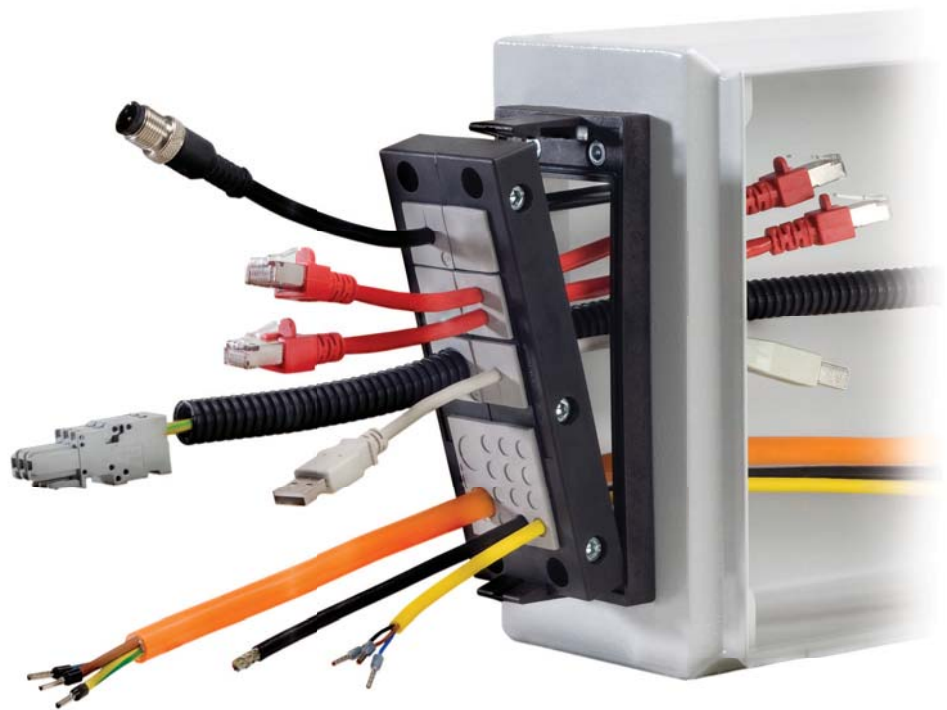


Cable Entry Systems EMC Solutions



innovative
creative
technology

Product program

A company of the icotek group



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

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

Ideas move the world ...

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

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

Trust our innovation.

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

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for pre-terminated cables

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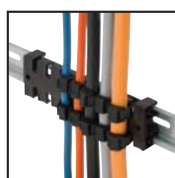
Product group 2



Cable entry systems
for standard cables

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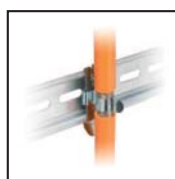
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Product group 1

Cable entry systems for entering pre-terminated cables

1



Product description

At a glance ...

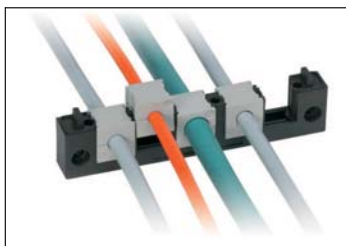
The patented cable entry system enables the user to enter, seal and provide strain relief for pre-terminated and standard cables.

The key feature of Icotek's patented system is the split frame and split inserts which provide quick, convenient and cost effective routing of pre-terminated and standard cables. The split frame and split insert alleviate the need to cut and re-wire pre-terminated cables. Therefore, cable warranties are unaffected.

Cables, pipes and conduits with various diameters can be routed due to the split frame and split inserts. When assembled correctly, the split inserts are held tightly within the frame. Correctly sizing the insert to the cable diameter ensures a high degree of protection (IP 54) and provides strain relief.

Benefits ...

1. **Split system**
Split inserts are positively guided into the frame. This ensures a tight seal around the cables and strain relief according to DIN-EN 50262.
2. **No new punch out tools required**
Drilling templates, as well as cut outs according to the standard dimensions for multi pole connectors (for example from Harting, Wieland).
3. **Tight connection**
Uniquely designed frame and inserts assures a tight, secure unit.
4. **Flexibility**
Standard inserts are designed to accommodate only one cable. Utilizing inserts that pass two and four cables greatly increases packing density.



Product group 1

Cable entry system for entering pre-terminated cables

Chapter content

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KEL 24

Cable entry frames



Split inserts

1

Product description

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

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

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

Advantages

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

Specification

Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	36 x 112 mm / page 120 121
Height KEL	17 mm

Accessories

KT Cable inserts	Page 22 26
KEL-SNAP SNAP frames	Page 17
KEL-EMC Cable collector	Page 90 92
KDR2 KDR Base plates	Page 98 103
FP Flanged plates	Page 104 107
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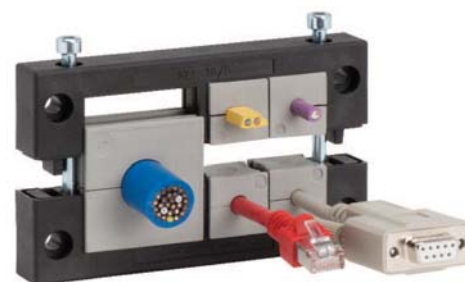
Description	Type	Order No.	Inserts KT small large	PU
-------------	------	-----------	-----------------------------	----

	KEL 24 10	42241	10 -	10
	KEL 24 7	42247	6 1	10
	KEL 24 5	42248	5 -	10
	KEL 24 4	42244	2 2	10

KEL 16 Cable entry frames



Split inserts



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

KEL 16 8	42168	8 -	10	
KEL 16 5	42165	4 1	10	
KEL 16 4	42164	4 -	10	
KEL 16 2	42162	- 2	10	

1

Product description

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

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

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

Advantages

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

Specification

Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	36 x 86 mm / page 120 121
Height KEL	17 mm

Accessories

KT Cable inserts	Page 22 26
KEL-SNAP SNAP frames	Page 17
KEL-EMC Cable collector	Page 90 92
KDR Base plates	Page 98 103
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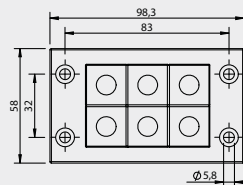
KEL 10

Cable entry frames



Split inserts

Description	Type	Order No.	Inserts KT		PU
			small	large	

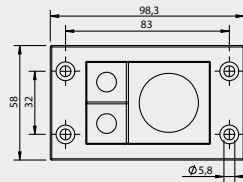


KEL
10 | 6

42216

6 | -

10



KEL
10 | 3

42212

2 | 1

10

1

Product description

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

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

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

Advantages

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

Specification

Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	36 x 65 mm / page 120 121
Height KEL	17 mm

Accessories

KT Cable inserts	Page 22 26
KEL-SNAP SNAP frames	Page 17
KEL-EMC Cable collector	Page 90 92

KEL - B

Cable entry frames



Split inserts



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

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

1

Product description

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

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

For routing cables and conduits up to 34 mm diameter.

Advantages

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

Specification

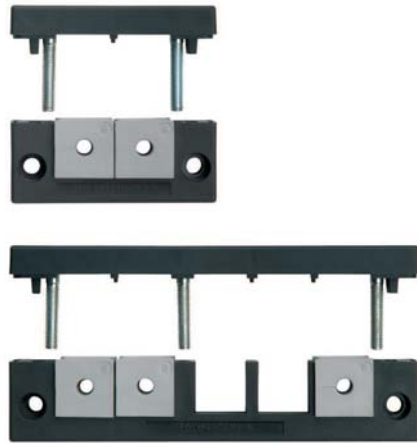
Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	46 x 46 mm / page 120 121
Height KEL	17 mm

Accessories

KT Cable inserts	Page 22 26
KEL-SNAP SNAP frames	Page 17
KEL-EMC Cable collector	Page 90 92
FP Flanged plates	Page 106 107

KEL - E

Cable entry frames



1

Product description

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

For inserting cables up to 17 mm diameter.

Advantages

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

Specification

Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Drilling template	see page 120 121
Height KEL	17 mm

Accessories

KT Cable inserts	Page 22 23 25
KEL-EMC Cable collector	Page 90 92

Description	Type	Order No.	Cut-out [mm]	Inserts KT small large	PU
	KEL-E2	42249	43 x 24	2 -	10
	KEL-E3	42258	65 x 24	3 -	10
	KEL-E4	42259	86 x 24	4 -	10
	KEL-E5	42250	112 x 24	5 -	10

KEL 24 - E Cable entry frames



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

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

1

Product description

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

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

Advantages

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

Specification

Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	62 x 112 mm / page 120 121
Height KEL	17 mm

Accessories

KT Cable inserts	Page 22 26
KEL-EMC Cable collector	Page 90 92

KEL 24 - MT

Cable entry frames



Description	Type	Order No.	Inserts KT small large	PU
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1

Product description

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

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

Advantages

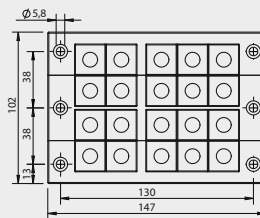
- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density
- Strain relief according DIN EN 50262

Specification

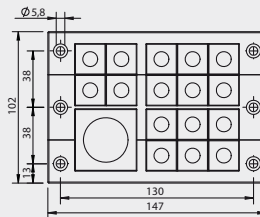
Material	Polyamide
Flame class	UL-94 V0, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	-40°C to +140°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	82 x 112 mm / page 120 121
Height KEL	17 mm

Accessories

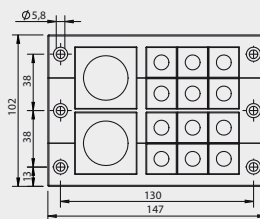
KT Cable inserts	Page 22 26
KEL-EMC Cable collector	Page 90 92



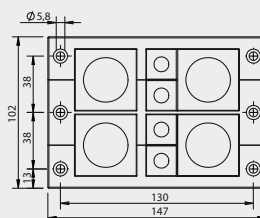
KEL 24 20-MT	42232	20 -	1
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KEL 24 17-MT	42224	16 1	1
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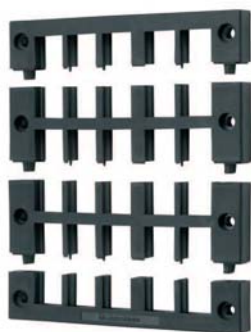
KEL 24 14-MT	42225	12 2	1
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KEL 24 8-MT	42221	4 4	1
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KEL 24 - 2MT

Cable entry frames



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

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

1

Product description

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

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

Advantages

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

Specification

Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	-40°C to +140°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	126 x 112 mm / page 120 121
Height KEL	17 mm

Accessories

KT Cable inserts	Page 22 26
KEL-EMC Cable collector	Page 90 92

KEL - FG

Flange enclosure



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

1

Product description

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

For routing cables and conduits up to 34 mm diameter.

Advantages

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

Specification

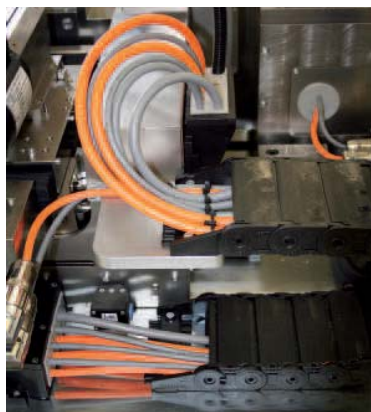
Material **ABS**
 Flame class **UL-94 Vo, self-extinguishing**
 Protection class **IP 54, with gasket and correct selection of the cable inserts**
 Temperature **- 40°C to + 140°C (static)**
 Properties **halogen-free, silicone-free**
 Cut-out dimensions **36 x 112 mm, page 120 | 121**

Accessories

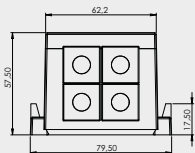
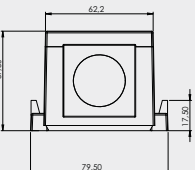
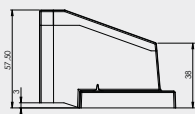
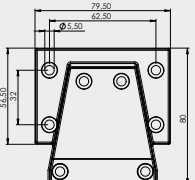
KT Cable inserts Page 22 | 26
 KEL-SNAP SNAP frames Page 17
 KEL-EMC Cable collector Page 90 | 92

	KEL-FG A10	42320	10 -	1
	KEL-FG A7	42322	6 1	1
	KEL-FG A4	42324	2 2	1

KEL - FG Flange enclosure



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

KEL-FG B4	42330	4 -	1	
KEL-FG B1	42332	- 1	1	  

1

Product description

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

For routing cables and conduits up to 34 mm diameter.

Advantages

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

Specification

Material	ABS
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	46 x 36 mm, page 120 121

Accessories

KEL Cable inserts	Page 22 26
KEL-SNAP SNAP frames	Page 17
KEL-EMC Cable collector	Page 90 92

KEL - SEAL kit

IP65 Assembly instruction for KEL



1

Product description

Assembly instruction for KEL cable entry frames using KEL-SEAL kit to achieve protection class IP65.

Different applications, materials and mounting surfaces will affect the IP integrity. Ensure the mounting surface is smooth and free of debris. Inserts must be properly sized to cable diameter. Each application should be thoroughly tested taking into consideration the above details.

KEL - SEAL kit (50g): Order No 61420

Assembly

The KEL-SEAL kit may be used only with the KEL cable entry frames and KT inserts listed below, protection class IP 65 is reached

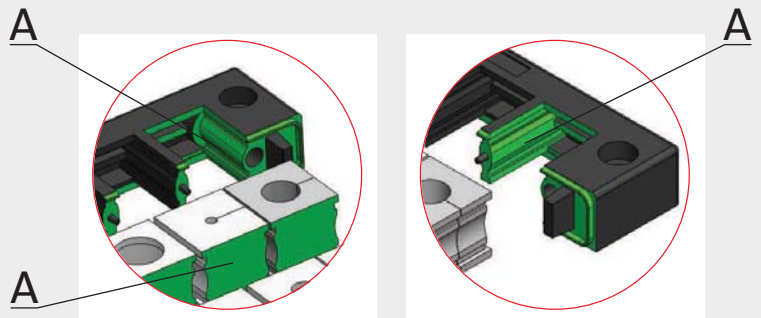
KEL Cable entry frames

- KEL 24 | 10
- KEL 16 | 8
- KEL 10 | 6
- KEL - B4
- KEL - E
- KEL - FG B4 / A10

KT Inserts

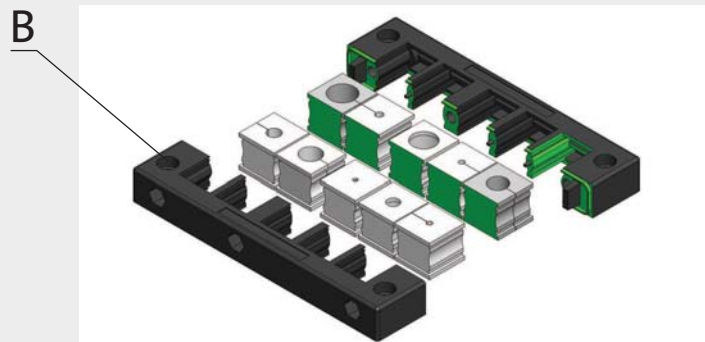
- Please use KT2 - KT14 inserts only
- Please use inserts only for one cable
- Please note the clamping ranges for the inserts given in the catalog

Assembly instruction



Grease the frame parts which come in contact with inserts as well as the frame parts contacting themselves. We recommend the icotek KEL-SEAL kit be applied to all areas marked with A in above figure (green shaded areas).

If two inserts contact in a frame, please ensure that the splitted side of the inserts never face to the same direction.



If two inserts make contact in a frame, please ensure that the split side of the inserts never face to the same direction.

KEL - SNAP

SNAP frames



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

KEL - SNAP B4	42038	KEL-B KEL-Quick B	46 x 38	10	
KEL - SNAP 10	42039	KEL 10	46 x 65	10	
KEL - SNAP 16	42040	KEL 16 KEL-Quick 16	46 x 85	10	
KEL - SNAP 24	42042	KEL 24 KEL-FG A KEL-Quick 24	46 x 112	10	
KEL - SNAP 24E	42044	KEL 24-E	71 x 112	1	
KEL - SNAP 24MT	42046	KEL 24-MT	89 x 112	1	

1

Product description

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

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

Advantages

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

Specification

Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Drilling template	see page 120 121

Accessories

KEL Cable entry frames	Page 6 15
KEL-QUICK Cable entries	Page 36
MP Module plates	Page 108
BPM-SNAP Blind plates	Page 112

KVT

Split cable glands



1

Product description

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

Polyamide locknuts are included in the shipment.

For routing SUB-D, DVI or PROFIBUS connectors in combination with the split cable glands KVT, special locknuts with cut-outs are required. The cut-out dimensions are listed on page 122.

* max. Cable diameter 15mm

Locknuts

Special locknuts with cut-outs are separate available.



KGM-SUB-D9 (Order No. 45105) fits SUB-D9 connectors.

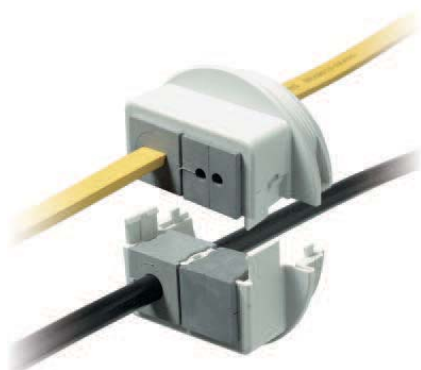
KGM-PB (Best.Nr. 45107) fits DVI and PROFIBUS connectors.

KGM-SUB-D25 (Order No. 45108) fits SUB-D25 connectors.

Description	Type	Order No.	Inserts KT small large	Thread Thread length	PU
	KVT 25*	45035	1 -	M25 x 1.5 Length: 14 mm	10
	KVT 32	45036	1 -	M32 x 1.5 Length: 14 mm	10
	KVT 32 + KGM-SUB-D9	45037	1 -	M32 x 1.5 Length: 14 mm	10
	KVT 40	45203	1 -	M40 x 1.5 Length: 14 mm	10
	KVT 40 + KGM-PB	45205	1 -	M40 x 1.5 Length: 14 mm	10

KVT

Split cable glands



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

KVT 50 2	45204	2 -	M50 x 1.5 Length: 14 mm	10	
KVT 50 2 + KGM-SUB-D25	45206	2 -	M50 x 1.5 Length: 14 mm	10	
KVT 63 1**	45211	- 1	M63 x 1.5 Length: 14 mm	5	
KVT 63 4**	45214	4 -	M63 x 1.5 Length: 14 mm	5	

1

Advantages

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

Specification

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

Accessories

KT Cable inserts	Page 22 26
KVT-EMC bracket	Page 93
Locknuts	Page 122

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

KVT - SNAP

Split cable glands



1

Product description

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

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

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

Assembly

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

Specification

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

Accessories

KT Cable inserts	Page 22 26
KVT-EMC bracket	Page 93
Locknuts	Page 122

Description	Type	Order No.	Inserts KT small large	Thread Thread length	PU
	KVT - SNAP 32	45130	1 -	M32 x 1.5 Length: 11 mm	10
	KVT - SNAP 40	45134	1 -	M40 x 1.5 Length: 11 mm	10
	KVT - SNAP 63 4*	45152	4 -	M63 x 1.5 Length: 11 mm	5
	KVT - SNAP 63 1*	45154	- 1	M63 x 1.5 Length: 11 mm	5
	KGM 32	52275	PA, grey	M32 x 1.5	10
	KGM 40	52276	PA, grey	M40 x 1.5	10
	KGM 63	52278	PA, grey	M63 x 1.5	5

KVT - W90

Split cable glands



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

KVT 32 - W90	45404	1 -	M32 x 1.5 Length: 11.5 mm	10	
GMT 32	31120	-	M32 x 1.5	10	
KVT 50 4 - W90	45424	4 -	M50 x 1.5 Length: 11.5 mm	5	
KVT 50 1 - W90	45414	- 1	M50 x 1.5 Length: 11.5 mm	5	
GMT 50	31140	-	M50 x 1.5	10	

1

Product description

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

Polyamide locknuts are included in the shipment.

Advantages

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

Specification

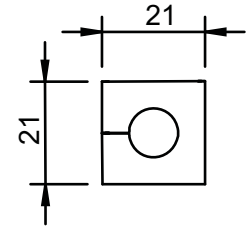
Material	Polycarbonate
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	- 30°C to + 100°C (static)
Properties	halogen-free, silicone-free
Colour	similar RAL 7035

Accessories

KT Cable inserts	Page 22 26
WST Conduit, split	Page 116
KVT-EMC bracket	Page 93
Locknuts	Page 122

KT

Inserts, small



1

Product description

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

- KEL - Page 6 - 13
- KEL-FG - Page 14-15
- KVT - Page 18 - 20
- KVT-W90 - Page 21

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

Assembly


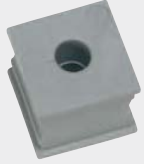



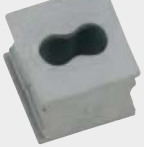
When installing the insert, the smooth side of the insert faces the middle of the cable entry frame.

Specification KT grey

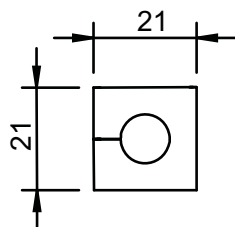
Material Elastomer
 Flame class UL-94 Vo, self-extinguishing
 Temperature - 40°C to + 90°C (static)
 Properties halogen-free, silicone-free

Specification KT black

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

Description	Type	Order No grey	Order No black	Clamping range	PU
 BTK	BTK	41251	41351	Blind insert	10
 KT	KT 2	39934	41302	2 - 3 mm	10
	KT 3	41203	41303	3 - 4 mm	10
	KT 4	41204	41304	4 - 5 mm	10
	KT 5	41205	41305	5 - 6 mm	10
	KT 6	41206	41306	6 - 7 mm	10
	KT 7	41207	41307	7 - 8 mm	10
	KT 8	41208	41308	8 - 9 mm	10
	KT 9	41209	41309	9 - 10 mm	10
	KT 10	41210	41310	10 - 11 mm	10
	KT 11	41211	41311	11 - 12 mm	10
	KT 12	41212	41312	12 - 13 mm	10
	KT 13	41213	41313	13 - 14 mm	10
	KT 14	41214	41314	14 - 15 mm	10
	KT 15	41215	41315	15 - 16 mm	10
	 KT tele	KTs 16	39901	39912	16 mm
KTs 17		39900	39913	17 mm	10
 KT tele	KT tele	39929	-	Telephone cable	10
 KT oval	KT oval	39930	-		10
	 KT S1	KT S1	39931	-	

KT Inserts, small



Type	Order No grey	Order No black	Clamping range	PU	Description
KT 2 2	39935	39936	2x \varnothing 2 mm	10	 KT 2 x
KT 2 3	39939	39940	2x \varnothing 3 mm	10	
KT 2 4	39906	39907	2x \varnothing 4 mm	10	
KT 2 5	41200	39904	2x \varnothing 5 mm	10	
KT 2 6	41201	39905	2x \varnothing 6 mm	10	
KT 2 7	41202	39916	2x \varnothing 7 mm	10	
KT 2 8	39917	39918	2x \varnothing 8 mm	10	
KT 4 2	39937	39938	4x \varnothing 2 mm	10	 KT 4 x
KT 4 3	39914	39915	4x \varnothing 3 mm	10	
KT 4 4	39909	39911	4x \varnothing 4 mm	10	
KT 4 5	39908	39910	4x \varnothing 5 mm	10	
KT 4 6	39932	39933	4x \varnothing 6 mm	10	
KT-ASI	39902	39903	1 ASI-cable	10	
KT-ASI2 rl	39922	39924	2 ASI-cables	10	
KT-ASI2 ll	39921	39923	2 ASI-cables	10	
					 KT ASI2 ll
KTRS 12	39990	-		10	
KTRS 13	39992	-		10	
KTRS 16	39996	-		10	

1

Product description

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

- KEL - Page 6 - 13
- KEL-FG - Page 14 - 15
- KVT - Page 18 - 20
- KVT-W90 - Page 21

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

Assembly

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

Specification KT grey

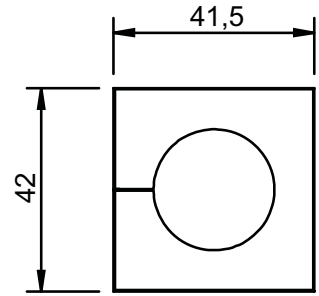
Material	Elastomer
Flame class	UL-94 V0, self-extinguishing
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free

Specification KT black

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

KT

Inserts, large



1

Product description

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

- KEL - Page 6 - 13
- KEL-FG - Page 14 - 15
- KVT / KVT-W90 - Page 18 - 21
- KEL 183 - Page 32

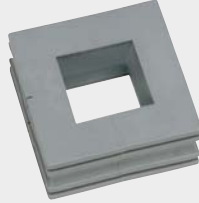

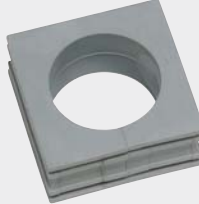
ATG adapter inserts provide the possibility to hold a small KT insert to reduce the clamping range down to 2 mm.

Specification KT grey

Material	Elastomer
Flame class	UL-94 Vo, self-extinguishing
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free

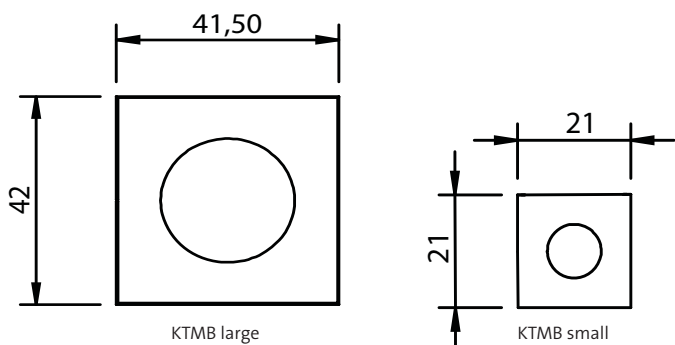
Specification KT black

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

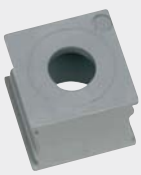



Description	Type	Order No. grey	Order No. black	Clamping range	PU
 ATG	ATG	41253	41353	Adapter insert	10
 BTG	BTG	41252	41352	Blind insert or 5 - 20 mm	10
 KT 28	KT 16	41216	41316	16 - 17 mm	10
	KT 17	41217	41317	17 - 18 mm	10
	KT 18	41218	41318	18 - 19 mm	10
	KT 19	41219	41319	19 - 20 mm	10
	KT 20	41220	41320	20 - 21 mm	10
	KT 21	41221	41321	21 - 22 mm	10
	KT 22	41222	41322	22 - 23 mm	10
	KT 23	41223	41323	23 - 24 mm	10
	KT 24	41224	41324	24 - 25 mm	10
	KT 25	41225	41325	25 - 26 mm	10
	KT 26	41226	41326	26 - 27 mm	10
	KT 27	41227	41327	27 - 28 mm	10
	KT 28	41228	41328	28 - 29 mm	10
	KT 29	41229	41329	29 - 30 mm	10
KT 30	41230	41330	30 - 32 mm	10	
KT 32	41232	41332	32 - 33 mm	10	
KT 34	41234	41334	33 - 34 mm	10	

KTMB

Inserts, multi-range



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

KTMB-A	41432	KT small	2.5 - 6.5 mm	10	 KTMB-D
KTMB-B	41434	KT small	4.0 - 7.5 mm	10	
KTMB-C	41436	KT small	6.5 - 10 mm	10	
KTMB-D	41438	KT small	9.5 - 13 mm	10	
KTMB-E	41440	KT small	13 - 16 mm	10	
					 Cross section KTMB
KTMB-G	41460	KT large	13 - 18 mm	10	 KTMB-I
KTMB-H	41465	KT large	18 - 23 mm	10	
KTMB-I	41470	KT large	23 - 28 mm	10	
KTMB-J	41475	KT large	28 - 33 mm	10	
KTMB-K	41480	KT large	2x 13 - 18 mm	10	 KTMB-K

1

Product description KTMB

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

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

Specification KTMB grey

Material	Elastomer
Flame class	UL-94 Vo, self-extinguishing
Temperature	- 40°C to+ 90°C (static)
Properties	halogen-free, silicone-free

Product description

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

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

Order-No. 39800



DT

Cable entry inserts



1

Product description

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

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

- KEL 24 | KEL 16 | KEL 10 | KEL-B - Page 6 - 9
- KEL 24 Extensions - Page 11 - 13
- KEL-FG - Page 14 - 15
- KEL 183 - Page 32

Advantages

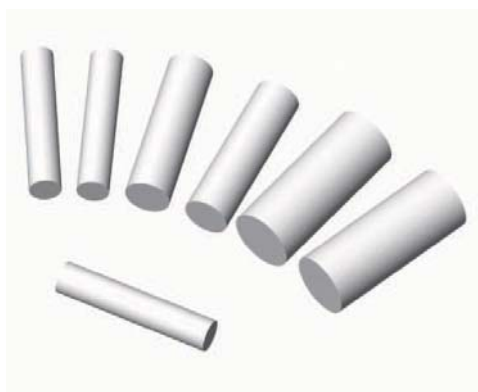
- Combination of routing pre-terminated and standard cables with one cable entry frame
- Enables a sub-assembly of cable harnesses
- High packing density

Specification

Material	Elastomer
Flame class	UL-94 V0, self-extinguishing
Protection class	IP 54
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free

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

ST Plugs



1

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

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

Product description

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

Perfect for applications where cables have been removed.

Advantages

- Sealing unused cable entries

Specification

Material	Polyamide, white
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54
Temperature	- 40°C to + 120°C
Properties	halogen-free, silicone-free

Accessories

KT + DT Cable inserts	Page 22+23 26
Cable entry plates DPZ	Page 44 49
Cable entry plates DP	Page 50 52

KT Service box

Service box for cable inserts



KT | Service box for cable inserts

1

Product description

Convenient - everything readily available!

The service box is perfect for installations and service calls.

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

Order No. 88001

Content

Cable inserts, small:

- 116 KT for cables 2 - 17 mm
- 5 BTK blind inserts
- 10 KTMB multi-range inserts
- 8 KT-ASI for ASI-Bus cables

Cable inserts, large:

- 25 KT for cables 16 - 34 mm
- 4 BTG blind inserts / ATG adapter inserts
- 5 KTMB multi-range inserts

Accessories:

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



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

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

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

KEL Accessories

Accessories for KEL cable entry systems



1



KEL-EMV-Z

KEL-EMV-Z cable assembly frames with strain relief for perfect cable routing through the cabinet wall.

Page 90



KDR-ESR

KDR-ESR are the next generation of base plates for perfect cable routing through the cabinet base.

Page 98 - 99



FP

FP flanged plates are pre-cut - no additional sheet metal work is necessary.

Page 104 - 107



KLKB

KLKB cable ties with hook-and-loop fasteners are reusable, e.g. to open and close cable bundles.

Page 113



WST

WST are split and two piece corrugated conduits for routing pre-terminated cables. Retrofitting carried out easily.

Page 116



KEL - FL

Cable entry for flat cables



1

Product description

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

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

Advantages

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

Specification

Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Drilling template	see page 120 121





Accessories

FT Cable inserts, flat	Page 31
KT Cable inserts, small	Page 22 23
KEL-EMC Cable collector	Page 90 92

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

FT Inserts for flat cables



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

1

Product description

The range of FT inserts are used to route flat cables. Suitable cable entry frames are the KEL-FL range (see page 30).

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

Advantages

- Routing of flat wires with various dimensions

Specification

Material	Elastomer
Flame class	UL-94 Vo, self-extinguishing
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free

Accessories

KEL-FL Cable entry frames Page 30

KEL 183

Cable entry frames



1

Product description

The new version of the split cable entry frame KEL 183 enables the user to route cables and tubes with a diameter up to 75 mm and to seal in accordance with IP 54.

For cables up to **34 mm** the cable inserts KT large can be used. With the split cable inserts, pre-terminated cables can be routed.

For cables up to **75 mm** we have created new inserts KTMB for KEL 183 (see page 33). These are not split and have a defined port for pushing the cable through.

Advantages

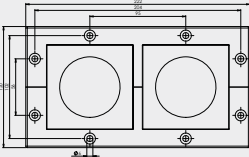
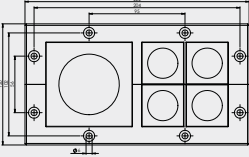
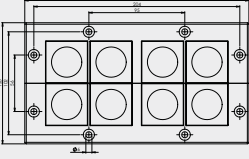
- Installation of cables up to 75 mm
- Inserts allow dynamic and flexible movement of rigid cables
- Retrofitting and maintenance can be carried out easily and quickly

Specification

Material **Polyamide**
 Flame class **UL-94 Vo, self-extinguishing**
 Protection class **IP 54 with gasket and correct selection of the cables**
 Temperature **- 40°C bis + 140°C (static)**
 Properties **halogen-free, silicone-free**
 Cut-out dimensions **see page 120 | 121**

Accessories

KTMB Cable inserts for KEL 183 **Page 33**
 DT/ KT Cable inserts **Page 24 | 26**

Description	Type	Order.No.	Inserts KT KT 183 KT large	PU
	KEL 183 2	47200	2 -	1
	KEL 183 5	47220	1 4	1
	KEL 183 8	47240	- 8	1

KTMB

Inserts for KEL 183



Type	Order.No. grey	Clamping range	PU
KTMB-O	41410	Blind insert	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

1

Product description

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

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

The blind insert KTMB-O is completely closed. After cutting the membrane (cable diameter minus 10 mm) it can be used also as a multi diameter insert for cables up to 55 mm

Spezifikation

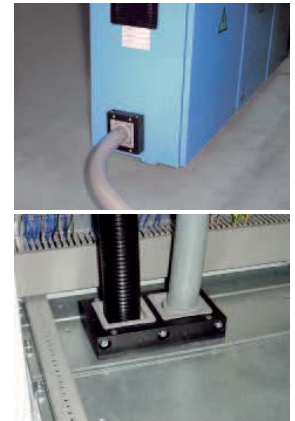
Material	Elastomer
Brandklasse	UL-94 Vo, self-extinguishing
Schutzart	IP 54
Temperatur	- 40°C bis + 90°C (static)
Eigenschaften	halogen-free, silicone-free

Accessories

KEL 183 Cable entry frames Page 32

KEL - JUMBO

Cable entry frames



1

Product description

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

The innovative insert design enables dynamic and flexible movement.

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

Advantages

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

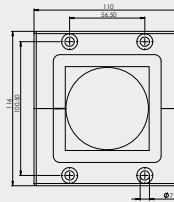
Specification

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

Accessories

KTF Cable inserts	Page 35
KDR2 Split base plates	Page 100 101
MP Module plates	Page 108

Description	Type	Order No.	Dimension length width height	PU
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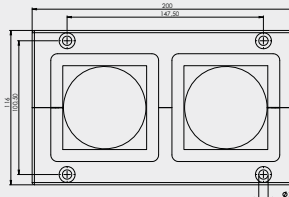


KEL - JUMBO 1

42360

110 x 116 x 35

1



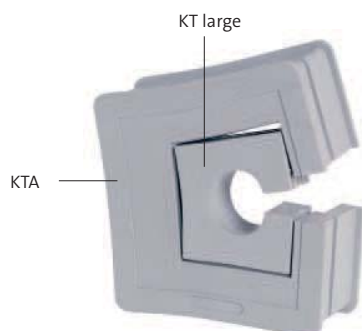
KEL - JUMBO 2

42350

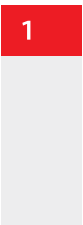
200 x 116 x 35

1

KTF Inserts for KEL-JUMBO



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



Product description

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

Suitable KEL-JUMBO cable entry frames, see page 34.

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

Specification

Material	Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free

Accessories

KEL - JUMBO Cable entry frames	Page 34
KT large	Page 24

KEL - QUICK

Cable entry frames



Alternative fastening:



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

1

Product description

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

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

Inserts of the QT range are used.

Advantages

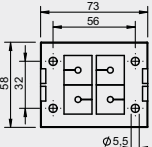
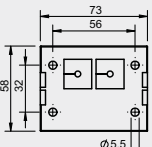
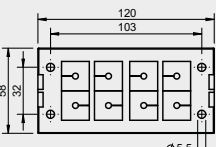
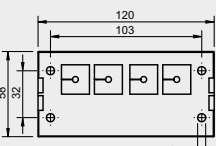
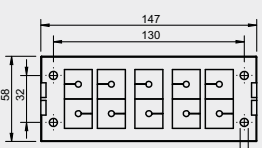
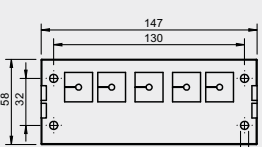
- Quick and safe assembly without using any tools or screws
- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and inserts

Specification

Material	Polyamide
Flame class	UL-94 V0, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature Properties	- 40°C to + 140°C (static)
Drilling template	halogen-free, silicone-free see page 120 121

Accessories

QT Cable inserts	Page 41
KEL-SNAP SNAP frames	Page 17
KEL- EMC Cable collector	Page 90 92

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

QVT

Split cable glands



Type	Order No.	Cable Inserts	Thread Thread length	PU	Description
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QVT 25	45702	1 x QT	M25 x 1.5 Length: 13 mm	10	
QVT 32	45711	1 x QT	M32 x 1.5 Length: 13 mm	10	
QVT 40 2	45715	2 x QT	M40 x 1.5 Length: 13 mm	10	
QVT 50 4	45722	4 x QT	M50 x 1.5 Length: 13 mm	10	

1

Product description

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

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

Advantages

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

Specification

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

Accessories

QT Cable inserts	Page 41
KVT-EMC bracket	Page 93
KGM locknut	Page 122

KEL - QTA

Cable entry frames



Description	Type	Order No. Type A	Order No. Type B	Cut-out [mm]	Cables	PU
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1

Product description

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

Advantages

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

Specification

Material: Elastomer
 Flame class: UL-94 Vo, self-extinguishing
 Protection class: IP 54, with correct selection of the cable inserts (QT single)
 Temperature: - 40°C to + 90°C (static)
 Properties: halogen-free, silicone-free

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

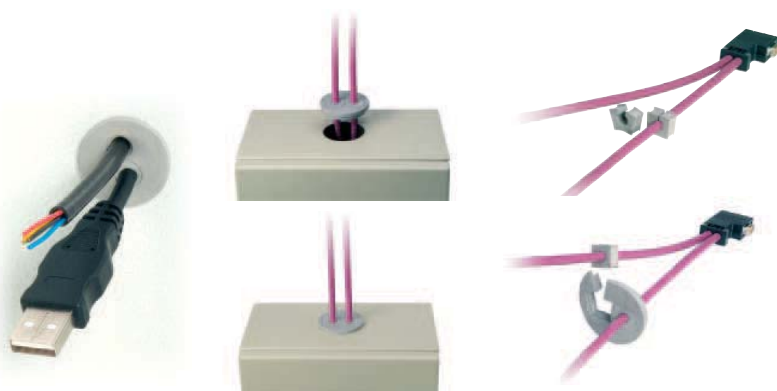
Accessories

QT Cable inserts: Page 41
 FP Flanged plates: Page 104 | 107
 KDRi base plates: Page 109

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

KEL - QTA | KEL - QTE

Cable entry frames



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

KEL-QTA 32	43632	43636	∅ 32	1x 3-15 mm	-	10	
KEL-QTA 50	43622	43626	∅ 50	2x 3-15 mm	-	10	
KEL-QTE 20 2.5	43412	-	∅ 20	1x 2.6-3.2 mm	1x max. 5.2 mm	10	
KEL-QTE 20 3	43413	-	∅ 20	1x 3.1-3.8 mm	1x max. 5.2 mm	10	
KEL-QTE 20 4	43414	-	∅ 20	1x 3.8-4.8 mm	1x max. 5.2 mm	10	
KEL-QTE 20 5	43415	-	∅ 20	1x 4.7-5.6 mm	1x max. 5.2 mm	10	

1

Product description

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

Advantages

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

Specification

Material	Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class (QTA)	IP 54, with correct selection of the cable inserts (QT single)
Temperature Properties	- 40°C to + 90°C (static)
Cut-out dimension	halogen-free, silicone-free metric standard sizes

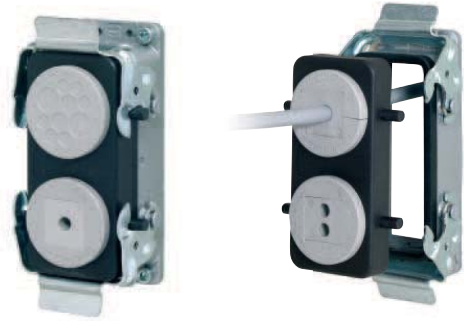
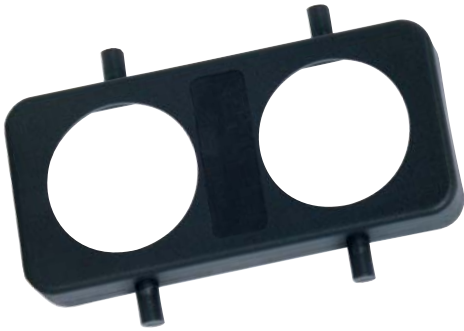
Type A:	for wall thickness 1.5 - 2.5 mm
Type B:	for wall thickness 2.8 - 4.0 mm

Accessories

QT Cable inserts	Page 41
KEL-AD Cap for attachment housing	Page 40

KEL - AD

Cap for attachment housing



Description	Type	Order No.	Fits for	PU
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1

Product description

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

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

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

Advantages

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

Specification

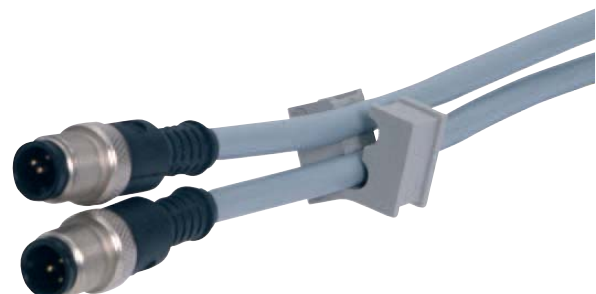
Material	Polyamide
Flmae class	UL-94 Vo, self-extinguishing
Protection class	IP 54
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free




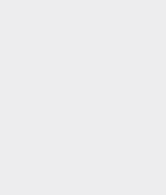
Accessories

KEL-QTA Cable entries	Page 39
KEL-DP Cable entry frames	Page 52

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

QT Inserts



Type	Order No. grey	Clamping range	PU	Description	
QTB	42540	Blind insert	10		
QT 3	42503	3 - 4 mm	10		
QT 4	42504	4 - 5 mm	10		
QT 5	42505	5 - 6 mm	10		
QT 6	42506	6 - 7 mm	10		
QT 7	42507	7 - 8 mm	10		
QT 8	42508	8 - 9 mm	10		
QT 9	42509	9 - 10 mm	10		
QT 10	42510	10 - 11 mm	10		
QT 11	42511	11 - 12 mm	10		
QT 12	42512	12 - 13 mm	10		
QT 13	42513	13 - 14 mm	10		
QT 14	42514	14 - 15 mm	10		
QT 2 3	42566	2x \varnothing 3 mm	10		
QT 2 4	42568	2x \varnothing 4 mm	10		
QT 2 5	42570	2x \varnothing 5 mm	10		
QT 2 5.5	42571	2x \varnothing 5,5 mm	10		
QT 2 6	42572	2x \varnothing 6 mm	10		
QT 2 6.5	42576	2x \varnothing 6,5 mm	10		
QT 2 7	42578	2x \varnothing 7 mm	10		
QT 4 3	42580	4x \varnothing 3 mm	10		
QT 4 4	42582	4x \varnothing 4 mm	10		
QT 4 4.5	42583	4x \varnothing 4,5 mm	10		
QT 4 5	42584	4x \varnothing 5 mm	10		
QT 4 5.5	42585	4x \varnothing 5,5 mm	10		
QT 4 6	42586	4x \varnothing 6 mm	10		
QT-ASI 1	42573	1x ASI-cable	10		
QT-ASI 2	42574	2x ASI-cable	10		
QT tele	42575	Telephone cable	10		

1

Product description

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

- KEL-Quick - Page 36
- QVT - Page 37
- KEL-QTA - Page 38 - 39

Assembly

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

Specification

Material	Elastomer
Flame class	UL-94 Vo, self-extinguishing
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free

Accessories

KEL-QUICK Cable entries	Page 36
QVT Cable glands	Page 37
KEL-QTA Cable entries	Page 38 39

Product group 2

Cable entry systems for entering non pre-terminated cables

Product description



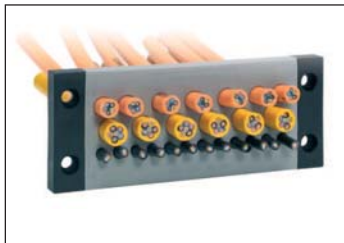
At a glance ...

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

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

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

2



Benefits ...

1. High packing density

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

2. Fast and easy assembly

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

3. No new punch out tools needed

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

4. Tight seal

Depending on the product a high sealing rate up to IP 66 can be achieved.

5. Flexibility

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

6. Customized solutions

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



Product group 2

Cable entry systems for routing non pre-terminated cables

Chapter content

Cable entry plates KEL-DPZ 24	Page	44 - 45
Cable entry plates KEL-DPZ-B	Page	46
Cable entry plates KEL-DPZ-E	Page	47
Cable entry plates KEL-DPZ round	Page	48 - 49
Cable entry plates KEL-DP 24	Page	50
Cable entry plates KEL-DP-E	Page	51
Cable entry plates KEL-DP round	Page	52
Cable entry inserts KEL-DPF	Page	53
Cable entry inserts KEL-JUMBO flex	Page	54
Cable entry inserts KEL-ULTRA flex	Page	55

2

KEL - DPZ 24

Cable entry plates



Gasket on the front.



Gasket and strain relief on the back.

Product description

KEL-DPZ entry plates are designed to route and seal standard cables (from 3.2mm – 22mm in diameter) in limited space.

Simply push standard cables through the thin membrane and it's immediately sealed (IP65 / IP66) and strain relieved.

The KEL-DPZ series consists of four different versions. The size DPZ 24 matches exactly the cut-out dimensions of 24-pole standard industrial connectors (pages 44-45).

For applications with limited space the new KEL-DPZ-B and KEL-DPZ-E series are ideal. Despite its compact outer dimensions, up to 25 cables from 3.2 to 22 mm can be routed (pages 46-47).

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 standard metric cable glands can be used (pages 48-49).

The assembly of the KEL-DPZ with cables or pneumatic hoses can be done within seconds. Simply put a small slit in the thin membrane and push the cable through.

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

Description	Type	Order No.	Number of cables	PU
	KEL - DPZ 24 14	43700	10x 3.2 - 6.5 mm 4x 16 - 22 mm	10
	KEL - DPZ 24 15	43720	15x 7.2 - 12 mm	10
	KEL - DPZ 24 16	43725	8x 3.2 - 6.5 mm 4x 5.0 - 9.7 mm 2x 9.0 - 16.2 mm 2x 16 - 22 mm	10
	KEL - DPZ 24 17	43705	6x 3.2 - 6.5 mm 6x 5.0 - 10.2 mm 5x 9.0 - 16.2 mm	10

KEL - DPZ 24 Cable entry plates



Type	Order No.	Number of cables	PU	Description
KEL - DPZ 24 25	43710	12x 3.2 - 6.5 mm 7x 4.8 - 9.7 mm 6x 7.5 - 12.0 mm	10	
KEL - DPZ 24 32	43730	3x 7.5 - 12.0 mm 8x 5.0 - 10.2 mm 21x 3.2 - 6.5 mm	10	
KEL - DPZ 24 42	43715	42x 3.2 - 6.5 mm	10	

Advantages

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

Specification

Material	Frame: Polyamide Sealing plate: Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 65
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	35 x 112 mm / page 120 121

Accessories

Plugs	Page 27
FP Flanged plates	Page 104 107

KEL - DPZ - B

Cable entry plates



Product description

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

With an area of only 45 x 45 mm, up to 25 cables can be easily routed and sealed according to IP65.

Simply put a small slit in the thin membrane and push the cable through. Once the cable is through the membrane, it is immediately sealed and strain relieved.

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

Advantages

- Space saving shape
- Dual sealing of cables according to IP 66
- High packing density
- Assembly within seconds

Specification

Material	Frame: Polyamide Sealing plate: Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 66
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	45 x 45 mm

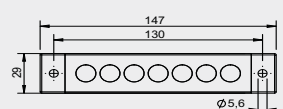
Description	Type	Order No.	Number of cables	PU
	KEL - DPZ B 13	43794	8x 3.2 - 6.5 mm 4x 5.0 - 10.2 mm 1x 16 - 22 mm	10
	KEL - DPZ B 17	43796	10x 3.2 - 6.5 mm 4x 5.0 - 10.2 mm 2x 7.5 - 12 mm 1x 9.0 - 16.2 mm	10
	KEL - DPZ B 25	43798	25x 3.2 - 6.5 mm	10

KEL - DPZ - E

Cable entry plates



Description	Type	Order No.	Number of cables	PU
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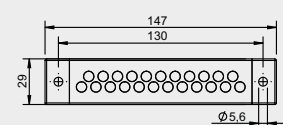


KEL - DPZ - E
112 | 7

43780

7x 7.5 - 12 mm

10



KEL - DPZ - E
112 | 23

43790

23x 3.2 - 6.5 mm

10

Product description

KEL-DPZ-E is designed for routing standard cables (without connectors).

With an area of only 20 x 112 mm, up to 23 cables can be easily routed and sealed according to IP65.

Simply put a small slit in the thin membrane and push the cable through. Once the cable is through the membrane, it is immediately sealed and strain relieved.

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

2

Advantages

- Space saving shape
- Dual sealing of cables according to IP 66
- High packing density
- Assembly within seconds

Specification

Material	Frame: Polyamide
	Sealing plate: Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 66
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	20 x 112 mm / page 120 121

KEL - DPZ round Cable entry plates



Gasket on the front.



Gasket and strain relief on the back.

Product description

KEL-DPZ entry plates are designed to route and seal standard cables (from 3.2mm – 22mm in diameter) in limited space.

Simply push standard cables through the thin membrane and it's immediately sealed (IP65 / IP66) and strain relieved.

The KEL-DPZ series consists of four different versions. The size DPZ 24 matches exactly the cut-out dimensions of 24-pole standard industrial connectors (pages 44 - 45).

For applications with limited space the new KEL-DPZ-B and KEL-DPZ-E series are ideal. Despite its compact outer dimensions, up to 25 cables from 3.2 to 22 mm can be routed (pages 46 - 47).

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 standard metric cable glands can be used (pages 48 - 49).

The assembly of the KEL-DPZ with cables or pneumatic hoses can be done within seconds. Simply put a small slit in the thin membrane and push the cable through.

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

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

KEL - DPZ round Cable entry plates



Type	Order No.	Number of cables	Thread metric	External diameter	Exceeds cut-out	PU
KEL - DPZ 63 9	43760	1x 3.2 - 6.5 mm 3x 5.0 - 10.2 mm 4x 9.0 - 16.2 mm 1x 16.0 - 22.2 mm	M 63	75 mm	8.0 mm	10
KEL - DPZ 63 13	43761	4x 3.2 - 6.5 mm 4x 5.0 - 10.2 mm 5x 9.0 - 16.2 mm	M 63	75 mm	8.0 mm	10
KEL - DPZ 63 35	43763	35x 3.2 - 6.5 mm	M 63	75 mm	8.0 mm	10

Advantages

- Assembly within seconds
- High packing density
- Dual sealing of cables according IP 66
- Automatic seal and strain relief for the cable
- Suitable for standard or metric cut-outs
- Polyamide locknuts are included in the shipment

Specification

Material	Thread frame: Polyamide
	Sealing plate: Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 66
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free
Thread length	14 mm
Cut-out dim.	metric standard sizes

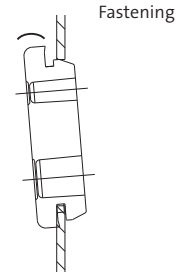
Accessories

FP Flanged plates
MP Module plates

Page 106 | 107
Page 108

KEL - DP 24

Cable entry plates



Product description

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

Advantages

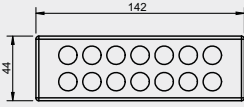
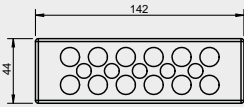
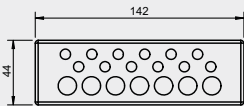
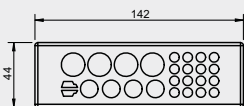
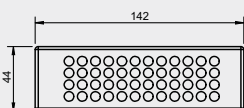
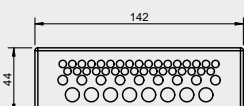
- Quick and easy assembly, no tools required
- High packing density
- Cost-effective
- For wall-thickness up to 1.5 - 4.0 mm

Specification

Material	Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 64
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	36 x 112 mm
Type A:	for wall thickness 1.5 - 2.5 mm
Type B:	for wall thickness 2.8 - 4.0 mm

Accessories

FP Flanged plates	Page 104 107
KDR1 Base plates	Page 109

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

KEL - DP - E

Cable entry plates



Type	Order No.	Cut-out mm	Number of cables	PU	Description
KEL - DP-E 46 7	43585	46 x 18	5x max. 8.3 mm 2x max. 6.5 mm	10	
KEL - DP-E 46 9	43587	46 x 18	8x max. 6.5 mm 1x max. 12.1 mm	10	
KEL - DP-E 86 13	43581	86 x 18	11x max. 8.3 mm 2x max. 6.5 mm	10	
KEL - DP-E 86 17	43583	86 x 18	16x max. 6.5 mm 1x max. 12.1 mm	10	
KEL - DP-E 112 16	43576	112 x 18	4x max. 6.5 mm 11x max. 8.3 mm 1x max. 12.1 mm	10	
KEL - DP-E 112 21	43578	112 x 18	16x max. 6.5 mm 4x max. 8.3 mm 1x max. 12.1 mm	10	
KEL - DP-S 69 8	43591	69 x 10 Edge radii Rz	8x max. 7.5 mm	10	

Product description

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

ST Plugs (page 27) can be used for sealing pierced membranes if cables are removed. A special fixing rib ensures a centered fit in the cut-outs.

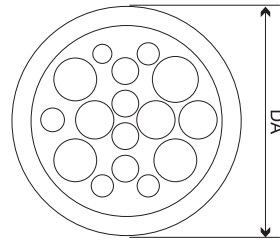
Advantages

- Quick and easy assembly, no tools required
- High packing density
- Cost-effective
- For wall-thickness up to 1.5 - 2.5 mm

Specification

Material	Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 64
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	36 x 112 mm

KEL - DP round Cable entry plates



Fastening



2

Product description

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

Advantages

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

Specification

Material	Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 65
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	metric standard sizes
Type A:	for wall thickness 1.5 - 2.5 mm
Type B:	for wall thickness 2.8 - 4.0 mm

Accessories

KEL-AD Cap for attachment housing	Page 40
FP Flanged plates	Page 106 107

Typ	Best.Nr. Typ A	Best.Nr. Typ B	Anzahl Leitungen	Ausbruch	Außendurch- messer DA	VE
KEL - DP 25 6	43531	-	4x max. 5.2 mm 2x max. 9.4 mm	ø 25	32 mm	10
KEL - DP 32 10	43532	43560	6x max. 5.2 mm 2x max. 6.4 mm 2x max. 9.4 mm	ø 32	38 mm	10
KEL - DP 50 9	43554	43568	5x max. 7.0 mm 4x max. 18 mm	ø 50	60 mm	10
KEL - DP 50 11	43555	43569	7x max. 7.2 mm 3x max. 11.2 mm 1x max. 22.5 mm	ø 50	60 mm	10
KEL - DP 50 12	43551	43562	10x max. 9.2 mm 2x max. 11.2 mm	ø 50	60 mm	10
KEL - DP 50 16	43550	43564	4x max. 5.3 mm 5x max. 6.3 mm 3x max. 9.5 mm 4x max. 11.3 mm	ø 50	60 mm	10
KEL - DP 50 18	43553	43567	5x max. 5.3 mm 5x max. 6.3 mm 4x max. 7.2 mm 2x max. 6.0 mm 2x max. 4.0 mm	ø 50	60 mm	10
KEL - DP 50 20	43552	43566	16x max. 6.3 mm 4x max. 9.3 mm	ø 50	60 mm	10
KEL - DP 50 35	43556	43570	35x max. 5.2 mm	ø 50	60 mm	10

KEL - DPF Cable entry inserts



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

Product description

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

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

Cutting of DPF inserts:

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

Advantages

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

Specification

Material	Thread frame: Polyamide Pyramid: Elastomer
Flame class	UL-94 VO, self-extinguishing
Protection class	IP 66
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free
Thread length	14 mm
Cut-out dimensions	metric standard sizes

Accessories

MP Module plates

Page 108

KEL - JUMBO flex

Cable entry inserts



Description	Type	Order No.	Clamping range	PU
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Product description

The KEL-JUMBO flex is a flexible cable entry system for standard cables with a diameter range from 27 - 68 mm.

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

Cutting of KEL-JUMBO flex inserts:

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

Advantages

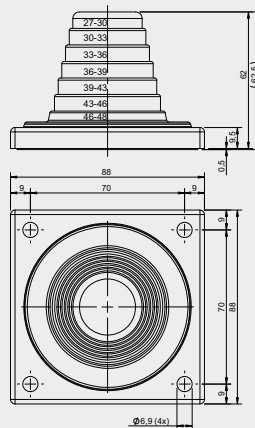
- Assembly within seconds
- Inserts allow dynamic and flexible movement of rigid cables
- Small installation dimensions (88 x 88 mm)

Specification

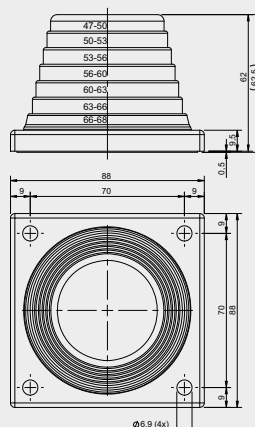
Material	Frame: Polyamide Inserts: Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 65
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	round, \varnothing -cable + 20%

Accessories

MP Module plates	Page 108
BP Blind plates	Page 110



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 inserts



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

After inserting the cable or conduit, the KEL-ULTRA flex is quickly and easily mounted with the metal ring and screws. The metal ring enables a circular fixing and sealing of the insert at the enclosure wall. The metal ring is supplied with each KEL-ULTRA flex.

Advantages

- Assembly within seconds
- Inserts allow dynamic and flexible movement of rigid cables
- Protection class IP66

Specification

Material	Insert: Elastomer Fixing metal ring: Steel, zinc-plated Blind plate: Steel, zinc-plated
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 66 (when fastened with 8 screws)
Temperature	- 40°C to + 90°C (static)
Properties	halogen-free, silicone-free
Cut-out dimension	ø-cable + 30%, max. ø 140mm

Accessories

MP Module plates	Page 108
BP Blind plate	Page 111

Product group 3

Strain relief systems



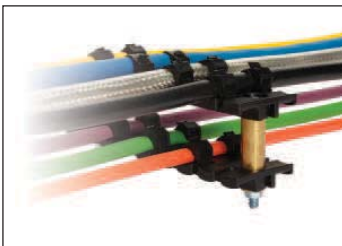
Product description

At a glance ...

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

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

3



Benefits ...

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

Product group 3

Strain relief systems

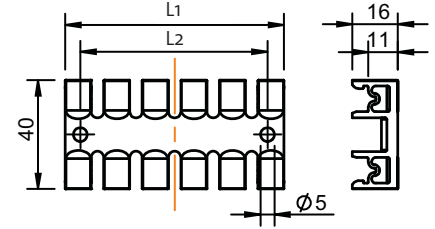
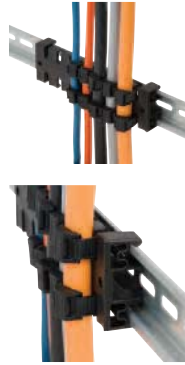
Chapter content

Strain relief plates KZL - for DIN rails shape H and shape C	Page	58
Strain relief plates SF ZL for DIN rails shape H	Page	59
Strain relief plates ZL - for screw assembly	Page	60
Strain relief plates ZL-AB with aluminium bushings	Page	61
Strain relief plates ZL 03 / ZL 04 / ZL 05	Page	62
Distance bushing DH - for multilayer mounting	Page	63
Shield plates ZL SB-EMC	Page	64
Accessories KB - cable ties and pliers	Page	65

3

KZL

Strain relief plates



Product description

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

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

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

Advantages

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

Specification

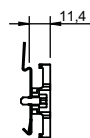
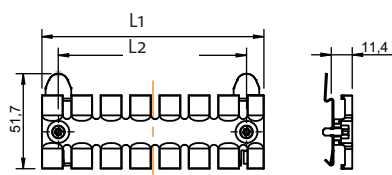
Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free

Accessories

KB Cable ties	Page 65
DIN rails	Page 77

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

SF | ZL Strain relief plates



Type	Order No.	Length L1	Length L2	No. of teeth	PU
SF ZL 39	32351	38.5 mm	19.5 mm	3	10
SF ZL 60	32352	59.5 mm	43.5 mm	4	10
SF ZL 70	32353	69.1 mm	43.5 mm	5	10
SF ZL 87	32354	86.5 mm	68.0 mm	6	10
SF ZL 103	32355	102.5 mm	84.0 mm	7	10
SF ZL 121	32356	121.0 mm	102.5 mm	8	10
SF ZL 140	32357	139.5 mm	121.0 mm	9	10
SF ZL 180	32358	180.0 mm	157.0 mm	12	10

Product description

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

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

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

Advantages

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

Specification

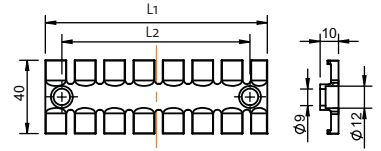
Material	ZL: Polyamide
Flame class	SF-foot: Spring steel
Temperature	UL-94 Vo, self-extinguishing
Properties	- 40°C to + 140°C (static) halogen-free, silicone-free

Accessories

KB Cable ties	Page 65
DIN rails	Page 77

ZL

Strain relief plates



Product description

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

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

For multilayer installation please use distance bushings, see page 59.

3

Advantages

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

Specification

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

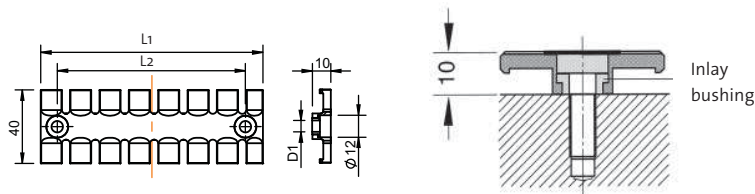
Accessories

DH Distance bushings	Page 63
KB Cable ties	Page 65

Type	Order No.	Length L1	Length L2	No. of teeth	PU
ZL 39	32222	38.5 mm	19.5 mm	3	10
ZL 60	32224	59.5 mm	43.5 mm	4	10
ZL 70	32226	69.1 mm	43.5 mm	5	10
ZL 87	32228	86.5 mm	68.0 mm	6	10
ZL 103	32230	102.5 mm	84.0 mm	7	10
ZL 121	32232	121.0 mm	102.5 mm	8	10
ZL 140	32234	139.5 mm	121.0 mm	9	10
ZL 180	32236	180.0 mm	157.0 mm	12	10

ZL - AB

Strain relief plates



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

Product description

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

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

Advantages

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

Specification

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

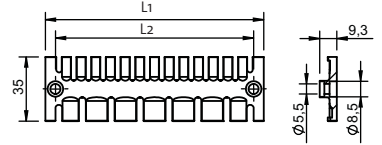
Accessories

KB Cable ties

Page 65

ZL 03 | 04 | 05

Strain relief plates



Product description

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

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

3

Advantages

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

Specification

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

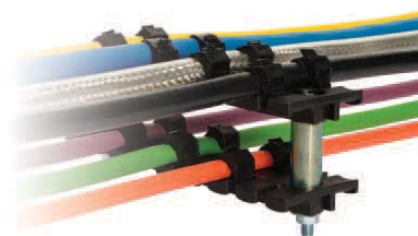
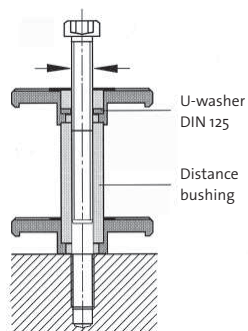
Accessories

DH Distance bushings Page 63
 KB Cable ties Page 65

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

DH

Distance bushings



Type	Order No.	Fits for	Length	Diameter		PU
				inner	outer	
DH 30	32251	ZL 03 04 05	30 mm	5.2 mm	7.0 mm	10
DH 32	32252	ZL	32 mm	6.2 mm	12.0 mm	10

Product description

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

Advantages

- Increase of packing density

Specification

Material Aluminium

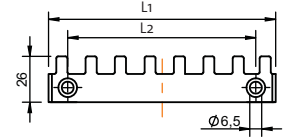
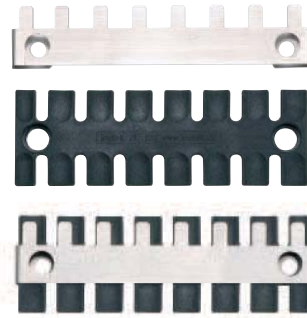
Accessories

ZL Strain relief plates

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ZL | SB - EMC

Shield plate for strain relief plates



Product description

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

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

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

ZL strain relief plates sold separately.

3

Specification

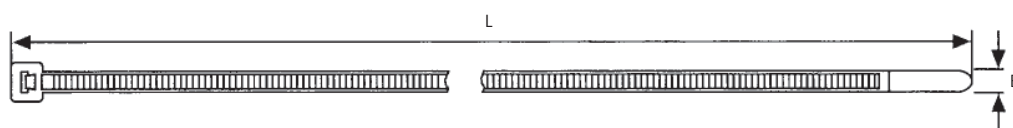
Material	
Shield plate	Stainless steel
ZL plate	Polyamide

Accessories

ZL Strain relief plates Page 60

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

KB Cable ties and pliers



Type	Order No.	Color	Length L	Width B	Bundling range	Tensile strength	PU
KB 28	61225	black	180 mm	9 mm	28 mm	350 N	100
KB 15	61115	natural	75 mm	2.2 mm	15 mm	60 N	100
KB 20	61120	natural	98 mm	2.5 mm	20 mm	60 N	100
KB 22	61125	natural	135 mm	2.6 mm	22 mm	80 N	100
KB 25	61130	natural	140 mm	3.6 mm	25 mm	130 N	100
KB 30	61135	natural	160 mm	4.5 mm	30 mm	180 N	100
KB 45	61140	natural	178 mm	4.8 mm	45 mm	220 N	100
KB 50	61145	natural	200 mm	2.9 mm	50 mm	80 N	100
KB 55	61150	natural	200 mm	4.8 mm	50 mm	220 N	100
KB 75	61155	natural	290 mm	4.8 mm	75 mm	220 N	100
KB 100	61160	natural	360 mm	4.8 mm	100 mm	220 N	100
KB 20	61215	black	98 mm	2.5 mm	20 mm	60 N	100
KB 25	61220	black	140 mm	3.6 mm	25 mm	130 N	100
KB 30	61230	black	160 mm	4.5 mm	30 mm	180 N	100
KB 45	61235	black	178 mm	4.8 mm	45 mm	220 N	100
KB 55	61240	black	200 mm	4.8 mm	50 mm	220 N	100
KB 75	61245	black	290 mm	4.8 mm	75 mm	220 N	100
KB 100	61250	black	360 mm	4.8 mm	100 mm	220 N	100
KBW 9	61300	Processing tool for cable ties					1

Product description

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

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

Specification KB 28

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

Specification KB natural

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

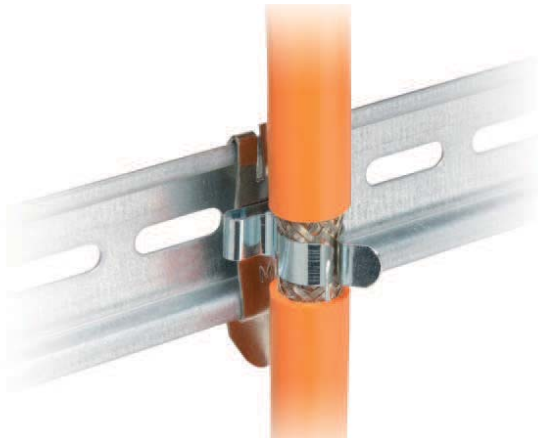
Specification KB black

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

Product group 4

EMC Innovations

Product description

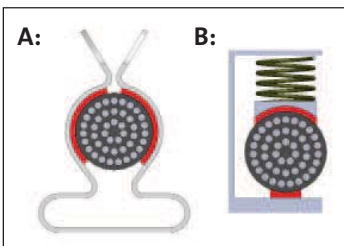


At a glance ...

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

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

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



Benefits ...

1. Flexible

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

2. Fast and tool free assembly

Strip the cable shield - press in - ready.

3. Secure hold

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

4. Large contact area

The SKL shield clamps offer a large contact area to the cable shield (see picture A). In comparison to conventional shield clamps we can achieve a up to 50% higher contact area when using the SKL line. The specified clamping range can be exceeded up to 10%.

5. Greatly reduces high frequency interferences

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

Details can be supplied on request.

Product group 4

EMC Innovations

Chapter content

Shield clamps for DIN rail shape H SFZ SKL / SF SKL / SFS SKL	Page	68 - 70
EMC Service box Assortment of SKL shield clamps	Page	71
Shield clamps for screw fixing LFZ SKL / LF SKL	Page	72 - 73
Shield clamps for bus bar PFZ SKL / PF SKL / busbar 10x3 / PFS SCL	Page	74 - 76
DIN rails / Bus bar HS / SSK	Page	77
Supports for DIN rails and bus bars MF - Supports	Page	78
Clamp assembly and design tool Design tool	Page	79
RLFZ - EMC Clamp assembly with strain relief	Page	80
SF RLFZ - EMC Clamp assembly for DIN-rails	Page	81
RLF - EMC Clamp assembly	Page	82
EMC - Terminal clamp STFZ SKL	Page	83 - 85
Variety of supportors Customized supportors	Page	86
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Shield clamps SK / SKS	Page	88 - 89
Cable assembly KEL-EMC / KVT-EMC / KAFM	Page	90 - 94
Accessories Stripping tools	Page	95

SFZ | SKL

EMC Shield clamps



Product description

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

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

For assembly on 35 mm DIN rails.

Advantages

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

Specification

Material

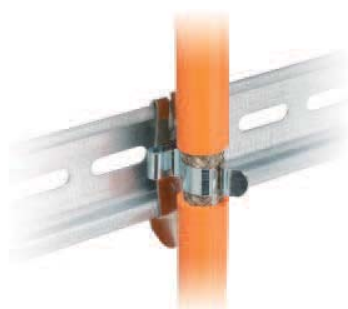
SKL 1.5-3 / SKL 3-6 **Stainless steel zinc-plated**
 from SKL 6-8 **Spring steel zinc-plated**
 SF- / SFZ-foot **Spring steel**

Accessories

EMC - Servicebox Page 71
 DIN rail Page 77
 Stripping tool Page 95
 Cable ties Page 65

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

SF | SKL EMC Shield clamps



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

Product description

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

Simple to use and effective shielding of cables.

For assembly on 35 mm DIN rails.

Advantages

- Optimal contact of the cable shield
- Simple and tool-free assembly
- Permanent and continuous spring pressure on the cable shield - adjustment of the pressure is not necessary
- Space saving by an optimized arrangement
- Vibration-proof, maintenance free

Specification

Material	
SKL 1.5-3 / SKL 3-6	Stainless steel zinc-plated
from SKL 6-8	Spring steel zinc-plated
SF-foot	Spring steel

Accessories

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SFS | SKL

EMC Shield clamps



Product description

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

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

Advantages

- High packing density
- Simple and tool-free assembly
- Permanent and continuous pressure on the cable shield - adjustment of the spring pressure is not necessary
- Optimal contact of the cable shielding
- Vibration-proof, maintenance free

Specification

Material

SKL 1.5-3 / SKL 3-6 **Stainless steel zinc-plated**
 from SKL 6-8 **Spring steel zinc-plated**
 SFS-foot **Spring steel**

Accessories

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 Stripping tool Page 95

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

EMC Service box



EMC | Service box for SKL - EMC shield clamps

Product description

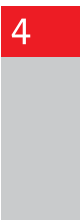
Always the suitable EMC clamp readily available.

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

Order No. 88002

Content

SKL for TS35 - DIN rails:	
Typ SF SKL - sizes: 1.5 - 29 mm	7 x SKL
Typ SFZ SKL - sizes: 1.5 - 11 mm	11 x SKL
Typ SFS SKL - sizes: 1.5 - 8 mm	6 x SKL
SKL for assembly on subplates:	
Typ LF SKL - sizes: 1.5 - 29 mm	11 x SKL
Typ LFZ SKL - sizes: 1.5 - 29 mm	15 x SKL
SKL for 10 x 3 busbar:	
Typ PF SKL - sizes: 1.5 - 29 mm	12 x SKL
Typ PFZ SKL - sizes: 1.5 - 11 mm	4 x SKL
EMC - Accessories:	
RLFZ - clamp assembly 5x SKL	1 piece
KAFM 4 - Cable collector	1 piece
ZL 60 SB - Shield plate for strain relief plates	1 piece



LFZ | SKL

EMC Shield clamps



Product description

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

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

Shield clamps are easily attached to mounting plates via screw.

Advantages

- Integrated strain relief
- Optimal contact of the cable shielding
- Simple and tool-free assembly
- Permanent and continuous pressure on the cable shield - no adjustment of the spring load required
- Vibration-proof, maintenance free

Specification

Material

SKL 1.5-3 / SKL 3-6 **Stainless steel zinc-plated**
 from SKL 6-8 **Spring steel zinc-plated**
 LFZ-foot **Steel, galvanically zinc-plated**
Fixing hole 4.1 mm for screw M4

Accessories

EMC - Servicebox Page 71
 Stripping tool Page 95
 Cable ties Page 65

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

LF | SKL EMC Shield clamps



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

Product description

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

Shield clamps are easily attached to mounting plates via screw.

Advantages

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

Specification

Material

SKL 1.5-3 / SKL 3-6 **Stainless steel zinc-plated**
 from SKL 6-8LF- **Spring steel zinc-plated**
 foot **Steel, galvanically zinc-plated**
 Fixing hole 4.1 mm for screw M4

Accessories

EMC - Servicebox
 Stripping tool

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PFZ | SKL

EMC Shield clamps



Product description

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

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

Advantages

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

Specification

Material

SKL 1.5-3 / SKL 3-6	Stainless steel zinc-plated
from SKL 6-8	Spring steel zinc-plated
PFZ-foot	Spring steel
Busbar	Cu, tin-plated
	Current load 140 A

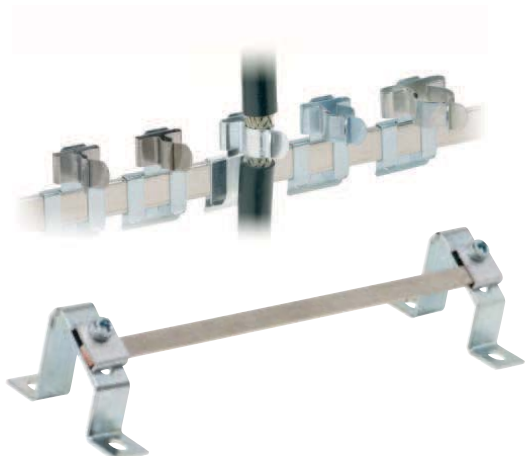
Accessories

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

PF | SKL

EMC Shield clamps for bus bar



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

PF SKL 1.5 - 3	36273	1.5 - 3.0 mm	10
PF SKL 3 - 6	36274	3.0 - 6.0 mm	10
PF SKL 6 - 8	36275	6.0 - 8.0 mm	10
PF SKL 9 - 11	36276	9.0 - 11 mm	10
PF SKL 12 - 16	36277	12 - 16 mm	10
PF SKL 17 - 22	36278	17 - 22 mm	10
PF SKL 23 - 29	36279	23 - 29 mm	10
Busbar 10 x 3 mm	36100	10 x 3 x 1,000 mm	1

Product description

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

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

Advantages

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

Specification

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

Accessories

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PFS | SCL

EMC Shield clamps



Product description

The new range of shield clamps PFS|SCL are designed for a quick and easy mounting by snapping onto 10x3 mm busbars. The very slim shape is ideal for applications with limited space.

Advantages

- Extremely slim shape
- Optimal contact of the cable shielding
- Simple and tool-free assembly
- Permanent and continuous spring load on the cable shield - no adjustment of the spring load required
- Cost effective solution

Specification

Material Spring steel, zinc-plated

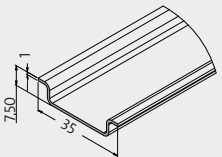
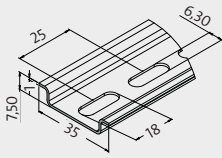
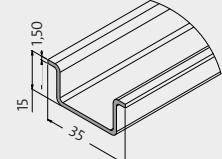
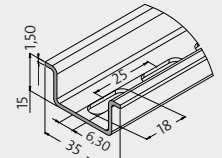
Accessories

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 Stripping tool Page 95

Type	Order No.	Shield diameter	PU
PFS SCL 1.5 - 3	36611	1.5 - 3.0 mm	10
PFS SCL 3 - 6	36612	3.0 - 6.0 mm	10

HS / SSK DIN rails / Bus bar



Type	Order No.	Size in mm	Description	PU
DIN rail 35 x 7,5 mm non perforated	36103	35 x 7,5 x 2.000*		1
DIN rail 35 x 7,5 mm perforated	36102	35 x 7,5 x 2.000*		1
DIN rail 35 x 15 mm non perforated	36105	35 x 15 x 2.000*		1
DIN rail 35 x 15 mm perforated	36104	35 x 15 x 2.000*		1
Busbar 10 x 3 mm	36100	10 x 3 x 1.000*		1

Product description

DIN-rail shape H, zinc-plated perforated or non perforated fits icotek EMC shield clamps SF | SKL, SFS | SKL und SFZ | SKL.
Busbar 10x3 mm, copper tin-plated, fits icotek EMC shield clamps PF | SKL and PFZ | SKL.
For mounting DIN-rails and busbars various supports are available, see page 78.

* Other length available on request

Specification

Material	Sheet metal, sendzimir plated
DIN rail	Cu, tin-plated
Bus bar	Current load 140 A

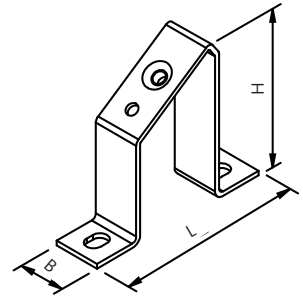
Accessories

MF Supports for DIN rails and bus bars	Page 78
EMC Shield clamps	Page 68 pp
KZL Strain relief plates	Page 58



MF

Supports for DIN rails and busbars



Product description

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

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

Advantages

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




Specification

Material Steel, galvanically zinc-plated

Accessories

Bus bar
Mounting clip Order No. 36150

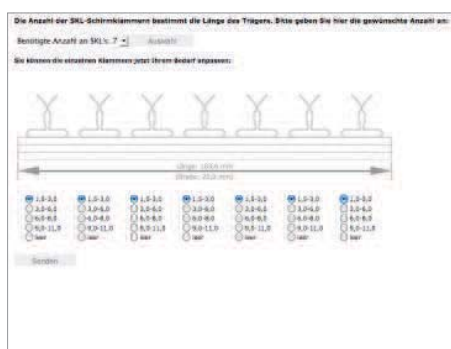
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Description	Type	Version	Order No. without Clip	Order No. with Clip	Dimension [L x B x H]	PU
Type A 	MF - A49	Type A	36056	36058	80 x 20 x 49 mm	10
	MF - A68	Type A	36064	36066	80 x 20 x 68 mm	10
	MF - A88	Type A	36072	36074	80 x 20 x 88 mm	10
Type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

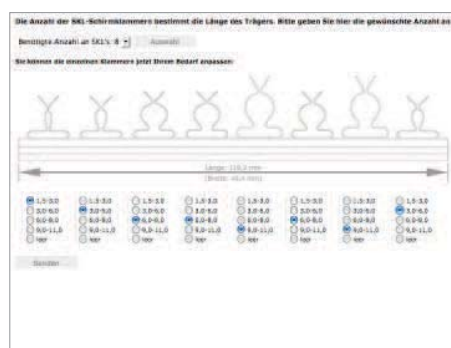


EMC | shield clamp design tool

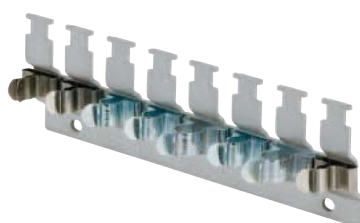
By using the EMC shield design tool (located at www.icotek.de) you can create an EMC shield clamp configuration specifically for your application. The following drawings are examples for configurations with 7 and 8 shield clamps.



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



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



Product description

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

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

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

We are willing to give you additional information regarding the extensive possibilities of this application. Our experienced and knowledgeable staff is available to assist you with a solution for your particular application.

Advantages

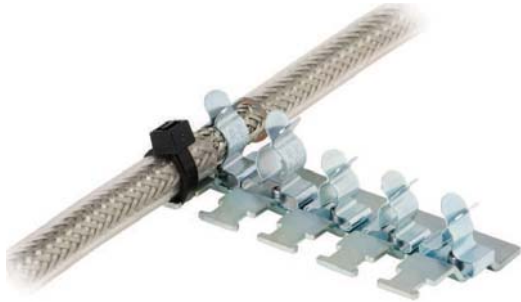
- User designed carrier configuration with SKL shield clamps
- Cost effective even for small quantities
- Design online at www.icotek.de

Specification

Material	
Clamp assembly	Stainless steel
SKL 1.5-3 / SKL 3-6	Stainless steel zinc-plated
from SKL 6-8	Spring steel zinc-plated

RLFZ

EMC Clamp assembly with strain relief



Product description

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

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

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

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

Advantages

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

Specification

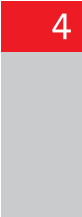
Material

SKL 1.5-3 / SKL 3-6 **Stainless steel zinc-plated**
 from SKL 6-8 **Spring steel zinc-plated**
 RLFZ-foot **Steel, galvanically zinc-plated**

Accessories

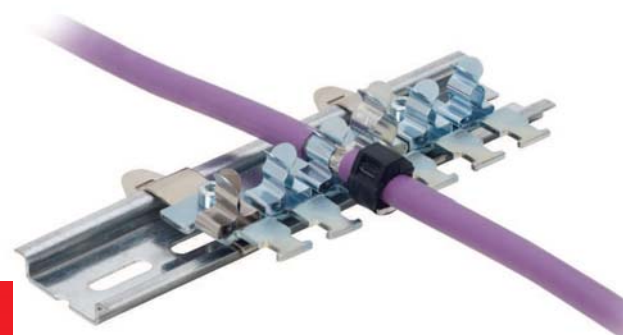
Stripping tool Page 95
 Cable ties Page 65

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



SF | RLFZ

EMC Clamp assembly with strain relief



Type	Order No. (unfitted)	Number of shield clamps	Length	Width	PU
SF RLFZ (x3)	38105	3x SKL	41.2 mm	44.4 mm	1
SF RLFZ (x4)	38110	4x SKL	56.8 mm	44.4 mm	1
SF RLFZ (x5)	38115	5x SKL	72.4 mm	44.4 mm	1
SF RLFZ (x6)	38120	6x SKL	88.0 mm	44.4 mm	1
SF RLFZ (x7)	38125	7x SKL	103.6 mm	44.4 mm	1
SF RLFZ (x8)	38130	8x SKL	119.2 mm	44.4 mm	1
SF RLFZ (x9)	38135	9x SKL	134.8 mm	44.4 mm	1
SF RLFZ (x10)	38140	10x SKL	150.4 mm	44.4 mm	1
SF RLFZ (x11)	38145	11x SKL	166.0 mm	44.4 mm	1
SF RLFZ (x12)	38150	12x SKL	181.6 mm	44.4 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 shielding clamps.

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

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

Advantages

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

Specification

Material

SKL 1.5-3 / SKL 3-6	Stainless steel zinc-plated
from SKL 6-8	Spring steel zinc-plated
RLFZ-foot	Steel, galvanically zinc-plated

Accessories

DIN rail	Page 77
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RLF

EMC Clamp assembly



Product description

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

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

The EMC shielding clamps as listed below are available to mount

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

Advantages

- High packing density due to optimized arrangement
- Possibility to configure custom specific EMC clamp assembly
- Online design tool for EMC Clamp assembly

Specification

Material

SKL 1.5-3 / SKL 3-6	Stainless steel zinc-plated
from SKL 6-8	Spring steel zinc-plated
RLF-foot	Stainless steel

Accessories

Stripping tool

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

STFZ | SKL EMC - Terminal clamp



Application STFZ | SKL terminal clamp

- **Bosch Rexroth**
IP20 Inline Module
- **Beckhoff Automation**
All EtherCAT terminals and KS/KL terminals. The terminals 4 and 8 must not be used for signal I/O.
- **PHOENIX CONTACT**
All terminals of the INLINE range. The terminals 1.4 and 2.4 must not be used for signal I/O.
- **Pilz GmbH**
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.

Further manufacturers upon request.

Product description

The EMC terminal clamps STFZ|SKL combines the functions strain relief, cable guidance and shielding of signal cables. Available in two version for 1 or 2 lines.
The STFZ2|SKL is used for analog I/O modules using two actuators / sensors.

The STFZ|SKL EMC terminal clamp is compatible to following bus modules:

STFZ | SKL

EMC - Terminal clamp, single



Product description

The STFZ | SKL EMC terminal clamp provides strain relief, cable guidance, and shielding for decentralized bus-modules (see compatibility table page 83).

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

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

Advantages

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

Specification

Material

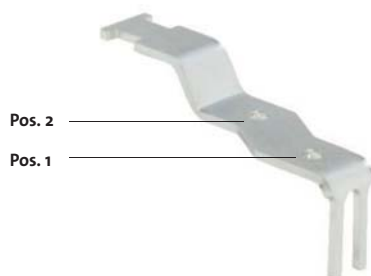
SKL 1.5-3 / SKL 3-6	Stainless steel zinc-plated
from SKL 6-8	Spring steel, zinc-plated
STFZ-foot	Spring steel

Accessories

Cable ties	Page 65
Stripping tool	Page 95

Type	Shield diameter	Order No.	PU
STFZ SKL 1.5 - 3.0	1.5 - 3.0 mm	37515	10
STFZ SKL 3 - 6	3 - 6 mm	37520	10
STFZ SKL 6 - 8	6 - 8 mm	37525	10
STFZ	EMC - terminal clamp single	37510	10

STFZ2 | SKL EMC - Terminal clamp, double



Type	Shield diameter Pos 1	Shield diameter Pos 2	Order No.	PU
STFZ2 SKL	Terminal clamp loose		37505	10
STFZ2 SKL 01	leer	1.5 - 3 mm	37505.01	10
STFZ2 SKL 02	leer	3 - 6 mm	37505.02	10
STFZ2 SKL 03	leer	6 - 8 mm	37505.03	10
STFZ2 SKL 10	1.5 - 3 mm	none	37505.10	10
STFZ2 SKL 11	1.5 - 3 mm	1.5 - 3 mm	37505.11	10
STFZ2 SKL 12	1.5 - 3 mm	3 - 6 mm	37505.12	10
STFZ2 SKL 13	1.5 - 3 mm	6 - 8 mm	37505.13	10
STFZ2 SKL 20	3 - 6 mm	none	37505.20	10
STFZ2 SKL 21	3 - 6 mm	1.5 - 3 mm	37505.21	10
STFZ2 SKL 22	3 - 6 mm	3 - 6 mm	37505.22	10
STFZ2 SKL 23	3 - 6 mm	6 - 8 mm	37505.23	10
STFZ2 SKL 30	6 - 8 mm	none	37505.30	10
STFZ2 SKL 31	6 - 8 mm	1.5 - 3 mm	37505.31	10
STFZ2 SKL 32	6 - 8 mm	3 - 6 mm	37505.32	10
STFZ2 SKL 33	6 - 8 mm	6 - 8 mm	37505.33	10

Product description

The STFZ|SKL EMC terminal clamp provides strain relief, cable guidance and shielding for decentralized bus-modules (see compatibility table page 83).
Version for analog I/O modules using two actuators / sensors.

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

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

Advantages

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

Specification

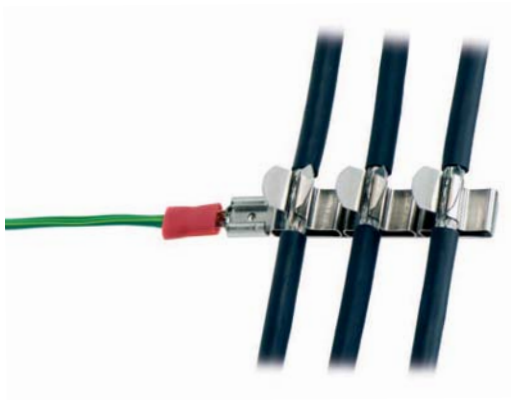
Material	
SKL 1.5-3 / SKL 3-6	Stainless steel zinc-plated
from SKL 6-8	Spring steel, zinc-plated
STFZ-foot	Spring steel

Accessories

Cable ties	Page 65
Stripping tool	Page 95

EMC

Customized solutions



EMC | Customized solutions

Product description

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

A wide range of standard clamp assemblies are already available (see pages 80 - 82).

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

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



4

Advantages

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

Specification

Material

Carrier	According to specification
SKL 1.5-3 / SKL 3-6	Stainless steel zinc-plated
from SKL 6-8	Spring steel zinc-plated

EMC Test results



Leakage and Impedence

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

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

Electrical impedance values:
- from 10 kHz to 100 MHz under 20 Ohm
- up to 1,000 MHz under 120 Ohm

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

Contact area

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

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

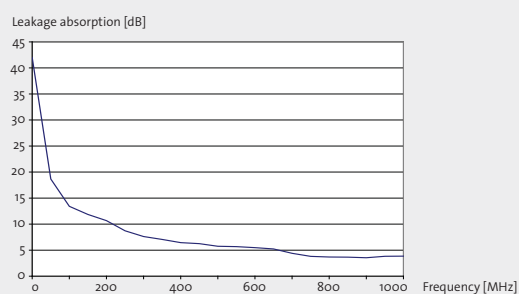
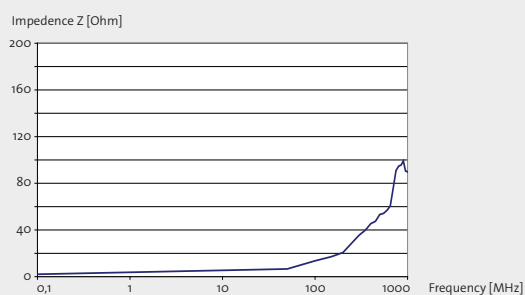


pict. A: SKL-line

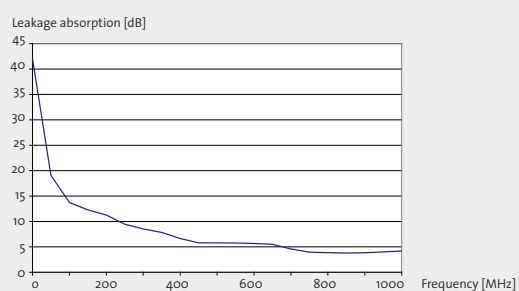
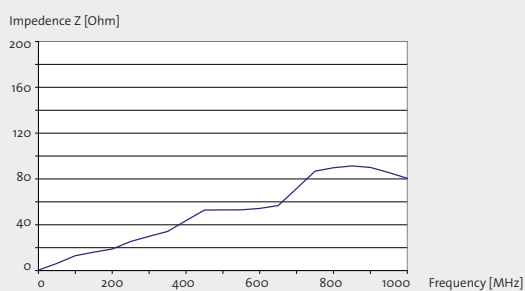


pict. B: Conventional systems

LF | SKL 9 - 11

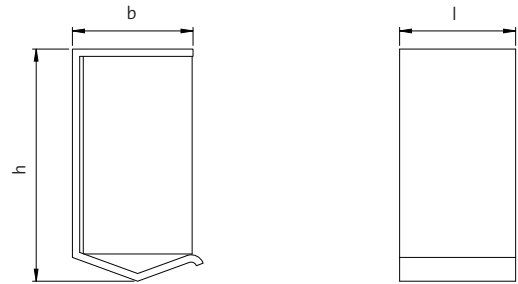
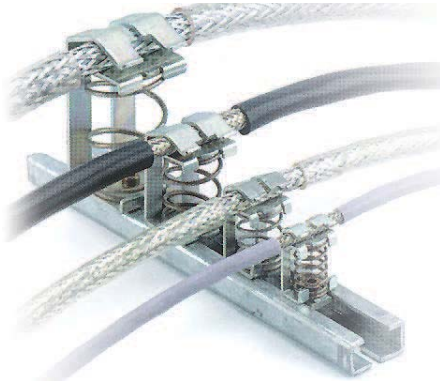


SF | SKL 6 - 8



SK

EMC Shield clamps



Product description

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

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

Advantages




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

Specification

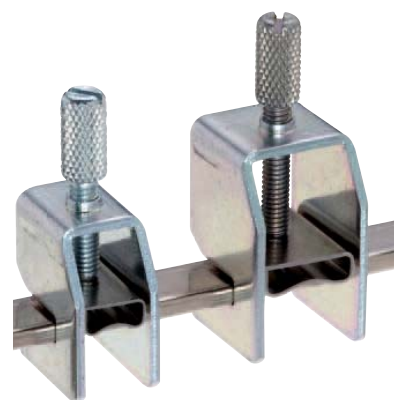
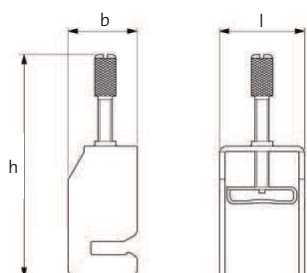
Material	
SK-clamp	Steel, galvanically zinc-plated
SF-foot	Spring steel

Accessories

DIN rail / busbar 10x3	Page 77
Stripping tool	Page 95

Description	Type	Order No.	Shield diameter	Dimensions l x b x h [mm]	PU
	SF SK 3 - 8	36500	3 - 8 mm	18 x 14 x 26	10
	SF SK 4 - 13.5	36502	4 - 13.5 mm	20 x 20 x 31	10
	SF SK 10 - 20	36504	10 - 20 mm	26 x 24 x 40	10
	SF SK 15 - 32	36506	15 - 32 mm	32 x 35 x 64	10
	SK 3 - 8	36222	3 - 8 mm	18 x 14 x 26	10
	SK 4 - 13.5	36224	4 - 13.5 mm	20 x 20 x 31	10
	SK 10 - 20	36226	10 - 20 mm	26 x 24 x 40	10
	SK 15 - 32	36228	15 - 32 mm	32 x 35 x 64	10
	SS SK 3 - 8	36235	3 - 8 mm	18 x 14 x 26	10
	SS SK 4 - 13.5	36236	4 - 13.5 mm	20 x 20 x 31	10
	SS SK 10 - 20	36237	10 - 20 mm	26 x 24 x 40	10
	SS SK 15 - 32	36238	15 - 32 mm	32 x 36 x 64	10
	SC single	36231	SC foot single	for C-rail	10

SKS EMC Shield clamps



Type	Order No.	Shield diameter	Dimensions l x b x h [mm]	PU	Description
SKS 2 - 5	36282	2 - 5 mm	9 x 19.5 x 47	10	
SKS 3 - 8	36283	3 - 8 mm	12 x 19.5 x 49	10	
SKS 3 - 14	36284	3 - 14 mm	17.5 x 19.5 x 60	10	
SKS 3 - 20	36285	3 - 20 mm	24.5 x 19.5 x 75	10	
SKS 5 - 28	36286	5 - 28 mm	31 x 20 x 93	10	
SKS 20 - 35	36287	20 - 35 mm	41 x 20 x 107	10	

Product description

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

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

Advantages

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

Specification

Material
SKS-clamp Steel, galvanically zinc-plated

Accessories

Busbar 10x3 Page 77
Stripping tool Page 95

KEL - EMC - Z

Cable assembly with strain relief



Product description

Cable entry, EMC shield and strain relief - all in one location!

Cables pass through the KEL frame and insert directly to the EMC 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 16mm in diameter with minimal order quantities and lead time.

Advantages

- Large surface contact between cable shield and housing/cabinet, especially with conductive coating on treated 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 desired
- Connection of earthing tape M6

Specification

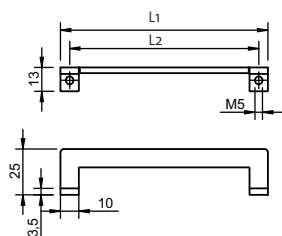
Material **Steel, zinc-plated**

Accessories

KEL Cable entry frames Page 6 - 15
 KEL-Quick Cable entry frames Page 36
 Cable ties Page 95
 Stripping tool Page 65

Type	Order No.	No. of teeth	Fastening	Fits for:	PU
KEL - EMC - Z 16 4	36525	4	long side	KEL - E4 KEL 16 x KEL - Quick 16	1
KEL - EMC - Z 24 5	36527	5	long side	KEL - E5 KEL 24 x KEL - Quick 24	1

KEL - EMC Bracket version



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

Product description

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

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

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

Advantages

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

Specification

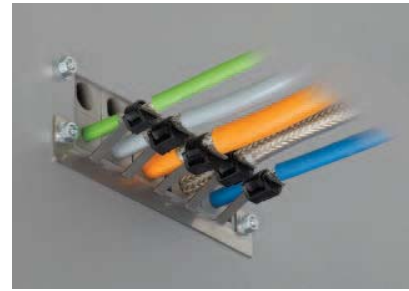
Material **Steel, galvanically zinc-plated**

Accessories

PFZ SKL Shield clamps	Page 74
PF SKL Shield clamps	Page 75
KEL Cable entry frames	Page 6 15
KEL-Quick Cable entry frames	Page 36
Stripping tool	Page 95

KEL - EMC

Cable assembly



Product description

Installation of pre-terminated cables without shield interruption.

Advantages

- Direct, easy and quick contact to the enclosure
- Space-saving, up to 10 cables with two-row model
- Replacement for EMC cable glands, even for pre-terminated cables
- Low-resistance shield contact
- Seal via cable jacket - not via shield - higher protection as a result

Specification

Material Stainless steel

Accessories

- | | |
|------------------------------|-------------|
| KEL Cable entry frames | Page 6 15 |
| KEL-Quick Cable entry frames | Page 36 |
| Cable ties | Page 95 |
| Stripping tool | Page 65 |

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

KVT - EMC

EMC-bracket for cable glands



Type	Order No.	Shield diameter	PU
KVT-EMC-25 SKL 1.5 - 3	37182	1.5 - 3 mm	5
KVT-EMC-25 SKL 3 - 6	37184	3 - 6 mm	5
KVT-EMC-25 SKL 6 - 8	37186	6 - 8 mm	5
KVT-EMC-25 SKL 9 - 11	37188	9 - 11 mm	5
KVT-EMC-32 SKL 1.5 - 3	37183	1.5 - 3 mm	5
KVT-EMC-32 SKL 3 - 6	37185	3 - 6 mm	5
KVT-EMC-32 SKL 6 - 8	37187	6 - 8 mm	5
KVT-EMC-32 SKL 9 - 11	37189	9 - 11 mm	5

Product description

The KVT-EMC brackets in combination with the split cable glands KVT and QVT combines routing, EMC shielding and strain relief.

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

- Simple and tool free assembly
- Optimal contact of the cable shielding
- Connection of earthing tape M5
- Sealing by outer cable jacket - EMC shielding by cable shield (in acc. with regulations)

Specification

Material Steel, zinc-plated

Accessories

KVT Split cable glands
QVT Split cable glands

Page 18 | 19
Page 37

KAFM - EMC

Cable assembly



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



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



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

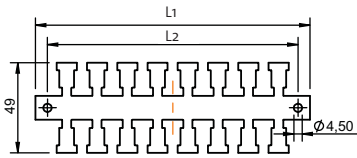


Type DH: Mounted on bushing for flexible fixation on bottomsheet

Product description

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

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



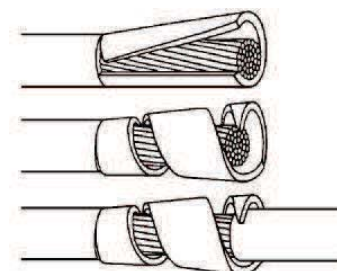
Type	Order No. Type SF	Order No. Type SK	Order No. Type SC	Order No. Type DH	Order No. loose rail	Length L1	Length L2	No. of teeth
KAFM 2	36442	36432	36412	36482	36422	50.5	37.5	2
KAFM 4	36444	36434	36414	36484	36424	83.5	70.5	4
KAFM 6	36446	36436	36416	36486	36426	116.5	103.5	6
KAFM 8	36448	36438	36418	36488	36428	149.5	136.5	8
KAFM 10	36450	36440	36400	36490	36430	182.5	169.5	10
KAFM 16	36452	36470	36465	36460	36530	281.5	268.5	16
KAFM 29	36454	36471	36466	36462	36540	494.5	481.5	29
KAFM 59	36458	36472	36467	36464	36550	990.0	978.0	59
SF	36230	SNAP-foot loose, for 35 mm DIN-rail shape H						
SK	36232	Screw-foot loose, for 35 mm DIN-rail shape H						
SC	36231	Screw-foot loose, for 30 mm DIN-rail shape C						
Bushing	36234	Distance bushing 8 mm high						
Screw	99017	M4 x 16 DIN 912						
Washer	42100	Washer \varnothing 4.3 mm DIN 125						

Specification

Material Stainless steel

Accessories

DIN rail Page 77
 Cable ties Page 65
 Stripping tool Page 95



Stripping functions

Stripping tools

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



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

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



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

Product description

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

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

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

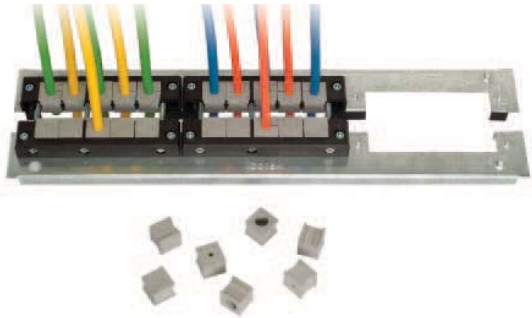
Product description

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

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

Product group 5

Switch cabinet accessories



Product description

At a glance ...

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

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

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

Benefits ...

1. Flexible

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

2. Fast and easy assembly

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

3. Secure hold

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

4. Easy to maintain

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

Product group 5

Switch cabinet accessories

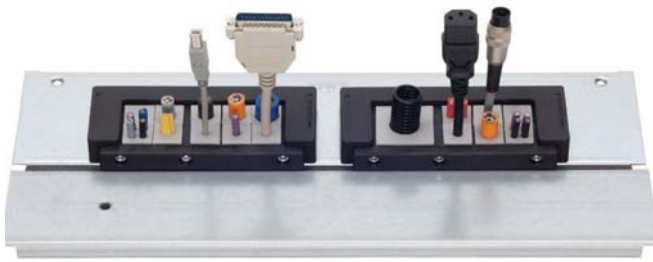
Chapter content

Base plate with slide-frame KDR-ESR	Page	98 - 99
Split base plates KDR 2	Page	100 - 101
Cable entry frame KDR	Page	102 - 103
Flanged plates FP	Page	104 - 107
Module plates MP	Page	108
Base plates KDR 1	Page	109
Blind plates BPK / BPK-R / BPM / BPM-SNAP	Page	110 - 112
Cable ties with hook-and-loop fastener KLKB / KLB	Page	113
Earthing tapes MB	Page	114 - 115
Split corrugated conduit and conduit clip WST / SH	Page	116 - 117



KDR - ESR

Base plate with slide-frame



KDR-ESR | Assembly

Product description

The KDR-ESR is a one-piece base plate to be assembled on cabinet bases. Slides-frames for the KEL cable entry frames are already pre-assembled. After fitting all cables into the KEL frames, they are easily and quickly inserted into the slide frames and latched. 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 IP 54 is achieved (with correct selection of cable inserts).

Advantages and notes

- Easy assembly and removal
- During assembly, almost the whole base of the enclosure can be used for installation of cables.
- Even large connectors can be installed easily.
- Retrofitting possible without disconnecting of cables. All can be built around the cables. No production downtimes.
- No additional sheet metal work for the user
- The base plate KDR 2 is designed for Rittal enclosures TS8. Other sizes can be supplied on request.

Specification

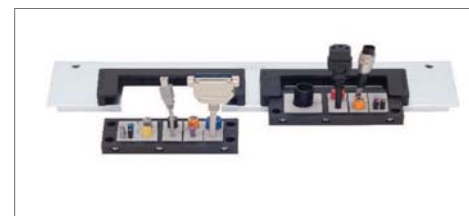
Material	Base plate: Steel, zinc-plated
Flame class	KDR-ESR Frame: Polyamide
Protection class	UL-94 Vo, self-extinguishing
Temperature Properties	IP 54, with gasket and correct selection of the cable inserts
	- 40°C to + 90°C (static)
	halogen-free, silicone-free

Accessories

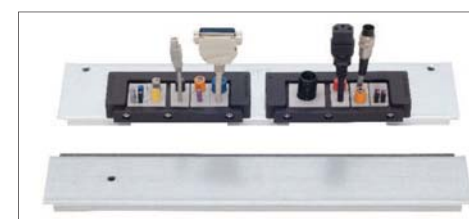
KEL 24/ KEL 16 Cable entry frames	Page 6 7
KEL - JUMBO 1	Page 34
Blind plates BPM-SNAP 24	Page 112



1
The base plate is fixed in the cabinet floor. The KEL cable entry frames are fitted.



2
The KEL cable entry frames are screwed together after fitting.



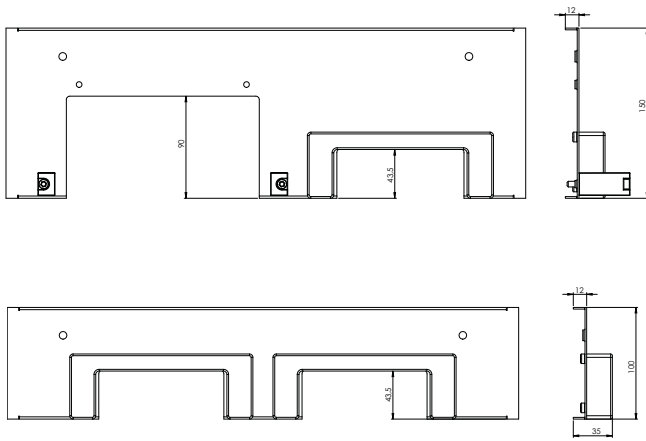
3
Afterwards the KEL frames are pushed into the slide-frames and latched there.



4
Finally, the middle base plate which is part of the standard cabinet, moves together with the KDR-ESR plates.

KDR - ESR

Base plate with slide-frame

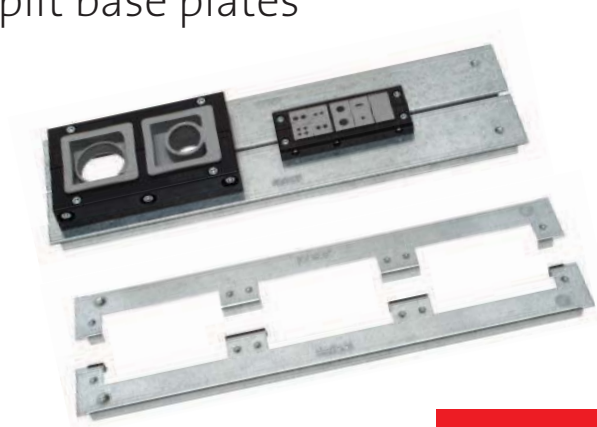


Control cabinet type	Control cabinet width	Total length base plate	Sight size of base plate opening	No. of possible cable entries				Order No.
				Jumbo 1	Jumbo 2	KEL 16 ...	Kel 24 ...	
TS8	600 mm	458 mm	436 mm	-	-	-	2	43079
	600 mm	458 mm	436 mm	-	1	-	1	43070
	600 mm	458 mm	436 mm	1	-	2	-	43071
TS8	800 mm	658 mm	636 mm	-	-	1	3	43080
	800 mm	658 mm	636 mm	1	-	-	3	43072
	800 mm	658 mm	636 mm	-	1	-	2	43073
TS8	1000 mm without division bar	858 mm	836 mm	-	-	-	5	43081
	1000 mm without division bar	858 mm	836 mm	1	-	-	4	43074
	1000 mm without division bar	858 mm	836 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	496 mm	-	-	-	3	43083
	1200 mm*	518 mm	496 mm	1	-	-	2	43078
	1200 mm*	518 mm	496 mm	-	1	-	1	43084

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

KDR 2

Split base plates

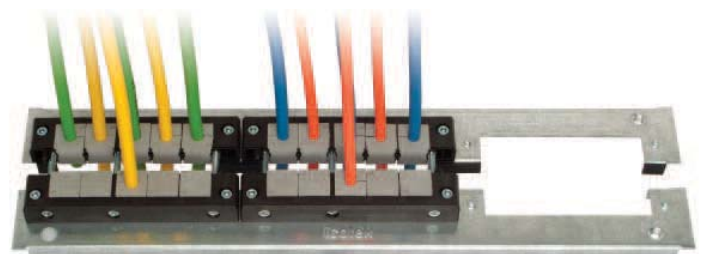


KDR 2 | Split base plates

Product description

Split, 2-part base plates KDR 2 with pre-cut holes for KEL and KEL-JUMBO cable entry systems.

Integrated screw holes provide quick and easy installation of KEL frames.

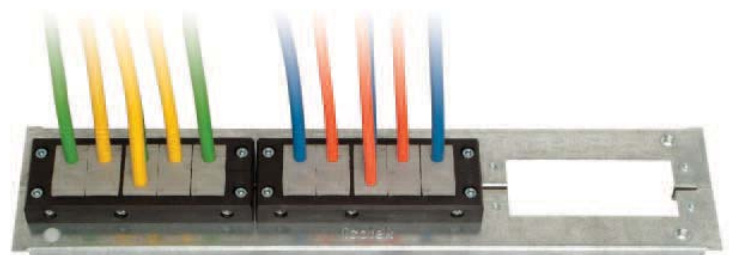


Advantages and notes

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



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



Specification

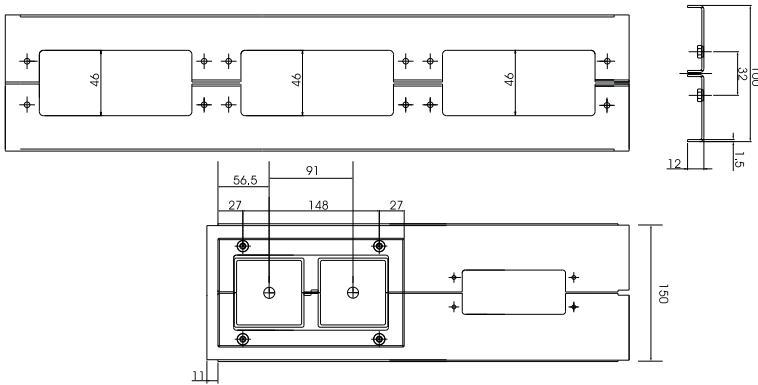
Material **Steel, zinc-plated**

Accessories

KEL 24 Cable entry frames	Page 6
KEL-JUMBO Cable entry frames	Page 34
BPM Blind plates metal	Page 111

The frame-parts with inserts have to be built up before final assembly, i.e. before screwing the system together. Screwing of the cable entry frames tightens both parts of the split base plate.

KDR 2 Split base plates



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

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

KDR

Cable entry frame



KDR | Cable entry system

Product description

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

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

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

Function

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

No extra components are necessary for installation of cables.

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



Advantages

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



Specification

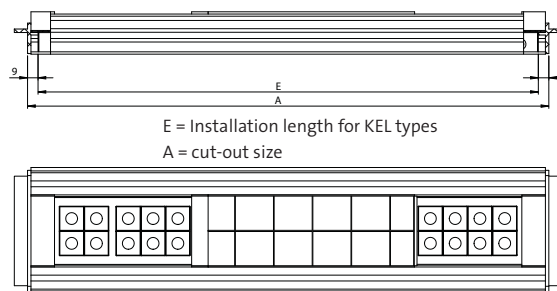
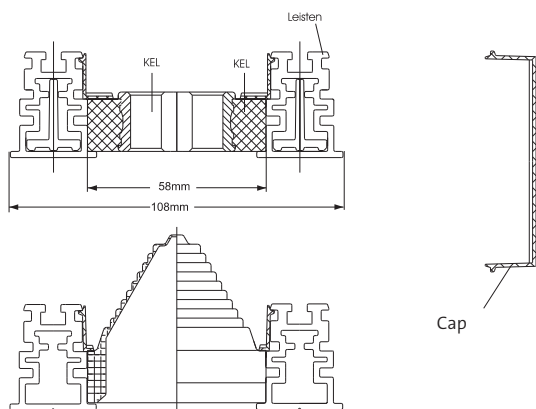
Material Aluminium

Accessories

KEL Cable entry frames

Page 6 | 7

KDR Cable entry frame



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

Type	Order No.	Size	Length
KEL - R 24 10	43240	24	147 mm
KEL - R 24 7	43247	24	147 mm
KEL - R 24 5	43245	24	147 mm
KEL - R 24 4	43244	24	147 mm
KEL - R 16 8	43168	16	120 mm
KEL - R 16 5	43165	16	120 mm
KEL - R 16 4	43164	16	120 mm
KEL - R 16 2	43162	16	120 mm
KDR	44xxx		xxx mm
KT - Uni	43100	∅ 6 -40 mm	58 mm
Cap	43150		172 mm
End piece	43160		2 pieces

KDR ordering information

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

A = cut-out size

Example: A = 999 mm equals KDR 44999

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

Included in delivery:

- 1x KDR - frame by length
- 2x end pieces

FP

Flanged plates



Description

Product description

We supply complete flanged plates FP with cut-outs 112 x 36 mm for enclosures of the AE series. 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. The gaskets and screws are scope of delivery of the enclosures.

We recommend to fasten the cable entry systems with a torque of 1.5 – 2.0 Nm.

Advantages

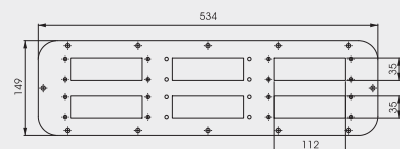
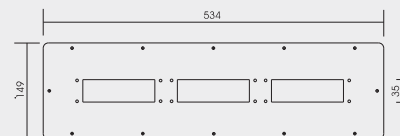
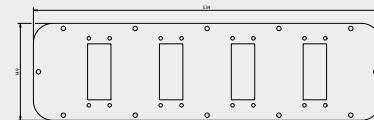
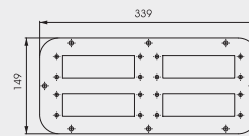
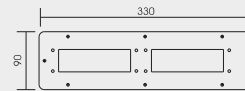
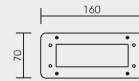
- No expensive extra sheet metal work is required
- High packing density is achieved by using KEL, KEL-DPZ or KEL-DP
- Reduce labor costs by using cable entry systems KEL, KEL-DPZ or KEL-DP compared to the assembly of conventional cable glands

Specification

Material **Steel, powder-coated**

Accessories

KEL Cable entry frames	Page 6 7
KEL-SNAP Frames	Page 17
KEL-QTA Cable entry frames	Page 38
KEL-DPZ Cable entry plates	Page 44 45
KEL-DP Cable entry plates	Page 50
Blind plates	Page 110



FP Flanged plates



Type	Order No. RAL 7035	Flanged plates fit for:	Size FP	Fits for (e.g. for Rittal with RAL 7032 RAL 7035)
FP - AE 160 70 mm Version with 1 cut-out	43836	KEL-DP 24 KEL-QTA 24	1	AE 1032 AE 1035
FP - AE 330 90 mm Version with 2 cut-outs	43838	KEL-DP 24 KEL-QTA 24	3	AE 1030 AE 1031 AE 1038 AE 1380
FP - AE 339 149 mm Version with 2 cut-outs	43840	KEL 24 KEL-SNAP 24 KEL-DPZ 24 KEL-DP 24 KEL-QTA 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 mm Version with 4 cut-outs	43846	KEL 24 KEL-DPZ 24 KEL-DP 24 KEL-QTA 24	4	
FP - AE 534 149 mm Version with 4 cut-outs KEL 16	43871	KEL 16 KEL-SNAP 16	5	AE 1039 EL 1919 AE 1054 EL 1926 AE 1055 AE 1060 IN 1076.290 AE 1073 AE 1076 TP 6711 AE 1077 TP 6713 AE 1090 TP 6715 AE 1180 TP 6717 AE 1260 AE 1280 AE 1339 AE 1360 AE 1376 AE1958
FP - AE 534 149 mm Version with 3 cut-outs	43842	KEL 24 KEL-SNAP 24 KEL-DPZ 24 KEL-DP 24 KEL-QTA 24	5	
FP - AE 534 149 mm Version with 6 cut-outs	43848	KEL 24 KEL-DPZ 24 KEL-DP 24 KEL-QTA 24	5	

FP

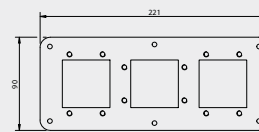
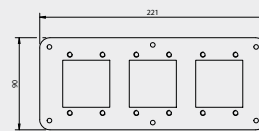
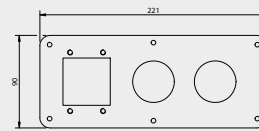
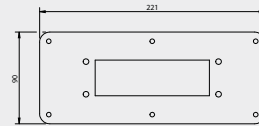
Flanged plates



Description

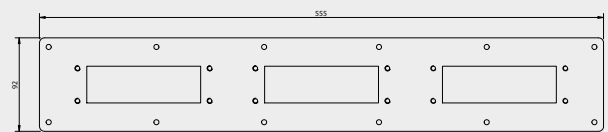
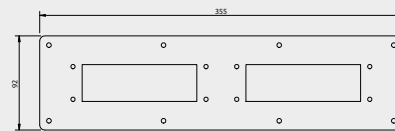
Plates for terminal boxes

The FP flanged plates type KL, designed to fit the Rittal KL series terminal boxes, are installed in combination with a cable entry system for either pre-terminated or standard cables. FP flanged plates are pre-cut, pre-drilled and painted for easy and quick installation of Icotek cable routing products. We recommend to fasten the cable entry systems with a torque of 1.5 – 2.0 Nm.



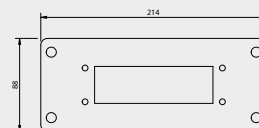
Plates for bus enclosures

The FP flanged plates type BG, designed to fit the Rittal BG series enclosures, have 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-DPZ or KEL-DP) or standard cables (KEL 24). We recommend to fasten the cable entry systems with a torque of 1.5 – 2.0 Nm.



Specification

Material **Steel, powder-coated**



Accessories

- KEL 24/ KEL B Cable entry frames Page 6 | 9
- KEL-SNAP Frames Page 17
- KEL-QTA Cable entry frames Page 38
- KEL-DPZ Cable entry plates Page 44 | 45
- KEL-DP Cable entry plates Page 50
- Blind plates Page 110 | 111

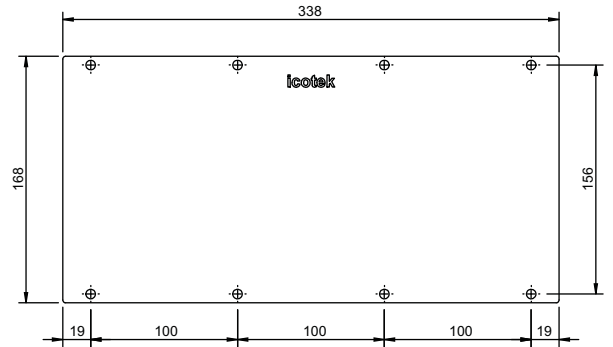
FP Flanged plates



Type	Order No. RAL 7035	Flanged plates fits for:	Size FP.	Fits for (e.g. for Rittal with RAL 7032 RAL 7035)
FP - KL 221 90 mm	43834	KEL 24 KEL-SNAP 24 KEL-DPZ 24 KEL-DP 24	2	Terminal boxes Type KL
FP - KL 221 90 mm - A Version with 3 cut-outs	43852	KEL-B KEL-SNAP B KEL-DPZ-B KEL-DPZ 50 KEL-DP 50	2	Terminal boxes Type KL
FP - KL 221 90 mm - B Version with 3 cut-outs	43854	Only for use with 2x KEL-SNAP B and 1x KEL-DPZ B	2	Terminal boxes Type KL
FP - KL 221 90 mm - C Version with 3 cut-outs	43856	KEL-B KEL-DPZ-B	2	Terminal boxes Type KL
FP - BG 355 92 mm Version with 2 cut-outs	43866	KEL 24 KEL-SNAP 24 KEL-DPZ 24 KEL-DP 24	-	BG 1558.210
FP - BG 555 92 mm Version with 3 cut-outs	43865	KEL 24 KEL-SNAP 24 KEL-DPZ 24 KEL-DP 24	6	BG 1050.900 BG 1559.510 IN 1510.280
FP - FL 21 Version with 1 cut-out	43832	KEL 24 KEL-SNAP 24 KEL-DPZ 24 KEL-DP 24	-	Fibox plates

MP

Module plates



Product description

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

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

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

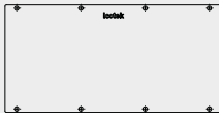
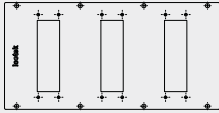
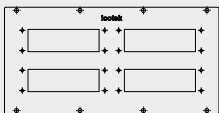
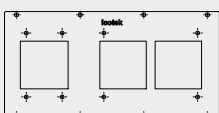
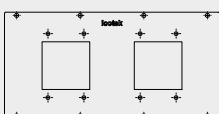
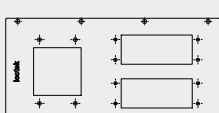
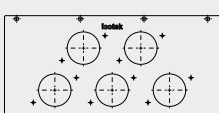
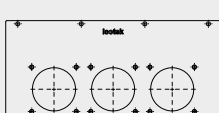
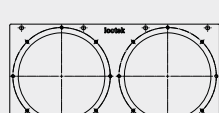
The shipment includes a suitable gasket.

Specification

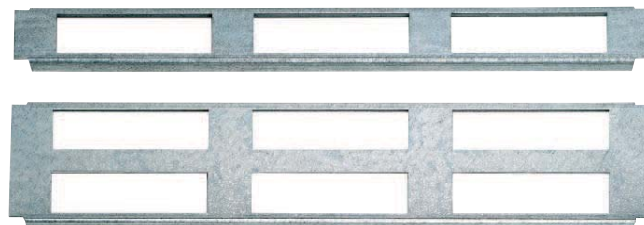
Material **Steel, zinc-plated**
 Article **43883 Aluminium**
 Dimension **338 x 168 x 2 mm**

Accessories

- KEL 24 Cable entry frames Page 6
- KEL-SNAP SNAP frames Page 17
- KEL-JUMBO Cable entry frames Page 34
- KEL-DPF Cable entry inserts Page 53
- KEL-JUMBO flex Cable entry ins. Page 54
- KEL-ULTRA flex Cable entry ins. Page 55
- Blind plates Page 110 | 112

Description	Type	Order No.	Fits for
	MP 0	43882	Module plate, blind
	MP 1	43891	3x KEL 24 x
	MP 2	43890	4x KEL 24 x
	MP 3	43886	1x KEL-JUMBO 1 1x KEL-JUMBO 2
	MP 4	43888	2x KEL-JUMBO 1
	MP 5	43887	2x KEL 24 x 1x KEL-JUMBO 1
	MP 6	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

KDR 1 Base plates

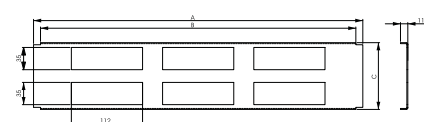
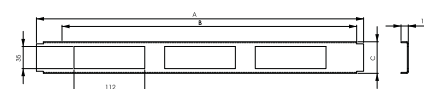


Contr. cabinet width TS 8	Total length base plate A	Sight size base plate opening	Width C	No. of possible cable entries KEL-DP 24 or KEL-QTA 24	Order No.	
600 mm	458 mm	436 mm	50 mm	one-row	3	43028
			105 mm	two-row	6	43012
800 mm	658 mm	636 mm	50 mm	one-row	4	43024
			105 mm	two-row	8	43008
1.000 mm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

Product description

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

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



Specification

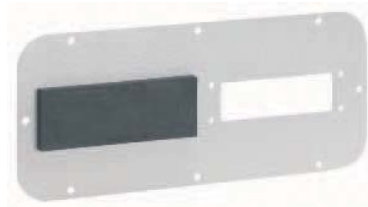
Material **Steel, zinc-plated**

Accessories

KEL-QTA Cable entry frames **Page 38**
 KEL-DP Cable entry plates **Page 50**

BPK

Blind plates, plastic



Product description

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

Plastic blind plates are available in two different versions:

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

Type BPK: Blind plates for screw connection

Advantages

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

Specification

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

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

BPM

Blind plates, metal



Type	Order No.	Blind plate for KEL cut-out	Dimensions	PU
BPM - B	42013	KEL - B KEL - Quick B	75 x 58 mm	10
BPM - 10	42014	KEL 10	99 x 58 mm	10
BPM - FG B	42012	KEL - FG B	80 x 58 mm	10
BPM - 16	42025	KEL 16 KEL - Quick 16	118 x 56 mm	10
BPM - 24	42027	KEL - 24 KEL - Quick 24	145 x 56 mm	10
BPM - 24 20	42028	KEL - 24 xx MT	147 x 102 mm	1
BPM - JUMBO 1	42030	KEL - JUMBO 1	116 x 110 mm	1
BPM - JUMBO 2	42032	KEL - JUMBO 2	200 x 116 mm	1
BPM - ULTRA	42633	KEL-ULTRA flex	???? x ????	1

Product description

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

Gasket is part of delivery.

Specification

Material Steel, zinc-plated
Width 2 mm

BPM - SNAP

Blind plates for KEL-SNAP frames



Product description

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

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

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

Specification

Material Steel, zinc-plated

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

Accessories

KEL-SNAP frames

Page 17

KLKB / KLB

Cable ties with hook-and-loop fastener



Type	Size	Order No.	PU
KLKB 200 x 7 bk	200 x 7 mm	61021	100
KLKB 200 x 13 bk	200 x 13 mm	61022	100
KLKB 250 x 13 bk	250 x 13 mm	61023	100
KLKB 304 x 16 bk	304 x 16 mm	61024	100
KLB 10 bk	10 mm	61011	25 m
KLB 15 bk	15 mm	61012	25 m
KLB 20 bk	20 mm	61013	25 m
KLB 25 bk	25 mm	61014	25 m

Product description

Cable ties with hook-and-loop fastener are a more and more common fixing mode for cables. The cable ties with hook-and-loop fastener are used instead of standard cable ties, because they can be easily closed and opened several times. They are gently to cables, especially if there are vibrations.

Cable ties with hook-and-loop fastener are available as ready-made cable ties (KLKB) in four sizes or as continuous tie on a roll (KLB) in four widths.

Advantages

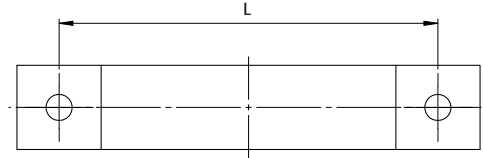
- cable ties with hook-and-loop fastener are re-usable
- adaptable
- the cable tie material is gentle on cables, especially if there are vibrations

Specification

Material	Polypropylene + Velour PA
Colour	black
Flame class	UL-94 V2,
Temperature	- 30°C to + 80°C

MB

Earthing tapes



Product description

Manufactured with highly flexible E-Cu stranded wires with tin-coated ends or connecting end pads made of tinned copper strips, see material specification below.

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

Advantages

- Available in various lengths and cross-sections
- Cost-effective
- Low transition impedances

Specification

Material 1 Cu-ETP with connecting end pads made of tinned copper strips

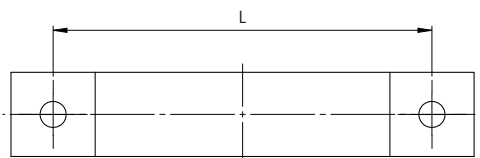


Material 2 Solderless pressed E-Cu with tin-coated ends



Type	Order No.	Material	Length L [mm]	Cross-section mm²	Hole size	PU
MB 100 6 M6	32700	1	100	6	M6	1
MB 150 6 M6	32701	1	150	6	M6	1
MB 200 6 M6	32702	1	200	6	M6	1
MB 300 6 M6	32703	1	300	6	M6	1
MB 400 6 M6	32704	1	400	6	M6	1
MB 500 6 M6	32705	1	500	6	M6	1
MB 100 10 M6	32730	1	100	10	M6	1
MB 100 10 M8	32731	1	100	10	M8	1
MB 150 10 M8	32732	1	150	10	M8	1
MB 200 10 M6	32650	2	200	10	M6	1
MB 200 10 M6	32733	1	200	10	M6	1
MB 200 10 M8	32734	1	200	10	M8	1
MB 300 10 M6	32665	2	300	10	M6	1
MB 300 10 M6	32735	1	300	10	M6	1
MB 300 10 M8	32736	1	300	10	M8	1
MB 400 10 M6	32737	1	400	10	M6	1
MB 400 10 M8	32738	1	400	10	M8	1
MB 500 10 M6	32739	1	500	10	M6	1
MB 100 16 M6	32760	1	100	16	M6	1
MB 100 16 M8	32761	1	100	16	M8	1
MB 150 16 M6	32762	1	150	16	M6	1
MB 150 16 M8	32763	1	150	16	M8	1
MB 200 16 M6	32764	1	200	16	M6	1
MB 200 16 M8	32655	2	200	16	M8	1

MB Earthing tapes



Type	Order No.	Material	Length L [mm]	Cross-section mm²	Hole size	PU
MB 200 16 M8	32765	1	200	16	M8	1
MB 250 16 M8	32766	1	250	16	M8	1
MB 300 16 M6	32767	1	300	16	M6	1
MB 300 16 M8	32670	2	300	16	M8	1
MB 300 16 M8	32768	1	300	16	M8	1
MB 350 16 M8	32769	1	350	16	M8	1
MB 400 16 M8	32770	1	400	16	M8	1
MB 500 16 M8	32771	1	500	16	M8	1
MB 600 16 M8	32772	1	600	16	M8	1
MB 100 25 M10	32800	1	100	25	M10	1
MB 150 25 M10	32801	1	150	25	M10	1
MB 200 25 M8	32660	2	200	25	M8	1
MB 200 25 M8	32802	1	200	25	M8	1
MB 200 25 M10	32803	1	200	25	M10	1
MB 250 25 M8	32804	1	250	25	M8	1
MB 250 25 M10	32805	1	250	25	M10	1
MB 300 25 M8	32675	2	300	25	M8	1
MB 300 25 M8	32806	1	300	25	M8	1
MB 300 25 M10	32807	1	300	25	M10	1
MB 350 25 M10	32808	1	350	25	M10	1
MB 400 25 M8	32809	1	400	25	M8	1
MB 500 25 M8	32810	1	500	25	M8	1
MB 600 25 M8	32811	1	600	25	M8	1

Product description

Manufactured with highly flexible E-Cu stranded wires with tin-coated ends or connecting end pads made of tinned copper strips, see material specification below.

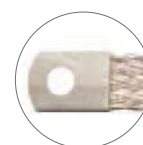
The minimum transition and connecting resistance makes them perfectly suitable for use as earthing tapes.

Advantages

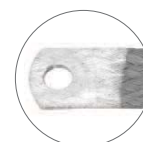
- Available in various lengths and cross-sections
- Cost-effective
- Low transition impedances

Specification

Material 1 Cu-ETP with connecting end pads made of tinned copper strips



Material 2 Solderless pressed E-Cu with tin-coated ends



WST

Split corrugated conduit



Product description

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

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

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

Advantages

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

Specification

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

Accessories

SH Conduit clip

Page 117

Type	Order No.	Internal diameter	External diameter	Fits for:	Dimensions	Ring length
WST NW 10	31200	8.7 mm	13.6 mm	KT 13 KTRS 13	10 mm	50 m
WST NW 14	31210	12.5 mm	18.5 mm	KT 18	14 mm	50 m
WST NW 20	31220	19.5 mm	25.5 mm	KT 25	20 mm	50 m
WST NW 23	31230	24.2 mm	31.0 mm	KT 30	23 mm	50 m
WST NW 37	31240	31.0 mm	41.4 mm	KTMB - P	37 mm	25 m
WST NW 45	31250	42.7 mm	54.0 mm	KTMB - Q	45 mm	25 m
WST NW 70	31260	66.5 mm	79.8 mm	KTMB - S	70 mm	10 m

SH Conduit clip



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

Product description

Conduit clips are a one-piece location system to provide secure mounting points for corrugated conduit systems.

The clips are secured to their mounting position through a central mounting point with a hexagonal counter-bore.

Specification

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

Accessories

Corrugated conduit

Page 116

Appendix

Technical data and comments

Technical information



At a glance ...

Technical data and drilling templates at a glance.

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



Appendix

Technical data and comments

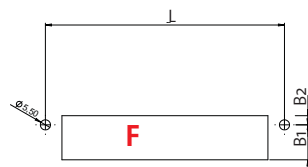
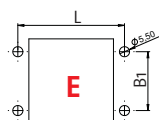
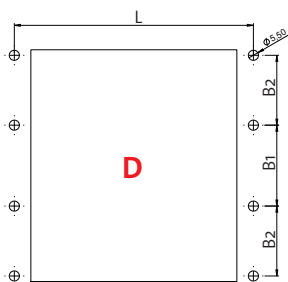
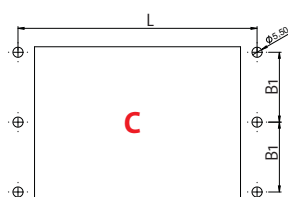
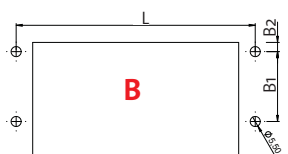
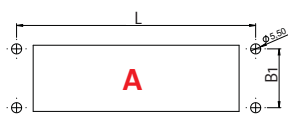
Chapter content

Technical data		
Drilling templates and cut-outs	Page	120 - 121
Technical data		
Locknuts	Page	122
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Certificates	Page	123
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Technical data

Drilling templates



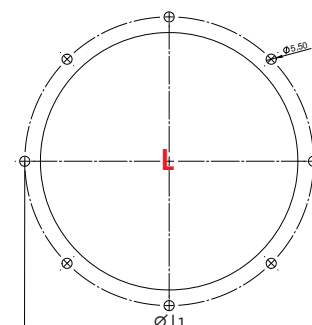
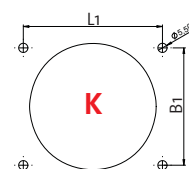
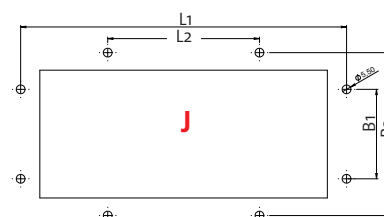
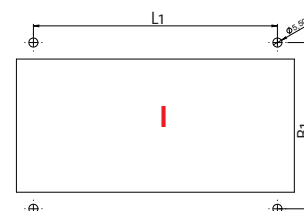
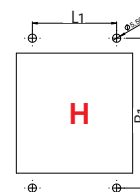
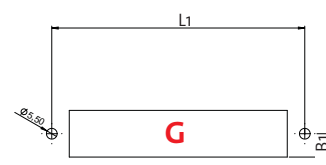
Type	Page	Drill. templ.	Dimensions [mm]			Cut-out h x l [mm]
			L	B1	B2	
KEL 24 x KEL-FG A KEL-QUICK 24 KEL-DPZ 24 x	6 14 36 44	A	130	32	-	36 x 112
KEL-SNAP 24	17	A	130	32	-	max. 46 x 112
KEL 16 x KEL-QUICK 16	7 36	A	103	32	-	36 x 86
KEL-SNAP 16	17	A	103	32	-	max. 46 x 86
KEL 10 x KEL-SNAP 10	8 17	A	83	32	-	36 x 65
KEL 24 x - E	11	B	130	38	5	62 x 112
KEL 24 x - MT	12	C	130	38	-	82 x 112
KEL 24 x - 2MT	13	D	130	44	38	126 x 112
KEL-B	9	E	58	32	-	46 x 46
KEL-SNAP B KEL-QUICK B	17 36	E	56	32	-	46 x 38
KEL-FG B	15	E	62.5	32	-	46 x 36
KEL-E x KEL-FL x	10 30	F	KEL-E2: 58 KEL-E3: 83 KEL-E4: 103 KEL-E5: 130	19	5	KEL-E2: 43 x 24 KEL-E3: 65 x 24 KEL-E4: 86 x 24 KEL-E5: 112 x 24



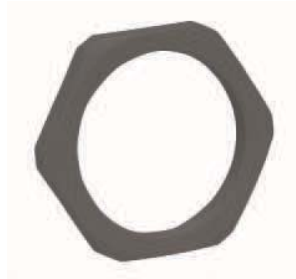
Technical data

Drilling templates

Type	Page	Drill. templ.	Dimensions [mm]				Cut-out h x l [mm]
			L1	L2	B1	B2	
KEL - DPZ - E	47	G	130	-	12	-	112 x 24
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-JUMBO flex	54	K	83	-	70	-	∅ 75,5
KEL-ULTRA flex	55	L	∅ 157	-	-	-	∅ 140



KGM Locknuts



Type KGM: Standard nut, plastic



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

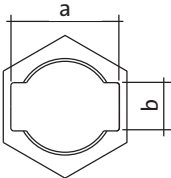


Type GMT: Split locknut

Product description

Hexagonal nut with metric threads for attaching components together.

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



Specification

Material	PA Polyamid/ PC Polycarbonate/ brass (see table)
Flame class	UL-94 Vo, self-extinguishing
Temperature Properties	- 30°C to + 120°C halogen-free, silicone-free

Accessories

KVT, KVT-SNAP, KVT-W90	Page 18 21
QVT	Page 37
KEL-DPZ	Page 48 49
KEL-DPF	Page 53

Thread	Type	Order No.	Material	Height [mm]	Wrench size	Diagonal [mm]	Cut-out axb[mm]	PU
--------	------	-----------	----------	-------------	-------------	---------------	-----------------	----

Type KGM: Standard nut, plastic

M25 x 1.5	KGM 25	52274	PA, grey	7.0	SW 32	36	-	10
M25 x 1.5	KGM 25	52284	PA, black	7.0	SW 32	36	-	10
M32 x 1.5	KGM 32	52275	PA, grey	7.0	SW 41	46	-	10
M32 x 1.5	KGM 32	52285	PA, black	7.0	SW 41	46	-	10
M40 x 1.5	KGM 40	52276	PA, grey	7.0	SW 50	56	-	10
M40 x 1.5	KGM 40	52286	PA, black	7.0	SW 50	56	-	10
M50 x 1.5	KGM 50	52277	PA, grey	8.6	SW 60	66	-	10
M50 x 1.5	KGM 50	52287	PA, black	8.6	SW 60	66	-	10
M63 x 1.5	KGM 63	52278	PA, grey	8.6	SW 75	86	-	5
M63 x 1.5	KGM 63	52288	PA, black	8.6	SW 75	83	-	5
M63 x 1.5	GM 63	56152	brass	5.5	SW 70	78	-	5

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

M32 x 1.5	KGM-SUB-D9	45105	PA, grey	7.0	SW 41	36	35 x 16	10
M40 x 1.5	KGM - PB	45107	PA, grey	8.0	SW 50	55	43 x 17	10
M50 x 1.5	KGM-SUB-D25	45108	PA, grey	8.0	SW 60	66	55 x 16	10

Type GMT: Split locknut

M25 x 1.5	GMT 25	31100	PA, black	9.0	SW 32	35	-	5
M32 x 1.5	GMT 32	31120	PA, black	12.0	SW 40	44	-	5
M50 x 1.5	GMT 50	31140	PA, black	15.0	SW 63	69	-	5

Appendix Certificates

ISO 9001:2008



Icotek GmbH

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

Certificate ISO 9001:2008

Von UL gelistet:



Icotek GmbH

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UL E 336024

NF F 16-101

Icotek GmbH

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NF F 16-101



Appendix

Flammability classification according UL 94

Flame class UL 94 - HB

Applying the horizontal burning test the material burns slowly. For parts with a thickness up to 3 mm the burning speed must not faster than 3 inch/min and for parts with a thickness over 3 mm the burning speed must not faster than 1,5 inch/mm.

Materials which burn faster are not UL certified.

Flame class UL 94 - V2

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

Flame class UL 94 - V1

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

Flame class UL 94 - V0

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



Appendix

Sealing rates according DIN EN 60529

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

Degree of protection for contact and solid protection

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

Degree of protection for water protection

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



Appendix

General reference notes

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

They do not release the customer of own examinations and tests to determine the practical suitability of the products for the usage intended.

Application, use and installation of the products is the customers responsibility. Legal and regulatory provisions and any rights to third parties have to be observed.

Moreover our general terms and conditions, which can be requested from us, apply.

This catalogue was prepared with the greatest care. All technical data and information have been reviewed before printing. Due to continuous improvement and development of our production programme we reserve, modify products from this catalogue or to take out products from our product range. Therefore, technical information and products which are included in this catalogue may differ - without prior notice .

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Appendix

Reference list 1 | 5

Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type
31100	122	GMT 25	32281	61	ZL 60 AB 5,2	32767	115	MB 300 16 M6	36226	88	SK 10-20
31120	21	GMT 32	32282	61	ZL 70 AB 6,2	32768	115	MB 300 16 M8	36228	88	SK 15-32
31120	122	GMT 32	32283	61	ZL 87 AB 6,2	32769	115	MB 350 16 M8	36229	70	SFS single
31140	21	GMT 50	32284	61	ZL 103 AB 6,2	32770	115	MB 400 16 M8	36230	69	SF single
31140	122	GMT 50	32285	61	ZL 121 AB 6,2	32771	115	MB 500 16 M8	36231	88	SC single
31200	116	WST NW 10	32286	61	ZL 140 AB 6,2	32772	115	MB 600 16 M8	36232	94	SK
31210	116	WST NW 14	32287	61	ZL 180 AB 6,2	32800	115	MB 100 25 M10	36234	94	Bushing
31220	116	WST NW 20	32290	61	ZL 39 AB 6,2	32801	115	MB 150 25 M10	36235	88	SS/SK 3-8
31230	116	WST NW 23	32291	61	ZL 60 AB 6,2	32802	115	MB 200 25 M8	36236	88	SS/SK 4-13,5
31240	116	WST NW 37	32292	61	ZL 70 AB 6,2	32803	115	MB 200 25 M10	36237	88	SS/SK 10-20
31250	116	WST NW 45	32293	61	ZL 87 AB 6,2	32804	115	MB 250 25 M8	36243	69	SF/SKL 1,5-3
31260	116	WST NW 70	32294	61	ZL 103 AB 6,2	32805	115	MB 250 25 M10	36244	69	SF/SKL 3-6
31300	117	SH 10	32295	61	ZL 121 AB 6,2	32806	115	MB 300 25 M8	36245	69	SF/SKL 6-8
31310	117	SH 14	32296	61	ZL 140 AB 6,2	32807	115	MB 300 25 M10	36246	69	SF/SKL 9-11
31320	117	SH 20	32297	61	ZL 180 AB 6,2	32808	115	MB 350 25 M10	36247	69	SF/SKL 12-16
31330	117	SH 23	32351	59	SF/ZL 39	32809	115	MB 400 25 M8	36248	69	SF/SKL 17-22
31340	117	SH 37	32352	59	SF/ZL 60	32810	115	MB 500 25 M8	36249	69	SF/SKL 23-29
31350	117	SH 45	32353	59	SF/ZL 70	32811	115	MB 600 25 M8	36251	73	LF/SKL 1,5-3
32112	62	ZL 03	32354	59	SF/ZL 87	36000	78	MF-B20	36253	73	LF/SKL 3-6
32114	62	ZL 04	32355	59	SF/ZL 103	36002	78	MF-B20 Clip	36255	73	LF/SKL 6-8
32116	62	ZL 05	32356	59	SF/ZL 121	36008	78	MF-B30	36256	73	LF/SKL 9-11
32222	60	ZL 39	32357	59	SF/ZL 140	36010	78	MF-B30 Clip	36257	73	LF/SKL 12-16
32224	60	ZL 60	32358	59	SF/ZL 180	36016	78	MF-B50	36258	73	LF/SKL 17-22
32226	60	ZL 70	32700	114	MB 100 6 M6	36018	78	MF-B50 Clip	36259	73	LF/SKL 23-29
32228	60	ZL 87	32701	114	MB 150 6 M6	36024	78	MF-B90	36273	75	PF/SKL 1,5-3
32230	60	ZL 103	32702	114	MB 200 6 M6	36026	78	MF-B90 Clip	36274	75	PF/SKL 3-6
32232	60	ZL 121	32703	114	MB 300 6 M6	36032	78	MF-C40	36275	75	PF/SKL 6-8
32234	60	ZL 140	32704	114	MB 400 6 M6	36034	78	MF-C40 Clip	36276	75	PF/SKL 9-11
32236	60	ZL 180	32705	114	MB 500 6 M6	36040	78	MF-C53	36277	75	PF/SKL 12-16
32251	63	DH 30	32730	114	MB 100 10 M6	36042	78	MF-C53 Clip	36278	75	PF/SKL 17-22
32252	63	DH 32	32731	114	MB 100 10 M8	36048	78	MF-D49	36279	75	PF/SKL 23-29
32260	58	KZL 39 H	32732	114	MB 150 10 M8	36050	78	MF-D49 Clip	36282	89	SKS 2-5
32261	58	KZL 39 C	32733	114	MB 200 10 M6	36056	78	MF-A49	36283	89	SKS 3-8
32262	58	KZL 80 H	32734	114	MB 200 10 M8	36058	78	MF-A49 Clip	36284	89	SKS 3-14
32263	58	KZL 80 C	32735	114	MB 300 10 M6	36064	78	MF-A68	36285	89	SKS 3-20
32264	58	KZL 140 H	32736	114	MB 300 10 M8	36066	78	MF-A68 Clip	36286	89	SKS 5-28
32265	58	KZL 140 C	32737	114	MB 400 10 M6	36072	78	MF-A88	36287	89	SKS 20-35
32270	61	ZL 39 AB 4,1	32738	114	MB 400 10 M8	36074	78	MF-A88 Clip	36322	64	ZL 39/SB-EMV
32271	61	ZL 60 AB 4,1	32739	114	MB 500 10 M6	36100	77	Busbar 10x3	36324	64	ZL 87/SB-EMV
32272	61	ZL 70 AB 6,2	32760	114	MB 100 16 M6	36102	77	HS 35x7,5	36326	64	ZL 140/SB-EMV
32273	61	ZL 87 AB 6,2	32761	114	MB 100 16 M8	36103	77	HS 35x7,5	36328	64	ZL 60/SB-EMV
32274	61	ZL 140 AB 6,2	32762	114	MB 150 16 M6	36104	77	HS 35x15	36330	64	ZL 121/SB-EMV
32275	61	ZL 103 AB 6,2	32763	114	MB 150 16 M8	36105	77	HS 35x15	36332	64	ZL 103/SB-EMV
32276	61	ZL 180 AB 6,2	32764	114	MB 200 16 M6	36150	78	Clip	36400	94	KAFM 10 SC
32277	61	ZL 121 AB 6,2	32765	115	MB 200 16 M8	36222	88	SK 3-8	36412	94	KAFM 2 SC
32280	61	ZL 39 AB 5,2	32766	115	MB 250 16 M8	36224	88	SK 4-13,5	36414	94	KAFM 4 SC



Appendix

Reference list 2 | 5

OrderNo.	Page	Type	OrderNo.	Page	Type	OrderNo.	Page	Type	OrderNo.	Page	Type
36416	94	KAFM 6 SC	36550	94	KAFM 59 single	37525	84	STFZ SKL 6-8	39921	23	KT-ASl2 gr
36418	94	KAFM 8 SC	36611	76	PFS SCL 1,5-3	38005	80	RLFZ (x3)	39922	23	KT-ASl2 gr
36422	94	KAFM 2 single	36612	76	PFS SCL 3-6	38010	80	RLFZ (x4)	39923	23	KT-ASl2 bk
36424	94	KAFM 4 single	36750	74	PFZ/SKL 1,5-3	38015	80	RLFZ (x5)	39924	23	KT-ASl2 bk
36426	94	KAFM 6 single	36755	74	PFZ/SKL 3-6	38020	80	RLFZ (x6)	39929	22	KT tele
36428	94	KAFM 8 single	36760	74	PFZ/SKL 6-8	38025	80	RLFZ (x7)	39930	22	KT oval
36430	94	KAFM 10 single	36765	74	PFZ/SKL 9-11	38030	80	RLFZ (x8)	39931	22	KT S1
36432	94	KAFM 2 SK	36810	70	SFS/SKL 1,5-3	38035	80	RLFZ (x9)	39932	23	KT 4/6 gr
36434	94	KAFM 4 SK	36815	70	SFS/SKL 3-6	38040	80	RLFZ (x10)	39933	23	KT 4/6 bk
36436	94	KAFM 6 SK	36820	70	SFS/SKL 6-8	38045	80	RLFZ (x11)	39934	22	KT 2 gr
36438	94	KAFM 8 SK	36850	68	SFZ/SKL 1,5-3	38050	80	RLFZ (x12)	39935	23	KT 2/2 gr
36440	94	KAFM 10 SK	36855	68	SFZ/SKL 3-6	38105	81	SF/RLFZ (x3)	39936	23	KT 2/2 bk
36442	94	KAFM 2 SF	36860	68	SFZ/SKL 6-8	38110	81	SF/RLFZ (x4)	39937	23	KT 4/2 gr
36444	94	KAFM 4 SF	36865	68	SFZ/SKL 9-11	38115	81	SF/RLFZ (x5)	39938	23	KT 4/2 bk
36446	94	KAFM 6 SF	36870	68	SFZ/SKL 12-16	38120	81	SF/RLFZ (x6)	39939	23	KT 2/3 gr
36448	94	KAFM 8 SF	36875	68	SFZ/SKL 17-22	38125	81	SF/RLFZ (x7)	39940	23	KT 2/3 bk
36450	94	KAFM 10 SF	36880	68	SFZ/SKL 23-29	38130	81	SF/RLFZ (x8)	39990	23	KTRS 12 gr
36452	94	KAFM 16 SF	36910	72	LFZ/SKL 1,5-3	38135	81	SF/RLFZ (x9)	39992	23	KTRS 13 gr
36454	94	KAFM 29 SF	36915	72	LFZ/SKL 3-6	38140	81	SF/RLFZ (x10)	39996	23	KTRS 16 gr
36458	94	KAFM 59 SF	36920	72	LFZ/SKL 6-8	38145	81	SF/RLFZ (x11)	41200	23	KT 2/5 gr
36460	94	KAFM 16 DH	36925	72	LFZ/SKL 9-11	38150	81	SF/RLFZ (x12)	41201	23	KT 2/6 gr
36462	94	KAFM 29 DH	36930	72	LFZ/SKL 12-16	39110	92	KEL-EMV F	41202	23	KT 2/7 gr
36464	94	KAFM 59 DH	36935	72	LFZ/SKL 17-22	39150	91	KEL-EMV PF B4	41203	22	KT 3 gr
36465	94	KAFM 16 SC	36940	72	LFZ/SKL 23-29	39160	91	KEL-EMV PF 10	41204	22	KT 4 gr
36466	94	KAFM 29 SC	36952	82	RLF (x6)	39170	91	KEL-EMV PF 16	41205	22	KT 5 gr
36467	94	KAFM 59 SC	36953	82	RLF (x8)	39180	91	KEL-EMV PF 24	41206	22	KT 6 gr
36470	94	KAFM 16 SK	36954	82	RLF (x10)	39800	25	KMS template	41207	22	KT 7 gr
36471	94	KAFM 29 SK	36955	82	RLF (x11)	39900	22	KTS 17 gr	41208	22	KT 8 gr
36472	94	KAFM 59 SK	36958	82	RLF (x5)	39901	22	KTS 16 gr	41209	22	KT 9 gr
36482	94	KAFM 2 DH	36962	82	RLF (x12)	39902	23	KT-ASI gr	41210	22	KT 10 gr
36484	94	KAFM 4 DH	36963	82	RLF (x7)	39903	23	KT-ASI bk	41211	22	KT 11 gr
36486	94	KAFM 6 DH	36965	82	RLF (x3)	39904	23	KT 2/5 bk	41212	22	KT 12 gr
36488	94	KAFM 8 DH	36984	82	RLF (x4)	39905	23	KT 2/6 bk	41213	22	KT 13 gr
36490	94	KAFM 10 DH	36985	82	RLF (x9)	39906	23	KT 2/4 gr	41214	22	KT 14 gr
36500	88	SF/SK 3-8	37182	93	KVT-EMV-25 1-3	39907	23	KT 2/4 bk	41215	22	KT 15 gr
36502	88	SF/SK 4-13,5	37183	93	KVT-EMV-32 1-3	39908	23	KT 4/5 gr	41216	24	KT 16 gr
36504	88	SF/SK 10-20	37184	93	KVT-EMV-25 3-6	39909	23	KT 4/4 gr	41217	24	KT 17 gr
36506	88	SF/SK 15-32	37185	93	KVT-EMV-32 3-6	39910	23	KT 4/5 bk	41218	24	KT 18 gr
36520	92	KEL-EMV B	37186	93	KVT-EMV-25 6-8	39911	23	KT 4/4 bk	41219	24	KT 19 gr
36522	92	KEL-EMV 10	37187	93	KVT-EMV-32 6-8	39912	22	KTS 16 bk	41220	24	KT 20 gr
36524	92	KEL-EMV 16/4	37188	93	KVT-EMV-25 9-11	39913	22	KTS 17 bk	41221	24	KT 21 gr
36525	90	KEL-EMV-Z 16/4	37189	93	KVT-EMV-32 9-11	39914	23	KT 4/3 gr	41222	24	KT 22 gr
36526	92	KEL-EMV 24/5	37505	85	STFZ2	39915	23	KT 4/3 bk	41223	24	KT 23 gr
36527	90	KEL-EMV-Z 20/5	37510	84	STFZ single	39916	23	KT 2/7 bk	41224	24	KT 24 gr
36530	94	KAFM 16 single	37515	84	STFZ SKL 1,5-3	39917	23	KT 2/8 gr	41225	24	KT 25 gr
36540	94	KAFM 29 single	37520	84	STFZ SKL 3-6	39918	23	KT 2/8 bk	41226	24	KT 26 gr



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41229	24	KT 29 gr	41432	25	KTMB-A gr	42209	11	KEL 24/15 E	42505	41	QT 5
41230	24	KT 30 gr	41434	25	KTMB-B gr	42212	8	KEL 10/3	42506	41	QT 6
41232	24	KT 32 gr	41436	25	KTMB-C gr	42216	8	KEL 10/6	42507	41	QT 7
41234	24	KT 34 gr	41438	25	KTMB-D gr	42221	12	KEL 24/8 MT	42508	41	QT 8
41251	22	BTK gr	41440	25	KTMB-E gr	42223	13	KEL 24/12 2MT	42509	41	QT 9
41252	24	BTG gr	41460	25	KTMB-G gr	42224	12	KEL 24/17 MT	42510	41	QT 10
41253	24	ATG gr	41465	25	KTMB-H gr	42225	12	KEL 24/14 MT	42511	41	QT 11
41302	22	KT 2 bk	41470	25	KTMB-I gr	42226	13	KEL 24/21 2MT	42512	41	QT 12
41303	22	KT 3 bk	41475	25	KTMB-J gr	42227	13	KEL 24/24 2MT	42513	41	QT 13
41304	22	KT 4 bk	41480	25	KTMB-K gr	42232	12	KEL 24/20 MT	42514	41	QT 14
41305	22	KT 5 bk	41500	26	DT 1	42233	13	KEL 24/27 2MT	42540	41	QTB
41306	22	KT 6 bk	41510	26	DT 2	42234	13	KEL 24/30 2MT	42566	41	QT 2/3
41307	22	KT 7 bk	41520	26	DT 3	42241	6	KEL 24/10	42568	41	QT 2/4
41308	22	KT 8 bk	41530	26	DT 4	42244	6	KEL 24/4	42570	41	QT 2/5
41309	22	KT 9 bk	42006	110	BP - R 16	42247	6	KEL 24/7	42571	41	QT 2/5.5
41310	22	KT 10 bk	42008	110	BP - R 24	42248	6	KEL 24/5	42572	41	QT 2/6
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41312	22	KT 12 bk	42013	111	BPM - B	42250	10	KEL-E5	42574	41	QT-ASI 2
41313	22	KT 13 bk	42014	111	BPM - 10	42258	10	KEL-E3	42575	41	QT tele
41314	22	KT 14 bk	42015	110	BP - K 10	42259	10	KEL-E4	42576	41	QT 2/6.5
41315	22	KT 15 bk	42016	110	BP - K 16	42320	14	KEL-FG A10	42578	41	QT 2/7
41316	24	KT 16 bk	42024	110	BP - K 24	42322	14	KEL-FG A7	42580	41	QT 4/3
41317	24	KT 17 bk	42025	111	BPM - 16	42324	14	KEL-FG A4	42582	41	QT 4/4
41318	24	KT 18 bk	42027	111	BPM - 24	42330	15	KEL-FG B4	42583	41	QT 4/4.5
41319	24	KT 19 bk	42028	111	BPM - 24/20	42332	15	KEL-FG B1	42584	41	QT 4/5
41320	24	KT 20 bk	42030	111	BPM-Jumbo 1	42350	34	KEL-JUMBO 2	42585	41	QT 4/5.5
41321	24	KT 21 bk	42032	111	BPM-Jumbo 2	42360	34	KEL-JUMBO 1	42586	41	QT 4/6
41322	24	KT 22 bk	42034	112	BPM - SNAP B	42370	35	KTA	42614	54	JUMBO flex27
41323	24	KT 23 bk	42035	112	BPM - SNAP 10	42371	35	KTF 00	42616	54	JUMBO flex47
41324	24	KT 24 bk	42036	112	BPM - SNAP 16	42376	35	KTF 34	42620	110	BP-K Jumbo flex
41325	24	KT 25 bk	42037	112	BPM - SNAP 24	42379	35	KTF 38	42630	55	ULTRA flex 1
41326	24	KT 26 bk	42038	17	KEL-SNAP B4	42382	35	KTF 42	42631	55	ULTRA flex 2
41327	24	KT 27 bk	42039	17	KEL-SNAP 10	42385	35	KTF 46	42652	53	KEL-DPF 25/3-17
41328	24	KT 28 bk	42040	17	KEL-SNAP 16	42388	35	KTF 50	42653	53	KEL-DPF 32/6-24
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41330	24	KT 30 bk	42044	17	KEL-SNAP 24E	42394	35	KTF 58	42655	53	KEL-DPF 50/17-42
41332	24	KT 32 bk	42046	17	KEL-SNAP 24MT	42397	35	KTF 62	42656	53	KEL-DPF 63/23-55
41334	24	KT 34 bk	42100	94	Washer	42405	36	QUICK-PIN	42881	27	ST 17
41351	22	BTK bk	42162	7	KEL 16/2	42410	36	KEL-QUICK 24/10	42883	27	ST 16
41352	24	BTG bk	42164	7	KEL 16/4	42414	36	KEL-QUICK 16/4	42885	27	ST 15
41353	24	ATG bk	42165	7	KEL 16/5	42415	36	KEL-QUICK 24/5	42887	27	ST 14
41410	33	KTMB-O	42168	7	KEL 16/8	42418	36	KEL-QUICK 16/8	42889	27	ST 13
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42899	27	ST 8	43084	99	KDR-ESR 1200	43578	51	KEL-DP-E 112 21	43848	105	FP-AE 534/149
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42908	27	ST 4	43164	103	KEL-R 16/4	43591	51	KEL-DP-S 69 8	43866	107	FP-BG 355/92
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42920	101	KDR2-1200	43168	103	KEL-R 16/8	43612	40	KEL-AD 24-A	43882	108	MP 0
42922	101	KDR2-800	43240	103	KEL-R 24/10	43622	39	KEL-QTE 50 A	43883	108	MP 6
42923	101	KDR2-1000	43244	103	KEL-R 24/4	43626	39	KEL-QTE 50 B	43886	108	MP 3
42924	101	KDR2-600	43245	103	KEL-R 24/5	43632	39	KEL-QTA 32 A	43887	108	MP 5
42941	101	KDR2-600	43247	103	KEL-R 24/7	43636	39	KEL-QTA 32 B	43888	108	MP 4
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42945	101	KDR2-800	43413	39	KEL-QTE 20/3	43643	38	KEL-QTA 24 2 B	43890	108	MP 2
42952	101	KDR2-1000	43414	39	KEL-QTE 20/4	43644	38	KEL-QTA 24/4 A	43891	108	MP 1
42953	101	KDR2-600	43415	39	KEL-QTE 20/5	43645	38	KEL-QTA 24/4 B	43894	108	MP 8
42954	101	KDR2-800	43512	50	KEL-DP 24/14 A	43660	38	KEL-QTA B4	45035	18	KVT 25
42955	101	KDR2-1000	43514	50	KEL-DP 24/17 A	43700	44	KEL-DPZ 24/14	45036	18	KVT 32
42956	101	KDR2-1200	43516	50	KEL-DP 24/19 A	43705	44	KEL-DPZ 24/17	45037	18	KVT 32 + SUB-D9
42957	101	KDR2-1000	43518	50	KEL-DP 24/26 A	43710	45	KEL-DPZ 24/25	45105	122	KGM SUB-D9
42958	101	KDR2-1000	43519	50	KEL-DP 24/48 A	43715	45	KEL-DPZ 24/42	45107	122	KGM SUB-PB
42959	101	KDR2-1000	43520	50	KEL-DP 24/50 A	43720	44	KEL-DPZ 24/15	45108	122	KGM SUB-D25
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43016	109	KDR1-1000 1	43527	50	KEL-DP 24/50 B	43750	48	KEL-DPZ 50/8	45204	19	KVT 50 2
43018	109	KDR1-1000 1	43531	52	KEL-DP 25/6 A	43751	48	KEL-DPZ 50/10	45205	18	KVT 40 + PB
43020	109	KDR1-1200 1	43532	52	KEL-DP 32/10 A	43752	48	KEL-DPZ 50/12	45206	19	KVT 50 +SUB-D25
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43078	99	KDR-ESR 1200	43566	52	KEL-DP 50/20 B	43834	107	FP-KL 221/90	46105	30	KEL-FL B
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52278	122	KGM 63 gr									
52284	122	KGM 25 bk									
52285	122	KGM 32 bk									
52286	122	KGM 40 bk									
52287	122	KGM 50 bk									
52288	122	KGM 63 bk									
56152	122	GM 63									
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