41313     | 44   | KT 13 bk    | 42007     | 160  | BPK-SNAP 16       | 42168     | 19   | KEL 16 8           |
| 41202     | 45   | KT 2 7 gy   | 41314     | 44   | KT 14 bk    | 42010     | 158  | BPK-B             | 42168.200 | 19   | KEL 16 8 V2A       |
| 41203     | 44   | KT 3 gy     | 41315     | 44   | KT 15 bk    | 42010.002 | 158  | BPK-B-RF A        | 42204     | 21   | KEL-B4             |
| 41204     | 44   | KT 4 gy     | 41316     | 46   | KT 16 bk    | 42011     | 159  | BPM 6             | 42204.200 | 21   | KEL-B4 V2A         |
| 41205     | 44   | KT 5 gy     | 41317     | 46   | KT 17 bk    | 42012     | 159  | BPM-FG B          | 42206     | 21   | KEL-B1             |
| 41206     | 44   | KT 6 gy     | 41318     | 46   | KT 18 bk    | 42013     | 159  | BPM-B             | 42206.200 | 21   | KEL-B1 V2A         |
| 41207     | 44   | KT 7 gy     | 41319     | 46   | KT 19 bk    | 42014     | 159  | BPM 10            | 42207     | 22   | KEL 24 9-E         |
| 41208     | 44   | KT 8 gy     | 41320     | 46   | KT 20 bk    | 42015     | 158  | BPK 10            | 42207.200 | 22   | KEL 24 9-E V2A     |
| 41209     | 44   | KT 9 gy     | 41321     | 46   | KT 21 bk    | 42015.002 | 158  | BPK 10-RF A       | 42208     | 22   | KEL 24 12-E        |
| 41210     | 44   | KT 10 gy    | 41322     | 46   | KT 22 bk    | 42016     | 158  | BPK 16            | 42208.200 | 22   | KEL 24 12-E V2A    |
| 41211     | 44   | KT 11 gy    | 41323     | 46   | KT 23 bk    | 42016.002 | 158  | BPK 16-RF A       | 42209     | 22   | KEL 24 15-E        |
| 41212     | 44   | KT 12 gy    | 41324     | 46   | KT 24 bk    | 42017     | 160  | BPK-SNAP 24       | 42209.200 | 22   | KEL 24 15-E V2A    |
| 41213     | 44   | KT 13 gy    | 41325     | 46   | KT 25 bk    | 42023     | 159  | BPM 16-E          | 42212     | 20   | KEL 10 3           |
| 41214     | 44   | KT 14 gy    | 41326     | 46   | KT 26 bk    | 42024     | 158  | BPK 24            | 42212.200 | 20   | KEL 10 3 V2A       |
| 41215     | 44   | KT 15 gy    | 41327     | 46   | KT 27 bk    | 42024.002 | 158  | BPK 24-RF A       | 42216     | 20   | KEL 10 6           |
| 41216     | 46   | KT 16 gy    | 41328     | 46   | KT 28 bk    | 42025     | 159  | BPM 16            | 42216.200 | 20   | KEL 10 6 V2A       |
| 41217     | 46   | KT 17 gy    | 41329     | 46   | KT 29 bk    | 42026     | 159  | BPM 16-MT         | 42221     | 23   | KEL 24 8-MT        |
| 41218     | 46   | KT 18 gy    | 41330     | 46   | KT 30 bk    | 42027     | 159  | BPM 24            | 42221.200 | 23   | KEL 24 8-MT V2A    |
| 41219     | 46   | KT 19 gy    | 41331     | 46   | KT 31 bk    | 42028     | 159  | BPM 24-MT         | 42222     | 23   | KEL 24 11-MT       |
| 41220     | 46   | KT 20 gy    | 41332     | 46   | KT 32 bk    | 42029     | 159  | BPM 24-E          | 42222.200 | 23   | KEL 24 11-MT V2A   |
| 41221     | 46   | KT 21 gy    | 41333     | 46   | KT 33 bk    | 42030     | 159  | BPM-JUMBO 1       | 42223     | 24   | KEL 24 12-2 MT     |
| 41222     | 46   | KT 22 gy    | 41334     | 46   | KT 34 bk    | 42031     | 159  | BPM 16-2MT        | 42223.200 | 24   | KEL 24 12-2 MT V2A |
| 41223     | 46   | KT 23 gy    | 41351     | 44   | BTK bk      | 42032     | 159  | BPM-JUMBO 2       | 42224     | 23   | KEL 24 17-MT       |
| 41224     | 46   | KT 24 gy    | 41352     | 46   | BTG bk      | 42033     | 159  | BPM-JUMBO flex    | 42224.200 | 23   | KEL 24 17-MT V2A   |
| 41225     | 46   | KT 25 gy    | 41353     | 46   | ATG bk      | 42038     | 36   | KEL-SNAP-B4       | 42225     | 23   | KEL 24 14-MT       |
| 41226     | 46   | KT 26 gy    | 41360     | 47   | KT-DPF-A bk | 42039     | 36   | KEL-SNAP 10       | 42225.200 | 23   | KEL 24 14-MT V2A   |
| 41227     | 46   | KT 27 gy    | 41361     | 47   | KT-DPF-B bk | 42040     | 36   | KEL-SNAP 16       | 42226     | 24   | KEL 24 21-2 MT     |
| 41228     | 46   | KT 28 gy    | 41362     | 47   | KT-DPF-C bk | 42042     | 37   | KEL-SNAP 24       | 42226.200 | 24   | KEL 24 21-2 MT V2A |
| 41229     | 46   | KT 29 gy    | 41410     | 33   | KTMB-O      | 42044     | 37   | KEL-SNAP 24-E     | 42227     | 24   | KEL 24 24-2 MT     |
| 41230     | 46   | KT 30 gy    | 41415     | 33   | KTMB-P      | 42046     | 37   | KEL-SNAP 24-MT    | 42227.200 | 24   | KEL 24 24-2 MT V2A |
| 41231     | 46   | KT 31 gy    | 41420     | 33   | KTMB-Q      | 42100     | 128  | Washer DIN 125    | 42232     | 23   | KEL 24 20-MT       |
| 41232     | 46   | KT 32 gy    | 41425     | 33   | KTMB-R      | 42140     | 25   | KEL 16 6-E        | 42232.200 | 23   | KEL 24 20-MT V2A   |
| 41233     | 46   | KT 33 gy    | 41430     | 33   | KTMB-S      | 42140.200 | 25   | KEL 16 6-E V2A    | 42233     | 24   | KEL 24 27-2 MT     |
| 41234     | 46   | KT 34 gy    | 41432     | 47   | KTMB-A      | 42141     | 25   | KEL 16 12-E       | 42233.200 | 24   | KEL 24 27-2 MT V2A |
| 41251     | 44   | BTK gy      | 41434     | 47   | KTMB-B      | 42141.200 | 25   | KEL 16 12-E V2A   | 42234     | 24   | KEL 24 30-2 MT     |
| 41252     | 46   | BTG gy      | 41436     | 47   | KTMB-C      | 42143     | 26   | KEL 16 4-MT       | 42234.200 | 24   | KEL 24 30-2 MT V2A |
| 41253     | 46   | ATG gy      | 41438     | 47   | KTMB-D      | 42143.200 | 26   | KEL 16 4-MT V2A   | 42241     | 18   | KEL 24 10          |
| 41257     | 44   | KT tele1    | 41440     | 47   | KTMB-E      | 42144     | 26   | KEL 16 10-MT      | 42241.200 | 18   | KEL 24 10 V2A      |
| 41258     | 44   | KT tele2    | 41460     | 47   | KTMB-G      | 42144.200 | 26   | KEL 16 10-MT V2A  | 42244     | 18   | KEL 24 4           |
| 41260     | 47   | KT-DPF-A gy | 41465     | 47   | KTMB-H      | 42145     | 26   | KEL 16 16-MT      | 42244.200 | 18   | KEL 24 4 V2A       |
| 41261     | 47   | KT-DPF-B gy | 41470     | 47   | KTMB-I      | 42145.200 | 26   | KEL 16 16-MT V2A  | 42247     | 18   | KEL 24 7           |
| 41262     | 47   | KT-DPF-C gy | 41475     | 47   | KTMB-J      | 42147     | 27   | KEL 16 6-2 MT     | 42247.200 | 18   | KEL 24 7 V2A       |
| 41302     | 44   | KT 2 bk     | 41480     | 47   | KTMB-K      | 42147.200 | 27   | KEL 16 6-2 MT V2A | 42248     | 18   | KEL 24 5           |
| 41303     | 44   | KT 3 bk     | 41500     | 48   | DT 1        | 42148     | 27   | KEL 16 12-2 MT    | 42248.200 | 18   | KEL 24 5 V2A       |



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| 42249     | 16   | KEL-E2          | 42570     | 56   | QT 2 5               | 42924     | 145  | KDR2-TS8-600-42924       | 43520     | 72   | KEL-DP 24 50 A gy      |
| 42249.200 | 16   | KEL-E2 V2A      | 42571     | 56   | QT 2 5.5             | 42941     | 145  | KDR2-TS8-600-42941       | 43521     | 72   | KEL-DP 24 42 B gy      |
| 42250     | 16   | KEL-E5          | 42572     | 56   | QT 2 6               | 42943     | 145  | KDR2-TS8-1200-42943      | 43522     | 72   | KEL-DP 24 14 B gy      |
| 42250.200 | 16   | KEL-E5 V2A      | 42573     | 56   | QT-ASI 1             | 42945     | 145  | KDR2-TS8-800-42945       | 43523     | 72   | KEL-DP 24 17 B gy      |
| 42258     | 16   | KEL-E3          | 42574     | 56   | QT-ASI 2             | 42952     | 145  | KDR2-TS8-1000-42952      | 43524     | 72   | KEL-DP 24 19 B gy      |
| 42258.200 | 16   | KEL-E3 V2A      | 42575     | 56   | QT tele              | 42953     | 145  | KDR2-TS8-600-42953       | 43525     | 72   | KEL-DP 24 26 B gy      |
| 42259     | 16   | KEL-E4          | 42576     | 56   | QT 2 6.5             | 42954     | 145  | KDR2-TS8-800-42954       | 43526     | 72   | KEL-DP 24 48 B gy      |
| 42259.200 | 16   | KEL-E4 V2A      | 42578     | 56   | QT 2 7               | 42955     | 145  | KDR2-TS8-1000-42955      | 43527     | 72   | KEL-DP 24 50 B gy      |
| 42320     | 28   | KEL-FG A10      | 42580     | 56   | QT 4 3               | 42956     | 145  | KDR2-TS8-1200-42956      | 43528     | 72   | KEL-DP 24 18 B gy      |
| 42320.200 | 28   | KEL-FG A10 V2A  | 42582     | 56   | QT 4 4               | 42957     | 145  | KDR2-TS8-1000-2-42957    | 43531     | 74   | KEL-DP 25 6 A gy       |
| 42322     | 28   | KEL-FG A7       | 42583     | 56   | QT 4 5               | 42958     | 145  | KDR2-TS8-1000-2-42958    | 43532     | 74   | KEL-DP 32 10 A gy      |
| 42322.200 | 28   | KEL-FG A7 V2A   | 42584     | 56   | QT 4 5               | 42959     | 145  | KDR2-TS8-1000-2-42959    | 43533     | 74   | KEL-DP 25 4 A gy       |
| 42324     | 28   | KEL-FG A4       | 42585     | 56   | QT 4 5.5             | 42999     | 143  | Sealing tape             | 43536     | 74   | KEL-DP 40 9 A gy       |
| 42324.200 | 28   | KEL-FG A4 V2A   | 42586     | 56   | QT 4 6               | 43070     | 143  | KDR-ESR-TS8-600-43070    | 43537     | 74   | KEL-DP 40 16 A gy      |
| 42330     | 29   | KEL-FG B4       | 42614     | 78   | KEL-JUMBO flex 27-48 | 43071     | 143  | KDR-ESR-TS8-600-43071    | 43538     | 74   | KEL-DP 40 17 A gy      |
| 42330.200 | 29   | KEL-FG B4 V2A   | 42616     | 78   | KEL-JUMBO flex 47-68 | 43072     | 143  | KDR-ESR-TS8-800-43072    | 43550     | 75   | KEL-DP 50 16 A gy      |
| 42332     | 29   | KEL-FG B1       | 42620     | 158  | BPK-JUMBO flex       | 43073     | 143  | KDR-ESR-TS8-800-43073    | 43551     | 75   | KEL-DP 50 12 A gy      |
| 42332.200 | 29   | KEL-FG B1 V2A   | 42630     | 79   | KEL-ULTRA flex 1     | 43074     | 143  | KDR-ESR-TS8-1000-43074   | 43552     | 75   | KEL-DP 50 20 A gy      |
| 42350     | 34   | KEL-JUMBO 2     | 42631     | 79   | KEL-ULTRA flex 2     | 43075     | 143  | KDR-ESR-TS8-1000-43075   | 43553     | 75   | KEL-DP 50 18 A gy      |
| 42350.200 | 34   | KEL-JUMBO 2 V2A | 42633     | 159  | BPM-ULTRA            | 43076     | 143  | KDR-ESR-TS8-1000-2-43076 | 43554     | 75   | KEL-DP 50 9 A gy       |
| 42360     | 34   | KEL-JUMBO 1     | 42652     | 77   | KEL-DPF 25 3-12 gy   | 43077     | 143  | KDR-ESR-TS8-1000-2-43077 | 43555     | 75   | KEL-DP 50 11 A gy      |
| 42360.200 | 34   | KEL-JUMBO 1 V2A | 42653     | 77   | KEL-DPF 32 6-18 gy   | 43078     | 143  | KDR-ESR-TS8-1200-43078   | 43556     | 75   | KEL-DP 50 35 A gy      |
| 42370     | 35   | KTA             | 42654     | 77   | KEL-DPF 40 12-27 gy  | 43079     | 143  | KDR-ESR-TS8-600-43079    | 43560     | 74   | KEL-DP 32 10 B gy      |
| 42371     | 35   | KTF 00          | 42655     | 77   | KEL-DPF 50 22-36 gy  | 43080     | 143  | KDR-ESR-TS8-800-43080    | 43561     | 74   | KEL-DP 40 9 B gy       |
| 42376     | 35   | KTF 34          | 42656     | 77   | KEL-DPF 63 27-50 gy  | 43081     | 143  | KDR-ESR-TS8-1000-43081   | 43562     | 75   | KEL-DP 50 12 B gy      |
| 42379     | 35   | KTF 38          | 42657     | 77   | KEL-DPF 75 39-60 gy  | 43082     | 143  | KDR-ESR-TS8-1000-2-43082 | 43563     | 74   | KEL-DP 40 16 B gy      |
| 42382     | 35   | KTF 42          | 42658     | 77   | KEL-DPF 85 48-70 gy  | 43083     | 143  | KDR-ESR-TS8-1200-43083   | 43564     | 75   | KEL-DP 50 16 B gy      |
| 42385     | 35   | KTF 46          | 42801     | 76   | ST-B Assortment      | 43084     | 143  | KDR-ESR-TS8-1200-43084   | 43565     | 74   | KEL-DP 40 17 B gy      |
| 42388     | 35   | KTF 50          | 42806     | 76   | ST-B 6               | 43300     | 151  | KDR-BMP 600/400          | 43566     | 75   | KEL-DP 50 20 B gy      |
| 42391     | 35   | KTF 54          | 42810     | 76   | ST-B 10              | 43302     | 151  | KDR-BMP 600/500          | 43567     | 75   | KEL-DP 50 18 B gy      |
| 42394     | 35   | KTF 58          | 42812     | 76   | ST-B 12              | 43304     | 151  | KDR-BMP 600/600          | 43568     | 75   | KEL-DP 50 9 B gy       |
| 42397     | 35   | KTF 62          | 42816     | 76   | ST-B 16              | 43306     | 151  | KDR-BMP 800/400          | 43569     | 75   | KEL-DP 50 11 B gy      |
| 42410     | 50   | KEL-QUICK 24 10 | 42822     | 76   | ST-B 22              | 43308     | 151  | KDR-BMP 800/500          | 43570     | 75   | KEL-DP 50 35 B gy      |
| 42414     | 51   | KEL-QUICK 16 4  | 42877     | 49   | ST ASI               | 43310     | 151  | KDR-BMP 800/600          | 43576     | 73   | KEL-DP-E 112 16 gy     |
| 42415     | 50   | KEL-QUICK 24 5  | 42881     | 49   | ST 17                | 43312     | 151  | KDR-BMP 1000/400         | 43578     | 73   | KEL-DP-E 112 21 gy     |
| 42418     | 50   | KEL-QUICK 16 8  | 42883     | 49   | ST 16                | 43314     | 151  | KDR-BMP 1000/500         | 43581     | 73   | KEL-DP-E 86 13 gy      |
| 42430     | 51   | KEL-QUICK-B2    | 42885     | 49   | ST 15                | 43316     | 151  | KDR-BMP 1000/600         | 43583     | 73   | KEL-DP-E 86 17 gy      |
| 42434     | 51   | KEL-QUICK-B4    | 42887     | 49   | ST 14                | 43318     | 151  | KDR-BMP 1200/400         | 43585     | 73   | KEL-DP-E 46 7 gy       |
| 42503     | 56   | QT 3            | 42889     | 49   | ST 13                | 43320     | 151  | KDR-BMP 1200/500         | 43587     | 73   | KEL-DP-E 46 9 gy       |
| 42504     | 56   | QT 4            | 42891     | 49   | ST 12                | 43322     | 151  | KDR-BMP 1200/600 l       | 43591     | 73   | KEL-DP-S 69 8 gy       |
| 42505     | 56   | QT 5            | 42893     | 49   | ST 11                | 43324     | 151  | KDR-BMP 1200/600 r       | 43622     | 55   | KEL-QTA 50 A           |
| 42506     | 56   | QT 6            | 42895     | 49   | ST 10                | 43412     | 55   | KEL-QTE 20 2.5           | 43626     | 55   | KEL-QTA 50 B           |
| 42507     | 56   | QT 7            | 42897     | 49   | ST 9                 | 43413     | 55   | KEL-QTE 20 3             | 43632     | 55   | KEL-QTA 32 A           |
| 42508     | 56   | QT 8            | 42899     | 49   | ST 8                 | 43414     | 55   | KEL-QTE 20 4             | 43636     | 55   | KEL-QTA 32 B           |
| 42509     | 56   | QT 9            | 42901     | 49   | ST 3                 | 43415     | 55   | KEL-QTE 20 5             | 43642     | 54   | KEL-QTA 24 2 - DP 18 A |
| 42510     | 56   | QT 10           | 42903     | 49   | ST 6                 | 43508     | 72   | KEL-DP 24 12 A gy        | 43643     | 54   | KEL-QTA 24 2 - DP 18 B |
| 42511     | 56   | QT 11           | 42905     | 49   | ST 7                 | 43511     | 72   | KEL-DP 24 42 A gy        | 43644     | 54   | KEL-QTA 24 4 A         |
| 42512     | 56   | QT 12           | 42906     | 49   | ST 5                 | 43512     | 72   | KEL-DP 24 14 A gy        | 43645     | 54   | KEL-QTA 24 4 B         |
| 42513     | 56   | QT 13           | 42908     | 49   | ST 4                 | 43514     | 72   | KEL-DP 24 17 A gy        | 43655     | 54   | KEL-QTA 10 1 - DP 18 A |
| 42514     | 56   | QT 14           | 42909     | 49   | ST 2                 | 43515     | 72   | KEL-DP 24 18 A gy        | 43656     | 54   | KEL-QTA 10 2 - DP 6 A  |
| 42540     | 56   | QTB             | 42920     | 145  | KDR2-TS8-1200-42920  | 43516     | 72   | KEL-DP 24 19 A gy        | 43658     | 54   | KEL-QTA 10 1 - DP 18 B |
| 42566     | 56   | QT 2 3          | 42922     | 145  | KDR2-TS8-800-42922   | 43518     | 72   | KEL-DP 24 26 A gy        | 43659     | 54   | KEL-QTA 10 2 - DP 6 B  |
| 42568     | 56   | QT 2 4          | 42923     | 145  | KDR2-TS8-1000-42923  | 43519     | 72   | KEL-DP 24 48 A gy        | 43660     | 54   | KEL-QTA-B4             |

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| 43675.001 | 68   | KEL-DPZ-KL 72 gy    | 43891     | 149  | MP 1                  | 45711     | 52   | QVT 32          | 48206.200 | 15   | KEL-ER-B1 V2A      |
| 43675.101 | 68   | KEL-DPZ-KL 72 bk    | 43894     | 149  | MP 8                  | 45715     | 52   | QVT 40 2        | 48212     | 13   | KEL-ER 10 3        |
| 43700     | 64   | KEL-DPZ 24 14 gy    | 43930     | 63   | KEL-DPU 24 21 gy      | 45722     | 52   | QVT 50 4        | 48212.200 | 13   | KEL-ER 10 3 V2A    |
| 43705     | 64   | KEL-DPZ 24 17 gy    | 43932     | 62   | KEL-DPU 24 16-1 gy    | 45730     | 53   | QVT-CLICK 25    | 48216     | 13   | KEL-ER 10 6        |
| 43710     | 65   | KEL-DPZ 24 25 gy    | 43934     | 62   | KEL-DPU 24 17 gy      | 45732     | 53   | QVT-CLICK 32    | 48216.200 | 13   | KEL-ER 10 6 V2A    |
| 43715     | 65   | KEL-DPZ 24 42 gy    | 43936     | 62   | KEL-DPU 24 16 gy      | 45734     | 53   | QVT-CLICK 40 2  | 48241     | 9    | KEL-ER 24 10       |
| 43720     | 64   | KEL-DPZ 24 15 gy    | 43938     | 63   | KEL-DPU 24 20 gy      | 46100     | 30   | KEL-FL A        | 48241.200 | 9    | KEL-ER 24 10 V2A   |
| 43725     | 64   | KEL-DPZ 24 16 gy    | 43940     | 62   | KEL-DPU 24 13 gy      | 46105     | 30   | KEL-FL B        | 48244     | 9    | KEL-ER 24 4        |
| 43730     | 65   | KEL-DPZ 24 32 gy    | 43942     | 63   | KEL-DPU 24 32 gy      | 46110     | 30   | KEL-FL C        | 48244.200 | 9    | KEL-ER 24 4 V2A    |
| 43732     | 70   | KEL-DPZ 32 4 gy     | 43944     | 62   | KEL-DPU 24 14 gy      | 46115     | 30   | KEL-FL D        | 48247     | 9    | KEL-ER 24 7        |
| 43733     | 70   | KEL-DPZ 32 4-2 gy   | 45024     | 38   | KVT 20 bk             | 46120     | 30   | KEL-FL E        | 48247.200 | 9    | KEL-ER 24 7 V2A    |
| 43734     | 70   | KEL-DPZ 32 7 gy     | 45025     | 38   | KVT 25 bk             | 46125     | 30   | KEL-FL F        | 48249     | 17   | KEL-ER-E2          |
| 43735     | 65   | KEL-DPZ 24 121 gy   | 45026     | 38   | KVT 32 bk             | 46130     | 30   | KEL-FL G        | 48249.200 | 17   | KEL-ER-E2 V2A      |
| 43741     | 58   | KEL-DPZ 40 8        | 45027     | 38   | KVT 32 + SUB-D9 bk    | 46135     | 30   | KEL-FL H        | 48250     | 17   | KEL-ER-E5          |
| 43741     | 70   | KEL-DPZ 40 8 gy     | 45028     | 38   | KVT 40 bk             | 46140     | 30   | KEL-FL I        | 48250.200 | 17   | KEL-ER-E5 V2A      |
| 43750     | 70   | KEL-DPZ 50 8 gy     | 45029     | 38   | KVT 40 + PB bk        | 46145     | 30   | KEL-FL J        | 48258     | 17   | KEL-ER-E3          |
| 43751     | 70   | KEL-DPZ 50 10 gy    | 45030     | 39   | KVT 50 2 bk           | 46150     | 30   | KEL-FL K        | 48258.200 | 17   | KEL-ER-E3 V2A      |
| 43752     | 70   | KEL-DPZ 50 12 gy    | 45031     | 39   | KVT 50 2 + SUB-D25 bk | 46155     | 30   | KEL-FL L        | 48259     | 17   | KEL-ER-E4          |
| 43756     | 71   | KEL-DPZ 50 78 gy    | 45034     | 38   | KVT 20 gy             | 46201     | 31   | FT-1 o          | 48259.200 | 17   | KEL-ER-E4 V2A      |
| 43758     | 71   | KEL-DPZ 50 19 gy    | 45035     | 38   | KVT 25 gy             | 46202     | 31   | FT-2 o          | 49056     | 22   | KEL 24 10-E        |
| 43760     | 71   | KEL-DPZ 63 9 gy     | 45036     | 38   | KVT 32 gy             | 46203     | 31   | FT-3 o          | 49056.200 | 22   | KEL 24 10-E V2A    |
| 43761     | 71   | KEL-DPZ 63 13 gy    | 45037     | 38   | KVT 32 + SUB-D9 gy    | 46204     | 31   | FT-4 o          | 49101     | 170  | KEL 16 2 ATEX      |
| 43762     | 71   | KEL-DPZ 63 14 gy    | 45105     | 163  | KGM-SUB-D9 gy         | 46210     | 31   | FT-1 A          | 49101.200 | 170  | KEL 16 2 ATEX V2A  |
| 43763     | 71   | KEL-DPZ 63 35 gy    | 45106     | 163  | KGM-SUB-D9 bk         | 46211     | 31   | FT-1 B          | 49102     | 170  | KEL 16 4 ATEX      |
| 43780     | 67   | KEL-DPZ-E 112 7 gy  | 45107     | 163  | KGM-PB gy             | 46212     | 31   | FT-1 C          | 49102.200 | 170  | KEL 16 4 ATEX V2A  |
| 43790     | 67   | KEL-DPZ-E 112 21 gy | 45108     | 163  | KGM-SUB-D25 gy        | 46214     | 31   | FT-1 E          | 49103     | 170  | KEL 16 5 ATEX      |
| 43794     | 66   | KEL-DPZ-B 13 gy     | 45109     | 163  | KGM-PB bk             | 46215     | 31   | FT-1 F          | 49103.200 | 170  | KEL 16 5 ATEX V2A  |
| 43796     | 66   | KEL-DPZ-B 17 gy     | 45110     | 163  | KGM-SUB-D25 bk        | 46250     | 31   | FT-2 A          | 49104     | 170  | KEL 16 8 ATEX      |
| 43798     | 66   | KEL-DPZ-B 25 gy     | 45112     | 39   | KVT 63 1 bk           | 46251     | 31   | FT-2 B          | 49104.200 | 170  | KEL 16 8 ATEX V2A  |
| 43832     | 157  | FP-FL 21            | 45115     | 39   | KVT 63 4 bk           | 46252     | 31   | FT-2 C          | 49105     | 170  | KEL-B4 ATEX        |
| 43834     | 155  | FP-KL 221x90 24     | 45130     | 41   | KVT-SNAP 32           | 46255     | 31   | FT-2 F          | 49105.200 | 170  | KEL-B4 ATEX V2A    |
| 43836     | 153  | FP-AE 160 70        | 45134     | 41   | KVT-SNAP 40           | 46256     | 31   | FT-2 G          | 49106     | 170  | KEL-B1 ATEX        |
| 43838     | 153  | FP-AE-24 330 90     | 45152     | 41   | KVT-SNAP 63 4         | 46300     | 31   | FT-3 A          | 49106.200 | 170  | KEL-B1 ATEX V2A    |
| 43840     | 153  | FP-AE 339 149       | 45154     | 41   | KVT-SNAP 63 1         | 46330     | 31   | FT-4 A          | 49107     | 170  | KEL 10 3 ATEX      |
| 43842     | 153  | FP-AE 534 149       | 45203     | 38   | KVT 40 gy             | 47200     | 32   | KEL 183 2       | 49107.200 | 170  | KEL 10 3 ATEX V2A  |
| 43846     | 153  | FP-AE 339 149       | 45204     | 39   | KVT 50 2 gy           | 47200.200 | 32   | KEL 183 2 V2A   | 49108     | 170  | KEL 10 6 ATEX      |
| 43848     | 153  | FP-AE 534 149       | 45205     | 38   | KVT 40 + PB gy        | 47220     | 32   | KEL 183 5       | 49108.200 | 170  | KEL 10 6 ATEX V2A  |
| 43852     | 155  | FP-KL 221x90 A      | 45206     | 39   | KVT 50 2 + SUB-D25 gy | 47220.200 | 32   | KEL 183 5 V2A   | 49109     | 170  | KEL 24 10 ATEX     |
| 43853     | 155  | FP-KL 221x90 10     | 45212     | 39   | KVT 63 1 gy           | 47240     | 32   | KEL 183 8       | 49109.200 | 170  | KEL 24 10 ATEX V2A |
| 43854     | 155  | FP-KL 221x90 B      | 45215     | 39   | KVT 63 4 gy           | 47240.200 | 32   | KEL 183 8 V2A   | 49110     | 170  | KEL 24 4 ATEX      |
| 43855     | 155  | FP-KL 221x90 16     | 45236     | 40   | KVT 80 3 gy           | 47250     | 32   | KEL 183-E4      | 49110.200 | 170  | KEL 24 4 ATEX V2A  |
| 43856     | 155  | FP-KL 221x90 C      | 45237     | 40   | KVT 80 6 gy           | 47250.200 | 32   | KEL 183-E4 V2A  | 49111     | 170  | KEL 24 7 ATEX      |
| 43861     | 153  | FP-AE-16 330 90     | 45238     | 40   | KVT 80 6 bk           | 47255     | 32   | KEL 183-E16     | 49111.200 | 170  | KEL 24 7 ATEX V2A  |
| 43865     | 157  | FP-BG 555x92        | 45239     | 40   | KVT 80 3 bk           | 47255.200 | 32   | KEL 183-E16 V2A | 49112     | 170  | KEL 24 5 ATEX      |
| 43866     | 157  | FP-BG 355x92        | 45404     | 42   | KVT 32-W90 gy         | 48162     | 11   | KEL-ER 16 2     | 49112.200 | 170  | KEL 24 5 ATEX V2A  |
| 43871     | 153  | FP-AE 534 149       | 45406     | 42   | KVT 32-W90 bk         | 48162.200 | 11   | KEL-ER 16 2 V2A | 49120     | 176  | KVT 80 3 ATEX gy   |
| 43882     | 149  | MP 0                | 45414     | 42   | KVT 50 1-W90 gy       | 48165     | 11   | KEL-ER 16 5     | 49121     | 176  | KVT 80 6 ATEX gy   |
| 43883     | 149  | MP 6                | 45416     | 42   | KVT 50 1-W90 bk       | 48165.200 | 11   | KEL-ER 16 5 V2A | 49122     | 176  | KVT 80 6 ATEX bk   |
| 43886     | 149  | MP 3                | 45424     | 42   | KVT 50 4-W90 gy       | 48168     | 11   | KEL-ER 16 8     | 49123     | 176  | KVT 80 3 ATEX bk   |
| 43887     | 149  | MP 5                | 45426     | 42   | KVT 50 4-W90 bk       | 48168.200 | 11   | KEL-ER 16 8 V2A | 49150     | 168  | KEL-E2 ATEX        |
| 43888     | 149  | MP 4                | 45692     | 52   | QVT 16                | 48204     | 15   | KEL-ER-B4       | 49150.200 | 168  | KEL-E2 ATEX V2A    |
| 43889     | 149  | MP 7                | 45695     | 52   | QVT 20                | 48204.200 | 15   | KEL-ER-B4 V2A   | 49152     | 168  | KEL-E3 ATEX        |
| 43890     | 149  | MP 2                | 45702     | 52   | QVT 25                | 48206     | 15   | KEL-ER-B1       | 49152.200 | 168  | KEL-E3 ATEX V2A    |

# Appendix

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| 49154     | 168  | KEL-E4 ATEX             | 49223.200 | 167  | KEL-ER 16 8 ATEX V2A     | 49445     | 182  | KEL-DPZ 50 10 ATEX bk | 49498.200 | 174  | KEL 183 8 ATEX V2A       |
| 49154.200 | 168  | KEL-E4 ATEX V2A         | 49224     | 167  | KEL-ER-B4 ATEX           | 49446     | 182  | KEL-DPZ 50 12 ATEX bk | 49499     | 174  | KEL 183-E4 ATEX          |
| 49156     | 168  | KEL-E5 ATEX             | 49224.200 | 167  | KEL-ER-B4 ATEX V2A       | 49447     | 182  | KEL-DPZ 50 78 ATEX bk | 49499.200 | 174  | KEL 183-E4 ATEX V2A      |
| 49156.200 | 168  | KEL-E5 ATEX V2A         | 49225     | 167  | KEL-ER-B1 ATEX           | 49448     | 182  | KEL-DPZ 50 19 ATEX bk | 49500     | 174  | KEL 183-E16 ATEX         |
| 49158     | 171  | KEL 24 15-E ATEX        | 49225.200 | 167  | KEL-ER-B1 ATEX V2A       | 49449     | 182  | KEL-DPZ 63 9 ATEX bk  | 49500.200 | 174  | KEL 183-E16 ATEX V2A     |
| 49158.200 | 171  | KEL 24 15-E ATEX V2A    | 49226     | 167  | KEL-ER 10 3 ATEX         | 49450     | 182  | KEL-DPZ 63 13 ATEX bk | 49506     | 175  | KEL-JUMBO 1 ATEX         |
| 49160     | 171  | KEL 24 12-E ATEX        | 49226.200 | 167  | KEL-ER 10 3 ATEX V2A     | 49451     | 182  | KEL-DPZ 63 35 ATEX bk | 49506.200 | 175  | KEL-JUMBO 1 ATEX V2A     |
| 49160.200 | 171  | KEL 24 12-E ATEX V2A    | 49227     | 167  | KEL-ER 10 6 ATEX         | 49452     | 182  | KEL-DPZ 63 14 ATEX gy | 49507     | 175  | KEL-JUMBO 2 ATEX         |
| 49162     | 171  | KEL 24 9-E ATEX         | 49227.200 | 167  | KEL-ER 10 6 ATEX V2A     | 49455     | 166  | KEL-U 24 10 ATEX      | 49507.200 | 175  | KEL-JUMBO 2 ATEX V2A     |
| 49162.200 | 171  | KEL 24 9-E ATEX V2A     | 49228     | 167  | KEL-ER 24 10 ATEX        | 49455.200 | 166  | KEL-U 24 10 ATEX V2A  | 49513     | 179  | KEL-DPU 24 13 ATEX gy    |
| 49164     | 171  | KEL 24 10-E ATEX        | 49228.200 | 167  | KEL-ER 24 10 ATEX V2A    | 49456     | 166  | KEL-U 24 7 ATEX       | 49514     | 179  | KEL-DPU 24 14 ATEX gy    |
| 49164.200 | 171  | KEL 24 10-E ATEX V2A    | 49229     | 167  | KEL-ER 24 4 ATEX         | 49456.200 | 166  | KEL-U 24 7 ATEX V2A   | 49515     | 179  | KEL-DPU 24 16-1 ATEX gy  |
| 49166     | 171  | KEL 24 20-MT ATEX       | 49229.200 | 167  | KEL-ER 24 4 ATEX V2A     | 49457     | 166  | KEL-U 24 4 ATEX       | 49516     | 179  | KEL-DPU 24 16 ATEX gy    |
| 49166.200 | 171  | KEL 24 20-MT ATEX V2A   | 49230     | 167  | KEL-ER 24 7 ATEX         | 49457.200 | 166  | KEL-U 24 4 ATEX V2A   | 49517     | 179  | KEL-DPU 24 17 ATEX gy    |
| 49168     | 171  | KEL 24 17-MT ATEX       | 49230.200 | 167  | KEL-ER 24 7 ATEX V2A     | 49458     | 166  | KEL-U 16 8 ATEX       | 49518     | 179  | KEL-DPU 24 20 ATEX gy    |
| 49168.200 | 171  | KEL 24 17-MT ATEX V2A   | 49301     | 181  | KEL-DPZ-E 112 7 ATEX gy  | 49458.200 | 166  | KEL-U 16 8 ATEX V2A   | 49519     | 179  | KEL-DPU 24 21 ATEX gy    |
| 49170     | 171  | KEL 24 14-MT ATEX       | 49302     | 181  | KEL-DPZ-E 112 21 ATEX gy | 49459     | 166  | KEL-U 16 5 ATEX       | 49520     | 179  | KEL-DPU 24 32 ATEX gy    |
| 49170.200 | 171  | KEL 24 14-MT ATEX V2A   | 49306     | 181  | KEL-DPZ-E 112 7 ATEX bk  | 49459.200 | 166  | KEL-U 16 5 ATEX V2A   | 49521     | 179  | KEL-DPU 24 13 ATEX bk    |
| 49172     | 171  | KEL 24 11-MT ATEX       | 49307     | 181  | KEL-DPZ-E 112 21 ATEX bk | 49460     | 166  | KEL-U 16 2 ATEX       | 49522     | 179  | KEL-DPU 24 14 ATEX bk    |
| 49172.200 | 171  | KEL 24 11-MT ATEX V2A   | 49311     | 181  | KEL-DPZ-B 13 ATEX gy     | 49460.200 | 166  | KEL-U 16 2 ATEX V2A   | 49523     | 179  | KEL-DPU 24 16-1 ATEX bk  |
| 49174     | 171  | KEL 24 8-MT ATEX        | 49312     | 181  | KEL-DPZ-B 17 ATEX gy     | 49461     | 166  | KEL-U 10 6 ATEX       | 49524     | 179  | KEL-DPU 24 16 ATEX bk    |
| 49174.200 | 171  | KEL 24 8-MT ATEX V2A    | 49313     | 181  | KEL-DPZ-B 25 ATEX gy     | 49461.200 | 166  | KEL-U 10 6 ATEX V2A   | 49525     | 179  | KEL-DPU 24 17 ATEX bk    |
| 49176     | 171  | KEL 24 30-2 MT ATEX     | 49317     | 181  | KEL-DPZ-B 13 ATEX bk     | 49462     | 166  | KEL-U 10 3 ATEX       | 49526     | 179  | KEL-DPU 24 20 ATEX bk    |
| 49176.200 | 171  | KEL 24 30-2 MT ATEX V2A | 49318     | 181  | KEL-DPZ-B 17 ATEX bk     | 49462.200 | 166  | KEL-U 10 3 ATEX V2A   | 49527     | 179  | KEL-DPU 24 21 ATEX bk    |
| 49178     | 171  | KEL 24 27-2 MT ATEX     | 49319     | 181  | KEL-DPZ-B 25 ATEX bk     | 49463     | 166  | KEL-U-B4 ATEX         | 49528     | 179  | KEL-DPU 24 32 ATEX bk    |
| 49178.200 | 171  | KEL 24 27-2 MT ATEX V2A | 49401     | 183  | KEL-DPF 25 3-12 ATEX gy  | 49463.200 | 166  | KEL-U-B4 ATEX V2A     | 49534     | 183  | KEL-DPF 75 39-60 ATEX gy |
| 49180     | 171  | KEL 24 24-2 MT ATEX     | 49402     | 183  | KEL-DPF 32 6-18 ATEX gy  | 49464     | 166  | KEL-U-B1 ATEX         | 49535     | 183  | KEL-DPF 75 39-60 ATEX bk |
| 49180.200 | 171  | KEL 24 24-2 MT ATEX V2A | 49403     | 183  | KEL-DPF 40 12-27 ATEX gy | 49464.200 | 166  | KEL-U-B1 ATEX V2A     | 49536     | 183  | KEL-DPF 85 48-70 ATEX gy |
| 49182     | 171  | KEL 24 21-2 MT ATEX     | 49404     | 183  | KEL-DPF 50 22-36 ATEX gy | 49470     | 169  | KEL-ER-E2 ATEX        | 49537     | 183  | KEL-DPF 85 48-70 ATEX bk |
| 49182.200 | 171  | KEL 24 21-2 MT ATEX V2A | 49405     | 183  | KEL-DPF 63 27-50 ATEX gy | 49470.200 | 169  | KEL-ER-E2 ATEX V2A    | 49538     | 172  | KEL 16 12-E ATEX         |
| 49184     | 171  | KEL 24 12-2 MT ATEX     | 49410     | 183  | KEL-DPF 25 3-12 ATEX bk  | 49471     | 169  | KEL-ER-E3 ATEX        | 49538.200 | 172  | KEL 16 12-E ATEX V2A     |
| 49184.200 | 171  | KEL 24 12-2 MT ATEX V2A | 49411     | 183  | KEL-DPF 32 6-18 ATEX bk  | 49471.200 | 169  | KEL-ER-E3 ATEX V2A    | 49539     | 172  | KEL 16 6-E ATEX          |
| 49201     | 181  | KEL-DPZ 24 14 ATEX gy   | 49412     | 183  | KEL-DPF 40 12-27 ATEX bk | 49472     | 169  | KEL-ER-E4 ATEX        | 49539.200 | 172  | KEL 16 6-E ATEX V2A      |
| 49202     | 181  | KEL-DPZ 24 17 ATEX gy   | 49413     | 183  | KEL-DPF 50 22-36 ATEX bk | 49472.200 | 169  | KEL-ER-E4 ATEX V2A    | 49540     | 172  | KEL 16 16-MT ATEX        |
| 49203     | 181  | KEL-DPZ 24 25 ATEX gy   | 49414     | 183  | KEL-DPF 63 27-50 ATEX bk | 49473     | 169  | KEL-ER-E5 ATEX        | 49540.200 | 172  | KEL 16 16-MT ATEX V2A    |
| 49204     | 181  | KEL-DPZ 24 42 ATEX gy   | 49420     | 182  | KEL-DPZ 32 4 ATEX gy     | 49473.200 | 169  | KEL-ER-E5 ATEX V2A    | 49541     | 172  | KEL 16 10-MT ATEX        |
| 49205     | 181  | KEL-DPZ 24 15 ATEX gy   | 49421     | 182  | KEL-DPZ 32 4-2 ATEX gy   | 49479     | 173  | KEL-FL A ATEX         | 49541.200 | 172  | KEL 16 10-MT ATEX V2A    |
| 49206     | 181  | KEL-DPZ 24 16 ATEX gy   | 49422     | 182  | KEL-DPZ 32 7 ATEX gy     | 49480     | 173  | KEL-FL B ATEX         | 49542     | 172  | KEL 16 4-MT ATEX         |
| 49207     | 181  | KEL-DPZ 24 32 ATEX gy   | 49423     | 182  | KEL-DPZ 40 8 ATEX gy     | 49481     | 173  | KEL-FL C ATEX         | 49542.200 | 172  | KEL 16 4-MT ATEX V2A     |
| 49208     | 181  | KEL-DPZ 24 121 ATEX gy  | 49424     | 182  | KEL-DPZ 50 8 ATEX gy     | 49482     | 173  | KEL-FL D ATEX         | 49543     | 172  | KEL 16 24-2 MT ATEX      |
| 49211     | 181  | KEL-DPZ 24 14 ATEX bk   | 49425     | 182  | KEL-DPZ 50 10 ATEX gy    | 49483     | 173  | KEL-FL E ATEX         | 49543.200 | 172  | KEL 16 24-2 MT ATEX V2A  |
| 49212     | 181  | KEL-DPZ 24 17 ATEX bk   | 49426     | 182  | KEL-DPZ 50 12 ATEX gy    | 49484     | 173  | KEL-FL F ATEX         | 49544     | 172  | KEL 16 12-2 MT ATEX      |
| 49213     | 181  | KEL-DPZ 24 25 ATEX bk   | 49427     | 182  | KEL-DPZ 50 78 ATEX gy    | 49485     | 173  | KEL-FL G ATEX         | 49544.200 | 172  | KEL 16 12-2 MT ATEX V2A  |
| 49214     | 181  | KEL-DPZ 24 42 ATEX bk   | 49428     | 182  | KEL-DPZ 50 19 ATEX gy    | 49486     | 173  | KEL-FL H ATEX         | 49545     | 172  | KEL 16 6-2 MT ATEX       |
| 49215     | 181  | KEL-DPZ 24 15 ATEX bk   | 49429     | 182  | KEL-DPZ 63 9 ATEX gy     | 49487     | 173  | KEL-FL I ATEX         | 49545.200 | 172  | KEL 16 6-2 MT ATEX V2A   |
| 49216     | 181  | KEL-DPZ 24 16 ATEX bk   | 49430     | 182  | KEL-DPZ 63 13 ATEX gy    | 49488     | 173  | KEL-FL J ATEX         | 49556.001 | 180  | KEL-DPZ-KL 72 ATEX gy    |
| 49217     | 181  | KEL-DPZ 24 32 ATEX bk   | 49431     | 182  | KEL-DPZ 63 35 ATEX gy    | 49489     | 173  | KEL-FL K ATEX         | 49556.101 | 180  | KEL-DPZ-KL 72 ATEX bk    |
| 49218     | 181  | KEL-DPZ 24 121 ATEX bk  | 49432     | 182  | KEL-DPZ 63 14 ATEX gy    | 49490     | 173  | KEL-FL L ATEX         | 50508     | 72   | KEL-DP 24 12 A bk        |
| 49221     | 167  | KEL-ER 16 2 ATEX        | 49440     | 182  | KEL-DPZ 32 4 ATEX bk     | 49496     | 174  | KEL 183 2 ATEX        | 50511     | 72   | KEL-DP 24 42 A bk        |
| 49221.200 | 167  | KEL-ER 16 2 ATEX V2A    | 49441     | 182  | KEL-DPZ 32 4-2 ATEX bk   | 49496.200 | 174  | KEL 183 2 ATEX V2A    | 50512     | 72   | KEL-DP 24 14 A bk        |
| 49222     | 167  | KEL-ER 16 5 ATEX        | 49442     | 182  | KEL-DPZ 32 7 ATEX bk     | 49497     | 174  | KEL 183 5 ATEX        | 50514     | 72   | KEL-DP 24 17 A bk        |
| 49222.200 | 167  | KEL-ER 16 5 ATEX V2A    | 49443     | 182  | KEL-DPZ 40 8 ATEX bk     | 49497.200 | 174  | KEL 183 5 ATEX V2A    | 50515     | 72   | KEL-DP 24 18 A bk        |
| 49223     | 167  | KEL-ER 16 8 ATEX        | 49444     | 182  | KEL-DPZ 50 8 ATEX bk     | 49498     | 174  | KEL 183 8 ATEX        | 50516     | 72   | KEL-DP 24 19 A bk        |

# Appendix

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| 50518     | 72   | KEL-DP 24 26 A bk   | 50735     | 65   | KEL-DPZ 24 121 bk   | 54212     | 12   | KEL-U 10 3                 | 80020     | 188  | Punch M16               |
| 50519     | 72   | KEL-DP 24 48 A bk   | 50741     | 70   | KEL-DPZ 40 8 bk     | 54212.200 | 12   | KEL-U 10 3 V2A             | 80021     | 188  | Punch M20               |
| 50520     | 72   | KEL-DP 24 50 A bk   | 50750     | 70   | KEL-DPZ 50 8 bk     | 54216     | 12   | KEL-U 10 6                 | 80022     | 188  | Punch M25               |
| 50521     | 72   | KEL-DP 24 42 B bk   | 50751     | 70   | KEL-DPZ 50 10 bk    | 54216.200 | 12   | KEL-U 10 6 V2A             | 80023     | 188  | Punch M32               |
| 50522     | 72   | KEL-DP 24 14 B bk   | 50752     | 70   | KEL-DPZ 50 12 bk    | 54241     | 8    | KEL-U 24 10                | 80024     | 188  | Punch M40               |
| 50523     | 72   | KEL-DP 24 17 B bk   | 50756     | 71   | KEL-DPZ 50 78 bk    | 54241.200 | 8    | KEL-U 24 10 V2A            | 80025     | 188  | Punch M50               |
| 50524     | 72   | KEL-DP 24 19 B gbk  | 50758     | 71   | KEL-DPZ 50 19 bk    | 54244     | 8    | KEL-U 24 4                 | 80026     | 188  | Punch M63               |
| 50525     | 72   | KEL-DP 24 26 B bk   | 50760     | 71   | KEL-DPZ 63 9 bk     | 54244.200 | 8    | KEL-U 24 4 V2A             | 80027     | 188  | Punch PG 16             |
| 50526     | 72   | KEL-DP 24 48 B bk   | 50761     | 71   | KEL-DPZ 63 13 bk    | 54247     | 8    | KEL-U 24 7                 | 80028     | 188  | Punch PG 16 + Notch     |
| 50527     | 72   | KEL-DP 24 50 B bk   | 50762     | 71   | KEL-DPZ 63 14 bk    | 54247.200 | 8    | KEL-U 24 7 V2A             | 80029     | 188  | Punch M75               |
| 50528     | 72   | KEL-DP 24 18 B gbk  | 50763     | 71   | KEL-DPZ 63 35 bk    | 58000     | 147  | KDR-BES-TS8-600            | 80030     | 188  | Punch M85               |
| 50531     | 74   | KEL-DP 25 6 A bk    | 50780     | 67   | KEL-DPZ-E 112 7 bk  | 58006     | 147  | KDR-BES-TS8-800            | 80050     | 187  | Punch B                 |
| 50532     | 74   | KEL-DP 32 10 A bk   | 50790     | 67   | KEL-DPZ-E 112 21 bk | 58012     | 147  | KDR-BES-TS8-1000           | 80051     | 187  | Punch 10                |
| 50533     | 74   | KEL-DP 25 4 A bk    | 50794     | 66   | KEL-DPZ-B 13 bk     | 58018     | 147  | KDR-BES-TS8-1200           | 80052     | 187  | Punch 16                |
| 50550     | 75   | KEL-DP 50 16 A bk   | 50796     | 66   | KEL-DPZ-B 17 bk     | 61002     | 91   | KBH-SB                     | 80053     | 187  | Punch 24                |
| 50551     | 75   | KEL-DP 50 12 A bk   | 50798     | 66   | KEL-DPZ-B 25 bk     | 61003     | 91   | KBH-RBA nc                 | 80054     | 187  | Punch 24-XL             |
| 50552     | 75   | KEL-DP 50 20 A bk   | 50930     | 63   | KEL-DPU 24 21 bk    | 61004     | 91   | KBH-RBB                    | 80055     | 187  | Punch E2                |
| 50553     | 75   | KEL-DP 50 18 A bk   | 50932     | 62   | KEL-DPU 24 16-1 bk  | 61011     | 90   | KLB 10                     | 80056     | 187  | Punch E3                |
| 50554     | 75   | KEL-DP 50 9 A bk    | 50934     | 62   | KEL-DPU 24 17 bk    | 61012     | 90   | KLB 15                     | 80057     | 187  | Punch E4                |
| 50555     | 75   | KEL-DP 50 11 A bk   | 50936     | 62   | KEL-DPU 24 16 bk    | 61013     | 90   | KLB 20                     | 80058     | 187  | Punch E5                |
| 50556     | 75   | KEL-DP 50 35 A bk   | 50938     | 63   | KEL-DPU 24 20 bk    | 61014     | 90   | KLB 25                     | 80120     | 188  | Punch M16 V2A           |
| 50560     | 74   | KEL-DP 32 10 B bk   | 50940     | 62   | KEL-DPU 24 13 bk    | 61018     | 91   | KBH-R                      | 80121     | 188  | Punch M20 V2A           |
| 50562     | 75   | KEL-DP 50 12 B bk   | 50942     | 63   | KEL-DPU 24 32 bk    | 61019     | 91   | KBH-S                      | 80122     | 188  | Punch M25 V2A           |
| 50564     | 75   | KEL-DP 50 16 B bk   | 50944     | 62   | KEL-DPU 24 14 bk    | 61021     | 90   | KLKB 200 × 7               | 80123     | 188  | Punch M32 V2A           |
| 50566     | 75   | KEL-DP 50 20 B bk   | 51505     | 57   | KEL-BES 10          | 61022     | 90   | KLKB 200 × 13              | 80124     | 188  | Punch M40 V2A           |
| 50567     | 75   | KEL-DP 50 18 B bk   | 51510     | 57   | KEL-BES 16          | 61023     | 90   | KLKB 230 × 13              | 80125     | 188  | Punch M50 V2A           |
| 50568     | 75   | KEL-DP 50 9 B bk    | 51515     | 57   | KEL-BES 24          | 61024     | 90   | KLKB 300 × 17              | 80126     | 188  | Punch M63 V2A           |
| 50569     | 75   | KEL-DP 50 11 B bk   | 51540     | 57   | KEL-BES 50          | 61115     | 89   | KB 15 nc                   | 80128     | 188  | Punch PG 16 V2A + Notch |
| 50570     | 75   | KEL-DP 50 35 B bk   | 52272     | 162  | KGM 16 gy           | 61120     | 89   | KB 20 nc                   | 80150     | 187  | Punch B V2A             |
| 50576     | 73   | KEL-DP-E 112 16 bk  | 52273     | 162  | KGM 20 gy           | 61125     | 89   | KB 22 nc                   | 80151     | 187  | Punch 10 V2A            |
| 50578     | 73   | KEL-DP-E 112 21 bk  | 52274     | 162  | KGM 25 gy           | 61130     | 89   | KB 25 nc                   | 80152     | 187  | Punch 16 V2A            |
| 50581     | 73   | KEL-DP-E 86 13 bk   | 52275     | 162  | KGM 32 gy           | 61135     | 89   | KB 30 nc                   | 80153     | 187  | Punch 24 V2A            |
| 50583     | 73   | KEL-DP-E 86 17 bk   | 52276     | 162  | KGM 40 gy           | 61140     | 89   | KB 45 nc                   | 80154     | 187  | Punch 24-XL V2A         |
| 50585     | 73   | KEL-DP-E 46 7 bk    | 52277     | 162  | KGM 50 gy           | 61145     | 89   | KB 50 nc                   | 88001     | 43   | KT ServiceBox           |
| 50587     | 73   | KEL-DP-E 46 9 bk    | 52278     | 162  | KGM 63 gy           | 61150     | 89   | KB 55 nc                   | 88002     | 99   | EMC ServiceBox          |
| 50591     | 73   | KEL-DP-S 69 8 bk    | 52283     | 162  | KGM 20 bk           | 61155     | 89   | KB 75 nc                   | 99017     | 128  | Screw DIN 912           |
| 50652     | 77   | KEL-DPF 25 3-12 bk  | 52284     | 162  | KGM 25 bk           | 61160     | 89   | KB 100 nc                  | 99142     | 49   | Plug KEL                |
| 50653     | 77   | KEL-DPF 32 6-18 bk  | 52285     | 162  | KGM 32 bk           | 61215     | 88   | KB 20 bk                   |           |      |                         |
| 50654     | 77   | KEL-DPF 40 12-27 bk | 52286     | 162  | KGM 40 bk           | 61220     | 88   | KB 25 bk                   |           |      |                         |
| 50655     | 77   | KEL-DPF 50 22-36 bk | 52287     | 162  | KGM 50 bk           | 61225     | 88   | KB 28 bk                   |           |      |                         |
| 50656     | 77   | KEL-DPF 63 27-50 bk | 52288     | 162  | KGM 63 bk           | 61230     | 88   | KB 30 bk                   |           |      |                         |
| 50657     | 77   | KEL-DPF 75 39-60 bk | 52289     | 162  | KGM 75 bk           | 61235     | 88   | KB 45 bk                   |           |      |                         |
| 50658     | 77   | KEL-DPF 85 48-70 bk | 52290     | 162  | KGM 85 bk           | 61240     | 88   | KB 55 bk                   |           |      |                         |
| 50700     | 64   | KEL-DPZ 24 14 bk    | 54162     | 10   | KEL-U 16 2          | 61245     | 88   | KB 75 bk                   |           |      |                         |
| 50705     | 64   | KEL-DPZ 24 17 bk    | 54162.200 | 10   | KEL-U 16 2 V2A      | 61250     | 88   | KB 100 bk                  |           |      |                         |
| 50710     | 65   | KEL-DPZ 24 25 bk    | 54165     | 10   | KEL-U 16 5          | 61300     | 189  | KBW 9                      |           |      |                         |
| 50715     | 65   | KEL-DPZ 24 42 bk    | 54165.200 | 10   | KEL-U 16 5 V2A      | 61430     | 189  | STFZ I/O Insert Tool       |           |      |                         |
| 50720     | 64   | KEL-DPZ 24 15 bk    | 54168     | 10   | KEL-U 16 8          | 61435     | 53   | QVT-CLICK Tool             |           |      |                         |
| 50725     | 64   | KEL-DPZ 24 16 bk    | 54168.200 | 10   | KEL-U 16 8 V2A      | 61436     | 77   | Wrench M75                 |           |      |                         |
| 50730     | 65   | KEL-DPZ 24 32 bk    | 54204     | 14   | KEL-U-B4            | 61437     | 77   | Wrench M85                 |           |      |                         |
| 50732     | 70   | KEL-DPZ 32 4 bk     | 54204.200 | 14   | KEL-U-B4 V2A        | 80000     | 186  | Punch driver set BASIC     |           |      |                         |
| 50733     | 70   | KEL-DPZ 32 4-2 bk   | 54206     | 14   | KEL-U-B1            | 80005     | 186  | Punch driver set PRO 16-32 |           |      |                         |
| 50734     | 70   | KEL-DPZ 32 7 bk     | 54206.200 | 14   | KEL-U-B1 V2A        | 80006     | 186  | Punch driver set PRO 16-32 |           |      |                         |

| Abbreviations |                |
|---------------|----------------|
| Colours       |                |
| bk            | black          |
| gy            | grey           |
| nc            | natural colour |
| Material      |                |
| BR            | Brass          |
| Cu-ETP        | Copper         |
| PA            | Polyamide      |
| PC            | Polycarbonate  |
| PE            | Polyethylene   |
| PP            | Polypropylene  |
| Zn            | zinc plated    |
| Other         |                |
| PU            | Packaging Unit |



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