4.1 EMC cable shield earthing
Shield clamps & earthing components

RoHS compliant | Made in Germany

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

icotek EMC products therefore provide a good solution. The SKL shield clamps offer a large contact area to the cable shield (see figure A). In comparison to conventional shield brackets (see figure B) an up to 50% higher contact area can be achieved when using the SKL line. The specified clamping range can be exceeded up to 10%.

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

Assembly possibilities

Assembly with rivets

Solid rivets

Assembly with screws

Assembly on 35 mm DIN rails

Assembly on 10 × 3 mm bus bars

Assembly on 30 mm C-rails

Assembly by clamping onto sheet edges

Product range

SKL / MSKL / RCL

SF / SFZ / SFZ-M

SFS

PFS / PFSZ / PFSZ-M

PFK / PFKZ / PFKZ-M

LF / LFZ / LFZ-M

LFZ-U

PCB

STFZ

MSKL type with large clamping range

Large contact area to the cable shield. Shield and cable strands will not be squeezed

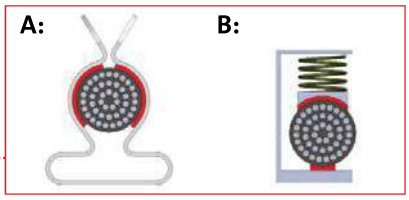
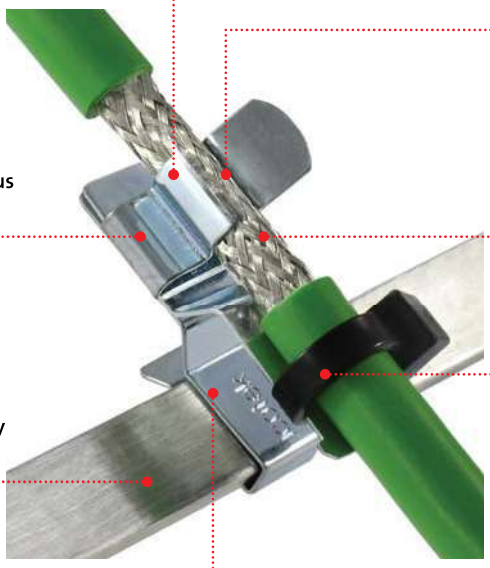
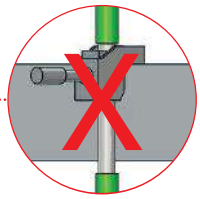


Figure A: SKL-line

Figure B: Conventional systems

Available in various sizes



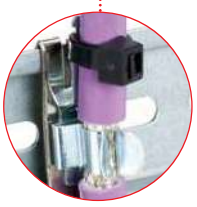


Do not use the shield connection as a strain relief location!

High cable density possible

Vibration resistance and twist protection due to solid rivets

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



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

EMC shield clamps MSKL

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

Advantages & benefits

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

RLF / RLFZ / RLFZ-M / SF|RLFZ

KEL-EMC-Z

KEL-EMC-PF

KEL-EMC

KVT-EMC

KAFM

ZL|SB-EMC

SK / SKZ / SKS

MB

EMC

Test results

Leakage and Impedance

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

icotek EMC shield clamps are proven to absorb electromagnetic interferences.

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

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

Contact area

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

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

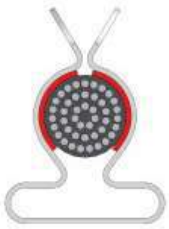
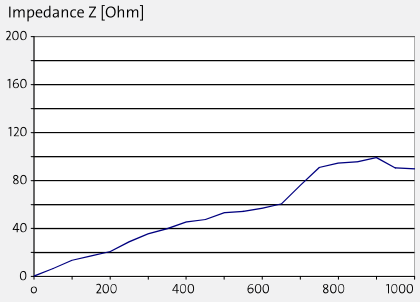
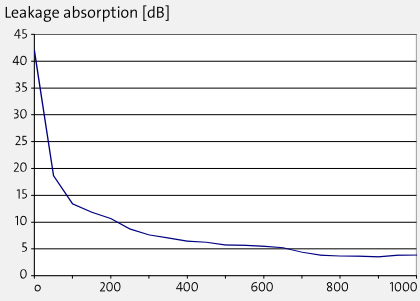


Figure A: SKL-line

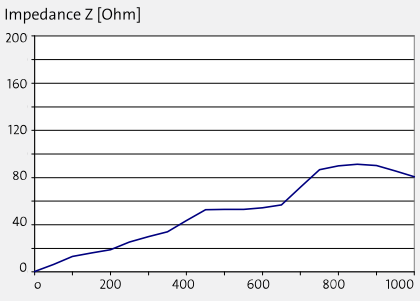
Figure B: Conventional systems

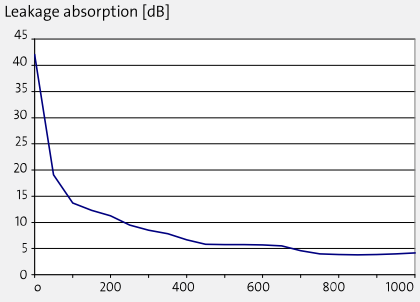
LF|SKL 8-11





SF|SKL 6-8





Chapter content 4.1

EMC shield clamps
for assembly with rivets

MSKL

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

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

Assembly

The shield clamps can be mounted using rivets.

Advantages & benefits

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

Specifications

Material

MSKL clamp, SK clamp **Spring steel, zinc plated**

	Clamping range	MSKL single Order No.	SKL single Order No.
MSKL	3 – 12 mm	37600	–
MSKL	8 – 18 mm	37602	–
SKL	1.5 – 3 mm	–	36200
SKL	3 – 6 mm	–	36202
SKL	6 – 8 mm	–	36204
SKL	8 – 11 mm	–	36205
SKL	11 – 17 mm	–	36206
SKL	17 – 22 mm	–	36207
SKL	22 – 30 mm	–	36208
SKL	30 – 38 mm	–	36209 *
SKL	38 – 48 mm	–	36213 *
	PU	50	50 | * 5

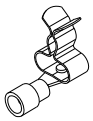
SF single | SFS single | SC single

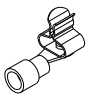
Type	Order No.		PU
SF single M4	36230	Snap foot, single with screw thread M4	10
SF single M5	36221	Snap foot, single with screw thread M5	10
SFS single	36229	Snap foot single	10
SC single	36231	Screw-foot loose, for 30 mm DIN-rail shape C (width of mouth: 16 mm) with twist protection notch	10

SF single

SFS single

EMC shield clamps on cable lugs for assembly with rivets





	Clamping range	RCL	RCL|MSKL Order No.	RCL|SKL Order No.
MSKL	3 – 12 mm	0.5 – 1.5 mm	36296.2	–
	3 – 12 mm	1.0 – 2.5 mm	36297.2	–
	3 – 12 mm	4 – 6 mm	36298.2	–
SKL	1.5 – 3 mm	0.5 – 1.5 mm	–	36296.1
	1.5 – 3 mm	1.0 – 2.5 mm	–	36297.1
	1.5 – 3 mm	4 – 6 mm	–	36298.1
	PU		25	25

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Assembly

The shield clamps can be mounted using rivets.

Advantages & benefits

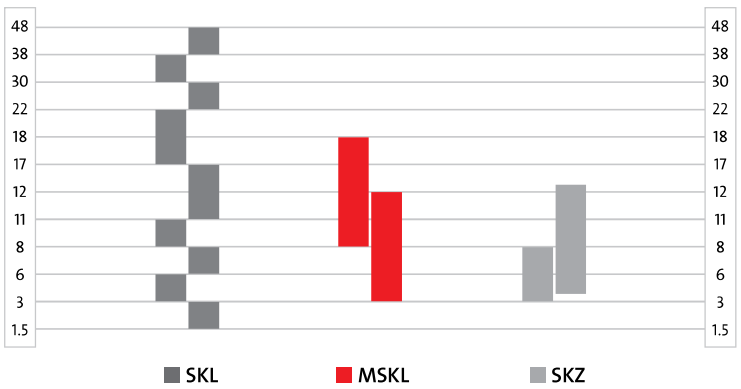
- Large contact area
- Simple and tool-free mounting, easy assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Shock and vibration resistant, maintenance free
- Designed for high density applications

Specifications

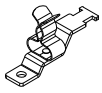
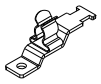
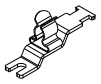
Material

MSKL clamp, SK clamp **Spring steel, zinc plated**

Difference between SKL | MSKL | SKZ clamping ranges



EMC shield clamps
for assembly with screws
with strain relief function


		LFZ-M|MSKL Fixing hole M4	LFZ|SKL Fixing hole M4	LFZ-U|SKL Fixing hole M4	LFZ-U|SKL Fixing hole M5
	Clamping range	Order No.	Order No.	Order No.	Order No.
MSKL	3 – 12 mm	37612	–	–	–
	8 – 18 mm	37614	–	–	–
SKL	1.5 – 3 mm	–	36910	36886.1	36887.1
	3 – 6 mm	–	36915	36886.2	36887.2
	6 – 8 mm	–	36920	36886.3	36887.3
	8 – 11 mm	–	36925	36886.4	36887.4
	11 – 17 mm	–	36930	–	–
	17 – 22 mm	–	36935	–	–
	22 – 30 mm	–	36940	–	–
	30 – 38 mm	–	36941	–	–
	PU	10	10	10	10

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

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

Assembly

The shield clamps can be mounted using screws, e.g. on a mounting plate.

Advantages & benefits

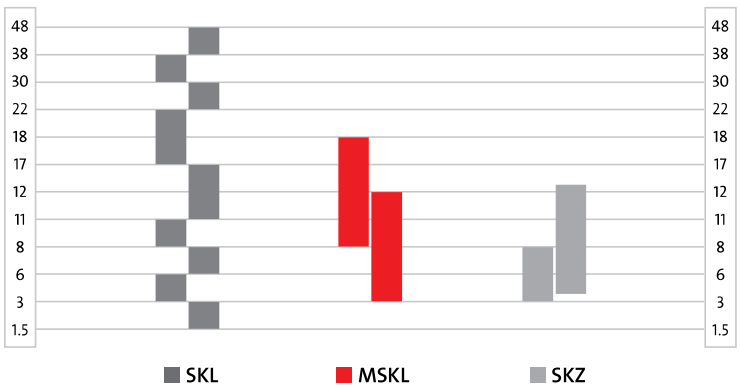
- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free
- Double strain relief: acc. to PROFINET installation guidelines

Specifications

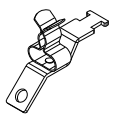
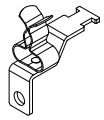
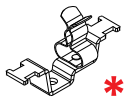
Material

MSKL clamp, SKL clamp	**Spring steel, zinc plated**
LF/LFZ foot	**Steel, galvanically zinc plated fixing hole 4.2 mm/5.2 mm**
SK bracket	**Steel, galvanically zinc plated**

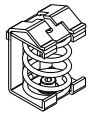
Difference between SKL | MSKL | SKZ clamping ranges



EMC shield clamps
for assembly with screws
with/without strain relief function

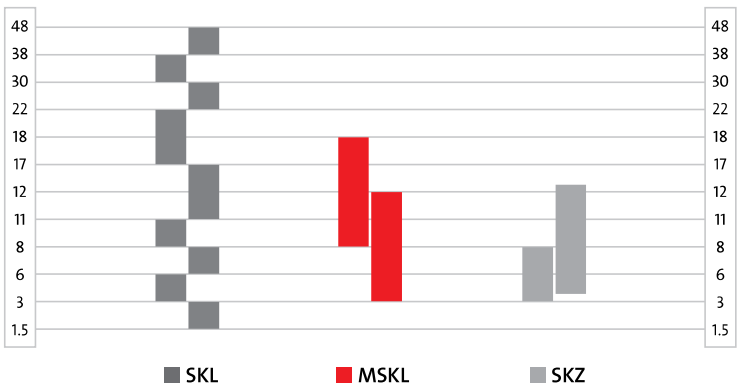




		LFZ-M(45°)|MSKL Fixing hole M5	LFZ-M(90°)|MSKL Fixing hole M5	LF2Z-M|MSKL* Fixing hole M4	SKZ Fixing hole M4	LF|MSKL Fixing hole M4	LF|SKL Fixing hole M4	SK Fixing hole M4
	Clamping range	Order No.	Order No.	Order No.	Order No.	Order No.	Order No.	Order No.
MSKL	3 – 12 mm	NEW 37660.1	NEW 37661.1	NEW 37665.150	–	37608	–	–
	8 – 18 mm	NEW 37660.2	NEW 37661.2	NEW 37666.150	–	37610	–	–
SKL	1.5 – 3 mm	–		–	–	–	36251	–
	3 – 6 mm	–		–	–	–	36253	–
	6 – 8 mm	–		–	–	–	36255	–
	8 – 11 mm	–		–	–	–	36256	–
	11 – 17 mm	–		–	–	–	36257	–
	17 – 22 mm	–		–	–	–	36258	–
	22 – 30 mm	–		–	–	–	36259	–
SK/SKZ	3 – 8 mm	–		–	36222	–	–	36222.002
	4 – 13.5 mm	–		–	36224	–	–	36224.002
	10 – 20 mm	–		–	–	–	–	36226
	15 – 32 mm	–		–	–	–	–	36228
	PU	10		10	10	10	10	10

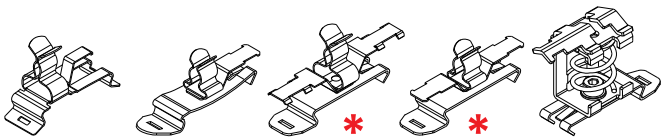
* with double strain relief function

Difference between SKL | MSKL | SKZ clamping ranges



EMC shield clamps
for 35 mm DIN rails
with strain relief function

SFZ-M|MSKL



	Clamping range	SFZ-M|MSKL Order No.	SFZ|SKL Order No.	SF2Z-M|MSKL Order No.	SF2Z|SKL Order No.	SF|SKZ Order No.
MSKL	3 – 12 mm	37620	–	NEW 37620.150	–	–
	8 – 18 mm	37622	–	NEW 37622.150	–	–
SKL	1.5 – 3 mm	–	36850	–	NEW 36850.150	–
	3 – 6 mm	–	36855	–	NEW 36855.150	–
	6 – 8 mm	–	36860	–	NEW 36860.150	–
	8 – 11 mm	–	36865	–	NEW 36865.150	–
	11 – 17 mm	–	36870	–	NEW 36870.150	–
	17 – 22 mm	–	36875	–	NEW 36875.150	–
	22 – 30 mm	–	36880	–	NEW 36880.150	–
	30 – 38 mm	–	36885	–	–	–
SKZ	3 – 8 mm	–	–	–	–	NEW 36500
	4 – 13.5 mm	–	–	–	–	NEW 36502
	PU	10	10	10	10	10

* with double strain relief function

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps can be mounted on 35 mm DIN rails.

Advantages & benefits

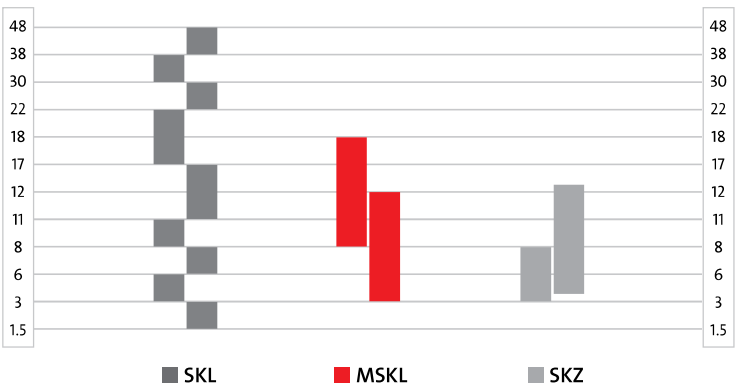
- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free
- Double strain relief: acc. to PROFINET installation guidelines

Specifications

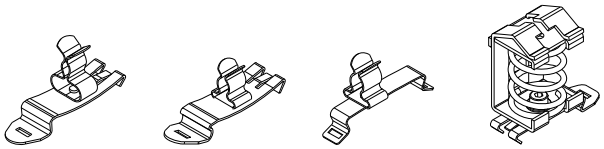
Material

MSKL clamp, SKL clamp	**Spring steel, zinc plated**
SF/SFZ foot	**Spring steel**
SK bracket	**Steel, galvanically zinc plated**

Difference between SKL | MSKL | SKZ clamping ranges

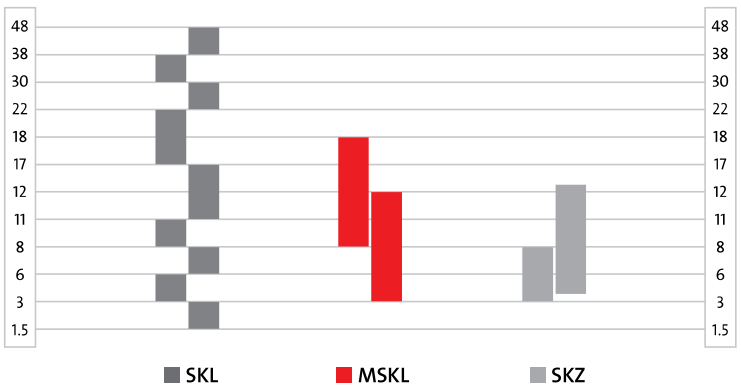


EMC shield clamps
for 35 mm DIN rails
without strain relief



SFS|SKL

		SF-M|MSKL	SF|SKL	SFS|SKL	SF|SK
	Clamping range	Order No.	Order No.	Order No.	Order No.
MSKL	3 – 12 mm	37616	–	–	–
MSKL	8 – 18 mm	37618	–	–	–
SKL	1.5 – 3 mm	–	36243	36810	–
SKL	3 – 6 mm	–	36244	36815	–
SKL	6 – 8 mm		36245	36820	
SKL	8 – 11 mm	–	36246	–	–
SKL	11 – 17 mm	–	36247	–	–
SKL	17 – 22 mm	–	36248	–	–
SKL	22 – 30 mm	–	36249	–	–
SKL	30 – 38 mm	–	36250	–	–
SKL	38 – 48 mm	–	36252	–	–
SK	3 – 8 mm	–	–	–	NEW 36500.002
SK	4 – 13.5 mm	–	–	–	NEW 36502.002
SK	10 – 20 mm	–	–	–	36504
SK	15 – 32 mm	–	–	–	36506
	PU	10	10	10	10



Difference between SKL | MSKL | SKZ clamping ranges

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Assembly

The shield clamps can be mounted on 35 mm DIN rails.

Advantages & benefits

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

Specifications

Material

MSKL clamp, SKL clamp	**Spring steel, zinc plated**
SF/SFZ foot	**Spring steel**
SK bracket	**Steel, galvanically zinc plated**

EMC shield clamps
for 10 × 3 mm bus bars
with strain relief function

PFSZ-M|MSKL

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps can be mounted on 10 × 3 mm bus bars.

Advantages & benefits

- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free
- Double strain relief: acc. to PROFINET installation guidelines

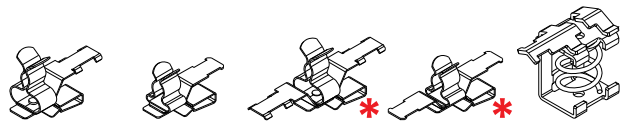
Specifications

Material

MSKL-clamp, SKL-clamp	**Spring steel, zinc plated**
PFS-foot	**Spring steel**
SK-bracket	**Sheet steel, galvanically zinc plated**
Bus bar	**Cu, tin plated, current load 140 A**

Accessories

KEL-EMV-PF cable assembly bracket	149
MF Supports for bus bars	207



	Clamping range	PFSZ-M|MSKL Order No.	PFSZ|SKL Order No.	PFS2Z-M|MSKL Order No.	PFS2Z|SKL Order No.	SS|SKZ Order No.
MSKL	3 – 12 mm	37630	–	NEW 37630.150	–	–
	8 – 18 mm	37632	–	NEW 37632.150	–	–
SKL	1.5 – 3 mm	–	36787.1	–	NEW 36787.151	–
	3 – 6 mm	–	36787.2	–	NEW 36787.152	–
	6 – 8 mm	–	36787.3	–	NEW 36787.153	–
	8 – 11 mm	–	36787.4	–	NEW 36787.154	–
	11 – 17 mm	–	36787.5	–	NEW 36787.155	–
	17 – 22 mm	–	36787.6	–	NEW 36787.156	–
SKZ	3 – 8 mm	–	–	–	–	36235
	4 – 13.5 mm	–	–	–	–	36236
	PU	10	10	10	10	10

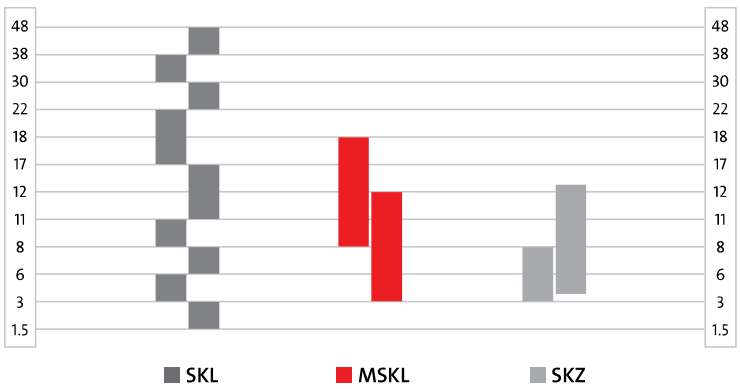
* with double strain relief function

Bus bar 10 × 3 mm

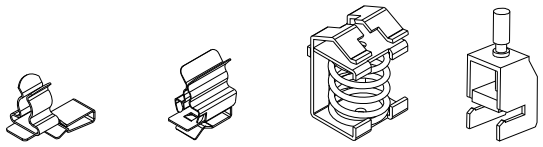
Type		Order No.	PU
Bus bar 10 × 3 mm	10 × 3 × 1000 mm*	36100	1

* Other lengths available on request

Difference between SKL | MSKL | SKZ clamping ranges



EMC shield clamps
for 10 × 3 mm bus bars
without strain relief function



		PFS|SKL	PFS|SCL	SS|SK	SKS
	Clamping range	Order No.	Order No.	Order No.	Order No.
SKL	1.5 – 3 mm	36786.1	36611	–	–
	3 – 6 mm	36786.2	36612	–	–
	6 – 8 mm	36786.3	–	–	–
	8 – 11 mm	36786.4	–	–	–
	11 – 17 mm	36786.5	–	–	–
	17 – 22 mm	36786.6	–	–	–
SK	3 – 8 mm	–	–	36235.002	–
	4 – 13.5 mm	–	–	36236.002	–
	10 – 20 mm	–	–	36237	–
	15 – 32 mm	–	–	36238	–
SKS	2 – 5 mm	–	–	–	36282
	3 – 8 mm	–	–	–	36283
	3 – 14 mm	–	–	–	36284
	3 – 20 mm	–	–	–	36285
	5 – 28 mm	–	–	–	36286
	20 – 35 mm	–	–	–	36287
	PU	10	10	10	10

PFS|SKL

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Assembly

The shield clamps can be mounted on 10 × 3 mm bus bars.

Advantages & benefits

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

Specifications

Material

MSKL-clamp, SKL-clamp	**Spring steel, zinc plated**
PFS-foot	**Spring steel**
SK-bracket	**Sheet steel, galvanically zinc plated**
Bus bar	**Cu, tin plated, current load 140 A**

Accessories

KEL-EMV-PF cable assembly bracket	149
MF Supports for bus bars	207

RoHS compliant | Made in Germany

EMC double shield clamps
for 10 × 3 mm bus bars
with strain relief function

PFSZ2|SKL

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps can be mounted on 10 × 3 mm bus bars.

Advantages & benefits

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

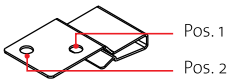
Specifications

Material

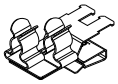
MSKL-clamp, SKL-clamp	**Spring steel, zinc plated**
PFS-foot	**Spring steel**
Bus bar	**Cu, tin plated, current load 140 A**

Accessories

Bus bar	128
MF Supports for bus bars	207



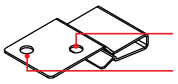
PFS2-foot



PFSZ2|SKL

	Clamping range Pos. 1	Clamping range Pos. 2	Order No.
SKL	blank	1.5 – 3 mm	36789.01
	blank	3 – 6 mm	36789.02
	blank	6 – 8 mm	36789.03
	blank	8 – 11 mm	36789.04
	1.5 – 3 mm	blank	36789.10
	1.5 – 3 mm	1.5 – 3 mm	36789.11
	1.5 – 3 mm	3 – 6 mm	36789.12
	1.5 – 3 mm	6 – 8 mm	36789.13
	1.5 – 3 mm	8 – 11 mm	36789.14
	3 – 6 mm	blank	36789.20
	3 – 6 mm	1.5 – 3 mm	36789.21
	3 – 6 mm	3 – 6 mm	36789.22
	3 – 6 mm	6 – 8 mm	36789.23
	3 – 6 mm	8 – 11 mm	36789.24
	6 – 8 mm	blank	36789.30
	6 – 8 mm	1.5 – 3 mm	36789.31
	6 – 8 mm	3 – 6 mm	36789.32
	6 – 8 mm	6 – 8 mm	36789.33
	6 – 8 mm	8 – 11 mm	36789.34
	8 – 11 mm	blank	36789.40
	8 – 11 mm	1.5 – 3 mm	36789.41
	8 – 11 mm	3 – 6 mm	36789.42
	8 – 11 mm	6 – 8 mm	36789.43
PU			10

EMC double shield clamps
for 10 × 3 mm bus bars
without strain relief function



PFS2-foot

	Clamping range Pos. 1	Clamping range Pos. 2	PFS2|SKL Order No.
SKL	blank	1.5 – 3 mm	36788.01
	blank	3 – 6 mm	36788.02
	blank	6 – 8 mm	36788.03
	blank	8 – 11 mm	36788.04
	1.5 – 3 mm	blank	36788.10
	1.5 – 3 mm	1.5 – 3 mm	36788.11
	1.5 – 3 mm	3 – 6 mm	36788.12
	1.5 – 3 mm	6 – 8 mm	36788.13
	1.5 – 3 mm	8 – 11 mm	36788.14
	3 – 6 mm	blank	36788.20
	3 – 6 mm	1.5 – 3 mm	36788.21
	3 – 6 mm	3 – 6 mm	36788.22
	3 – 6 mm	6 – 8 mm	36788.23
	3 – 6 mm	8 – 11 mm	36788.24
	6 – 8 mm	blank	36788.30
	6 – 8 mm	1.5 – 3 mm	36788.31
	6 – 8 mm	3 – 6 mm	36788.32
	6 – 8 mm	6 – 8 mm	36788.33
	6 – 8 mm	8 – 11 mm	36788.34
	8 – 11 mm	blank	36788.40
	8 – 11 mm	1.5 – 3 mm	36788.41
	8 – 11 mm	3 – 6 mm	36788.42
	8 – 11 mm	6 – 8 mm	36788.43
PU			10


PFS2|SKL

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Assembly

The shield clamps can be mounted on 10 × 3 mm bus bars.

Advantages & benefits

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

Specifications

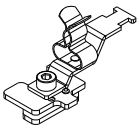
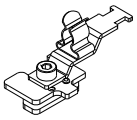
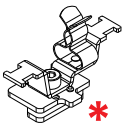
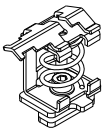
Material

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

Accessories

Bus bar	128
MF Supports for bus bars	207

EMC shield clamps
for 30 mm C-rails
with strain relief function

		SC|LFZ-M|MSKL Fixing hole M4	SC|LFZ|SKL Fixing hole M4	SC|LF2Z-M|MSKL Fixing hole M4	SC|SKZ
	Clamping range	Order No.	Order No.	Order No.	Order No.
MSKL	3 – 12 mm	37612.100	–	NEW 37612.150	–
MSKL	8 – 18 mm	37614.100	–	NEW 37614.150	–
SKL	1.5 – 3 mm	–	36910.100	–	–
SKL	3 – 6 mm	–	36915.100	–	–
SKL	6 – 8 mm	–	36920.100	–	–
SKL	8 – 11 mm	–	36925.100	–	–
SKL	11 – 17 mm	–	36930.100	–	–
SKL	17 – 22 mm	–	36935.100	–	–
SKL	22 – 30 mm	–	36940.100	–	–
SKL	30 – 38 mm	–	36941.100	–	–
SKZ	3 – 8 mm	–	–	–	36696
SKZ	4 – 13.5 mm	–	–	–	36700
	PU	10	10	10	10

* with double strain relief function

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps can be mounted on 30 mm C-rails using the SC mounting foot (included in the shipment).

Advantages & benefits

- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free
- Double strain relief: acc. to PROFINET installation guidelines

Specifications

Material

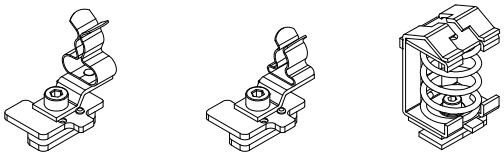
MSKL-clamp, SKL-clamp	**Spring steel, zinc plated**
LFZ foot	**Sheet steel, galvanically zinc plated Fixing hole M4**
SC foot	**Sheet steel, galvanically zinc plated**
SK-bracket	**Sheet steel, galvanically zinc plated**

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

SC-foot: space-saving design enables high cable density.

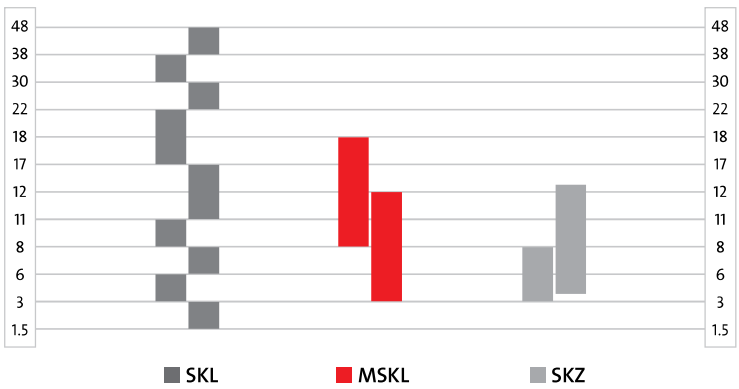
Mounting foot adjusts itself when tightening the screw.

EMC shield clamps
for 30 mm C-rails
without strain relief function



		SC|LF|MSKL Fixing hole M4	SC|LF|SKL Fixing hole M4	SC|SK
	Clamping range	Order No.	Order No.	Order No.
MSKL	3 – 12 mm	37608.100	–	–
	8 – 18 mm	37610.100	–	–
SKL	1.5 – 3 mm	–	36251.100	–
	3 – 6 mm	–	36253.100	–
	6 – 8 mm	–	36255.100	–
	8 – 11 mm	–	36256.100	–
	11 – 17 mm	–	36257.100	–
	17 – 22 mm	–	36258.100	–
	22 – 30 mm	–	36259.100	–
SK	3 – 8 mm	–	–	36696.002
	4 – 13.5 mm	–	–	36700.002
	10 – 20 mm	–	–	36704
	15 – 32 mm	–	–	36708
	PU	10	10	10

Difference between SKL | MSKL | SKZ clamping ranges



Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Assembly

The shield clamps can be mounted on 30 mm C-rails using the SC mounting foot (included in the shipment).

Advantages & benefits

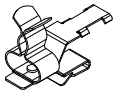
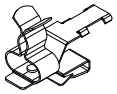
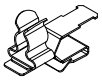
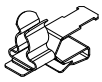
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Shock and vibration resistant, maintenance free

Specifications

Material

MSKL-clamp, SKL-clamp	**Spring steel, zinc plated**
LF foot	**Sheet steel, galvanically zinc plated Fixing hole M4**
SC foot	**Sheet steel, galvanically zinc plated**
SK-bracket	**Sheet steel, galvanically zinc plated**

EMC shield clamps
for assembly on sheet edges
with strain relief function

	Clamping range	PFKZ-A-M|MSKL for sheet thickness 1.5 – 2 mm Order No.	PFKZ-B-M|MSKL for sheet thickness 2 – 3 mm Order No.	PFKZ-A|SKL for sheet thickness 1.5 – 2 mm Order No.	PFKZ-B|SKL for sheet thickness 2 – 3 mm Order No.
MSKL	3 – 12 mm	37640	37650	–	–
	8 – 18 mm	37642	37652	–	–
SKL	1.5 – 3 mm	–	–	36779.1	36783.1
	3 – 6 mm	–	–	36779.2	36783.2
	6 – 8 mm	–	–	36779.3	36783.3
	8 – 11 mm	–	–	36779.4	36783.4
	PU	10	10	10	10

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps are used where a screw connection is either not possible or wanted. It is simply clamped onto the sheet edge. The claws provide a secure grip, even in case of vibrations.

Advantages & benefits

- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Maintenance free

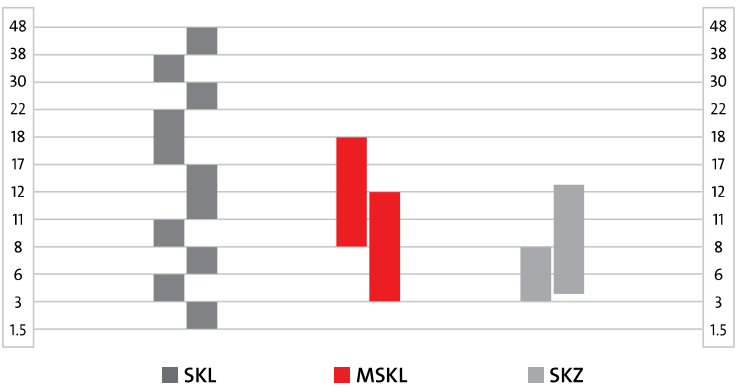
Specifications

Material

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

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

Difference between SKL | MSKL | SKZ clamping ranges



EMC shield clamps
for assembly on sheet edges
without strain relief function

		 PFK-A|SKL for sheet thickness 1.5 – 2 mm	 PFKZ-B|SKL for sheet thickness 2 – 3 mm
	Clamping range	Order No.	Order No.
SKL	1.5 – 3 mm	36778.1	36782.1
	3 – 6 mm	36778.2	36782.2
	6 – 8 mm	36778.3	36782.3
	8 – 11 mm	36778.4	36782.4
	PU	10	10

Secure grip on metal sheets due to mounting claws

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Assembly

The shield clamps are used where a screw connection is either not possible or wanted. It is simply clamped onto the sheet edge. The claws provide a secure grip, even in case of vibrations.

Advantages & benefits

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

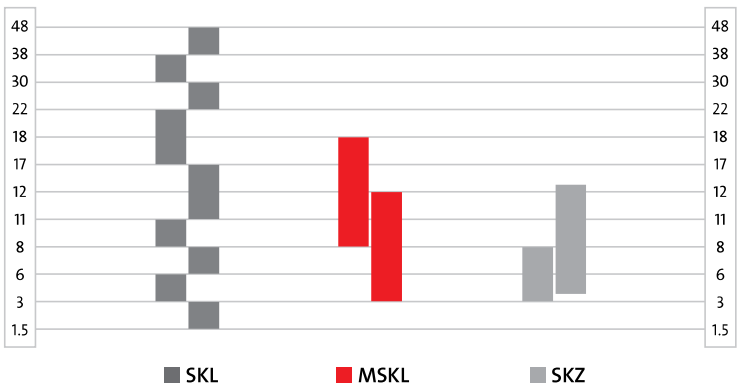
Specifications

Material

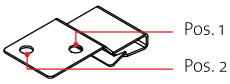
SKL-clamp	**Spring steel, zinc plated**
PFKZ foot	**Spring steel**

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

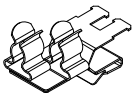
Difference between SKL | MSKL | SKZ clamping ranges

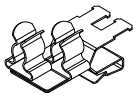


EMC double shield clamps
for assembly on sheet edges
with strain relief function



PFKZ2-foot





Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Optional strain relief function: the cable is fixed via the cable jacket using cable ties.

Assembly

The shield clamps are used where a screw connection is either not possible or wanted. It is simply clamped onto the sheet edge. The claws provide a secure grip, even in case of vibrations.

Advantages & benefits

- Integrated strain relief function
- Large cable shield contact area
- Easy, tool-free assembly
- The spring design requires no adjustments and will permanently maintain contact to the cable shield
- Designed for high density applications
- Maintenance free

Specifications

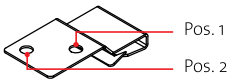
Material

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

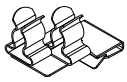
Type A:	**For wall/sheet thickness 1.5 – 2 mm**
Type B:	**For wall/sheet thickness 2 – 3 mm**

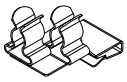
	Clamping range Pos. 1	Clamping range Pos. 2	PFKZ2-A|SKL for sheet thickness 1.5 – 2 mm Order No.	PFKZ2-B|SKL for sheet thickness 2 – 3 mm Order No.
SKL	blank	1.5 – 3 mm	36781.01	36785.01
	blank	3 – 6 mm	36781.02	36785.02
	blank	6 – 8 mm	36781.03	36785.03
	blank	8 – 11 mm	36781.04	36785.04
	1.5 – 3 mm	blank	36781.10	36785.10
	1.5 – 3 mm	1.5 – 3 mm	36781.11	36785.11
	1.5 – 3 mm	3 – 6 mm	36781.12	36785.12
	1.5 – 3 mm	6 – 8 mm	36781.13	36785.13
	1.5 – 3 mm	8 – 11 mm	36781.14	36785.14
	3 – 6 mm	blank	36781.20	36785.20
	3 – 6 mm	1.5 – 3 mm	36781.21	36785.21
	3 – 6 mm	3 – 6 mm	36781.22	36785.22
	3 – 6 mm	6 – 8 mm	36781.23	36785.23
	3 – 6 mm	8 – 11 mm	36781.24	36785.24
	6 – 8 mm	blank	36781.30	36785.30
	6 – 8 mm	1.5 – 3 mm	36781.31	36785.31
	6 – 8 mm	3 – 6 mm	36781.32	36785.32
	6 – 8 mm	6 – 8 mm	36781.33	36785.33
	6 – 8 mm	8 – 11 mm	36781.34	36785.34
	8 – 11 mm	blank	36781.40	36785.40
	8 – 11 mm	1.5 – 3 mm	36781.41	36785.41
	8 – 11 mm	3 – 6 mm	36781.42	36785.42
	8 – 11 mm	6 – 8 mm	36781.43	36785.43
PU			10	10

EMC double shield clamps
for assembly on sheet edges
without strain relief function



PFK2-foot





	Clamping range Pos. 1	Clamping range Pos. 2	PFK2-A|SKL for sheet thickness 1.5 – 2 mm Order No.	PFK2-B|SKL for sheet thickness 2 – 3 mm Order No.
SKL	blank	1.5 – 3 mm	36780.01	36784.01
	blank	3 – 6 mm	36780.02	36784.02
	blank	6 – 8 mm	36780.03	36784.03
	blank	8 – 11 mm	36780.04	36784.04
	1.5 – 3 mm	blank	36780.10	36784.10
	1.5 – 3 mm	1.5 – 3 mm	36780.11	36784.11
	1.5 – 3 mm	3 – 6 mm	36780.12	36784.12
	1.5 – 3 mm	6 – 8 mm	36780.13	36784.13
	1.5 – 3 mm	8 – 11 mm	36780.14	36784.14
	3 – 6 mm	blank	36780.20	36784.20
	3 – 6 mm	1.5 – 3 mm	36780.21	36784.21
	3 – 6 mm	3 – 6 mm	36780.22	36784.22
	3 – 6 mm	6 – 8 mm	36780.23	36784.23
	3 – 6 mm	8 – 11 mm	36780.24	36784.24
	6 – 8 mm	blank	36780.30	36784.30
	6 – 8 mm	1.5 – 3 mm	36780.31	36784.31
	6 – 8 mm	3 – 6 mm	36780.32	36784.32
	6 – 8 mm	6 – 8 mm	36780.33	36784.33
	6 – 8 mm	8 – 11 mm	36780.34	36784.34
	8 – 11 mm	blank	36780.40	36784.40
	8 – 11 mm	1.5 – 3 mm	36780.41	36784.41
	8 – 11 mm	3 – 6 mm	36780.42	36784.42
	8 – 11 mm	6 – 8 mm	36780.43	36784.43
PU			10	10

Product description

Whenever a cable shielding is required with the possibility of grounding, EMC shield clamps can be used. Shield clamps are easy to use and effective in derivating conducted disturbances.

Assembly

The shield clamps are used where a screw connection is either not possible or wanted. It is simply clamped onto the sheet edge. The claws provide a secure grip, even in case of vibrations.

Advantages & benefits

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

Specifications

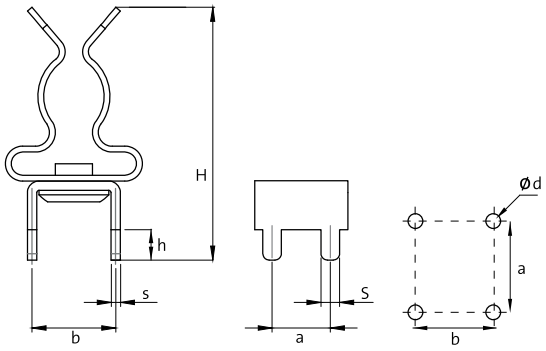
Material

SKL-clamp	**Spring steel, zinc plated**
PFK2 foot	**Spring steel**
Type A:	**For wall/sheet thickness 1.5 – 2 mm**
Type B:	**For wall/sheet thickness 2 – 3 mm**

Secure grip on metal sheets due to mounting claws

PCB|SKL

EMC Shield clamps for printed circuit boards



Product description

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

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

Advantages & benefits

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

Specifications

Material

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

SKL-clamp

PCB-ET-4-V-4,1|SKL 3-6	**Spring steel, tin plated**

Type	Order No.	Height H [mm]	Width s [mm]	Pin h [mm]	Pin S [mm]	Grid a x b [mm]	Drill-hole d [mm]	PU
PCB-4-V-6,8|SKL 1.5-3 Clamping range 1.5 - 3 mm	36650.1	6.8	0.8	2.6	1.6	7.2 x 5	Ø 1.8	10
PCB-4-V-6,8|SKL 3-6 Clamping range 3 - 6 mm	36650.2	6.8	0.8	2.6	1.6	7.2 x 5	Ø 1.8	10
PCB-4-V-6,8|SKL 6-8 Clamping range 6 - 8 mm	36650.3	6.8	0.8	2.6	1.6	7.2 x 5	Ø 1.8	10
PCB-4-V-12,5|SKL 1.5-3 Clamping range 1.5 - 3 mm	36656.1	12.5	1	4	1.6	10.1 x 5	Ø 1.8	10
PCB-4-V-12,5|SKL 3-6 Clamping range 3 - 6 mm	36656.2	12.5	1	4	1.6	10.1 x 5	Ø 1.8	10
PCB-4-V-12,5|SKL 6-8 Clamping range 6 - 8 mm	36656.3	12.5	1	4	1.6	10.1 x 5	Ø 1.8	10
PCB-ET-4-V-4,1|SKL 3-6 Clamping range 3 - 6 mm (one-piece)	36653.1	17.5	0.3	2.6	1.6	5 × 7.2	Ø 1.8	25

PCB-ET-4-V-4,1|SKL 3-6

STFZ|SKL

EMC Terminal clamp for peripheral modules

STFZ-SP|SKL

STFZ-U|SKL

STFZ|SKL

Application terminal clamp

STFZ|SKL

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

  Further manufacturers upon request.

STFZ-U|SKL

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

STFZ-SP|SKL

- Siemens
  SIMATIC ET 200SP

Product description

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

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

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

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

Product description

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

Order No. 61430

STFZ | STFZ2

EMC Terminal clamp, single and double for various brands

Product description

The STFZ|SKL EMC terminal clamp provides strain relief, cable guidance and earthing for decentralised bus modules (see compatibility table page 129).

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

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

Advantages & benefits

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

Specifications

Material

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

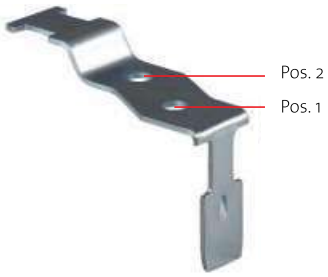
Accessories

STFZ I/O Insert Tool	139

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

STFZ-U | STFZ-SP | STFZ2-SP

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




STFZ-SP|SKL


STFZ2-SP|SKL

Type	Shield diameter Pos. 1	Shield diameter Pos. 2	Order No.	PU
STFZ-SP|SKL / STFZ-U|SKL with one shield clamp:				
STFZ-SP|SKL 1.5-3 STFZ-U|SKL 1.5-3	1.5 - 3 mm 1.5 - 3 mm	- -	37512.1 37514.1	10 10
STFZ-SP|SKL 3-6 STFZ-U|SKL 3-6	3 - 6 mm 3 - 6 mm	- -	37512.2 37514.2	10 10
STFZ-SP|SKL 6-8 STFZ-U|SKL 6-8	6 - 8 mm 6 - 8 mm	- -	37512.3 37514.3	10 10
STFZ2-SP with two shield clamps:				
STFZ2-SP|01	blank	1.5 - 3 mm	37507.01	10
STFZ2-SP|02	blank	3 - 6 mm	37507.02	10
STFZ2-SP|03	blank	6 - 8 mm	37507.03	10
STFZ2-SP|10	1.5 - 3 mm	blank	37507.10	10
STFZ2-SP|11	1.5 - 3 mm	1.5 - 3 mm	37507.11	10
STFZ2-SP|12	1.5 - 3 mm	3 - 6 mm	37507.12	10
STFZ2-SP|13	1.5 - 3 mm	6 - 8 mm	37507.13	10
STFZ2-SP|20	3 - 6 mm	blank	37507.20	10
STFZ2-SP|21	3 - 6 mm	1.5 - 3 mm	37507.21	10
STFZ2-SP|22	3 - 6 mm	3 - 6 mm	37507.22	10
STFZ2-SP|23	3 - 6 mm	6 - 8 mm	37507.23	10
STFZ2-SP|30	6 - 8 mm	blank	37507.30	10
STFZ2-SP|31	6 - 8 mm	1.5 - 3 mm	37507.31	10
STFZ2-SP|32	6 - 8 mm	3 - 6 mm	37507.32	10
STFZ2-SP|33	6 - 8 mm	6 - 8 mm	37507.33	10

Product description

The STFZ-SP|SKL EMC terminal clamp provides strain relief, cable guidance and earthing for decentralised bus modules SIMATIC ET 200SP by Siemens. STFZ2-SP|SKL is a version for analogue I/O modules using two actuators / sensors. STFZ-U terminal clamps for various Beckhoff modules (see page 129).

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

Advantages & benefits

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

Specifications

Material

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

Accessories

STFZ I/O Insert Tool	139


STFZ-U|SKL

EMC ServiceBox *multi*

Service box with asssorted MSKL shield clamp

Product description

The suitable EMC clamp is always readily available!

The EMC ServiceBox multi is very universal, especially when the cable diameter is unknown in advance. With the new ServiceBox multi you always have the right size on hand.

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

Order No. 88006

4.1

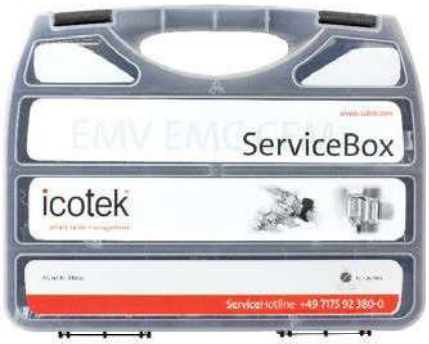
Content

MSKL / SKL for TS35 DIN rails:	
Type SFZ-M|MSKL - sizes: 8 - 18 mm	**10 × MSKL**
Type SFZ-M|MSKL - sizes: 3 - 12 mm	**20 × MSKL**
Type SFZ|SKL - sizes: 1.5 - 3 mm	**10 × SKL**
MSKL / SKL for assembly via screws:	
Type LFZ-M|MSKL - sizes: 8 - 18 mm	**10 × MSKL**
Type LFZ-M|MSKL - sizes: 3 - 12 mm	**20 × MSKL**
Type LFZ|SKL - sizes: 1.5 - 3 mm	**10 × SKL**
MSKL for 10 × 3 mm bus bar:	
Type PFSZ-M|MSKL - sizes: 3 - 12 mm	**10 × MSKL**
MSKL / SKL for clipping on metal sheets:	
Type PFKZ-B-M|MSKL - sizes: 1.5 - 8 mm	**10 × MSKL**
Type PFKZ-B|SKL 22	**2 × SKL**
SKL for decentralised bus modules:	
Type STFZ|SKL - sizes: 3 - 6 mm	**6 × SKL**
SKL for clipping on metal sheets	
Typ PFKZ-B|SKL 1,5-3 mm	**3 x SKL**
Typ PFKZ-B|SKL 3-6 mm	**3 x SKL**
Typ PFKZ-B|SKL 6-8 mm	**3 x SKL**
EMC - Accessories:	
RLFZ - Clamp assembly 5× SKL	**1 piece**

90% of all cable shields are contacted

EMC ServiceBox

Service box with asssorted SKL shield clamps



Exact gradations of the shield clamps

Product description

The suitable EMC clamp is always readily available!

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

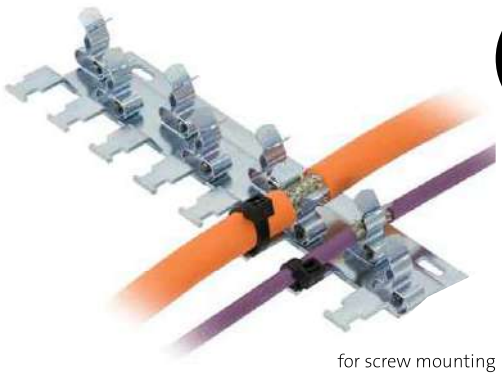
Order No. 88002

Content

SKL for TS35 DIN rails:	
Type SFZ|SKL - sizes: 1.5 - 17 mm	**15 × SKL**
Type SFS|SKL - sizes: 1.5 - 8 mm	**6 × SKL**
SFZ-M|MSKL - sizes: 3-18 mm	**4 × SKL**
SKL for assembly via screws:	
Type LFZ|SKL - sizes: 1.5 - 17 mm	**21 × SKL**
Type LFZ-U4|SKL - sizes: 1.5-11 mm	**8 × SKL**
Type LFZ-M|MSKL - sizes: 3-18 mm	**4 × SKL**
SKL for 10 × 3 bus bar:	
Type PFSZ2|SKL 11	**1 × SKL**
Type PFSZ2|SKL 22	**1 × SKL**
Type PFSZ2|SKL 33	**1 × SKL**
SKL for clipping on metal sheets:	
Type PFSZ|SKL - sizes: 1.5 - 11 mm	**15 × SKL**
Type PFSZ-M|MSKL - sizes: 3-18 mm	**4 × SKL**
SKL for decentralised bus modules:	
STFZ|SKL - sizes: 3 - 6 mm	**1 × SKL**
STFZ2|SKL 23	**1 × SKL**
SKL for Siemens module ET 200 SP:	
STFZ-SP|SKL - sizes: 3-6 mm	**1 × SKL**
STFZ2-SP|SKL 23	**1 × SKL**

RLFZ-M | SC|RLFZ-M

EMC Clamp assembly with strain relief and a large clamping range



for screw mounting

Configure online now

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

Product description

The RLFZ-M range is a further development of the EMC clamp assembly which enables earthing and strain relief of up to 12 cable shields from 3-12 mm using only one shield clamp size.

There are 10 different carriers available which can be easily user configured with up to 12 MSKL 3-12 shield clamps.

Advantages & benefits

- Easy storage due to large clamping range 3-12 mm
- Designed for high density applications
- Possibility to configure custom specific EMC clamp assemblies
- Separate strain relief and EMC shield earthing
- Online design tool for EMC Clamp assembly on www.icotek.com

Specifications

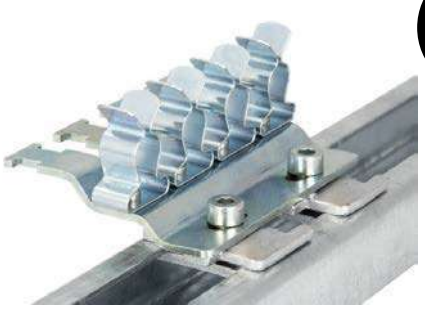
Material

MSKL-clamp	**Spring steel, zinc plated**
RLFZ-M-foot	**Sheet steel, galvanically zinc plated**
SC-foot	**Sheet steel, galvanically zinc plated**

Type	Order No. for direct mounting	Order No. for C-rails*	Number of shield clamps	Length	Width	PU
RLFZ-M (x3)	38070.002	38070.100	3× MSKL 3-12	52 mm	54.1 mm	1
RLFZ-M (x4)	38071.002	38071.100	4× MSKL 3-12	73 mm	54.1 mm	1
RLFZ-M (x5)	38072.002	38072.100	5× MSKL 3-12	94 mm	54.1 mm	1
RLFZ-M (x6)	38073.002	38073.100	6× MSKL 3-12	115 mm	54.1 mm	1
RLFZ-M (x7)	38074.002	38074.100	7× MSKL 3-12	136 mm	54.1 mm	1
RLFZ-M (x8)	38075.002	38075.100	8× MSKL 3-12	157 mm	54.1 mm	1
RLFZ-M (x9)	38076.002	38076.100	9× MSKL 3-12	178 mm	54.1 mm	1
RLFZ-M (x10)	38077.002	38077.100	10× MSKL 3-12	199 mm	54.1 mm	1
RLFZ-M (x11)	38078.002	38078.100	11× MSKL 3-12	220 mm	54.1 mm	1
RLFZ-M (x12)	38079.002	38079.100	12× MSKL 3-12	241 mm	54.1 mm	1

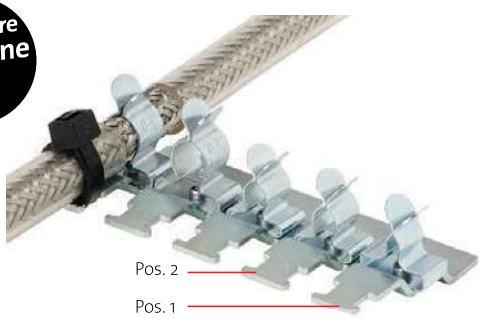
RLFZ | SC|RLFZ

EMC Clamp assembly with strain relief



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

Configure online now



for screw mounting

Type	Order No. for direct mounting	Order No. for C-rails*	Number of shield clamps	Length	Width	PU
RLFZ (x3)	38005	38005.100	3× SKL	41.2 mm	44.4 mm	1
RLFZ (x4)	38010	38010.100	4× SKL	56.8 mm	44.4 mm	1
RLFZ (x5)	38015	38015.100	5× SKL	72.4 mm	44.4 mm	1
RLFZ (x6)	38020	38020.100	6× SKL	88 mm	44.4 mm	1
RLFZ (x7)	38025	38025.100	7× SKL	103.6 mm	44.4 mm	1
RLFZ (x8)	38030	38030.100	8× SKL	119.2 mm	44.4 mm	1
RLFZ (x9)	38035	38035.100	9× SKL	134.8 mm	44.4 mm	1
RLFZ (x10)	38040	38040.100	10× SKL	150.4 mm	44.4 mm	1
RLFZ (x11)	38045	38045.100	11× SKL	166 mm	44.4 mm	1
RLFZ (x12)	38050	38050.100	12× SKL	181.6 mm	44.4 mm	1

Product description

The RLFZ range enables earthing and strain relief of up to 12 cables in a small space.

The combination of EMC shield earthing and strain relief is the key feature of this system.

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

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

Advantages & benefits

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

Specifications

Material

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

SF|RLFZ

EMC Clamp assembly for 35 mm DIN rail

Product description

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

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

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

Advantages & benefits

- Designed for high density applications
- Possibility to configure custom specific EMC clamp assemblies
- Separate strain relief and EMC shield earthing
- Simple and tool-free mounting, easy assembly
- configure online on www.icotek.com

Specifications

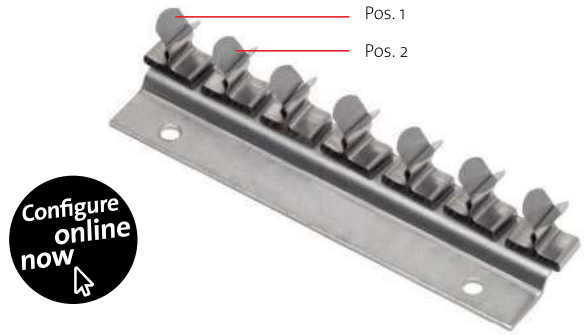
Material

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

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

RLF

EMC Clamp assembly



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

Product description

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

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

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

Advantages & benefits

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

Specifications

Material

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

RoHS compliant

KEL-EMC-Z

Cable assembly with strain relief

Product description

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

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

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

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

Advantages & benefits

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

Specifications

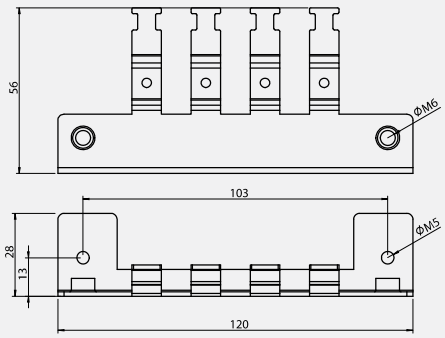
Material **Sheet steel, zinc plated**

Compatible with

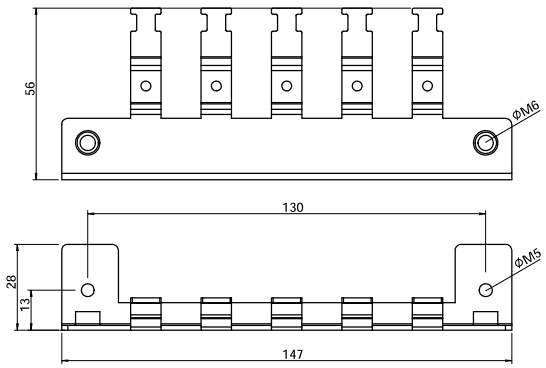
KEL-U Cable entry frames	8 - 14
KEL-ER Cable entry frames	9 - 17
KEL Cable entry frames	18 - 21
KEL-QUICK Cable entry frames	60 - 61

Type	Order No.	No. of teeth	Fastening	Fits with	PU
KEL-EMC-Z 16|4	36525	4	long side	KEL-(ER-)E4 KEL 16|x KEL-U 16|x KEL-ER 16|x KEL-QUICK 16	1
KEL-EMC-Z 24|5	36527	5	long side	KEL-(ER-)E5 KEL 24|x KEL-U 24|x KEL-ER 24|x KEL-QUICK 24	1

KEL-EMC-Z 16|4

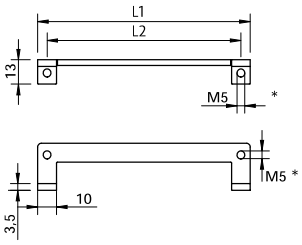


KEL-EMC-Z 24|5



KEL-EMC-PF

Cable assembly, bracket version



Type	Fits with	Order No.	Length L1	Length L2	PU
KEL-EMC-PFM 10	KEL(-U) 10|x KEL-QUICK 10|x KEL-ER 10|x	39184	93 mm	83 mm	1
KEL-EMC-PFM 16	KEL(-U) 16|x KEL-QUICK 16|x KEL-ER 16|x	39183	113 mm	103 mm	1
KEL-EMC-PFM 24	KEL(-U) 24|x KEL-QUICK 24|x KEL-ER 24|x KEL-DPZ 24|x	39181	140 mm	130 mm	1
KEL-EMC-PF B4	KEL-(ER-)E2 KEL-QUICK-E2 KEL-(U-)B KEL-QUICK-B KEL-ER-B	39150	68 mm	58 mm	1
KEL-EMC-PF 10	KEL-(ER-)E3 KEL-QUICK-E3 KEL(-U) 10|x KEL-QUICK 10|x KEL-ER 10|x	39160	93 mm	83 mm	1
KEL-EMC-PF 16	KEL-(ER-)E4 KEL-QUICK-E4 KEL(-U) 16|x KEL-QUICK 16|x KEL-ER 16|x	39170	113 mm	103 mm	1
KEL-EMC-PF 24	KEL-(ER-)E5 KEL-QUICK-E5 KEL(-U) 24|x KEL-QUICK 24|x KEL-ER 24|x KEL-DPZ 24|x KEL-DPZ-E	39180	140 mm	130 mm	1
KEL-EMC-PF 183	KEL 183 KEL 183-E	39190	200 mm	95 / 190 mm	1

Product description

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

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

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

Advantages & benefits

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

Specifications

Material **Sheet steel, galvanically zinc plated**

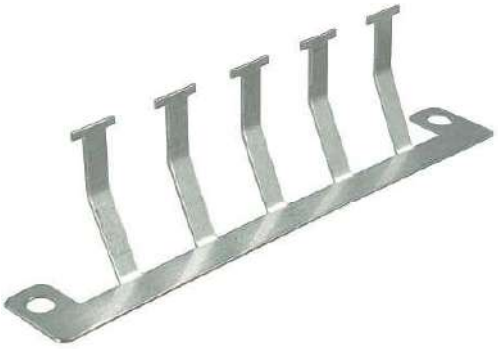
Compatible with

KEL-U Cable entry frames	8 - 14
KEL-ER Cable entry frames	9 - 14
KEL Cable entry frames	18 - 21
KEL 183 Cable entry frames	34
KEL-QUICK Cable entry frames	60 - 61
KEL-BES Brush frames	74
KEL-DPU Cable entry plates	82 - 83
KEL-DPZ Cable entry plates	84 - 92
PFSZ|SKL / PFSZ-M|MSKL Shield clamps	128
PFS|SKL Shield clamps	129

RoHS compliant

KEL-EMC

Cable assembly



Product description

Installation of pre-terminated cables without shield interruption.

Advantages & benefits

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

Specifications

Material **Stainless steel**

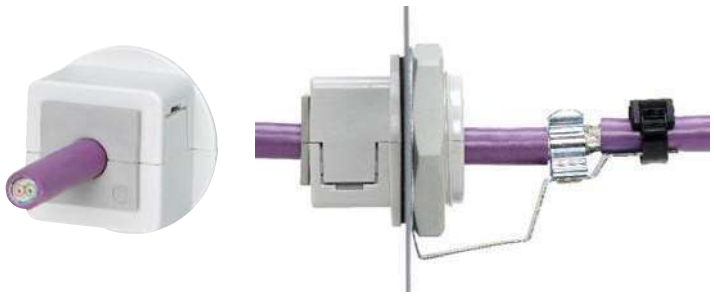
Compatible with

KEL-U Cable entry frames	8 - 14
KEL-ER Cable entry frames	9 - 17
KEL Cable entry frames	18 - 21
KEL-QUICK Cable entry frames	60 - 61
KEL-BES Brush frames	74

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

KVT-EMC

EMC bracket for cable glands



Type	Order No.	Shield diameter	PU
KVT-EMC-25|SKL 1.5-3	37180.1	1.5 - 3 mm	5
KVT-EMC-25|SKL 3-6	37180.2	3 - 6 mm	5
KVT-EMC-25|SKL 6-8	37180.3	6 - 8 mm	5
KVT-EMC-25|SKL 8-11	37180.4	8 - 11 mm	5
KVT-EMC-32|SKL 1.5-3	37181.1	1.5 - 3 mm	5
KVT-EMC-32|SKL 3-6	37181.2	3 - 6 mm	5
KVT-EMC-32|SKL 6-8	37181.3	6 - 8 mm	5
KVT-EMC-32|SKL 8-11	37181.4	8 - 11 mm	5

Product description

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

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

Separate functions (according to regulations) carried out quickly and easily!

Advantages & benefits

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

Specifications

Material **Sheet steel, zinc plated**

Compatible with

KVT Split cable glands 40 - 46
QVT Split cable glands 64 - 65

KAFM-EMC

EMC Strain relief plates

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

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

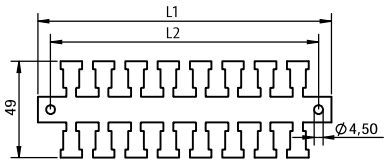
Type SK: Mounted on screw-foot for DIN-rail shape H

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

Product description

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

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



Specifications

Material **Stainless steel**

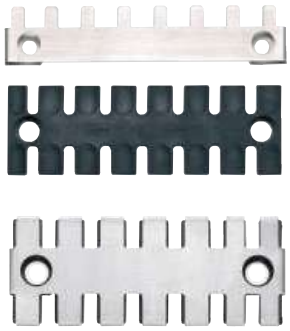
SC-foot with twist protection notch: space-saving design enables high cable density.

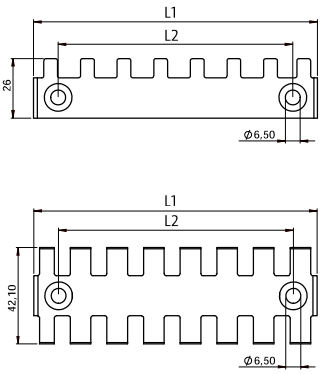
Mounting foot adjusts itself when tightening the screw.

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	978	59
KAFM 59 zinc plated	36459	-	-	-	36562	990	978	59
SF	36230	Snap foot loose, for 35 mm DIN-rail shape H						
SK	36232	Screw-foot loose, for 35 mm DIN-rail shape H						
SC	36231	Screw-foot loose, for 30 mm DIN-rail shape C (width of mouth: 16 mm) with twist protection notch						
Bushing	36234	Distance bushing 8 mm high						

ZL|SB-EMC

Shield plate for ZL strain relief plates





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

Product description

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

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

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

ZL strain relief plates offered separately.

Specifications

Material
Shield plate **Stainless steel**

Compatible with

SF|ZL Strain relief plates 114
ZL Strain relief plates 110
ZL-AB Strain relief plates 111

MB

Earthing tapes

Product description

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

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

Earthing Tapes are available with M4, M5, M6, M8 or M10 connections and in some sizes with both connection sizes combined.

Type	Order No.	Length L [mm]	Cross-section mm²	Hole size	PU
MB 100 | 6 | M6	32700	100	6	M6	1
MB 150 | 6 | M6	32701	150	6	M6	1
MB 200 | 6 | M4	32707	200	6	M4	1
MB 200 | 6 | M6	32702	200	6	M6	1
MB 250 | 6 | M6	32706	250	6	M6	1
MB 300 | 6 | M6	32703	300	6	M6	1
MB 400 | 6 | M6	32704	400	6	M6	1
MB 500 | 6 | M6	32705	500	6	M6	1
MB 100 | 10 | M6	32730	100	10	M6	1
MB 100 | 10 | M8	32731	100	10	M8	1
MB 150 | 10 | M5	32709	150	10	M5	1
MB 150 | 10 | M5 + M6	32746	150	10	M5 + M6	1
MB 150 | 10 | M8	32732	150	10	M8	1
MB 200 | 10 | M5	32744	200	10	M5	1
MB 200 | 10 | M6	32733	200	10	M6	1
MB 200 | 10 | M6 + M8	32741	200	10	M6 + M8	1
MB 200 | 10 | M8	32734	200	10	M8	1
MB 250 | 10 | M6 + M8	32742	250	10	M6 + M8	1
MB 300 | 10 | M6	32735	300	10	M6	1
MB 300 | 10 | M6 + M8	32743	300	10	M6 + M8	1
MB 300 | 10 | M8	32736	300	10	M8	1
MB 400 | 10 | M6	32737	400	10	M6	1
MB 400 | 10 | M8	32738	400	10	M8	1
MB 500 | 10 | M6	32739	500	10	M6	1
MB 100 | 16 | M6	32760	100	16	M6	1
MB 100 | 16 | M6 + M8	32758	100	16	M6 + M8	1
MB 100 | 16 | M8	32761	100	16	M8	1
MB 100 | 16 | M10	32759	100	16	M10	1
MB 150 | 16 | M6	32762	150	16	M6	1
MB 150 | 16 | M8	32763	150	16	M8	1
MB 200 | 16 | M6	32764	200	16	M6	1
MB 200 | 16 | M5 + M6	32776	200	16	M5 + M6	1
MB 200 | 16 | M6 + M8	32773	200	16	M6 + M8	1
MB 200 | 16 | M8	32765	200	16	M8	1
MB 250 | 16 | M8	32766	250	16	M8	1
MB 250 | 16 | M6 + M8	32774	250	16	M6 + M8	1

MB

Earthing tapes

Type	Order No.	Length L [mm]	Cross-section mm²	Hole size	PU
MB 300 | 16 | M6	32767	300	16	M6	1
MB 300 | 16 | M6 + M8	32775	300	16	M6 + M8	1
MB 300 | 16 | M8	32768	300	16	M8	1
MB 350 | 16 | M8	32769	350	16	M8	1
MB 350 | 16 | M5 + M6	32777	350	16	M5 + M6	1
MB 400 | 16 | M6	32873	400	16	M6	1
MB 400 | 16 | M8	32770	400	16	M8	1
MB 500 | 16 | M8	32771	500	16	M8	1
MB 600 | 16 | M8	32772	600	16	M8	1
MB 1000 | 16 | M8	32778	1000	16	M8	1
MB 100 | 25 | M10	32800	100	25	M10	1
MB 150 | 25 | M10	32801	150	25	M10	1
MB 200 | 25 | M8	32802	200	25	M8	1
MB 200 | 25 | M10	32803	200	25	M10	1
MB 250 | 25 | M8	32804	250	25	M8	1
MB 250 | 25 | M10	32805	250	25	M10	1
MB 300 | 25 | M8	32806	300	25	M8	1
MB 300 | 25 | M10	32807	300	25	M10	1
MB 350 | 25 | M10	32808	350	25	M10	1
MB 400 | 25 | M8	32809	400	25	M8	1
MB 500 | 25 | M8	32810	500	25	M8	1
MB 500 | 25 | M10	32812	500	25	M10	1
MB 600 | 25 | M8	32811	600	25	M8	1
MB 800 | 25 | M8	32815	800	25	M8	1
MB 200 | 35 | M10	32823	200	35	M10	1
MB 250 | 35 | M10	32824	250	35	M10	1
MB 300 | 35 | M10	32825	300	35	M10	1
MB 150 | 50 | M10	32847	150	50	M10	1
MB 200 | 50 | M10	32848	200	50	M10	1
MB 250 | 50 | M10	32849	250	50	M10	1
MB 300 | 50 | M10	32850	300	50	M10	1
MB 200 | 70 | M10*	32868	200	70	M10	1
MB 300 | 70 | M10*	32870	300	70	M10	1
MB 500 | 70 | M10*	32872	500	70	M10	1

Connecting end pads (copper)

UL-File No.: E507643

Advantages & benefits

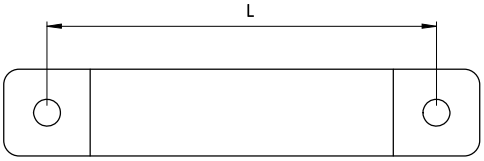
- Available in a variety of lengths and cross-sections
- Low impedances
- UL listed

Specifications

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

Current Load

Cross-section:	Current load:
6 mm²	67 – 80 A
10 mm²	89 – 106 A
16 mm²	132 – 157 A
25 mm²	177 – 210 A
35 mm²	230 – 275 A
50 mm²	280 – 350 A
70 mm²	338 – 403 A



EMC

Customised solutions

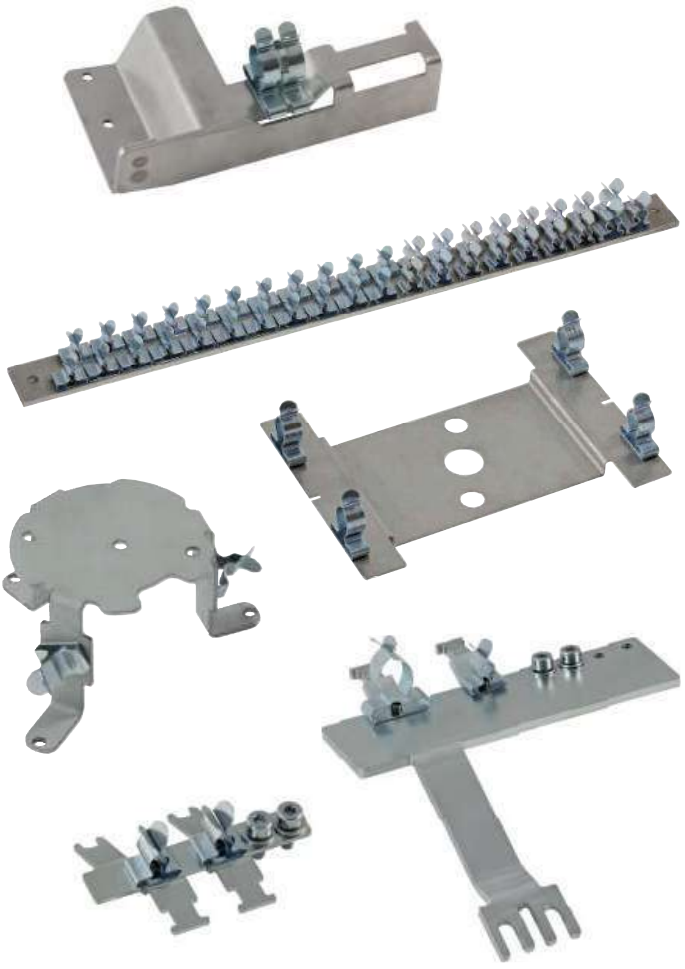
Product description

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

A wide range of standard clamp assemblies are already available (see pages 134 - 137).

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

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

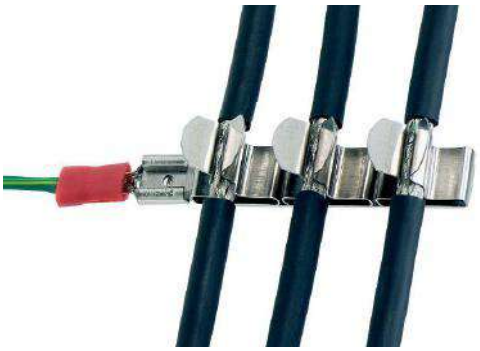


Advantages & benefits

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

EMC

Customised solutions



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- Available for a wide range of cable diameters

4.2 EMC cable entry systems
Solutions for conducted and field-bound disturbances

The EMC cable gland alternative
for the EMC KT grommet system

The industrial process technology demands increasing security against disturbances for electrical MCR facilities (measure, control, regulate). Special emphasis is being placed on the derivation of electromagnetic interference. A distinction is made between screening-related and field-related disturbances.

Screening-related interference is being transmitted directly from the source of interference to the cable shield of the supply or signal leads and then to the susceptible device. All capacitive and inductive influences of electrical or magnetic fields are called **field bound disturbances.**

The field bound disturbances are being transferred, for example as a cable's electromagnetic field, from the source of interference to the susceptible device and received there, for instance, by a head acting as an antenna.

A large contact area of the cable shield for the derivation of the interference to a conductive housing wall combined with the shielding of the housing interior generally offers a good solution for both types of interference.

In case of conducted as well as field bound EMC disturbances, our cable entry system offers an effective way to divert and block those disturbances and provides an economic alternative to expensive EMC cable glands.

▲ Space saving icotek solution: EMC cable entry frame EMC-KEL-U 24|10

◀ normal EMC cable glands

Product range

EMC-KEL-U

EMC-KEL-E

EMC-KVT

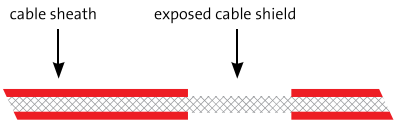
EMC-KT

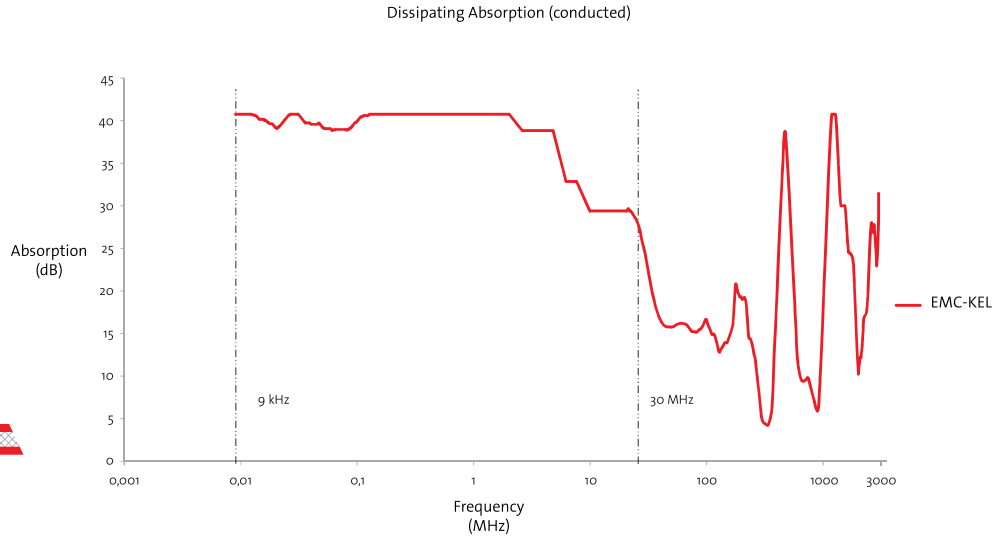
Test results

Conducted and field-bound disturbances

Conducted disturbances

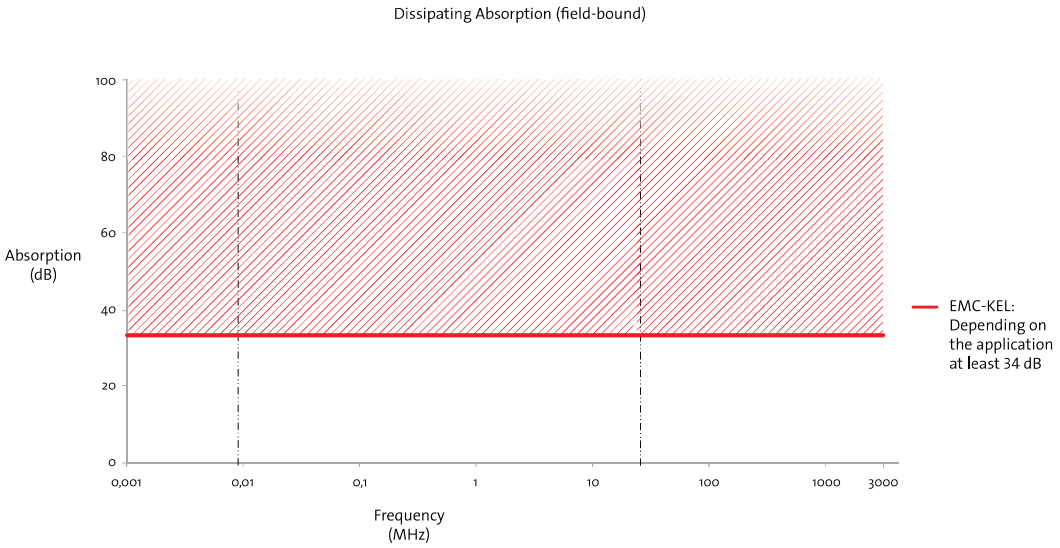
The EMC-KEL shows during cable-bound disruptions stable attenuation values up to 40 dB in the frequency ranges from 9 kHz to 30 MHz.





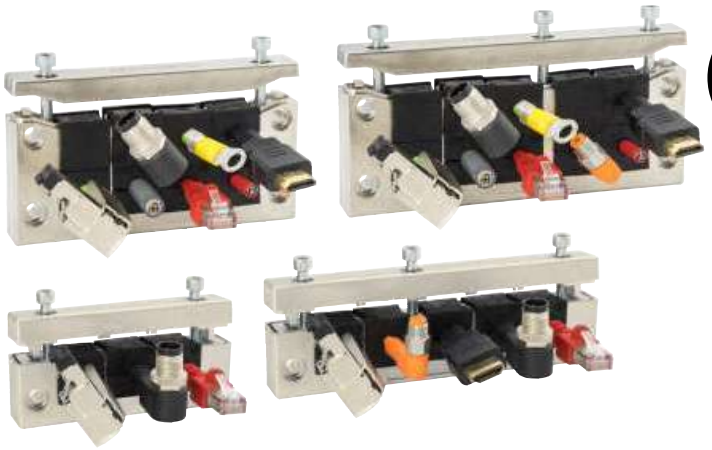
Field-bound disturbances

Regarding the field-bound disturbances and depending on the application, in the relevant frequency ranges up to 3 GHz constant measurements of at least 34 dB have been achieved. Below the attenuation range, the curve falls only at extreme high frequencies above 3 GHz.



EMC-KEL

EMC Cable entry frames



Product description

The cable entry frames EMC-KEL-U and EMC-KEL-E are based on the icotek products KEL-U and KEL-E. Due to a conductive surface, faults in the cable shields on the control cabinet can be easily dissipated. Field bound disturbances are derived by the metallisation. Between the EMC-KEL and the metal wall a conductive flat gasket (included) is mounted. The flange surface on the metal wall must be free of paint!

Advantages & Benefits

- Both conducted and field-bound disturbances can be reliably diverted
- Very attractive and scratch-resistant surface
- Contacting the cable shield over 360°
- Grommets made entirely from conductive elastomer
- High cable density
- Very good dissipation values
- Very good shielding effect with regard to EMC tightness

Specifications

Material	**Polyamide, highly conductive coating**
Flame class	**UL 94 V0**
Temperature	**-40°C to + 140°C**
Properties	**Halogen free, silicone free**
Frame depth	**17 mm**

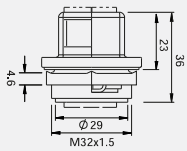
Accessories

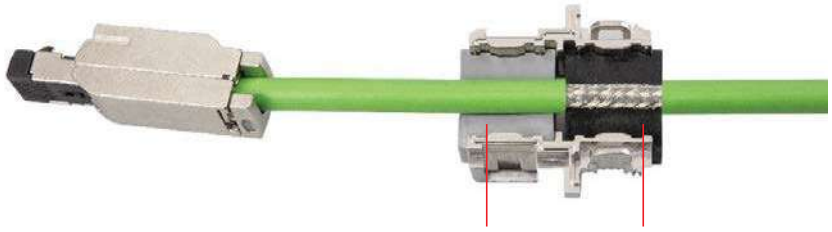
EMC-KT grommets 162 - 163

Type	Order No.	Cut-out	Grommets EMC-KT small | large	PU
EMC-KEL-U 24|10	99400	36 × 112 mm	10|-	1
EMC-KEL-U 24|4	99401	36 × 112 mm	2|2	1
EMC-KEL-U 16|8	99402	36 × 112 mm	8|-	1
EMC-KEL-E3	99420	24 × 65 mm	3|-	1
EMC-KEL-E5	99422	24 × 112 mm	5|-	1

EMC-KVT

EMC split cable gland

Description	Type	Order No.	Grommets small	EMC grommets small	Thread Thread length	PU
	EMC-KVT 32*	99431	1	1	M32 x 1.5 Length 14 mm	5
EMC locknut M32**	EMC-GM 32	99557				5



(A) KT cable grommet for strain relief and cable sealing

(B) EMC-KT cable grommet for contacting the cable shield

EMC locknut

* available from the end of 2019
** not included in the shipment

Product description

The split cable gland EMC-KVT is based on the standard icotek KVT product. However, the EMC-KVT has been metallised (galvanize coated) to create a conductive surface.

The first cable grommet (A) is used for strain relief and cable sealing on the cable jacket. The second grommet (B) contacts the cable shield at a full 360 degrees.

Grounding is achieved with the EMC locknut.

Advantages & Benefits

- Perfect for already pre-terminated cables. The connector does not have to be removed for wiring.
- Both conducted and field-bound disturbances can be reliably diverted
- Very attractive and scratch-resistant surface
- Contacting the cable shield over 360°
- EMC grommets made entirely from conductive elastomer
- Very good dissipation values
- Very good shielding effect with regard to EMC tightness
- Integrated strain relief
- Protection class IP54

Specifications

Material	**Plastic, highly conductive coating**
EMC locknut	**Nickel-plated brass**
Flame class	**UL 94 V0**
Temperature	**-40°C bis +90°C**
Properties	**Halogen free, silicone free**
IP rating	**IP54**

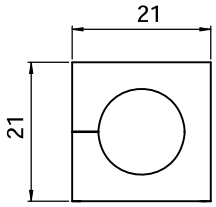
Accessories

KT grommets	48 - 50
EMC-KT grommets	162 - 163

EMC-KT

EMC grommets

IP54



EMC-KT small

Product description

The cable grommets type EMC-KT are made of a very conductive elastomer. Thus, faults are dissipated from the cable shield directly via the grommet, a frame and the flat gasket.
This ensures full-area protection against field-bound interference!

Assembly

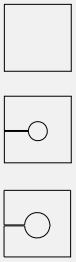
When installing the grommets, the flat side should be facing the middle of the frame. This allows the flat sides of adjacent grommets to match up and provide a secure seal.

Specifications

Material	**Elastomer, conductive**
Flame class	**in accordance with UL94-HB**
Colour	**black**
Temperature	**-30°C to +80°C**
Properties	**Halogen free, silicone free**

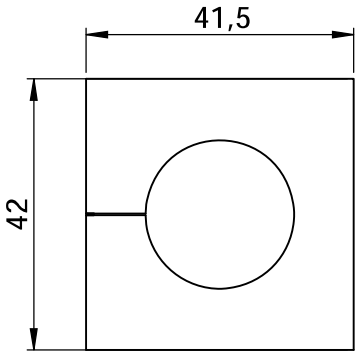
Accessories

ST Plugs	53

Description	Type	Ordner No.	Clamping range	PU
	EMC-BTK	99473	blank grommet	5
	EMC-KT 3	99460	3 - 4 mm	5
	EMC-KT 4	99461	4 - 5 mm	5
	EMC-KT 5	99462	5 - 6 mm	5
	EMC-KT 6	99463	6 - 7 mm	5
	EMC-KT 7	99464	7 - 8 mm	5
	EMC-KT 8	99465	8 - 9 mm	5
	EMC-KT 9	99466	9 - 10 mm	5
	EMC-KT 10	99467	10 - 11 mm	5
	EMC-KT 11	99468	11 - 12 mm	5
	EMC-KT 12	99469	12 - 13 mm	5
	EMC-KT 13	99470	13 - 14mm	5
	EMC-KT 14	99471	14 - 15 mm	5
	EMC-KT 15	99472	15 - 16 mm	5

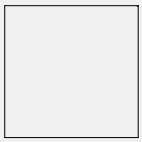
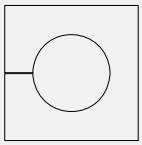
EMC-KT

EMC grommets



EMC-KT large

IP54

Description	Type	Ordner No.	Clamping range	PU
	EMC-BTG	99495	blank grommet	5
	EMC-KT 16	99475	16 - 17 mm	5
	EMC-KT 17	99476	17 - 18 mm	5
	EMC-KT 18	99477	18 - 19 mm	5
	EMC-KT 19	99478	19 - 20 mm	5
	EMC-KT 20	99479	20 - 21 mm	5
	EMC-KT 21	99480	21 - 22 mm	5
	EMC-KT 22	99481	22 - 23 mm	5
	EMC-KT 23	99482	23 - 24 mm	5
	EMC-KT 24	99483	24 - 25 mm	5

Product description

The cable grommets type EMC-KT are made of a very conductive elastomer. Thus, faults are dissipated from the cable shield directly via the grommet, the frame and the flat gasket.
This ensures full-area protection against field-bound interference!

Assembly

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

Specifications

Material	**Elastomer, conductive**
Flame class	**in accordance with UL94-HB**
Colour	**black**
Temperature	**-30°C to +80°C**
Properties	**Halogen free, silicone free**

Accessories

ST Plugs	53

Assembly possibilities

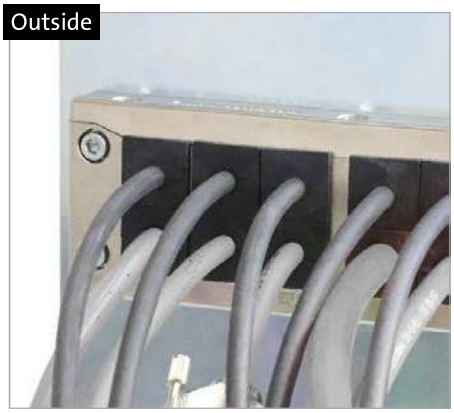
	Var. 1	Var. 2	Var. 3	Var. 4	Var. 5
Outside	EMC-KEL	EMC-KEL	EMC-KEL	KEL-ER (U)	EMC-KEL
Inside	–	–	KEL-EMC-PFM	EMC-KEL	–
EMC: conducted	–	✓	✓	✓	**
EMC: field-bound	✓	✓	✓	✓	–
IP rating	IP54	not defined	IP54	IP66 (IP54)	not defined
Strain relief	✓	–	✓	✓	*

* Standard KT grommets only
** EMC-KT grommets only

Field-bound disturbances with strain relief

The EMC cable entry frame (EMC-KEL) is screwed to the outside of the housing.
The cable shield is not exposed.

1 Outside



Not exposed cable shield

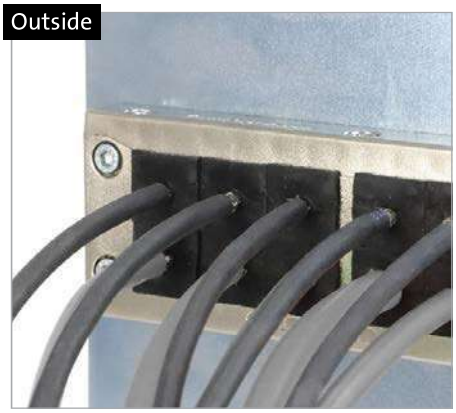
EMC KT grommet

Profile

Conducted and field-bound disturbances

The EMC cable entry frame (EMC-KEL) is screwed to the outside of the housing. The cable shield is exposed in the area of the cable grommets.

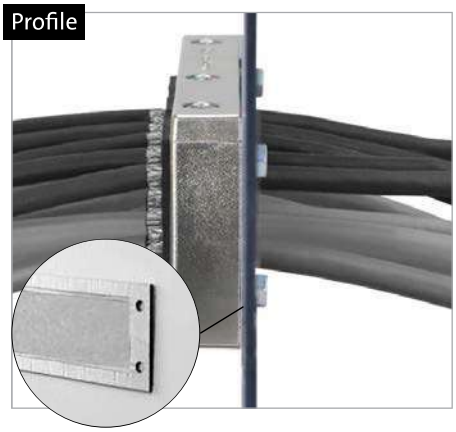
2 Outside



EMC KT grommet

EMC KT grommet

Profile

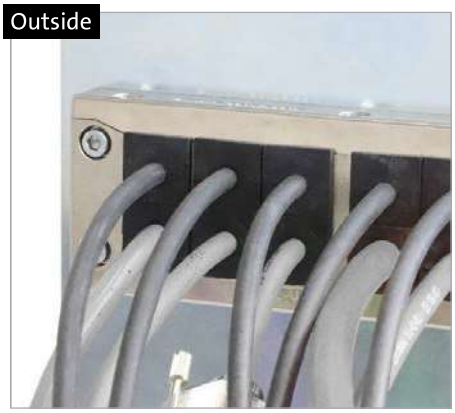


Assembly possibilities

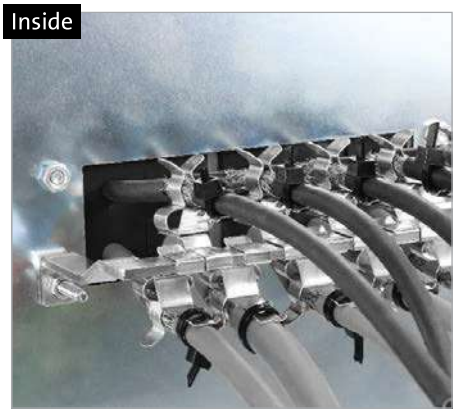
Conducted and field-bound disturbances with strain relief

The EMC cable entry frame (EMC-KEL) is screwed to the outside of the housing.
Inside the housing, the EMC bracket KEL-EMC-PFM is mounted and the exposed cable shield is placed.

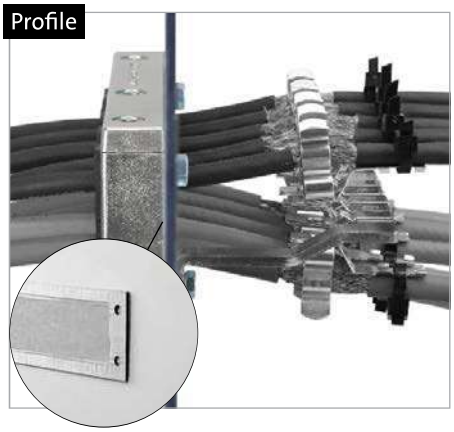
3 Outside



Inside



Profile



Conducted and field-bound disturbances with strain relief and IP66

A cable entry frame (e.g., KEL-ER or KEL-U) is bolted to the outside of the housing. Inside the housing, the EMC cable entry frame (EMC-KEL) is mounted and the cable shield is exposed in the area of the cable grommets.

4 Outside

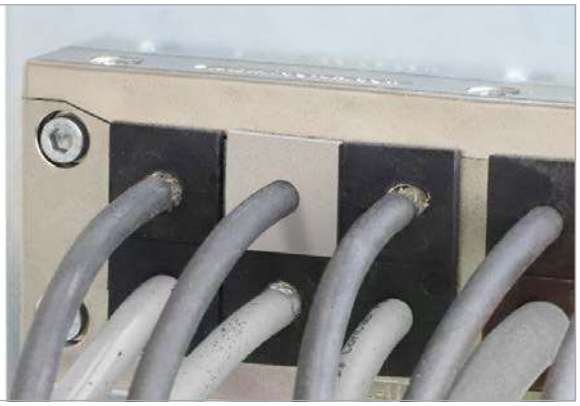
Inside

Profile

Conducted disturbances with single strain relief

The EMC cable entry frame (EMC-KEL) is screwed to the outside of the housing.
The cable shield is exposed in the area of the cable grommets. It's possible to use different grommets (KT & EMC-KT).

5 Outside



Different grommets