

Cable Entry Systems EMC Solutions



innovative
creative
technology

Product program

A company of the icotek group



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

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

Ideas move the world ...

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



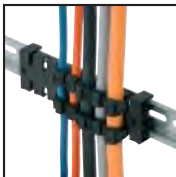
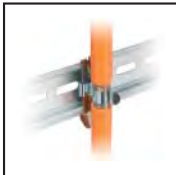
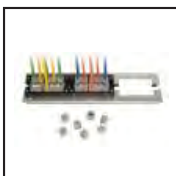

Our experienced managers and qualified personnel are in constant pursuit of customer satisfaction.

Trust our innovation.

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

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Product group 1

Cable entry systems for entering pre-terminated cables

1



Patent



Product description

At a glance ...

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

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

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

Benefits ...

1. Split system

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

2. No new punch out tools required

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

3. Tight connection

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

4. Flexibility

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

Product group 1

Cable entry system for entering pre-terminated cables

Chapter content

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KEL 24

Cable entry frames



1

Product description

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

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

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

Advantages

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

Specification

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

Accessories

KT Cable inserts	Page 22 26
KEL-SNAP SNAP frames	Page 15
KEL-EMC Cable collector	Page 74 75
KDR2 KDR Base plates	Page 80 83
FP Flanged plates	Page 84 85
MP Module plates	Page 86

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

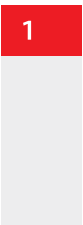
KEL 16

Cable entry frames



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

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



Product description

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

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

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

Advantages

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

Specification

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

Accessories

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

KEL 10

Cable entry frames



1

Product description

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

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

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

Advantages

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

Specificationen

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

Accessories

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

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

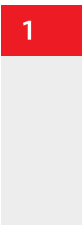
KEL - B

Cable entry frames



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

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



Product description

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

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

For routing cables and conduits up to 34 mm diameter.

Advantages

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

Specification

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

Accessories

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

KEL - E

Cable entry frames



1

Product description

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

For inserting cables up to 17 mm diameter.

Advantages

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

Specification

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

Accessories

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

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

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

KEL 24 - E Cable entry frames



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

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

1

Product description

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

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

Advantages

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

Specification

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

Accessories

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

KEL 24 - MT

Cable entry frames



Description	Type	Order No.	Inserts KT small large	PU
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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

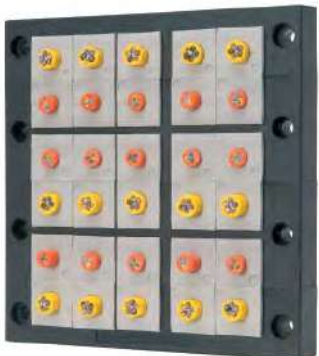
Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	-40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	82 x 112 mm / page 94

Accessories

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

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

KEL 24 - 2MT Cable entry frames



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

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

1

Product description

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

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

Advantages

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

Specification

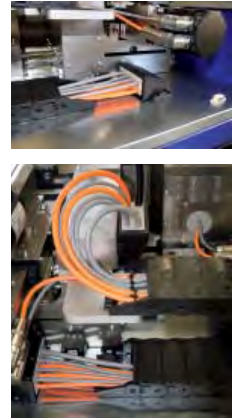
Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54, with gasket and correct selection of the cable inserts
Temperature	-40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	126 x 112 mm / page 94

Accessories

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

KEL - FG

Flange enclosure



Description	Type	Order No.	Inserts KT		PU
			small	large	

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 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	KEL-FG Type A: 36 x 112 mm KEL-FG Type B: 46 x 36 mm

Accessories

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

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

KEL - SNAP

SNAP frames



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

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

1

Product description

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

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

Advantages

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

Specification

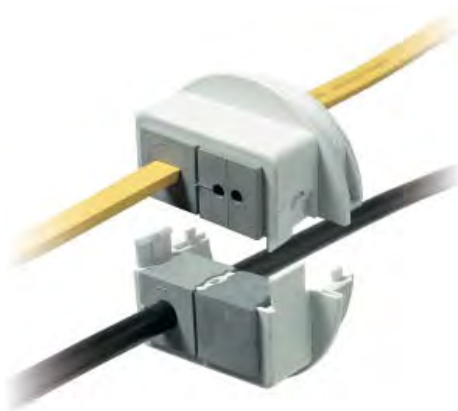
Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Drilling template	see page 94

Accessories

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

KVT

Split cable glands



1

Product description

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

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

* Maximum cable diameter 15 mm

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

Advantages

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

Specification

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

Accessories

KT Cable inserts	Page 22 26
Locknuts	Page 95

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

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

KVT - SNAP

Split cable glands



Type	Order No.	Inserts KT small large	Thread Thread length	PU	Description
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KVT - SNAP 32	45130	1 -	M32 x 1.5 Length: 11 mm	10	
KVT - SNAP 40	45134	1 -	M40 x 1.5 Length: 11 mm	10	
KVT - SNAP 63 4*	45152	4 -	M63 x 1.5 Length: 11 mm	5	
KVT - SNAP 63 1*	45154	- 1	M63 x 1.5 Length: 11 mm	5	
KGM SUB-D9	45105	PC, grey	M32 x 1.5	10	
KGM 32	52275	PA, grey	M32 x 1.5	10	
KGM 40	52276	PA, grey	M40 x 1.5	10	
KGM 63	52278	PA, grey	M63 x 1.5	5	

1

Product description

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

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

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

Assembly

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

Specification

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

Accessories

KT Cable inserts	Page 22 26
Locknuts	Page 95

KVT - W90

Split cable glands



1

Product description

The split KVT-W90 cable glands are used to insert and seal pre-terminated cables and conduits at a 90° angle.

In particular, the KVT 50-W90 is perfectly suited to hold corrugated or smooth hoses.

A large number of cable entry inserts is available to the user.

Advantages



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

Specification

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

Accessories

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

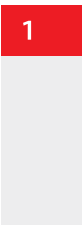
Type	Order No. without locknut	Order No. with locknut	Inserts KT small large	Thread Thread length	PU
KVT 32 - W90	45400	45404	1 -	M32 x 1.5 Length: 11.5 mm	10
	Split locknut M32	31120 (without KVT)	-	-	10
KVT 50 4 - W90	45420	45424	4 -	M50 x 1.5 Length: 11.5 mm	5
KVT 50 1 - W90	45410	45414	- 1	M50 x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

WST

Split corrugated conduit



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



Product description

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

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

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

Advantages

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

Specification

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

SH

Conduit clip



1

Product description

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

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

Specification

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

Accessories

Corrugated conduit

Page 19

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

Service box for cable inserts

KT | Service box for cable inserts



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

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

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

1

Product description

Convenient - everything readily available!

The service box is perfect for installations and service calls.

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

Order No. 88001

Content

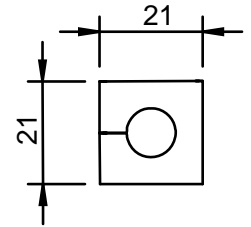
- 126 Cable inserts, small for cables 2 - 17 mm
- 8 Cable inserts, small for ASI-Bus cables
- 6 Cable inserts, small for special cables
- 29 Cable inserts, large for cables 16 - 34 mm

- 1 Cable template

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

KT

Inserts, small



1

Product description

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

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

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

Assembly

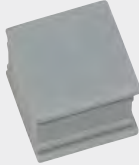
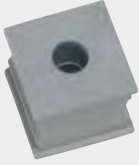
When installing the insert, the smooth side of the insert faces the middle of the cable entry frame.

Specification KT grey

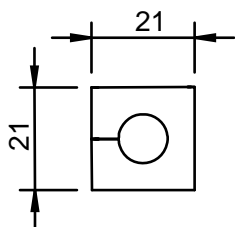
Material Elastomer
 Flame class UL-94 Vo, self-extinguishing
 Temperature - 30°C to+ 90°C (static)
 Properties halogen-free, silicone-free

Specification KT black

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

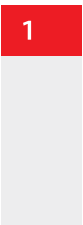
Description	Type	Order No grey	Order No black	Clamping range	PU
BTK 	BTK	41251	41351	Blind insert	10
KT 	KT 2	39934	41302	2 - 3 mm	10
	KT 3	41203	41303	3 - 4 mm	10
	KT 4	41204	41304	4 - 5 mm	10
	KT 5	41205	41305	5 - 6 mm	10
	KT 6	41206	41306	6 - 7 mm	10
	KT 7	41207	41307	7 - 8 mm	10
	KT 8	41208	41308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

KT Inserts, small



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

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



Product description

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

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

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

Assembly

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

Specification KT grey

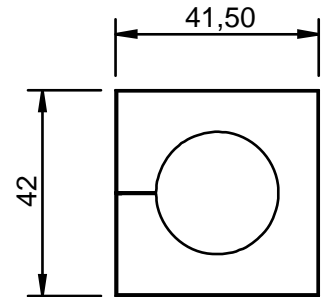
Material	Elastomer
Flame class	UL-94 Vo, self-extinguishing
Temperature	- 30°C to + 90°C (static)
Properties	halogen-free, silicone-free

Specification KT black

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

KT

Inserts, large



1

Product description

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

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

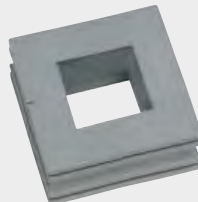
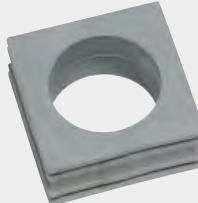
ATG adapter inserts provide the possibility to hold a small KT insert to reduce the clamping range down to 2 mm.

Specification KT grey

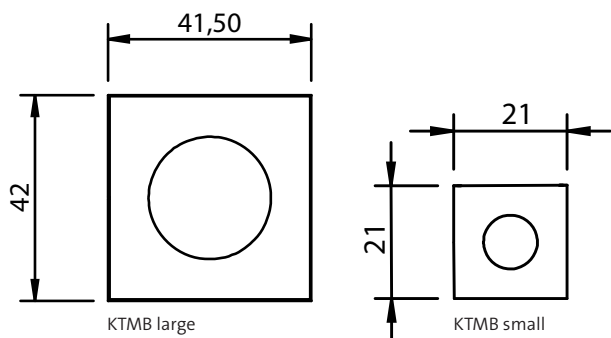
Material	Elastomer
Flame class	UL-94 Vo, self-extinguishing
Temperature	- 30°C to + 90°C (static)
Properties	halogen-free, silicone-free

Specification KT black

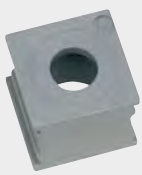



Material	Elastomer
Flame class	UL-94 HB
Temperature	- 30°C to + 90°C (static)
Properties	higher chemical resistance, UV-stabilized

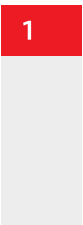
Description	Type	Order No. grey	Order No. black	Clamping range	PU
	ATG	41253	41353	Adapter insert	10
	BTG	41252	41352	Blind insert	
	KT 16	41216	41316	16 - 17 mm	10
	KT 17	41217	41317	17 - 18 mm	10
	KT 18	41218	41318	18 - 19 mm	10
	KT 19	41219	41319	19 - 20 mm	10
	KT 20	41220	41320	20 - 21 mm	10
	KT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

KTMB Inserts, multi-range



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

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



Product description KTMB

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

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

Specification KTMB grey

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

Product description

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

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

Order-No. 39800



DT

Cable entry inserts



1

Product description

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

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

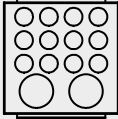
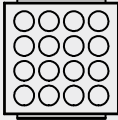
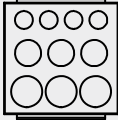
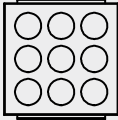
- KEL 24 | KEL 16 | KEL 10 | KEL-B - Page 6 - 9
- KEL 24 Extensions - Page 11 - 13
- KEL-FG - Page 14

Advantages

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

Specification

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

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

ST Plugs



1

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

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

Product description

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

Perfect for applications where cables have been removed.

Advantages

- Sealing unused cable entries

Specification

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

Accessories

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

KEL - FL

Cable entry for flat cables



Description	Type	Order No.	Cut-out [mm]	Inserts KT FT	PU
-------------	------	-----------	--------------	-----------------	----

1

Product description

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

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

Advantages

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

Specification

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





Accessories

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

	KEL - FL A	46100	43 x 24	0x KT 1x FT - 1	10
	KEL - FL B	46105	65 x 24	0x KT 1x FT - 2	10
	KEL - FL C	46110	65 x 24	1x KT 1x FT - 1	10
	KEL - FL D	46115	86 x 24	0x KT 1x FT - 3	10
	KEL - FL E	46120	86 x 24	1x KT 1x FT - 2	10
	KEL - FL F	46125	86 x 24	0x KT 2x FT - 1	10
	KEL - FL G	46130	86 x 24	2x KT 1x FT - 1	10
	KEL - FL H	46135	112 x 24	2x KT 1x FT - 2	10
	KEL - FL I	46140	112 x 24	1x KT 2x FT - 1	10
	KEL - FL J	46145	112 x 24	3x KT 1x FT - 1	10
	KEL - FL K	46150	112 x 24	1x FT - 1 1x FT - 2	10
	KEL - FL L	46155	112 x 24	1x FT - 4	10

FT Inserts for flat wires



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

1

Product description

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

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

Advantages

- Routing of flat wires with various dimensions

Specification

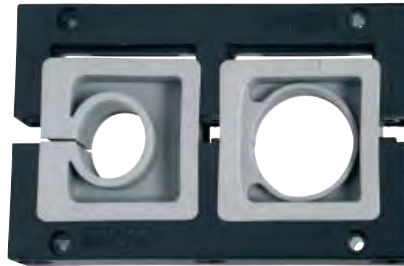
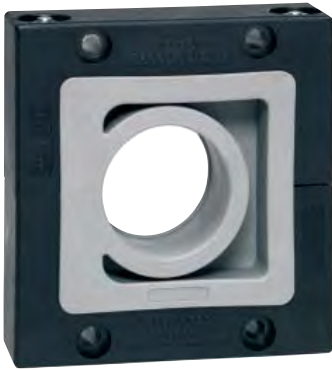
Material	Elastomer
Flame class	UL-94 V0, self-extinguishing
Temperature	- 30°C to + 90°C (static)
Properties	halogen-free, silicone-free

Accessories

KEL-FL Cable entry frames Page 28

KEL - JUMBO

Cable entry frames



Description	Type	Order No.	Dimension length width height	PU
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1

Product description

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

The innovative insert design enables dynamic and flexible movement.

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

Advantages

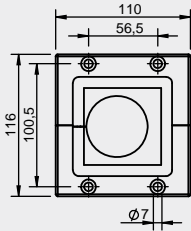
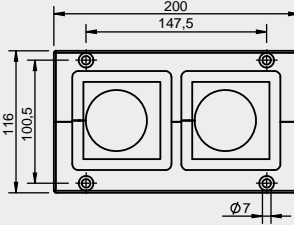
- Installation of cables up to 65 mm
- KTF-inserts allow dynamic and flexible movement
- Retrofitting and maintenance can be carried out easily and quickly

Specification

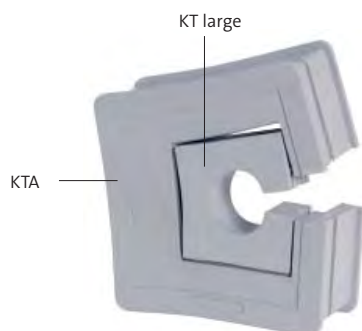
Material	Polyamide
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 54
Temperature	- 40°C to + 140°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	round, cable diameter + 15%

Accessories

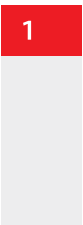
KTF Cable inserts	Page 31
KDR2 Split base plates	Page 80 81
MP Module plates	Page 86

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

KTF Inserts for KEL-JUMBO



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



Product description

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

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

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

Specification

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

Accessories

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

KEL - QUICK

Cable entry frames



Alternative fastening:



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

1

Product description

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

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

Inserts of the QT range are used.

Advantages

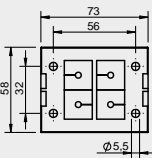
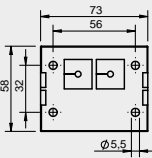
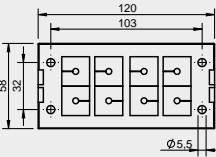
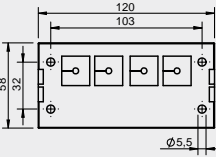
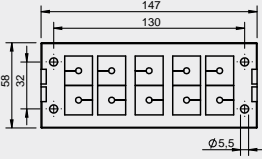
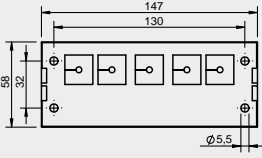
- Quick and safe assembly without using any tools or screws
- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and inserts

Specification

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

Accessories

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

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

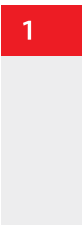
QVT

Split cable glands



Type	Order No.	Cable inserts	Thread Thread length	PU	Description
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QVT 25	45700	1 x QT	M25 x 1.5 Length: 13 mm	10	
QVT 50 4	45720	4 x QT	M50 x 1.5 Length: 13 mm	10	
KGM 25	52274	PA, grey	M25 x 1.5	10	
KGM 50	52277	PA, grey	M50 x 1.5	10	



Product description

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

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

Advantages

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

Specification

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

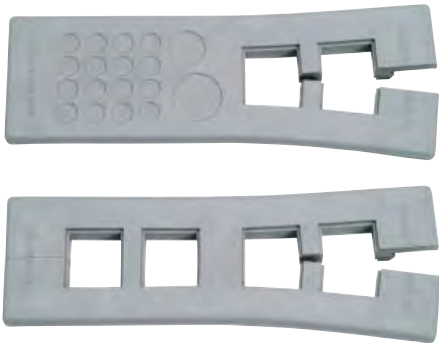
Accessories

QT Cable inserts

Page 37

KEL - QTA

Cable entry frames



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

1

Product description

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

Advantages

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

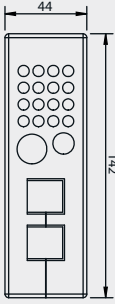
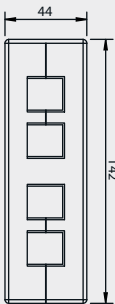
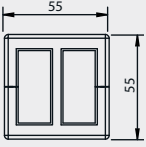
Specification

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

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

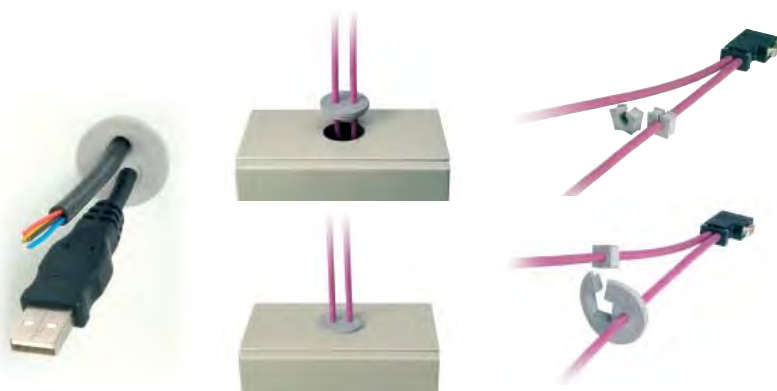
Accessories

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

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

KEL - QTA | KEL - QTE

Cable entry frames



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

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

1

Product description

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

Advantages

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

Specification

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

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

Accessories

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

KEL - AD

Cap for attachment housing



Description	Type	Order No.	Fits for	PU
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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 35
KEL-DP Cable entry frames	Page 43

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

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 Ø 3 mm	10		
QT 2 4	42568	2x Ø 4 mm	10		
QT 2 5	42570	2x Ø 5 mm	10		
QT 2 5.5	42571	2x Ø 5,5 mm	10		
QT 2 6	42572	2x Ø 6 mm	10		
QT 2 6.5	42576	2x Ø 6,5 mm	10		
QT 2 7	42578	2x Ø 7 mm	10		
QT 4 3	42580	4x Ø 3 mm	10		
QT 4 4	42582	4x Ø 4 mm	10		
QT 4 4.5	42583	4x Ø 4,5 mm	10		
QT 4 5	42584	4x Ø 5 mm	10		
QT 4 5.5	42585	4x Ø 5,5 mm	10		
QT 4 6	42586	4x Ø 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 32
- QVT - Page 33
- KEL-QTA - Page 34 - 35

Assembly

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

Specification

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

Accessories

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

Product group 2

Cable entry systems for entering non pre-terminated cables

Product description



At a glance ...

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

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

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

2



Benefits ...

1. High packing density

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

2. Fast and easy assembly

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

3. No new punch out tools needed

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

4. Tight seal

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

5. Flexibility

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

6. Customized solutions

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

Product group 2

Cable entry systems for routing non pre-terminated cables

Chapter content

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

2

KEL - DPZ

Cable entry plates



Gasket on the front.



Gasket and strain relief on the back.

Product description

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

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

Advantages

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

Specification

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

Accessories

FP Flanged plates Page 84 | 85

Description	Type	Order No.	Number of cables	PU
	KEL - DPZ 24 14	43700	10x 3.2 - 6.5 mm 4x 16 - 22 mm	10
	KEL - DPZ 24 15	43720	15x 7.2 - 12 mm	10
	KEL - DPZ 24 16	43725	8x 3.2 - 6.5 mm 4x 5.0 - 9.7 mm 2x 9.0 - 16.2 mm 2x 16 - 22 mm	10
	KEL - DPZ 24 17	43705	6x 3.2 - 6.5 mm 6x 5.0 - 10.2 mm 5x 9.0 - 16.2 mm	10
	KEL - DPZ 24 25	43710	12x 3.2 - 6.5 mm 7x 4.8 - 9.7 mm 6x 7.5 - 12.0 mm	10
	KEL - DPZ 24 42	43715	42x 3.2 - 6.5 mm	10

KEL - DPZ Cable entry plates



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

Product description

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

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

Advantages

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

Specification

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

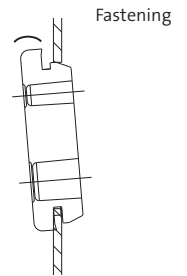
Accessories

MP Module plates

Page 86

KEL - DP

Cable entry plates



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

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

Product description

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

Advantages

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

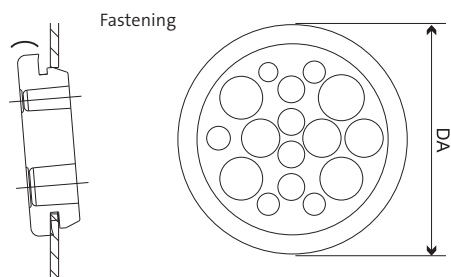
Specification

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

Accessories

FP Flanged plates	Page 84 85
KDR1 Base plates	Page 87

KEL - DP Cable entry plates



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



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

Product description

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

Advantages

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

Specification

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

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

Accessories

KEL-AD Cap for attachment housing Page 36

KEL - DPF

Cable entry inserts



Product description

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

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

Cutting of DPF inserts:

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

Advantages

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

Specification

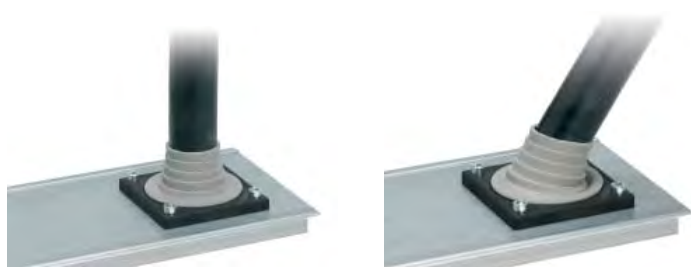
Material	Thread frame: Polyamide Pyramid: Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 65
Temperature	- 30°C to + 90°C (static)
Properties	halogen-free, silicone-free
Thread length	14 mm
Cut-out dimensions	metric standard sizes

Accessories

MP Module plates Page 86

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

KEL - JUMBO flex Cable entry inserts



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

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

Product description

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

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

Cutting of KEL-jumbo-flex inserts:

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

Advantages

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

Specification

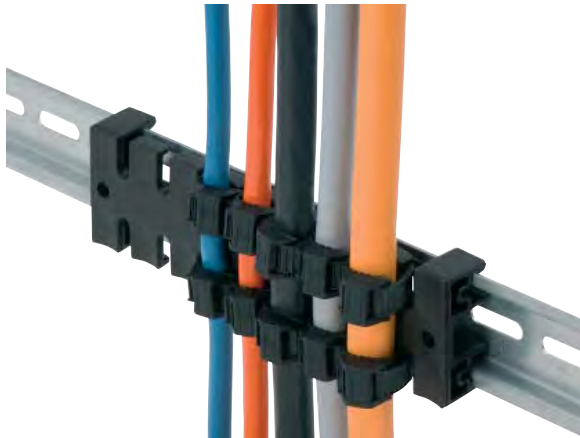
Material	Frame: Polyamide Inserts: Elastomer
Flame class	UL-94 Vo, self-extinguishing
Protection class	IP 65
Temperature	- 30°C to + 90°C (static)
Properties	halogen-free, silicone-free
Cut-out dimensions	round, \varnothing -cable + 20%

Accessories

MP Module plates	Page 86
BP Blind plates	Page 88

Product group 3

Strain relief systems



Product description

At a glance ...

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

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

3



Benefits ...

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

Product group 3

Strain relief systems

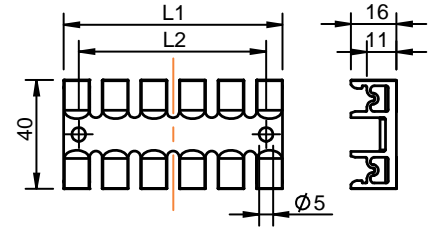
Chapter content

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



KZL

Strain relief plates



Product description

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

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

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

3

Advantages

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

Specification

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

Accessories

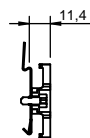
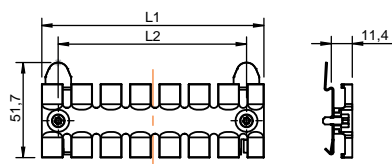
KB Cable ties

Page 55

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

SF | ZL

Strain relief plates



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

Product description

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

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

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

3

Advantages

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

Specification

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

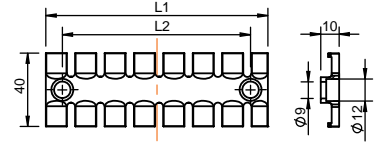
Accessories

KB Cable ties

Page 55

ZL

Strain relief plates



Product description

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

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

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

3

Advantages

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

Specification

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

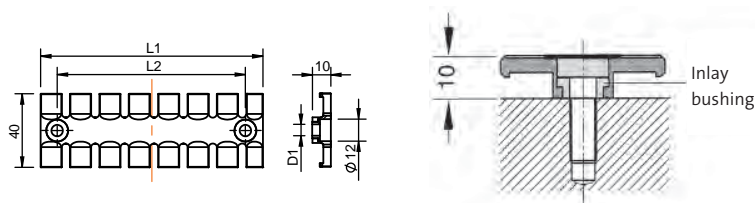
Accessories

DH Distance bushings	Page 53
KB Cable ties	Page 55

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

ZL - AB

Strain relief plates



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

Product description

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

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

Advantages

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

Specification

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

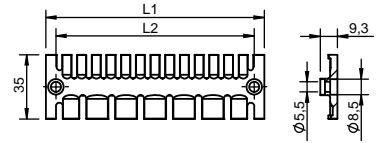
Accessories

KB Cable ties

Page 55

ZL 03 | 04 | 05

Strain relief plates



Product description

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

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

3

Advantages

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

Specification

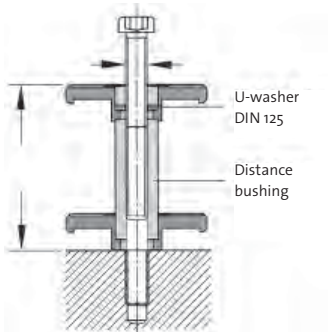
Material Polyamide
 Flame class UL-94 Vo, self-extinguishing
 Temperature - 40°C to + 140°C (static)
 Properties halogen-free, silicone-free

Accessories

DH Distance bushings Page 53
 KB Cable ties Page 55

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

DH Distance bushings



Type	Order No.	Fits for	Length	Diameter		PU
				inner	outer	

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

Product description

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

Advantages

- Increase of packing density

Specification

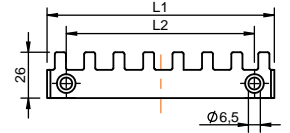
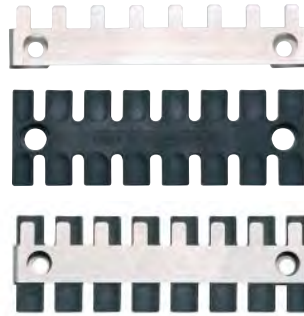
Material Aluminium

Accessories

ZL Strain relief plates Page 50 + 52

ZL | SB - EMC

Shield plate for strain relief plates



Product description

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

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

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

ZL strain relief plates sold separately.

3

Specification

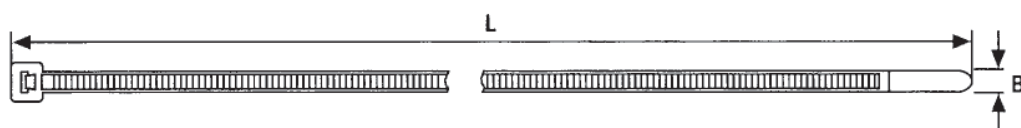
Material	
Shield plate	Stainless steel
ZL plate	Polyamide

Accessories

ZL Strain relief plates Page 50

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

KB Cable ties and pliers



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

Product description

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

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

Specification KB natural

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

Specification KB black

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

Product group 4

EMC Innovations

Product description

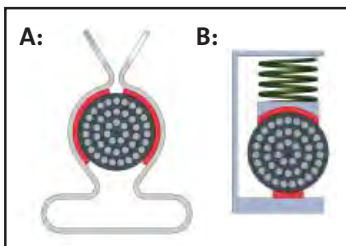


At a glance ...

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

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

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



Benefits ...

1. Flexible

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

2. Fast and tool free assembly

Strip the cable shield - press in - ready.

3. Secure hold

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

4. Large contact area

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

5. Greatly reduces high frequency interferences

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

Details can be supplied on request.

Product group 4

EMC Innovations

Chapter content

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Supports for DIN rails and bus bars MF - Supports	Page	66
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SF | SKL

EMC Shield clamps



Product description

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

Simple to use and effective shielding of cables.

For assembly on 35 mm DIN rails.

Advantages

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

Specification

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

Accessories

EMC - Servicebox	Page 61
Stripping tool	Page 77

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

SFZ | SKL EMC Shield clamps



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

Product description

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

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

For assembly on 35 mm DIN rails.

Advantages

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

Specification

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

Accessories

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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
- Cost effective solution

Specification

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

Accessories

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

EMC Service box



EMC | Service box for SKL - EMC shield clamps

Product description

Always the suitable EMC clamp readily available.

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

Order No. 88002

Content

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



LFZ | SKL

EMC Shield clamps



Product description

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

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

Shield clamps are easily attached to mounting plates via screw.

Advantages

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

Specification

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

Accessories

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

LF | SKL EMC Shield clamps



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

Product description

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

Shield clamps are easily attached to mounting plates via screw.

Advantages

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

Specification

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

Accessories

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PF | SKL

EMC Shield clamps for bus bar



Product description

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

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

Advantages

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

Specification

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

Accessories

Busbar	Page 64
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Type	Order No.	Shield diameter	PU
PF SKL 1.5 - 3	36273	1.5 - 3.0 mm	10
PF SKL 3 - 6	36274	3.0 - 6.0 mm	10
PF SKL 6 - 8	36275	6.0 - 8.0 mm	10
PF SKL 9 - 11	36276	9.0 - 11 mm	10
PF SKL 12 - 16	36277	12 - 16 mm	10
PF SKL 17 - 22	36278	17 - 22 mm	10
PF SKL 23 - 29	36279	23 - 29 mm	10
Busbar 10 x 3 mm	36100	10 x 3 x 1,000 mm	1

PFZ | SKL EMC Shield clamps



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

Product description

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

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

Advantages

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

Specification

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

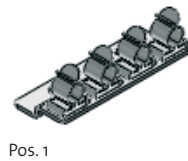
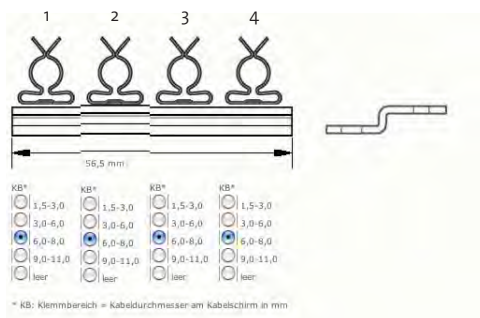
Accessories

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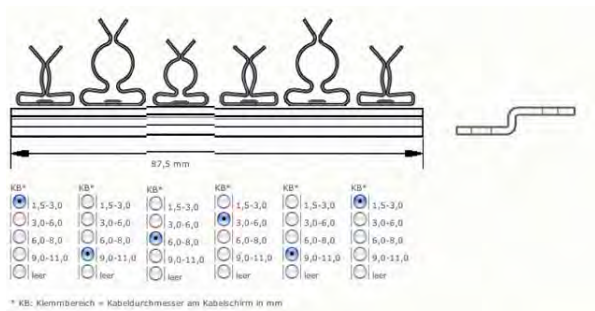


EMC | shield clamp design tool

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



Pos. 1



Example 1:

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

Example 2:

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

Product description

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

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

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

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

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

Advantages

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

Specification

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

RLFZ

EMC Clamp assembly with strain relief



Product description

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

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

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

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

Advantages

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

Specification

Material

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

RLFZ-foot Steel, galvanically zinc-plated

Accessories

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 Stripping tool Page 77
 Cable ties Page 55

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

RLF EMC Clamp assembly



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

Product description

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

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

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

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

Advantages

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

Specification

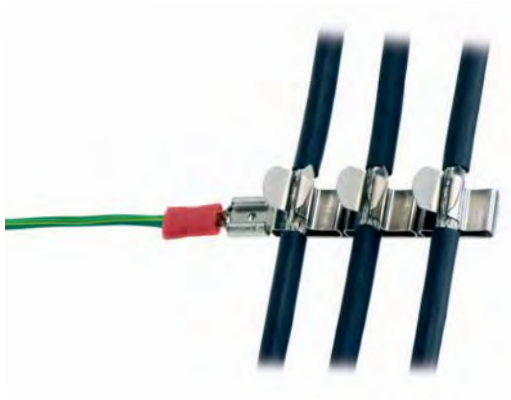
Material	
SKL-clamp	Stainless steel (SKL 1.5-3 / SKL 3-6)
RLF-foot	Spring steel (from SKL 6-8)
	Steel, galvanically zinc-plated

Accessories

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EMC

Customized solutions



EMC | Customized solutions

Product description

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

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

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

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



4

Advantages

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

Specification

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

EMC Test results



Leakage and Impedence

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

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

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

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

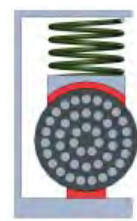
Contact area

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

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

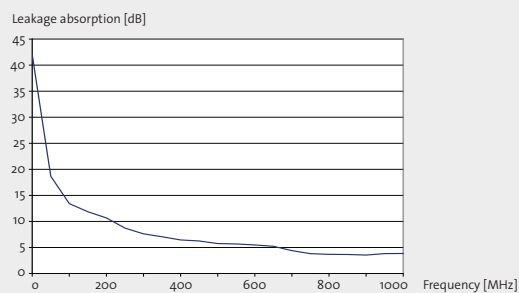
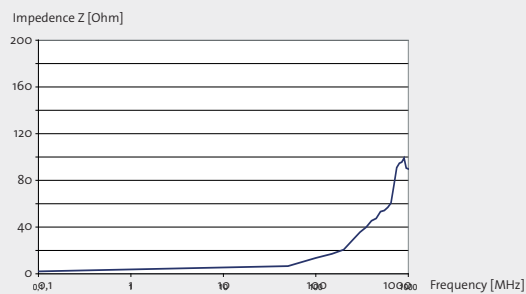


pict. A: SKL-line

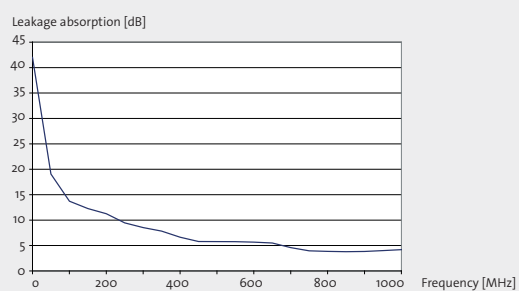
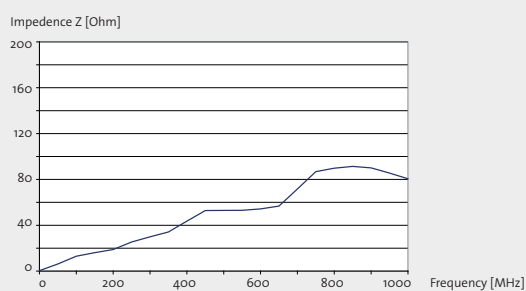


pict. B: Conventional systems

LF | SKL 9 - 11



SF | SKL 6 - 8



SK

EMC Shield clamps



Product description

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

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

Advantages

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

Specification

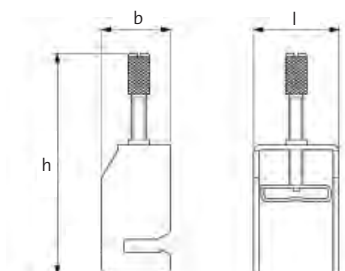
Material	
SK-clamp	Steel, galvanically zinc-plated
SF-foot	Spring steel

Accessories

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

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

SKS EMC Shield clamps



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

Product description

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

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

Advantages

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

Specification

Material
SKS-clamp Steel, galvanically zinc-plated

Accessories

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

KEL - EMC

Cable assembly



Product description

Installation of pre-terminated cables without shield interruption.

Advantages

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

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

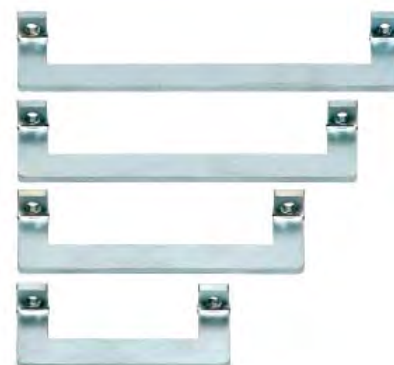
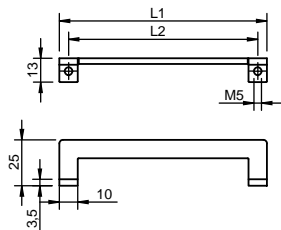
Specification

Material Stainless steel

Accessories

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

KEL - EMC Bracket version



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

Product description

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

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

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

Advantages

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

Specification

Material Steel, galvanically zinc-plated

Accessories

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

KAFM - EMC

Cable assembly



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



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



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

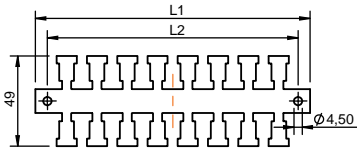


Type DH: Mounted on bushing for flexible fixation on bottomsheet

Product description

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

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



Type	Order No. Type SF	Order No. Type SK	Order No. Type SC	Order No. Type DH	Order No. loose rail	Length L1	Length L2	No. of teeth
------	----------------------	----------------------	----------------------	----------------------	-------------------------	--------------	--------------	-----------------

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

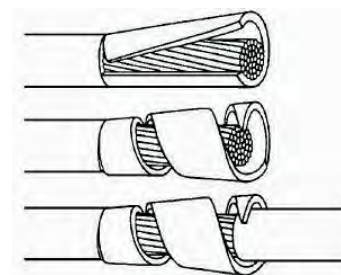
Specification

Material Stainless steel

Accessories

Stripping tool Page 77
Cable ties Page 55

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



Stripping functions

Stripping tools

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



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

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



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

Product description

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

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

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

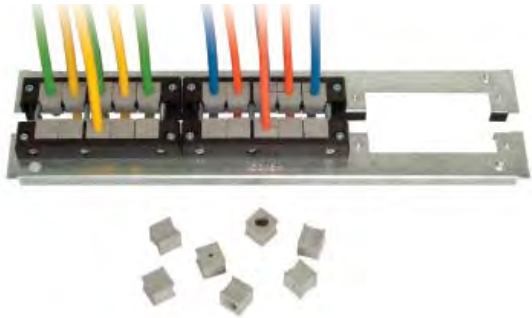
Product description

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

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

Product group 5

Switch cabinet accessories



Product description

At a glance ...

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

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

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

Benefits ...

1. Flexible

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

2. Fast and easy assembly

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

3. Secure hold

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

4. Easy to maintain

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

Product group 5

Switch cabinet accessories

Chapter content

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



KDR 2

Split base plates

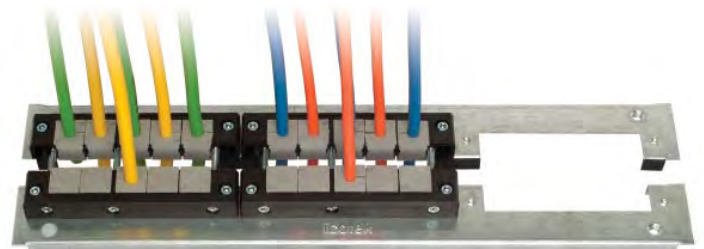


KDR 2 | Split base plates

Product description

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

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

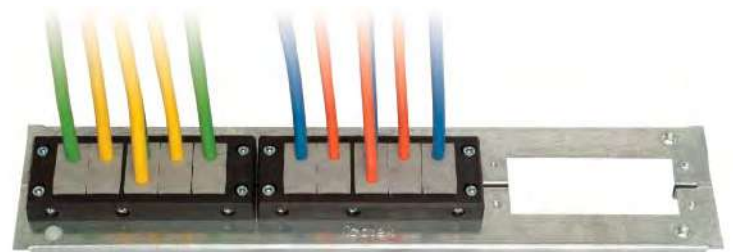


Advantages and notes

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



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



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.

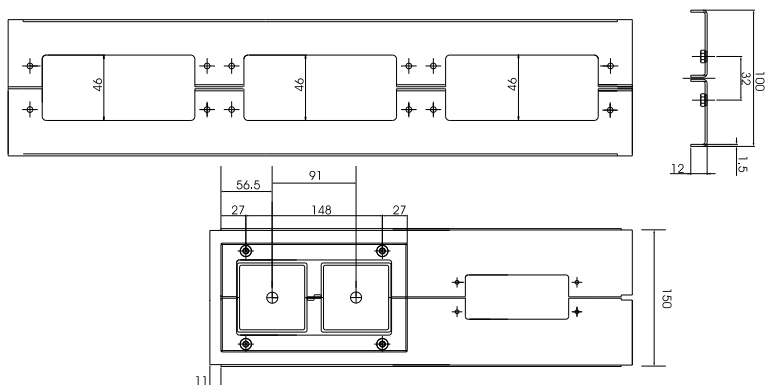
Specification

Material Steel, zinc-plated

Accessories

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

KDR 2 Split base plates



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

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

KDR

Cable entry frame



KDR | Cable entry system

Product description

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

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

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

Function

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

No extra components are necessary for installation of cables.

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



Advantages

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



Specification

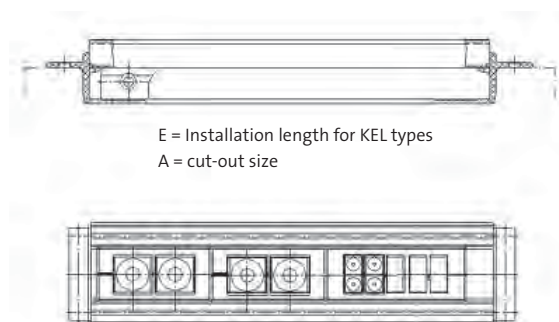
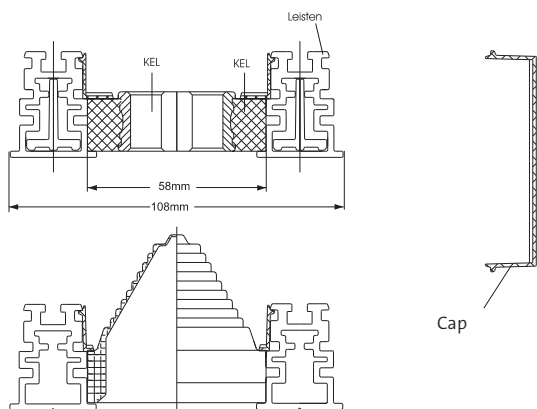
Material Aluminium

Accessories

KEL Cable entry frames

Page 6 | 7

KDR Cable entry frame



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

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

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

KDR ordering information

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

A = cut-out size

Example: A = 999 mm equals KDR 44999

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

Included in delivery:

1x KDR - frame by length
2x end pieces

FP

Flanged plates



Description

Product description

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

Advantages

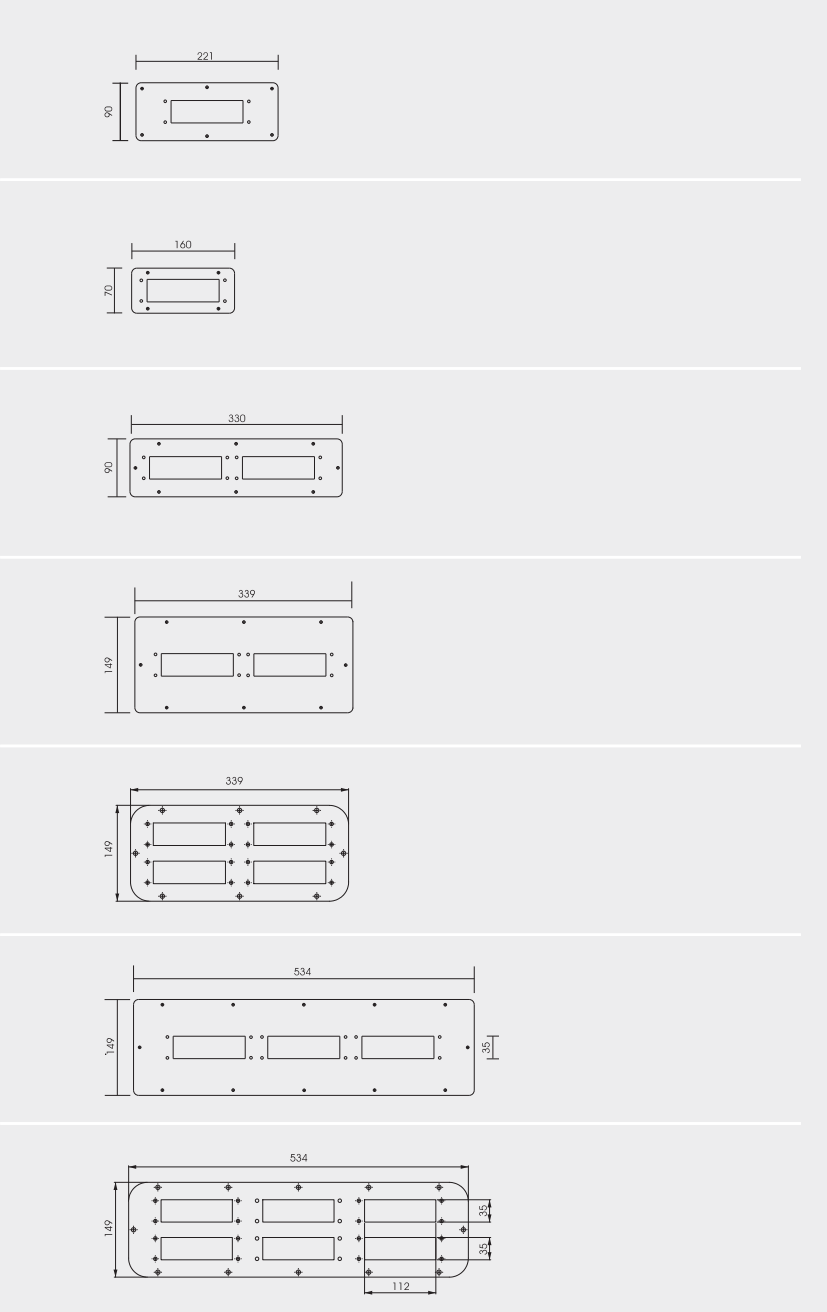
- No expensive extra sheet metal work is required
- High packing density is achieved by using KEL, KEL-DPZ or KEL-DP
- Reduce labor costs by using cable entry systems KEL, KEL-DPZ or KEL-DP compared to the assembly of conventional cable glands

Specification

Material **Steel, powder-coated**

Accessories

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



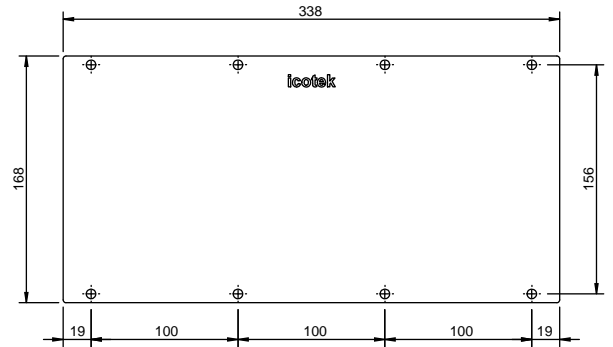
FP Flanged plates



Type	Order No. RAL 7035	Fits (e.g. for Rittal in RAL 7032 RAL 7035)
FP - KL 221 90 mm	43834	Terminal boxes type KL
FP - AE 160 70 mm	43836	AE 1032.600 AE 1032.500 AE 1035.600 AE 1035.500
FP - AE 330 90 mm	43838	AE 1030.600 AE 1030.500 AE 1031.600 AE 1031.500 AE 1038.600 AE 1038.500 AE 1380.600 AE 1380.500
FP - AE 339 149 mm Design with 2 cut-outs	43840	AE 1057.600 AE 1057.500 CS 9771.111 AE 1110.600 AE 1110.500 CS 9771.115 AE 1114.600 AE 1114.500 CS 9751.145 AE 1130.600 AE 1130.500 CS 9751.165 AE 1350.600 AE 1350.500 CS 9774.200 AE 1045.600 AE 1045.500 CS 9774.210 AE 1050.600 AE 1050.500 CS 9774.250 AE 1100.600 AE 1100.500 CS 9774.400 AE 1213.600 AE 1213.500 CS 9774.410 AE 1338.600 AE 1338.500 CS 9774.450
FP - AE 339 149 mm Design with 4 cut-outs	43846	
FP - AE 534 149 mm Design with 3 cut-outs	43842	AE 1039.600 AE 1039.500 CS 9772.111 AE 1339.600 AE 1339.500 CS 9772.115 AE 1060.600 AE 1060.500 EL 1919.200 AE 1076.600 AE 1076.500 EL 1920.200 AE 1077.600 AE 1077.500 EL 1926.200 AE 11180.600 AE 11180.500 DK 7011.535 AE 1058.600 AE 1058.500 DK 7012.535 AE 1090.600 AE 1090.500 DK 7013.535 AE 1360.600 AE 1360.500 DK 7014.535 AE 1376.600 AE 1376.500 DK 7644.535 AE 1073.600 AE 1073.500 DK 7641.535 AE 1260.600 AE 1260.500 DK 7643.535 AE 1280.600 AE 1280.500 DK 7645.535 AE 1055.600 AE 1055.500
FP - AE 534 149 mm Design with 6 cut-outs	43848	

MP

Module plates



Product description

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

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

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

The shipment includes a suitable gasket.

Specification

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

Accessories

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

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

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

KDR 1 Base plates

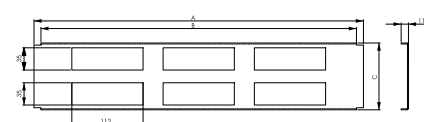
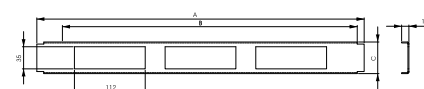


Contr. cabinet width TS 8	Total length base plate A	Sight size base plate opening	Width C	No. of possible cable entries KEL-DP 24 or KEL-QTA 24	Order No.	
600 mm	458 mm	436 mm	50 mm	one-row	3	43028
			105 mm	two-row	6	43012
800 mm	658 mm	636 mm	50 mm	one-row	4	43024
			105 mm	two-row	8	43008
1.000 mm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

Product description

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

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



Specification

Material Steel, zinc-plated

Accessories

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

BP

Blind plates, plastic



Product description

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

Plastic blind plates are available in two different versions:

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

Type BP - K: Blind plates for screw connection

Advantages

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

Specification

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

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

BP - M

Blind plates, metal



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

Product description

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

Specification

Material Steel, zinc-plated
Width 2 mm

BP - SNAP

Blind plates for KEL-SNAP frames



Product description

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

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

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

Specification

Material Steel, zinc-plated

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

Accessories

KEL-SNAP frames

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MB

Earthing tapes



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

Product description

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

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

Advantages

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

Specification

Material E-Cu-strand
resistance welded using pressure

Appendix

Technical data and comments

Technical information



At a glance ...

Technical data and drilling templates at a glance.

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



Appendix

Technical data and comments

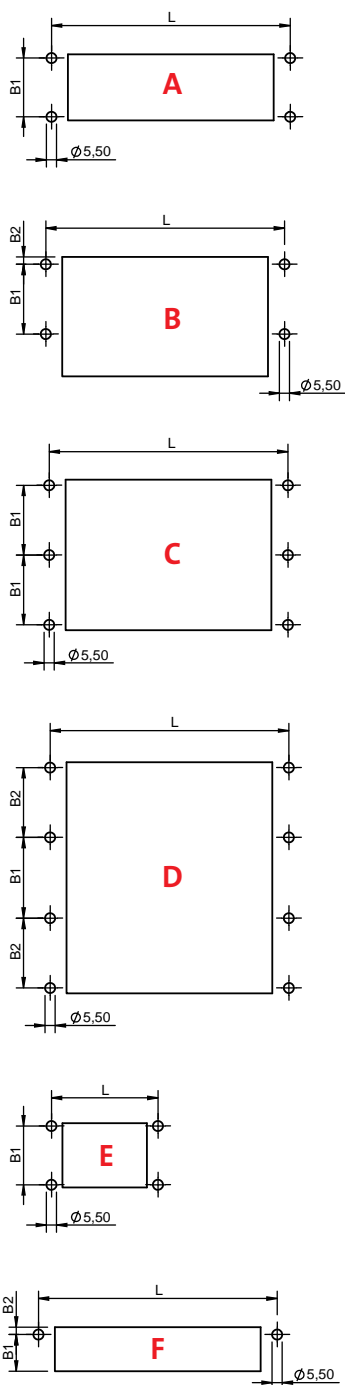
Chapter content

Technical data Drilling templates and cut-outs	Page	94
Technical data Locknuts	Page	95
Appendix Flammability classification according UL 94	Page	96
Appendix Sealing rates according DIN EN 60529	Page	97
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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 30 38	A	130	32	-	36 x 112
KEL-SNAP 24	15	A	130	32	-	max. 46 x 112
KEL 16 x KEL-QUICK 16	7 30	A	103	32	-	36 x 86
KEL-SNAP 16	15	A	103	32	-	max. 46 x 86
KEL 10 x KEL-SNAP 10	8 15	A	83	32	-	36 x 65
KEL 24 x - E	11	B	130	38	5	62 x 112
KEL 24 x - MT	12	C	130	38	-	82 x 112
KEL 24 x - 2MT	13	D	130	44	38	126 x 112
KEL-B	9	E	58	32	-	46 x 46
KEL-SNAP B KEL-QUICK B	15	E	56	32	-	46 x 38
KEL-FG B	14	E	62.5	32	-	46 x 36
KEL-E x KEL-FL x	10 26	F	KEL-E2: 58 KEL-E3: 83 KEL-E4: 103 KEL-E5: 130	19	5	KEL-E2: 43 x 24 KEL-E3: 65 x 24 KEL-E4: 86 x 24 KEL-E5: 112 x 24

KGM Locknuts



Type GMT: Split locknut



Type KGM: Plastic locknut



Type SUB-D9: for Sub-D9 plugs



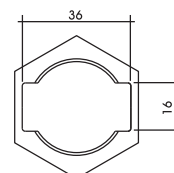
Thread	Type	Order No.	Material	Height [mm]	Wrench size	Diagonal [mm]	PU
M25 x 1.5	KGM 25	52274	PA, grey	9.0	SW 28	31	10
M25 x 1.5	KGM 25	52284	PA, black	7.0	SW 32	36	10
M25 x 1.5	GMT 25	31100	PA, black	9.0	SW 32	35	5
M32 x 1.5	KGM 32	52275	PA, grey	7.0	SW 41	46	10
M32 x 1.5	KGM 32	52285	PA, black	7.0	SW 41	46	10
M32 x 1.5	GMT 32	31120	PA, black	12.0	SW 40	44	5
M32 x 1.5	KGM SUB-D9	45105	PC, grey	7.0	SW 41	46	10
M40 x 1.5	KGM 40	52276	PA, grey	7.0	SW 50	56	10
M40 x 1.5	KGM 40	52286	PA, black	7.0	SW 50	56	10
M50 x 1.5	KGM 50	52277	PA, grey	8.6	SW 60	66	10
M50 x 1.5	KGM 50	52287	PA, black	8.6	SW 60	66	10
M50 x 1.5	GMT 50	31140	PA, black	15.0	SW 63	69	5
M63 x 1.5	KGM 63	52278	PA, grey	8.6	SW 75	83	5
M63 x 1.5	KGM 63	52288	PA, black	8.6	SW 75	83	5
M63 x 1.5	GM 63	56152	brass	5.0	SW 70	77	5

Product description

Hexagonal nut with metric threads for attaching components together.

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

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



Specification

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

Accessories

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

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Appendix

Flammability classification according UL 94

Flame class UL 94 - HB

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

Materials which burn faster are not UL certified.

Flame class UL 94 - V2

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

Flame class UL 94 - V1

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

Flame class UL 94 - 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

Certificate DIN ISO 9001:2008

ISO 9001:2008



Icotek GmbH

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

Appendix

General reference notes

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

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

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

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

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Appendix

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Order No	Page	Type	Order No	Page	Type	Order No	Page	Type	Order No	Page	Type
31100	95	GMT 25	32281	51	ZL-AB 60 / 5,2	36066	66	MF-A68 Clip	36326	54	ZL 140/SB-EMV
31120	95	GMT 32	32282	51	ZL-AB 70 / 5,2	36072	66	MF-A88	36328	54	ZL 60/SB-EMV
31140	95	GMT 50	32283	51	ZL-AB 87 / 5,2	36074	66	MF-A88 Clip	36330	54	ZL 121/SB-EMV
31200	19	WST NW 10	32284	51	ZL-AB 103 / 5,2	36100	64	Bus bar 10x3	36332	54	ZL 103/SB-EMV
31210	19	WST NW 14	32285	51	ZL-AB 121 / 5,2	36150	66	Clip	36400	76	KAFM 10 SC
31220	19	WST NW 20	32286	51	ZL-AB 140 / 5,2	36222	72	SK 3-8	36412	76	KAFM 2 SC
31230	19	WST NW 23	32287	51	ZL-AB 180 / 5,2	36224	72	SK 4-13,5	36414	76	KAFM 4 SC
31240	19	WST NW 37	32290	51	ZL-AB 39 / 6,2	36226	72	SK 10-20	36416	76	KAFM 6 SC
31250	19	WST NW 45	32291	51	ZL-AB 60 / 6,2	36228	72	SK 15-32	36418	76	KAFM 8 SC
31260	19	WST NW 70	32292	51	ZL-AB 70 / 6,2	36229	60	SFS loose	36422	76	KAFM 2 loose
31300	20	SH 10	32293	51	ZL-AB 87 / 6,2	36230	58	SF loose	36424	76	KAFM 4 loose
31310	20	SH 13	32294	51	ZL-AB 103 / 6,2	36231	72	SC loose	36426	76	KAFM 6 loose
31320	20	SH 16	32295	51	ZL-AB 121 / 6,2	36232	76	SK	36428	76	KAFM 8 loose
31330	20	SH 21	32296	51	ZL-AB 140 / 6,2	36234	76	Bushing	36430	76	KAFM 10 loose
31340	20	SH 28	32297	51	ZL-AB 180 / 6,2	36235	72	SS/SK 3-8	36432	76	KAFM 2 SK
31350	20	SH 34	32351	49	SF/ZL 39	36236	72	SS/SK 4-13,5	36434	76	KAFM 2 SK
31360	20	SH 42	32352	49	SF/ZL 60	36237	72	SS/SK 10-20	36436	76	KAFM 6 SK
31370	20	SH 54	32353	49	SF/ZL 70	36243	58	SF/SKL 1,5-3	36438	76	KAFM 8 SK
32112	52	ZL 03	32354	49	SF/ZL 87	36244	58	SF/SKL 3-6	36440	76	KAFM 10 SK
32114	52	ZL 04	32355	49	SF/ZL 103	36245	58	SF/SKL 6-8	36442	76	KAFM 2 SF
32116	52	ZL 05	32356	49	SF/ZL 121	36246	58	SF/SKL 9-11	36444	76	KAFM 4 SF
32222	50	ZL 39	32357	49	SF/ZL 140	36247	58	SF/SKL 12-16	36446	76	KAFM 6 SF
32224	50	ZL 60	32358	49	SF/ZL 180	36248	58	SF/SKL 17-22	36448	76	KAFM 8 SF
32226	50	ZL 70	32650	91	MB 200/10/M6	36249	58	SF/SKL 23-29	36450	76	KAFM 10 SF
32228	50	ZL 87	32655	91	MB 100/16/M8	36251	63	LF/SKL 1,5-3	36452	76	KAFM 16 SF
32230	50	ZL 103	32660	91	MB 200/25/M8	36253	63	LF/SKL 3-6	36454	76	KAFM 29 SF
32232	50	ZL 121	32665	91	MB 300/10/M6	36255	63	LF/SKL 6-8	36458	76	KAFM 59 SF
32234	50	ZL 140	32670	91	MB 300/16/M8	36256	63	LF/SKL 9-11	36460	76	KAFM 16 DH
32236	50	ZL 180	32675	91	MB 300/25/M8	36257	63	LF/SKL 12-16	36462	76	KAFM 29 DH
32251	53	DH 30	36000	66	MF-B20	36258	63	LF/SKL 17-22	36464	76	KAFM 59 DH
32252	53	DH 32	36002	66	MF-B20 Clip	36259	63	LF/SKL 23-29	36465	76	KAFM 16 SC
32260	48	KZL 39 H	36008	66	MF-B30	36273	64	PF/SKL 1,5-3	36466	76	KAFM 29 SC
32261	48	KZL 39 C	36010	66	MF-B30 Clip	36274	64	PF/SKL 3-6	36467	76	KAFM 59 SC
32262	48	KZL 80 H	36016	66	MF-B50	36275	64	PF/SKL 6-8	36470	76	KAFM 16 SK
32263	48	KZL 80 C	36018	66	MF-B50 Clip	36276	64	PF/SKL 9-11	36471	76	KAFM 29 SK
32264	48	KZL 140 H	36024	66	MF-B90	36277	64	PF/SKL 12-16	36472	76	KAFM 59 SK
32265	48	KZL 140 C	36026	66	MF-B90 Clip	36278	64	PF/SKL 17-22	36482	76	KAFM 2 DH
32270	51	ZL-AB 39 / 4,1	36032	66	MF-C40	36279	64	PF/SKL 23-29	36484	76	KAFM 4 DH
32271	51	ZL-AB 60 / 4,1	36034	66	MF-C40 Clip	36282	73	SKS 2-5	36486	76	KAFM 6 DH
32272	51	ZL-AB 70 / 4,1	36040	66	MF-C53	36283	73	SKS 3-8	36488	76	KAFM 8 DH
32273	51	ZL-AB 87 / 4,1	36042	66	MF-C53 Clip	36284	73	SKS 3-14	36490	76	KAFM 10 DH
32274	51	ZL-AB 140 / 4,1	36048	66	MF-D49	36285	73	SKS 3-20	36500	72	SF/SK 3-8
32275	51	ZL-AB 103 / 4,1	36050	66	MF-D49 Clip	36286	73	SKS 5-28	36502	72	SF/SK 4-13,5
32276	51	ZL-AB 180 / 4,1	36056	66	MF-A49	36287	73	SKS 20-35	36504	72	SF/SK 10-20
32277	51	ZL-AB 121 / 4,1	36058	66	MF-A49 Clip	36322	54	ZL 39/SB-EMV	36506	72	SF/SK 15-32
32280	51	ZL-AB 39 / 5,2	36064	66	MF-A68	36324	54	ZL 87/SB-EMV	36520	74	KEL-EMV B



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Reference list 2 | 4

Order No	Page	Type	Order No	Page	Type	Order No	Page	Type	Order No	Page	Type
36522	74	KEL-EMV 10	38050	68	RLFZ (x12)	41201	23	KT 2/6 gr	41313	22	KT 13 bk
36524	74	KEL-EMV 16/4	39110	74	KEL-EMV F	41202	23	KT 2/7 gr	41314	22	KT 14 bk
36526	74	KEL-EMV 24/5	39150	75	KEL-EMV PF B4	41203	22	KT 3 gr	41315	22	KT 15 bk
36530	76	KAFM 16 loose	39160	75	KEL-EMV PF 10	41204	22	KT 4 gr	41316	24	KT 16 bk
36540	76	KAFM 29 loose	39170	75	KEL-EMV PF 16	41205	22	KT 5 gr	41317	24	KT 17 bk
36550	76	KAFM 59 loose	39180	75	KEL-EMV PF 24	41206	22	KT 6 gr	41318	24	KT 18 bk
36750	65	PFZ/SKL 1,5-3	39800	25	Cable template	41207	22	KT 7 gr	41319	24	KT 19 bk
36755	65	PFZ/SKL 3-6	39900	22	KTS 17 gr	41208	22	KT 8 gr	41320	24	KT 20 bk
36760	65	PFZ/SKL 6-8	39901	22	KTS 16 gr	41209	22	KT 9 gr	41321	24	KT 21 bk
36765	65	PFZ/SKL 9-11	39902	23	KT-ASl gr	41210	22	KT 10 gr	41322	24	KT 22 bk
36810	60	SFS/SKL 1,5-3	39903	23	KT-ASl bk	41211	22	KT 11 gr	41323	24	KT 23 bk
36815	60	SFS/SKL 3-6	39904	23	KT 2/5 bk	41212	22	KT 12 gr	41324	24	KT 24 bk
36820	60	SFS/SKL 6-8	39905	23	KT 2/6 bk	41213	22	KT 13 gr	41325	24	KT 25 bk
36850	59	SFZ/SKL 1,5-3	39906	23	KT 2/4 gr	41214	22	KT 14 gr	41326	24	KT 26 bk
36855	59	SFZ/SKL 3-6	39907	23	KT 2/4 bk	41215	22	KT 15 gr	41327	24	KT 27 bk
36860	59	SFZ/SKL 6-8	39908	23	KT 4/5 gr	41216	24	KT 16 gr	41328	24	KT 28 bk
36865	59	SFZ/SKL 9-11	39909	23	KT 4/4 gr	41217	24	KT 17 gr	41329	24	KT 29 bk
36870	59	SFZ/SKL 12-16	39910	23	KT 4/5 bk	41218	24	KT 18 gr	41330	24	KT 30 bk
36875	59	SFZ/SKL 17-22	39911	23	KT 4/4 bk	41219	24	KT 19 gr	41332	24	KT 32 bk
36880	59	SFZ/SKL 23-29	39912	23	KTS 16 bk	41220	24	KT 20 gr	41334	24	KT 34 bk
36910	62	LFZ/SKL 1,5-3	39913	23	KTS 17 bk	41221	24	KT 21 gr	41351	22	BTK bk
36915	62	LFZ/SKL 3-6	39914	23	KT 4/3 gr	41222	24	KT 22 gr	41352	24	BTG bk
36920	62	LFZ/SKL 6-8	39915	23	KT 4/3 bk	41223	24	KT 23 gr	41353	24	ATG bk
36925	62	LFZ/SKL 9-11	39916	23	KT 2/7 bk	41224	24	KT 24 gr	41432	25	KTMB-A gr
36930	62	LFZ/SKL 12-16	39917	23	KT 2/8 gr	41225	24	KT 25 gr	41434	25	KTMB-B gr
36935	62	LFZ/SKL 17-22	39918	23	KT 2/8 bk	41226	24	KT 26 gr	41436	25	KTMB-C gr
36940	62	LFZ/SKL 23-29	39921	23	KT-ASl2 gr	41227	24	KT 27 gr	41438	25	KTMB-D gr
36952	69	RLF (x6)	39922	23	KT-ASl2 gr	41228	24	KT 28 gr	41440	25	KTMB-E gr
36953	69	RLF (x8)	39923	23	KT-ASl2 bk	41229	24	KT 29 gr	41460	25	KTMB-G gr
36954	69	RLF (x10)	39924	23	KT-ASl2 bk	41230	24	KT 30 gr	41465	25	KTMB-H gr
36955	69	RLF (x11)	39929	23	KT tele	41232	24	KT 32 gr	41470	25	KTMB-I gr
36958	69	RLF (x5)	39930	23	KT oval	41234	24	KT 34 gr	41475	25	KTMB-J gr
36962	69	RLF (x12)	39931	23	KT 51	41251	22	BTK grey	41500	26	DT 1
36963	69	RLF (x7)	39932	23	KT 4/6 gr	41252	24	BTG gr	41510	26	DT 2
36965	69	RLF (x3)	39933	23	KT 4/6 bk	41253	24	ATG gr	41520	26	DT 3
36984	69	RLF (x4)	39934	22	KT 2 gr	41302	22	KT 2 bk	41530	26	DT 4
36985	69	RLF (x9)	39935	23	KT 2/2 gr	41303	22	KT 3 bk	42006	88	BP - R 16
38005	68	RLFZ (x3)	39936	23	KT 2/2 bk	41304	22	KT 4 bk	42008	88	BP - R 24
38010	68	RLFZ (x4)	39937	23	KT 4/2 gr	41305	22	KT 5 bk	42012	89	BPM - FG B
38015	68	RLFZ (x5)	39938	23	KT 4/2 bk	41306	22	KT 6 bk	42013	89	BPM - B
38020	68	RLFZ (x6)	39939	23	KT 2/3 gr	41307	22	KT 7 bk	42014	89	BPM - 10
38025	68	RLFZ (x7)	39940	23	KT 2/3 bk	41308	22	KT 8 bk	42015	88	BP - K 10
38030	68	RLFZ (x8)	39990	23	KTRS 12 gr	41309	22	KT 9 bk	42016	88	BP - K 16
38035	68	RLFZ (x9)	39992	23	KTRS 13 gr	41310	22	KT 10 bk	42024	88	BP - K 24
38040	68	RLFZ (x10)	39996	23	KTRS 16 gr	41311	22	KT 11 bk	42025	89	BPM - 16
38045	68	RLFZ (x11)	41200	23	KT 2/5 gr	41312	22	KT 12 bk	42027	89	BPM - 24

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Order No	Page	Type	Order No	Page	Type	Order No	Page	Type	Order No	Page	Type
42028	89	BPM - 24/20	42360	30	KEL-JUMBO 1	42586	37	QT 4/6	43018	87	KDR1-1000 1
42030	89	BPM-Jumbo 1	42370	31	KTA	42614	45	JUMBO flex27	43020	87	KDR1-1200 1
42032	89	BPM-Jumbo 2	42371	31	KTF 00	42616	45	JUMBO flex47	43024	87	KDR1-800 1
42034	90	BP - SNAP B	42376	31	KTF 34	42620	88	BP-K Jumbo flex	43028	87	KDR-1-600 1
42035	90	BP - SNAP 10	42379	31	KTF 38	42652	44	KEL-DPF 25/3-17	43100	83	KT - Uni
42036	90	BP - SNAP 16	42382	31	KTF 42	42653	44	KEL-DPF 32/6-24	43150	83	Cap
42037	90	BP - SNAP 24	42385	31	KTF 46	42654	44	KEL-DPF 40/11-32	43160	83	End part
42038	15	KEL-SNAP B4	42388	31	KTF 50	42655	44	KEL-DPF 50/17-42	43162	83	KEL-R 16/2
42039	15	KEL-SNAP 10	42391	31	KTF 54	42656	44	KEL-DPF 63/23-55	43164	83	KEL-R 16/4
42040	15	KEL-SNAP 16	42394	31	KTF 58	42881	27	ST 17	43165	83	KEL-R 16/5
42042	15	KEL-SNAP 24	42397	31	KTF 62	42883	27	ST 16	43168	83	KEL-R 16/8
42100	76	Washer	42405	32	QUICK-PIN	42885	27	ST 15	43240	83	KEL-R 24/10
42162	7	KEL 16/2	42410	32	KEL-QUICK 24/10	42887	27	ST 14	43244	83	KEL-R 24/4
42164	7	KEL 16/4	42414	32	KEL-QUICK 16/4	42889	27	ST 13	43245	83	KEL-R 24/5
42165	7	KEL 16/5	42415	32	KEL-QUICK 24/5	42891	27	ST 12	43247	83	KEL-R 24/7
42168	7	KEL 16/8	42418	32	KEL-QUICK 16/8	42893	27	ST 11	43412	35	KEL-QTE 20/2,5
42204	9	KEL-B4	42430	32	KEL-QUICK B2	42895	27	ST 10	43413	35	KEL-QTE 20/3
42206	9	KEL-B1	42434	32	KEL-QUICK B4	42897	27	ST 9	43414	35	KEL-QTE 20/4
42207	11	KEL 24/9 E	42503	37	QT 3	42899	27	ST 8	43415	35	KEL-QTE 20/5
42208	11	KEL 24/12 E	42504	37	QT 4	42901	27	ST 3	43512	42	KEL-DP 24/14
42209	11	KEL 24/15 E	42505	37	QT 5	42903	27	ST 6	43514	42	KEL-DP 24/17
42212	8	KEL 10/3	42506	37	QT 6	42905	27	ST 7	43516	42	KEL-DP 24/19
42216	8	KEL 10/6	42507	37	QT 7	42906	27	ST 5	43518	42	KEL-DP 24/26
42221	12	KEL 24/8 MT	42508	37	QT 8	42908	27	ST 4	43519	42	KEL-DP 24/48
42223	13	KEL 24/12 2MT	42509	37	QT 9	42909	27	ST 2	43520	42	KEL-DP 24/50
42224	12	KEL 24/17 MT	42510	37	QT 10	42920	81	KDR2-1200	43522	42	KEL-DP 24/14
42225	12	KEL 24/14 MT	42511	37	QT 11	42922	81	KDR2-800	43523	42	KEL-DP 24/17
42226	13	KEL 24/21 2MT	42512	37	QT 12	42923	81	KDR2-1000	43524	42	KEL-DP 24/19
42227	13	KEL 24/24 2MT	42513	37	QT 13	42924	81	KDR2-600	43525	42	KEL-DP 24/26
42232	12	KEL 24/20 MT	42514	37	QT 14	42941	81	KDR2-600	43526	42	KEL-DP 24/48
42233	13	KEL 24/27 2MT	42540	37	QTB	42943	81	KDR2-1200	43527	42	KEL-DP 24/50
42234	13	KEL 24/30 2MT	42566	37	QT 2/3	42945	81	KDR2-800	43531	43	KEL-DP 25/6
42241	6	KEL 24/10	42568	37	QT 2/4	42952	81	KDR2-1000	43532	43	KEL-DP 32/10 A
42244	6	KEL 24/4	42570	37	QT 2/5	42953	81	KDR2-600	43550	43	KEL-DP 50/16 A
42247	6	KEL 24/7	42571	37	QT 2/5.5	42954	81	KDR2-800	43551	43	KEL-DP 50/12 A
42248	6	KEL 24/5	42572	37	QT 2/6	42955	81	KDR2-800	43552	43	KEL-DP 50/20 A
42249	10	KEL-E2	42573	37	QT-ASI 1	42956	81	KDR2-1200	43553	43	KEL-DP 50/18 A
42250	10	KEL-E5	42574	37	QT-ASI 2	42957	81	KDR2-1000	43554	43	KEL-DP 50/9 A
42258	10	KEL-E3	42575	37	QT tele	42958	81	KDR2-1000	43555	43	KEL-DP 50/11 A
42259	10	KEL-E4	42576	37	QT 2/6.5	42959	81	KDR2-1000	43556	43	KEL-DP 50/35 A
42320	14	KEL-FG A10	42578	37	QT 2/7	43000	87	KDR1-1200 2	43560	43	KEL-DP 32/10 B
42322	14	KEL-FG A7	42580	37	QT 4/3	43004	87	KDR1-1000 2	43562	43	KEL-DP 50/12 B
42324	14	KEL-FG A4	42582	37	QT 4/4	43006	87	KDR1-1000 2	43564	43	KEL-DP 50/16 B
42330	14	KEL-FG B4	42583	37	QT 4/4.5	43008	87	KDR1-800 2	43566	43	KEL-DP 50/20 B
42332	14	KEL-FG B1	42584	37	QT 4/5	43012	87	KDR1-600 2	43567	43	KEL-DP 50/18 B
42350	30	KEL-JUMBO 2	42585	37	QT 4/5.5	43016	87	KDR1-1000 1	43568	43	KEL-DP 50/9 B



Appendix

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Order No	Page	Type	Order No	Page	Type	Order No	Page	Type	Order No	Page	Type
43569	43	KEL-DP 50/11 B	43887	86	MP 5	52275	95	KGM 32			
43570	43	KEL-DP 50/35 B	43888	86	MP 4	52276	95	KGM 40			
43610	36	KEL-AD 16-A	43889	86	MP 7	52277	95	KGM 50			
43612	36	KEL-AD 24-A	43890	86	MP 2	52278	95	KGM 63			
43622	35	KEL-QTE 50 A	43891	86	MP 1	52284	95	KGM 25			
43626	35	KEL-QTE 50 B	45105	16	KGM SUB-D9	52285	95	KGM 32			
43632	35	KEL-QTA 32 A	45130	17	KVT-SNAP 32	52286	95	KGM 40			
43636	35	KEL-QTA 32 B	45134	17	KVT-SNAP 40	52287	95	KGM 50			
43642	34	KEL-QTA 24/DP18	45152	17	KVT-SNAP 63/4	52288	95	KGM 63			
43643	34	KEL-QTA 24/DP18	45154	17	KVT-SNAP 63/1	56152	95	GM 63			
43644	34	KEL-QTA 24/4	45201	16	KVT 25	61115	55	KB 15			
43645	34	KEL-QTA 24/4	45202	16	KVT 32	61120	55	KB 20			
43660	35	KEL-QTA B4	45211	16	KVT 63/1	61125	55	KB 22			
43700	40	KEL-DPZ 24/14	45214	16	KVT 63/4	61130	55	KB 25			
43705	40	KEL-DPZ 24/17	45400	18	KVT 32-W90	61135	55	KB 30			
43710	40	KEL-DPZ 24/25	45404	18	KVT 32-W90	61140	55	KB 45			
43715	40	KEL-DPZ 24/42	45410	18	KVT 50/1-W90	61145	55	KB 50			
43720	40	KEL-DPZ 24/15	45414	18	KVT 50/1-W90	61150	55	KB 55			
43725	40	KEL-DPZ 24/16	45420	18	KVT 50/4-W90	61155	55	KB 75			
43732	41	KEL-DPZ 32/4	45424	18	KVT 50/4-W90	61160	55	KB 100			
43734	41	KEL-DPZ 32/7	45700	33	QVT 25	61215	55	KB 20			
43741	41	KEL-DPZ 40/8	45720	33	QVT 50/4	61220	55	KB 25			
43750	41	KEL-DPZ 50/8	46100	28	KEL-FL A	61225	55	KB 28			
43751	41	KEL-DPZ 50/10	46105	28	KEL-FL B	61230	55	KB 30			
43752	41	KEL-DPZ 50/12	46110	28	KEL-FL C	61235	55	KB 45			
43758	41	KEL-DPZ 50/19	46115	28	KEL-FL D	61240	55	KB 55			
43760	41	KEL-DPZ 63/9	46120	28	KEL-FL E	61245	55	KB 75			
43761	41	KEL-DPZ 63/13	46125	28	KEL-FL F	61250	55	KB 100			
43763	41	KEL-DPZ 63/35	46130	28	KEL-FL G	61300	55	KBW 9			
43820	85	FP-KL 221/90	46135	28	KEL-FL H	61400	77	EMC tool A			
43822	85	FP-AE 160/70	46140	28	KEL-FL I	61410	77	EMC tool B			
43824	85	FP-AE 330/90	46145	28	KEL-FL J	88001	21	KT Box			
43826	85	FP-AE 339/149	46150	28	KEL-FL K	88002	61	EMC Box			
43828	85	FP-AE 534/149	46155	28	KEL-FL J	99017	76	Screw			
43834	85	FP-KL 221/90	46201	29	FT-1 / o						
43836	85	FP-AE 160/70	46202	29	FT-2 / o						
43838	85	FP-AE 330/90	46203	29	FT-3 / o						
43840	85	FP-AE 339/149	46210	29	FT-1 / A						
43842	85	FP-AE 534/149	46211	29	FT-1 / B						
43846	85	FP-AE 339/149	46212	29	FT-1 / C						
43847	85	FP-AE 339/149	46250	29	FT-2 / A						
43848	85	FP-AE 534/149	46251	29	FT-2 / B						
43849	85	FP-AE 534/149	46252	29	FT-2 / C						
43875	86	MP 6	46300	29	FT-3 / A						
43882	86	MP o	46330	29	FT-4/A						
43886	86	MP 3	52274	95	KGM 25						

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