

Cable entry systems and EMC innovations

NEWS and SUPPLEMENT 2009



KEL 24 extension



The KEL-MT centre piece opens numerous possibilities which expand the standard KEL 24 frames. By using the KEL-MT centre piece, the packing density can be increased considerably.

Specification:

Material: Polyamide

IP54 with gasket and correct selection of the cable inserts
UL-94 V0, self-extinguishing, halogen-free, silicone-free

Cable entry frame KEL 24 extension parts

Description		Type	Order No.	Cut-out dimension	Number inserts small / large	PU
		KEL-24/15 E	42209	62 x 112 mm	15 / -	1
		KEL-24/12 E	42208	62 x 112 mm	11 / 1	1
		KEL-24/9 E	42207	62 x 112 mm	7 / 2	1
		KEL-24/20 MT	42232	82 x 112 mm	20 / -	1
		KEL-24/17 MT	42224	82 x 112 mm	16 / 1	1
		KEL-24/14 MT	42225	82 x 112 mm	12 / 2	1
		KEL-24/8 MT	42221	82 x 112 mm	4 / 4	1
		KEL-24/30 2MT	42234	126 x 112 mm	30 / -	1
		KEL-24/27 2MT	42233	126 x 112 mm	26 / 1	1
		KEL-24/24 2MT	42227	126 x 112 mm	22 / 2	1
		KEL-24/21 2 MT	42226	126 x 112 mm	18 / 3	1
		KEL-24/12 2MT	42223	126 x 112 mm	6 / 6	1

KEL-E Cable entry frames



The cable entry frames of the KEL-E series are particularly suited for flat connectors. Space-saving and thereby ideal with limited space.

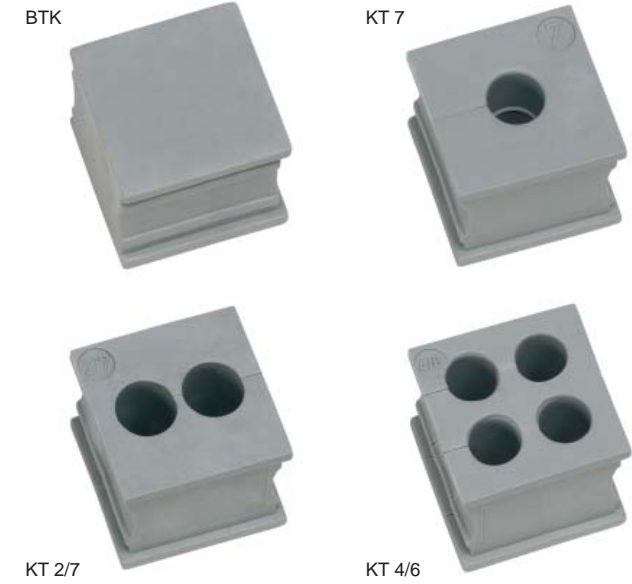
Cable entry frame KEL-E

Description	Type	Order No.	Cut-out dimension	Number inserts small / large	PU
	KEL-E2	42249	43 x 23 mm	2 / -	10
	KEL-E3	42258	65 x 23 mm	3 / -	10
	KEL-E4	42259	86 x 23 mm	4 / -	10
	KEL-E5	42250	116 x 23 mm	5 / -	10
Specification: Material: Polyamide IP54 with gasket and correct selection of the cable inserts UL-94 V0, self-extinguishing, halogen-free, silicone-free					

KT inserts small

Cable entry inserts small KT 2 to KTS 17

Type	Order No. grey	Order No. black	Clamping range	PU
BTK	41251	41351	Blind insert small	10
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 2/2	39935	39936	2 x ø 2 mm	10
KT 2/4	39906	39907	2 x ø 4 mm	10
KT 2/5	41200	39904	2 x ø 5 mm	10
KT 2/6	41201	39905	2 x ø 6 mm	10
KT 2/7	41202	39916	2 x ø 7 mm	10
KT 2/8	39917	39918	2 x ø 8 mm	10
KT 4/2	39937	39938	4 x ø 2 mm	10
KT 4/3	39914	39915	4 x ø 3 mm	10
KT 4/4	39909	39911	4 x ø 4 mm	10
KT 4/5	39908	39910	4 x ø 5 mm	10
KT 4/6	39932	39933	4 x ø 6 mm	10

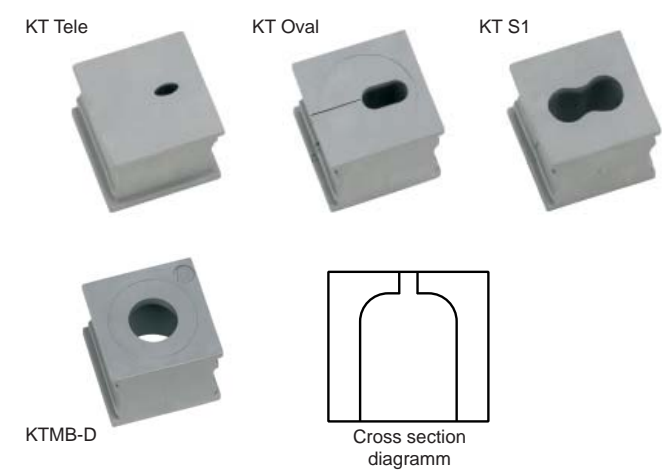


Specification KT colour grey
 Material: Elastomer
 Protection to IP 54
 UL-94 V0, self-extinguishing,
 halogen-free, silicone-free

Specification KT colour black:
 Material: Elastomer
 Protection to IP 54
 UL-94 HB, higher chemical resistance

Cable entry inserts small / Cable inserts multiple range (not matching for pre-fabricated cables)

Type	Order No. grey	Order No. black	Clamping range	PU
KT-ASI	39902	39903	for 1 ASI cable	10
KT-ASI2	39922	39924	for 2 ASI cables	10
KT Tele	39929		for telephone cable	10
KT Oval	39930			10
KT S1	39931			10
KTMB-A	41432		2,5 - 6,5 mm	10
KTMB-B	41434		4,0 - 7,5 mm	10
KTMB-C	41436		6,5 - 10 mm	10
KTMB-D	41438		9,5 - 13 mm	10



KEL-DPZ cable entry plates

The KEL-DPZ cable entry frame is a cost-saving alternative to conventional cable glands. The required cut-out sizes correspond to metrical glands M32, M40, M50 and M 63. The KEL-DPZ is securely fixed using a locknut which is included in the shipment. This means the KEL-DPZ can be mounted without any difficulty, anywhere cables are routed, with wall thickness up to 8 mm – or installed into a corresponding threaded hole.

Your advantages:

- Assembly within seconds
- Very high packing density
- Automatically sealed and provides strain relief
- Dual sealing of the cables according IP 65
- 9 mm installation height, extremely flat structure
- Fits metric standard cut-outs for M32, M40, M50 and M63
- Unused entries remain closed and sealed

NEW: Version for cables up to 22,2 mm diameter.



KEL-DPZ cable entry plates

	Type	Order No.	Number of cables	Metric thread	Outer diameter	Projecting dimension	PU
	KEL-DPZ 32/4	43732	3 x 3,2 - 6,5 mm 1 x 7,2 - 12,5 mm	M32	42 mm	8,0 mm	10
	KEL-DPZ 32/7	43734	7 x 3,2 - 6,5 mm	M32	42 mm	8,0 mm	10
	KEL-DPZ 40/8	43741	4 x 3,2 - 6,5 mm 4 x 5,0 - 10,2 mm	M40	52 mm	8,0 mm	10
	KEL-DPZ 50/8	43750	5 x 5,0 - 10,2 mm 3 x 7,2 - 12,5 mm	M50	60 mm	8,0 mm	10
	KEL-DPZ 50/10	43751	7 x 3,2 - 6,5 mm 2 x 5,0 - 10,2 mm 1 x 16 - 22,2 mm	M50	60 mm	8,0 mm	10
	KEL-DPZ 50/12	43752	4 x 3,2 - 6,5 mm 8 x 5,0 - 10,2 mm	M50	60 mm	8,0 mm	10
	KEL-DPZ 63/9	43760	1 x 3,2 - 6,5 mm 3 x 5,0 - 10,2 mm 4 x 9,0 - 16,2 mm 1 x 16 - 22,2 mm	M63	73 mm	8,0 mm	10
	KEL-DPZ 63/13	43761	4 x 3,2 - 6,5 mm 4 x 5,0 - 10,2 mm 5 x 9,0 - 16,2 mm	M63	73 mm	8,0 mm	10
	KEL-DPZ 63/35	43763	35 x 3,2 - 6,5 mm	M63	73 mm	8,0 mm	10

Specification:

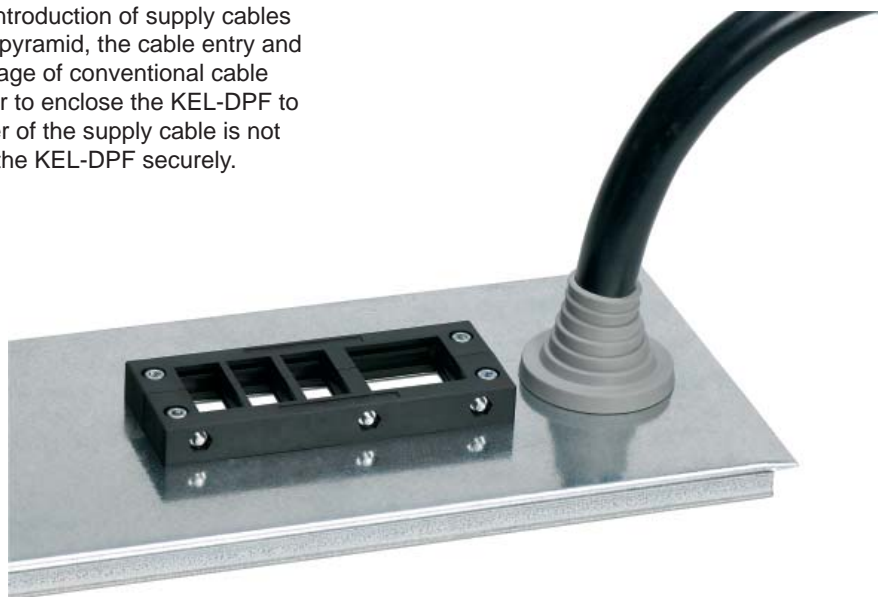
Material frame: Polyamide
 Material sealing plate: Elastomer
 UL-94 V0, self-extinguishing
 halogen-free, silicone-free,
 Protection to IP 65

KEL-DPF cable entry inserts

The KEL-DPF was developed particularly for the introduction of supply cables into the switch cabinet. Due to the flexibility of the pyramid, the cable entry and the positioning is much easier compared to the usage of conventional cable glands. The large clamping range enables the user to enclose the KEL-DPF to a machine shipment even when the exact diameter of the supply cable is not known before. The included metric locknut will fix the KEL-DPF securely.

Your advantages:

- Assembly within seconds
- Highest flexibility
- Small installation dimensions
- Fits metric standard cut-outs
- Cost-efficient
- Ideal when diameters of cables to be inserted are first known on site.



KEL-DPF cable entry inserts



Type	Order No.	Metric thread	Clamping range	PU
KEL-DPF 25/3-17	42652	M25	3 - 17 mm	5
KEL-DPF 32/6-24	42653	M32	6 - 24 mm	5
KEL-DPF 40/11-32	42654	M40	11 - 32 mm	5
KEL-DPF 50/17-42	42655	M50	17 - 42 mm	5
KEL-DPF 63/22-53	42656	M63	22 - 53 mm	5

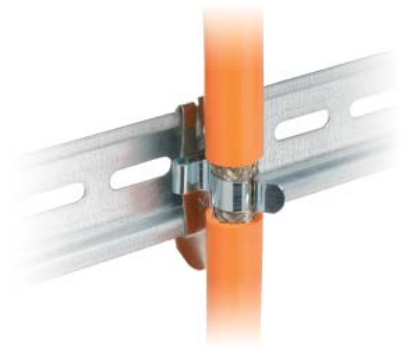
Specification:

Material frame: Polyamide
 Material sealing plate: Elastomer
 UL-94 V0, self-extinguishing
 halogen-free, silicone-free
 Protection to IP 65


SKL EMC shield clamps

Pat. pend.

- Very large-scale contact of the cable shield
- Assembly: Strip cable shield – press in – ready
- Permanent spring pressure on the cable shield
- Regular adjustment of the pressure is not necessary
- Space-saving
- Cost efficient solution



Shield clamp SF/SKL with snap-foot for assembly on 35mm DIN-rails shape "H"

	Type	Order No.	Shield diameter	PU
	SF/SKL 1,5 - 3	36243	1,5 - 3 mm	10
	SF/SKL 3 - 6	36244	3 - 6 mm	10
	SF/SKL 6 - 8	36245	6 - 8 mm	10
	SF/SKL 9 - 11	36246	9 - 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

The SFS/SKL shield clamps are suitable for applications when there is a need for mounting cables very closely to each other. By the shifted arrangement an optimal space utilisation is ensured.
The SFS/SKL easily mounts on 35 mm DIN rails.


Your advantages:

- Very large-scale contact of the cable shield
- Permanent spring pressure on the cable shield
- Space-saving, cost efficient solution



NEW: Shield clamp SFS/SKL for higher packing density

Shield clamp SFS/SKL with snap-foot for assembly on 35mm DIN-rails shape "H"

	Type	Order No.	Shield diameter	VE
	SFS/SKL 1,5 - 3	36810	1,5 - 3 mm	10
	SFS/SKL 3 - 6	36815	3 - 6 mm	10
	SFS/SKL 6 - 8	36820	6 - 8 mm	10
	SFS single	36229	Snap-foot single	10

SKL EMC shield clamps

- Very large-scale contact of the cable shield
- Assembly: Strip cable shield – press in – ready
- Permanent spring pressure on the cable shield
- Regular adjustment of the pressure is not necessary
- Space-saving and cost efficient solution



Shield clamp LF/SKL for assembly on subplates



Specification:

Fixing hole for LF-foot = 4,2 mm for screw M4

Type	Order No.	Shield diameter	PU
LF/SKL 1,5 - 3	36251	1,5 - 3 mm	10
LF/SKL 3 - 6	36253	3 - 6 mm	10
LF/SKL 6 - 8	36255	6 - 8 mm	10
LF/SKL 9 - 11	36256	9 - 11 mm	10
LF/SKL 12 - 16	36257	12 - 16 mm	10
LF/SKL 17 - 22	36258	17 - 22 mm	10
LF/SKL 23 - 29	36259	23 - 29 mm	10

The LFZ/SKL is an advancement of the proven LF/SKL series. By using the possibility of strain relief with a conventional cable tie, the LFZ/SKL series combines both EMC shielding and strain relief in a perfect way.



NEW: Foot with integrated strain relief.

Shield clamp LFZ/SKL for assembly on subplates



Specification:

Fixing hole for LFZ-foot = 4,2 mm for screw M4

Type	Order No.	Shield diameter	PU
LFZ/SKL 1,5 - 3	36910	1,5 - 3 mm	10
LFZ/SKL 3 - 6	36915	3 - 6 mm	10
LFZ/SKL 6 - 8	36920	6 - 8 mm	10
LFZ/SKL 9 - 11	36925	9 - 11 mm	10
LFZ/SKL 12 - 16	36930	12 - 16 mm	10
LFZ/SKL 17 - 22	36935	17 - 22 mm	10
LFZ/SKL 23 - 29	36940	23 - 29 mm	10

SKL EMC shield clamps

- Very large-scale contact of the cable shield
- Assembly: Strip cable shield – press in – ready
- Permanent spring pressure on the cable shield
- Regular adjustment of the pressure is not necessary
- Space-saving and cost efficient solution
- Extremely-fast, tool-free assembly



Shield clamp PF/SKL for assembly on busbar 10x3 mm

	Type	Order No.	Shield diameter	PU
	PF/SKL 1,5 - 3	36273	1,5 - 3 mm	10
	PF/SKL 3 - 6	36274	3 - 6 mm	10
	PF/SKL 6 - 8	36275	6 - 8 mm	10
	PF/SKL 9 - 11	36276	9 - 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

Supports for Cu-busbar

With the busbar supports almost all mounting rails can be used. The main feature is that busbar 10x3 mm can be fastened very easily and a large contact area provides very good conductance.



Busbar 10x3 mm / Supporter for busbar

	Type	Description	Order No.	Material	Dimensions	PU
	MF	Busbar holder with clip	36105	steel plate, zinc-plated	30 x 20 x 34 mm	10
	TST1	Busbar support without clip	36110	steel plate, zinc-plated	49 x 20 x 87 mm	10
	TST2	Busbar support with clip	36115	steel plate, zinc-plated	49 x 20 x 87 mm	10
	SSK 10x3	Busbar 10x3 mm	36100	Cu, tin-plated current load 140A	10 x 3 x 1000 mm	1

SK EMC shield clamps

SK shield clamps can be used where the shield of single cables has to be grounded. SK shield clamps can be assembled onto the subplate with screws, with SC-feet on DIN-rails shape „C“ or with SF-feet on 35 mm DIN-rails shape „H“.




SF/SK EMC shield clamp with spring and snap-foot for assembly on 35mm DIN-rails shape „H“

	Type	Order No.	Dimensions	Shield diameter	PU
	SF/SK 3-8	36500	18 x 14 x 26 mm	3 - 8 mm	10
SF/SK 4-13,5	36502	20 x 20 x 31 mm	4 - 13,5 mm	10	
SF/SK 10-20	36504	26 x 24 x 40 mm	10 - 20 mm	10	
SF/SK 15-32	36506	32 x 35 x 64 mm	15 - 32 mm	10	
SF single	36230		Snap-foot single	10	

SK EMC shield clamp with spring for direct assembly

	Type	Order No.	Dimensions	Shield diameter	PU
	SK 3-8	36222	18 x 14 x 26 mm	3 - 8 mm	10
SK 4-13,5	36224	20 x 20 x 31 mm	4 - 13,5 mm	10	
SK 10-20	36226	26 x 24 x 40 mm	10 - 20 mm	10	
SK 15-32	36228	32 x 35 x 64 mm	15 - 32 mm	10	

SS/SK EMC shield clamp with spring for assembly on busbar 10x3 mm and 10x5 mm

	Type	Order No.	Dimensions	Shield diameter	PU
	SS/SK 3-8	36235	18 x 14 x 26 mm	3 - 8 mm	10
SS/SK 4-13,5	36236	20 x 20 x 31 mm	4 - 13,5 mm	10	
SS/SK 10-20	36237	26 x 24 x 40 mm	10 - 20 mm	10	

SKS EMC shield clamp with screw-on clip

	Type	Order No.	Dimensions	Shield diameter	PU
	SKS 2-5	36282	19,5 x 9 x 46,8 mm	2 - 5 mm	10
SKS 3-8	36283	19,5 x 12 x 48,7 mm	3 - 8 mm	10	
SKS 3-14	36284	19,5 x 17 x 59,3 mm	3 - 14 mm	10	
SKS 3-20	36285	19,5 x 24 x 75,0 mm	3 - 20 mm	10	
SKS 5-28	36286	20,0 x 32 x 92,7 mm	5 - 28 mm	10	
SKS 20-35	36287	20,0 x 40 x 106,5 mm	20 - 35 mm	10	

EMC - custom specific solutions

Electromagnetic compatibility (EMC) is getting more and more important. The shield clamps SKL enable the user to have a reliable and simple connection for the shielded cables. They can be used everywhere, where the screen of cables must be connected with the mass potential.

Besides our well-known mounting options, we now offer customized carriers, which are perfectly adjusted to the customers' site. Available even for small series.



We are prepared to design a custom-specific solution for your EMC-application.


Earthing tapes

Manufactured with highly flexible E-Cu-strands, press welded at the ends. The minimum transition and connecting resistance makes them perfectly suitable for use as earthing straps.

Available in various lengths and cross-sections.



MB Earthing tapes

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

KVT-W90 split cable glands

The split KVT-W90 cable glands are used to insert and seal prefabricated cables at an 90° angle. Available are 2 sizes for metric cut-outs M32 and M50. The type dimensions determine the required hole diameter.

In particular, the KVT 50-W90 is perfectly suited to hold corrugated hoses as well as smooth hoses on the housing wall. A large number of cable entry inserts is available to the user.

NEW: Split cable glands KVT available with standard metric or split locknut.



KVT-W90 split 90° degree cable gland

Type	Order No.	Order No.	Thread	Order No.	PU
	without locknut	with metric locknut		only split locknut	
 KVT32 W90 for 1 insert small	45400	45404	M 32 x 1,5 length: 11,5 mm	31120	10
	45410	45414	M 50 x 1,5 length 11,5 mm	31140	10

WST - split corrugated conduit

The WST is a split and two-piece conduit. It gives perfect conditions to mount pre-terminated cables even in retrofitting. In conjunction with the split cable gland KVT-W90 you obtain highest flexibility, because the conduit size is defined not by the cable gland size but only by the inserts KT.



Your advantage:

- Length of the WST split corrugated conduit is individually adjustable.

WST split corrugated conduit

Type	Order No.	Nominal width	Inner diam.	Outer diam.	Ring length
WST NW 10	31200	10 mm	8,7 mm	13,6 mm	50 m
WST NW 14	31210	14 mm	12,5 mm	18,5 mm	50 m
WST NW 20	31220	20 mm	19,5 mm	25,5 mm	50 m
WST NW 23	31230	23 mm	24,2 mm	31,0 mm	50 m
WST NW 37	31240	37 mm	31,0 mm	41,4 mm	25 m
WST NW 45	31250	45 mm	42,7 mm	54,0 mm	25 m
WST NW 70	31260	70 mm	66,5 mm	79,8 mm	10 m

Specification:
Material: Polypropylene, black
UL-94 V2, halogen-free, UV-durable