

Cable Entry Systems EMC Solutions



innovative
creative
technology

Product Catalog

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. icotek North America is a privately held company within the icotek group. icotek has been present in the US and Canadian markets for over 10 years. icotek North America, based in Chicago, Illinois provides complete customer and product support to the US, Canada and Mexico

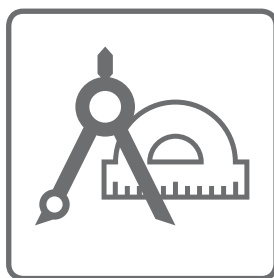
At our headquarters in Germany we develop our products and distribute them worldwide. With other offices in Switzerland and Turkey as well as partners and representatives in over 50 countries, we are a strong and reliable partner for the global industry. We provide expert advice, a high delivery capability 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.



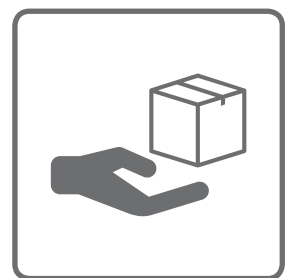
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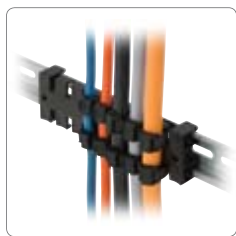
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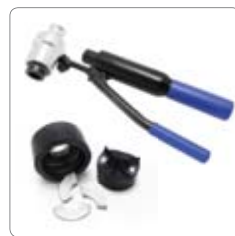
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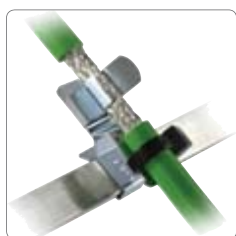
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1 Split Cable Entry Systems for Cables with Connectors



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 as well as for hoses and conduits.

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 rewire 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.

Split system

Secure and tight connection

Warranty on pre-terminated cables remains

Fast and easy assembly

Many cut-outs according to industrial standard dimensions

High cable density, wide variety

Integrated strain relief according to EN 62444

KEL-U / KEL: IP54 rated protection
KEL-ER: IP65 due to high clamping pressure on the cover lid and injected sealing

Product Range

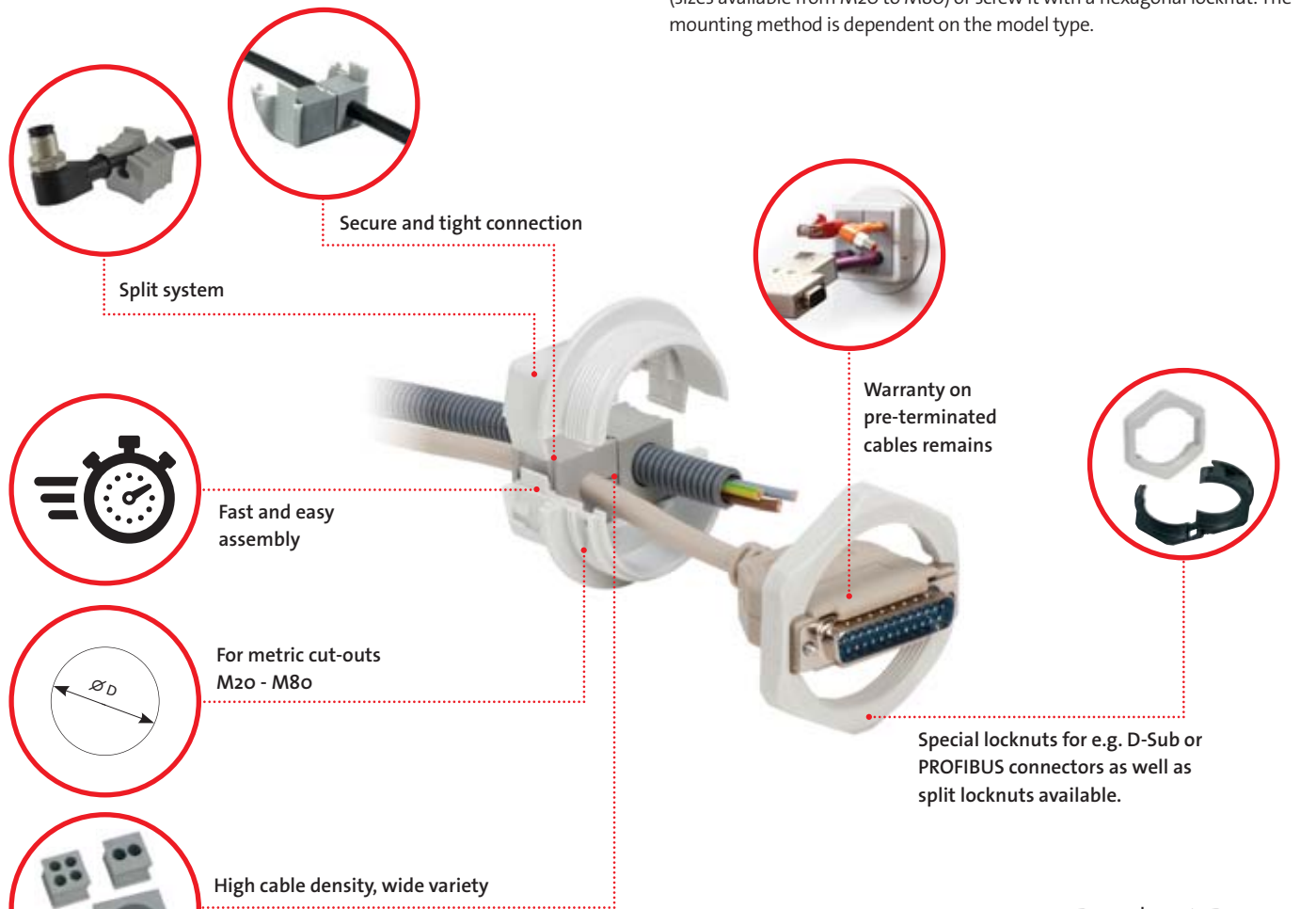


KVT - Split Cable Glands

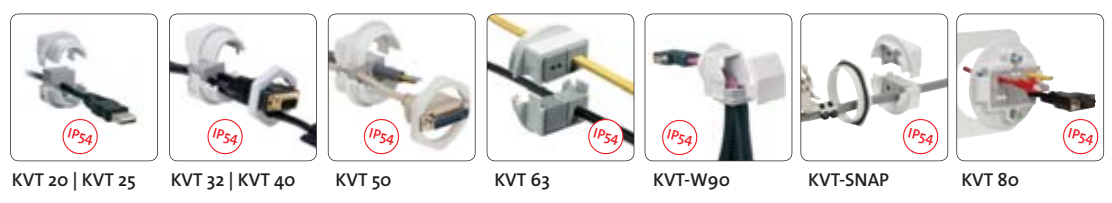
for the KT Grommet System, Page 38 - 42

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



1 Split Cable Entry Systems for Cables with Connectors

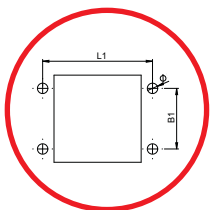


QUICK - Cable Entry Frames & Cable Glands for the QT Grommet System, Page 50 - 55

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.

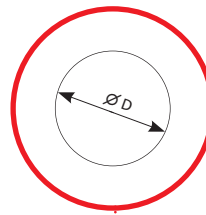
In addition to the consistent divisibility the QUICK systems are characterized by its tool-free assembly possibilities such as snap-in with the KEL-SNAP frame (KEL-QUICK), direct plug-in into the wall cut-out (QVT-CLICK/KEL-QTA) or mounting via locknuts (QVT).



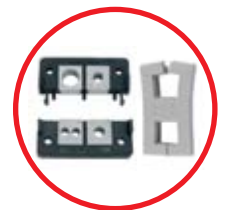
KEL-QUICK and KEL-QTA cut-outs according to industrial standard dimensions



Warranty on pre-terminated cables remains



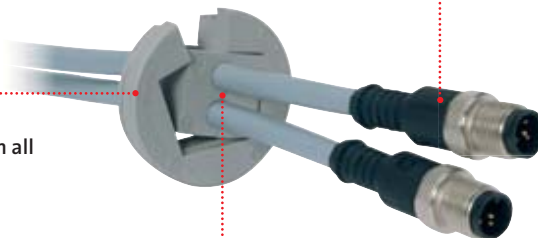
QVT and KEL-QTA round for metric cut-outs M16 - M50



Split system

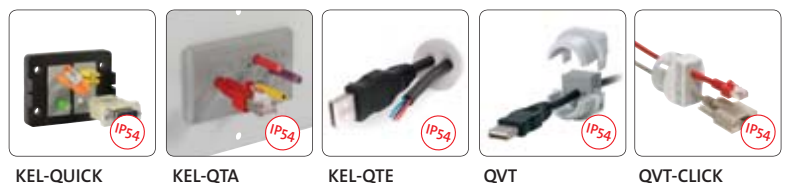


Fast and easy tool-free assembly (possible with all QUICK products)



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

	<p>Split cable entry frames NEMA types 4X / 12 for cable diameters up to 35 mm</p> <p>KEL-ER 24 / KEL-ER 16 / KEL-ER 10 / KEL-ER-B / KEL-ER-E KEL-U 24 / KEL-U 16 / KEL-U 10 / KEL-U-B / KEL-E</p> <p style="text-align: right;">8 - 17</p>		<p>Service box for cable grommets for service calls and retrofitting</p> <p>KT ServiceBox</p> <p style="text-align: right;">43</p>
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KEL-U 24

Cable Entry Frames



Also available with stainless steel screws (V2A).



Also available with threaded bushings.



Slit grommets



Description	Type	Order No.	Grommets small large	PU
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Product Description

Split cable entry system for routing pre-terminated cables providing an IP54 / IP65 / up to NEMA type 4X 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 in the frame 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

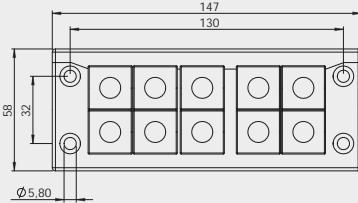
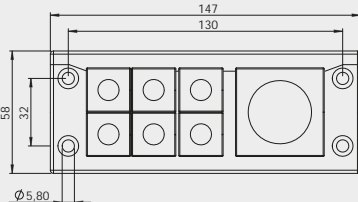
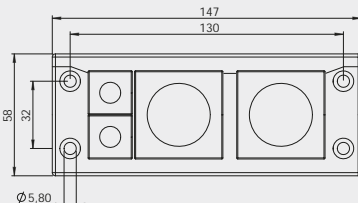
- Fast and easy assembly
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

Specifications

Material	Polyamide (PA)
Flame class	UL94-V0
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) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimensions	36/46 x 112 mm
Frame depth	17 mm

Accessories

Cable grommets	44 - 48
KEL-SNAP Mounting frames	36 - 37
KEL-EMC Grounding mounts	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).



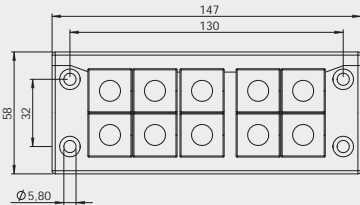
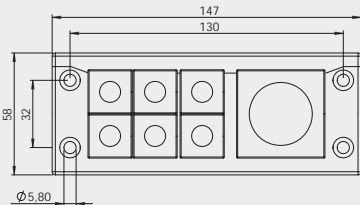
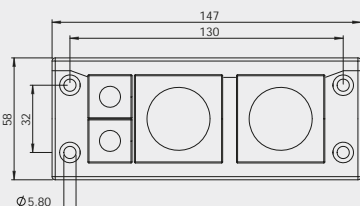
Also available with threaded bushings.



Slit grommets



Type	Order No.	Grommets small large	PU	Description
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KEL-ER 24 10	48241	10 -	10	
KEL-ER 24 10 with V2A screws	48241.200	10 -	10	
KEL-ER 24 7	48247	6 1	10	
KEL-ER 24 7 with V2A screws	48247.200	6 1	10	
KEL-ER 24 4	48244	2 2	10	
KEL-ER 24 4 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 compartments in the frame 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
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) - 40°F to + 284°F (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 Grounding mounts	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.

IP54

1

Description	Type	Order No.	Grommets small large	PU
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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 in the frame 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

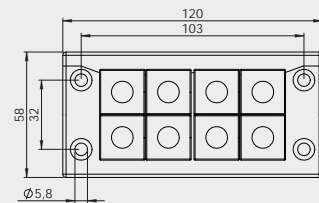
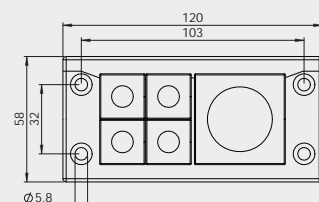
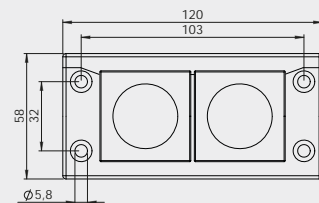
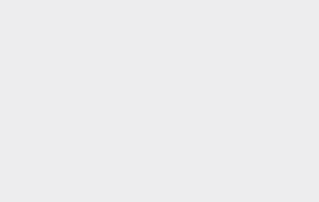
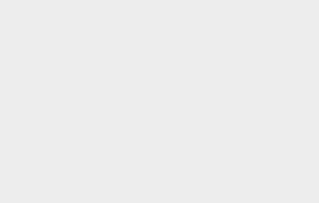
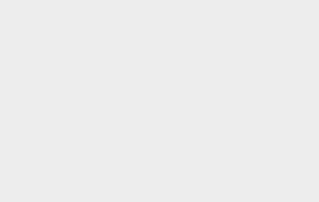
- Fast and easy assembly
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo
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) - 40°F to + 284°F (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 Grounding mounts	122 - 124
KDR Base plates	142 - 151
FP Flange plates	152 - 157

Description	Type	Order No.	Grommets small large	PU
	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).



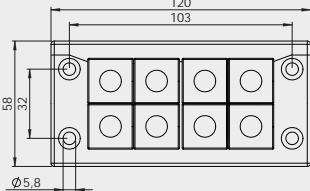
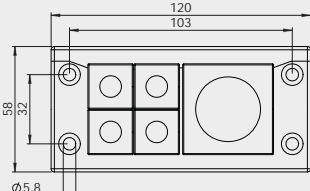
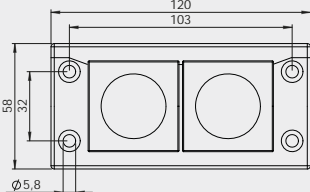
Also available with threaded bushings.



Slit grommets



Type	Order No.	Grommets small large	PU	Description
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KEL-ER 16 8	48168	8 -	10	
KEL-ER 16 8 with V2A screws	48168.200	8 -	10	
KEL-ER 16 5	48165	4 1	10	
KEL-ER 16 5 with V2A screws	48165.200	4 1	10	
KEL-ER 16 2	48162	- 2	10	
KEL-ER 16 2 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 in the frame 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
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) - 40°F to + 284°F (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 Grounding mounts	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

IP54

Description	Type	Order No.	Grommets small large	PU
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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 in the frame 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

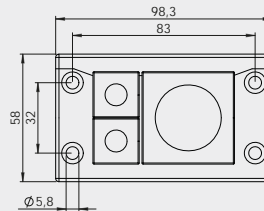
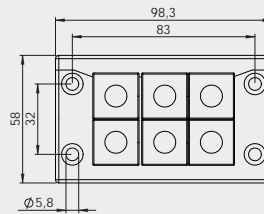
- Fast and easy assembly
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

Specifications

Material	Polyamide (PA)
Flame class	UL94-V0
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) - 40°F to + 284°F (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 Grounding mounts	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).



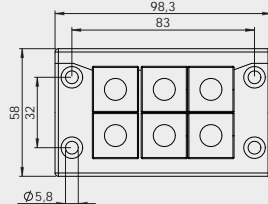
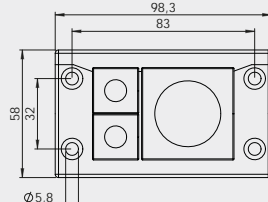
Also available with threaded bushings.



Slit grommets



Type	Order No.	Grommets small large	PU	Description
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KEL-ER 10 6	48216	6 -	10	
KEL-ER 10 6 with V2A screws	48216.200	6 -	10	
KEL-ER 10 3	48212	2 1	10	
KEL-ER 10 3 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 in the frame 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-Vo
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) - 40°F to + 284°F (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 Grounding mounts	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 small large	PU
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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 in the frame and are securely fixed to the frame during assembly. The KEL-U-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

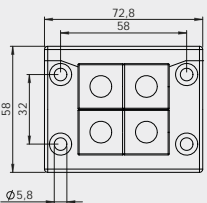
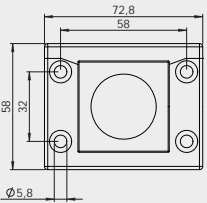
- Fast and easy assembly
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo
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) - 40°F to + 284°F (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 Grounding mounts	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).



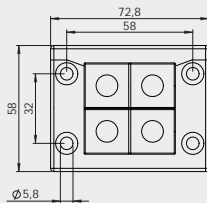
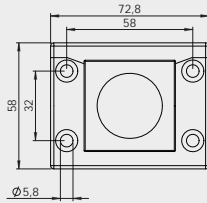
Also available with threaded bushings.



Slit grommets



Type	Order No.	Grommets small large	PU	Description
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KEL-ER-B4	48204	4 -	10	
KEL-ER-B4 with V2A screws	48204.200	4 -	10	
KEL-ER-B1	48206	- 1	10	
KEL-ER-B1 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 in the frame 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
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) - 40°F to + 284°F (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 Grounding mounts	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.

IP54

1

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

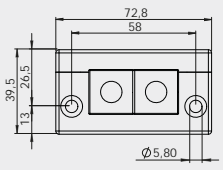
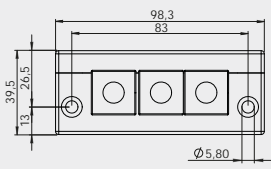
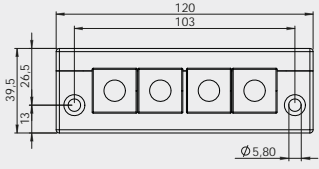
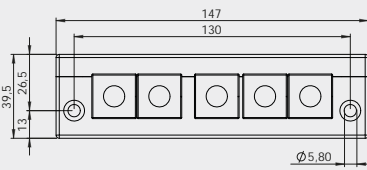
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- Space saving shape
- Optimal for D-Sub connectors
- Strain relief according to EN 62444
- High stability, vibration resistant

Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo
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) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Frame depth	17 mm

Accessories

Cable grommets	44 - 47
KEL-EMC Grounding mounts	122 - 124

	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

KEL-ER-E

Compact Cable Entry Frames



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



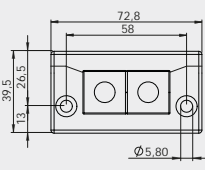

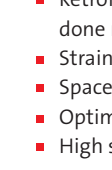
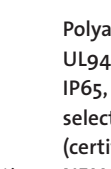
Also available with threaded bushings.



Slit grommets



Type	Order No.	Cut-out [mm]	Grommets small large	PU	Description
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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 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. 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
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) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Frame depth	17 mm

Accessories

KT Cable grommets	44
KEL-EMC Grounding mounts	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 small large	PU
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Product Description

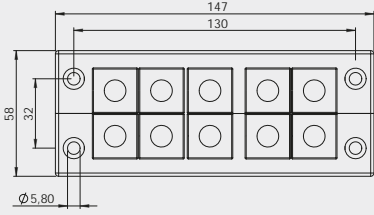
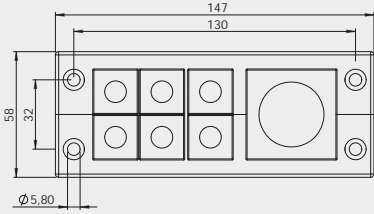
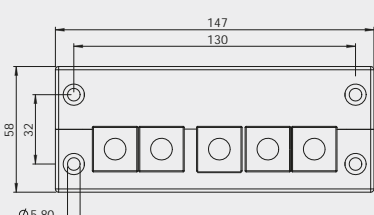
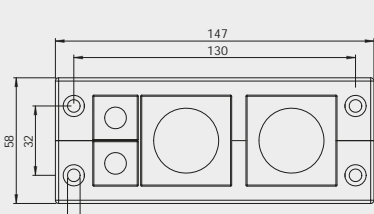
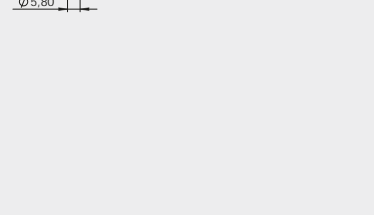
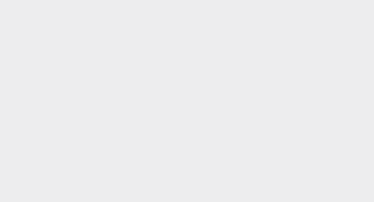
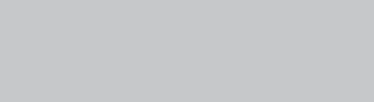
Centrally split cable entry system for routing cables with connectors, providing an IP54 / up to NEMA type 12 rating. The slit grommet matching the cable diameter is placed around the cable and inserted into the cable entry frame. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on 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

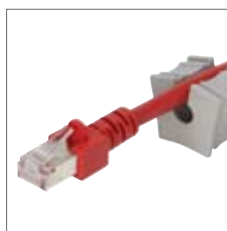
Material	Polyamide (PA)
Flame class	UL94-V0
IP rating	IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529)
NEMA type rating	NEMA type 12 (acc. to UL 50E)
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimensions	36/46 × 112 mm / Page 192 - 193
Frame depth	17 mm

	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

Accessories

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

KEL 16 Cable Entry Frames



Slit grommets



V2A
anti-corrosive

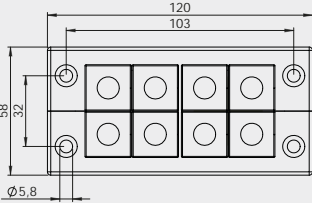
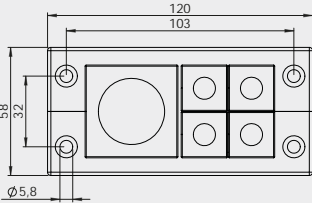
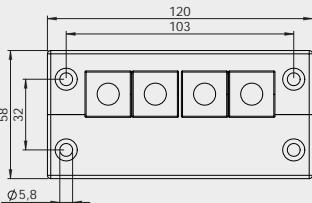
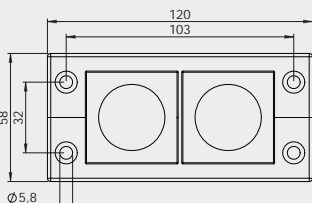
Also available with stainless steel screws (V2A).



Also available with threaded bushings.



Type	Order No.	Grommets small large	PU	Description
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KEL 16 8	42168	8 -	10	
KEL 16 8 with V2A screws	42168.200	8 -	10	
KEL 16 5	42165	4 1	10	
KEL 16 5 with V2A screws	42165.200	4 1	10	
KEL 16 4	42164	4 -	10	
KEL 16 4 with V2A screws	42164.200	4 -	10	
KEL 16 2	42162	- 2	10	
KEL 16 2 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-V0
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) - 40°F to + 284°F (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 Grounding mounts	122 - 124
KDR Base plates	142 - 151
FP Flange plates	152 - 157

KEL 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 small large	PU
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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

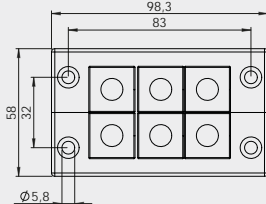
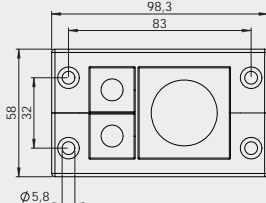
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Strain relief according to EN 62444
- High stability, vibration resistant

Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo
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) - 40°F to + 284°F (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 Grounding mounts	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

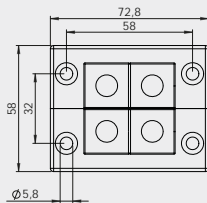
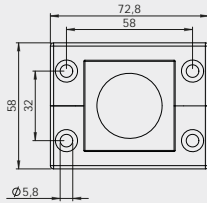
Also available with stainless steel screws (V2A).



Also available with threaded bushings.



Type	Order No.	Grommets small large	PU	Description
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KEL-B4	42204	4 -	10	
KEL-B4 with V2A screws	42204.200	4 -	10	
KEL-B1	42206	- 1	10	
KEL-B1 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
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) - 40°F to + 284°F (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 Grounding mounts	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 bushings.

IP54

Description	Type	Order No.	Grommets small large	PU
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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

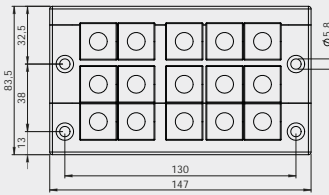
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density
- Strain relief according to EN 62444
- High stability, vibration resistant

Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo
IP Rating	IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529)
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimensions	66 × 112 mm / Page 192 - 193
Frame depth	17 mm

Accessories

KEL-SNAP Mounting frames	36 - 37
Cable grommets	44 - 48
KEL-EMC Grounding mounts	122 - 124



KEL 24|15-E

42209

15|-

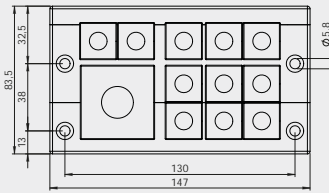
1

KEL 24|15-E
with V2A screws

42209.200

15|-

1



KEL 24|12-E

42208

11|1

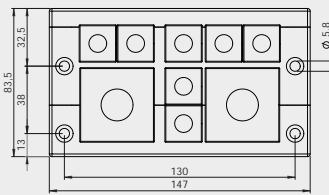
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KEL 24|12-E
with V2A screws

42208.200

11|1

1



KEL 24|9-E

42207

7|2

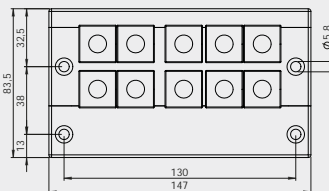
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KEL 24|9-E
with V2A screws

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 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
IP Rating	IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529)
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (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 Grounding mounts	122 - 124

KEL 24-2MT

Extended Cable Entry Frames



IP54



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



Also available with threaded steel bushings.

1

Description	Type	Order No.	Grommets 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

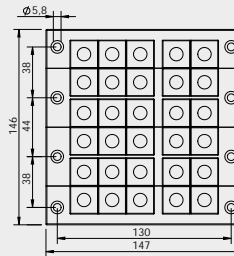
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density
- Strain relief according to EN 62444
- High stability, vibration resistant

Specifications

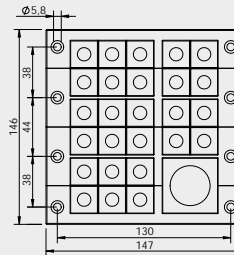
Material	Polyamide (PA)
Flame class	UL94-Vo
IP Rating	IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529)
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimensions	126 × 112 mm / Page 192 - 193
Frame depth	17 mm

Accessories

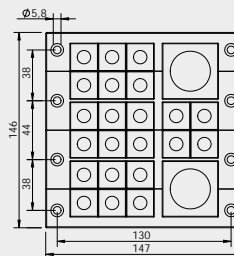
Cable grommets	44 - 48
KEL-EMC Grounding mounts	122 - 124



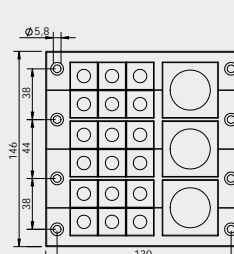
KEL 24| 30-2 MT 42234 30| 1



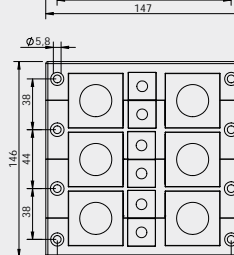
KEL 24| 30-2 MT with V2A screws 42234.200 30| 1



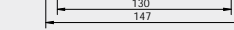
KEL 24| 27-2 MT 42233 26|1 1



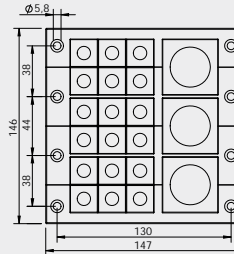
KEL 24| 27-2 MT with V2A screws 42233.200 26|1 1



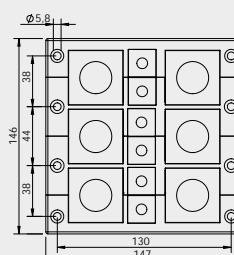
KEL 24| 24-2 MT 42227 22|2 1



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



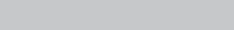
KEL 24| 21-2 MT 42226 18|3 1



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 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
IP Rating	IP54, with gasket and correct selection of cable grommets (certified acc. to EN 60529)
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimensions	66 × 86 mm
Frame depth	17 mm

Accessories

Cable grommets	44 - 48
KEL-EMC Grounding mounts	122 - 124

KEL 16-MT

Extended Cable Entry Frames



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



Also available with threaded bushings.

IP54

Description

Type

Order No.

Grommets
small | large

PU

Product Description

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

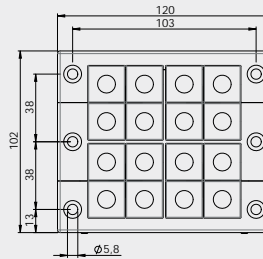
The KEL 16-MT series are KEL 16 frames extended with an additional middle frame for routing additional cables. Thus allowing the quick, easy and cost effective routing solution for up to 64 cables. A flat rubber gasket is included in the shipment.

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
IP Rating	IP54, with gasket and correct selection of the grommets (certified acc. to EN 60529)
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimensions	82 × 86 mm
Frame depth	17 mm



KEL 16|16-MT

42145

16|-

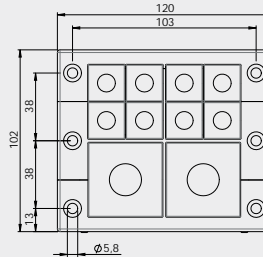
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KEL 16|16-MT
with V2A screws

42145.200

16|-

1



KEL 16|10-MT

42144

8|2

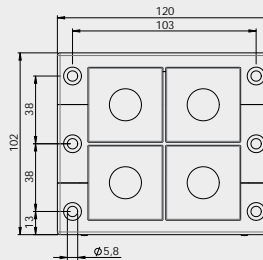
1

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

Accessories

Cable grommets	44 - 48
KEL-EMC Grounding mounts	122 - 124

KEL 16-2MT

Extended Cable Entry Frames



V2A
anti-corrosive

Also available with stainless steel screws (V2A).



Also available with threaded bushings.



IP54



Type	Order No.	Grommets 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-V0
IP Rating	IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529)
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimensions	126 × 86 mm
Frame depth	17 mm

Accessories

Cable grommets	44 - 48
KEL-EMC Grounding mounts	122 - 124

KEL-FG A

Flange Enclosures for Cable Entry



Slit grommets

1

Description	Type	Order No.	Grommets		PU
			small	large	

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 panel, 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

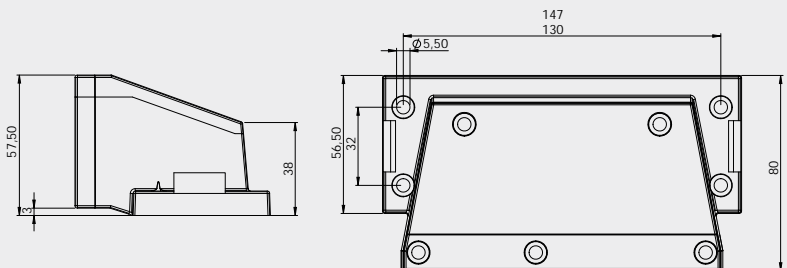
Specifications

Material	Polyamide (PA)
Flame class	UL94-V0
IP Rating	IP54, with gasket and correct selection of the cable grommets
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (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 Grounding mounts	122 - 124

	KEL-FG A10	42320	10 -	1
	KEL-FG A10 with V2A screws	42320.200	10 -	1
	KEL-FG A7	42322	6 1	1
	KEL-FG A7 with V2A screws	42322.200	6 1	1
	KEL-FG A4	42324	2 2	1
	KEL-FG A4 with V2A screws	42324.200	2 2	1



KEL-FG B

Flange Enclosures for Cable Entry



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



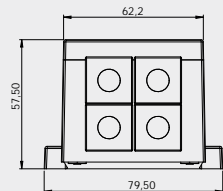
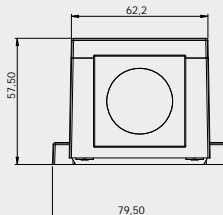
Also available with threaded bushings.



Slit grommets



Type	Order No.	Grommets 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 panel, 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

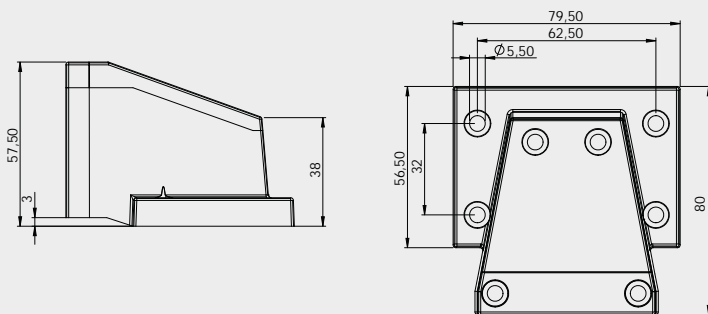
- Installation at an angle of 90° to the wall
- Mechanical protection of cable directly at the place of entry
- Protection against water spray and drips
- Warranty on pre-terminated cables remains
- Strain relief according to EN 62444
- High stability, vibration resistant

Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo
IP Rating	IP54, with gasket and correct selection of the cable grommets
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimensions	46 × 36 mm, Page 192 - 193

Accessories

Cable grommets	44 - 48
KEL-EMC Grounding mounts	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 elevator construction.

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

Advantages & Benefits

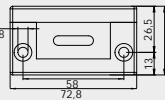
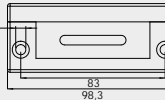
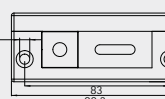
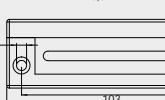
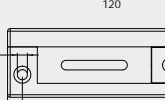
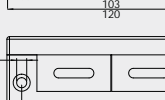
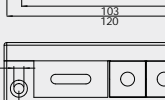
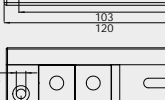
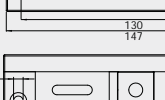
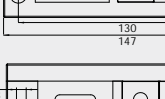


- Routing of flat cables in combination with pre-terminated round cables by using a single KEL-FL cable entry frame
- Space saving shape

Specifications

Material	Polyamide (PA)
Flame class	UL94-V0
IP Rating	IP54, with gasket and correct selection of the cable grommets
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Mounting 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 Grounding mounts	122 - 124

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

FT Grommets for Flat Cables



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

Product Description

FT grommets are used to route flat cables, e.g. in elevator 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
IP Rating	IP54
Temperature	- 40°C to + 90°C (static) - 40°F to + 194°F (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



IP54

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

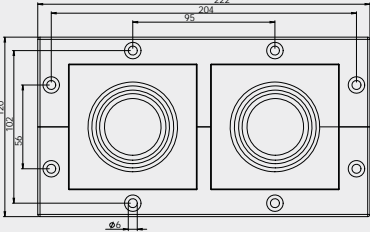
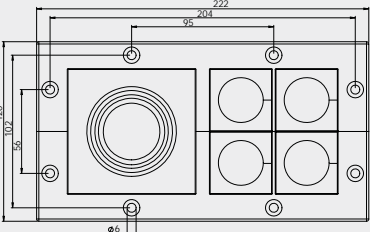
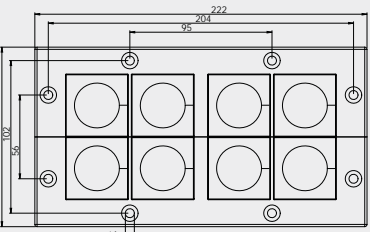
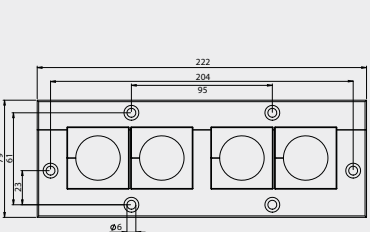
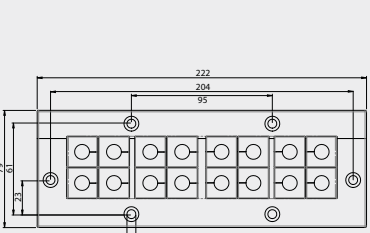
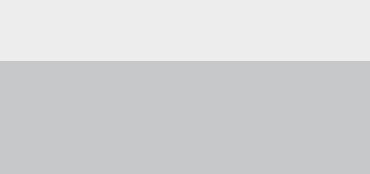
- Installation of cables up to 75 mm
- Grommets allow rigid cables to be properly positioned and oriented during the installation process.
- Retrofits, repairs and maintenance can be done much more easily and quickly

Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo
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) - 40°F to + 284°F (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 KT KT 183 KT large	PU
	KEL 183 2	47200	2 -	1
	KEL 183 2 with V2A screws	47200.200	2 -	1
	KEL 183 5	47220	1 4	1
	KEL 183 5 with V2A screws	47220.200	1 4	1
	KEL 183 8	47240	- 8	1
	KEL 183 8 with V2A screws	47240.200	- 8	1
	KEL 183-E4	47250	- 4	1
	KEL 183-E4 with V2A screws	47250.200	- 4	1
	KEL 183-E16	47255	16 KT small	1
	NEW KEL 183-E16 with V2A screws	47255.200	16 KT small	1

KTMB 183

Grommets for KEL 183



Type	Order No. gray	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
IP rating	IP54
NEMA type rating	NEMA type 12 (acc. to UL 50E)
Temperature	- 40°C to + 90°C (static) - 40°F to + 194°F (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 length width height	PU
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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

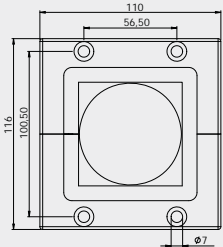
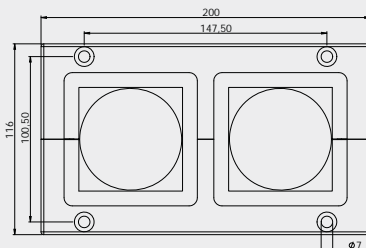
- Installation of cables up to 65 mm
- KTF grommets allow flexing and adjustment of the cable position
- Retrofitting and maintenance can be carried out easily and quickly
- Strain relief according to EN 62444

Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo
IP rating	IP54
NEMA type rating	NEMA type 12 (acc. to UL 50E)
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimensions	Round, cable diameter +15%
Frame depth	35 mm

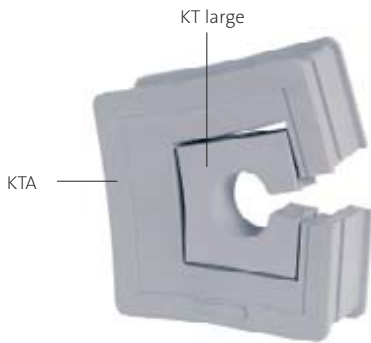
Accessories

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

	KEL-JUMBO 1	42360	110 × 116 × 35	1
	KEL-JUMBO 1 with V2A screws	42360.200	110 × 116 × 35	1
	KEL-JUMBO 2	42350	200 × 116 × 35	1
	KEL-JUMBO 2 with V2A screws	42350.200	200 × 116 × 35	1

KTF

Grommets for KEL-JUMBO



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

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 utilized with KEL-JUMBO frames by using an adapter grommet.

Specifications

Material	Elastomer
Flame class	UL94-Vo
IP rating	IP54
NEMA type rating	NEMA type 12 (acc. to UL 50E)
Temperature	- 40°C to + 90°C (static) - 40°F to + 194°F (static)
Properties	Halogen-free, silicone-free

Compatible with

KEL-JUMBO Cable entry frames 34

Accessories

KT Cable grommets, large 46

KEL-SNAP

Mounting Frames



Integrated circular sealing (IP54)



Blank plate BPK-SNAP, see page 160

1

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

The patented KEL-SNAP frame provides a quick assembly of the KEL / KEL-U / KEL-QUICK system when necessary. Control panels, enclosures or machines can be equipped with the KEL-SNAP frame at delivery, allowing a simple push in of the KEL frame when routing the cables and conduits. Perfect for enclosures that are maintenance intensive or for an install at a later date.

A cut-out of 46 mm also can be chosen instead of 36 mm. Thus prefabricated multi-pin connectors can be used. A flat rubber gasket is included in the shipment.

Advantages & Benefits

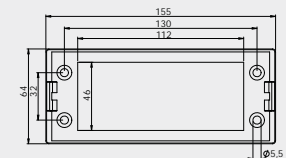
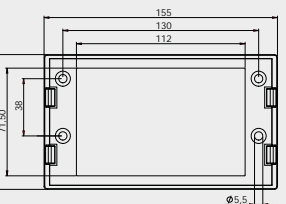
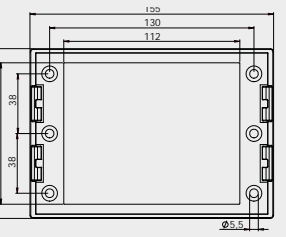
- Upon disassembly (e.g. maintenance) screwing and unscrewing of KEL-frame is not necessary
- Previously assembled KEL frames are quickly and easily attached
- Integrated gasket
- Mounting template identical to KEL frame (except KEL-SNAP-B4)

	KEL-SNAP-B4	42038	KEL-B KEL-U-B KEL-QUICK-B	46 x 38	10
	KEL-SNAP 10	42039	KEL 10 KEL-U 10	46 x 65	10
	KEL-SNAP 16	42040	KEL 16 KEL-U 16 KEL-QUICK 16	46 x 85	10

KEL-SNAP Mounting Frames



Type	Order No.	Fits for	Cut-out [mm]	PU	Description
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KEL-SNAP 24	42042	KEL 24 KEL-U 24 KEL-FG A 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-V0
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) - 40°F to + 284°F (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

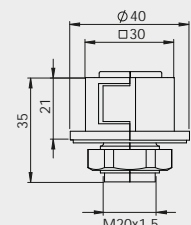
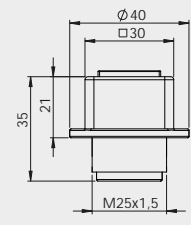
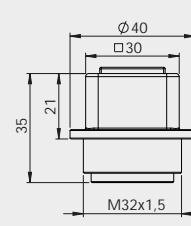
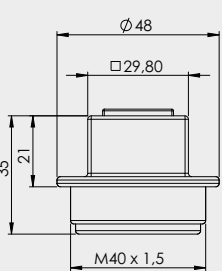
Locknuts with special cut-outs are available separately. The cut-out dimensions are listed on pages 162 - 163.



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

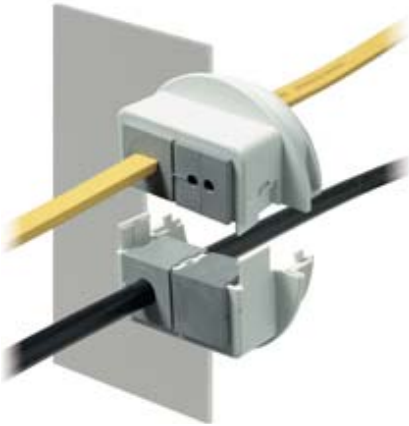
Description	Type	Order No.	Grommets small large	Thread Thread length	PU
	KVT 20**	<input type="checkbox"/> 45034 <input checked="" type="checkbox"/> 45024	1 -	M20 x 1.5 Length: 14 mm	10
	KVT 25***	<input type="checkbox"/> 45035 <input checked="" type="checkbox"/> 45025	1 -	M25 x 1.5 Length: 14 mm	10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

* Only valid for gray product types

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


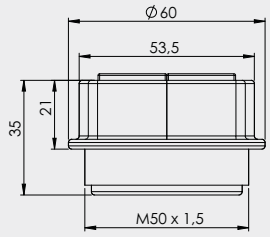




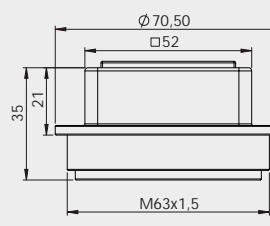



KVT

Split Cable Glands



1

Type	Order No.	Grommets small large	Thread Thread length	PU	Description
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KVT 50 2	 45204	2 -	M50 x 1,5 Length: 14 mm	5	
	 45030				
KVT 50 2 + KGM-SUB-D25	 45206	2 -	M50 x 1,5 Length: 14 mm	5	
	 45031				
KVT 63 1	 45212	- 1	M63 x 1,5 Length: 14 mm	5	
	 45112				
KVT 63 4	 45215	4 -	M63 x 1,5 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)
Color	 gray (similar RAL 7035)  black
Flame class	UL94-Vo
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) - 22°F to + 212°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimension	Metric sizes

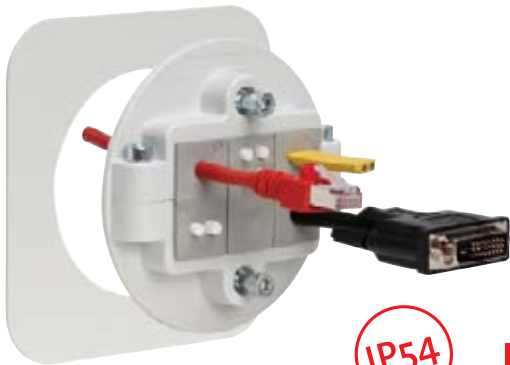
Accessories

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

* Only valid for gray product types

KVT 8o

Split Cable Glands



IP54

1

Description	Type	Order No.	Grommets KT small large	PU
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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

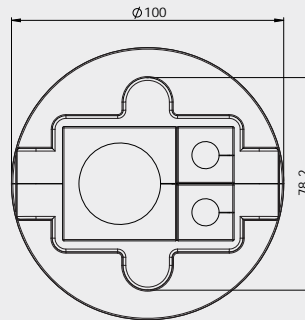
- Insertion of pre-terminated cables
- Warranty on pre-terminated cables remains
- Retrofits, repairs and maintenance can be done much more easily and quickly
- High cable density, wide variety of grommets
- Fast and easy assembly from the front side
- Strain relief according to EN 62444

Notes

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)
Color	<input type="checkbox"/> gray (similar RAL 7035) <input type="checkbox"/> black
Flame class	UL94-Vo
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) - 22°F to + 212°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimension	80 mm in diameter

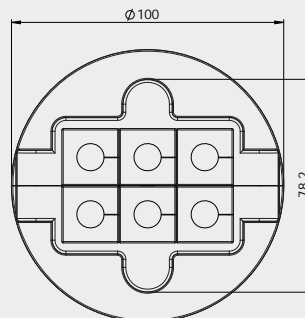


KVT 8o|3

- 45236
- 45239

2|1

1

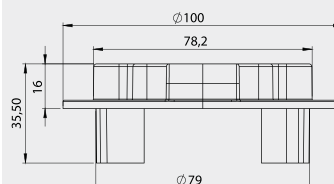


KVT 8o|6

- 45237
- 45238

6|-

1



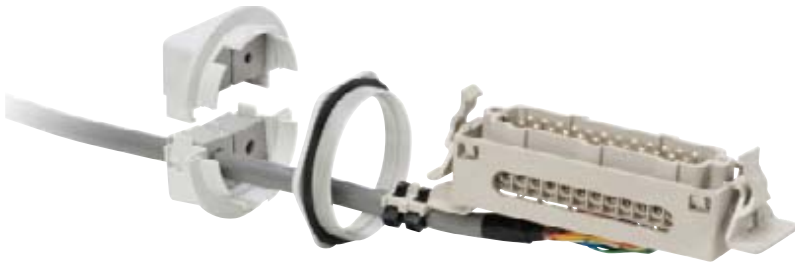
*Only valid for gray product types

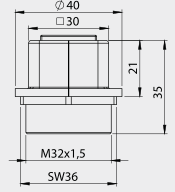
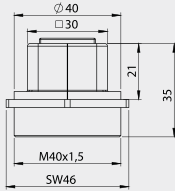
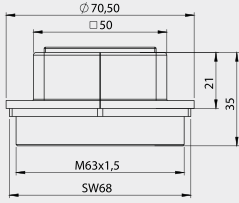
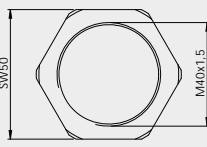
Accessories

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 Length: 11 mm	10	
KVT-SNAP 40	45134	1 -	M40 × 1.5 Length: 11 mm	10	
KVT-SNAP 63 4	45152	4 -	M63 × 1.5 Length: 11 mm	5	
KVT-SNAP 63 1	45154	- 1	M63 × 1.5 Length: 11 mm	5	
KGM 32	<input type="checkbox"/> 52275 <input checked="" type="checkbox"/> 52285	PA	M32 × 1.5	10	
KGM 40	<input type="checkbox"/> 52276 <input checked="" type="checkbox"/> 52286	PA	M40 × 1.5	10	
KGM 63	<input type="checkbox"/> 52278 <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 junction 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

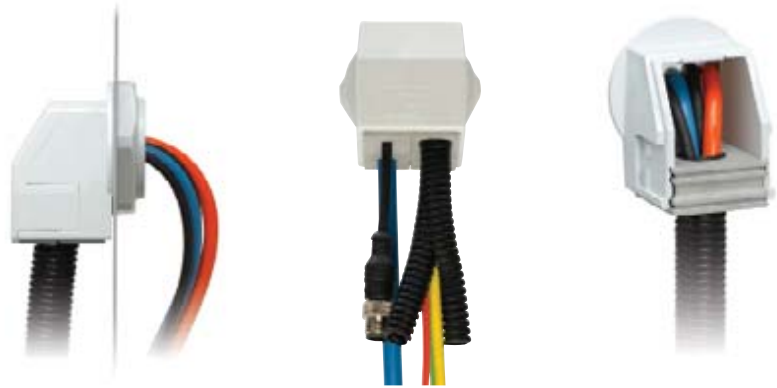
Material	Polycarbonate (PC)
Color	gray (similar RAL 7035)
Flame class	UL94-Vo
IP Rating	<input type="checkbox"/> IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529)
Temperature	- 30°C to + 100°C (static) - 22°F to + 212°F (static)
Properties	Halogen-free, silicone-free
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. with locknut	Grommets small large	Thread 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 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 enclosure
- Insertion of pre-terminated cables and conduits
- Warranty on pre-terminated cables remains
- Suitable for metric cut-outs

Specifications

Material	Polycarbonate (PC)
Color	<input type="checkbox"/> gray (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo
IP Rating	IP54, with gasket and correct selection of the cable grommets (certified acc. to EN 60529)
Temperature	- 30°C to + 100°C (static) - 22°F to + 212°F (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 <input checked="" type="checkbox"/> 45406	1 -	M32 x 1.5 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 <input checked="" type="checkbox"/> 45426	4 -	M50 x 1.5 Length: 11.5 mm	5
	KVT 50 1-W90	<input type="checkbox"/> 45414 <input checked="" type="checkbox"/> 45416	- 1	M50 x 1.5 Length: 11.5 mm	5
	GMT 50	<input checked="" type="checkbox"/> 31140	-	M50 x 1.5	10

*Only valid for gray 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 multi-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



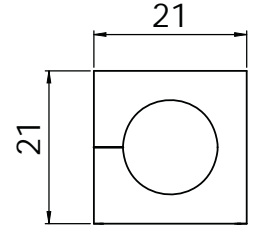
The correct size of the KT grommets can easily be determined by using the cable template (material: stainless steel V2A).

- 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

Description	Type	Order No gray	Order No black	Clamping range	PU
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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


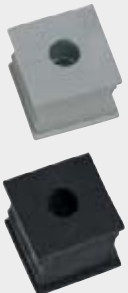

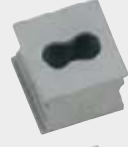



When installing the grommets, the flat side should be facing the middle of the frame. This allows the flat sides of adjacent grommets to match up and provide a secure seal.

Specifications KT gray

Material	Elastomer
Flame class	UL94-Vo
IP rating	KT round, single: up to IP65 (in combination with KEL-ER frame) KT special/blank: IP54
NEMA type rating	up to NEMA type 4X (acc. to UL 50E)
Temperature	- 30°C to + 90°C (static) - 40°F to + 194°F (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) KT special/blank: IP54
NEMA type rating	up to NEMA type 4X (acc. to UL 50E)
Temperature	- 30°C to + 90°C (static) - 40°F to + 194°F (static)
Properties	Higher chemical resistance

BTK		BTK	<input type="checkbox"/> 41251	<input checked="" type="checkbox"/> 41351	Blank grommet	10
KT round		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		KT oval	<input type="checkbox"/> 39930	-
KT S1		KT S1	<input type="checkbox"/> 39931	-		10
KT tele		KT tele	<input type="checkbox"/> 39929	-	Telephone cable	10
KT tele1		KT tele1	<input type="checkbox"/> 41257	-	Data cable RJ12	10
KT tele2		KT tele2	<input type="checkbox"/> 41258	-	Data cable RJ10 / RJ45	10

*Only valid for gray product types

Accessories

ST Plugs 49

KT


Grommets, small, multi



Type	Order No gray	Order No black	Clamping range	PU	Description
------	------------------	-------------------	----------------	----	-------------

KT 2 2	<input type="checkbox"/> 39935	<input type="checkbox"/> 39936	2× Ø 2 mm	10	
KT 2 3	<input type="checkbox"/> 39939	<input type="checkbox"/> 39940	2× Ø 3 mm	10	
KT 2 4	<input type="checkbox"/> 39906	<input type="checkbox"/> 39907	2× Ø 4 mm	10	
KT 2 5	<input type="checkbox"/> 41200	<input type="checkbox"/> 39904	2× Ø 5 mm	10	
KT 2 6	<input type="checkbox"/> 41201	<input type="checkbox"/> 39905	2× Ø 6 mm	10	
KT 2 7	<input type="checkbox"/> 41202	<input type="checkbox"/> 39916	2× Ø 7 mm	10	
KT 2 8	<input type="checkbox"/> 39917	<input type="checkbox"/> 39918	2× Ø 8 mm	10	

KT 4 2	<input type="checkbox"/> 39937	<input type="checkbox"/> 39938	4× Ø 2 mm	10	
KT 4 3	<input type="checkbox"/> 39914	<input type="checkbox"/> 39915	4× Ø 3 mm	10	
KT 4 4	<input type="checkbox"/> 39909	<input type="checkbox"/> 39911	4× Ø 4 mm	10	
KT 4 5	<input type="checkbox"/> 39908	<input type="checkbox"/> 39910	4× Ø 5 mm	10	
KT 4 6	<input type="checkbox"/> 39932	<input type="checkbox"/> 39933	4× Ø 6 mm	10	

KT-ASI	<input type="checkbox"/> 39902	<input type="checkbox"/> 39903	1 ASI-cable	10	
KT-ASI2 r	<input type="checkbox"/> 39922	<input type="checkbox"/> 39924	2 ASI-cables	10	
KT-ASI2 l	<input type="checkbox"/> 39921	<input type="checkbox"/> 39923	2 ASI-cables	10	

*Only valid for gray product types

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 gray

Material	Elastomer
Flame class	UL94-Vo
IP rating	KT round, multi: IP54 KT special, multi: IP54
NEMA type rating	NEMA type 12 (acc. to UL 50E)
Temperature	- 40°C to + 90°C (static) - 40°F to + 194°F (static)
Properties	Halogen-free, silicone-free

Specifications KT black

Material	Elastomer
Flame class	UL94-HB
IP rating	KT round, multi: IP54 KT special, multi: IP54
NEMA type rating	NEMA type 12 (acc. to UL 50E)
Temperature	- 30°C to + 90°C (static) - 40°F to + 194°F (static)
Properties	Higher chemical resistance

Accessories

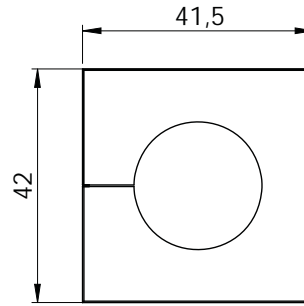
ST Plugs 49

KT

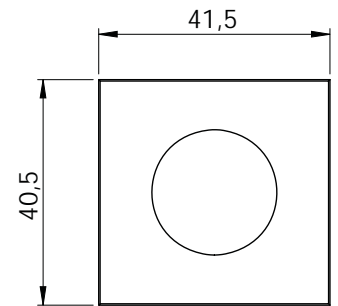
Grommets, large



IP54 IP65



KT / KT-DPF large



KTMB large

1

Description	Type	Order No.	Order No.	Clamping range	PU
		gray	black		

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)

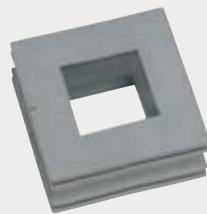





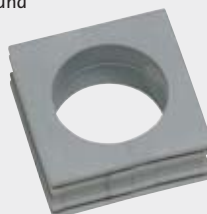






































ATG adapter grommets provide the possibility to hold a small KT grommet to reduce the clamping range down to 2 mm.

Specifications KT gray

Material: Elastomer
 Flame class: UL94-Vo
 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) / -40°F to +194°F (static)
 Properties: Halogen-free, silicone-free

Specifications KT black

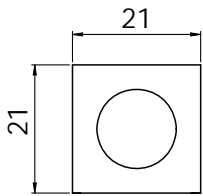
Material: Elastomer
 Flame class: UL94-HB
 IP rating: KT round, single: up to IP65 (in combination with KEL-ER frame) ATG/BTG: IP54
 NEMA type rating: up to NEMA type 4X (acc. to UL 50E)
 Temperature: -30°C to +90°C (static) / -40°F to +194°F (static)
 Properties: Higher chemical resistance

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

*Only valid for gray product types

KT-DPF | KTMB

Grommets, Multi-Range




KT-DPF / KTMB small



KT-DPF-B



Type	Order No.	Size KT	Clamping range	PU	Description
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KT-DPF-A	<input type="checkbox"/> 41260 <input checked="" type="checkbox"/> 41360	KT small	3 - 12 mm	10	 KT-DPF-A
KT-DPF-B	<input type="checkbox"/> 41261 <input checked="" type="checkbox"/> 41361	KT large	4 - 18 mm	10	
KT-DPF-C	<input type="checkbox"/> 41262 <input checked="" type="checkbox"/> 41362	KT large	14 - 26 mm	10	 KT-DPF-C
KTMB-A	41432	KT small	2.5 - 6.5 mm	10	
KTMB-B	41434	KT small	4 - 7.5 mm	10	 KTMB-D
KTMB-C	41436	KT small	6.5 - 10 mm	10	
KTMB-D	41438	KT small	9.5 - 13 mm	10	
KTMB-E	41440	KT small	13 - 16 mm	10	 Cross section KTMB
KTMB-G	41460	KT large	13 - 18 mm	10	
KTMB-H	41465	KT large	18 - 23 mm	10	
KTMB-I	41470	KT large	23 - 28 mm	10	 KTMB-I
KTMB-J	41475	KT large	28 - 33 mm	10	
KTMB-K	41480	KT large	2x 13 - 18 mm	10	 KTMB-K

*Only valid for gray 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 gray

Material	Elastomer
Flame class	UL94-Vo
IP rating	IP54
NEMA type rating	NEMA type 12 (acc. to UL 50E)
Temperature	- 40°C to + 90°C (static) - 40°F to + 194°F (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) - 40°F to + 194°F (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
- Selecting the KT grommets according
- to the data on the cable template

Order No. 39800



DT

Membrane Cable Grommets



1

Product Description

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

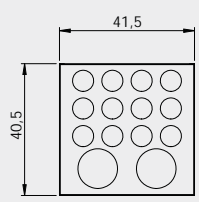
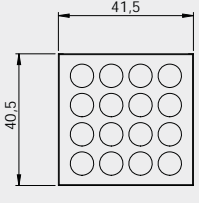
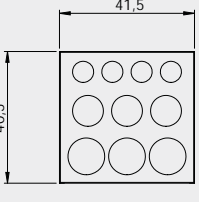
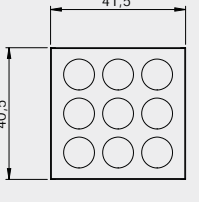
- Combination of routing pre-terminated cables and cables without connectors with one cable entry frame
- Enables subassembly of cable harnesses
- High cable density

Specifications

Material	Elastomer
Flame class	UL94-Vo
IP rating	IP54
NEMA type rating	NEMA type 12 (acc. to UL 50E)
Temperature	- 40°C to + 90°C (static) - 40°F to + 194°F (static)
Properties	Halogen-free, silicone-free

Accessories

ST-B Plugs 76

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



ST Plugs for Cable Grommets



Type	Order No.	Diameter D	Length 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	
NEW 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
IP rating	IP rating of grommets remains
NEMA type rating	NEMA type 12 (acc. to UL 50E)
Temperature	- 40°C to + 120°C - 40°F to + 248°F
Properties	Halogen-free, silicone-free

Compatible with

KT Cable grommets	44 - 46
QT Cable grommets	56

KEL-QUICK

Cable Entry Frames



1

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

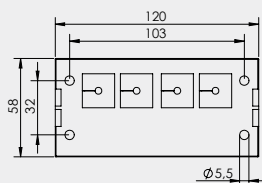
Description	Type	Order No.	Cut-out [mm]	Grommets	PU
	KEL-QUICK 24 10	42410	36 × 112	10 QT	10
	KEL-QUICK 24 5	42415	36 × 112	5 QT	10
	KEL-QUICK 16 8	42418	36 × 86	8 QT	10

KEL-QUICK Cable Entry Frames

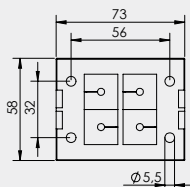


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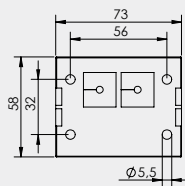
Description	Type	Order No.	Cut-out [mm]	Grommets	PU
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KEL-QUICK 16|4 **42414** **36 × 86** **4 QT** **10**



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
IP Rating	IP54, with gasket and correct selection of the cable grommets
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free
Mounting template	See Page 192 - 193
Frame depth	17 mm

Accessories

QT Cable grommets	56
KEL-SNAP Mounting frames	36 - 37
KEL-EMC Grounding mounts	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)
Color	gray (similar RAL 7035)
Flame class	UL94-V0
IP Rating	IP54, with gasket and correct selection of the cable grommets
Temperature	- 30°C to + 100°C (static) - 22°F to + 212°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimension	Metric sizes

Accessories

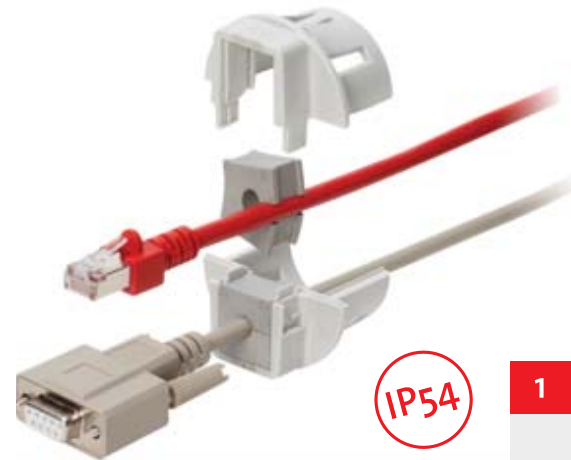
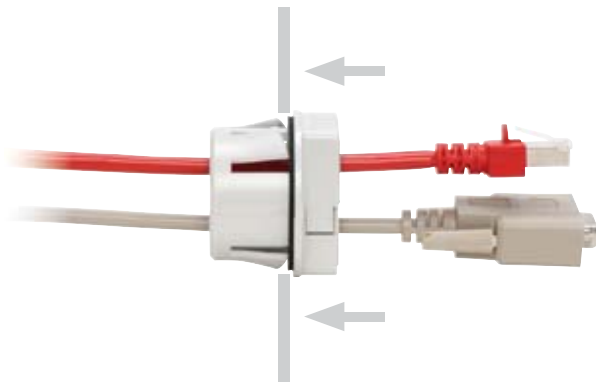
QT Cable grommets	56
KVT-EMC Brackets	125
KGM Locknuts	162 - 163

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

* Max. cable diameter of 10 mm

QVT-CLICK

Pluggable Split Cable Glands



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

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)
Color	gray (similar RAL 7035)
Flame class	UL94-Vo
IP Rating	IP54, with gasket and correct selection of the cable grommets
Temperature	-30°C to +100°C (static) -22°F to +212°F (static)
Properties	Halogen-free, silicone-free

Accessories

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

*Please consider any paint layers or powder coatings!

KEL-QTA

Split Cable Entry Plates



IP54



1

Product Description

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

Advantages & Benefits

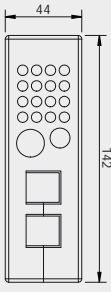
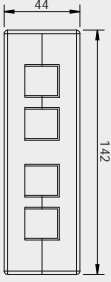
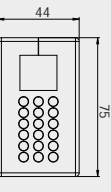
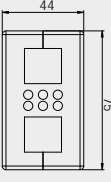
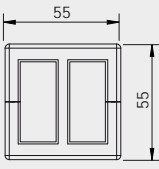
- Quick assembly without tools
- High cable density by using multi-position grommets
- Simple assembly and disassembly in case of change or service
- Routing of cables with and without connectors in a high density
- Suitable for standard industrial connector cut-outs

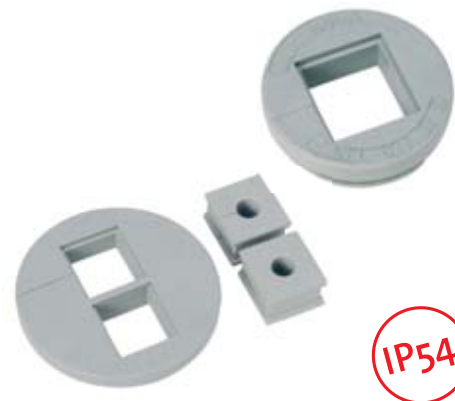
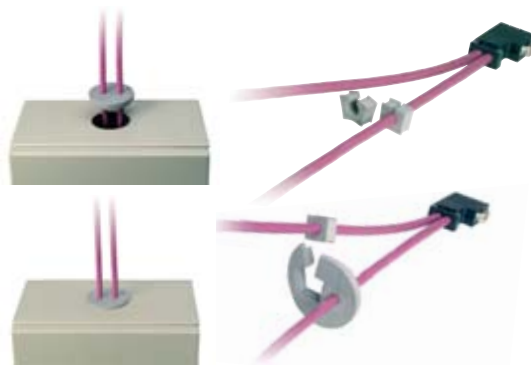
Specifications

Material	Elastomer
Flame class	UL94-V0
IP Rating	IP54, with correct selection of the cable grommets QT
Temperature	- 40°C to + 90°C (static) - 40°F to + 194°F (static)
Properties	Halogen-free, silicone-free
Frame depth	17 mm
Type A:	For wall thickness 1.5 - 2.5 mm
Type B:	For wall thickness 2.8 - 4 mm

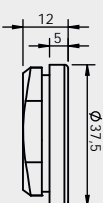
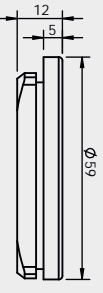
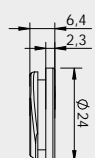
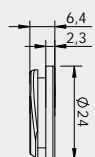
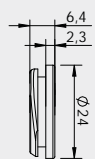
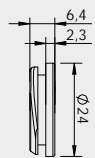
Accessories

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 without connector 16× max. 7 mm 1× max. 12 mm 1× max. 16 mm	10
	KEL-QTA 24 4	43644	43645	112 × 36	pre-terminated 4× 3 - 15 mm	10
	KEL-QTA 10 1 -DP 18	43655	43658	65 × 36	pre-terminated 1× 3 - 15 mm without connector 18× max. 5 mm	10
	KEL-QTA 10 2 -DP 6	43656	43659	65 × 36	pre-terminated 2× 3 - 15 mm 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

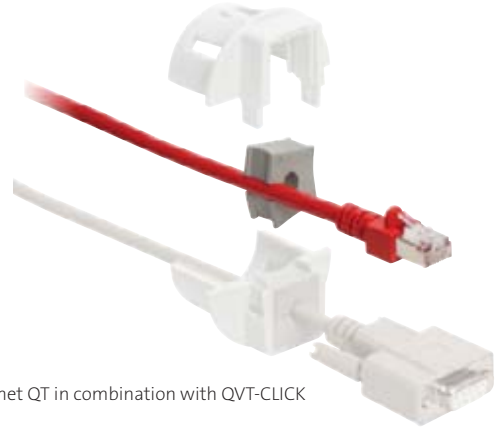
Material	Elastomer
Flame class	UL94-Vo
IP Rating (QTA)	IP54, with correct selection of the cable grommets (QT single)
Temperature	- 40°C to + 90°C (static) - 40°F to + 194°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimension	Metric sizes
Type A:	For wall thickness 1.5 - 2.5 mm
Type B:	For wall thickness 2.8 - 4 mm

Accessories

QT Cable grommets 56

QT

Grommets



Grommet QT in combination with QVT-CLICK

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-V0
IP Rating	IP54
Temperature	- 40°C to+ 90°C (static) - 40°F to + 194°F (static)
Properties	Halogen-free, silicone-free

Accessories

ST Plugs 49

Type	Order No. gray	Clamping range	PU	Description	
QTB	42540	Blank grommet	10		
QT 3	42503	3 - 4 mm	10		QT
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-ASI
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 tele
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 electronic enclosure 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 enclosures, control boxes and control panels. KEL-BES is also an ideal solution for entry and exit of cables that are routed inside raised floors, e.g. in computer centers. 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 & 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

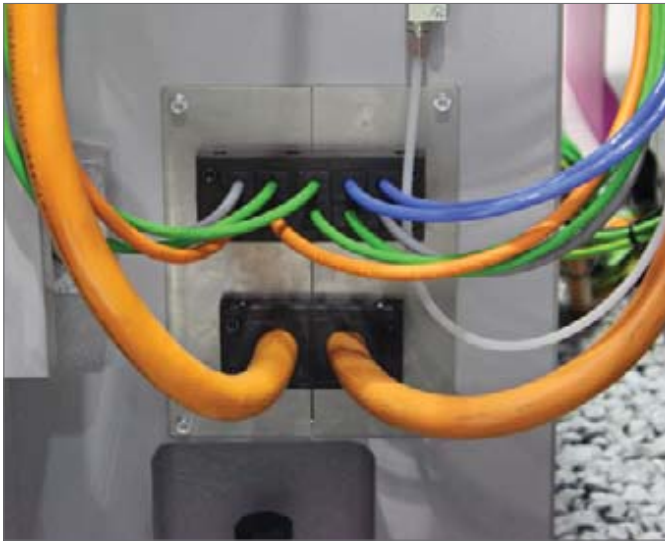
Material	Frame, rectangular: Polyamide (PA) Frame, round: Polycarbonate (PC) (Flame class UL94-Vo) Brushes: Polyamide (PA) Brush profile: carbon steel, zinc plated
Temperature	- 20°C to + 90°C - 4°F to + 194°F
Properties	Halogen-free, silicone-free
Frame depth	10 mm

Accessories

KEL-EMC-PF Cable collectors 123

Typical Applications

Cable Entry Systems for Pre-terminated Cables



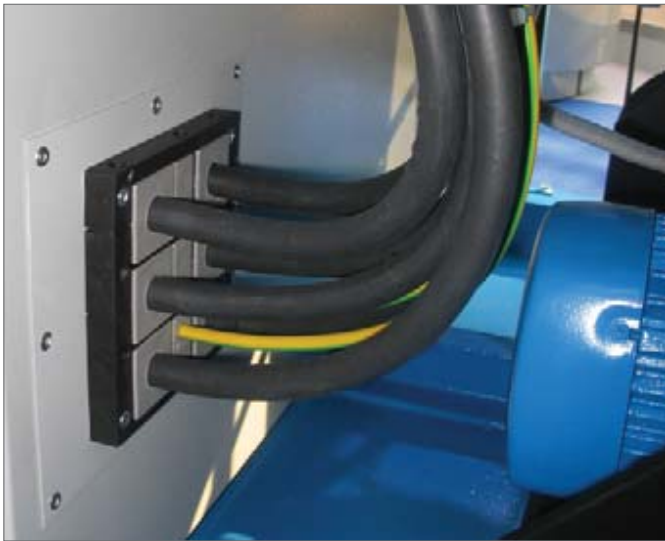
KEL-U 24|10 - Page 8 / **KEL-U 16|2** - Page 10

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



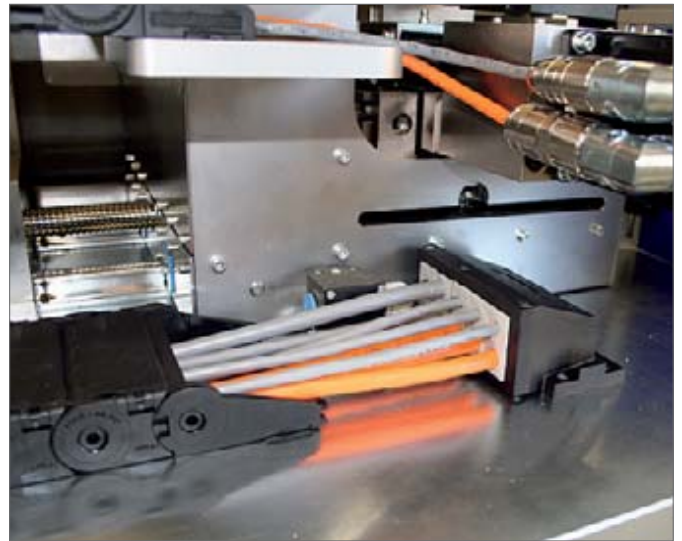
KEL 16|8 - Page 10

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 cable carriers to provide strain relief and compact, high density cable entry into control enclosures.



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

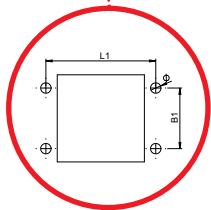


High flexibility when routing rigid cables

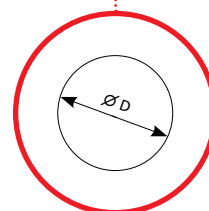
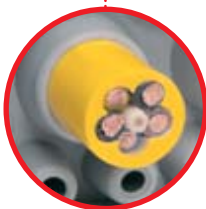


IP64 to IP68 rated protection, double cable sealing on front and back side (KEL-DPU / KEL-DPZ)

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



Product Group 2

Cable Entry Plates for Cables without Connectors

Chapter Content

 <p>IP66</p>	<p>Cable entry plates NEMA type 4X screw/snap-in mounting, high strain relief</p> <p>KEL-DPU 24</p> <p>NEW</p> <p>62 - 63</p>		<p>Plugs for membranes</p> <p>ST-B</p> <p>76</p>
 <p>IP66</p>	<p>Cable entry plates NEMA type 12 screw mounting</p> <p>KEL-DPZ 24 / KEL-DPZ-B / KEL-DPZ-E / KEL-DPZ-KL</p> <p>NEW</p> <p>64 - 68</p>	 <p>IP68</p>	<p>Cable entry grommets NEMA type 4X M25 - M85, for cable diameters up to 70 mm</p> <p>KEL-DPF</p> <p>NEW</p> <p>77</p>
	<p>Typical applications icotek cable entry systems for cables without connectors</p> <p>69</p>	 <p>IP54</p>	<p>Cable entry grommets NEMA type 12 screw mounting, for cable diameters up to 68 mm</p> <p>KEL-JUMBO flex</p> <p>78</p>
 <p>IP68</p>	<p>Cable entry plates, round NEMA type 4X with thread and locknut M32 - M63</p> <p>KEL-DPZ round</p> <p>70 - 71</p>	 <p>IP66</p>	<p>Cable entry grommets NEMA type 12 screw mounting, for cable diameters up to 115 mm</p> <p>KEL-ULTRA flex</p> <p>79</p>
 <p>IP64</p>	<p>Cable entry plates NEMA type 12 plug-in mounting</p> <p>KEL-DP 24 / KEL-DP-E</p> <p>72 - 73</p>		
 <p>IP65</p>	<p>Cable entry plates, round NEMA type 12 plug-in mounting, M25 - M50</p> <p>KEL-DP round</p> <p>NEW</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

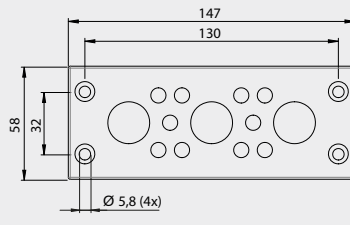
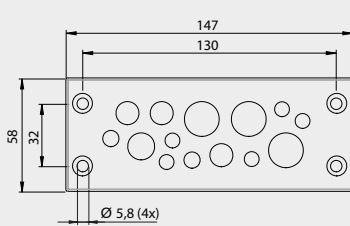
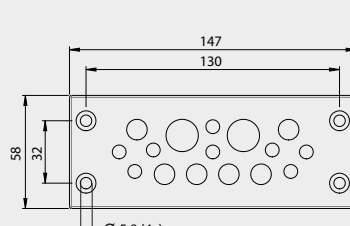
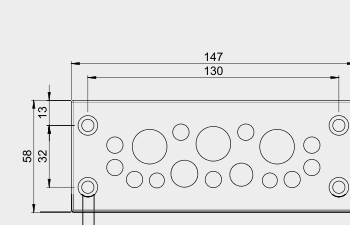
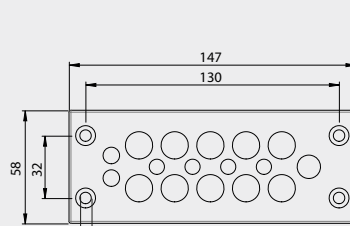
KEL-DPU entry plates are designed to route and seal cables without connectors (from 3.2 mm to 20.5 mm in diameter) in limited space with IP65 / IP66 / up to NEMA type 4X ratings.

The KEL-DPU is particularly characterized 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 <input checked="" type="checkbox"/> 50940	10× 3.2 - 6.3 mm 3× 16 - 20.5 mm	10
	NEW KEL-DPU 24 14	<input type="checkbox"/> 43944 <input checked="" type="checkbox"/> 50944	5× 3.2 - 6.3 mm 2× 4 - 7.5 mm 3× 5.5 - 10.5 mm 1× 8 - 12.5 mm 3× 12 - 16.2 mm	10
	KEL-DPU 24 16	<input type="checkbox"/> 43936 <input checked="" type="checkbox"/> 50936	8× 3.2 - 5.5 mm 6× 5 - 8.5 mm 2× 9.5 - 14.5 mm	10
	KEL-DPU 24 16-1	<input type="checkbox"/> 43932 <input checked="" type="checkbox"/> 50932	2× 3.2 - 6.3 mm 9× 4 - 7.5 mm 1× 5.5 - 10.5 mm 1× 8 - 12.5 mm 3× 12 - 16.2 mm	10
	KEL-DPU 24 17	<input type="checkbox"/> 43934 <input checked="" type="checkbox"/> 50934	4× 3.2 - 6.3 mm 2× 4 - 7.5 mm 1× 5.5 - 10.5 mm 10× 8 - 12.5 mm	10

* Only valid for gray 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

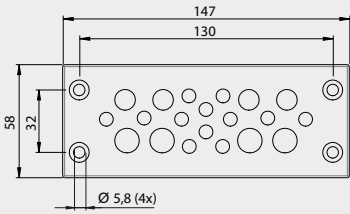
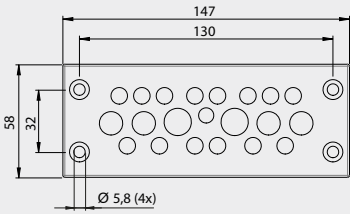
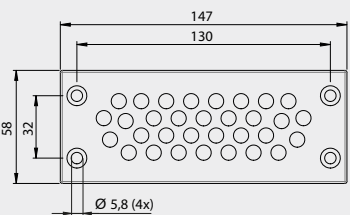


Resistant against industrial detergents (ECOLAB certified)



IP66

2

Type	Order No.	Number of cables	PU	Description
KEL-DPU 24 20	<input type="checkbox"/> 43938 <input checked="" type="checkbox"/> 50938	12× 3.2 - 5.5 mm 8× 5 - 10.5 mm	10	
KEL-DPU 24 21	<input type="checkbox"/> 43930 <input checked="" type="checkbox"/> 50930	1× 3.2 - 6.3 mm 14× 4 - 7.5 mm 4× 5.5 - 10.5 mm 2× 8 - 12.5 mm	10	
KEL-DPU 24 32	<input type="checkbox"/> 43942 <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)
	Sealing plate: Elastomer
Colour	<input type="checkbox"/> gray (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo
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) - 40°F to + 194°F (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)

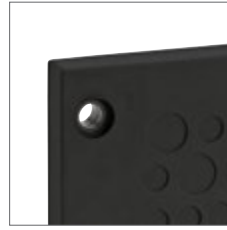
Accessories

ST-B Plugs	76
KEL-EMC-PF Grounding mounts	123
FP Flanged plates	152 - 157

* Only valid for gray product types

KEL-DPZ 24

Cable Entry Plates



Also available in black.



Also available with threaded bushings.



Membrane on front

IP66

Product Description

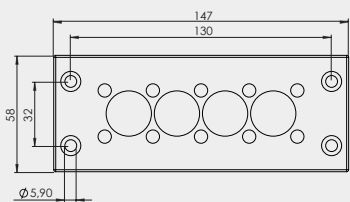
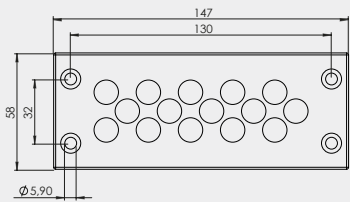
KEL-DPZ entry plates are designed to route and seal up to 121 cables without connectors or fiber optics (from 1.5 mm to 22 mm in diameter) in limited space.

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.

Description	Type	Order No.	Number of cables	PU
	KEL-DPZ 24 14	<input type="checkbox"/> 43700 <input type="checkbox"/> 50700	10× 3.2 - 6.5 mm 4× 16 - 22 mm	10
		<input type="checkbox"/> 43720 <input type="checkbox"/> 50720	15× 7.2 - 12 mm	10
	KEL-DPZ 24 16	<input type="checkbox"/> 43725 <input type="checkbox"/> 50725	8× 3.2 - 6.5 mm 4× 5 - 9.7 mm 2× 9 - 16.2 mm 2× 16 - 22 mm	10
		<input type="checkbox"/> 43705 <input type="checkbox"/> 50705	6× 3.2 - 6.5 mm 6× 5 - 10.2 mm 5× 9 - 16.2 mm	10

* Only valid for gray 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 ■ 50710	12x 3.2 - 6.5 mm 7x 4.8 - 9.7 mm 6x 7.5 - 12 mm	10	
KEL-DPZ 24 32	□ 43730 ■ 50730	21x 3.2 - 6.5 mm 8x 5 - 10.2 mm 3x 7.5 - 12 mm	10	
KEL-DPZ 24 42	□ 43715 ■ 50715	42x 3.2 - 6.5 mm	10	
KEL-DPZ 24 121	□ 43735 ■ 50735	119x 1.5 - 2.6 mm 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) Sealing plate: Elastomer
Color	□ gray (similar RAL 7035) ■ black
Flame class	UL94-Vo
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) - 40°F to + 194°F (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 Grounding mounts	123
FP Flanged plates	152 - 157

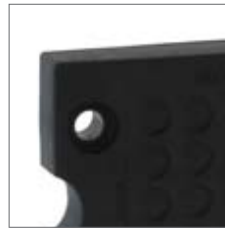
* Only valid for gray product types.

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

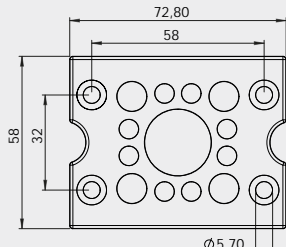
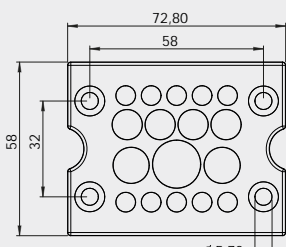
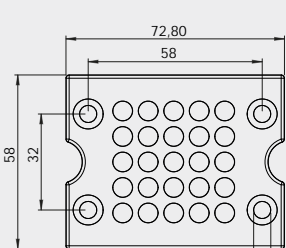
- Space saving shape
- Dual sealing of cables according to IP66/NEMA type 12
- High cable density
- Fast and easy assembly
- Hygienic design

Specifications

Material	Frame: Polyamide (PA) Sealing plate: Elastomer
Color	<input type="checkbox"/> gray (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo
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) - 40°F to + 194°F (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	<input type="checkbox"/> 43794	8× 3.2 - 6.5 mm 4× 5 - 10.2 mm 1× 16 - 22 mm	10
		<input checked="" type="checkbox"/> 50794		
	KEL-DPZ-B 17	<input type="checkbox"/> 43796	10× 3.2 - 6.5 mm 4× 5 - 10.2 mm 2× 7.5 - 12 mm 1× 9 - 16.2 mm	10
		<input checked="" type="checkbox"/> 50796		
	KEL-DPZ-B 25	<input type="checkbox"/> 43798 <input checked="" type="checkbox"/> 50798	25× 3.2 - 6.5 mm	10

* Only valid for gray product types

KEL-DPZ-E

Cable Entry Plates



Conical shape on back provides additional sealing and strain relief



Also available in black.



IP66

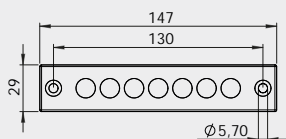
Description

Type

Order No.

Number of cables

PU

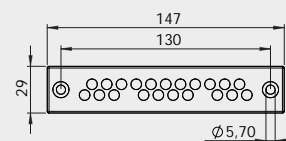


KEL-DPZ-E 112|7

□ 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 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) Sealing plate: Elastomer
Color	□ gray (similar RAL 7035) ■ black
Flame class	UL94-Vo
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) - 40°F to + 194°F (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 Grounding mounts	123

* Only valid for gray product types

KEL-DPZ-KL

Cable Entry Plates



Also available in black.



Membrane on front



Conical shape on back provides additional sealing and strain relief

IP65

Description	Type	Order No.	Number of cables	PU
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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.

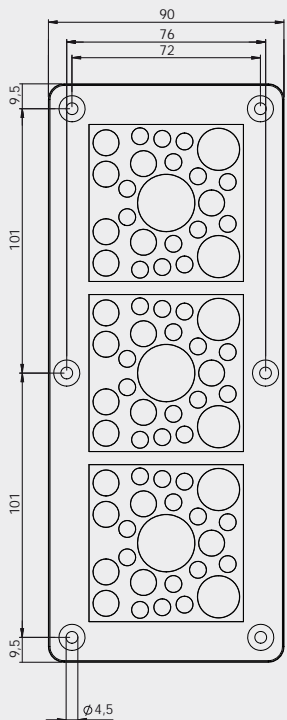
The KEL-DPZ-KL matches on junction boxes KL by Rittal.

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, molded with elastomer Sealing plate: Elastomer Screws: Stainless steel V2A
Color	□ gray (similar RAL 7035) ■ black
Flame class	UL94-Vo
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) - 40°F to + 194°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimensions	192 × 62 mm
Plate depth	4 mm

	KEL-DPZ-KL72	□ 43675.001	42x 3.2 - 6.5 mm 21x 5 - 10.2 mm 6x 9 - 16.2 mm 3x 16 - 22 mm	1
		■ 43675.101		

* Only valid for gray 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 enclosure. 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 into an integrated enclosure. 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

Product Description

KEL-DPZ entry plates are designed to route and seal cables without connectors or fiber 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.

Type	Order No.	Number of cables	Thread metric	External diameter	Mounting height	PU
KEL-DPZ 32 4	<input type="checkbox"/> 43732 <input type="checkbox"/> 50732	3× 3.2 - 6.5 mm 1× 7.2 - 12.5 mm	M32 × 1.5	44 mm	8 mm	10
KEL-DPZ 32 4-2	<input type="checkbox"/> 43733 <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 <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 <input type="checkbox"/> 50741	4× 3.2 - 6.5 mm 4× 5 - 10.2 mm	M40 × 1.5	52 mm	8 mm	10
KEL-DPZ 50 8	<input type="checkbox"/> 43750 <input type="checkbox"/> 50750	5× 5 - 10.2 mm 3× 7.2 - 12.5 mm	M50 × 1.5	62 mm	8 mm	10
KEL-DPZ 50 10	<input type="checkbox"/> 43751 <input type="checkbox"/> 50751	7× 3.2 - 6.5 mm 2× 5 - 10.2 mm 1× 16 - 22.2 mm	M50 × 1.5	62 mm	8 mm	10
KEL-DPZ 50 12	<input type="checkbox"/> 43752 <input type="checkbox"/> 50752	4× 3.2 - 6.5 mm 8× 5 - 10.2 mm	M50 × 1.5	62 mm	8 mm	10

* Only valid for gray product types

KEL-DPZ round Cable Entry Plates



IP68

Type	Order No.	Number of cables	Thread metric	External diameter	Mounting height	PU
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KEL-DPZ 50 19	<input type="checkbox"/> 43758 <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 <input checked="" type="checkbox"/> 50756	76x 1.5 - 2.6 mm 2x 2.5 - 5 mm	M50 x 1.5	62 mm	8 mm	10
KEL-DPZ 63 9	<input type="checkbox"/> 43760 <input checked="" type="checkbox"/> 50760	1x 3.2 - 6.5 mm 3x 5 - 10.2 mm 4x 9 - 16.2 mm 1x 16 - 22.2 mm	M63 x 1.5	75 mm	8 mm	10
KEL-DPZ 63 13	<input type="checkbox"/> 43761 <input checked="" type="checkbox"/> 50761	4x 3.2 - 6.5 mm 4x 5 - 10.2 mm 5x 9 - 16.2 mm	M63 x 1.5	75 mm	8 mm	10
KEL-DPZ 63 14	<input type="checkbox"/> 43762 <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 <input checked="" type="checkbox"/> 50763	35x 3.2 - 6.5 mm	M63 x 1.5	75 mm	8 mm	10

* Only valid for gray product types

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

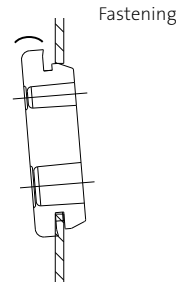
Material	Thread frame: Polyamide (PA) Sealing plate: Elastomer
Color	<input type="checkbox"/> gray (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-V0
IP rating	IP66/IP67/IP68 (certified acc. to EN 60529)
NEMA type rating	NEMA type 4X (acc. to UL 50E)
Temperature	- 40°C to + 90°C (static) - 40°F to + 194°F (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

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. Ideal for high volume applications where conventional cable glands would normally be used. 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 centered fit in the cut-outs. ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

Advantages & Benefits

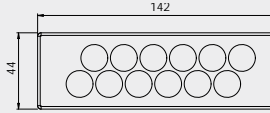
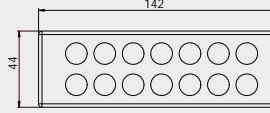
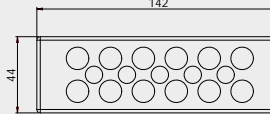
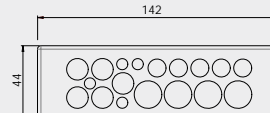
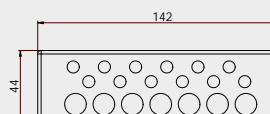
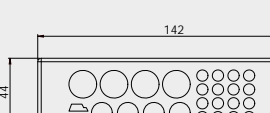
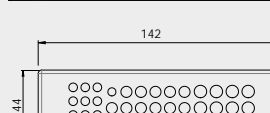
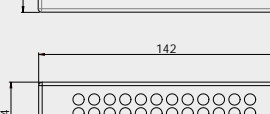
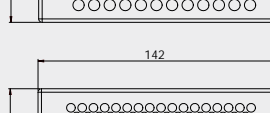
- Fast and easy assembly, no tools required
- High cable density
- Cost-effective
- Hygienic design
 - free of dirt-collecting recesses
- For wall thickness 1.5 - 4 mm

Specifications

Material	Elastomer
Color	<input type="checkbox"/> gray (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo
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) - 40°F to + 194°F (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 <input checked="" type="checkbox"/> 50508		12× max. 15 mm	10
	KEL-DP 24 14	<input type="checkbox"/> 43512 <input checked="" type="checkbox"/> 50512	<input type="checkbox"/> 43522 <input checked="" type="checkbox"/> 50522	14× max. 12.1 mm	10
	KEL-DP 24 17	<input type="checkbox"/> 43514 <input checked="" type="checkbox"/> 50514	<input type="checkbox"/> 43523 <input checked="" type="checkbox"/> 50523	5× max. 10.5 mm 12× max. 12.6 mm	10
	KEL-DP 24 18	<input type="checkbox"/> 43515 <input checked="" type="checkbox"/> 50515	<input type="checkbox"/> 43528 <input checked="" type="checkbox"/> 50528	4× max. 6.5 mm 5× max. 10.5 mm 5× max. 12.6 mm 4× max. 16.1 mm	10
	KEL-DP 24 19	<input type="checkbox"/> 43516 <input checked="" type="checkbox"/> 50516	<input type="checkbox"/> 43524 <input checked="" type="checkbox"/> 50524	12× max. 6.5 mm 7× max. 12.1 mm	10
	KEL-DP 24 26	<input type="checkbox"/> 43518 <input checked="" type="checkbox"/> 50518	<input type="checkbox"/> 43525 <input checked="" type="checkbox"/> 50525	16× max. 6.5 mm 4× max. 12.1 mm 4× max. 16.1 mm 2× ASI-cables	10
	KEL-DP 24 42	<input type="checkbox"/> 43511 <input checked="" type="checkbox"/> 50511	<input type="checkbox"/> 43521 <input checked="" type="checkbox"/> 50521	12× max. 7.2 mm 17× max. 6.4 mm 12× max. 5 mm 1× max. 4.7 mm	10
	KEL-DP 24 48	<input type="checkbox"/> 43519 <input checked="" type="checkbox"/> 50519	<input type="checkbox"/> 43526 <input checked="" type="checkbox"/> 50526	48× max. 6.5 mm	10
	KEL-DP 24 50	<input type="checkbox"/> 43520 <input checked="" type="checkbox"/> 50520	<input type="checkbox"/> 43527 <input checked="" type="checkbox"/> 50527	33× max. 5.3 mm 9× max. 6.4 mm 8× max. 8.3 mm	10

* Only valid for gray product types

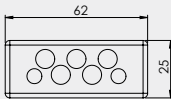
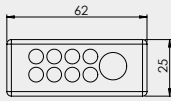
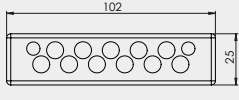
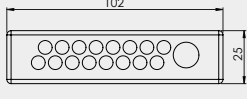
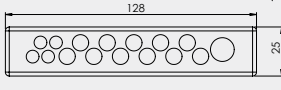
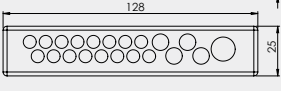
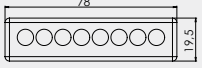
KEL-DP-E Cable Entry Plates



Also available in black.



IP64

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

* Only valid for gray 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. Ideal for high volume applications where conventional cable glands would normally be used. 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 centered 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

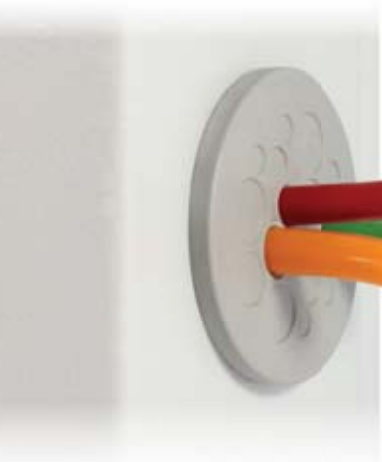
Specifications

Material	Elastomer
Color	<input type="checkbox"/> gray (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo
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) - 40°F to + 194°F (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 centered fit.

Type	Order No. Type A	Order No. Type B	Number of cables	Cut-out	External diameter DA	PU
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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. Ideal for high volume applications where conventional cable glands would normally be used. 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 centered fit in the cut-outs.

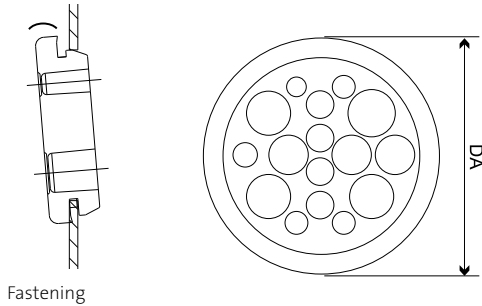
Advantages & Benefits

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

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

* Only valid for gray product types

Specifications

Material	Elastomer
Color	<input type="checkbox"/> gray (similar RAL 7035) <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	- 40°C to + 90°C (static) - 40°F to + 194°F (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



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**
 Temperature **- 40°C to + 120°C**
- 40°F to + 248°F
 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
Assortment ST-B Plugs	42801	5x ST-B 6 5x ST-B 10 2x ST-B 12 1x ST-B 16 1x ST-B 22			

2



KEL-DPF

Cable Entry Grommets



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

NEW

Wrenches for M75/M85 plastic locknut

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

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



* Only valid for gray product types

Product Description

The KEL-DPF was developed particularly for routing large or unknown sizes of service cables into an enclosure 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) Pyramid: Elastomer
Color	<input type="checkbox"/> gray (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo
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) - 40°F to + 194°F (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 electronic enclosures.

Cutting of KEL-JUMBO flex grommets:

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

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

Advantages & Benefits

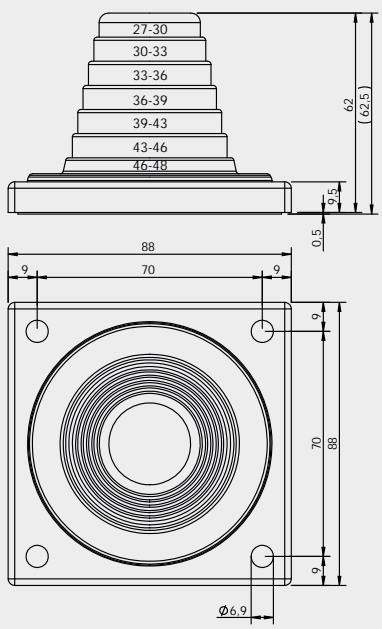
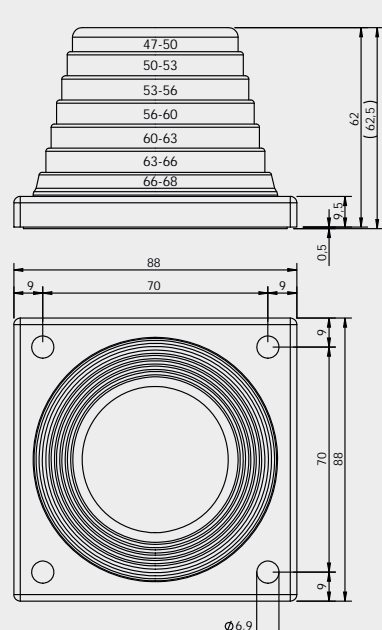
- Quick assembly
- Grommets allow dynamic and flexible movement of rigid cables
- Compact installation area (88 × 88 mm)

Specifications

Material	Frame: Polyamide (PA) Pyramid: Elastomer
Flame class	UL94-Vo
IP rating	IP54
NEMA type rating	NEMA type 12 (acc. to UL 50E)
Temperature	- 40°C to + 90°C (static) - 40°F to + 194°F (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
------	-----------	---------------	----

KEL-ULTRA flex 1 incl. Fixing screws	42630	25 - max. 90 mm cable diameter	1
KEL-ULTRA flex 2 incl. Fixing screws	42631	75 - max. 115 mm cable diameter	1

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	Pyramid: Elastomer Fixing metal ring: Steel, zinc-plated Blank plate: Steel, zinc-plated
Flame class	UL94-Vo
IP rating	IP66, when fastened with 8 screws (certified acc. to EN 60529)
NEMA type rating	NEMA type 12 (acc. to UL 50E)
Temperature	- 40°C to + 90°C (static) - 40°F to + 194°F (static)
Properties	Halogen-free, silicone-free
Cut-out dimension	Round, Ø-cable +30%, max. Ø 140 mm

Accessories

MP Module plates	148 - 149
BPM Blank plates	159

3 Strain Relief & Cable Management



By using icotek strain relief systems the user can quickly assemble, organize 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 organizing and securing cables in machines, control panels, enclosures and dynamic cable carriers. 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.

3

High cable density, multilayer mounting possible

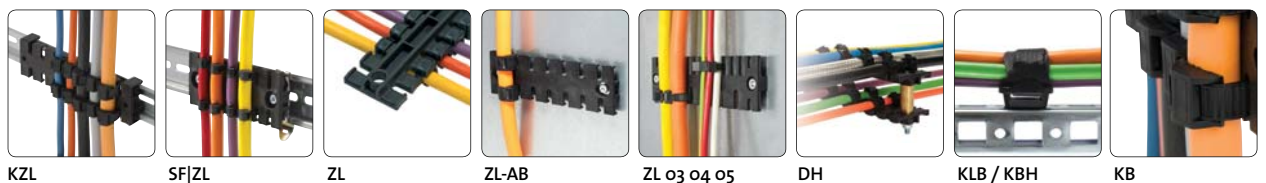
Fast and easy, partially tool-free mounting

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

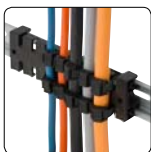

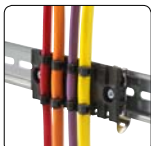






Product Range



Product Group 3

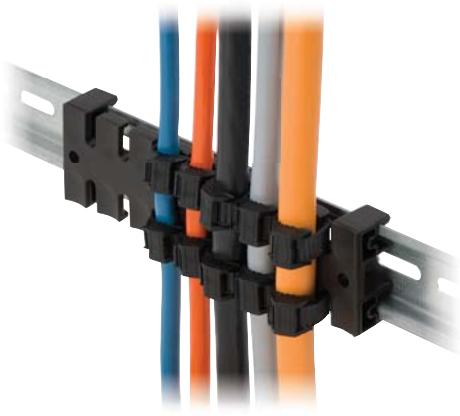
Strain Relief & Cable Management

Chapter Content

	Strain relief plates for 35 mm DIN rail / C-rail snap mount KZL	82		Spacers for multilayer mounting of strain relief plates DH	87
	Strain relief plates for 35 mm DIN rail snap mount SF ZL	83		Cable ties KB black / KB natural	88 - 89
	Strain relief plates for screw mount ZL	84		Hook-and-loop cable ties re-usable KLKB / KLB	90
	Strain relief plates for screw mount, with bushings ZL-AB / ZL-MS	85		Holder for hook-and-loop cable ties various mounting types KBH	91
	Strain relief plates for screw mount, for various cable diameters ZL 03 04 05	86			

KZL

Strain Relief Plates for Mounting Rails



Product Description

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

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

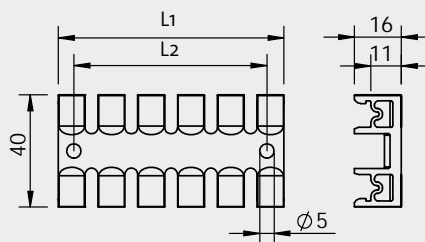
Material: Polyamide (PA)
 Flame class: UL94-Vo
 Temperature: - 40°C to + 140°C (static)
 - 40°F to + 284°F (static)
 Properties: Halogen-free, silicone-free

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

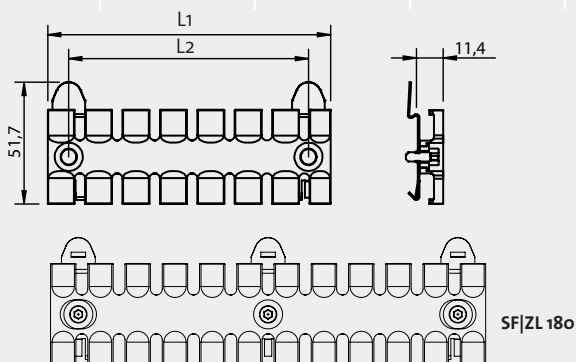


SF|ZL

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.

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
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (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 organizing and securing cables on machines, control panels or cable carriers.

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

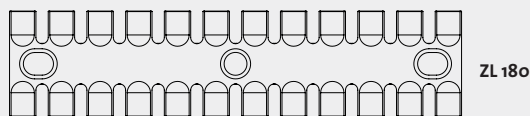
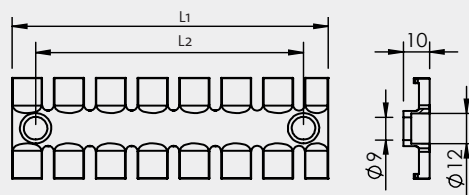
Specifications

Material Polyamide (PA)
 Flame class UL94-Vo
 Temperature - 40°C to + 140°C (static)
 - 40°F to + 284°F (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

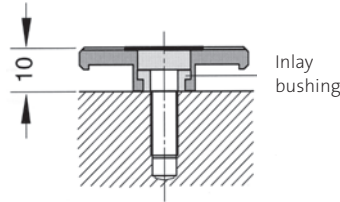


ZL-AB

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 32360	32290	38.5 mm	19.5 mm	3	10
ZL 60 AB	32271	32281 32361	32291	59.5 mm	43.5 mm	4	10
ZL 70 AB	32272	32282 32362	32292	69.1 mm	43.5 mm	5	10
ZL 87 AB	32273	32283 32363	32293	86.5 mm	68 mm	6	10
ZL 103 AB	32275	32284 32364	32294	102.5 mm	84 mm	7	10
ZL 121 AB	32277	32285 32365	32295	121 mm	102.5 mm	8	10
ZL 140 AB	32274	32286 32366	32296	139.5 mm	121 mm	9	10
ZL 180 AB	32276	32287 32367	32297	180 mm	157 mm	12	10

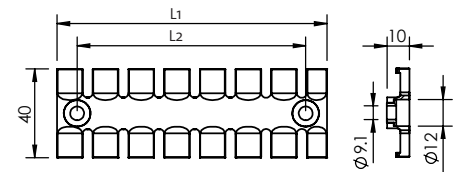
Product Description

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

By using aluminum / 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: ■ Aluminum ■ Brass (BR)
Flame class	UL94-Vo
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (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

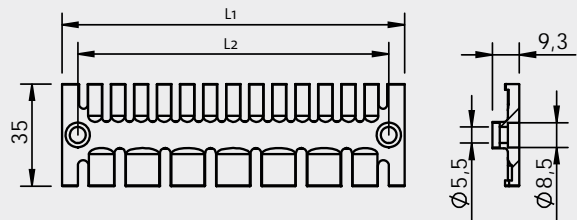
Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo
Temperature	- 40°C to + 140°C (static) - 40°F to + 284°F (static)
Properties	Halogen-free, silicone-free

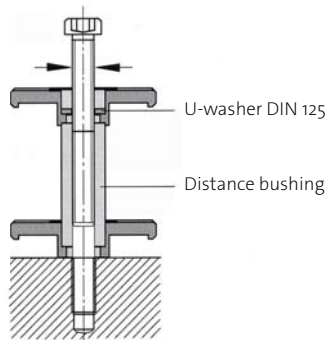
Accessories

DH Spacers	87
KB Cable ties	88 - 89

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



DH Spacers



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

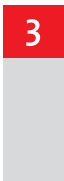
- Increase of cable density

Specifications

Material **Aluminum**

Compatible with

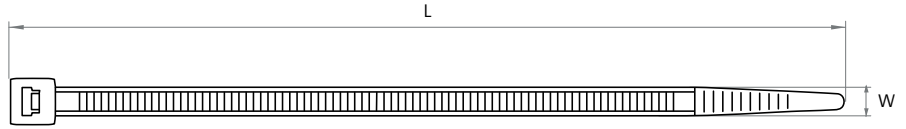
ZL Strain relief plates 84
ZL 03|04|05 Strain relief plates 86



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 strong 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
 - 40°F to + 212°F
 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
 - 40°F to + 212°F
 Properties UV-resistant, particularly suitable for outdoor use

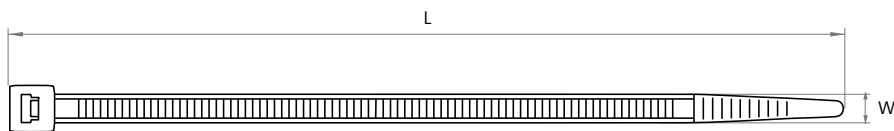
Type	Order No.	Length L	Width W	Bundling range	Tensile strength	PU	
KB 28	61225	178 mm	9 mm	28 mm	350 N	100	
KB 20 bk	61215	98 mm	2.5 mm	20 mm	60 N	100	
KB 25 bk	61220	140 mm	3.6 mm	25 mm	130 N	100	
KB 30 bk	61230	160 mm	4.5 mm	30 mm	180 N	100	
KB 45 bk	61235	178 mm	4.8 mm	45 mm	220 N	100	
KB 55 bk	61240	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 L	Width W	Bundling range	Tensile strength	PU
------	-----------	-------------	------------	-------------------	---------------------	----

KB 15 nc	61115	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 - 40°F to + 212°F
Properties	Oil- and mould-resistant

KLKB / KLB

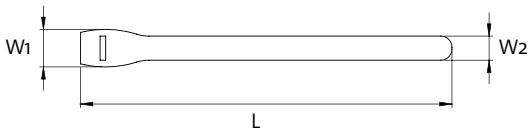
Hook-and-Loop Cable Ties



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 tape 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
 Color black
 Flame class UL94-V2
 Temperature - 30°C to + 80°C
 - 22°F to + 176°F

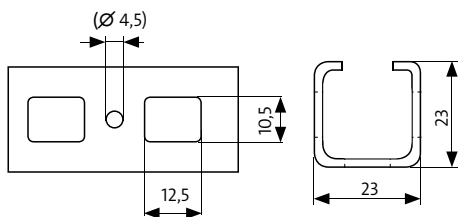
Accessories

KBH Holder for hook-and-loop fastener 91

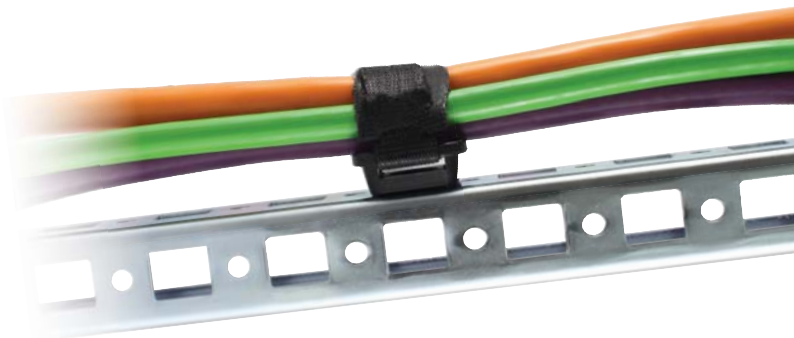
Type	Size [mm]			Order No.	PU
	L	W1	W2		
KLKB 200 × 7 bk	200	13	7	61021	100
KLKB 200 × 13 bk	200	20	13	61022	100
KLKB 230 × 13 bk	230	20	13	61023	100
KLKB 300 × 17 bk	300	25	17	61024	100
KLB 10 bk			10	61011	25 m
KLB 15 bk			15	61012	25 m
KLB 20 bk			20	61013	25 m
KLB 25 bk			25	61014	25 m

KBH

Holder for Hook-and-Loop Fastener



23 × 23 mm mounting rail



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

* Only KBH-S / KBH-R

Product Description

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

A 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)
Color	■ black
Flame class	UL94-V0
Temperature	- 40°C to + 110°C - 40°F to + 230°F
Properties	Halogen-free, silicone-free

Specifications KBH-SB / KBH-RBA

Material	Polyamide (PA)
Color	■ black (KBH-SB) □ nc (KBH-RBA)
Flame class	UL94-V2
Temperature	- 40°C to + 85°C (short-term to 110°C) - 40°F to + 185°F (short-term to 230°F)

Specifications KBH-RBB

Material	Polyamide (PA)
Color	■ black
Temperature	- 40°C to + 120°C - 40°F to + 248°F

Compatible with

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

4

EMC Cable Shielding

Shield Clamps & Grounding Components

For process measurement and control equipment an increasingly higher level of protection against failure is required. The shielding and grounding of the cable shields are very important.

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

icotek products provide a great solution for low resistance grounding. 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, ...

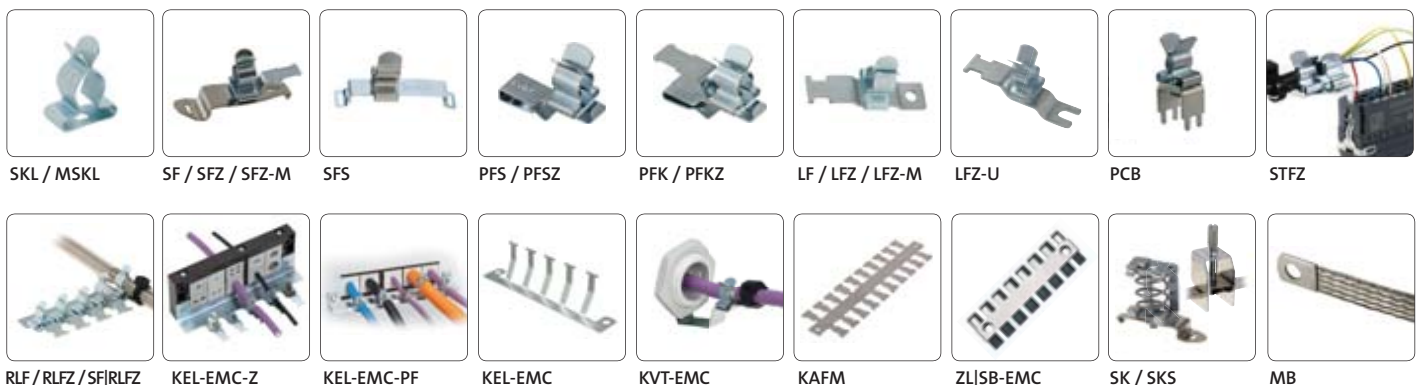
Large contact area to the cable shield. Shield and cable strands won't be squeezed

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

A: 

B: 













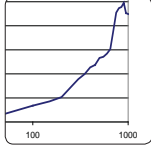




Product Range



Product Group 4

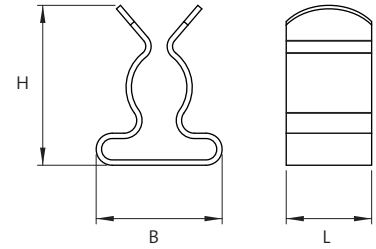
EMC Cable Shielding

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SKL

Single EMC Shield Clamps



Product Description

SKL shield clamps are easy to use and effective in grounding 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 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 [mm]	Dimensions L x W x H [mm]	Mounting type	PU
MSKL for screw mounting (M3) or riveting:					
MSKL 3-12	37600	3 - 12 mm	8 x 15.1 x 20.5	Screw/rivet, Fixing hole 3.2 mm	50
MSKL 8-18	37602	8 - 18 mm	8 x 20 x 27	Screw/rivet, Fixing hole 3.2 mm	50
 LFZ-M MSKL 3-12					
MSKL for screw mounting (M4):					
LFZ-M MSKL 3-12 with strain relief	37612	3 - 12 mm	46.3 x 15.1 x 26	Screw, Fixing hole 4.2 mm	10
LFZ-M MSKL 8-18 with strain relief	37614	8 - 18 mm	46.3 x 20 x 32	Screw, Fixing hole 4.2 mm	10
LF MSKL 3-12	37608	3 - 12 mm	24 x 15.1 x 26	Screw, Fixing hole 4.2 mm	10
LF MSKL 8-18	37610	8 - 18 mm	24 x 20 x 32	Screw, Fixing hole 4.2 mm	10
 SFZ-M MSKL 3-12					
MSKL for snap mounting on 35 mm DIN rail shape H:					
SFZ-M MSKL 3-12 with strain relief	37620	3 - 12 mm	60.5 x 15.1 x 26	35 mm DIN rail shape H	10
SFZ-M MSKL 8-18 with strain relief	37622	8 - 18 mm	60.5 x 20 x 32	35 mm DIN rail shape H	10
SF MSKL 3-12	37616	3 - 12 mm	50.5 x 15.1 x 26	35 mm DIN rail shape H	10
SF MSKL 8-18	37618	8 - 18 mm	50.5 x 20 x 32	35 mm DIN rail shape H	10

Product Description

The shield clamps MSKL are easy to use and effective in grounding 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 & 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 grounding 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 grounding 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

KB 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



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
NEW 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 grounding 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



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 maximizes space utilization. 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

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

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
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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 grounding 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, max. current: 140 Amps

Accessories

KB 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
Bus bar 10 x 3 mm	36100	10 x 3 x 1000 mm*	1

* 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 10 x 3 mm	36100	10 x 3 x 1000 mm*	1

* Other lengths available on request

Product Description

PFS|SKL shield clamps care easy to use and effective in grounding 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, max. current: 140 Amps**

Accessories

KEL-EMC-PF Bracket 123

PFSZ2|SKL

EMC Double Shield Clamps for Bus Bar



Product Description

Comparable with the PFS2|SKL range, the PFSZ2|SKL shield clamps are easy to use and effective in grounding 2 single cables. They are used for mounting on 10 × 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, max. current: 140 Amps**

Accessories

KB 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 × 3 mm		10 × 3 × 1000 mm*	36100	1

* Other lengths available on request

PFS2|SKL EMC Double Shield Clamps for Bus Bar



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 x 3 mm		10 x 3 x 1000 mm*	36100	1

* Other lengths available on request

Product Description

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

The PFS2|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
PFS2-foot	Spring steel
Bus bar	Cu, tin plated, max. current: 140 Amps

LFZ|SKL

EMC Shield Clamps for Screw Assembly



Product Description

LFZ|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.

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
- 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

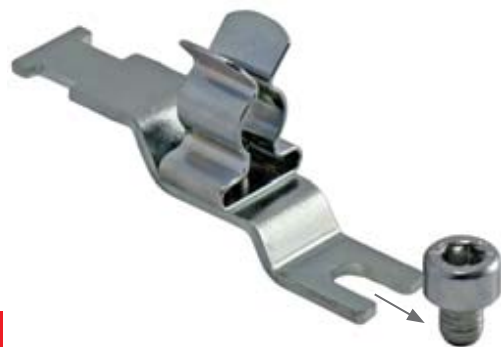
SKL-clamp Spring steel, zinc plated
 LFZ-foot Carbon steel, galvanically zinc plated
 Fixing hole 4.2 mm for screw M4

Accessories

KB 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 ground 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.

Advantages & Benefits

- Integrated strain relief
- Large contact area
- Fast and 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
LFZ-foot	Carbon steel, galvanically zinc plated
	Fixing hole 4.2 mm / 5.2 mm for screw M4 / M5

Accessories

KB Cable ties 88 - 89

4

LF|SKL

EMC Shield Clamps for Screw Assembly



Product Description

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

Shield clamps are easily attached to mounting plates via screw.

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
 LF-foot Carbon 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 utilizing various frequency ranges and in all tests there was minimal leakage resistance.

icotek EMC shield clamps are proven to absorb electromagnetic interferences.

Electrical impedance values:

- from 10 kHz to 100 MHz under 20 Ohm
- up to 1.000 MHz under 120 Ohm

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

Contact Area

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

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



Figure A: SKL-line

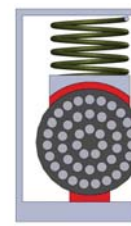
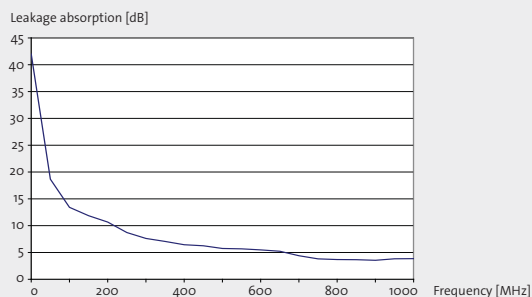
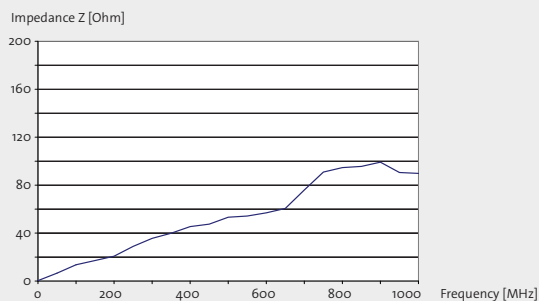
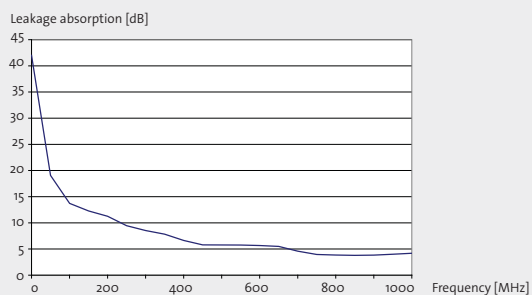
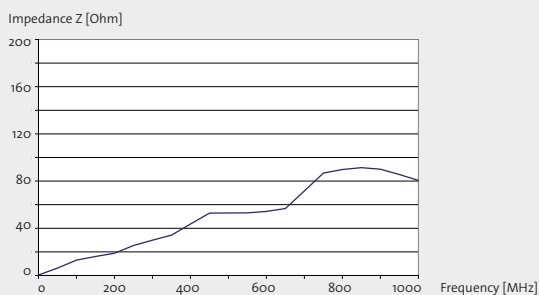


Figure B: Conventional systems

LF|SKL 8-11

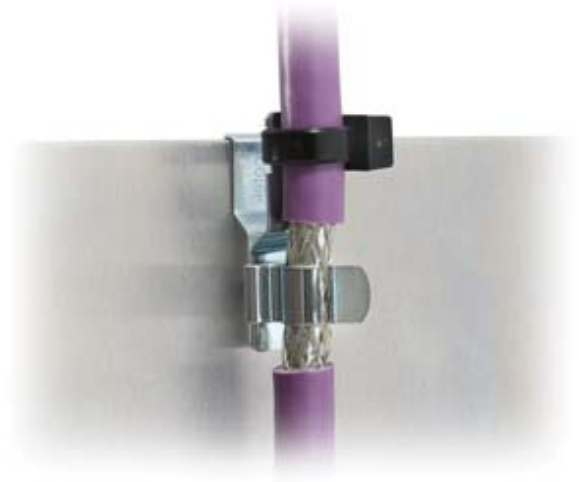


SF|SKL 6-8



PFKZ|SKL

Pluggable EMC Shield Clamps



Product Description

Comparable with the PFK|SKL range, the PFKZ|SKL shield clamps are easy to use and effective in grounding 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.

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

KB Cable ties 88 - 89

Type	Order No.	Shield diameter	PU
PFKZ SKL - Type A (for wall/sheet thickness 1.5 - 2 mm)			
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
PFKZ SKL - Type B (for wall/sheet thickness 2 - 3 mm)			
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 Pluggable EMC Shield Clamps



Secure grip on metal sheets due to mounting claws



Type	Order No.	Shield diameter	PU
PFK SKL - Type A (for wall/sheet thickness 1.5 - 2 mm)			
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
PFK SKL - Type B (for wall/sheet thickness 2 - 3 mm)			
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 grounding 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

Pluggable EMC Double Shield Clamps



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 grounding 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.

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

KB 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
Sheet thickness 1.5 - 2 mm:						
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
Sheet thickness 2 - 3 mm:						
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

Pluggable EMC Double Shield Clamps



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 grounding 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

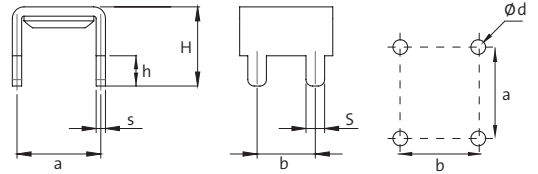
Specifications

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 grounding 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
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PCB-4-V-6,8 SKL 1.5-3 (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 (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 (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 (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 (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 (Clamping range 6 - 8 mm)	36656.3	12.5	1	4	1.6	10.1 x 5	Ø 1.8	10

Advantages & Benefits

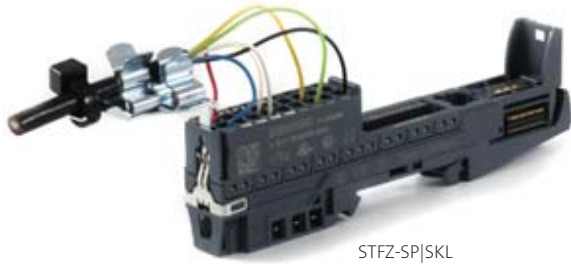
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Large contact area

Specifications

Material

SKL-clamp Spring steel, zinc plated

PCB-foot Brass, tin plated



STFZ-SP|SKL



STFZ-U|SKL

STFZ|SKL EMC Terminal clamps for Peripheral Modules



STFZ|SKL

Application Terminal Clamps

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 grounding 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.

Product Description

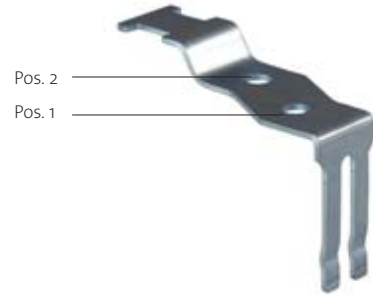
STFZ I/O Insert Tool for quick and easy mounting of STFZ terminal clamps.

Order No. 61430



STFZ | STFZ2

EMC Terminal Clamps, Single and Double for Various Brands



Product Description

The STFZ|SKL EMC terminal clamp provides strain relief, cable guidance and grounding for decentralized 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

Advantages & Benefits

- Grounding 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

KB Cable ties 88 - 89

STFZ I/O Insert Tool 113

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



STFZ-U | STFZ-SP | STFZ2-SP

EMC Terminal Clamps, Single and Double for Siemens & Beckhoff Modules



Type	Shield diameter Pos. 1	Shield diameter Pos. 2	Order No.	PU
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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 grounding for decentralized 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

- Grounding 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

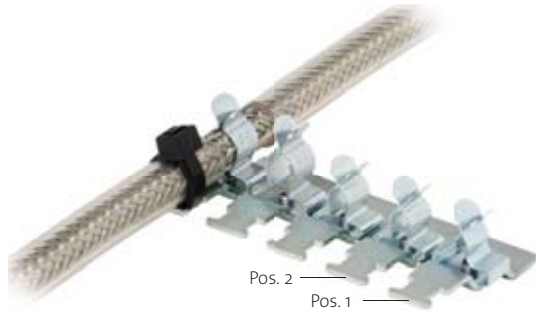
KB Cable ties 88 - 89
STFZ I/O Insert Tool 113



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 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 Carbon steel, galvanically zinc plated

Accessories

KB 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 assembly
- Separate strain relief and EMC shielding
- Simple and tool-free mounting, easy assembly

Specifications

Material

SKL-clamp Spring steel, zinc plated
RLFZ-foot Carbon steel, galvanically zinc plated

Accessories

KB 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

Advantages & Benefits

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

Specifications

Material

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

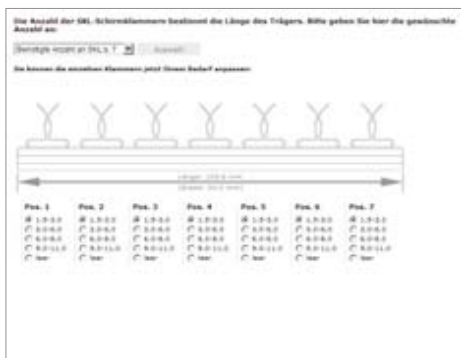
Type	Order No. (unfitted)	Number of shield clamps	Length	Width	PU
RLF (x3)	36965	3× SKL	46.2 mm	24 mm	1
RLF (x4)	36984	4× SKL	60.8 mm	24 mm	1
RLF (x5)	36958	5× SKL	72.4 mm	24 mm	1
RLF (x6)	36952	6× SKL	88 mm	24 mm	1
RLF (x7)	36963	7× SKL	103.6 mm	24 mm	1
RLF (x8)	36953	8× SKL	119.2 mm	24 mm	1
RLF (x9)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



EMC shield clamp design tool

By using the EMC design tool (located at www.icotek-usa.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-usa.com enables numerous configurations to be utilized 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-usa.com

Specifications

Material

Clamp assembly Carbon steel, galvanically zinc plated
SKL-clamp Spring steel, zinc plated

EMC

Customized Solutions



Product Description

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

A wide range of standard clamp assemblies are already available (see pages 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.



EMC

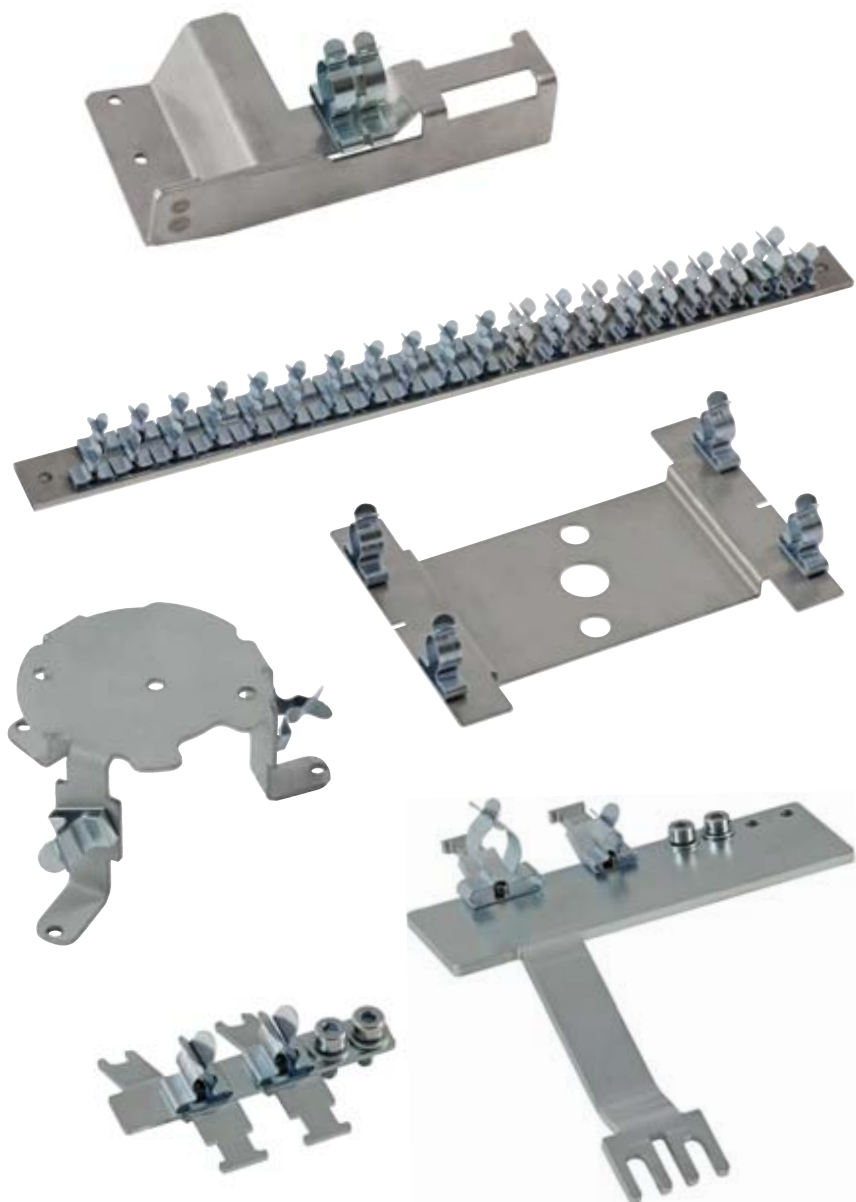
Customized Solutions

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

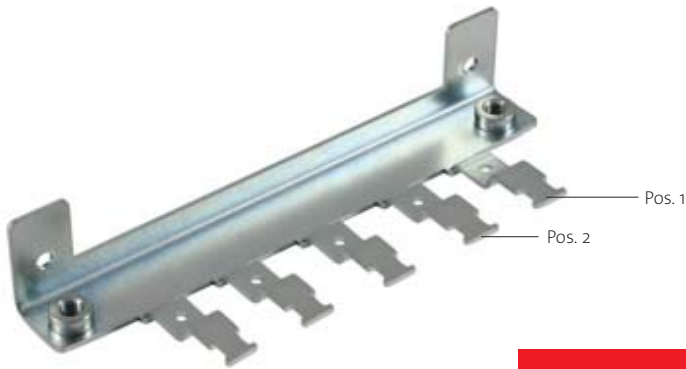
Specifications

Material	
Carrier	According to specification
SKL-clamp	Spring steel, zinc-plated



KEL-EMC-Z

Grounding Mount with Strain Relief



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

KEL-EMC-Z 16 4	36525	4	long side	KEL-E4 KEL 16 x KEL-U 16 x KEL-ER 16 x KEL-QUICK 16	1
KEL-EMC-Z 24 5	36527	5	long side	KEL-E5 KEL 24 x KEL-U 24 x KEL-ER 24 x 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 acc. 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)
- Combined routing and fastening with the KEL cable entry system
- Available without SKL shield clamps if only additional strain relief is required
- Mounting hole for ground strap or PE connection

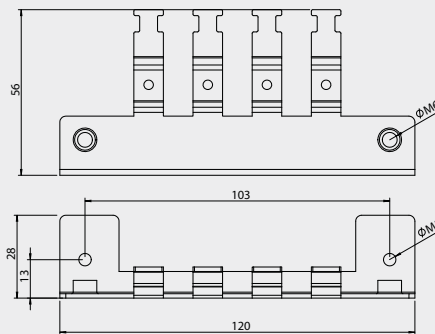
Specifications

Material Carbon steel, zinc plated

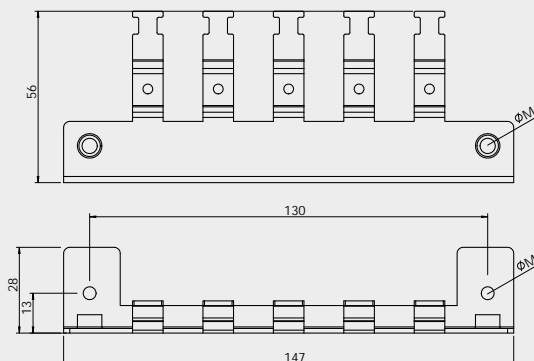
Compatible with

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

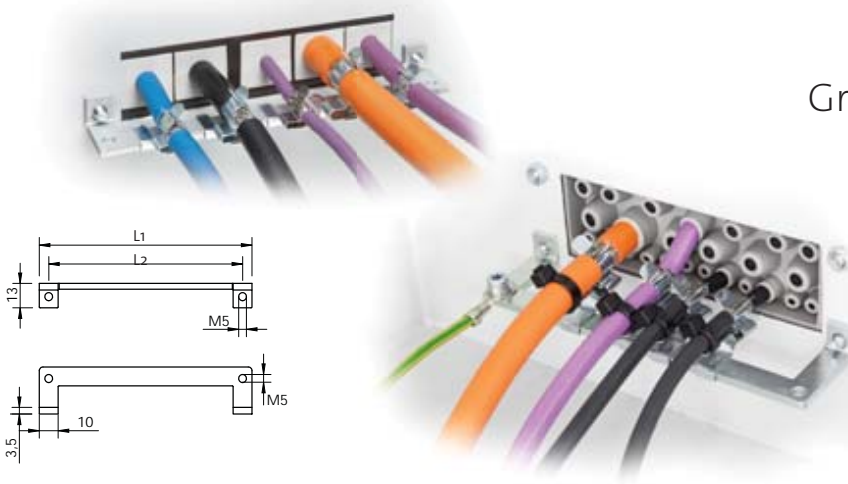


KEL-EMC-Z 24|5



KEL-EMC-PF

Grounding Mount, Bracket Version



Type	Fits with	Order No.	Length L1	Length L2	PU
KEL-EMC-PF B4	KEL-E2 KEL-B KEL-U-B KEL-ER-B	39150	68 mm	58 mm	1
KEL-EMC-PF 10	KEL-E3 KEL 10 x KEL-U 10 x KEL-ER 10 x	39160	93 mm	83 mm	1
KEL-EMC-PF 16	KEL-E4 KEL 16 x KEL-U 16 x KEL-ER 16 x	39170	113 mm	103 mm	1
KEL-EMC-PF 24	KEL-E5 KEL 24 x KEL-U 24 x KEL-ER 24 x KEL-DPZ 24 x 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 panel. For this process the same fixing screws for the assembly of the KEL frame on the control panel are used. A female screw thread M5 is already integrated in the KEL-EMC-PF bracket.

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

Advantages & Benefits

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

Specifications

Material Carbon 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

Grounding Mount



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

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

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 ground potential is possible via the enclosure wall or an grounding 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 grounding tape

Specifications

Material Carbon steel, zinc plated

Compatible with

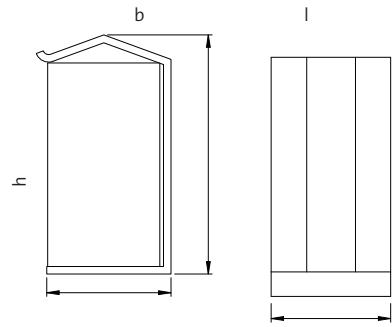
KVT Split cable glands 38 - 42

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 grounded.

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

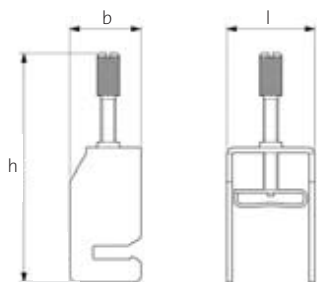
Material
SK-bracket Carbon steel, galvanically zinc plated
SF-foot Spring steel

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 x b x 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 grounded.

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 Carbon 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

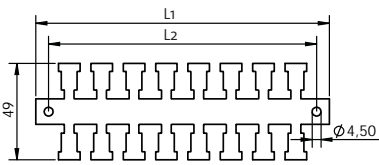


Type DH: Mounted on bushing for flexible fixation on bottom sheet

Product Description

The EMC strain relief plate KAFM is practical for grounding 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**

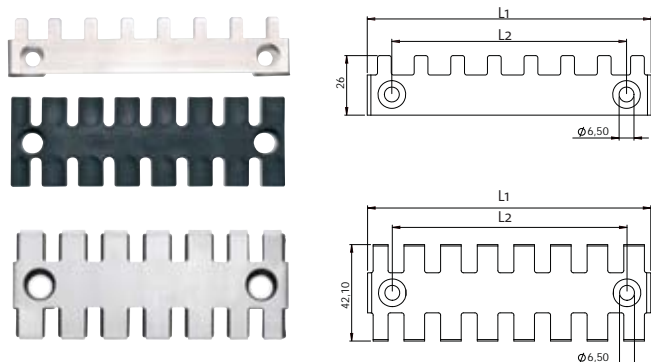
Accessories

KB Cable ties 88 - 89

Type	Order No.	Order No.	Order No.	Order No.	Order No.	Length L1	Length L2	No. of 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 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 Plates 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 ground 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 ground potential.

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

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

Ground Straps



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 ground straps.

Ground straps 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 ²	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 Ground Straps



Connecting end pads (copper)



Type	Order No.	Length L [mm]	Cross-section mm ²	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

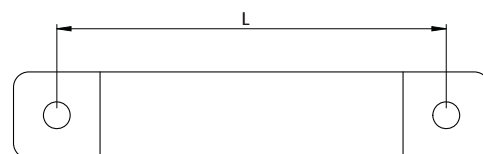
- Available in a variety of lengths and cross-sections
- Cost-effective in comparison to PE conductors
- Low impedances

Specifications

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

Current Load

Cross-section:	Current load:
6 mm ²	40-50 A
10 mm ²	75-105 A
16 mm ²	100-150 A
25 mm ²	145-195 A
35 mm ²	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 other electronic enclosures. 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 quite 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



IP54



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 other electronic enclosures.

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

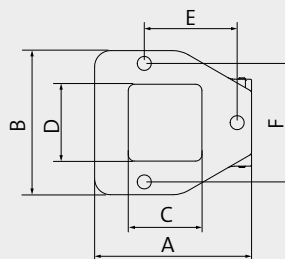
CONFIX FWS-B with a grooved conduit clip for types with sizes NW 13, 17, 23, 29, 37 and 50.

The available colors are gray (RAL 7011) and black (RAL 9005).

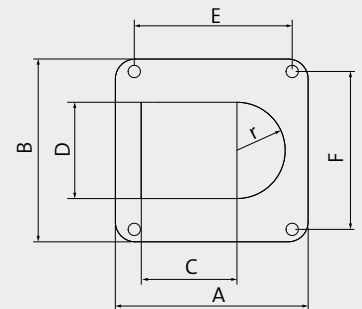
Accessories

CONFIX WS conduits 136 - 137

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 ■ 31381	10
CONFIX FWS-A20	M20 × 1.5	3 × 4.3	49 × 45	22 × 22.6	29 × 37	■ 31383 ■ 31384	10
CONFIX FWS-A25	M25 × 1.5	3 × 6.6	67 × 63	37 × 28	41.5 × 51.5	■ 31386 ■ 31387	10
CONFIX FWS-A32	M32 × 1.5	4 × 6.6	85.5 × 76	41.9 × 40 r = 20	64.5 × 64.5	■ 31389 ■ 31390	10
CONFIX FWS-A40	M40 × 1.5	4 × 6.6	97 × 92	48.3 × 48.4 r = 24.2	79.5 × 79.5	■ 31392 ■ 31393	5
CONFIX FWS-A50	M50 × 1.5	4 × 6.6	111.5 × 100.5	53 × 60.5 r = 30.25	87.5 × 87.5	■ 31395 ■ 31396	5



Size / Drilling template
FWS-A 16 to 25



Size / Drilling template
FWS-A 32 to 50

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 ■ 31411	10
CONFIX FWS-B 16	NW 17	3 × 4.3	49 × 45	22 × 22.6	29 × 37	■ 31413 ■ 31414	10
CONFIX FWS-B 21	NW 23	3 × 6.6	67 × 63	37 × 28	41.5 × 51.5	■ 31416 ■ 31417	10
CONFIX FWS-B 29	NW 29	4 × 6.6	85.5 × 76	41.9 × 40 r = 20	64.5 × 64.5	■ 31419 ■ 31420	10
CONFIX FWS-B 36	NW 37	4 × 6.6	97 × 92	48.3 × 48.4 r = 24.2	79.5 × 79.5	■ 31422 ■ 31423	5
CONFIX FWS-B 48	NW 50	4 × 6.6	111.5 × 100.5	53 × 60.5 r = 30.25	87.5 × 87.5	■ 31425 ■ 31426	5

Advantages & Benefits

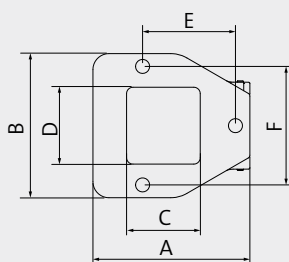
- Hinged cover
- Fast and easy installation
- Functional design
- Protection class IP54

Specifications

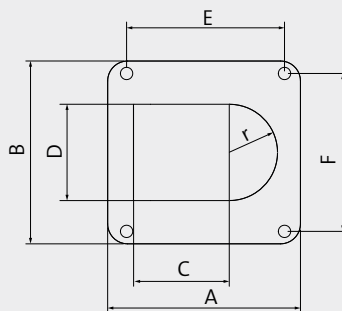
Material	Polycarbonate (PC)
Color	■ black (RAL 9005) ■ gray (RAL 7011)
IP rating	IP54
Flame class	UL94-Vo, self-extinguishing
Temperature	-30°C to +100°C (static) -22°F to +212°F (static)
Properties	Halogen free, silicone free

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, electronic enclosures).
→ 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)
 Color ■ black
 ■ gray
 Flame class UL94-HB
 Temperature -40°C to +120°C
 -40°F to +248°F
 Properties Halogen free, UV resistant, according to ISO 8580

Specifications WS-PAL

Material Polyamide (PA)
 Color ■ black
 Flame class UL94-HB
 Temperature -40°C to +120°C
 -40°F to +248°F
 Properties Halogen free, UV resistant according to ISO 8580

Specifications WS-PP

Material Polypropylene (PP)
 Color ■ black
 Flame class UL94-V2, self-extinguishing
 Temperature -40°C to +135°C
 -40°F to +275°F
 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 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 meter (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 -40°F to +221°F
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
 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.

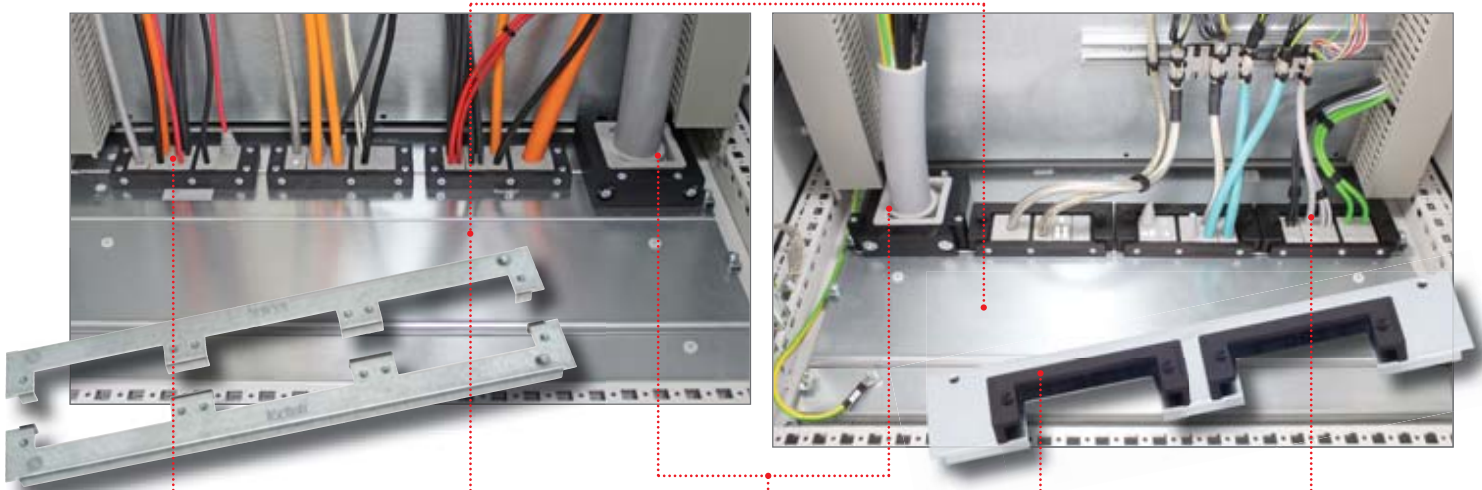
The base of an enclosure can be a weak point when cables and wires are not adequately sealed, and thus the protection of the enclosure cannot be maintained. Components for ventilation and air-conditioning generate an air flow which sucks the dust into the enclosure and spreads it. The icotek base plates 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



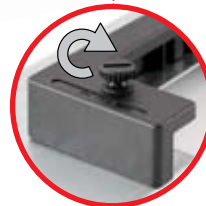
Routing of pre-terminated cables of up to 35 mm in diameter (KEL 24)



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




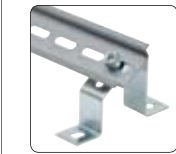







Locknuts

Product Group 6

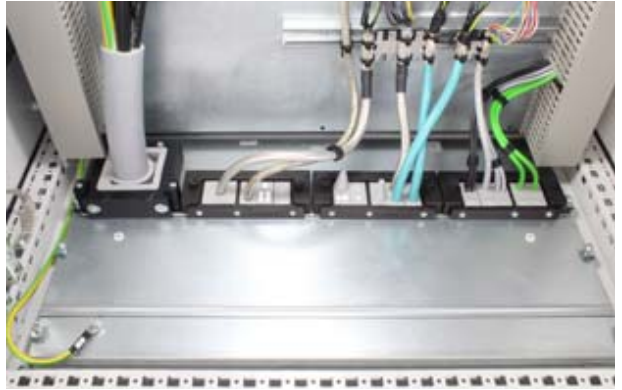
Electronic Enclosure Accessories

Chapter Content

	<p>Enclosure base plates IP54 with slide frames for cable entry frames</p> <p>KDR-ESR</p>	<p>142 - 143</p>		<p>Blank plates IP54 / IP64</p> <p>BPK / BPK-RF / BPM / BPK-SNAP</p>	<p>158 - 160</p>
	<p>Enclosure base plates IP54 split, for cable entry frames</p> <p>KDR2</p>	<p>144 - 145</p>		<p>Supports for DIN rails and bus bars</p> <p>MF</p>	<p>161</p>
	<p>Enclosure base plates with brush grommets</p> <p>KDR-BES</p>	<p>146 - 147</p>		<p>Hexagonal Locknuts M16 - M85</p> <p>KGM / GM / GMT</p> <p>NEW</p>	<p>162 - 163</p>
	<p>Module plates for cable entry components</p> <p>MP</p>	<p>148 - 149</p>			
	<p>Enclosure base plates IP54 for MP module plates</p> <p>KDR-BMP</p>	<p>150 - 151</p>			
	<p>Flanged plates for enclosures 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 preassembled.

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	Base plate: Carbon steel, zinc-plated KDR-ESR Frame: 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 + 90°C (static) Halogen free, silicone free

Compatible with

KEL(-U) 16 / 24 Cable entry frames	8 - 19
KEL-JUMBO Cable entry frames	34
BPK-SNAP 16 / 24 Blank plates	160



1

The base plate is fixed in the enclosure base. 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.

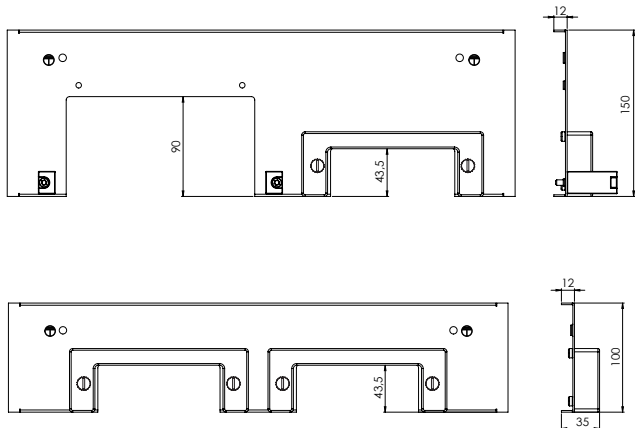


4

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



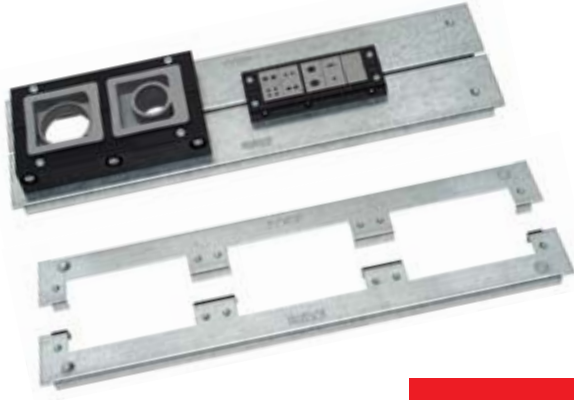
Sealing tape
Order No. 42999 (PU: 1 m)

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 without division bar	858 mm	835 mm	-	-	-	5	43081
	1000 mm without division bar	858 mm	835 mm	1	-	-	4	43074
	1000 mm without division bar	858 mm	835 mm	-	1	-	3	43075
TS8	1000 mm* with division bar	420 mm	398 mm	-	-	-	2	43082
	1000 mm* with division bar	420 mm	398 mm	1	-	-	1	43076
	1000 mm* 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

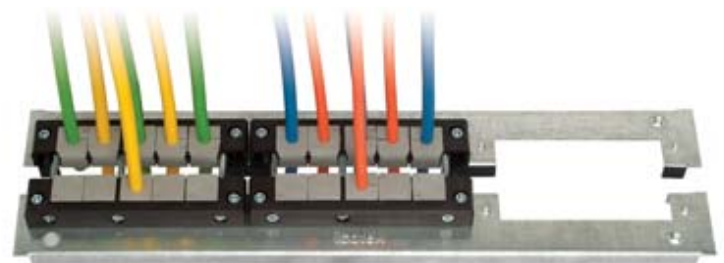
Product Description

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

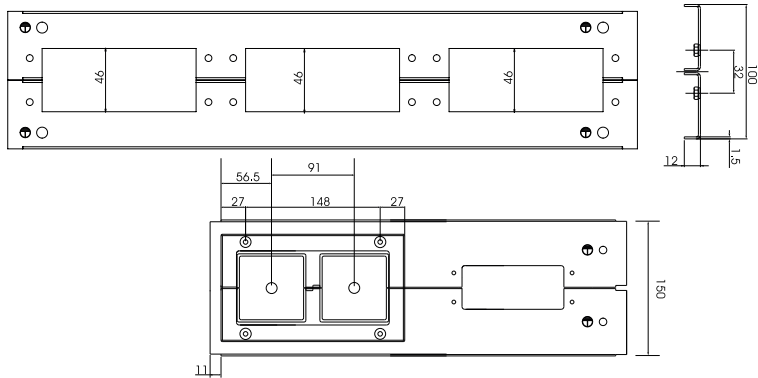
Material **Carbon steel, zinc-plated**

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



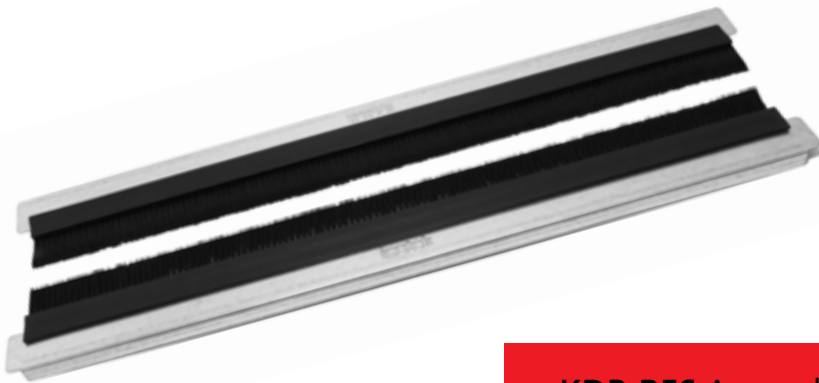
Sealing tape
Order No. 42999 (PU: 1 m)

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 without division bar	858 mm	835 mm	-	-	5	42923
				1	-	4	42955
				-	1	3	42952
TS 8	1000 mm* with division bar	420 mm	398 mm	-	-	2	42958
				1	-	1	42957
				-	1	1	42959
TS 8	1200 mm*	518 mm	495 mm	-	-	3	42920
				1	-	2	42956
				-	1	1	42943

* in case both fields of the control panel 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 rough dirt.

Advantages & Benefits

- During assembly, almost the complete base of the enclosure can be used for installation of cables.
- Retrofitting possible without disconnecting cables. Everything can be built around the cables.
- The base plates KDR-BES are designed for Rittal enclosures TS8. Other sizes can be supplied on request.

Specifications

Material	Base plate: Sheet steel, zinc-plated Brush grommets: Polyamide (PA)
Temperature	- 20°C to + 90°C (static)
Properties	Halogen free, silicone free

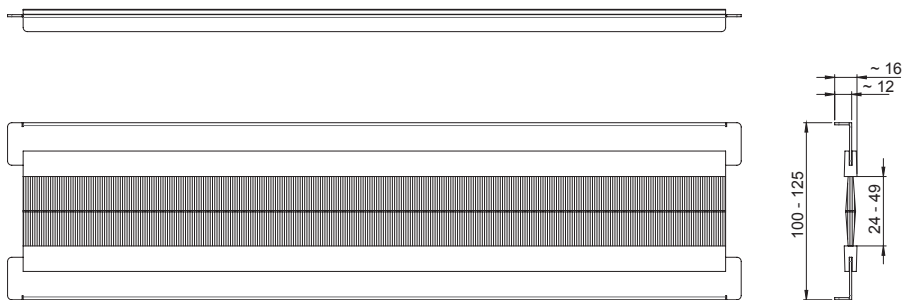


Accessories

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 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 fixed 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.



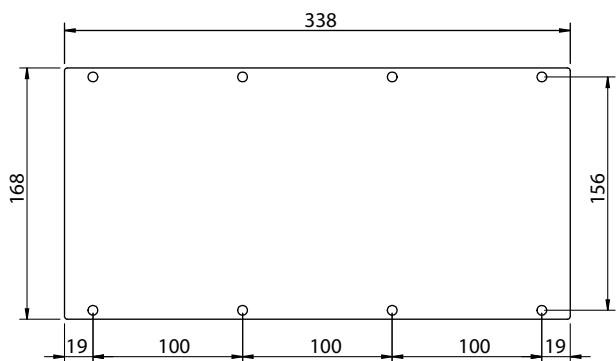
Routing of several cables with and without connectors through a closed enclosure roof via module plates. Cut-out size 314 x 144 mm.



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 1x KEL-JUMBO 2
	MP 4	43888	2x KEL-JUMBO 1
	MP 5	43887	2x KEL(-U) 24 x 1x KEL-JUMBO 1
	MP 6	43883	5x cut-out M50 for KEL-DPF or KEL-DPZ
	MP 7	43889	Cut-out 3x KEL-JUMBO flex
	MP 8	43894	Cut-out 2x KEL-ULTRA flex

Specifications

Material Carbon steel, zinc-plated
Aluminum (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 MP0-MP8 can be easily mounted and used for installation of cable entry components.

Advantages & Benefits

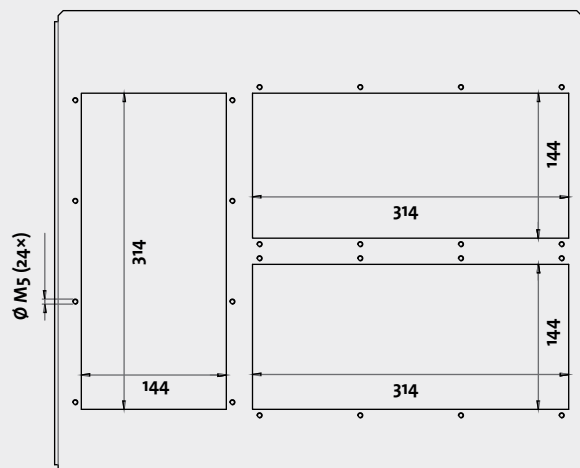
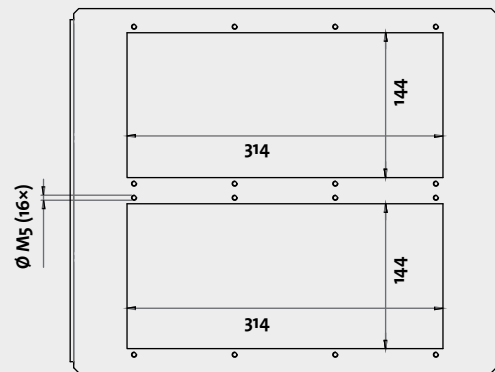
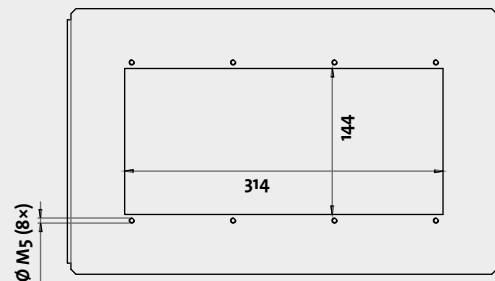
- Very simple mounting
- No sheet metal work required

Specifications

Material	Sheet steel, zinc-plated
IP rating	IP54, with gasket and correct selection of cable entry devices

Compatible with

MP Module plates 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 with division bar	400 mm	1	43312
KDR-BMP 1000/500		1000 mm with division bar	500 mm	2	43314
KDR-BMP 1000/600		1000 mm with division bar	600 mm	2	43316
KDR-BMP 1200/400	TS8	1200 mm with division bar	400 mm	1	43318
KDR-BMP 1200/500		1200 mm with division bar	500 mm	2 × 3	43320
KDR-BMP 1200/600 for left section		1200 mm with division bar	600 mm	3	43322
KDR-BMP 1200/600 for right section		1200 mm with division bar	600 mm	3	43324

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

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

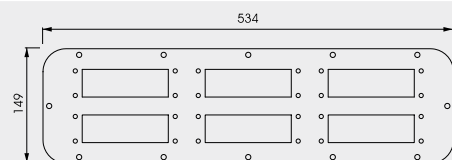
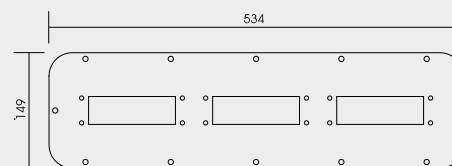
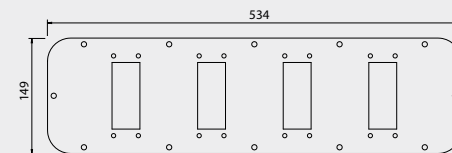
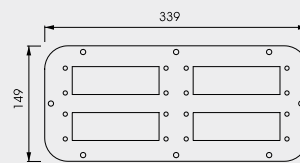
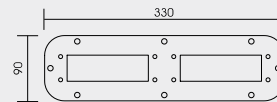
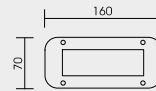
- No expensive extra sheet metal work is required
- High cable density is achieved by using KEL, KEL-U, KEL-DPZ or KEL-DP
- Reduce labor costs by using cable entry systems KEL, KEL-U, KEL-DPZ or KEL-DP compared to the assembly of conventional cable glands

Specifications

Material **Carbon 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. RAL 7035	Compatible with: (Product Group 1)	Compatible with: (Product Group 2)	Size FP	Compatible with (e.g. for Rittal)
FP-AE 160 70 with 1 cut-out 36 x 112 mm	43836	KEL-QTA 24	KEL-DP 24	1	AE 1032 AE 1035
FP-AE-24 330 90 with 2 cut-outs 36 x 112 mm	43838	KEL 24 KEL-U 24 KEL-QTA 24	KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	3	AE 1030 AE 1031 AE 1038 AE 1380
FP-AE-16 330 90 with 2 cut-outs 36 x 86 mm	43861	KEL 16 KEL-U 16		3	
FP-AE 339 149 with 2 cut-outs 36 x 112 mm	43840	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-QTA 24	KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	4	AE 1037 CS 9751.125 AE 1045 CS 9751.145 AE 1050 CS 9751.165 AE 1057 CS 9752.125 AE 1100 AE 1110 TP 6710 AE 1114 TP 6712 AE 1130 TP 6714 AE 1213 TP 6716 AE 1338 AE 1350
FP-AE 339 149 with 4 cut-outs 36 x 112 mm	43846	KEL 24 KEL-U 24 KEL-QTA 24	KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	4	
FP-AE 534 149 with 4 cut-outs 36 x 86 mm	43871	KEL 16 KEL-U 16 KEL-SNAP 16		5	AE 1039 EL 1919 AE 1054 EL 1926 AE 1055 AE 1058 IN 1076.290 AE 1060 AE 1073 TP 6711 AE 1076 TP 6713 AE 1077 TP 6715 AE 1090 TP 6717 AE 1180 AE 1260 AE 1280 AE 1339 AE 1360 AE 1376 AE 1958
FP-AE 534 149 with 3 cut-outs 36 x 112 mm	43842	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-QTA 24	KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	5	
FP-AE 534 149 with 6 cut-outs 36 x 112 mm	43848	KEL 24 KEL-U 24 KEL-QTA 24	KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	5	

FP-KL

Flanged Plates for Junction 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 junction 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.

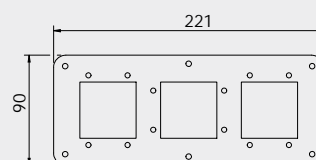
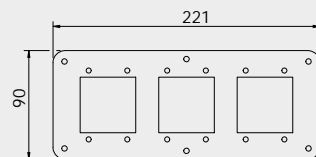
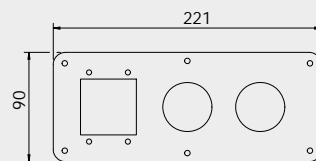
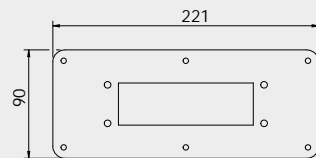
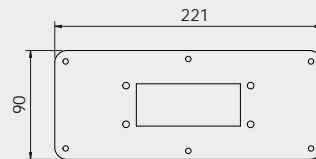
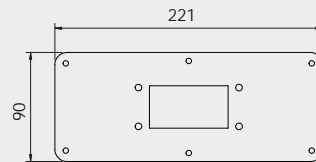
We recommend fastening the cable entry systems with a torque of 1.5 - 2.0 Nm.

Specifications

Material **Carbon 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 Cable entry plates	72
KEL-DPF Cable entry grommets	77
Blank plates	158 - 159



FP-KL

Flanged Plates for Junction Boxes



Type	Order No. RAL 7035	Flanged plates compatible with	Size FP	Compatible with (e.g. for Rittal)
FP-KL 221x90 10 with 1 cut-out 36 x 65 mm	43853	KEL 10 KEL-U 10 KEL-SNAP 10	2	Junction boxes Type KL
FP-KL 221x90 16 with 1 cut-out 36 x 86 mm	43855	KEL 16 KEL-U 16 KEL-SNAP 16	2	Junction boxes Type KL
FP-KL 221x90 24 with 1 cut-out 36 x 112 mm	43834	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-QTA 24 KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	2	Junction boxes Type KL
FP-KL 221x90 A with 3 cut-outs	43852	KEL-B KEL-U-B KEL-SNAP-B KEL-DPZ-B KEL-DPZ 40 KEL-DPF 40	2	Junction boxes Type KL
FP-KL 221x90 B with 3 cut-outs 46 x 46 mm	43854	Use with 2x KEL-SNAP-B and 1x KEL-DPZ-B	2	Junction boxes Type KL
FP-KL 221x90 C with 3 cut-outs 46 x 46 mm	43856	KEL-B KEL-U-B KEL-DPZ-B	2	Junction 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).

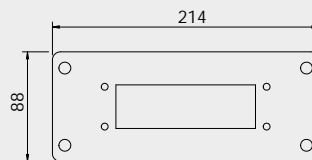
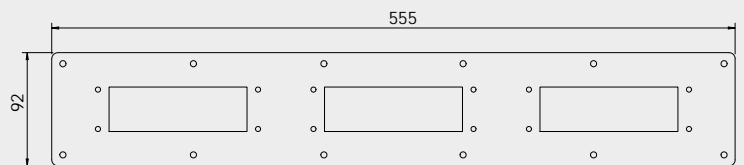
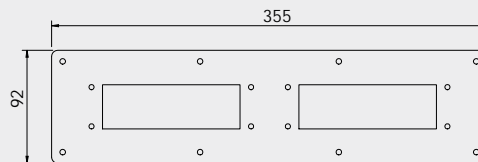
We recommend fastening the cable entry systems with a torque of 1.5 - 2.0 Nm.

Specifications

Material **Carbon 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. RAL 7035	Flanged plates compatible with	Size FP.	Compatible with (e.g. for Rittal)
FP-BG 355x92 with 2 cut-outs 36 x 112 mm	43866	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-QTA 24 KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	-	BG 1558.510
FP-BG 555x92 with 3 cut-outs 36 x 112 mm	43865	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-QTA 24 KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	6	BG 1050.900 BG 1559.510 IN 1510.280
FP-FL 21 with 1 cut-out 36 x 112 mm	43832	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-QTA 24 KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	-	Fibox plates

BPK

Plastic Blank Plates



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) Circular sealing: Elastomer
Flame class	UL94-V0
IP rating	BPK: IP64 BPK-RF A: IP54
Temperature Properties	- 30°C to + 140°C (static) Halogen free, silicone free

Compatible with

FP Flanged plates 152 - 157

Type	Order No.	Blank plate for KEL cut-out	Dimensions	PU
BPK Blank plates for screw connection:				
BPK-B	42010	KEL-B KEL-U-B KEL-ER-B	76 × 53 mm	10
BPK 10	42015	KEL 10 KEL-U 10 KEL-ER 10	101 × 53 mm	10
BPK 16	42016	KEL 16 KEL-U 16 KEL-ER 16 KEL-QUICK 16	121 × 53 mm	10
BPK 24	42024	KEL 24 KEL-U 24 KEL-ER 24 KEL-QUICK 24	148 × 53 mm	10
BPK Blank plates for snapping into cut-outs:				
BPK-B-RF A	42010.002	KEL-B KEL-U-B	76 × 53 mm	10
BPK 10-RF A	42015.002	KEL 10 KEL-U 10	101 × 53 mm	10
BPK 16-RF A	42016.002	KEL 16 KEL-U 16 KEL-QUICK 16	121 × 53 mm	10
BPK 24-RF A	42024.002	KEL 24 KEL-U 24 KEL-QUICK 24	148 × 53 mm	10
BPK-JFX	42620	KEL-JUMBO flex	88 × 88 mm	5

BPM

Metal Blank Plates



Type	Order No.	Blank plate for KEL cut-out	Dimensions	PU
BPM-B	42013	KEL-B KEL-U-B KEL-QUICK-B	75 × 58 mm	10
BPM 6 BPM 6 V2A	42011 41991	standard 6-pole industrial connectors	90 × 52 mm	10
BPM 10 BPM 10 V2A	42014 41992	KEL 10 KEL-U 10	99 × 58 mm	10
BPM-FG B	42012	KEL-FG B	80 × 58 mm	10
BPM 16 BPM 16 V2A	42025 41994	KEL 16 KEL-U 16 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 BPM 24 V2A	42027 41995	KEL 24 KEL-U 24 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 flex	42033	KEL-JUMBO flex	88 × 88 mm	1
BPM-JUMBO 1	42030	KEL-JUMBO 1	116 × 110 mm	1
BPM-JUMBO 2	42032	KEL-JUMBO 2	200 × 116 mm	1
BPM-ULTRA	42633	KEL-ULTRA flex	∅ 168 mm Width: 1,5 mm	1

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	Carbon 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 preassembled 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

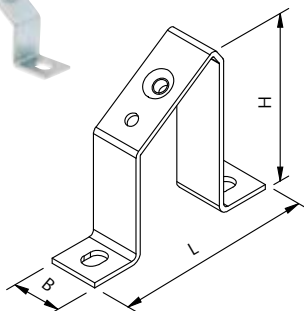
Compatible with

KEL-SNAP Mounting frames	36 - 37
KDR-ESR Base plate with Slide frames	142 - 143

Type	Order No.	Blank plate compatible with	Dimensions l × b × h	PU
BPK-SNAP-B	42003	KEL-SNAP-B4	58 × 72.8 × 17 mm	10
BPK-SNAP 10	42004	KEL-SNAP 10	58 × 98.3 × 17 mm	10
BPK-SNAP 16	42007	KEL-SNAP 16	58 × 120 × 17 mm	10
BPK-SNAP 24	42017	KEL-SNAP 24	58 × 147 × 17 mm	10

MF

Supports for DIN Rails and Bus Bars



Description	Type	Version	Order No. without Clip	Order No. with Clip	Dimension [L × B × H]	PU
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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 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 Carbon 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 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 enclosure wall. Suitable for split corrugated conduits CONFIX WST.

Thread	Type	Order No.	Material	Height [mm]	Wrench size	Diagonal [mm]	Cut-out a×b[mm]	PU
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Type KGM: Standard nut, plastic

M16 × 1.5	KGM 16	52272	PA	4.3	SW 22.8	28.2	-	10
M20 × 1.5	KGM 20	52273 52283	PA	7	SW 26	28.2	-	10
M25 × 1.5	KGM 25	52274 52284	PA	7	SW 32	36	-	10
M32 × 1.5	KGM 32	52275 52285	PA	7	SW 41	46	-	10
M40 × 1.5	KGM 40	52276 52286	PA	7	SW 50	56	-	10
M50 × 1.5	KGM 50	52277 52287	PA	8.5	SW 60	66	-	10
M63 × 1.5	KGM 63	52278 52288	PA	8.5	SW 75	83	-	5
M75 × 1.5	KGM 75	52289	PA	8.5	SW 85	93.1	-	5
M85 × 2	KGM 85	52290	PA	10	SW 100	109.5	-	5

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: aluminum

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

KGM | GMT Locknuts



Type KGM: SUB-D9, PB, SUB-D25



Type GMT: Split locknut



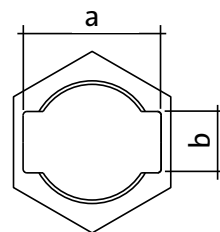
Thread	Type	Order No.	Material	Height [mm]	Wrench size	Diagonal [mm]	Cut-out a×b[mm]	PU
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Type KGM: PB, SUB-D9, SUB-D25

M32 × 1.5	KGM-SUB-D9	<input type="checkbox"/> 45105 <input checked="" type="checkbox"/> 45106	PC	7	SW 41	46	35 × 16	10
M40 × 1.5	KGM-PB	<input type="checkbox"/> 45107 <input checked="" type="checkbox"/> 45109	PC	8	SW 50	55	43 × 17	10
M50 × 1.5	KGM-SUB-D25	<input type="checkbox"/> 45108 <input checked="" type="checkbox"/> 45110	PC	8	SW 60	66	55 × 16	10

Type GMT: Split locknut

M20 × 1.5	GMT 20	<input checked="" type="checkbox"/> 31110	PA	9	SW 27	29	-	10
M25 × 1.5	GMT 25	<input checked="" type="checkbox"/> 31100	PA	9	SW 32	35	-	10
M32 × 1.5	GMT 32	<input checked="" type="checkbox"/> 31120	PA	12	SW 40	44	-	10
M50 × 1.5	GMT 50	<input checked="" type="checkbox"/> 31140	PA	15	SW 63	69	-	10



Specifications

Material	Polyamide (PA) / Polycarbonate (PC)
Color	<input type="checkbox"/> gray (similar RAL 7035) <input checked="" type="checkbox"/> 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. It has been in effect since July 1, 2003 and 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.

Also 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 fulfillment are different.

Since 2003, every new Ex device must be certified according to the EU Directive, labeled 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 94/9 EC 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.



Cable Entry Systems for Potentially Explosive Atmospheres

Product Group 7

Chapter Content

 <p>IP65 IP54</p>	<p>ATEX cable entry frames NEMA types 4X / 12 for cable diameters up to 35 mm</p> <p>KEL-ER 24 / KEL-ER 16 / KEL-ER 10 / KEL-ER-B / KEL-ER-E KEL-U 24 / KEL-U 16 / KEL-U 10 / KEL-U-B / KEL-E</p> <p>NEW 166 - 169</p>	 <p>IP54</p>	<p>Split ATEX cable glands NEMA type 12 M80, for cable diameters up to 35 mm</p> <p>KVT 80</p> <p>176</p>
 <p>IP54</p>	<p>ATEX cable entry frames NEMA type 12 for cable diameters up to 35 mm</p> <p>KEL 24 / KEL 16 / KEL 10 / KEL-B</p> <p>170</p>	 <p>IP65 IP54</p>	<p>Grommets and plugs NEMA types 4X / 12 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>IP54</p>	<p>Extended ATEX cable entry frames NEMA type 12 for cable diameters up to 35 mm</p> <p>KEL 24-E / KEL 24-MT / KEL 24-2MT KEL 16-E / KEL 16-MT / KEL 16-2MT</p> <p>NEW 171 - 172</p>	 <p>IP66</p>	<p>ATEX Cable entry plates NEMA type 4X screw/snap-in mounting</p> <p>KEL-DPU 24</p> <p>NEW 179</p>
 <p>IP54</p>	<p>ATEX cable entry frames for flat cables & round cables up to 16 mm in diameter</p> <p>KEL-FL</p> <p>173</p>	 <p>IP66</p>	<p>ATEX Cable entry plates NEMA type 12 screw mounting</p> <p>KEL-DPZ-KL / KEL-DPZ 24 / KEL-DPZ-B / KEL-DPZ-E</p> <p>NEW 180 - 181</p>
 <p>IP54</p>	<p>ATEX cable entry frames NEMA type 12 for cable diameters up to 75 mm</p> <p>KEL 183 / KEL 183-E</p> <p>NEW 174</p>	 <p>IP68</p>	<p>ATEX Cable entry plates, round NEMA type 4X M32 - M63</p> <p>KEL-DPZ round</p> <p>182</p>
 <p>IP54</p>	<p>ATEX cable entry frames NEMA type 12 for cable diameters up to 65 mm</p> <p>KEL-JUMBO</p> <p>NEW 175</p>	 <p>IP68</p>	<p>ATEX Cable entry grommets NEMA type 4X M25 - M85, for cable diameters up to 70 mm</p> <p>KEL-DPF</p> <p>NEW 183</p>



KEL-U ATEX

Cable Entry Frames



IP54



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



Also available with threaded steel 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) - 22°F to + 194°F (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 small large	PU
KEL-U 24 10 ATEX	49455	36 × 112 mm	10 -	10
KEL-U 24 10 ATEX 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 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 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 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 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 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 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 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 with V2A screws	49463.200	46 × 46 mm	4 -	10
KEL-U-B1 ATEX	49464	46 × 46 mm	- 1	10
KEL-U-B1 ATEX 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 small large	PU
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KEL-ER 24 10 ATEX	49228	36 × 112 mm	10 -	10
KEL-ER 24 10 ATEX 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 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 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 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 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 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 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 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 with V2A screws	49224.200	46 × 46 mm	4 -	10
KEL-ER-B1 ATEX	49225	46 × 46 mm	- 1	10
KEL-ER-B1 ATEX 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
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) - 22°F to + 194°F (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
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) - 22°F to + 194°F (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



IP65

up to
NEMA
TYPE
12RoHS
compliantMade in
Germany

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 with V2A screws	49470.200	43 × 24	2 -	10
KEL-ER-E3 ATEX	49471	65 × 24	3 -	10
KEL-ER-E3 ATEX with V2A screws	49471.200	65 × 24	3 -	10
KEL-ER-E4 ATEX	49472	86 × 24	4 -	10
KEL-ER-E4 ATEX with V2A screws	49472.200	86 × 24	4 -	10
KEL-ER-E5 ATEX	49473	112 × 24	5 -	10
KEL-ER-E5 ATEX 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 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. 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-Vo
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) - 22°F to + 194°F (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
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) - 22°F to + 194°F (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
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Type	Order No.	Cut-out	Grommets small large	PU
KEL 24 10 ATEX	49109	36 × 112 mm	10 -	10
KEL 24 10 ATEX 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 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 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 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 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 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 with V2A screws	49102.200	36 × 86 mm	4 -	10
KEL 16 2 ATEX	49101	36 × 86 mm	- 2	10
KEL 16 2 ATEX with V2A screws	49101.200	36 × 86 mm	- 2	10
KEL 10 6 ATEX	49108	36 × 65 mm	6 -	10
KEL 10 6 ATEX 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 with V2A screws	49107.200	36 × 65 mm	2 1	10
KEL-B4 ATEX	49105	46 × 46 mm	4 -	10
KEL-B4 ATEX with V2A screws	49105.200	46 × 46 mm	4 -	10
KEL-B1 ATEX	49106	46 × 46 mm	- 1	10
KEL-B1 ATEX 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		PU
			small	large	

KEL 24 15-E	49158	66 × 112 mm	15 -	1
KEL 24 15-E 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 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 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 with V2A screws	49164.200	66 × 112 mm	10 -	1
KEL 24 20-MT	49166	82 × 112 mm	20 -	1
KEL 24 20-MT 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 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 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 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 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 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 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 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 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 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 fast, 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
IP rating	IP54, with gasket and correct selection of cable grommets
Temperature	- 30°C to + 90°C (static) - 22°F to + 194°F (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
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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 steel bushings.

Type	Order No.	Cut-out	Grommets small large	PU
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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 fast, 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
IP rating	IP54, with gasket and correct selection of cable grommets
Temperature	- 30°C to + 90°C (static) - 22°F to + 194°F (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 KT FT	PU
KEL-FL A ATEX	49479	43 × 24 mm	0× KT 1× FT-1	10
KEL-FL B ATEX	49480	65 × 24 mm	0× KT 1× FT-2	10
KEL-FL C ATEX	49481	65 × 24 mm	1× KT 1× FT-1	10
KEL-FL D ATEX	49482	86 × 24 mm	0× KT 1× FT-3	10
KEL-FL E ATEX	49483	86 × 24 mm	1× KT 1× FT-2	10
KEL-FL F ATEX	49484	86 × 24 mm	0× KT 2× FT-1	10
KEL-FL G ATEX	49485	86 × 24 mm	2× KT 1× FT-1	10
KEL-FL H ATEX	49486	112 × 24 mm	2× KT 1× FT-2	10
KEL-FL I ATEX	49487	112 × 24 mm	1× KT 2× FT-1	10
KEL-FL J ATEX	49488	112 × 24 mm	3× KT 1× FT-1	10
KEL-FL K ATEX	49489	112 × 24 mm	1× FT-1 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 elevator construction.

Innovative construction of the grommets compensates for manufacturing inconsistencies in flat cables. Split KT grommets can be utilized 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
IP rating	IP54, with gasket and correct selection of cable grommets
Temperature	- 30°C to + 90°C (static) - 22°F to + 194°F (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
- 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-V0
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) - 22°F to + 194°F (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 KT 183 KT large	PU
KEL 183 2 ATEX	49496	180 × 80 mm	2 -	1
KEL 183 2 ATEX 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 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 with V2A screws	49498.200	180 × 80 mm	- 8	1
KEL 183-E4 ATEX	49499	180 × 42 mm	- 4	1
KEL 183-E4 ATEX 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 with V2A screws	49500.200	180 × 42 mm	16 KT small	1



KEL-JUMBO ATEX Cable Entry Frames

V2A
anti-corrosive



Also available with stainless steel screws (V2A).



IP54

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
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) - 22°F to + 194°F (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

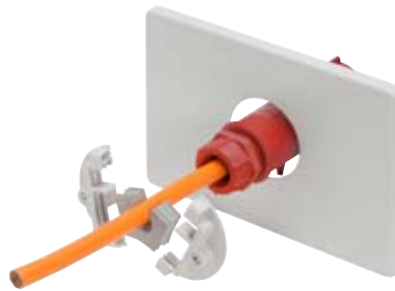
Type	Order No.	Cut-out	Grommets KTF	PU
KEL-JUMBO 1 ATEX	49506	78 × 80,5 mm	1	1
KEL-JUMBO 1 ATEX with V2A screws	49506.200	78 × 80,5 mm	1	1
KEL-JUMBO 2 ATEX	49507	168 × 80,5 mm	2	1
KEL-JUMBO 2 ATEX with V2A screws	49507.200	168 × 80,5 mm	2	1

KVT 80 ATEX

Split Cable Glands



IP54



Type	Order No.	Cut-out	Grommets 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 fast retrofitting and maintenance
- High cable density, wide variety of grommets
- Fast 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)
Color	<input type="checkbox"/> gray (similar RAL 7035) <input type="checkbox"/> black
Flame class	UL94-Vo
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) - 22°F to + 194°F (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen-free, silicone-free

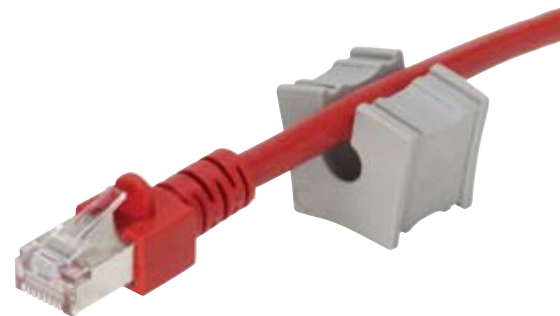
KVT 80 3 ATEX	<input type="checkbox"/> 49120 <input type="checkbox"/> 49123	∅ 80 mm	2 1	1
KVT 80 6 ATEX	<input type="checkbox"/> 49121 <input type="checkbox"/> 49122	∅ 80 mm	6 -	1

*Only valid for gray product types

Accessories

Cable grommets 44 - 48

KT ATEX Cable Grommets



Type	Page	Clamping range	Description
BTK	44	Blind 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	Blind 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
Temperature	- 30°C to + 90°C (static) - 22°F to + 194°F (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 utilizing 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
Temperature	- 30°C to + 90°C (static) - 22°F to + 194°F (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 2x max. 12.2 mm
	DT 2	48	16x max. 7.1 mm
	DT 3	48	4x max. 6.5 mm 3x max. 9.5 mm 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	<input type="checkbox"/> 49513 <input checked="" type="checkbox"/> 49521	36 × 112 mm	10× 3.2 - 6.3 mm 3× 16 - 20.5 mm	10
KEL-DPU 24 14 ATEX	<input type="checkbox"/> 49514 <input checked="" type="checkbox"/> 49522	36 × 112 mm	5× 3.2 - 6.3 mm 2× 4 - 7.5 mm 3× 5.5 - 10.5 mm 1× 8 - 12.5 mm 3× 12 - 16.2 mm	10
KEL-DPU 24 16 ATEX	<input type="checkbox"/> 49516 <input checked="" type="checkbox"/> 49524	36 × 112 mm	8× 3.2 - 5.5 mm 6× 5 - 8.5 mm 2× 9.5 - 14.5 mm	10
KEL-DPU 24 16-1 ATEX	<input type="checkbox"/> 49515 <input checked="" type="checkbox"/> 49523	36 × 112 mm	2× 3.2 - 6.3 mm 9× 4 - 7.5 mm 1× 5.5 - 10.5 mm 1× 8 - 12.5 mm 3× 12 - 16.2 mm	10
KEL-DPU 24 17 ATEX	<input type="checkbox"/> 49517 <input checked="" type="checkbox"/> 49525	36 × 112 mm	4× 3.2 - 6.3 mm 2× 4 - 7.5 mm 1× 5.5 - 10.5 mm 10× 8 - 12.5 mm	10
KEL-DPU 24 20 ATEX	<input type="checkbox"/> 49518 <input checked="" type="checkbox"/> 49526	36 × 112 mm	12× 3.2 - 5.5 mm 8× 5 - 10.5 mm	10
KEL-DPU 24 21 ATEX	<input type="checkbox"/> 49519 <input checked="" type="checkbox"/> 49527	36 × 112 mm	1× 3.2 - 6.3 mm 14× 4 - 7.5 mm 4× 5.5 - 10.5 mm 2× 8 - 12.5 mm	10
KEL-DPU 24 32 ATEX	<input type="checkbox"/> 49520 <input checked="" type="checkbox"/> 49528	36 × 112 mm	32× 3.2 - 6.3 mm	10

* Only valid for gray 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 characterized 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) Sealing plate: Elastomer
Color	<input type="checkbox"/> gray (similar RAL 7035) <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	- 30°C to + 90°C (static) - 22°F to + 194°F (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 junction 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	Support: Stainless steel V2A, molded with elastomer Sealing plate: Elastomer Screws: Stainless steel V2A
Color	<input type="checkbox"/> gray (similar RAL 7035) <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) - 22°F to + 194°F (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen-free, silicone-free

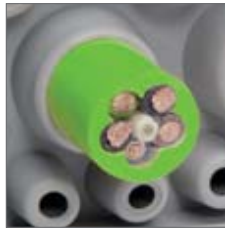
Type	Order No.	Cut-out	Number of cables	PU
KEL-DPZ-KL 72 ATEX	<input type="checkbox"/> 49556.001 <input checked="" type="checkbox"/> 49556.101	192 × 62 mm	42x 3.2 - 6.5 mm 21x 5 - 10.2 mm 6x 9 - 16.2 mm 3x 16 - 22 mm	1

* Only valid for gray 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 ■ 49211	36 × 112 mm	10× 3.2 - 6.5 mm 4× 16 - 22 mm	10
KEL-DPZ 24 15 ATEX	□ 49205 ■ 49215	36 × 112 mm	15× 7.2 - 12 mm	10
KEL-DPZ 24 16 ATEX	□ 49206 ■ 49216	36 × 112 mm	8× 3.2 - 6.5 mm 4× 5 - 9.7 mm 2× 9 - 16.2 mm 2× 16 - 22 mm	10
KEL-DPZ 24 17 ATEX	□ 49202 ■ 49212	36 × 112 mm	6× 3.2 - 6.5 mm 6× 5 - 10.2 mm 5× 9 - 16.2 mm	10
KEL-DPZ 24 25 ATEX	□ 49203 ■ 49213	36 × 112 mm	12× 3.2 - 6.5 mm 7× 4.8 - 9.7 mm 6× 7.5 - 12 mm	10
KEL-DPZ 24 32 ATEX	□ 49207 ■ 49217	36 × 112 mm	21× 3.2 - 6.5 mm 8× 5 - 10.2 mm 3× 7.5 - 12 mm	10
KEL-DPZ 24 42 ATEX	□ 49204 ■ 49214	36 × 112 mm	42× 3.2 - 6.5 mm	10
KEL-DPZ 24 121 ATEX	□ 49208 ■ 49218	36 × 112 mm	119× 1.5 - 2.6 mm 2× 2.5 - 5 mm	10
KEL-DPZ-B 13 ATEX	□ 49311 ■ 49317	46 × 46 mm	8× 3.2 - 6.5 mm 4× 5 - 10.2 mm 1× 16 - 22 mm	10
KEL-DPZ-B 17 ATEX	□ 49312 ■ 49318	46 × 46 mm	10× 3.2 - 6.5 mm 4× 5 - 10.2 mm 2× 7.5 - 12 mm 1× 9 - 16.2 mm	10
KEL-DPZ-B 25 ATEX	□ 49313 ■ 49319	36 × 112 mm	25× 3.2 - 6.5 mm	10
KEL-DPZ-E 112 7 ATEX	□ 49301 ■ 49306	18 × 112 mm	7× 7.5 - 12 mm	10
KEL-DPZ-E 112 21 ATEX	□ 49302 ■ 49307	18 × 112 mm	21× 3.2 - 6.5 mm	10

*Only valid for gray 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

- Fast and easy assembly
- High cable density
- Dual sealing of cables according to IP65 / IP66
- Space saving shapes

Specifications

Material	Frame: Polyamide (PA) Sealing plate: Elastomer
Color	□ gray (similar RAL 7035) ■ black
Flame class	UL94-Vo
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) - 22°F to + 194°F (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 round ATEX Cable Entry Plates



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

- Fast and easy assembly
- 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)
Color	Sealing plate: Elastomer <input type="checkbox"/> gray (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo
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) - 22°F to + 194°F (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 <input checked="" type="checkbox"/> 49440	3× 3.2 - 6.5 mm 1× 7.2 - 12.5 mm	M32 × 1.5	44 mm	10
KEL-DPZ 32 4-2 ATEX	<input type="checkbox"/> 49421 <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 <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 <input checked="" type="checkbox"/> 49443	4× 3.2 - 6.5 mm 4× 5 - 10.2 mm	M40 × 1.5	52 mm	10
KEL-DPZ 50 8 ATEX	<input type="checkbox"/> 49424 <input checked="" type="checkbox"/> 49444	5× 5 - 10.2 mm 3× 7.2 - 12.5 mm	M50 × 1.5	62 mm	10
KEL-DPZ 50 10 ATEX	<input type="checkbox"/> 49425 <input checked="" type="checkbox"/> 49445	7× 3.2 - 6.5 mm 2× 5 - 10.2 mm 1× 16 - 22.2 mm	M50 × 1.5	62 mm	10
KEL-DPZ 50 12 ATEX	<input type="checkbox"/> 49426 <input checked="" type="checkbox"/> 49446	4× 3.2 - 6.5 mm 8× 5 - 10.2 mm	M50 × 1.5	62 mm	10
KEL-DPZ 50 19 ATEX	<input type="checkbox"/> 49428 <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 <input checked="" type="checkbox"/> 49447	76× 1.5 - 2.6 mm 2× 2.5 - 5 mm	M50 × 1.5	62 mm	10
KEL-DPZ 63 9 ATEX	<input type="checkbox"/> 49429 <input checked="" type="checkbox"/> 49449	1× 3.2 - 6.5 mm 3× 5 - 10.2 mm 4× 9 - 16.2 mm 1× 16 - 22.2 mm	M63 × 1.5	75 mm	10
KEL-DPZ 63 13 ATEX	<input type="checkbox"/> 49430 <input checked="" type="checkbox"/> 49450	4× 3.2 - 6.5 mm 4× 5 - 10.2 mm 5× 9 - 16.2 mm	M63 × 1.5	75 mm	10
KEL-DPZ 63 14 ATEX	<input type="checkbox"/> 49432 <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 <input checked="" type="checkbox"/> 49451	35× 3.2 - 6.5 mm	M63 × 1.5	75 mm	10

*Only valid for gray product types



IP68

up to
NEMA
TYPE
4XHL3
EN 45545-2UV
ISO 4892-2AECOLAB
certifiedRoHS
compliantMade in
Germany

KEL-DPF ATEX Cable Entry Grommets



Type	Order No.	Thread metric	Clamping range	External dimension	PU
KEL-DPF 25 3-12 ATEX	<input type="checkbox"/> 49401 <input checked="" type="checkbox"/> 49410	M25 × 1.5	3 - 12 mm	39 mm	5
KEL-DPF 32 6-18 ATEX	<input type="checkbox"/> 49402 <input checked="" type="checkbox"/> 49411	M32 × 1.5	6 - 18 mm	46 mm	5
KEL-DPF 40 12-27 ATEX	<input type="checkbox"/> 49403 <input checked="" type="checkbox"/> 49412	M40 × 1.5	12 - 27 mm	54 mm	5
KEL-DPF 50 22-36 ATEX	<input type="checkbox"/> 49404 <input checked="" type="checkbox"/> 49413	M50 × 1.5	22 - 36 mm	64 mm	5
KEL-DPF 63 27-50 ATEX	<input type="checkbox"/> 49405 <input checked="" type="checkbox"/> 49414	M63 × 1.5	27 - 50 mm	77 mm	5
KEL-DPF 75 39-60 ATEX	<input type="checkbox"/> 49534 <input checked="" type="checkbox"/> 49535	M75 × 1.5	39 - 60 mm	89 mm	5
KEL-DPF 85 48-70 ATEX	<input type="checkbox"/> 49536 <input checked="" type="checkbox"/> 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 electronic enclosure. 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

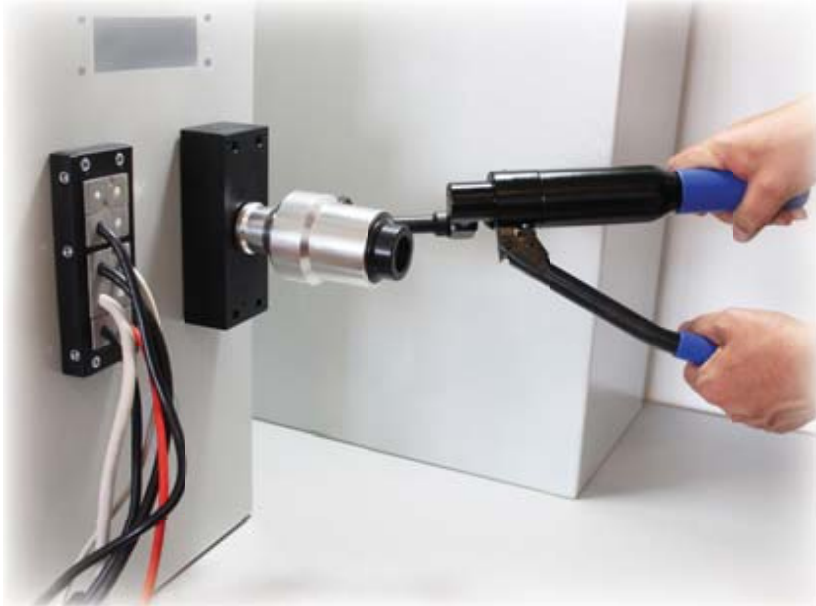
Advantages & Benefits

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

Specifications

Material	Thread frame: Polyamide (PA) Pyramid: Elastomer
Color	<input type="checkbox"/> gray (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo
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) - 22°F to + 194°F (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 gray product types



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, aluminum or plastics. The cylinder of the punch driver rotates 360° on 3 axles. Therefore, maximum flexibility even in hard-to-reach places is provided.

2. Multi-Fold Slug Splitting

The special cutting geometry of the round punches reduces the cutting pressure and therefore the required effort. The punch splits slugs into several pieces for easy slug removal (type related).

3. Perfect for icotek Cable Entry Components

The metric round, rectangular & 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, aluminum 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, 8700 psi) for easy punching
- Compact, lightweight aluminum design (4.4 lb)
- Fast and easy operation
- Punch driver also suitable for punches by other manufacturers

Specifications

Material	Aluminum
Punching force	60 kN
Operating pressure	8700 psi

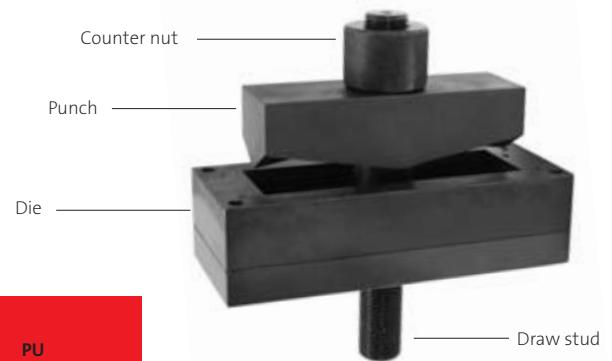
Accessories

Round punches	187
Rectangular & square punches	188

Type	Scope of delivery	Order No.	PU
Punch driver set BASIC	1 hand hydraulic punch driver (weight: 4.4 lb) 1 draw stud Ø 3/8" UNF to Ø 3/4" UNF, L: 110 mm 1 draw stud Ø 3/4" UNF, L: 130 mm 1 spacer 1 tube lubricant 1 HSS co pilot drill (multi step drill) 1 robust plastic storage case	80000	1
Punch driver set PRO 16-32	1 hand hydraulic punch driver (weight: 4.4 lb) 1 draw stud Ø 9.5 mm 3/8" UNF to Ø 19 mm (3/4" UNF), L: 110 mm 1 draw stud Ø 19 mm (3/4" UNF), L: 130 mm 1 spacer 1 tube lubricant 1 HSS co pilot drill (multi step drill) 1 each knockout punch M16 M20 M25 M32 1 robust plastic storage case	80005	1
Punch driver set PRO 16-63	1 hand hydraulic punch driver (weight: 4.4 lb) 1 draw stud Ø 9.5 mm (3/8" UNF) to Ø 19 mm (3/4" UNF), L: 110 mm 1 draw stud Ø 19 mm (3/4" UNF), L: 130 mm 1 spacer 1 tube lubricant 1 HSS co pilot drill (multi step drill) 1 each knockout punch M16 M20 M25 M32 M40 M50 M63 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 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 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 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 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 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, aluminum 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. Center punches are integrated in the die for exact drilling of mounting holes.

The punches are for hydraulic operation only.

Advantages & Benefits

- Center 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

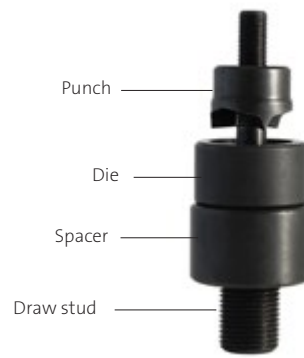
Hydraulic punch driver 186

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, aluminum 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 UNF Ø	Order No.	PU
Punch M16	16.2 mm	2 mm	3/8"	80020	1
Punch M16 for stainless steel V2A	16.2 mm	2 mm	3/8"	80120	1
Punch M20	20.4 mm	2 mm	3/8"	80021	1
Punch M20 for stainless steel V2A	20.4 mm	2 mm	3/8"	80121	1
Punch M25	25.4 mm	2 mm	3/8"	80022	1
Punch M25 for stainless steel V2A	25.4 mm	2 mm	3/8"	80122	1
Punch M32	32.5 mm	3 mm	3/4"	80023	1
Punch M32 for stainless steel V2A	32.5 mm	2 mm	3/4"	80123	1
Punch M40	40.5 mm	3 mm	3/4"	80024	1
Punch M40 for stainless steel V2A	40.5 mm	2 mm	3/4"	80124	1
Punch M50	50.5 mm	3 mm	3/4"	80025	1
Punch M50 for stainless steel V2A	50.5 mm	2 mm	3/4"	80125	1
Punch M63	63.5 mm	3 mm	3/4"	80026	1
Punch M63 for stainless steel V2A	63.5 mm	2 mm	3/4"	80126	1
Punch M75	75.5 mm	2 mm	19 mm	80029	1
Punch M85	86 mm	2 mm	19 mm	80030	1
Punch PG 16	22.5 mm	3 mm	9.5 mm	80027	1
Punch PG 16 with twist protection notch	22.5 mm + 3 mm detent	3 mm	9.5 mm	80028	1
Punch PG 16 with twist protection notch, for stainless steel V2A	22.5 mm + 3 mm detent	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 M75/M85 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: aluminum

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

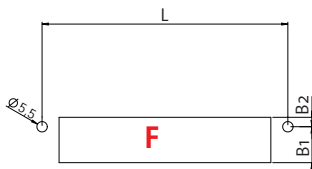
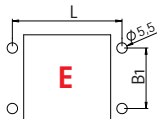
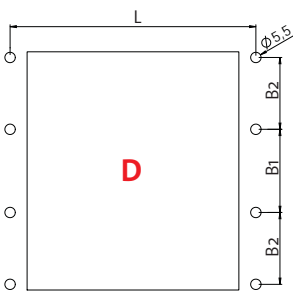
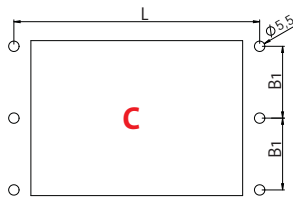
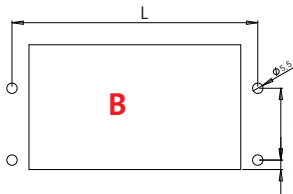
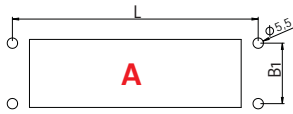
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Technical Data

Drilling Templates

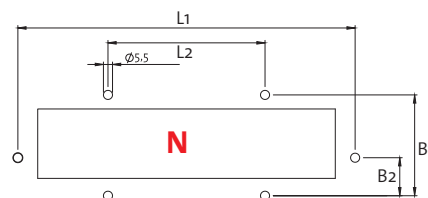
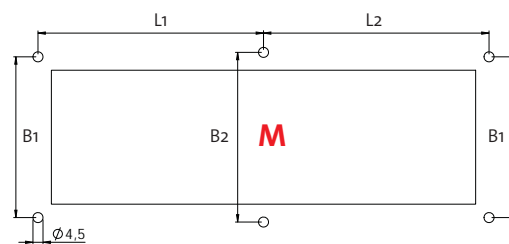
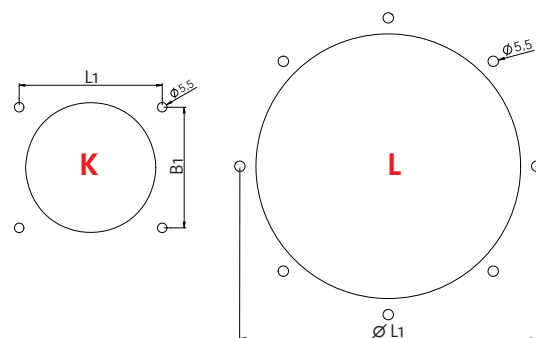
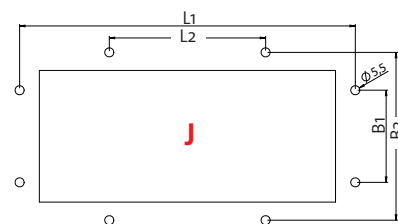
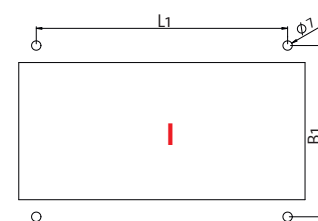
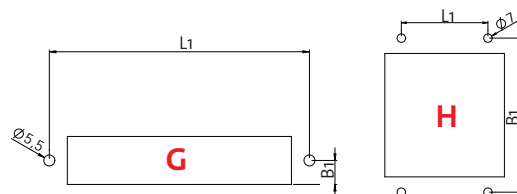


Type	Page	Cut-out type	Drilling template [mm]			Cut-out h x l [mm]
			L	B1	B2	
KEL(-U/-ER) 24 x KEL-FG A KEL-QUICK 24 KEL-BES 24 KEL-DPZ 24 x KEL-DPU 24 x	8 - 9 28 50 57 64 - 65 62 - 63	A	130	32	-	112 x 36
KEL-SNAP 24	37	A	130	32	-	max. 112 x 46
KEL(-U/-ER) 16 x KEL-QUICK 16 KEL-BES 16	10 - 11 50 - 51 57	A	103	32	-	86 x 36
KEL-SNAP 16	36	A	103	32	-	max. 86 x 46
KEL(-U/-ER) 10 x KEL-SNAP 10 KEL-BES 10	12 - 13 36 57	A	83	32	-	65 x 36
KEL 24 x-E KEL 16 x-E	22 25	B	130 103	38	5	112 x 66 86 x 66
KEL 24 x-MT KEL 16 x-MT	23 26	C	130 103	38	-	112 x 82 86 x 82
KEL 24 x-2MT KEL 16 x-2MT	24 27	D	130 103	44	38	112 x 126 86 x 126
KEL(-U/-ER)-B KEL-DPZ-B	14 - 15 66	E	58	32	-	46 x 46
KEL-SNAP-B KEL-QUICK-B	36 51	E	56	32	-	38 x 46
KEL-FG B	29	E	62.5	32	-	36 x 46
KEL(-ER)-E x KEL-FL x	16 - 17 30	F	E2: 58 E3: 83 E4: 103 E5: 130	19	5	E2: 43 x 24 E3: 65 x 24 E4: 86 x 24 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

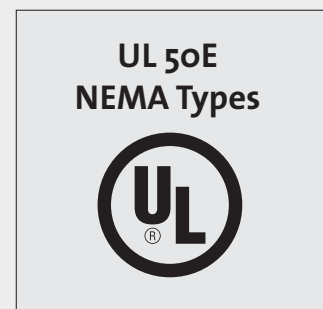
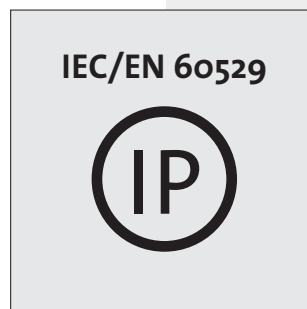
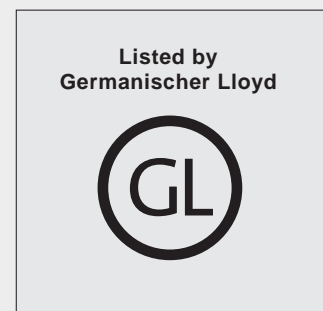
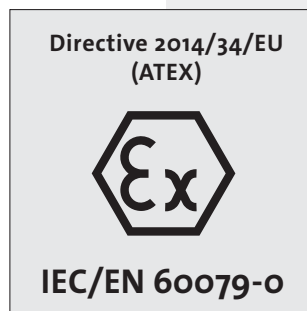
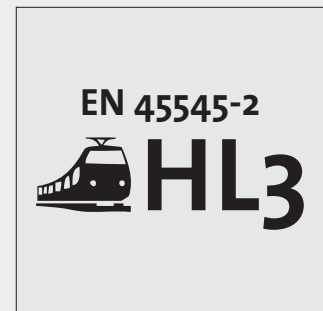
- **ISO 9001:2008**
Management certificate

Most of our products meet the following standards:

- **EN 45545-2**
European railroad 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

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
Product group 1:																		
KEL 24/16/10/-B	■						■		■	■	■	■	■	■	■		■	■
KEL 24-E/-MT/-2MT	■								■	■	■	■	■	■	■		■	■
KEL 16-E/-MT/-2MT	■										■	■	■	■	■		■	■
KEL-ER 24/16/10/-B			■					■	■		■	■	■	■	■		■	■
KEL-U 24/16/10/-B	■						■		■		■	■	■	■	■		■	■
KEL-E	■						■		■	■	■	■	■	■	■		■	■
KEL-ER-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

	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
Product	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
Product Group 2:																		
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			■				■		■	■	■	■	■	■	■		■	■
Product Group 3:																		
KZL										■	■	■	■	■	■		■	■
SF ZL										■	■	■	■	■	■		■	■
ZL										■	■	■	■	■	■		■	■
ZL-AB										■	■	■	■	■	■		■	■
ZL o3 o4 o5										■	■	■	■	■	■		■	■
Product Group 5:																		
CONFIX FWS-A/-B gy	■														■		■	■
CONFIX FWS-A/-B bk	■														■		■	■
Product Group 6:																		
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 labeled 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 standardized conditions of pressure and time
8	Protected against the effects of continuous immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer and the user, but are more severe than for number 7



Appendix

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 catalog 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 program we reserve, modify products from this catalog or to take out products from our product range. Therefore, technical information and products which are included in this catalog may differ – without prior notice.

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Appendix

Reference List 1|8

Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type
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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Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type
36206	94	SKL 12-16	36424	128	KAFM 4 single	36700	126	SC SK 4-13.5	36781.4	110	PFKZ2-A SKL 40
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

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Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type
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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Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type
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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Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type
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 0	48259.200	17	KEL-ER-E4 V2A
43758	71	KEL-DPZ 50 19 gy	45035	38	KVT 25 gy	46202	31	FT-2 0	49056	22	KEL 24 10-E
43760	71	KEL-DPZ 63 9 gy	45036	38	KVT 32 gy	46203	31	FT-3 0	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 0	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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Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type
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 13 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

Reference List 8|8 / Abbreviations

Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type
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 32 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	
Colors	
bk	black
gy	gray
nc	natural color
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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