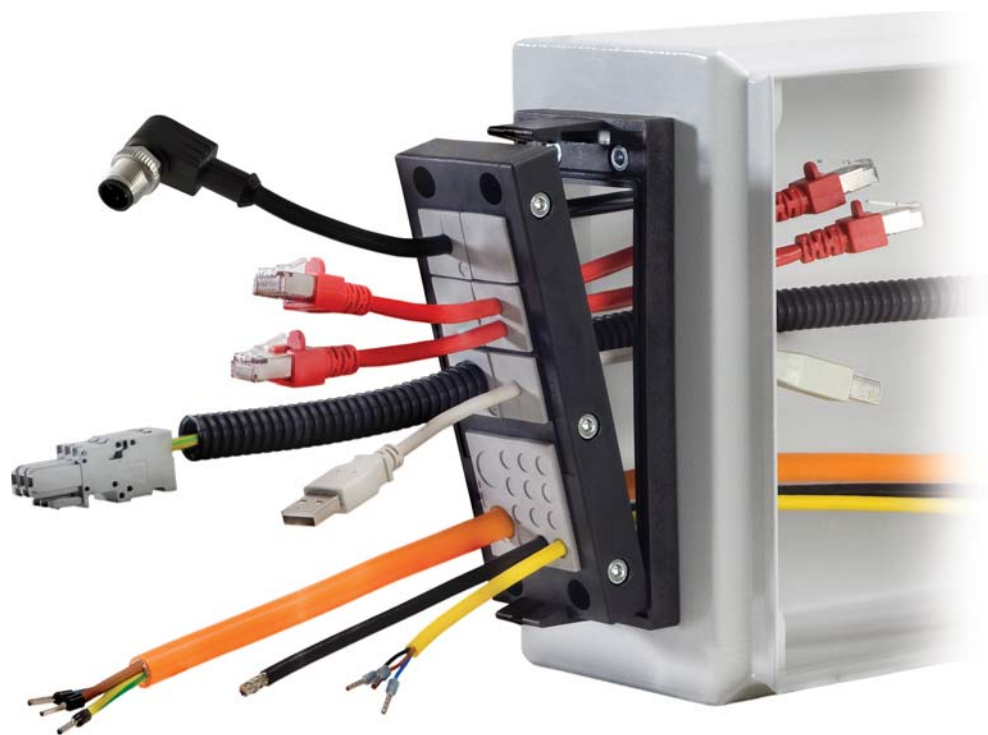


# Cable Entry Systems EMC Solutions



innovative  
creative  
technology

## Product catalogue

A company of the icotek group



## Ideas move the world ...

icotek GmbH is a privately held company in the icotek group. Founded in 1995 as an innovative leader in cable management and EMC-technique.

At the main site in Eschach, Baden-Württemberg, icotek develops and distributes products throughout Germany and exports to nearly 50 other countries. An extensive sales network ensures worldwide availability of the products.








Close contact with business partners contributes significantly to the development and success of icotek GmbH.

Interacting with customers in various markets and icotek's willingness to implement and share innovative ideas are reflected in the success of the company.

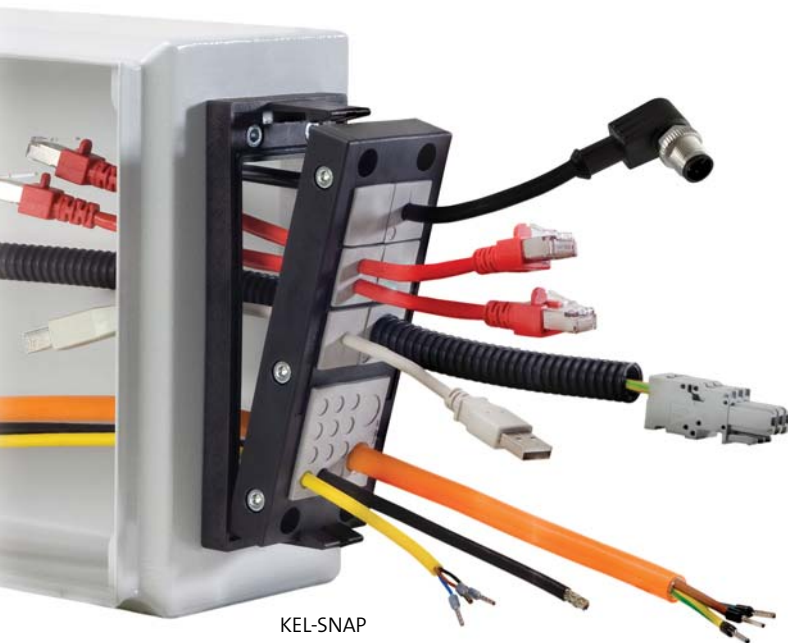
... the origin of every movement  
is imagination.

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# 1 Cable entry systems for pre-terminated cables



## At a glance ...

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

The key feature of icotek's patented system is the split frame and split grommets which provide quick, convenient and cost effective routing of pre-terminated and standard cables. The split frame and split grommets alleviate the need to cut and re-wire pre-terminated cables. Therefore, cable warranties are unaffected. Cables, pipes and conduits with various diameters can be routed due to large variety of split grommets. When assembled correctly, the split grommets are held tightly within the frame. Correctly sizing the grommet to the cable diameter ensures a high degree of protection (up to IP65 / NEMA 4X) and provides strain relief.

## Benefits ...

### 1. Split system

Split grommets are positively guided into the frame. This ensures a tight seal around the cables and strain relief according to EN 50262 / 62444.

### 2. No new punch out tools required

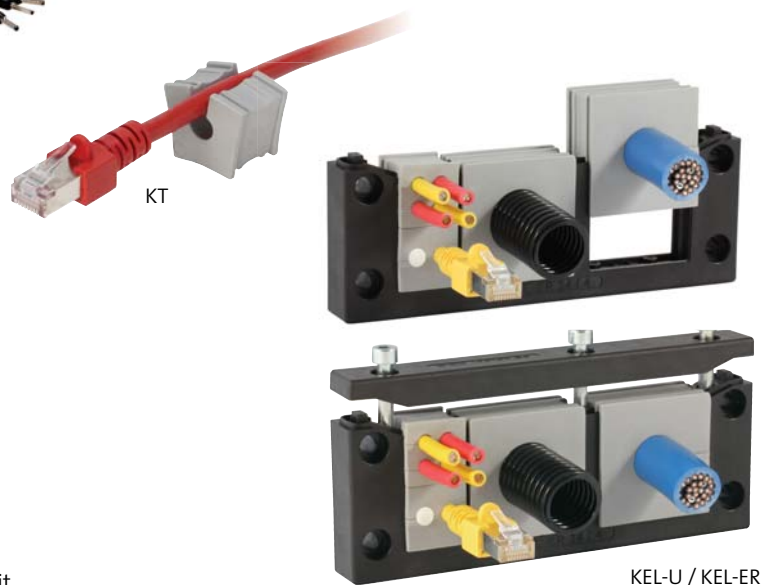
Drilling templates as well as cut-outs according to the standard dimensions for multi-pole connectors (e.g. Harting, Wieland).

### 3. Tight connection

Uniquely designed frame and grommets assure a tight, secure unit.

### 4. Flexibility

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



# Product group 1

Cable entry systems for pre-terminated cables

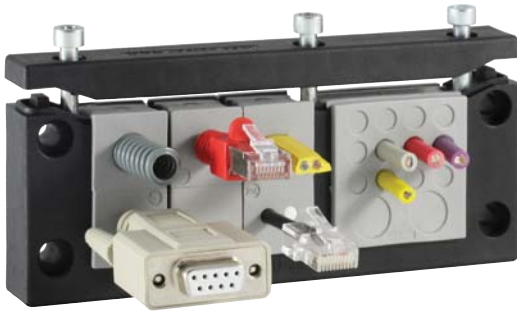
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# KEL-U 24

## Cable entry frames



KEL-U 24 also available with V2A screws.



KEL-U 24 on request also available with threaded bushings.



Split grommets



### Product description

Split cable entry system for routing pre-terminated cables providing a protection class of IP54. Routing, sealing and providing strain relief for cable diameters from 2 to 34 mm. The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-U 24 frame matches exactly the cut-out dimensions for 24-pole standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed.

### Advantages

- Very easy assembly
- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Strain relief according to EN 50262 / 62444
- High stability, vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	36/46 × 112 mm / page 176 - 177
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 42
KEL-SNAP Mounting frames	28 - 29
KEL-EMC Cable collectors	118 - 120
KDR Base plates	136 - 145
FP Flanged plates	148 - 153
MP Module plates	146

Description	Type	Order No.	Grommets small   large	PU
-------------	------	-----------	---------------------------	----

	KEL-U 24 10	54241	10 -	10
	KEL-U 24 10 with V2A screws	54241.200	10 -	10
	KEL-U 24 7	54247	6 1	10
	KEL-U 24 7 with V2A screws	54247.200	6 1	10
	KEL-U 24 4	54244	2 2	10
	KEL-U 24 4 with V2A screws	54244.200	2 2	10

# KEL-ER 24

## Cable entry frames



V2A anti-corrosive  
KEL-ER also available with V2A screws.



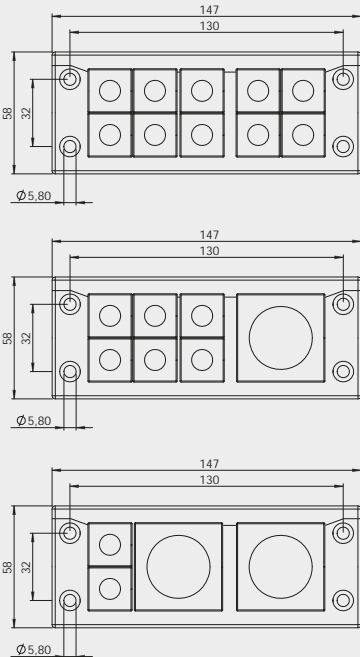
KEL-ER on request also available with threaded bushings.



Split grommets



Type	Order No.	Grommets small   large	PU	Description
------	-----------	---------------------------	----	-------------

KEL-ER 24 10	48241	10 -	10	
KEL-ER 24 10 with V2A screws	48241.200	10 -	10	
KEL-ER 24 7	48247	6 1	10	
KEL-ER 24 7 with V2A screws	48247.200	6 1	10	
KEL-ER 24 4	48244	2 2	10	
KEL-ER 24 4 with V2A screws	48244.200	2 2	10	

## Product description

Split cable entry system for routing and sealing pre-terminated cables, providing a protection class of IP65 / up to NEMA 4X and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15) and 16 to 34 mm (KT 16 - 34). The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-ER 24 frame matches exactly the cut-out dimensions for 24-pole standard industrial connectors.

## Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Strain relief according to EN 50262 / 62444
- Vibration proof

## Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP65, with gasket and correct selection of single grommets (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	36/46 × 112 mm / page 176 - 177
Height KEL	17 mm

## Accessories

KT Cable grommets	38 - 40
KEL-EMC Cable collectors	118 - 120

# KEL-U 16

## Cable entry frames



Split grommets



V2A anti-corrosive

KEL-U 16 also available with V2A screws.



KEL-U 16 on request also available with threaded bushings.



### Product description

Split cable entry system for routing pre-terminated cables providing a protection class of IP54. Routing, sealing and providing strain relief for cable diameters from 2 to 34 mm. The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-U 16 frame matches exactly the cut-out dimensions for 16-pole standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed.

### Advantages

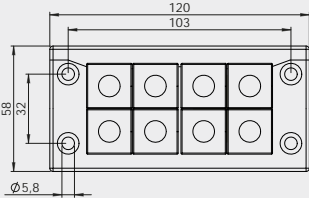
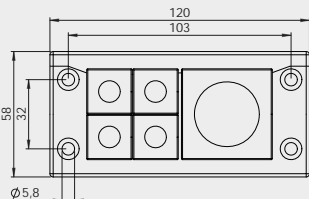
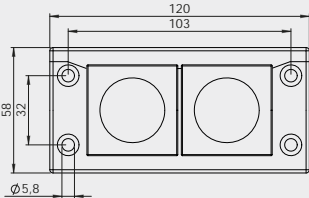
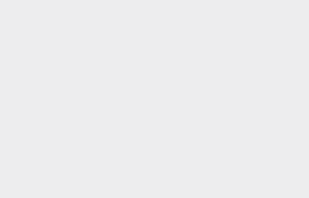
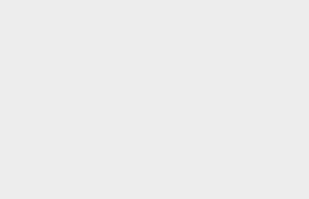
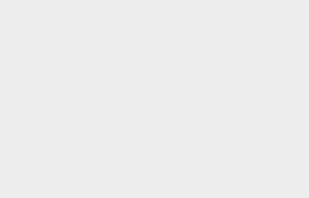
- Very easy assembly
- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Strain relief according to EN 50262 / 62444
- High stability, vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	36/46 × 86 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 42
KEL-SNAP Mounting frames	28 - 29
KEL-EMC Cable collectors	118 - 120
KDR Base plates	136 - 145
FP Flanged plates	148 - 153

Description	Type	Order No.	Grommets small   large	PU
	KEL-U 16 8	54168	8 -	10
	KEL-U 16 8 with V2A screws	54168.200	8 -	10
	KEL-U 16 5	54165	4 1	10
	KEL-U 16 5 with V2A screws	54165.200	4 1	10
	KEL-U 16 2	54162	- 2	10
	KEL-U 16 2 with V2A screws	54162.200	- 2	10

# KEL-ER 16

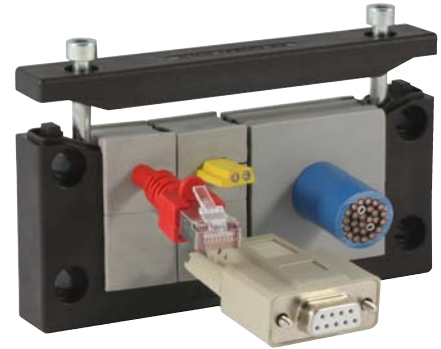
## Cable entry frames



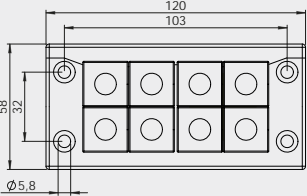
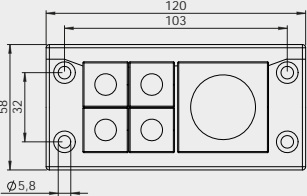
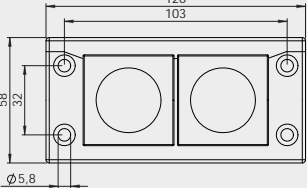
KEL-ER also available with V2A screws.



KEL-ER on request also available with threaded bushings.



Type	Order No.	Grommets small   large	PU	Description
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KEL-ER 16 8	48168	8 -	10	
KEL-ER 16 8 with V2A screws	48168.200	8 -	10	
KEL-ER 16 5	48165	4 1	10	
KEL-ER 16 5 with V2A screws	48165.200	4 1	10	
KEL-ER 16 2	48162	- 2	10	
KEL-ER 16 2 with V2A screws	48162.200	- 2	10	

### Product description

Split cable entry system for routing and sealing pre-terminated cables, providing a protection class of IP65 / up to NEMA 4X and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15) and 16 to 34 mm (KT 16 - 34). The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-ER 16 frame matches exactly the cut-out dimensions for 16-pole standard industrial connectors.

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP65, with gasket and correct selection of single grommets (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	36/46 × 86 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 40
KEL-EMC Cable collectors	118 - 120

# KEL-U 10

## Cable entry frames



KEL-U 10 also available with V2A screws.



KEL-U 10 on request also available with threaded bushings.



### Product description

Split cable entry system for routing pre-terminated cables providing a protection class of IP54. Routing, sealing and providing strain relief for cable diameters from 2 to 34 mm. The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-U 10 frame matches exactly the cut-out dimensions for 10-pole standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen depending on the cables being routed.

### Advantages

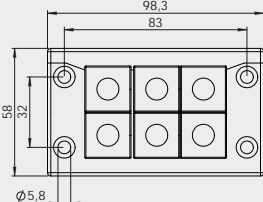
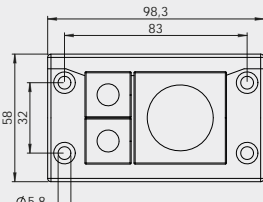
- Very easy assembly
- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Strain relief according to EN 50262 / 62444
- High stability, vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	36/46 × 65 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 42
KEL-SNAP Mounting frames	28 - 29
KEL-EMC Cable collectors	119 - 120

Description	Type	Order No.	Grommets small   large	PU
	KEL-U 10 6	54216	6 -	10
	KEL-U 10 6 with V2A screws	54216.200	6 -	10
	KEL-U 10 3	54212	2 1	10
	KEL-U 10 3 with V2A screws	54212.200	2 1	10

# KEL-ER 10

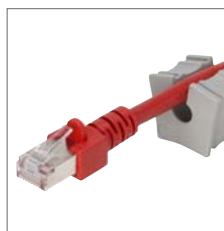
## Cable entry frames



V2A anti-corrosive  
KEL-ER also available with V2A screws.



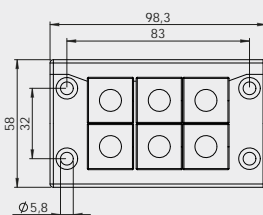
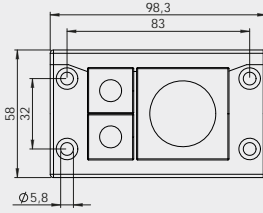
KEL-ER on request also available with threaded bushings.



Split grommets



Type	Order No.	Grommets small   large	PU	Description
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KEL-ER 10 6	48216	6 -	10	
KEL-ER 10 6 with V2A screws	48216.200	6 -	10	
KEL-ER 10 3	48212	2 1	10	
KEL-ER 10 3 with V2A screws	48212.200	2 1	10	

### Product description

Split cable entry system for routing and sealing pre-terminated cables, providing a protection class of IP65 / up to NEMA 4X and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15) and 16 to 34 mm (KT 16 - 34). The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-ER 10 frame matches exactly the cut-out dimensions for 10-pole standard industrial connectors.

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP65, with gasket and correct selection of single grommets (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	36 / 46 × 65 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 40
KEL-EMC Cable collectors	119 - 120

# KEL-U-B

## Cable entry frames



Split grommets



V2A anti-corrosive

KEL-U-B also available with V2A screws.



KEL-U-B on request also available with threaded bushings.



### Product description

Split cable entry system for routing pre-terminated cables providing a protection class of IP54. Routing, sealing and providing strain relief for cable diameters from 2 to 34 mm. The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-U-B frame matches exactly the cut-out dimensions of 46 × 46 mm measuring instruments.

### Advantages

- Very easy assembly
- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Strain relief according to EN 50262 / 62444
- High stability, vibration proof

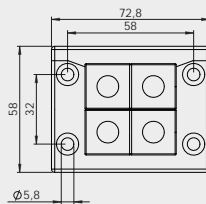
### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 140°C (static)
Cut-out dimensions	46 × 46 mm / Page 176 - 177
Height KEL	17 mm

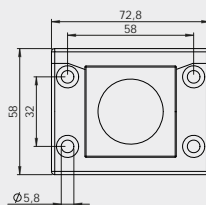
### Accessories

KT Cable grommets	38 - 42
KEL-SNAP Mounting frames	28 - 29
KEL-EMC Cable collectors	119 - 120
FP Flanged plates	150 - 151

Description	Type	Order No.	Grommets small   large	PU
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KEL-U-B4	54204	4 -	10
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KEL-U-B4 with V2A screws	54204.200	4 -	10
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KEL-U-B1	54206	- 1	10
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KEL-U-B1 with V2A screws	54206.200	- 1	10
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# KEL-ER-B

## Cable entry frames



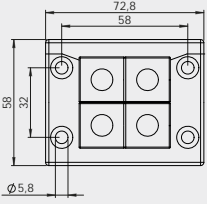
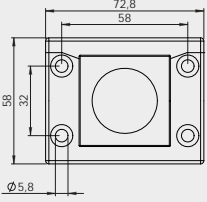
V2A anti-corrosive  
KEL-ER also available with V2A screws.



KEL-ER on request also available with threaded bushings.



Type	Order No.	Grommets small   large	PU	Description
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KEL-ER-B4	48204	4 -	10	
KEL-ER-B4 with V2A screws	48204.200	4 -	10	
KEL-ER-B1	48206	- 1	10	
KEL-ER-B1 with V2A screws	48206.200	- 1	10	

### Product description

Split cable entry system for routing and sealing pre-terminated cables, providing a protection class of IP65 / up to NEMA 4X and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15) and 16 to 34 mm (KT 16 - 34). The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly. The KEL-ER-B frame matches exactly the cut-out dimensions of 46 x 46 mm measuring instruments.

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Small cut-out, high packing density
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

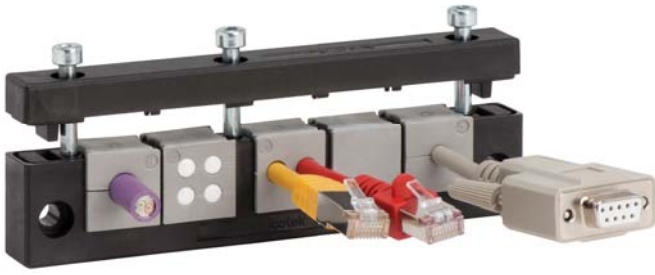
Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP65, with gasket and correct selection of single grommets (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	46 x 46 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 40
KEL-EMC Cable collectors	119 - 120

# KEL-E

## Cable entry frames



KEL-E also available with V2A screws.



KEL-E on request also available with threaded bushings.

1

### Product description

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

For inserting cables up to 17 mm in diameter.

### Advantages

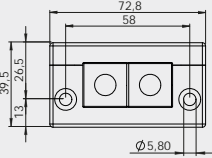
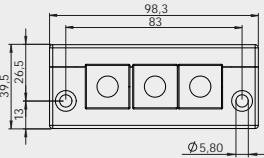
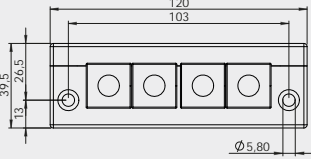
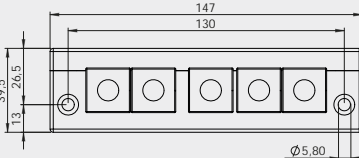
- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Space saving shape
- Optimal for D-Sub connectors
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 41
KEL-EMC Cable collectors	118 - 120

Description	Type	Order No.	Cut-out [mm]	Grommets small   large	PU
	KEL-E2	42249	43 × 24	2 -	10
	KEL-E2 with V2A screws	42249.200	43 × 24	2 -	10
	KEL-E3	42258	65 × 24	3 -	10
	KEL-E3 with V2A screws	42258.200	65 × 24	3 -	10
	KEL-E4	42259	86 × 24	4 -	10
	KEL-E4 with V2A screws	42259.200	86 × 24	4 -	10
	KEL-E5	42250	112 × 24	5 -	10
	KEL-E5 with V2A screws	42250.200	112 × 24	5 -	10

# KEL-ER-E

## Cable entry frames



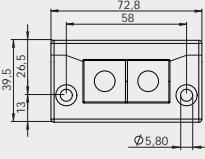

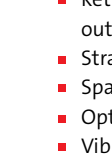
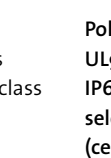
KEL-ER also available with V2A screws.



KEL-ER on request also available with threaded bushings.



Type	Order No.	Cut-out [mm]	Grommets small   large	PU	Description
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KEL-ER-E2	48249	43 × 24	2 -	10	
KEL-ER-E2 with V2A screws	48249.200	43 × 24	2 -	10	
KEL-ER-E3	48258	65 × 24	3 -	10	
KEL-ER-E3 with V2A screws	48258.200	65 × 24	3 -	10	
KEL-ER-E4	48259	86 × 24	4 -	10	
KEL-ER-E4 with V2A screws	48259.200	86 × 24	4 -	10	
KEL-ER-E5	48250	112 × 24	5 -	10	
KEL-ER-E5 with V2A screws	48250.200	112 × 24	5 -	10	

### Product description

Split cable entry system for routing and sealing pre-terminated cables, providing a protection class of IP65 and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15). It is particularly suited for flat connectors. The small frame is ideal for applications with limited space.

The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly.

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Strain relief according to EN 50262 / 62444
- Space saving shape
- Optimal for D-Sub connectors
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP65, with gasket and correct selection of single grommets (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 140°C (static)
Height KEL	Halogen free, silicone free 17 mm

### Accessories

KT Cable grommets	38 - 40
KEL-EMC Cable collectors	118 - 120

# KEL 24

## Cable entry frames



KEL 24 also available with V2A screws.



KEL 24 on request also available with threaded bushings.

1

### Product description

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

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

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

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Strain relief according to EN 50262 / 62444
- Vibration proof

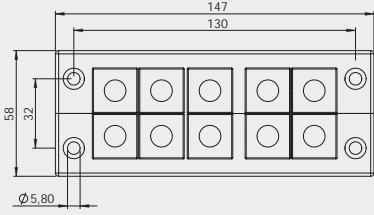
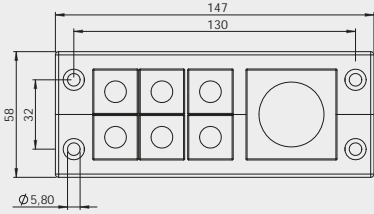
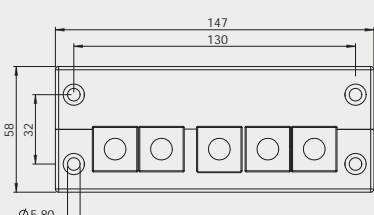
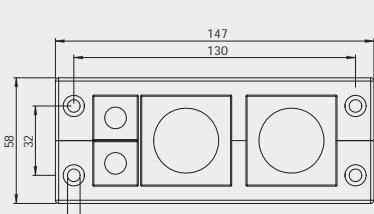
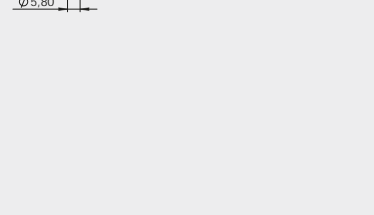
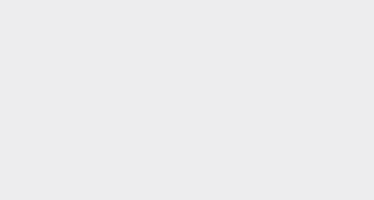
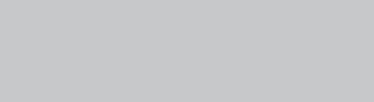
### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	36/46 × 112 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

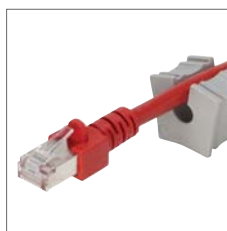
KT Cable grommets	38 - 42
KEL-SNAP Mounting frames	28 - 29
KEL-EMC Cable collectors	118 - 120
KDR Base plates	136 - 145
FP Flanged plates	148 - 153
MP Module plates	146

Description	Type	Order No.	Grommets small   large	PU
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	KEL 24 10	42241	10 -	10
	KEL 24 10 with V2A screws	42241.200	10 -	10
	KEL 24 7	42247	6 1	10
	KEL 24 7 with V2A screws	42247.200	6 1	10
	KEL 24 5	42248	5 -	10
	KEL 24 5 with V2A screws	42248.200	5 -	10
	KEL 24 4	42244	2 2	10
	KEL 24 4 with V2A screws	42244.200	2 2	10

# KEL 16

## Cable entry frames



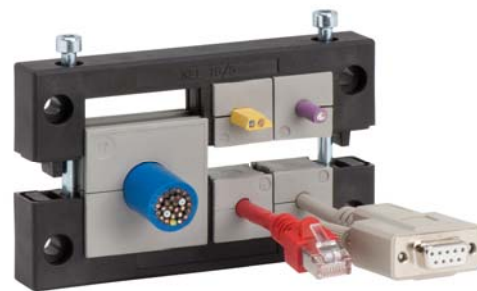
Split grommets



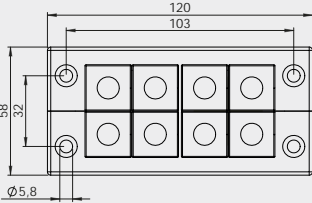
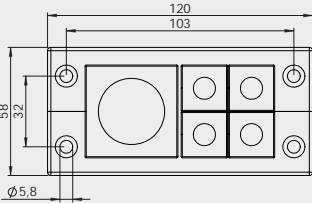
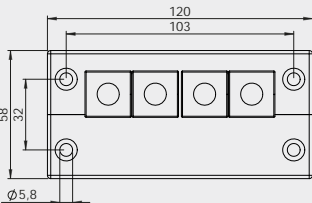
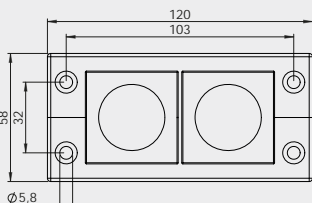
KEL 16 also available with V2A screws.



KEL 16 on request also available with threaded bushings.



Type	Order No.	Grommets small   large	PU	Description
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KEL 16 8	42168	8 -	10	
KEL 16 8 with V2A screws	42168.200	8 -	10	
KEL 16 5	42165	4 1	10	
KEL 16 5 with V2A screws	42165.200	4 1	10	
KEL 16 4	42164	4 -	10	
KEL 16 4 with V2A screws	42164.200	4 -	10	
KEL 16 2	42162	- 2	10	
KEL 16 2 with V2A screws	42162.200	- 2	10	

### Product description

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

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

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

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	36/46 × 86 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 42
KEL-SNAP Mounting frames	28 - 29
KEL-EMC Cable collectors	118 - 120
KDR Base plates	136 - 145
FP Flanged plates	148 - 153

# KEL 10

## Cable entry frames



Split grommets



V2A anti-corrosive

KEL 10 also available with V2A screws.



KEL 10 on request also available with threaded bushings.

1



### Product description

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

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

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

### Advantages

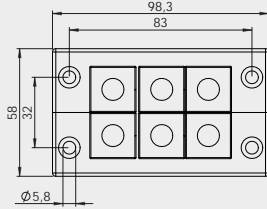
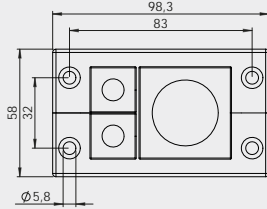
- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 140°C (static)
Cut-out dimensions	36/46 × 65 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 42
KEL-SNAP Mounting frames	28 - 29
KEL-EMC Cable collectors	119 - 120

Description	Type	Order No.	Grommets small   large	PU
	KEL 10 6	42216	6 -	10
	KEL 10 6 with V2A screws	42216.200	6 -	10
	KEL 10 3	42212	2 1	10
	KEL 10 3 with V2A screws	42212.200	2 1	10

# KEL-B

## Cable entry frames



Split grommets



V2A  
anti-corrosive

KEL-B also available with V2A screws.

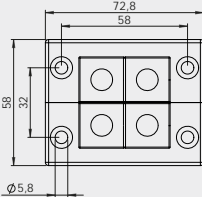
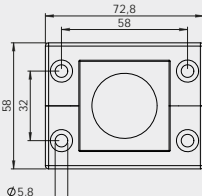


KEL-B on request also available with threaded bushings.



1

Type	Order No.	Grommets small   large	PU	Description
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KEL-B4	42204	4 -	10	
KEL-B4 with V2A screws	42204.200	4 -	10	
KEL-B1	42206	- 1	10	
KEL-B1 with V2A screws	42206.200	- 1	10	

### Product description

The split cable entry frame KEL-B matches exactly the cut-out dimensions of 46 × 46 mm measuring instruments.

The split grommet matching the cable diameter is placed around the cable and inserted into the cable entry frame. For routing cables and conduits up to 34 mm in diameter.

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Space saving shape
- Small cut-out, high packing density
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	46 × 46 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 42
KEL-SNAP Mounting frames	28 - 29
KEL-EMC Cable collectors	119 - 120
FP Flanged plates	150 - 151

# KEL 24-E

## Cable entry frames



KEL 24-E also available with V2A screws.



KEL 24-E on request available with threaded bushings.

1

### Product description

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

The KEL24-E series are KEL 24 frames extended with an additional middle frame for routing additional cables. Thus allowing a quick, easy and cost effective routing solution for up to 60 cables.

### Advantages

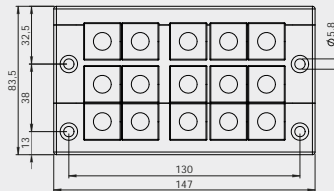
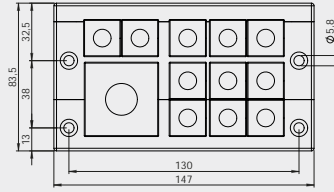
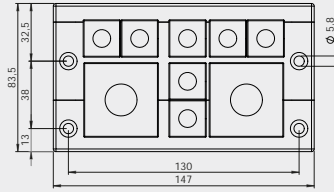
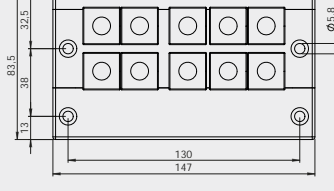
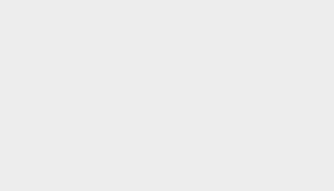
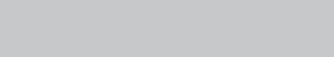


- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Very high packing density
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	66 × 112 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

KEL-SNAP Mounting frames	28 - 29
KT Cable grommets	38 - 42
KEL-EMC Cable collectors	118 - 120

Description	Type	Order No.	Grommets small   large	PU
	KEL 24 15-E	42209	15 -	1
	KEL 24 15-E with V2A screws	42209.200	15 -	1
	KEL 24 12-E	42208	11 1	1
	KEL 24 12-E with V2A screws	42208.200	11 1	1
	KEL 24 9-E	42207	7 2	1
	KEL 24 9-E with V2A screws	42207.200	7 2	1
	KEL 24 10-E	49056	10 -	1
	KEL 24 10-E with V2A screws	49056.200	10 -	1

# KEL 24-MT

## Cable entry frames



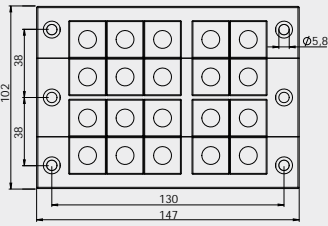
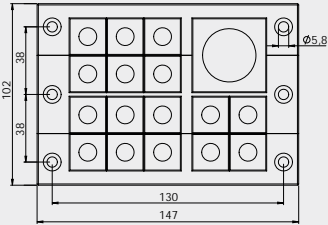
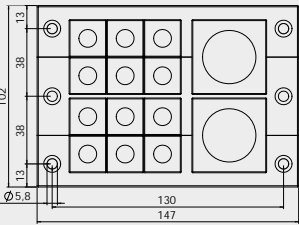
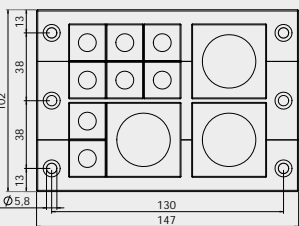
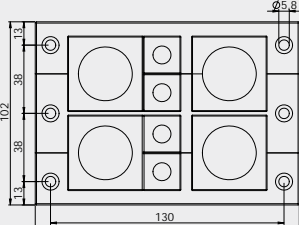
V2A anti-corrosive  
KEL 24-MT also available with V2A screws.



KEL 24-MT on request available with threaded bushings.



Type	Order No.	Grommets small   large	PU	Description
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KEL 24 20-MT	42232	20 -	1	
KEL 24 20-MT with V2A screws	42232.200	20 -	1	
KEL 24 17-MT	42224	16 1	1	
KEL 24 17-MT with V2A screws	42224.200	16 1	1	
KEL 24 14-MT	42225	12 2	1	
KEL 24 14-MT with V2A screws	42225.200	12 2	1	
KEL 24 11-MT	42222	8 3	1	
KEL 24 11-MT with V2A screws	42222.200	8 3	1	
KEL 24 8-MT	42221	4 4	1	
KEL 24 8-MT with V2A screws	42221.200	4 4	1	

1

### Product description

The cable entry frame KEL 24-MT provides additional cable routing possibilities.

The KEL 24-MT series are KEL frames extended with an additional middle frame for routing additional cables. Thus allowing the quick, easy and cost effective routing solution for up to 80 cables.

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Very high packing density
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

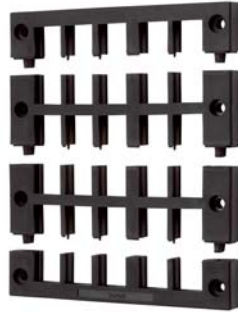
Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets
Temperature	-40°C to +140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	82 × 112 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

KEL-SNAP Mounting frames	28 - 29
KT Cable grommets	38 - 42
KEL-EMC Cable collectors	118 - 120

# KEL 24-2MT

## Cable entry frames



KEL 24-2MT also available with V2A screws.



KEL 24-2MT on request available with threaded bushings.

1

Description	Type	Order No.	Grommets small   large	PU
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### Product description

The KEL 24-2MT is our largest frame providing the ability to route and seal up to 120 cables.

The cable entry frames KEL 24-2MT series are KEL frames extended with two additional middle frames for routeing additional cables. Thus allowing the quick, easy and cost effective routeing solution for up to 120 cables.

### Advantages

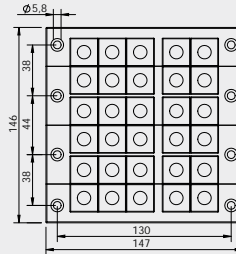
- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

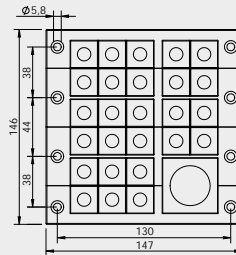
Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets
Temperature	-40°C to +140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	126 × 112 mm / Page 176 - 177
Height KEL	17 mm

### Accessories

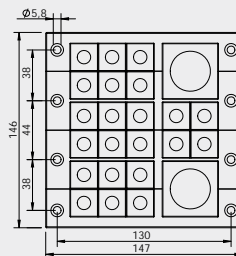
KT Cable grommets	38 - 42
KEL-EMC Cable collectors	118 - 120



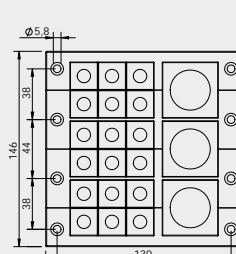
KEL 24  30-2 MT	42234	30 -	1
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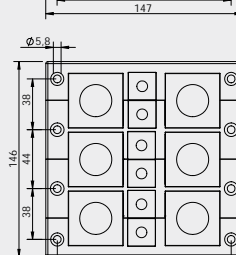
KEL 24  30-2 MT with V2A screws	42234.200	30 -	1
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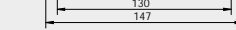
KEL 24  27-2 MT	42233	26 1	1
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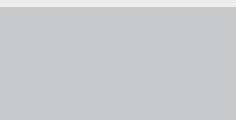
KEL 24  27-2 MT with V2A screws	42233.200	26 1	1
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KEL 24  24-2 MT	42227	22 2	1
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KEL 24  24-2 MT with V2A screws	42227.200	22 2	1
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KEL 24  21-2 MT	42226	18 3	1
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KEL 24  21-2 MT with V2A screws	42226.200	18 3	1
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KEL 24  12-2 MT	42223	6 6	1
-----------------	-------	-----	---



KEL 24  12-2 MT with V2A screws	42223.200	6 6	1
---------------------------------	-----------	-----	---

# KEL 16-E

## Cable entry frames



V2A anti-corrosive  
KEL 16-E also available with V2A screws.



KEL 16-E on request available with threaded bushings.



Type	Order No.	Grommets small   large	PU	Description
------	-----------	---------------------------	----	-------------

KEL 16 12-E	42141	12 -	1	
KEL 16 12-E with V2A screws	42141.200	12 -	1	
KEL 16 6-E	42140	4 2	1	
KEL 16 6-E with V2A screws	42140.200	4 2	1	

### Product description

The cable entry frame KEL 16-E offers a larger frame size for routing a greater amount of cables, pipes or conduits.

The KEL16-E series are KEL 16 frames extended with an additional middle frame for routing additional cables. Thus allowing a quick, easy and cost effective routing solution for up to 48 cables.

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Very high packing density
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	66 × 86 mm
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 42
KEL-EMC Cable collectors	118 - 120

# KEL 16-MT

## Cable entry frames



KEL 16-MT also available with V2A screws.



KEL 16-MT on request available with threaded bushings.

1

### Product description

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

The KEL 16-MT series are KEL 16 frames extended with an additional middle frame for routing additional cables. Thus allowing the quick, easy and cost effective routing solution for up to 64 cables.

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Very high packing density
- Strain relief according to EN 50262 / 62444
- Vibration proof

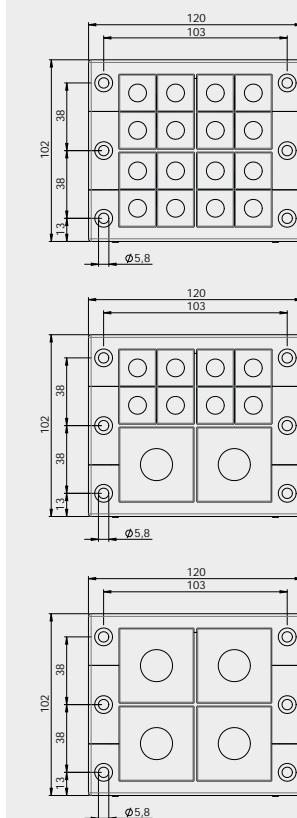
### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets
Temperature	-40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	82 × 86 mm
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 42
KEL-EMC Cable collectors	118 - 120

Description	Type	Order No.	Grommets small   large	PU
-------------	------	-----------	---------------------------	----



KEL 16 16-MT	42145	16 -	1
KEL 16 16-MT with V2A screws	42145.200	16 -	1
KEL 16 10-MT	42144	8 2	1
KEL 16 10-MT with V2A screws	42144.200	8 2	1
KEL 16 4-MT	42143	- 4	1
KEL 16 4-MT with V2A screws	42143.200	- 4	1

# KEL 16-2MT

## Cable entry frames



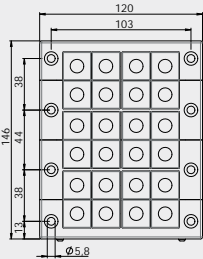
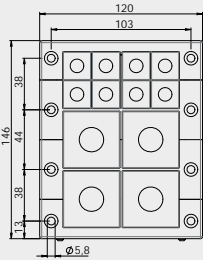
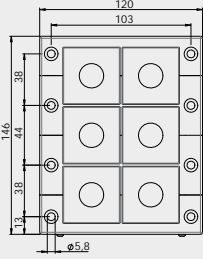
V2A anti-corrosive  
KEL 16-2MT also available with V2A screws.



KEL 16-2MT on request available with threaded bushings.



Type	Order No.	Grommets small   large	PU	Description
------	-----------	---------------------------	----	-------------

KEL 16  24-2 MT	42149	24 -	1	
KEL 16  24-2 MT with V2A screws	42149.200	24 -	1	
KEL 16  12-2 MT	42148	8 4	1	
KEL 16  12-2 MT with V2A screws	42148.200	8 4	1	
KEL 16  6-2 MT	42147	- 6	1	
KEL 16  6-2 MT with V2A screws	42147.200	- 6	1	

### Product description

The KEL 16-2MT is our largest frame providing the ability to route and seal up to 96 cables.

The cable entry frames KEL 16-2MT series are KEL 16 frames extended with two additional middle frames for routing additional cables. Thus allowing the quick, easy and cost effective routing solution for up to 96 cables.

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

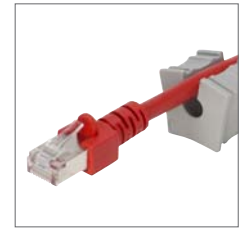
Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets
Temperature	-40°C to +140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	126 x 86 mm
Height KEL	17 mm

### Accessories

KT Cable grommets	38 - 42
KEL-EMC Cable collectors	118 - 120

# KEL-FG A

## Flange enclosure



Split grommets

1

### Product description

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

For routing cables and conduits up to 34 mm in diameter.

### Advantages

- Installation at an angle of 90° to the cabinet
- Mechanical protection of cable directly at the place of entry
- Protection against water spray and drips
- Warranty on pre-terminated cables remains
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

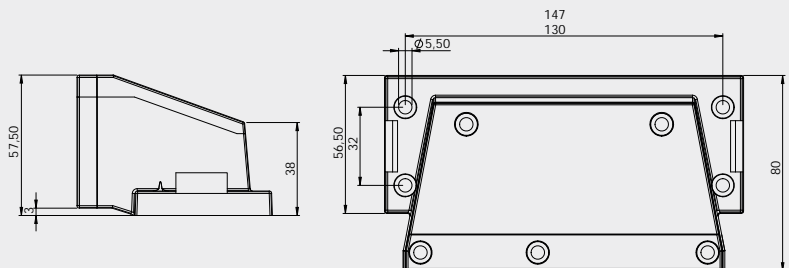
Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	36 × 112 mm, Page 176 - 177

### Accessories

KT Cable grommets	38 - 42
KEL-SNAP Mounting frames	28 - 29
KEL-EMC Cable collectors	118 - 120

Description	Type	Order No.	Grommets		PU
			small	large	

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



# KEL-FG B

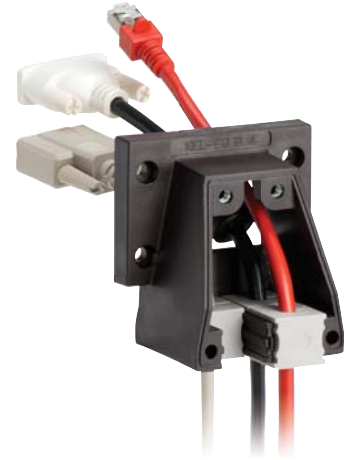
## Flange enclosure



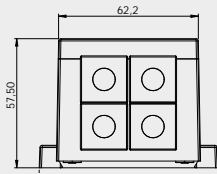
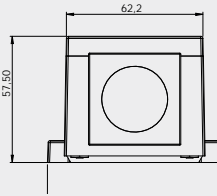
V2A anti-corrosive  
KEL-FG also available with V2A screws.



KEL-FG on request available with threaded bushings.



Type	Order No.	Grommets small   large	PU	Description
------	-----------	---------------------------	----	-------------

KEL-FG B4	42330	4 -	1	
KEL-FG B4 with V2A screws	42330.200	4 -	1	
KEL-FG B1	42332	- 1	1	
KEL-FG B1 with V2A screws	42332.200	- 1	1	

### Product description

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

For routing cables and conduits up to 34 mm in diameter.

### Advantages

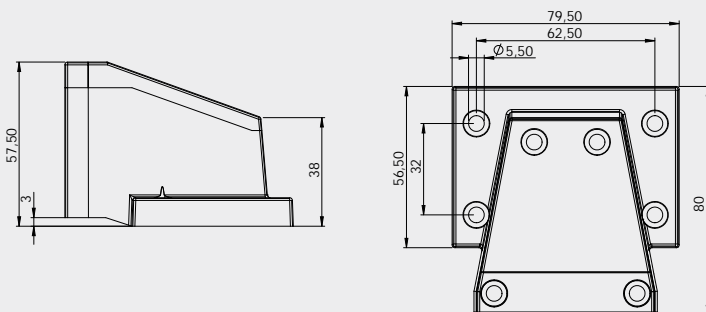
- Installation at an angle of 90° to the cabinet
- Mechanical protection of cable directly at the place of entry
- Protection against water spray and drips
- Warranty on pre-terminated cables remains
- Strain relief according to EN 50262 / 62444
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	46 × 36 mm, Page 176 - 177

### Accessories

KT Cable grommets	38 - 42
KEL-EMC Cable collectors	119 - 120





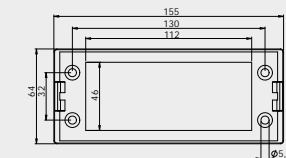
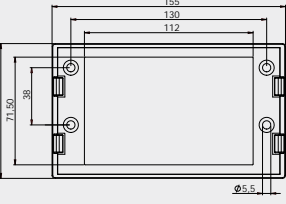
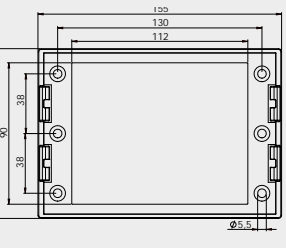
# KEL-SNAP

## Snap mounting frames



1

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

KEL-SNAP 24	42042	KEL 24 KEL-U 24 KEL-FG A KEL-QUICK 24	46 × 112	10	
KEL-SNAP 24-E	42044	KEL 24-E	71 × 112	1	
KEL-SNAP 24-MT	42046	KEL 24-MT	89 × 112	1	

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54 (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 140°C (static)
Drilling template	Halogen free, silicone free See Page 176 - 177

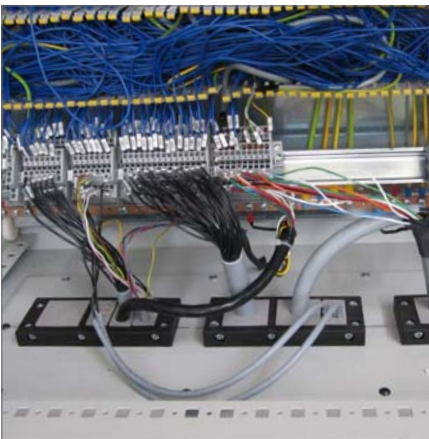
### Accessories

KEL Cable entry frames	16 - 21
KEL-U Cable entry frames	6 - 12
KEL-QUICK Cable entries	50 - 51
MP Module plates	146
BPK-SNAP Blind plates	156

# Typical applications

## Cable entry systems for pre-terminated cables

1



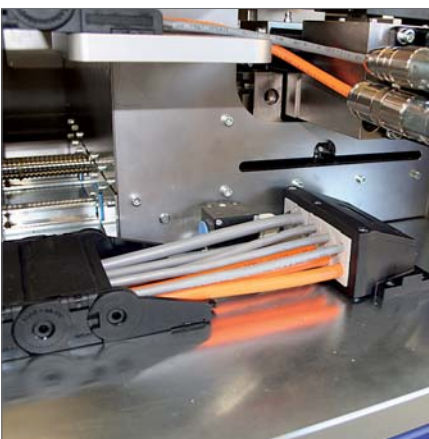
KEL 24|x - Page 16  
Routing of partially pre-terminated cables through the switch cabinet base with sealing rate IP54.



KEL 24|10 - Page 16 / BPK 24 - Page 154  
Routing of 6 cables with one cable entry frame. Another cut-out is sealed by a plastic blind plate BPK 24.



KEL 24|12-2MT - Page 22  
Routing of 6 large cables up to 34 mm with one cable entry frame and one cut-out.



KEL-FG A10 - Page 26  
In conjunction with cable carriers for strain relief and cable routing into an integrated switch cabinet.



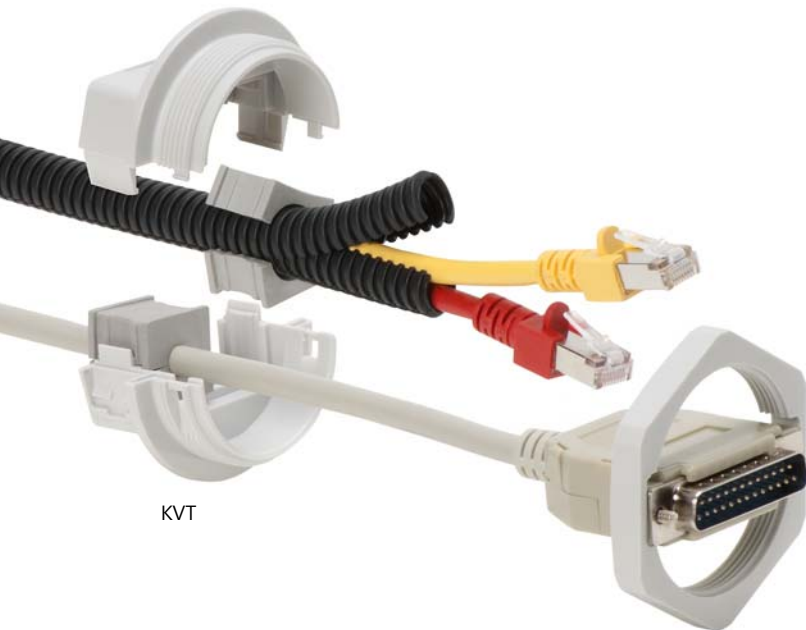
KVT 50-W90 - Page 36  
Cable routing into a control panel at a 90 degree angle with KVT-W90.



KEL-JUMBO 2 - Page 48 / KEL 24|x - Page 16  
Routing of conduits and large cables in the vehicle frame.

# Cable glands

for pre-terminated cables



KVT

## At a glance ...

By using split cable glands by icotek pre-terminated cables or complete cable harnesses with diameters from 2 to 34 mm can be quickly routed into enclosures, cabinets or machines and be sealed with IP54 / NEMA 12 rated ingress protection.

The split system of the cable glands KVT (Page 32 - 36) and QVT (Page 52 - 53) enables quick and easy assembly which is great for retrofitting and maintenance.

The prefabricated cable is placed into the slit grommet which is set into one of the gland halves. Depending on the size of the cable gland one, two or four separate grommets can be installed. The two gland halves can be easily snapped together without the need of tools. The routed lines are securely sealed and held inside the grommets.

To mount the cable glands either snap it into the round metric standard cut-out (sizes available from M16 to M63) or screw it with a hexagonal locknut. The mounting method is dependent on the model type.

## Benefits ...

### 1. Split system

Split grommets are positively guided into the gland half. This ensures a tight seal around the cables.

### 2. No new punch out tools required

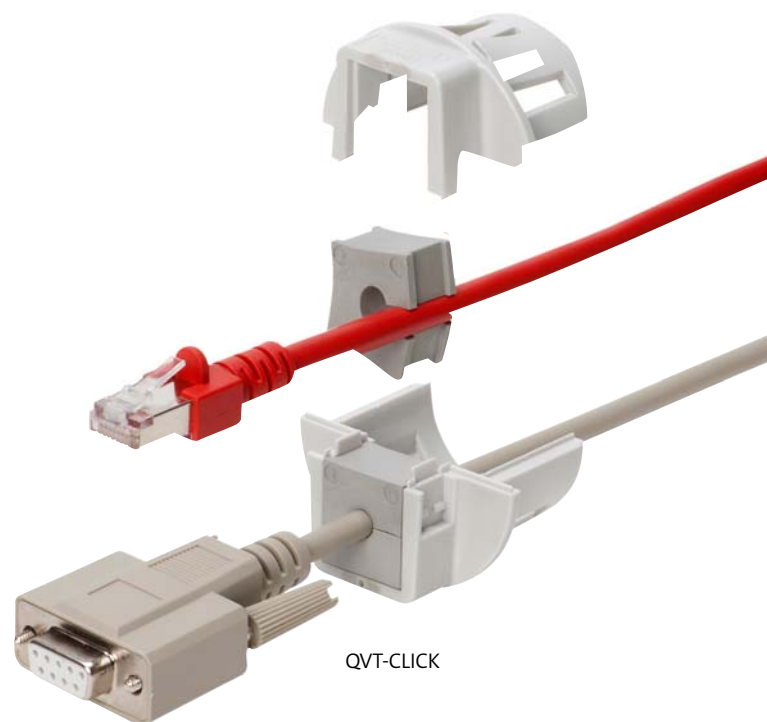
Round cut-outs according to the metric standard dimensions M16 - M63.

### 3. Tight connection

Uniquely designed frame and grommets assure a tight, secure unit.

### 4. Flexibility

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



QVT-CLICK

# KVT

## Split cable glands



1

### Product description

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

Polyamide locknuts are included in the shipment.

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

### Locknuts

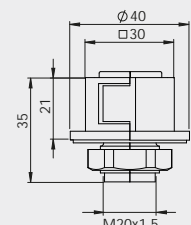
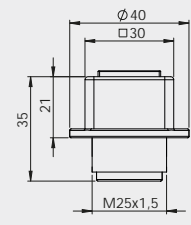
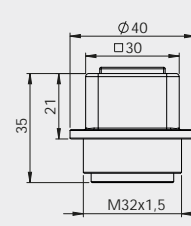
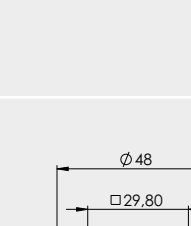
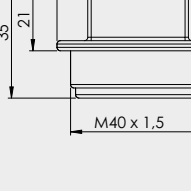
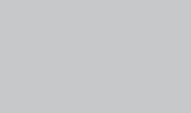
Locknuts with special cut-outs are available separately. The cut-out dimensions are listed on page 158.



**KGM-SUB-D9** fits D-Sub 9 connectors  
(Required wall cut-out:  $\varnothing$  36 mm, PU: 10)  
 Order No. 45105  Order No. 45106

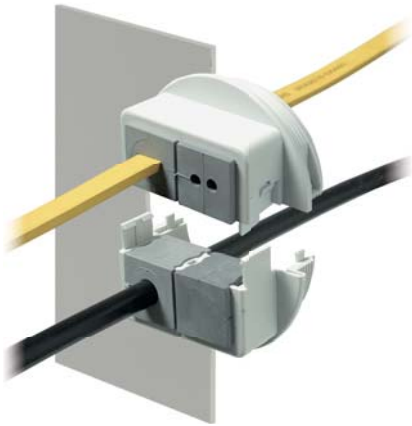
**KGM-PB** fits DVI and PROFIBUS connectors  
(Required wall cut-out:  $\varnothing$  42 mm, PU: 10)  
 Order No. 45107  Order No. 45109

**KGM-SUB-D25** fits SUB-D25 connectors  
(Required wall cut-out:  $\varnothing$  50 mm, PU: 10)  
 Order No. 45108  Order No. 45110

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

\* Only valid for grey product types

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

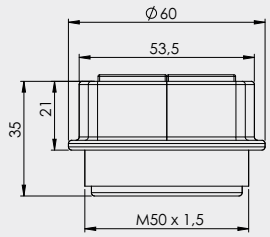
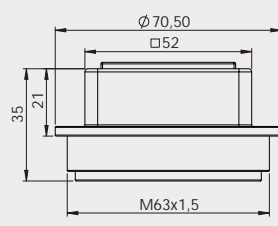


# KVT

## Split cable glands

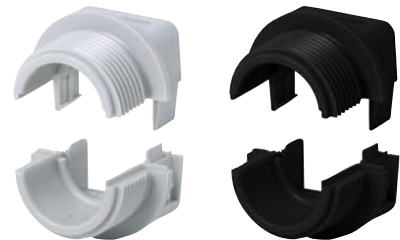


1

Type	Order No.	Grommets small   large	Thread Thread length	PU	Description
KVT 50 2	<input type="checkbox"/> 45204 <input type="checkbox"/> 45030	2 -	M50 x 1.5 Length: 14 mm	5	
KVT 50 2 + KGM-SUB-D25	<input type="checkbox"/> 45206 <input type="checkbox"/> 45031	2 -	M50 x 1.5 Length: 14 mm	5	
KVT 63 1	<input type="checkbox"/> 45212 <input type="checkbox"/> 45112	- 1	M63 x 1.5 Length: 14 mm	5	
KVT 63 4	<input type="checkbox"/> 45215 <input type="checkbox"/> 45115	4 -	M63 x 1.5 Length: 14 mm	5	

### Advantages

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



### Specifications

Material	Polycarbonate (PC)
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input type="checkbox"/> black
Flame class	UL94-V0, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets (certified according to DIN EN 60529:2000-09)
Temperature	- 30°C to + 100°C (static)
Properties	Halogen free, silicone free
Cut-out dimension	Metric standard sizes

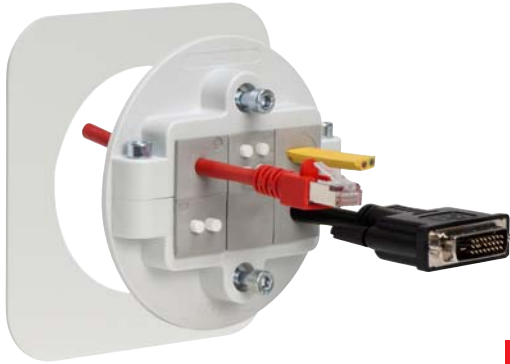
### Accessories

KT Cable grommets	38 - 42
KVT-EMC Brackets	121
Locknuts	158

\* Only valid for grey product types

# KVT 80

## Split cable glands



1

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

### Product description

The KVT 80 split cable glands are designed for routing and sealing pre-terminated cables.

By connecting the two half shells via attached screws, the grommets provide sufficient pressure on the routed cables to obtain a high degree of strain relief. The KVT 80 can be fitted to a wall thickness from 1.5 mm to 10 mm.

### Advantages

- Insertion of pre-terminated cables
- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of grommets
- Quick and easy assembly from the front side
- Strain relief according to EN 50262 / 62444

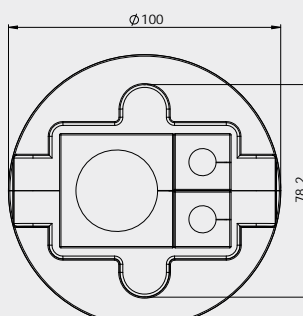
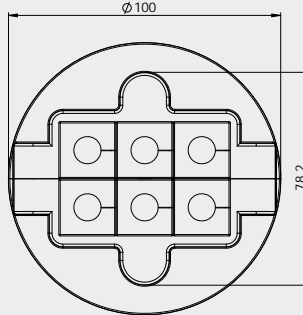
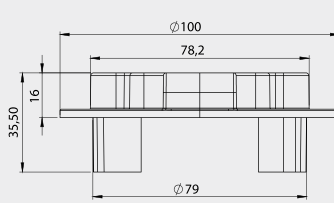
### Note

When mounting the KVT 80 on sheet metal, we recommend the following torque values:

- 1.5 mm sheet = 1 Nm
- From 2 mm sheet = 1.5 Nm

### Specifications

Material	Polycarbonate (PC)
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input type="checkbox"/> black
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets
Temperature	- 30°C to + 100°C (static)
Properties	Halogen free, silicone free
Cut-out dimension	80 mm in diameter

	KVT 80 3	<input type="checkbox"/> 45236 <input type="checkbox"/> 45239	2 1	1
		KVT 80 6	<input type="checkbox"/> 45237 <input type="checkbox"/> 45238	6 -
				

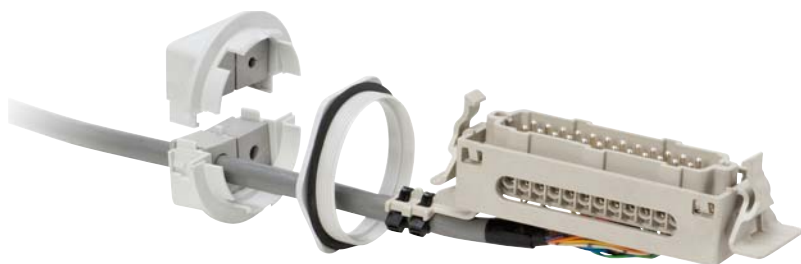
\*Only valid for grey product types

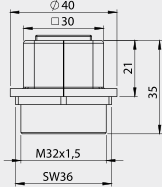
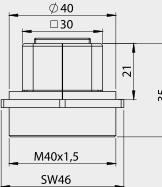
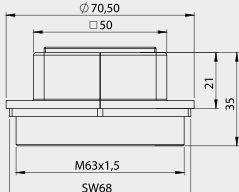
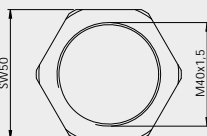
### Accessories

KT Cable grommets 38 - 42

# KVT-SNAP

## Split cable glands



Type	Order No.	Grommets small   large	Thread Thread length	PU	Description
KVT-SNAP 32	45130	1 -	M32 x 1.5 Length: 11 mm	10	
KVT-SNAP 40	45134	1 -	M40 x 1.5 Length: 11 mm	10	
KVT-SNAP 63 4	45152	4 -	M63 x 1.5 Length: 11 mm	5	
KVT-SNAP 63 1	45154	- 1	M63 x 1.5 Length: 11 mm	5	
KGM 32	<input type="checkbox"/> 52275 <input checked="" type="checkbox"/> 52285	PA	M32 x 1.5	10	
KGM 40	<input type="checkbox"/> 52276 <input checked="" type="checkbox"/> 52286	PA	M40 x 1.5	10	
KGM 63	<input type="checkbox"/> 52278 <input checked="" type="checkbox"/> 52288	PA	M63 x 1.5	5	

1

### Product description

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

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

### Assembly

- The snap ring is screwed into metric thread or tapped into the cut-out (it can also be fastened with a locknut)
- Once the snap ring is affixed to the housing the equipped KVT is simply pushed into it. Quick and easy installation!

### Specifications

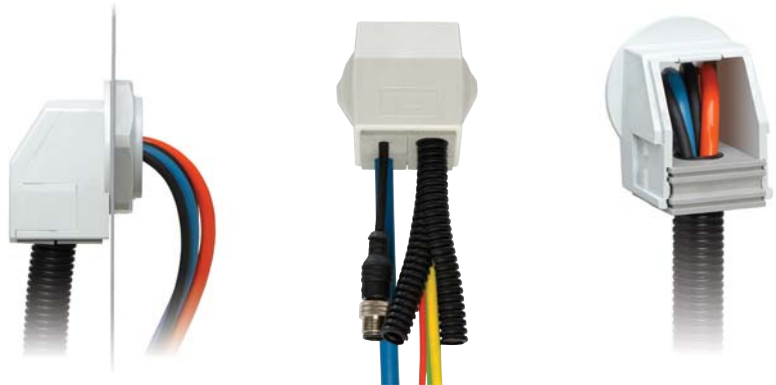
Material	Polycarbonate (PC)
Colour	grey (similar RAL 7035)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets
Temperature	- 30°C to + 100°C (static)
Properties	Halogen free, silicone free
Cut-out dimension	Metric standard cut-outs

### Accessories

KT Cable grommets	38 - 42
KVT-EMC Brackets	121
KGM Locknuts	158

# KVT-W90

## Split cable glands



1

Description	Type	Order No. with locknut	Grommets small   large	Thread Thread length	PU
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### Product description

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

In particular, the KVT 50-W90 is perfectly suited to hold corrugated or smooth hoses. A large number of cable entry grommets is available to the user.

Polyamide locknuts are included in the shipment.

### Advantages

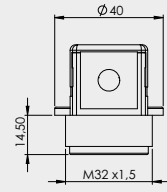
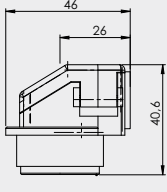
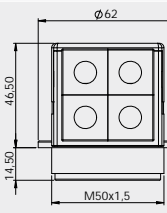
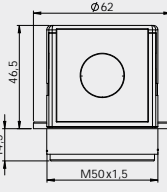
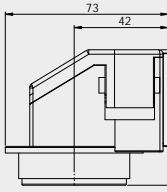
- Installation at an angle of 90° to the cabinet
- Insertion of pre-terminated cables and conduits
- Warranty on pre-terminated cables remains
- Suitable for standard or metric cut-outs

### Specifications

Material	Polycarbonate (PC)
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	■ black
Protection class	UL94-Vo, self-extinguishing IP54, with gasket and correct selection of the cable grommets
Temperature Properties	- 30°C to + 100°C (static) Halogen free, silicone free
Cut-out dimension	Metric standard cut-outs

### Accessories

KT Cable grommets	38 - 42
KVT-EMC Brackets	121
KGM Locknuts	158

	KVT 32-W90	<input type="checkbox"/> 45404 <input checked="" type="checkbox"/> 45406	1 -	M32 x 1.5 Length: 11.5 mm	10
	GMT 32	■ 31120	-	M32 x 1.5	10
	KVT 50 4-W90	<input type="checkbox"/> 45424 <input checked="" type="checkbox"/> 45426	4 -	M50 x 1.5 Length: 11.5 mm	5
	KVT 50 1-W90	<input type="checkbox"/> 45414 <input checked="" type="checkbox"/> 45416	- 1	M50 x 1.5 Length: 11.5 mm	5
	GMT 50	■ 31140	-	M50 x 1.5	10

\*Only valid for grey product types

# KT ServiceBox

Service box for cable grommets



## KT ServiceBox for cable grommets



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

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

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

## Product description

**Convenient - everything available right away!**

The KT ServiceBox is perfect for installations and service calls. It ensures your KT grommets are readily available.

**Order No. 88001**

## Content\*

### Cable grommets, small:

- 121 KT for cables 2 - 17 mm
- 5 BTK blind grommets
- 10 KTMB multi-range grommets
- 2 KT-DPF multi-range grommets
- 8 KT-ASI for ASI-Bus cables

### Cable grommets, large:

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

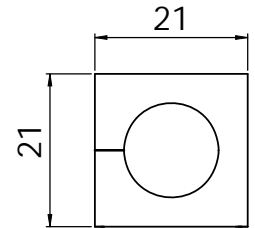
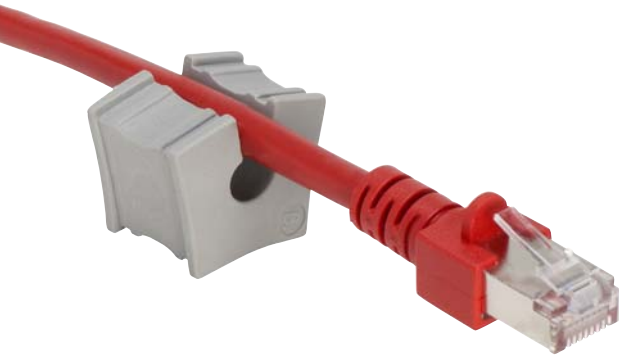
### Accessories:

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

\* Subject to alterations

# KT

## Grommets, small



1

### Product description

Cable grommets KT small are used with the following cable entry frames:

- KEL(-U/-ER) | 6 - 25
- KEL-FG | 26 - 27
- KEL-FL | 44
- KVT range | 32 - 36

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

### Assembly

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

#### Specifications KT grey


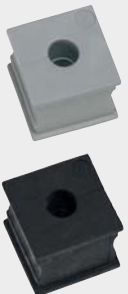
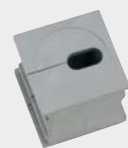
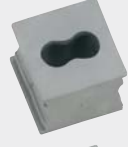



**Material** Elastomer  
**Flame class** UL94-Vo, self-extinguishing  
**Temperature** - 40°C to + 90°C (static)  
**Properties** Halogen free, silicone free

#### Specifications KT black

**Material** Elastomer  
**Flame class** UL94-HB  
**Temperature** - 30°C to + 90°C (static)  
**Properties** Higher chemical resistance, UV-stabilised

### Accessories

ST Plugs 43




Description	Type	Order No grey	Order No black	Clamping range	PU	
BTK		<input type="checkbox"/> 41251	<input checked="" type="checkbox"/> 41351	Blind grommet	10	
KT		KT 2	<input type="checkbox"/> 39934	<input checked="" type="checkbox"/> 41302	2 - 3 mm	10
		KT 3	<input type="checkbox"/> 41203	<input checked="" type="checkbox"/> 41303	3 - 4 mm	10
		KT 4	<input type="checkbox"/> 41204	<input checked="" type="checkbox"/> 41304	4 - 5 mm	10
		KT 5	<input type="checkbox"/> 41205	<input checked="" type="checkbox"/> 41305	5 - 6 mm	10
		KT 6	<input type="checkbox"/> 41206	<input checked="" type="checkbox"/> 41306	6 - 7 mm	10
		KT 7	<input type="checkbox"/> 41207	<input checked="" type="checkbox"/> 41307	7 - 8 mm	10
		KT 8	<input type="checkbox"/> 41208	<input checked="" type="checkbox"/> 41308	8 - 9 mm	10
		KT 9	<input type="checkbox"/> 41209	<input checked="" type="checkbox"/> 41309	9 - 10 mm	10
		KT 10	<input type="checkbox"/> 41210	<input checked="" type="checkbox"/> 41310	10 - 11 mm	10
		KT 11	<input type="checkbox"/> 41211	<input checked="" type="checkbox"/> 41311	11 - 12 mm	10
		KT 12	<input type="checkbox"/> 41212	<input checked="" type="checkbox"/> 41312	12 - 13 mm	10
		KT 13	<input type="checkbox"/> 41213	<input checked="" type="checkbox"/> 41313	13 - 14 mm	10
		KT 14	<input type="checkbox"/> 41214	<input checked="" type="checkbox"/> 41314	14 - 15 mm	10
		KT 15	<input type="checkbox"/> 41215	<input checked="" type="checkbox"/> 41315	15 - 16 mm	10
		KTs 16	<input type="checkbox"/> 39901	<input checked="" type="checkbox"/> 39912	16 mm	10
		KTs 17	<input type="checkbox"/> 39900	<input checked="" type="checkbox"/> 39913	17 mm	10
		KT oval		<input type="checkbox"/> 39930	-	approx. 8 × 4 mm
KT S1		<input type="checkbox"/> 39931	-		10	
KT tele		<input type="checkbox"/> 39929	-	Telephone cable	10	
KT tele1		<input type="checkbox"/> 41257	-	Data cable RJ12	10	
KT tele2		<input type="checkbox"/> 41258	-	Data cable RJ10 / RJ45	10	

\*Only valid for grey product types

# KT Grommets, small



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

KT 2 2	<input type="checkbox"/> 39935	<input type="checkbox"/> 39936	2× Ø 2 mm	10	 KT 2 x
KT 2 3	<input type="checkbox"/> 39939	<input type="checkbox"/> 39940	2× Ø 3 mm	10	
KT 2 4	<input type="checkbox"/> 39906	<input type="checkbox"/> 39907	2× Ø 4 mm	10	
KT 2 5	<input type="checkbox"/> 41200	<input type="checkbox"/> 39904	2× Ø 5 mm	10	
KT 2 6	<input type="checkbox"/> 41201	<input type="checkbox"/> 39905	2× Ø 6 mm	10	
KT 2 7	<input type="checkbox"/> 41202	<input type="checkbox"/> 39916	2× Ø 7 mm	10	
KT 2 8	<input type="checkbox"/> 39917	<input type="checkbox"/> 39918	2× Ø 8 mm	10	
KT 4 2	<input type="checkbox"/> 39937	<input type="checkbox"/> 39938	4× Ø 2 mm	10	
KT 4 3	<input type="checkbox"/> 39914	<input type="checkbox"/> 39915	4× Ø 3 mm	10	
KT 4 4	<input type="checkbox"/> 39909	<input type="checkbox"/> 39911	4× Ø 4 mm	10	
KT 4 5	<input type="checkbox"/> 39908	<input type="checkbox"/> 39910	4× Ø 5 mm	10	
KT 4 6	<input type="checkbox"/> 39932	<input type="checkbox"/> 39933	4× Ø 6 mm	10	
KT-ASI	<input type="checkbox"/> 39902	<input type="checkbox"/> 39903	1 ASI-cable	10	 KT ASI2 x
KT-ASI2 rl	<input type="checkbox"/> 39922	<input type="checkbox"/> 39924	2 ASI-cables	10	
KT-ASI2 ll	<input type="checkbox"/> 39921	<input type="checkbox"/> 39923	2 ASI-cables	10	
					 KT ASI2 ll

\*Only valid for grey product types

## Product description

Cable grommets KT small are used with the following cable entry frames:

- KEL(-U/-ER) | 6 - 25
- KEL-FG | 26 - 27
- KEL-FL | 44
- KVT range | 32 - 36

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

## Assembly

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

### Specifications KT grey

Material: Elastomer  
 Flame class: UL94-Vo, self-extinguishing  
 Temperature: - 40°C to + 90°C (static)  
 Properties: Halogen free, silicone free

### Specifications KT black

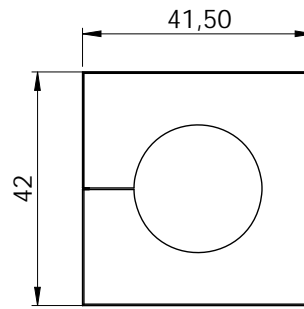
Material: Elastomer  
 Flame class: UL94-HB  
 Temperature: - 30°C to + 90°C (static)  
 Properties: Higher chemical resistance, UV-stabilised

## Accessories

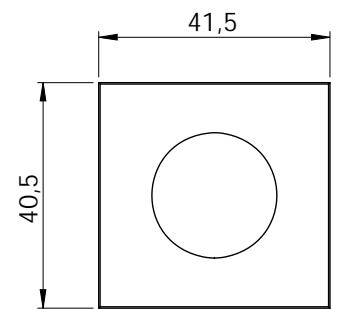
ST Plugs 43

# KT

## Grommets, large



KT / KT-DPF large



KTMB large

1

### Product description

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

- KEL(-U/-ER) | 6 - 25
- KVT | 32 - 36
- KEL 183 | 46

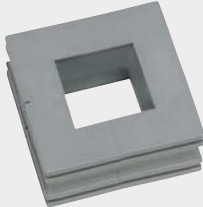

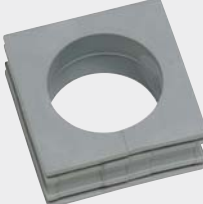
ATG adapter grommets provide the possibility to hold a small KT grommet to reduce the clamping range down to 2 mm.

### Specifications KT grey

**Material** Elastomer  
**Flame class** UL94-Vo, self-extinguishing  
**Temperature** - 40°C to + 90°C (static)  
**Properties** Halogen free, silicone free

### Specifications KT black

**Material** Elastomer  
**Flame class** UL94-HB  
**Temperature** - 30°C to + 90°C (static)  
**Properties** Higher chemical resistance, UV-stabilised

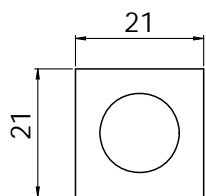
Description	Type	Order No.	Order No.	Clamping range	PU
		grey	black		
	ATG	41253	41353	Adapter grommet	10
	BTG	41252	41352	Blind grommet or 5 - 20 mm	10
	KT 16	41216	41316	16 - 17 mm	10
	KT 17	41217	41317	17 - 18 mm	10
	KT 18	41218	41318	18 - 19 mm	10
	KT 19	41219	41319	19 - 20 mm	10
	KT 20	41220	41320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

\*Only valid for grey product types



# KT-DPF | KTMB

## Grommets, multi-range



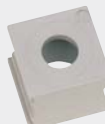





KT-DPF / KTMB small



KT-DPF-B



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

## Product description

The KT-DPF / KTMB grommets accept a wide range of cable diameters. A great benefit when the exact cable diameter is not known in advance. The KTMB grommets are not split and therefore only usable for cables without connectors. Cutting of KT-DPF grommets: Cable diameter less 20%.

### Specifications grey

Material: Elastomer  
 Flame class: UL94-Vo, self-extinguishing  
 Temperature: - 40°C to + 90°C (static)  
 Properties: Halogen free, silicone free

### Specifications black

Material: Elastomer  
 Flame class: UL94-HB  
 Temperature: - 30°C to + 90°C (static)  
 Properties: Higher chemical resistance, UV-stabilised

## KMS Cable template

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

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

Order No. 39800



# DT

## Membrane cable grommets



1

### Product description

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

DT grommets are designed to fit in KT large grommet spaces:

- KEL(-U) | 6 - 25
- KEL-FG | 26 - 27
- KVT | 32 - 36
- KEL 183 | 46

The DT grommets are also perfectly suitable for the assembly of subsequently terminated cable harnesses.

### Advantages

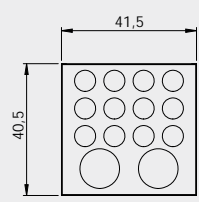
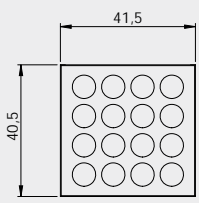
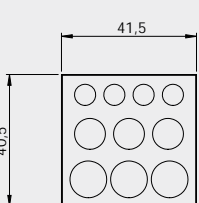
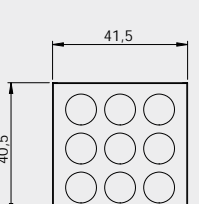
- Combination of routing pre-terminated and standard cables with one cable entry frame
- Enables sub-assembly of cable harnesses
- High packing density

### Specifications

Material	Elastomer
Flame class	UL94-V0, self-extinguishing
Protection class	IP54
Temperature	- 40°C to + 90°C (static)
Properties	Halogen free, silicone free

### Accessories

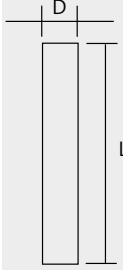
ST-B Plugs 74

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



# ST Plugs for cable grommets



Type	Order No.	Diameter D	Length L	PU	Description
ST 2	42909	2 mm	25 mm	25	
ST 3	42901	3 mm	25 mm	25	
ST 4	42908	4 mm	25 mm	25	
ST 5	42906	5 mm	25 mm	25	
ST 6	42903	6 mm	25 mm	25	
ST 7	42905	7 mm	25 mm	25	
ST 8	42899	8 mm	20 mm	25	
ST 9	42897	9 mm	20 mm	25	
ST 10	42895	10 mm	20 mm	25	
ST 11	42893	11 mm	20 mm	25	
ST 12	42891	12 mm	20 mm	25	
ST 13	42889	13 mm	20 mm	25	
ST 14	42887	14 mm	20 mm	25	
ST 15	42885	15 mm	20 mm	25	
ST 16	42883	16 mm	20 mm	25	
ST 17	42881	17 mm	20 mm	25	
ST ASI	42877	-	25 mm	25	

## Product description

Plugs are used to close either KT or QT grommets which are not equipped with cables.

Perfect for applications where cables have been removed or might be routed at a later stage.

## Advantages

- Sealing unused cable entries

## Specifications

Material Polyamide (PA), white  
 Flame class UL94-Vo, self-extinguishing  
 Temperature - 40°C to + 120°C  
 Properties Halogen free, silicone free

## Fits with

KT Cable grommets 38 - 40  
 QT Cable grommets 56

# KEL-FL

## Cable entry for flat cables



1

### Product description

The KEL-FL range enables simple, fast and flexible cable routing and sealing of flat wires, e.g. in lift construction.

Split or non-split grommets can be utilised. Innovative construction of the grommets compensates for manufacturing inconsistencies in flat cables.

### Advantages

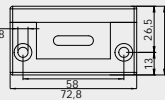
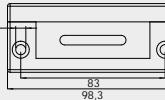
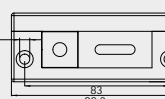
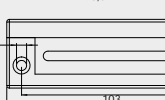
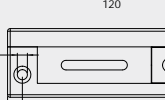
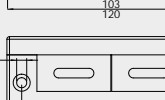
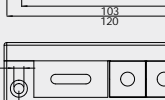
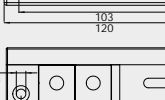
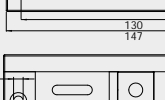
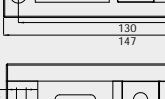


- Routing of flat cables in combination with pre-terminated round cables by using a single KEL-FL cable entry frame
- Space saving shape

### Specifications

Material **Polyamide (PA)**  
 Flame class **UL94-Vo, self-extinguishing**  
 Protection class **IP54, with gasket and correct selection of the cable grommets**  
 Temperature **- 40°C to + 140°C (static)**  
 Properties **Halogen free, silicone free**  
 Drilling template **See Page 176 - 177**







### Accessories

KT Cable grommets, small **38 - 39**  
 FT Cable grommets, flat **45**  
 KEL-EMC Cable collectors **118 - 120**

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

# FT Grommets for flat cables



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

1

## Product description

FT grommets are used to route flat cables, e.g. in lift construction. Suitable for cable entry frames KEL-FL.

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

## Advantages

- Routing of flat cables with various dimensions

## Specifications

Material	Elastomer
Flame class	UL94-Vo, self-extinguishing
Temperature	- 40°C to + 90°C (static)
Properties	Halogen free, silicone free

## Fits with

KEL-FL Cable entry frames 44

# KEL 183

## Cable entry frames



1

### Product description

The split cable entry frame KEL 183 enables the user to route cables and tubes with a diameter of up to 75 mm (34 mm with KEL 183|8 and KEL 183-E4) and to seal them in accordance with IP54.

For cables up to 34 mm the cable grommets KT large can be used. With these split cable grommets, pre-terminated cables can be routed. For cables up to 75 mm we have created the grommets KTMB for KEL 183. These are not split and have a defined area for pushing the cable through.

### Advantages

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

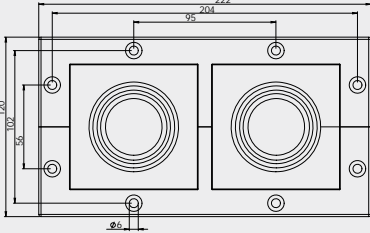
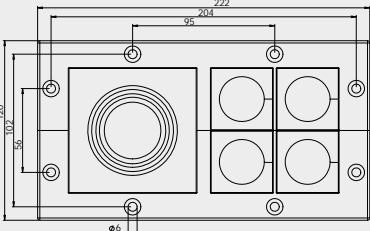
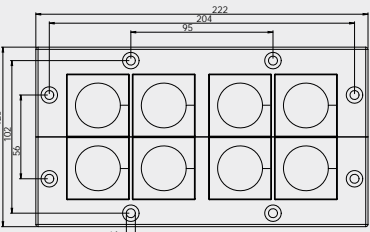
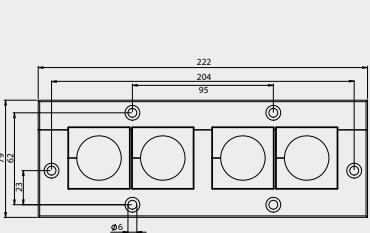
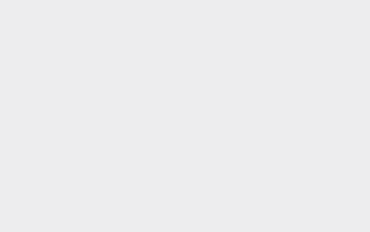
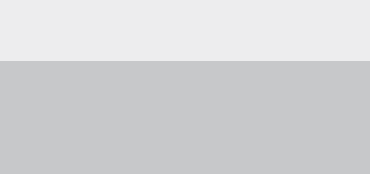
### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54 with gasket and correct selection of the cables
Temperature Properties	- 40°C to + 140°C (static)
Halogen free, silicone free	
Cut-out dimensions	See page 176 - 177

### Accessories

KTMB 183 Cable grommets	47
DT / KT Cable grommets	40 - 42

Description	Type	Order No.	Grommets KT 183   KT large	PU
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	KEL 183 2	47200	2 -	1
	KEL 183 2 with V2A screws	47200.200	2 -	1
	KEL 183 5	47220	1 4	1
	KEL 183 5 with V2A screws	47220.200	1 4	1
	KEL 183 8	47240	- 8	1
	KEL 183 8 with V2A screws	47240.200	- 8	1
	KEL 183-E4	47250	- 4	1
	KEL 183-E4 with V2A screws	47250.200	- 4	1

# KTMB 183

## Grommets for KEL 183



Type	Order No. grey	Clamping range	PU
KTMB-O	41410	Blind grommet	1
KTMB-P	41415	34 - 44 mm	1
KTMB-Q	41420	44 - 54 mm	1
KTMB-R	41425	54 - 64 mm	1
KTMB-S	41430	64 - 75 mm	1

1

### Product description

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

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

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

### Specifications

Material	Elastomer
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54
Temperature	- 40°C to + 90°C (static)
Properties	Halogen free, silicone free

### Fits with

KEL 183 Cable entry frames 46

# KEL-JUMBO

## Cable entry frames



KEL-JUMBO also available with V2A screws.

1

### Product description

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

The innovative grommet design enables dynamic and flexible movement.

We recommend round cut-outs, which can be made using standard tools.

Suggested cut-out: cable diameter +15 - 20%.

### Advantages

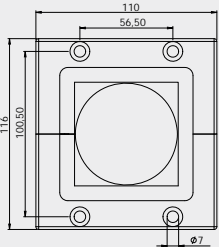
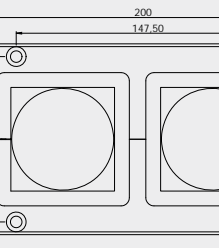
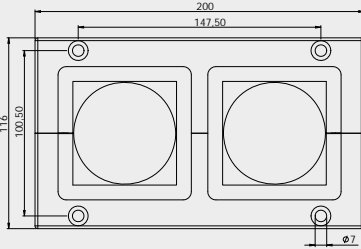
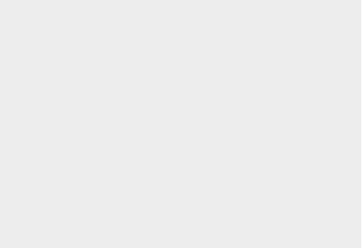
- Installation of cables up to 65 mm
- KTF grommets allow dynamic and flexible movement
- Retrofitting and maintenance can be carried out easily and quickly
- Strain relief according to EN 50262 / 62444

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	Round, cable diameter +15%

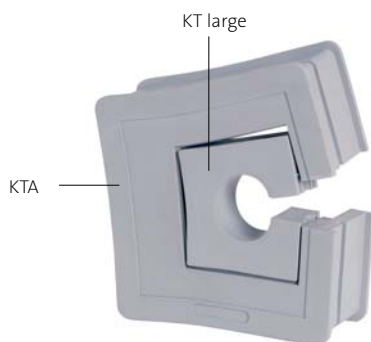
### Accessories

KTF Cable grommets	49
KDR-ESR Base plates	136 - 137
KDR2 Split base plates	138 - 139
MP Module plates	146

Description	Type	Order No.	Dimension length   width   height	PU
	KEL-JUMBO 1	42360	110 × 116 × 35	1
	KEL-JUMBO 1 with V2A screws	42360.200	110 × 116 × 35	1
	KEL-JUMBO 2	42350	200 × 116 × 35	1
	KEL-JUMBO 2 with V2A screws	42350.200	200 × 116 × 35	1

# KTF

## Grommets for KEL-JUMBO



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

### Product description

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

Suitable for KEL-JUMBO cable entry frames.

Cables with a comparatively smaller diameter can be utilised with KEL-JUMBO frames by using an adapter grommet.

### Specifications

Material	Elastomer
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54
Temperature	- 40°C to + 90°C (static)
Properties	Halogen free, silicone free

### Fits with

KEL-JUMBO Cable entry frames 48

### Accessories

KT Cable grommets, large 40

# KEL-QUICK

## Cable entry frames



1

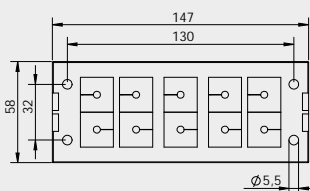
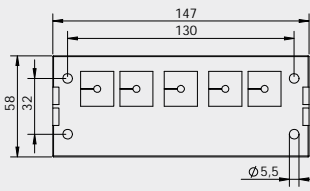
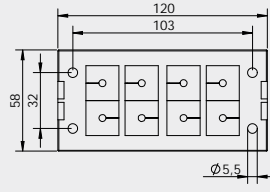
### Product description

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

After populating the entry frame with QT grommets and cables, the two halves of the cable entry frame are snapped together without using tools.

### Advantages

- Quick and safe assembly and fixation without using any tools or screws (by using KEL-SNAP)
- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets

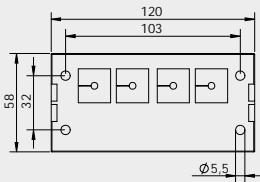
Description	Type	Order No.	Cut-out [mm]	Grommets	PU
	KEL-QUICK 24 10	42410	36 × 112	10 QT	10
	KEL-QUICK 24 5	42415	36 × 112	5 QT	10
	KEL-QUICK 16 8	42418	36 × 86	8 QT	10

# KEL-QUICK

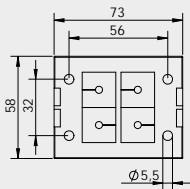
## Cable entry frames



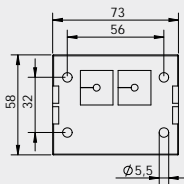
Description	Type	Order No.	Cut-out [mm]	Grommets	PU
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**KEL-QUICK 16|4**    **42414**    **36 × 86**    **4 QT**    **10**



**KEL-QUICK-B4**    **42434**    **46 × 46**    **4 QT**    **10**



**KEL-QUICK-B2**    **42430**    **46 × 46**    **2 QT**    **10**

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free
Drilling template	See Page 176 - 177

### Accessories

QT Cable grommets	56
KEL-SNAP Mounting frames	28 - 29
KEL-EMC Cable collectors	118 - 120
FP Flanged plates	148 - 153

# QVT

## Split cable glands



1

Description	Type	Order No.	Cable Grommets	Thread Thread length	PU
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### Product description

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

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

### Advantages

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

### Specifications

Material	Polycarbonate (PC)
Colour	grey (similar RAL 7035)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets
Temperature	- 30°C to + 100°C (static)
Properties	Halogen free, silicone free
Cut-out dimension	Metric standard sizes

### Accessories

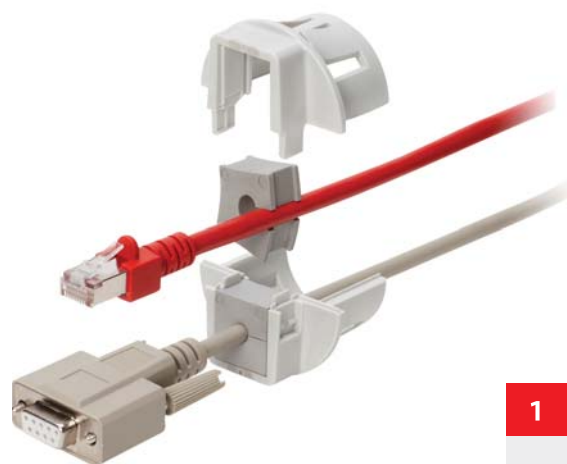
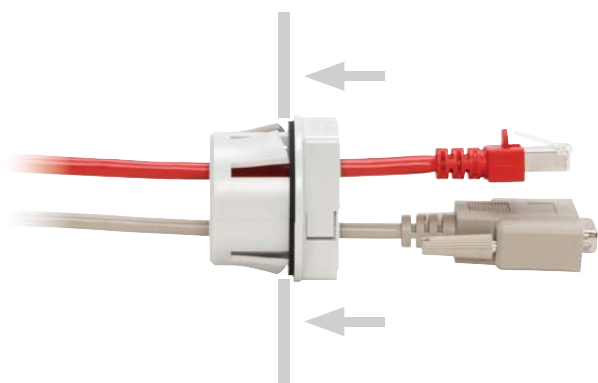
QT Cable grommets	56
KVT-EMC Brackets	121
KGM Locknuts	158

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

\* Max. cable diameter of 10 mm

# QVT-CLICK

## Pluggable cable glands



Type	Order No.	Cable Grommets	Cut-out* diameter	PU	Description
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QVT-CLICK 25	45730	1 × QT	25.5 mm	10	
QVT-CLICK 32	45732	1 × QT	32.5 mm	10	
QVT-CLICK 40 2	45734	2 × QT	40.5 mm	10	
QVT-CLICK Tool	61435	Mounting tool		1	

\*Please consider any paint layers or powder coatings!

### Product description

QVT-CLICK is a circular split frame for quick and easy installation of pre-terminated cables or complete cable harnesses. The QVT-CLICK can be assembled without tools from the front side of the housing. Because of its extremely small structure, the QVT-CLICK range is especially suitable for small machines, devices and instruments.

The QVT-CLICK Tool for quick and easy mounting.

Order No. 61435 (PU: 1)



### Advantages

- Quick and easy assembly from the front side
- Compact and small structure
- Routing of pre-terminated cables
- Retrofitting and maintenance can be carried out easily and quickly
- Warranty on pre-terminated cables remains
- Assembly within seconds
- For wall thickness 1.5 - 2.5 mm

### Specifications

Material	Polycarbonate (PC)
Colour	grey (similar RAL 7035)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of the cable grommets
Temperature	- 30°C to + 100°C (static)
Properties	Halogen free, silicone free

### Accessories

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

# KEL-QTA

## Pluggable cable entry frames



1

### Product description

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

### Advantages

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

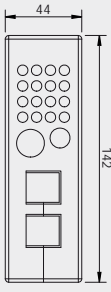
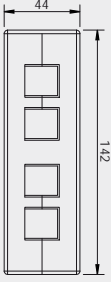
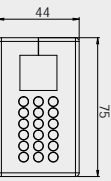
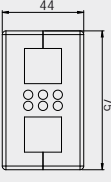
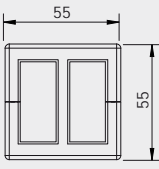
### Specifications

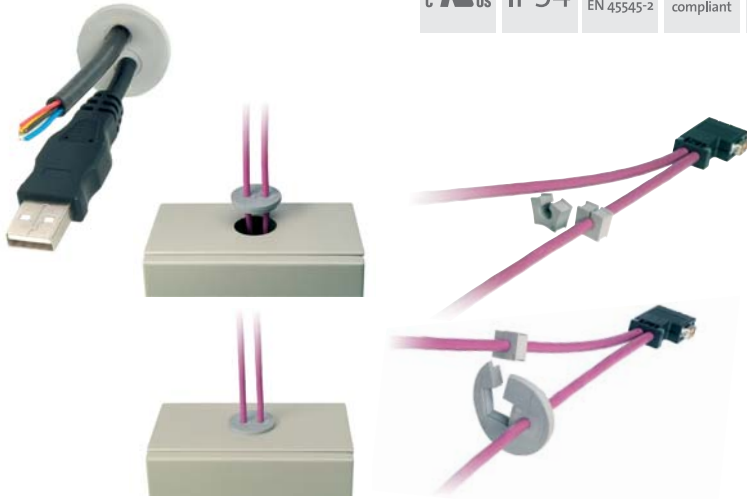
Material	Elastomer
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with correct selection of the cable grommets QT
Temperature	- 40°C to + 90°C (static)
Properties	Halogen free, silicone free

Type A:	For wall thickness 1.5 - 2.5 mm
Type B:	For wall thickness 2.8 - 4 mm

### Accessories

QT Cable grommets	56
ST-B Plugs	74
FP Flanged plates	148 - 153

Description	Type	Order No. Type A	Order No. Type B	Cut-out [mm]	Cables	PU
	KEL-QTA 24 2 -DP 18	43642	43643	112 × 36	pre-terminated 2× 3 - 15 mm conventional 16× max. 7 mm 1× max. 12 mm 1× max. 16 mm	10
	KEL-QTA 24 4	43644	43645	112 × 36	pre-terminated 4× 3 - 15 mm	10
	KEL-QTA 10 1 -DP 18	43655	43658	65 × 36	pre-terminated 1× 3 - 15 mm conventional 18× max. 5 mm	10
	KEL-QTA 10 2 -DP 6	43656	43659	65 × 36	pre-terminated 2× 3 - 15 mm conventional 6× max. 5 mm	10
	KEL-QTA-B4	43660	-	45.5 × 45.5	pre-terminated 4× 3 - 15 mm	



## KEL-QTA | KEL-QTE

### Pluggable cable entry frames



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

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

1

### Product description

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

### Advantages

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

### Specifications

Material	Elastomer
Flame class	UL94-Vo, self-extinguishing
Protection class (QTA)	IP54, with correct selection of the cable grommets (QT single)
Temperature	- 40°C to + 90°C (static)
Properties	Halogen free, silicone free
Cut-out dimension	Metric standard sizes

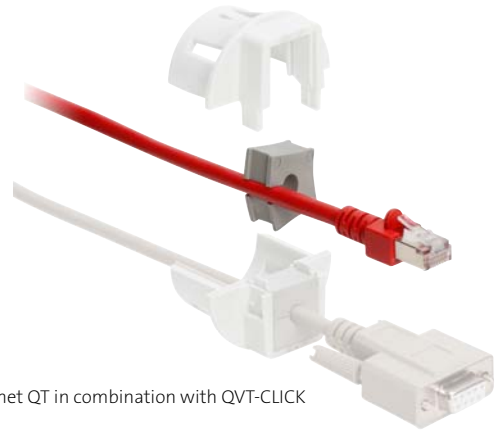
Type A:	For wall thickness 1.5 - 2.5 mm
Type B:	For wall thickness 2.8 - 4 mm

### Accessories

QT Cable grommets 56

# QT

## Grommets



Grommet QT in combination with QVT-CLICK

1

### Product description

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

- KEL-QUICK | 50 - 51
- QVT / QVT-CLICK | 52 - 53
- KEL-QTA / KEL-QTE | 54 - 55

### Assembly








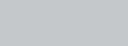
When installing the grommet, the smooth side of the grommet has to face the middle of the cable entry frame.

### Specifications

Material	Elastomer
Flame class	UL94-V0, self-extinguishing
Temperature	- 40°C to+ 90°C (static)
Properties	Halogen free, silicone free

### Accessories

ST Plugs 43

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

# KEL-BES

## Brush frames for cable entry



Suitable for cabinet construction ...



... as well as for energy and building technology



Description	Type	Order No.	Cut-out	PU
-------------	------	-----------	---------	----

	KEL-BES 24	51515	36 x 112 mm	10
	KEL-BES 16	51510	36 x 86 mm	10
	KEL-BES 10	51505	36 x 65 mm	10

### Product description

Cable entry frames KEL-BES for routing cables into network cabinets, control boxes and control cabinets.

KEL-BES is also an ideal solution for entry and exit of cables that are routed inside raised floors, e.g. in computer centres.

The KEL-BES frames match exactly the cut-out dimensions for 10-, 16- or 24-pole standard industrial connectors.

### Advantages

- Fast and easy assembly
- Versatile use
- Shielding against dust and drafts
- Thermal protection, separation of cold and warm air
- Visual screening
- Edge protection

### Specifications

Material	Frame: Polyamide (PA) (Flame class UL94-Vo) Brushes: Polyamide (PA) Brush profile: sheet steel, zinc plated
Temperature	- 20°C to + 90°C
Properties	Halogen free, silicone free
Height KEL-BES	10 mm

### Accessories

KEL-EMC-PF Cable collectors 119

# 2 Cable entry systems for standard cables



KEL-DPF

## At a glance ...

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

The compact, slim and innovative design of the icotek systems offer a professional appearance and high ingress protection classes up to IP68 / NEMA 4X.

Due to high packing densities especially suitable for applications where a lot of cables have to be entered through a small space.

## Benefits ...

### 1. High packing density

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

### 2. Fast and easy assembly

Installation of cables by pushing the cables through the thin, pierceable membrane.

### 3. No new punch-out tools required

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

### 4. Tight seal

Depending on the product a very high sealing rate up to IP68 / NEMA 4X can be achieved.

### 5. Flexibility

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

### 6. Customised solutions

If you cannot find what you need in our standard product portfolio, custom solutions are available upon request.



KEL-DPZ



KEL-DPZ-KL

## Product group 2

Cable entry systems for standard cables

### Chapter content

<b>NEW</b>	<b>Heavy-duty cable entry plates IP65   IP66</b> KEL-DPU 24	Page 60 - 61
	<b>Cable entry plates IP65</b> KEL-DPZ 24	Page 62 - 63
	<b>Cable entry plates IP66</b> KEL-DPZ-B	Page 64
	<b>Cable entry plates IP66</b> KEL-DPZ-E	Page 65
	<b>Cable entry plates IP65</b> KEL-DPZ-KL	Page 66
	<b>Typical applications</b> KEL-DP / -DPZ for standard cables	Page 67
	<b>Cable entry plates IP66 - IP68</b> KEL-DPZ round	Page 68 - 69
	<b>Cable entry plates IP64</b> KEL-DP 24	Page 70
	<b>Cable entry plates IP64</b> KEL-DP-E	Page 71
	<b>Cable entry plates IP65</b> KEL-DP round	Page 72 - 73
	<b>Plugs for membranes</b> ST-B	Page 74
	<b>Cable entry grommets IP66   IP68</b> KEL-DPF	Page 75
	<b>Cable entry grommets IP54</b> KEL-JUMBO flex	Page 76
	<b>Cable entry grommets IP66</b> KEL-ULTRA flex	Page 77

# 2

# KEL-DPU 24

Heavy-duty cable entry plates with enhanced strain relief



KEL-DPU 24 also available in black.



KEL-DPU 24 on request also available with threaded bushings.



Tool-free assembly possible due to plug-in function

## Product description

KEL-DPU entry plates are designed to route and seal standard cables (from 3.2 mm to 20.5 mm in diameter) in limited space with protection class IP65/IP66 and up to NEMA 4X.

The KEL-DPU is particularly characterised by its reinforced frame and the increased strain relief of the routed cables.

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

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

ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

Description	Type	Order No.	Number of cables	PU
	KEL-DPU 24 13	<input type="checkbox"/> 43940 <input checked="" type="checkbox"/> 50940	10x 3.2 - 6.3 mm 3x 16 - 20.5 mm	10
	KEL-DPU 24 16	<input type="checkbox"/> 43936 <input checked="" type="checkbox"/> 50936	8x 3.2 - 5.5 mm 6x 5 - 8.5 mm 2x 9.5 - 14.5 mm	10
	KEL-DPU 24 16-1	<input type="checkbox"/> 43932 <input checked="" type="checkbox"/> 50932	2x 3.2 - 6.3 mm 9x 4 - 7.5 mm 1x 5.5 - 10.5 mm 1x 8 - 12.5 mm 3x 12 - 16.2 mm	10
	KEL-DPU 24 17	<input type="checkbox"/> 43934 <input checked="" type="checkbox"/> 50934	4x 3.2 - 6.3 mm 2x 4 - 7.5 mm 1x 5.5 - 10.5 mm 10x 8 - 12.5 mm	10

\* Only valid for grey product types \*\* Wall thickness 1.5 - 2 mm

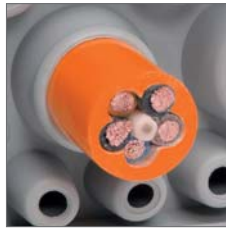


# KEL-DPU 24

Heavy-duty cable entry plates with enhanced strain relief



Membrane on front



Conical shape on back provides additional sealing and strain relief



IP66

Type	Order No.	Number of cables	PU	Description
KEL-DPU 24 20	<input type="checkbox"/> 43938 <input checked="" type="checkbox"/> 50938	12× 3.2 - 5.5 mm 8× 5 - 10.5 mm	10	
KEL-DPU 24 21	<input type="checkbox"/> 43930 <input checked="" type="checkbox"/> 50930	1× 3.2 - 6.3 mm 14× 4 - 7.5 mm 4× 5.5 - 10.5 mm 2× 8 - 12.5 mm	10	
KEL-DPU 24 32	<input type="checkbox"/> 43942 <input checked="" type="checkbox"/> 50942	32× 3.2 - 6.3 mm	10	

## Advantages

- Pluggable\*\* / screwable
- Very high stability
- High strain relief
- Very easy assembly
- High packing density
- Double cable sealing with IP65/IP66/up to NEMA 4X
- Hygienic design - free of dirt-collecting recesses

## Specifications

Material	Frame: Polypropylene (PP) Sealing plate: Elastomer
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo, self-extinguishing
Protection class	IP65/IP66 (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 90°C (static) Halogen free, silicone free
Cut-out dimensions	36 × 112 mm / page 176 - 177
Height KEL-DPU	14.5 mm

## Accessories

ST-B Plugs	74
KEL-EMC-PF Cable collectors	119
FP Flanged plates	148 - 153

\* Only valid for grey product types \*\* Wall thickness 1.5 - 2 mm

# KEL-DPZ 24

## Cable entry plates



KEL-DPZ also available in black.



KEL-DPZ 24 on request also available with threaded bushings.



Membrane on front



### Product description

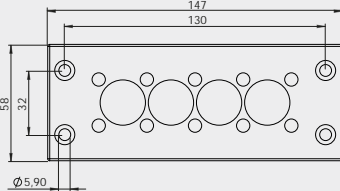
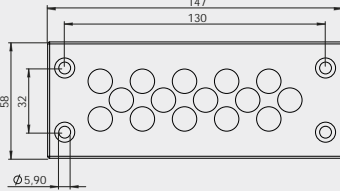
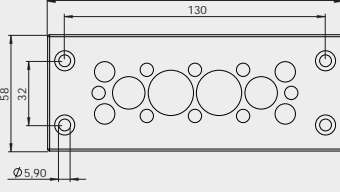
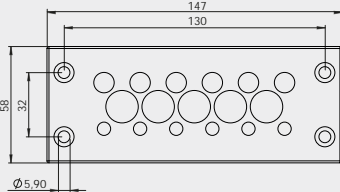
KEL-DPZ entry plates are designed to route and seal up to 121 standard cables or fibre optics (from 1.5 mm to 22 mm in diameter) in limited space.

The KEL-DPZ products are a cost and time saving alternative to traditional cable glands.

The assembly of the KEL-DPZ with cables or pneumatic hoses can be done within seconds. Simply put a small slit in the thin membrane, push standard cables through and it's immediately sealed (IP65/NEMA 12) and strain relieved.

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

ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

Description	Type	Order No.	Number of cables	PU
	KEL-DPZ 24 14	<input type="checkbox"/> 43700 <input type="checkbox"/> 50700	10× 3.2 - 6.5 mm 4× 16 - 22 mm	10
	KEL-DPZ 24 15	<input type="checkbox"/> 43720 <input type="checkbox"/> 50720	15× 7.2 - 12 mm	10
	KEL-DPZ 24 16	<input type="checkbox"/> 43725 <input type="checkbox"/> 50725	8× 3.2 - 6.5 mm 4× 5 - 9.7 mm 2× 9 - 16.2 mm 2× 16 - 22 mm	10
	KEL-DPZ 24 17	<input type="checkbox"/> 43705 <input type="checkbox"/> 50705	6× 3.2 - 6.5 mm 6× 5 - 10.2 mm 5× 9 - 16.2 mm	10

\* Only valid for grey product types

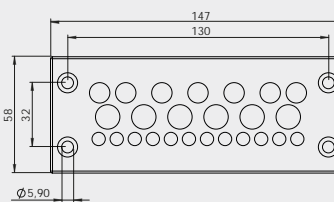
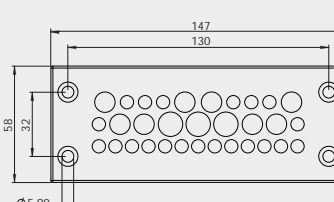
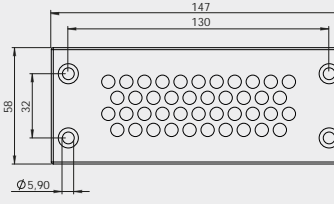
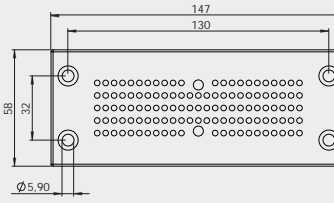
# KEL-DPZ 24

## Cable entry plates



Conical shape on back provides additional sealing and strain relief



Type	Order No.	Number of cables	PU	Description
KEL-DPZ 24 25	<input type="checkbox"/> 43710 <input type="checkbox"/> 50710	12x 3.2 - 6.5 mm 7x 4.8 - 9.7 mm 6x 7.5 - 12 mm	10	
KEL-DPZ 24 32	<input type="checkbox"/> 43730 <input type="checkbox"/> 50730	21x 3.2 - 6.5 mm 8x 5 - 10.2 mm 3x 7.5 - 12 mm	10	
KEL-DPZ 24 42	<input type="checkbox"/> 43715 <input type="checkbox"/> 50715	42x 3.2 - 6.5 mm	10	
KEL-DPZ 24 121	<input type="checkbox"/> 43735 <input type="checkbox"/> 50735	119x 1.5 - 2.6 mm 2x 2.5 - 5 mm	10	

### Advantages

- Assembly within seconds
- High packing density
- Dual sealing of cables according to IP65/NEMA 12
- Automatic sealing and strain relief for the cable
- Hygienic design - free of dirt-collecting recesses

### Specifications

Material	Frame: Polyamide (PA)
Colour	Sealing plate: Elastomer <input type="checkbox"/> grey (similar RAL 7035) <input type="checkbox"/> black
Flame class	UL94-V0, self-extinguishing
Protection class	IP65 (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 90°C (static)
Cut-out dimensions	36 x 112 mm / page 176 - 177
Height	10 mm

### Accessories

ST-B Plugs	74
KEL-EMC-PF Cable collectors	119
FP Flanged plates	148 - 153

\* Only valid for grey product types

# KEL-DPZ-B

## Cable entry plates



**IP66**



KEL-DPZ also available in black.



KEL-DPZ-B on request also available with threaded bushings.



Membrane on front

### Product description

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

The assembly of the KEL-DPZ-B with cables or pneumatic hoses can be done within seconds. Simply put a small slit in the thin membrane, push standard cables through and it's immediately sealed (IP66/NEMA 12) and strain relieved.

With an area of only 46 × 46 mm, up to 25 cables can be easily routed and sealed according to IP66.

ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

### Advantages

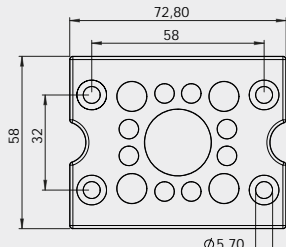
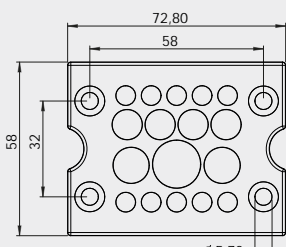
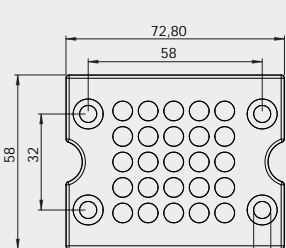
- Space saving shape
- Dual sealing of cables according to IP66/NEMA 12
- High packing density
- Assembly within seconds
- Hygienic design - free of dirt-collecting recesses

### Specifications

Material	Frame: Polyamide (PA) Sealing plate: Elastomer
Colour	■ grey (similar RAL 7035) ■ black
Flame class	UL94-Vo, self-extinguishing
Protection class	IP66 (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 90°C (static) Halogen free, silicone free
Cut-out dimensions	46 × 46 mm
Height	10 mm

### Accessories

ST-B Plugs	74
FP Flanged plates	148 - 153

Description	Type	Order No.	Number of cables	PU
	KEL-DPZ-B 13	■ 43794 ■ 50794	8× 3.2 - 6.5 mm 4× 5 - 10.2 mm 1× 16 - 22 mm	10
	KEL-DPZ-B 17	■ 43796 ■ 50796	10× 3.2 - 6.5 mm 4× 5 - 10.2 mm 2× 7.5 - 12 mm 1× 9 - 16.2 mm	10
	KEL-DPZ-B 25	■ 43798 ■ 50798	25× 3.2 - 6.5 mm	10

\* Only valid for grey product types

# KEL-DPZ-E

## Cable entry plates



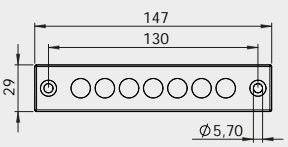
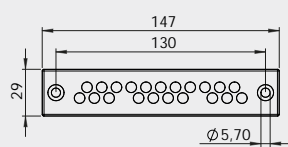
Conical shape on back provides additional sealing and strain relief



KEL-DPZ also available in black.



Description	Type	Order No.	Number of cables	PU
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	KEL-DPZ-E 112 7	<input type="checkbox"/> 43780 <input checked="" type="checkbox"/> 50780	7x 7.5 - 12 mm	10
	KEL-DPZ-E 112 21	<input type="checkbox"/> 43790 <input checked="" type="checkbox"/> 50790	21x 3.2 - 6.5 mm	10

### Product description

KEL-DPZ-E is designed for routing standard cables (without connectors) in very small space.

The assembly of the KEL-DPZ-E with cables or pneumatic hoses can be done within seconds. Simply put a small slit in the thin membrane, push standard cables through and it's immediately sealed (IP66/NEMA 12) and strain relieved.

With an area of only 18 x 112 mm, up to 21 cables can be easily routed and sealed according to IP66. ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

### Advantages

- Space saving shape
- Dual sealing of cables according to IP66/NEMA 12
- High packing density
- Assembly within seconds
- Hygienic design - free of dirt-collecting recesses

### Specifications

Material	Frame: Polyamide (PA)
	Sealing plate: Elastomer
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo, self-extinguishing
Protection class	IP66 (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 90°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	18 x 112 mm / page 176 - 177
Height	10 mm

### Accessories

ST-B Plugs	74
KEL-EMC-PF Cable collectors	119

\* Only valid for grey product types

# KEL-DPZ-KL

## Cable entry plates



KEL-DPZ also available in black.



Membrane on front



Conical shape on back provides additional sealing and strain relief

Description	Type	Order No.	Number of cables	PU
-------------	------	-----------	------------------	----

### Product description

The cable entry plate KEL-DPZ-KL is designed for routing up to 72 standard cables (without connectors). The assembly of the KEL-DPZ-KL with cables or pneumatic hoses can be done within seconds. Simply put a small slit in the thin membrane, push standard cables through and it's immediately sealed (IP65/NEMA 12) and strain relieved. ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

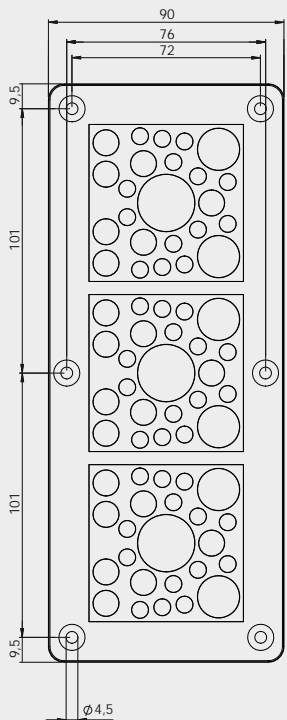
The KEL-DPZ-KL matches on terminal boxes KL from Rittal.

### Advantages

- Space saving shape
- Dual sealing of cables according to IP65/NEMA 12
- High packing density
- Assembly within seconds
- Hygienic design - free of dirt-collecting recesses

### Specifications

Material	<b>Support: Stainless steel V2A, moulded with elastomer</b> <b>Sealing plate: Elastomer</b> <b>Screws: Stainless steel V2A</b>
Colour	□ grey (similar RAL 7035) ■ black
Flame class	UL94-Vo, self-extinguishing
Protection class	IP65 (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 90°C (static) Halogen free, silicone free
Cut-out dimensions	192 × 62 mm
Height	4 mm

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

\* Only valid for grey product types

### Accessories

ST-B Plugs 74

# Typical applications

## Cable entry systems for standard cables



**KEL-DPZ 24|x** - Page 62 - 63  
Routing of numerous cables with varying cable diameter sizes into a machine control cabinet. IP65 sealing is achieved. Additional membranes are available for future routing.



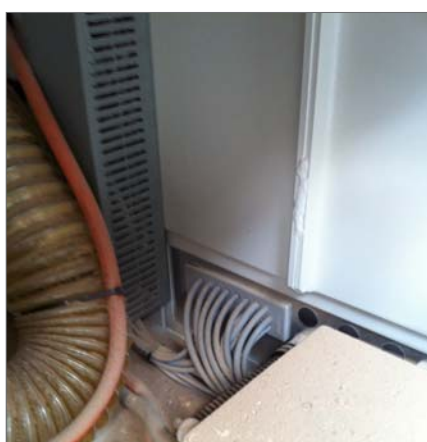
**KEL-DPZ 24|x** - Page 62 - 63 / **FP|AE 330** - Page 149  
Routing of cables into an AE-enclosure. Use of prefabricated flange plates means easy installation and no expensive custom sheet metal work.



**KEL-DPZ B25** - Page 64  
Entering of cable bundle in a small space with high sealing rate IP66.



**KEL-DPZ B25** - Page 64 / **KEL 24|7** - Page 16  
Combination of split and push-through-systems for the routing of cables in an integrated switch cabinet.

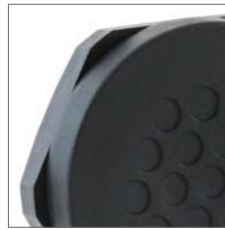


**KEL-DP 24|50** - Page 70  
Entering a large number of standard cables through a small space.



**KEL-DP 50|16** - Page 73  
Routing of cables, conduits and pipes with a single cable entry plate.

# KEL-DPZ round Cable entry plates



KEL-DPZ also available in black.



Membrane on front



Conical shape on back provides additional sealing and strain relief

Type	Order No.	Number of cables	Thread metric	External diameter	Height	PU
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## Product description

KEL-DPZ entry plates are designed to route and seal standard cables or fibre optics (from 1.5 mm to 22 mm in diameter) in limited space.

The assembly of the KEL-DPZ with cables or pneumatic hoses can be done within seconds. Simply put a small slit in the thin membrane, push standard cables through and it's immediately sealed (IP66 / IP67 / IP68/up to NEMA 4X) and strain relieved.

The round versions of the KEL-DPZ series have a thread to fit in metric cut-outs from M32 to M63. Thus cut-outs for standard metric cable glands can be used.

ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

KEL-DPZ 32 4	<input type="checkbox"/> 43732 <input type="checkbox"/> 50732	3× 3.2 - 6.5 mm 1× 7.2 - 12.5 mm	M32	44 mm	8 mm	10
KEL-DPZ 32 4-2	<input type="checkbox"/> 43733 <input type="checkbox"/> 50733	4× 5 - 9.5 mm	M32	44 mm	8 mm	10
KEL-DPZ 32 7	<input type="checkbox"/> 43734 <input type="checkbox"/> 50734	7× 3.2 - 6.5 mm	M32	44 mm	8 mm	10
KEL-DPZ 40 8	<input type="checkbox"/> 43741 <input type="checkbox"/> 50741	4× 3.2 - 6.5 mm 4× 5 - 10.2 mm	M40	52 mm	8 mm	10
KEL-DPZ 50 8	<input type="checkbox"/> 43750 <input type="checkbox"/> 50750	5× 5 - 10.2 mm 3× 7.2 - 12.5 mm	M50	62 mm	8 mm	10
KEL-DPZ 50 10	<input type="checkbox"/> 43751 <input type="checkbox"/> 50751	7× 3.2 - 6.5 mm 2× 5 - 10.2 mm 1× 16 - 22.2 mm	M50	62 mm	8 mm	10
KEL-DPZ 50 12	<input type="checkbox"/> 43752 <input type="checkbox"/> 50752	4× 3.2 - 6.5 mm 8× 5 - 10.2 mm	M50	62 mm	8 mm	10

\* Only valid for grey product types

## KEL-DPZ round Cable entry plates



IP68

Type	Order No.	Number of cables	Thread metric	External diameter	Height	PU
------	-----------	------------------	---------------	-------------------	--------	----

KEL-DPZ 50 19	<input type="checkbox"/> 43758 <input type="checkbox"/> 50758	19× 3.2 - 6.5 mm	M50	62 mm	8 mm	10
KEL-DPZ 50 78	<input type="checkbox"/> 43756 <input type="checkbox"/> 50756	76× 1.5 - 2.6 mm 2× 2.5 - 5 mm	M50	62 mm	8 mm	10
KEL-DPZ 63 9	<input type="checkbox"/> 43760 <input type="checkbox"/> 50760	1× 3.2 - 6.5 mm 3× 5 - 10.2 mm 4× 9 - 16.2 mm 1× 16 - 22.2 mm	M63	75 mm	8 mm	10
KEL-DPZ 63 13	<input type="checkbox"/> 43761 <input type="checkbox"/> 50761	4× 3.2 - 6.5 mm 4× 5 - 10.2 mm 5× 9 - 16.2 mm	M63	75 mm	8 mm	10
KEL-DPZ 63 14	<input type="checkbox"/> 43762 <input type="checkbox"/> 50762	14× 5 - 10.2 mm	M63	75 mm	8 mm	10
KEL-DPZ 63 35	<input type="checkbox"/> 43763 <input type="checkbox"/> 50763	35× 3.2 - 6.5 mm	M63	75 mm	8 mm	10

\* Only valid for grey product types

### Advantages

- Assembly within seconds
- High packing density
- Automatic sealing and strain relief for the cable
- Suitable for standard or metric cut-outs
- Polyamide locknuts are included in the shipment
- Dual sealing of cables according to IP66 / IP67 / IP68 / up to NEMA 4X
- Hygienic design - free of dirt-collecting recesses

### Specifications

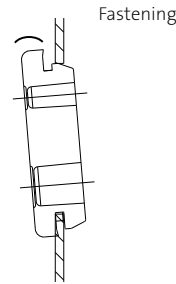
Material	Thread frame: Polyamide (PA)
	Sealing plate: Elastomer
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input type="checkbox"/> black
Flame class	UL94-Vo, self-extinguishing
Protection class	IP66 / IP67 / IP68 (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 90°C (static)
Properties	Halogen free, silicone free
Thread length	14 mm
Cut-out dim.	Metric standard sizes

### Accessories

ST-B Plugs	74
FP Flanged plates	148 - 153
MP Module plates	146

# KEL-DP 24

## Cable entry plates



KEL-DP also available in black.

### Product description

KEL-DP entry plates are designed for routing standard cables (without connectors).

The KEL-DP products are a cost saving alternative to traditional cable glands. Simply put a small slit in the thin membrane, push standard cables through and it's immediately sealed (IP64 / up to NEMA 12).

A special fixing rib ensures a centred fit in the cut-outs. ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

### Advantages

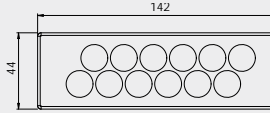
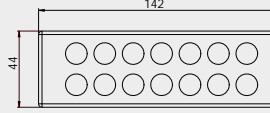
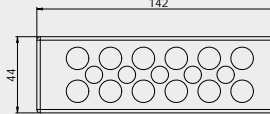
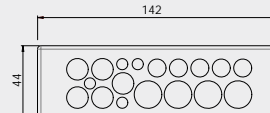
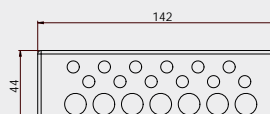
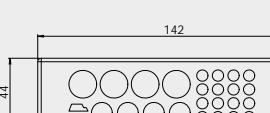
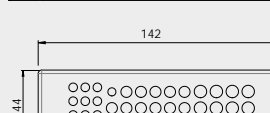
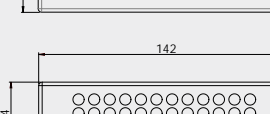
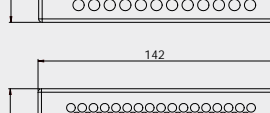
- Quick and easy assembly, no tools required
- High packing density
- Cost-effective
- Hygienic design
  - free of dirt-collecting recesses
- For wall thickness 1.5 - 4 mm

### Specifications

Material	Elastomer
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo, self-extinguishing
Protection class	IP64 (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 90°C (static)
Cut-out dimensions	Halogen free, silicone free
Height	36 × 112 mm
Type A:	5 mm
Type B:	For wall thickness 1.5 - 2.5 mm
	For wall thickness 2.8 - 4 mm

### Accessories

ST-B Plugs	74
FP Flanged plates	148 - 153

Description	Type	Order No. Type A	Order No. Type B	Number of cables	PU
	KEL-DP 24 12	<input type="checkbox"/> 43508 <input checked="" type="checkbox"/> 50508		12× max. 15 mm	10
	KEL-DP 24 14	<input type="checkbox"/> 43512 <input checked="" type="checkbox"/> 50512	<input type="checkbox"/> 43522 <input checked="" type="checkbox"/> 50522	14× max. 12.1 mm	10
	KEL-DP 24 17	<input type="checkbox"/> 43514 <input checked="" type="checkbox"/> 50514	<input type="checkbox"/> 43523 <input checked="" type="checkbox"/> 50523	5× max. 10.5 mm 12× max. 12.6 mm	10
	KEL-DP 24 18	<input type="checkbox"/> 43515 <input checked="" type="checkbox"/> 50515	<input type="checkbox"/> 43528 <input checked="" type="checkbox"/> 50528	4× max. 6.5 mm 5× max. 10.5 mm 5× max. 12.6 mm 4× max. 16.1 mm	10
	KEL-DP 24 19	<input type="checkbox"/> 43516 <input checked="" type="checkbox"/> 50516	<input type="checkbox"/> 43524 <input checked="" type="checkbox"/> 50524	12× max. 6.5 mm 7× max. 12.1 mm	10
	KEL-DP 24 26	<input type="checkbox"/> 43518 <input checked="" type="checkbox"/> 50518	<input type="checkbox"/> 43525 <input checked="" type="checkbox"/> 50525	16× max. 6.5 mm 4× max. 12.1 mm 4× max. 16.1 mm 2× ASI-Leitungen	10
	KEL-DP 24 42	<input type="checkbox"/> 43511 <input checked="" type="checkbox"/> 50511	<input type="checkbox"/> 43521 <input checked="" type="checkbox"/> 50521	12× max. 7.2 mm 17× max. 6.4 mm 12× max. 5 mm 1× max. 4.7 mm	10
	KEL-DP 24 48	<input type="checkbox"/> 43519 <input checked="" type="checkbox"/> 50519	<input type="checkbox"/> 43526 <input checked="" type="checkbox"/> 50526	48× max. 6.5 mm	10
	KEL-DP 24 50	<input type="checkbox"/> 43520 <input checked="" type="checkbox"/> 50520	<input type="checkbox"/> 43527 <input checked="" type="checkbox"/> 50527	33× max. 5.3 mm 9× max. 6.4 mm 8× max. 8.3 mm	10

\* Only valid for grey product types

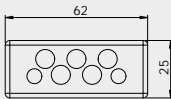
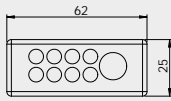
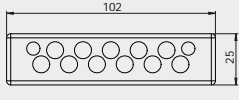
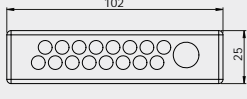
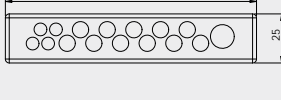
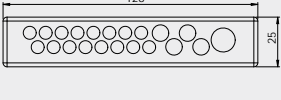
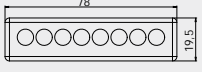
# KEL-DP-E

## Cable entry plates



KEL-DP also available in black.



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

\* Only valid for grey product types

### Product description

KEL-DP-E entry plates are designed for routing standard cables (without connectors). The KEL-DP products are a cost saving alternative to traditional cable glands.

Simply put a small slit in the thin membrane, push standard cables through and it's immediately sealed (IP64/ up to NEMA 12).

ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

A special fixing rib ensures a centred fit in the cut-outs.

### Advantages

- Quick and easy assembly, no tools required
- High packing density
- Cost-effective
- Hygienic design
  - free of dirt-collecting recesses
- For wall thickness 1.5 - 2.5 mm

### Specifications

Material	Elastomer
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-V0, self-extinguishing
Protection class	IP64 (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 90°C (static)
Height	Halogen free, silicone free 5 mm

### Accessories

ST-B Plugs 74

# KEL-DP round

## Cable entry plates



KEL-DP also available in black.



Membrane on front



Special fixing ribs ensure a centred fit.

Type	Order No. Type A	Order No. Type B	Number of cables	Cut-out	External diameter DA	PU
KEL-DP 25 4	<input type="checkbox"/> 43533 <input checked="" type="checkbox"/> 50533	-	4× max. 8 mm	∅ 25 mm	32 mm	10
KEL-DP 25 6	<input type="checkbox"/> 43531 <input checked="" type="checkbox"/> 50531	-	4× max. 5.2 mm 2× max. 9.4 mm	∅ 25 mm	32 mm	10
KEL-DP 32 10	<input type="checkbox"/> 43532 <input checked="" type="checkbox"/> 50532	<input type="checkbox"/> 43560 <input checked="" type="checkbox"/> 50560	6× max. 5.2 mm 2× max. 6.4 mm 2× max. 9.4 mm	∅ 32 mm	38 mm	10
KEL-DP 50 9	<input type="checkbox"/> 43554 <input checked="" type="checkbox"/> 50554	<input type="checkbox"/> 43568 <input checked="" type="checkbox"/> 50568	5× max. 7 mm 4× max. 18 mm	∅ 50 mm	60 mm	10
KEL-DP 50 11	<input type="checkbox"/> 43555 <input checked="" type="checkbox"/> 50555	<input type="checkbox"/> 43569 <input checked="" type="checkbox"/> 50569	7× max. 7.2 mm 3× max. 11.2 mm 1× max. 22.5 mm	∅ 50 mm	60 mm	10

\* Only valid for grey product types

### Product description

KEL-DP entry plates are designed for routing standard cables (without connectors).

The KEL-DP products are a cost saving alternative to traditional cable glands.

Simply put a small slit in the thin membrane, push standard cables through and it's immediately sealed (IP65/ up to NEMA 12).

ST-B Plugs can be used for sealing pierced membranes if cables have been removed.

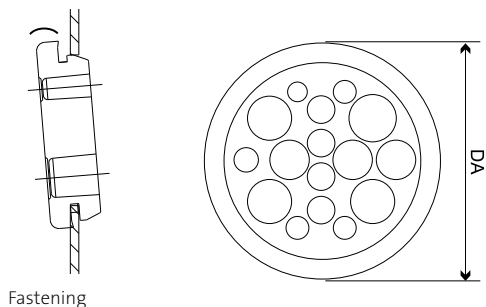
Special fixing ribs ensure a centred fit in the cut-outs.

### Advantages

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



## KEL-DP round Cable entry plates



Fastening



Type	Order No. Type A	Order No. Type B	Number of cables	Cut-out	External diameter DA	PU
KEL-DP 50 12	43551 50551	43562 50562	10× max. 9.2 mm 2× max. 11.2 mm	∅ 50 mm	60 mm	10
KEL-DP 50 16	43550 50550	43564 50564	4× max. 5.3 mm 5× max. 6.3 mm 3× max. 9.5 mm 4× max. 11.3 mm	∅ 50 mm	60 mm	10
KEL-DP 50 18	43553 50553	43567 50567	2× max. 4 mm 2× max. 6 mm 4× max. 7.2 mm 5× max. 9.4 mm 5× max. 12 mm	∅ 50 mm	60 mm	10
KEL-DP 50 20	43552 50552	43566 50566	16× max. 6.3 mm 4× max. 9.3 mm	∅ 50 mm	60 mm	10
KEL-DP 50 35	43556 50556	43570 50570	35× max. 5.2 mm	∅ 50 mm	60 mm	10

### Specifications

Material	Elastomer
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-V0, self-extinguishing
Protection class	IP65 (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 90°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	Metric standard sizes
Height	5 mm
Type A:	For wall thickness 1.5 - 2.5 mm
Type B:	For wall thickness 2.8 - 4 mm

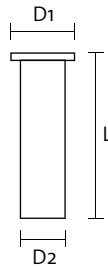
### Accessories

ST-B Plugs	74
FP Flanged plates	148 - 153

\* Only valid for grey product types

# ST-B

## Plugs for membranes



### Product description

Plugs ST-B are used to seal already pierced membranes in various cable entry plates (KEL-DPZ / KEL-DP / KEL-QTA-DP) and DT grommets.

Perfect for applications where cables have been removed.

### Advantages

- Sealing of pierced cable entry membranes which are no longer in use

### Specifications

Material: Polyamide (PA), white  
 Flame class: UL94-Vo, self-extinguishing  
 Temperature: - 40°C to + 120°C  
 Properties: Halogen free, silicone free

### Fits with

KEL-DPZ Cable entry plates: 62 - 69  
 KEL-DP Cable entry plates: 70 - 73  
 DT Cable entry grommets: 42  
 KEL-QTA-DP Cable entry frames: 54

Type	Order No.	Diameter D1	Diameter D2	Length L	PU
ST-B 6	42806	8 mm	6 mm	16 mm	25
ST-B 10	42810	12 mm	10 mm	16 mm	25
ST-B 12	42812	15 mm	12 mm	16 mm	25
ST-B 16	42816	19 mm	16 mm	16 mm	25
ST-B 22	42822	25 mm	22 mm	21 mm	25
Assortment ST-B Plugs	42801	5x ST-B 6   5x ST-B 10   2x ST-B 12   1x ST-B 16   1x ST-B 22			



# KEL-DPF

## Cable entry grommets



IP68

Type	Order No.	Thread metric	External diameter	Clamping range	PU
------	-----------	---------------	-------------------	----------------	----

KEL-DPF 25 3-17	<input type="checkbox"/> 42652 <input checked="" type="checkbox"/> 50652	M25	39 mm	3 - 17 mm	5
KEL-DPF 32 6-24	<input type="checkbox"/> 42653 <input checked="" type="checkbox"/> 50653	M32	46 mm	6 - 24 mm	5
KEL-DPF 40 11-32	<input type="checkbox"/> 42654 <input checked="" type="checkbox"/> 50654	M40	54 mm	11 - 32 mm	5
KEL-DPF 50 17-42	<input type="checkbox"/> 42655 <input checked="" type="checkbox"/> 50655	M50	64 mm	17 - 42 mm	5
KEL-DPF 63 23-55	<input type="checkbox"/> 42656 <input checked="" type="checkbox"/> 50656	M63	77 mm	23 - 55 mm	5

### Product description

The KEL-DPF was developed particularly for routing large or unknown sizes of service cables into the switch cabinet / machine. Due to the flexibility and unique pyramid shape, cable entry and flexible positioning is much easier compared to using conventional cable glands.

#### Cutting of DPF grommets:

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

It is recommended to additionally strain relieve routed supply lines.

### Advantages

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

### Specifications

Material	Thread frame: Polyamide (PA) Pyramid: Elastomer
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo, self-extinguishing
Protection class	IP66 / IP68 (certified according to DIN EN 60529:2000-09)
Temperature Properties	- 40°C to + 90°C (static) Halogen free, silicone free
Thread length	14 mm
Cut-out dimensions	Metric standard sizes

### Accessories

FP Flanged plates	148 - 153
MP Module plates	146

\* Only valid for grey product types

# KEL-JUMBO flex

## Cable entry grommets



### Product description

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

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

#### Cutting of KEL-JUMBO flex grommets:

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

It is recommended to additionally strain relieve routed supply lines.

### Advantages

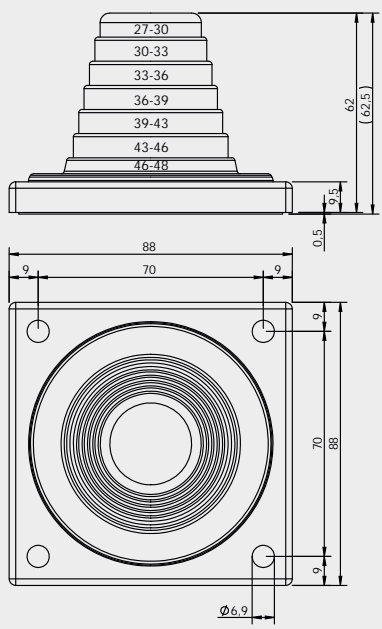
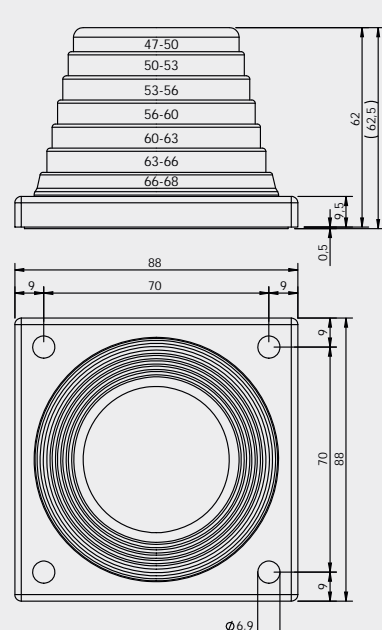
- Assembly within seconds
- Grommets allow dynamic and flexible movement of rigid cables
- Small assembly area (88 × 88 mm)

### Specifications

Material	Frame: Polyamide (PA) Pyramid: Elastomer
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54
Temperature	- 40°C to + 90°C (static)
Properties	Halogen free, silicone free
Cut-out dimensions	Round, $\varnothing$ -cable +20%

### Accessories

MP Module plates	146
BP Blind plates	154 - 155

Description	Type	Order No.	Clamping range	PU
	KEL-JUMBO flex 27-48	42614	27 - 48 mm	1
	KEL-JUMBO flex 47-68	42616	47 - 68 mm	1



# KEL-ULTRA flex

## Cable entry grommets



Type	Order No.	Sealing range	PU
KEL-ULTRA flex 1 incl. Fixing screws	42630	25 - max. 90 mm cable diameter	1
KEL-ULTRA flex 2 incl. Fixing screws	42631	75 - max. 115 mm cable diameter	1

### Product description

The KEL-ULTRA flex is designed as a cable entry grommet for power supply cables or any large cable or conduit that is difficult to manage. The KEL-ULTRA flex comes in two sizes and is ideal for routing and sealing cables and conduits with a diameter from 25 to 115 mm. Due to the high flexibility of the elastomer pyramid, inserting large, thick cables with KEL-ULTRA flex is easier than using standard cable glands. After inserting the cable or conduit, the KEL-ULTRA flex is quickly and easily mounted with the metal ring and screws. This ring enables a circular fixing and sealing of the grommet at the enclosure wall. The ring is supplied with each KEL-ULTRA flex. Cutting of grommets: Cable diameter less 25%. It is recommended to additionally strain relieve routed supply lines.

### Advantages

- Assembly within seconds
- Grommets allow dynamic and flexible movement of rigid cables
- Protection class IP66 / up to NEMA 12

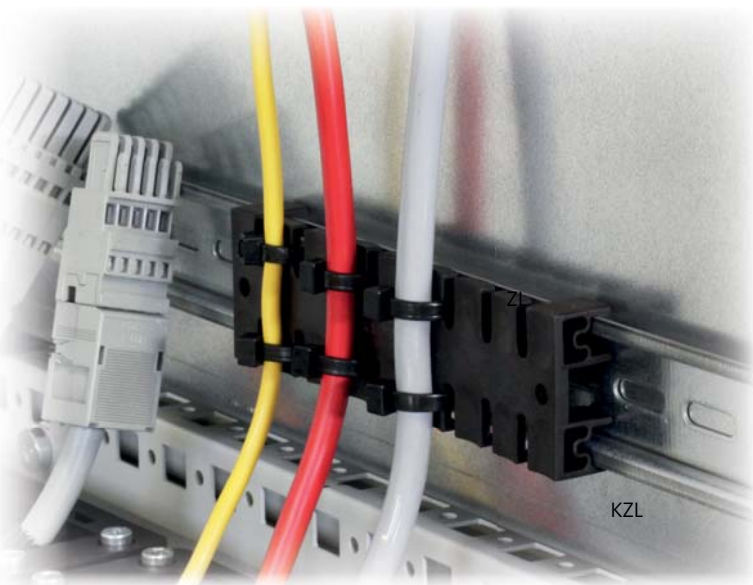
### Specifications

Material	Pyramid: Elastomer Fixing metal ring: Steel, zinc-plated Blind plate: Steel, zinc-plated
Flame class	UL94-Vo, self-extinguishing
Protection class	IP66, when fastened with 8 screws (certified according to DIN EN 60529:2000-09)
Temperature	- 40°C to + 90°C (static)
Properties	Halogen free, silicone free
Cut-out dimension	ø-cable +30%, max. ø 140 mm

### Accessories

MP Module plates	146
BPM Blind plates	155

# 3 Strain relief systems



## At a glance ...

By using icotek strain relief systems the user can quickly assemble, organise and provide strain relief for cables according to EN 50262 / 62444.

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

## Benefits ...

### 1. Universal use

Due to many types of DIN rails and screw type assembly methods, icotek offers numerous mounting options.

### 2. Fast and easy assembly

Securing the cables is done quickly and inexpensively with standard cable ties (see Page 159).

### 3. Secure hold

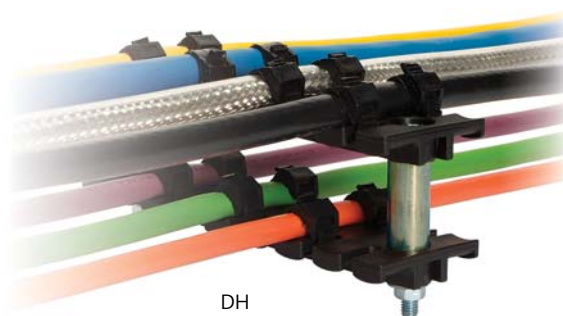
The shape of the strain relief securely holds cable tie and cable.

### 4. High packing density

The strain relief plates are available in several sizes. The packing density can be greatly increased by multilayer mounting.

### 5. Flexibility

Due to the wide variety of sizes and designs, a matching product for each application can be found.



## Product group 3

Strain relief systems

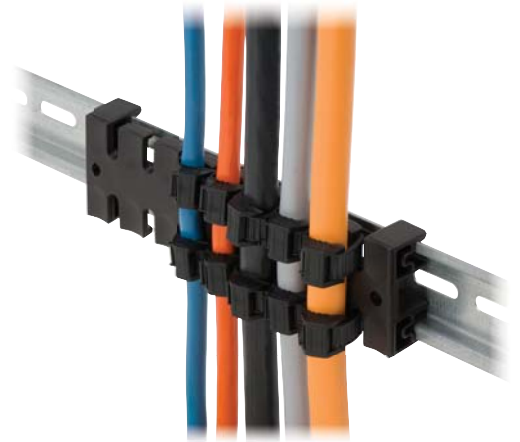
### Chapter content

Strain relief plates for DIN rails shape H and shape C KZL	Page	80
Strain relief plates for DIN rails shape H SF ZL	Page	81
Strain relief plates for screw assembly ZL	Page	82
Strain relief plates with bushings ZL-AB	Page	83
Strain relief plates for screw assembly ZL 03   04   05	Page	84
Distance bushing for multilayer mounting DH	Page	85

# 3

## KZL

Strain relief plates for mounting rails



### Product description

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

The undercut on the comb shaped profile provides secure strain relief according to EN 50262 / 62444. Fixation of the cables is achieved by using cable ties.

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

### Advantages

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

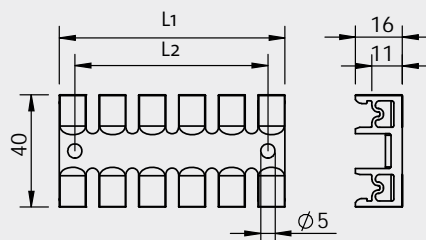
### Specifications

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

### Accessories

KB Cable ties 159

Type	Order No. for H-rails	Order No. for C-rails	Length L1	Length L2	No. of teeth	PU
KZL 11		32250	11.5 mm	-	1	10
KZL 39	32260	32261	38.5 mm	28.3 mm	3	10
KZL 80	32262	32263	79.5 mm	68 mm	6	10
KZL 140	32264	32265	139.5 mm	128.1 mm	9	10



# SF|ZL

Strain relief plates  
for 35 mm DIN rail



Type	Order No.	Length L1	Length L2	No. of teeth	PU
------	-----------	--------------	--------------	-----------------	----

SF ZL 39	32351	38.5 mm	19.5 mm	3	10
SF ZL 60	32352	59.5 mm	43.5 mm	4	10
SF ZL 70	32353	69.1 mm	43.5 mm	5	10
SF ZL 87	32354	86.5 mm	68 mm	6	10
SF ZL 103	32355	102.5 mm	84 mm	7	10
SF ZL 121	32356	121 mm	102.5 mm	8	10
SF ZL 140	32357	139.5 mm	121 mm	9	10
SF ZL 180	32358	180 mm	157 mm	12	10

## Product description

The strain relief plate SF|ZL is used for assembly on 35 mm DIN rails shape H. It can be used for strain relief of cables and conduits.

The SF|ZL range is based upon the strain relief plate ZL, which is mounted on snap feet for 35 mm DIN rails shape H.

3

## Advantages

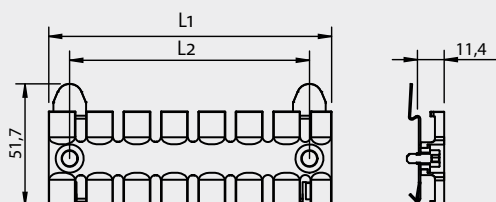
- Simple assembly
- Cost-effective
- High packing density
- Universal usage

## Specifications

Material	ZL: Polyamide (PA) SF-foot: Spring steel
Flame class	UL94-Vo, self-extinguishing
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free

## Accessories

KB Cable ties 159



## ZL

### Strain relief plates for screw assembly



### Product description

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

The undercut on the comb shaped profile provides secure strain relief according to EN 50262 / 62444. Fixation of the cables is achieved by using cable ties.

For multilayer installation please use distance bushings, see Page 85.

### Advantages

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

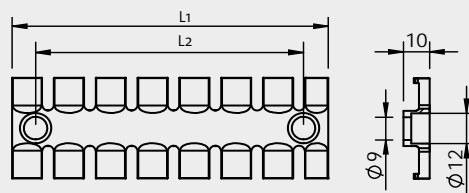
### Specifications

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

### Accessories

DH Distance bushings 85  
 KB Cable ties 159

Type	Order No.	Length L1	Length L2	No. of teeth	PU
ZL 39	32222	38.5 mm	19.5 mm	3	10
ZL 60	32224	59.5 mm	43.5 mm	4	10
ZL 70	32226	69.1 mm	43.5 mm	5	10
ZL 87	32228	86.5 mm	68 mm	6	10
ZL 103	32230	102.5 mm	84 mm	7	10
ZL 121	32232	121 mm	102.5 mm	8	10
ZL 140	32234	139.5 mm	121 mm	9	10
ZL 180	32236	180 mm	157 mm	12	10

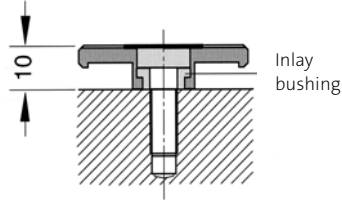


# ZL-AB

Strain relief plates  
for screw assembly



Inlay bushings also available in brass.



Type	Order No.		Order No. for M6 screws	Length L1	Length L2	No. of teeth	PU
	for M4 screws	for M5 screws					
ZL 39 AB	32270	32280 32360	32290	38.5 mm	19.5 mm	3	10
ZL 60 AB	32271	32281 32361	32291	59.5 mm	43.5 mm	4	10
ZL 70 AB	32272	32282 32362	32292	69.1 mm	43.5 mm	5	10
ZL 87 AB	32273	32283 32363	32293	86.5 mm	68 mm	6	10
ZL 103 AB	32275	32284 32364	32294	102.5 mm	84 mm	7	10
ZL 121 AB	32277	32285 32365	32295	121 mm	102.5 mm	8	10
ZL 140 AB	32274	32286 32366	32296	139.5 mm	121 mm	9	10
ZL 180 AB	32276	32287 32367	32297	180 mm	157 mm	12	10

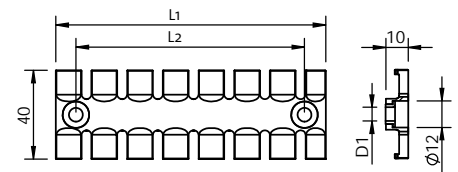
## Product description

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

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

## Advantages

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



## Specifications

Material	ZL: Polyamide (PA)
Bushing:	
	Aluminium
	Brass (BR)
Flame class	UL94-Vo, self-extinguishing
Temperature	- 40°C to + 140°C (static)
Properties	Halogen free, silicone free

## Accessories

DH Distance bushings	85
KB Cable ties	159

## ZL 03 | 04 | 05

Strain relief plates  
for screw assembly



### Product description

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

The undercut on the comb shaped profile provides secure strain relief according to EN 50262 / 62444. Fixation of the cables is achieved by using cable ties.

3

### Advantages

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

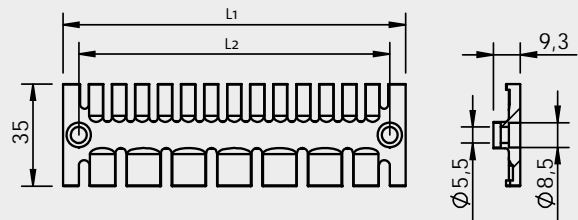
### Specifications

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

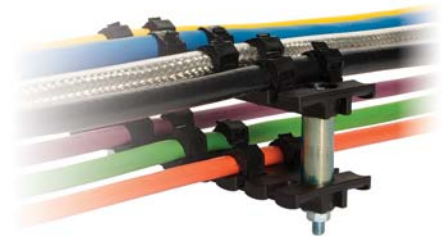
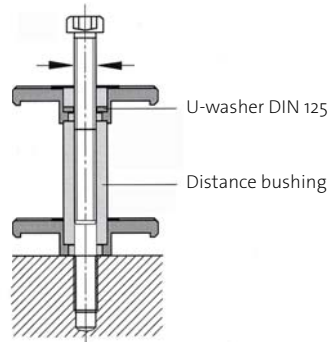
### Accessories

DH Distance bushings 85  
 KB Cable ties 159

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



# DH Distance bushings



Type	Order No.	Fits with	Length	Diameter		PU
				inner	outer	
DH 30	32251	ZL 03   04   05	30 mm	5.2 mm	7 mm	10
DH 32	32252	ZL	32 mm	6.2 mm	12 mm	10

## Product description

Due to DH distance bushings strain relief plates can be mounted in multi-layers to achieve an increase of the packing density.

## Advantages

- Increase of packing density

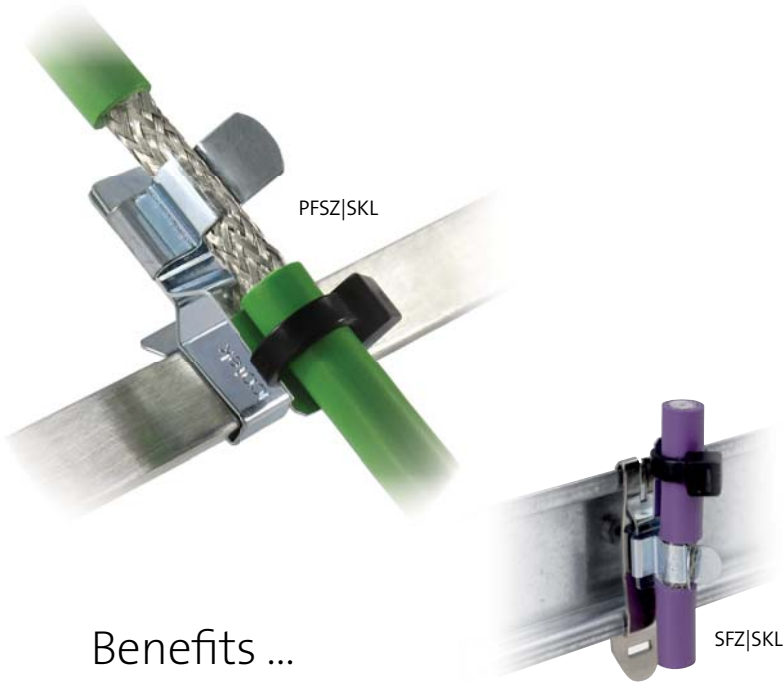
## Specifications

Material **Aluminium**

## Fits with

- ZL Strain relief plates 82
- ZL-AB Strain relief plates 83

# 4 EMC Innovations



## At a glance ...

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

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

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

icotek EMC products therefore provide a good solution.

## Benefits ...

### 1. Flexible

Because of many types of DIN rails and screw type assembly methods, icotek offers numerous mounting options.

### 2. Fast and tool free assembly

Strip the cable shield – press into the SKL shield clamp – ready.

### 3. Secure hold

Properly sized and used in conjunction with cable ties, many products provide strain relief in accordance with EN 50262 / 62444.

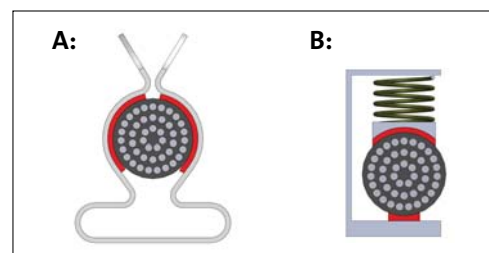
### 4. Large contact area

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%.

### 5. Greatly reduces high frequency interferences

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

Details can be supplied on request.



## Chapter content

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# SFZ|SKL

EMC Shield clamps for 35 mm DIN rail



## Product description

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

Cables are secured with a cable tie. Strain relief in accordance with EN 50262 / 62444 is achieved.

For assembly on 35 mm DIN rails.

## Advantages

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

## Specifications

### Material

SKL-clamp     Spring steel, zinc plated  
 SF- / SFZ-foot     Spring steel

## Accessories

KB Cable ties     159  
 Stripping tool     113

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

# SF|SKL

## EMC Shield clamps for 35 mm DIN rail



SF|SKL 38-48



SF|SKL

Type	Order No.	Shield diameter	PU
SF SKL 1.5-3	36243	1.5 - 3 mm	10
SF SKL 3-6	36244	3 - 6 mm	10
SF SKL 6-8	36245	6 - 8 mm	10
SF SKL 8-11	36246	8 - 11 mm	10
SF SKL 12-16	36247	12 - 16 mm	10
SF SKL 17-22	36248	17 - 22 mm	10
SF SKL 23-29	36249	23 - 29 mm	10
SF SKL 30-37	36250	30 - 37 mm	10
SF SKL 38-48	36252	38 - 48 mm	10
SF single	36230	Snap foot single	10

### Product description

The shield clamps SF|SKL are used for shielding single cables.

Simple to use and effective in shielding of cables.

For assembly on 35 mm DIN rails.

### Advantages

- Optimal contact of the cable shield
- Simple and tool-free assembly
- Permanent and continuous spring pressure on the cable shield, no adjustment of the spring load required
- Space saving by an optimised arrangement
- Vibration proof, maintenance free

### Specifications

**Material**  
 SKL-clamp Spring steel, zinc plated  
 SF-foot Spring steel

### Accessories

Stripping tool 113

# SFS|SKL

EMC Shield clamps for 35 mm DIN rail



## Product description

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

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

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

## Advantages

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

## Specifications

**Material**  
 SKL-clamp Spring steel, zinc plated  
 SFS-foot Spring steel

## Accessories

Stripping tool 113

# EMC ServiceBox



## EMC ServiceBox for SKL Shield clamps



### Product description

The suitable EMC clamp is always readily available!

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

Order No. 88002

### Content

#### SKL for TS35 DIN rails:

Type SF SKL - sizes: 1.5 - 29 mm	7 × SKL
Type SFZ SKL - sizes: 1.5 - 29 mm	6 × SKL
Type SFS SKL - sizes: 1.5 - 8 mm	3 × SKL

#### SKL for assembly via screws:

Type LF SKL - sizes: 1.5 - 29 mm	7 × SKL
Type LFZ SKL - sizes: 1.5 - 29 mm	7 × SKL
Type LFZ-U4 SKL - sizes: 1.5 - 11 mm	4 × SKL

#### SKL for 10 × 3 bus bar:

Typ PFS SKL - sizes: 1.5 - 22 mm	6 × SKL
Typ PFSz SKL - sizes: 1.5 - 11 mm	4 × SKL
Typ PFS2 SKL 32	1 × SKL
Typ PFSZ2 SKL 23 / 41	2 × SKL

#### SKL for clipping on metal sheets:

Type PFKZ-A SKL - sizes: 3 - 6 mm	1 × SKL
Type PFKZ2-A SKL 23	1 × SKL
Type PFKZ-B SKL 14	1 × SKL

#### EMC - Accessories:

RLFZ - Clamp assembly	5 × SKL	1 piece
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# PFSZ|SKL

## EMC Shield clamps for bus bar



### Product description

Comparable with the PFS|SKL range, the PFSZ|SKL shield clamps can be used for shielding single cables. They are used for mounting on 10 x 3 mm bus bars.

The PFSZ range provides the possibility to fix the cable with a cable tie. Strain relief in accordance with EN 50262 / 62444 is achieved.

### Advantages

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

### Specifications

**Material**

- SKL-clamp    **Spring steel, zinc plated**
- PFSZ-foot    **Spring steel**
- Bus bar      **Cu, tin plated**  
Current load 140 A

### Accessories

- KB Cable ties            159
- KEL-EMC-PF Bracket    119
- Stripping tool            113

Type	Order No.	Shield diameter	PU
PFSZ SKL 1.5-3	36787.1	1.5 - 3 mm	10
PFSZ SKL 3-6	36787.2	3 - 6 mm	10
PFSZ SKL 6-8	36787.3	6 - 8 mm	10
PFSZ SKL 8-11	36787.4	8 - 11 mm	10
<b>Bus bar 10 x 3 mm</b>	<b>36100</b>	<b>10 x 3 x 1000 mm*</b>	<b>1</b>

\* Other lengths available on request

# PFS|SKL

## EMC Shield clamps for bus bar



Type	Order No.	Shield diameter	PU
PFS SKL 1.5-3	36786.1	1.5 - 3 mm	10
PFS SKL 3-6	36786.2	3 - 6 mm	10
PFS SKL 6-8	36786.3	6 - 8 mm	10
PFS SKL 8-11	36786.4	8 - 11 mm	10
PFS SKL 12-16	36786.5	12 - 16 mm	10
PFS SKL 17-22	36786.6	17 - 22 mm	10
Bus bar 10 x 3 mm	36100	10 x 3 x 1000 mm*	1

### Product description

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

The PFS|SKL is mounted by snapping on a 10 x 3 mm bus bar.

### Advantages

- Optimal contact of the cable shield
- Simple and tool-free assembly
- Permanent and continuous spring load on the cable shield, no adjustment of the spring load required
- Vibration proof, maintenance free
- High packing density due to optimised arrangement possibilities

### Specifications

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

### Accessories

KEL-EMC-PF Bracket 119  
 Stripping tool 113

\* Other lengths available on request

# PFSZ2|SKL

## EMC Shield clamps for bus bar, double



### Product description

Comparable with the PFS2|SKL range, the PFSZ2|SKL shield clamps can be used for shielding two single cables. They are used for mounting on 10 × 3 mm bus bars.

The PFSZ2 range provides possibility to fix the cables with cable ties. Strain relief in accordance with EN 50262 / 62444 is achieved.

### Advantages

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

### Specifications

**Material**

SKL-clamp	Spring steel, zinc plated
PFSZ2-foot	Spring steel
Bus bar	Cu, tin plated
	Current load 140 A

### Accessories

KB Cable ties	159
Bus bar	93
Stripping tool	113

Type	Shield diameter Pos. 1	Shield diameter Pos. 2	Order No.	PU
PFSZ2 SKL 01	blank	1.5 - 3 mm	36789.01	10
PFSZ2 SKL 02	blank	3 - 6 mm	36789.02	10
PFSZ2 SKL 03	blank	6 - 8 mm	36789.03	10
PFSZ2 SKL 04	blank	8 - 11 mm	36789.04	10
PFSZ2 SKL 10	1.5 - 3 mm	blank	36789.10	10
PFSZ2 SKL 11	1.5 - 3 mm	1.5 - 3 mm	36789.11	10
PFSZ2 SKL 12	1.5 - 3 mm	3 - 6 mm	36789.12	10
PFSZ2 SKL 13	1.5 - 3 mm	6 - 8 mm	36789.13	10
PFSZ2 SKL 14	1.5 - 3 mm	8 - 11 mm	36789.14	10
PFSZ2 SKL 20	3 - 6 mm	blank	36789.20	10
PFSZ2 SKL 21	3 - 6 mm	1.5 - 3 mm	36789.21	10
PFSZ2 SKL 22	3 - 6 mm	3 - 6 mm	36789.22	10
PFSZ2 SKL 23	3 - 6 mm	6 - 8 mm	36789.23	10
PFSZ2 SKL 24	3 - 6 mm	8 - 11 mm	36789.24	10
PFSZ2 SKL 30	6 - 8 mm	blank	36789.30	10
PFSZ2 SKL 31	6 - 8 mm	1.5 - 3 mm	36789.31	10
PFSZ2 SKL 32	6 - 8 mm	3 - 6 mm	36789.32	10
PFSZ2 SKL 33	6 - 8 mm	6 - 8 mm	36789.33	10
PFSZ2 SKL 34	6 - 8 mm	8 - 11 mm	36789.34	10
PFSZ2 SKL 40	8 - 11 mm	blank	36789.40	10
PFSZ2 SKL 41	8 - 11 mm	1.5 - 3 mm	36789.41	10
PFSZ2 SKL 42	8 - 11 mm	3 - 6 mm	36789.42	10
PFSZ2 SKL 43	8 - 11 mm	6 - 8 mm	36789.43	10

# PFS2|SKL

## EMC Shield clamps for bus bar, double



Type	Shield diameter Pos. 1	Shield diameter Pos. 2	Order No.	PU
PFS2 SKL 01	blank	1.5 - 3 mm	36788.01	10
PFS2 SKL 02	blank	3 - 6 mm	36788.02	10
PFS2 SKL 03	blank	6 - 8 mm	36788.03	10
PFS2 SKL 04	blank	8 - 11 mm	36788.04	10
PFS2 SKL 10	1.5 - 3 mm	blank	36788.10	10
PFS2 SKL 11	1.5 - 3 mm	1.5 - 3 mm	36788.11	10
PFS2 SKL 12	1.5 - 3 mm	3 - 6 mm	36788.12	10
PFS2 SKL 13	1.5 - 3 mm	6 - 8 mm	36788.13	10
PFS2 SKL 14	1.5 - 3 mm	8 - 11 mm	36788.14	10
PFS2 SKL 20	3 - 6 mm	blank	36788.20	10
PFS2 SKL 21	3 - 6 mm	1.5 - 3 mm	36788.21	10
PFS2 SKL 22	3 - 6 mm	3 - 6 mm	36788.22	10
PFS2 SKL 23	3 - 6 mm	6 - 8 mm	36788.23	10
PFS2 SKL 24	3 - 6 mm	8 - 11 mm	36788.24	10
PFS2 SKL 30	6 - 8 mm	blank	36788.30	10
PFS2 SKL 31	6 - 8 mm	1.5 - 3 mm	36788.31	10
PFS2 SKL 32	6 - 8 mm	3 - 6 mm	36788.32	10
PFS2 SKL 33	6 - 8 mm	6 - 8 mm	36788.33	10
PFS2 SKL 34	6 - 8 mm	8 - 11 mm	36788.34	10
PFS2 SKL 40	8 - 11 mm	blank	36788.40	10
PFS2 SKL 41	8 - 11 mm	1.5 - 3 mm	36788.41	10
PFS2 SKL 42	8 - 11 mm	3 - 6 mm	36788.42	10
PFS2 SKL 43	8 - 11 mm	6 - 8 mm	36788.43	10

### Product description

PFS2|SKL shield clamps can be used for shielding two single cables. The shield clamps are easy to use and enable a reliable shielding of cables.

The PFS2|SKL is mounted by snapping on a 10 × 3 mm bus bar.

### Advantages

- Optimal contact of the cable shield
- Simple and tool-free assembly
- Permanent and continuous spring load on the cable shield, no adjustment of the spring load required
- Vibration proof, maintenance free
- High packing density due to optimised arrangement possibilities

### Specifications

**Material**  
 SKL-clamp Spring steel, zinc plated  
 PFS2-foot Spring steel  
 Bus bar Cu, tin plated  
 Current load 140 A

### Accessories

Bus bar 93  
 Stripping tool 113

# LFZ|SKL

## EMC Shield clamps for screw assembly



### Product description

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

Cables are secured with a cable tie. Strain relief in accordance with EN 50262 / 62444 is achieved.

LFZ|SKL shield clamps are easily attached to mounting plates via screw.

### Advantages

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

### Specifications

**Material**

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

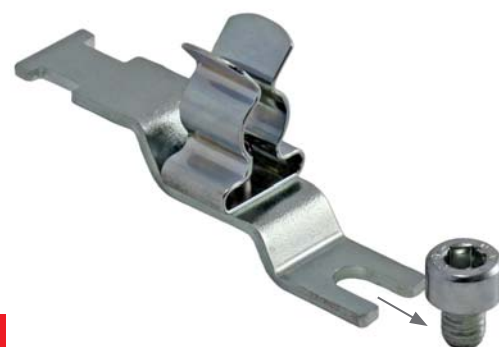
### Accessories

KB Cable ties 159  
 Stripping tool 113

Type	Order No.	Shield diameter	Fixing hole	PU
LFZ SKL 1.5-3	36910	1.5 - 3 mm	4.2 mm	10
LFZ SKL 3-6	36915	3 - 6 mm	4.2 mm	10
LFZ SKL 6-8	36920	6 - 8 mm	4.2 mm	10
LFZ SKL 8-11	36925	8 - 11 mm	4.2 mm	10
LFZ SKL 12-16	36930	12 - 16 mm	4.2 mm	10
LFZ SKL 17-22	36935	17 - 22 mm	4.2 mm	10
LFZ SKL 23-29	36940	23 - 29 mm	4.2 mm	10

# LFZ-U|SKL

## EMC Shield clamps for screw assembly



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

### LFZ-U|SKL for M4 screws:

LFZ-U4 SKL 1.5-3	36886.1	1.5 - 3 mm	4.2 mm	10
LFZ-U4 SKL 3-6	36886.2	3 - 6 mm	4.2 mm	10
LFZ-U4 SKL 6-8	36886.3	6 - 8 mm	4.2 mm	10
LFZ-U4 SKL 8-11	36886.4	8 - 11 mm	4.2 mm	10

### LFZ-U|SKL for M5 screws:

LFZ-U5 SKL 1.5-3	36887.1	1.5 - 3 mm	5.2 mm	10
LFZ-U5 SKL 3-6	36887.2	3 - 6 mm	5.2 mm	10
LFZ-U5 SKL 6-8	36887.3	6 - 8 mm	5.2 mm	10
LFZ-U5 SKL 8-11	36887.4	8 - 11 mm	5.2 mm	10

## Product description

LFZ-U|SKL shield clamps are used, where the shield of single cables must be connected to the earth potential.

LFZ-U|SKL shield clamps are easy to use and enable a reliable shielding of cables. Cables are secured with a cable tie. Strain relief in accordance with EN 50262 / 62444 is achieved.

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

## Advantages

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

## Specifications

<b>Material</b>	
SKL-clamp	Spring steel, zinc plated
LFZ-foot	Sheet steel, galvanically zinc plated
	Fixing hole 4.2 mm / 5.2 mm for screw M4 / M5

## Accessories

KB Cable ties	159
Stripping tool	113

# LF|SKL

## EMC Shield clamps for screw assembly



### Product description

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

Shield clamps are easily attached to mounting plates via screw.

### Advantages

- Optimal contact of the cable shield
- Simple assembly
- Permanent and continuous spring load on the cable shield, no adjustment of the spring load required
- Vibration proof, maintenance free
- High packing density due to optimised arrangement possibilities

### Specifications

**Material**

SKL-clamp **Spring steel, zinc plated**  
 LF-foot **Sheet steel, galvanically zinc plated**  
 Fixing hole 4.2 mm for screw M4

### Accessories

Stripping tool 113

Type	Order No.	Shield diameter	Fixing hole	PU
LF SKL 1.5-3	36251	1.5 - 3 mm	4.2 mm	10
LF SKL 3-6	36253	3 - 6 mm	4.2 mm	10
LF SKL 6-8	36255	6 - 8 mm	4.2 mm	10
LF SKL 8-11	36256	8 - 11 mm	4.2 mm	10
LF SKL 12-16	36257	12 - 16 mm	4.2 mm	10
LF SKL 17-22	36258	17 - 22 mm	4.2 mm	10
LF SKL 23-29	36259	23 - 29 mm	4.2 mm	10

# EMC Test results



## Leakage and Impedance

All icotek shield clamps have been tested 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

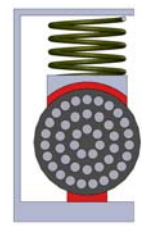
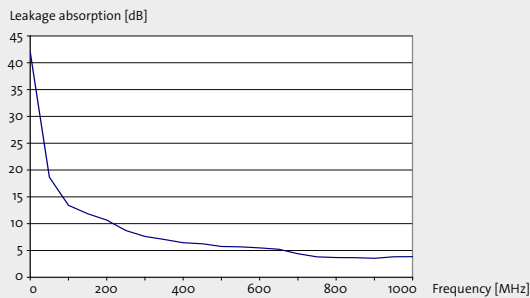
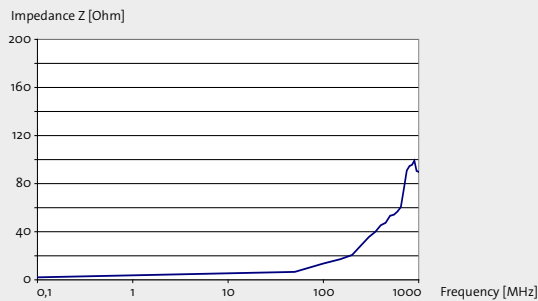
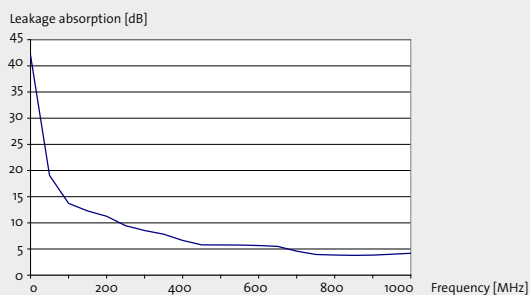
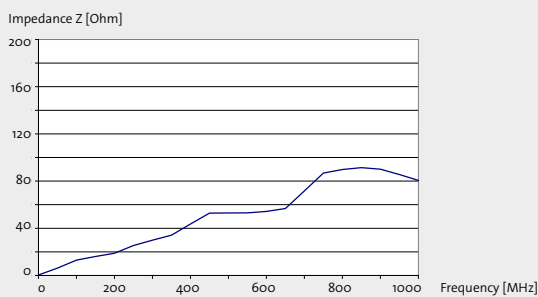


Figure B: Conventional systems

### LF|SKL 8-11



### SF|SKL 6-8



# PFKZ|SKL

EMC Shield clamps, pluggable



## Product description

Comparable with the PFK|SKL range, the PFKZ|SKL shield clamps can be used for shielding single cables. The PFKZ range provides possibility to affix the cable with a cable tie. Strain relief in accordance with EN 50262 / 62444 is achieved.

PFKZ|SKL clamps are used where a screw connection is either not possible or wanted. The PFKZ|SKL is simply clamped on the sheet. The claws provide a secure grip, even in case of vibrations.

## Advantages

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

## Specifications

### Material

SKL-clamp Spring steel, zinc plated

PFKZ-foot Spring steel

Type A: For wall/sheet thickness 1.5 - 2 mm

Type B: For wall/sheet thickness 2 - 3 mm

## Accessories

KB Cable ties 159

Stripping tool 113

Type	Order No.	Shield diameter	PU
<b>PFKZ SKL - Type A (for wall/sheet thickness 1.5 - 2 mm)</b>			
PFKZ-A SKL 1.5-3	36779.1	1.5 - 3 mm	10
PFKZ-A SKL 3-6	36779.2	3 - 6 mm	10
PFKZ-A SKL 6-8	36779.3	6 - 8 mm	10
PFKZ-A SKL 8-11	36779.4	8 - 11 mm	10
<b>PFKZ SKL - Type B (for wall/sheet thickness 2 - 3 mm)</b>			
PFKZ-B SKL 1.5-3	36783.1	1.5 - 3 mm	10
PFKZ-B SKL 3-6	36783.2	3 - 6 mm	10
PFKZ-B SKL 6-8	36783.3	6 - 8 mm	10
PFKZ-B SKL 8-11	36783.4	8 - 11 mm	10

# PFK|SKL

## EMC Shield clamps, pluggable



Secure grip on metal sheets due to mounting claws



Type	Order No.	Shield diameter	PU
<b>PFK SKL - Type A (for wall/sheet thickness 1.5 - 2 mm)</b>			
PFK-A SKL 1.5-3	36778.1	1.5 - 3 mm	10
PFK-A SKL 3-6	36778.2	3 - 6 mm	10
PFK-A SKL 6-8	36778.3	6 - 8 mm	10
PFK-A SKL 8-11	36778.4	8 - 11 mm	10
<b>PFK SKL - Type B (for wall/sheet thickness 2 - 3 mm)</b>			
PFK-B SKL 1.5-3	36782.1	1.5 - 3 mm	10
PFK-B SKL 3-6	36782.2	3 - 6 mm	10
PFK-B SKL 6-8	36782.3	6 - 8 mm	10
PFK-B SKL 8-11	36782.4	8 - 11 mm	10

### Product description

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

PFK|SKL clamps are used where a screw connection is either not possible or wanted. The PFK|SKL is simply clamped on the sheet. The claws provide a secure grip, even in case of vibrations.

### Advantages

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

### Specifications

**Material**  
 SKL-clamp Spring steel, zinc plated  
 PFK-foot Spring steel

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

### Accessories

Stripping tool 113

# PFKZ2|SKL

EMC Shield clamps, pluggable, double



Secure grip on metal sheets due to mounting claws

## Product description

Comparable with the PFK2|SKL range, the PFKZ2|SKL shield clamps can be used for shielding two single cables. The PFKZ range provides the possibility to affix the cable with a cable tie. Strain relief in accordance with EN 50262 / 62444 is achieved.

PFKZ2|SKL clamps are used where a screw connection is either not possible or wanted. The PFKZ2|SKL is simply clamped on the sheet. The claws provide a secure grip, even in case of vibrations.

## Advantages

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

## Specifications

### Material

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

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

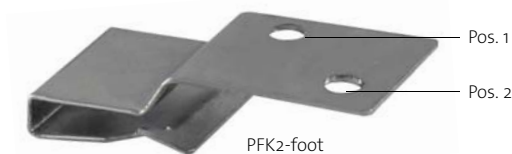
## Accessories

KB Cable ties     159  
 Stripping tool    113

Type A	Order No. Type A	Type B	Order No. Type B	Shield diameter Pos. 1	Shield diameter Pos. 2	PU
<b>Sheet thickness 1.5 - 2 mm:</b>						
PFKZ2-A SKL 01	36781.01	PFKZ2-B SKL 01	36785.01	blank	1.5 - 3 mm	10
PFKZ2-A SKL 02	36781.02	PFKZ2-B SKL 02	36785.02	blank	3 - 6 mm	10
PFKZ2-A SKL 03	36781.03	PFKZ2-B SKL 03	36785.03	blank	6 - 8 mm	10
PFKZ2-A SKL 04	36781.04	PFKZ2-B SKL 04	36785.04	blank	8 - 11 mm	10
<b>Sheet thickness 2 - 3 mm:</b>						
PFKZ2-A SKL 10	36781.10	PFKZ2-B SKL 10	36785.10	1.5 - 3 mm	blank	10
PFKZ2-A SKL 11	36781.11	PFKZ2-B SKL 11	36785.11	1.5 - 3 mm	1.5 - 3 mm	10
PFKZ2-A SKL 12	36781.12	PFKZ2-B SKL 12	36785.12	1.5 - 3 mm	3 - 6 mm	10
PFKZ2-A SKL 13	36781.13	PFKZ2-B SKL 13	36785.13	1.5 - 3 mm	6 - 8 mm	10
PFKZ2-A SKL 14	36781.14	PFKZ2-B SKL 14	36785.14	1.5 - 3 mm	8 - 11 mm	10
PFKZ2-A SKL 20	36781.20	PFKZ2-B SKL 20	36785.20	3 - 6 mm	blank	10
PFKZ2-A SKL 21	36781.21	PFKZ2-B SKL 21	36785.21	3 - 6 mm	1.5 - 3 mm	10
PFKZ2-A SKL 22	36781.22	PFKZ2-B SKL 22	36785.22	3 - 6 mm	3 - 6 mm	10
PFKZ2-A SKL 23	36781.23	PFKZ2-B SKL 23	36785.23	3 - 6 mm	6 - 8 mm	10
PFKZ2-A SKL 24	36781.24	PFKZ2-B SKL 24	36785.24	3 - 6 mm	8 - 11 mm	10
PFKZ2-A SKL 30	36781.30	PFKZ2-B SKL 30	36785.30	6 - 8 mm	blank	10
PFKZ2-A SKL 31	36781.31	PFKZ2-B SKL 31	36785.31	6 - 8 mm	1.5 - 3 mm	10
PFKZ2-A SKL 32	36781.32	PFKZ2-B SKL 32	36785.32	6 - 8 mm	3 - 6 mm	10
PFKZ2-A SKL 33	36781.33	PFKZ2-B SKL 33	36785.33	6 - 8 mm	6 - 8 mm	10
PFKZ2-A SKL 34	36781.34	PFKZ2-B SKL 34	36785.34	6 - 8 mm	8 - 11 mm	10
PFKZ2-A SKL 40	36781.40	PFKZ2-B SKL 40	36785.40	8 - 11 mm	blank	10
PFKZ2-A SKL 41	36781.41	PFKZ2-B SKL 41	36785.41	8 - 11 mm	1.5 - 3 mm	10
PFKZ2-A SKL 42	36781.42	PFKZ2-B SKL 42	36785.42	8 - 11 mm	3 - 6 mm	10
PFKZ2-A SKL 43	36781.43	PFKZ2-B SKL 43	36785.43	8 - 11 mm	6 - 8 mm	10

# PFK2|SKL

## EMC Shield clamps, pluggable, double



Type A	Order No. Type A	Type B	Order No. Type B	Shield diameter Pos. 1	Shield diameter Pos. 2	PU
--------	------------------	--------	------------------	------------------------	------------------------	----

Sheet thickness 1.5 - 2 mm:		Sheet thickness 2 - 3 mm:				
PFK2-A SKL 01	36780.01	PFK2-B SKL 01	36784.01	blank	1.5 - 3 mm	10
PFK2-A SKL 02	36780.02	PFK2-B SKL 02	36784.02	blank	3 - 6 mm	10
PFK2-A SKL 03	36780.03	PFK2-B SKL 03	36784.03	blank	6 - 8 mm	10
PFK2-A SKL 04	36780.04	PFK2-B SKL 04	36784.04	blank	8 - 11 mm	10
PFK2-A SKL 10	36780.10	PFK2-B SKL 10	36784.10	1.5 - 3 mm	blank	10
PFK2-A SKL 11	36780.11	PFK2-B SKL 11	36784.11	1.5 - 3 mm	1.5 - 3 mm	10
PFK2-A SKL 12	36780.12	PFK2-B SKL 12	36784.12	1.5 - 3 mm	3 - 6 mm	10
PFK2-A SKL 13	36780.13	PFK2-B SKL 13	36784.13	1.5 - 3 mm	6 - 8 mm	10
PFK2-A SKL 14	36780.14	PFK2-B SKL 14	36784.14	1.5 - 3 mm	8 - 11 mm	10
PFK2-A SKL 20	36780.20	PFK2-B SKL 20	36784.20	3 - 6 mm	blank	10
PFK2-A SKL 21	36780.21	PFK2-B SKL 21	36784.21	3 - 6 mm	1.5 - 3 mm	10
PFK2-A SKL 22	36780.22	PFK2-B SKL 22	36784.22	3 - 6 mm	3 - 6 mm	10
PFK2-A SKL 23	36780.23	PFK2-B SKL 23	36784.23	3 - 6 mm	6 - 8 mm	10
PFK2-A SKL 24	36780.24	PFK2-B SKL 24	36784.24	3 - 6 mm	8 - 11 mm	10
PFK2-A SKL 30	36780.30	PFK2-B SKL 30	36784.30	6 - 8 mm	blank	10
PFK2-A SKL 31	36780.31	PFK2-B SKL 31	36784.31	6 - 8 mm	1.5 - 3 mm	10
PFK2-A SKL 32	36780.32	PFK2-B SKL 32	36784.32	6 - 8 mm	3 - 6 mm	10
PFK2-A SKL 33	36780.33	PFK2-B SKL 33	36784.33	6 - 8 mm	6 - 8 mm	10
PFK2-A SKL 34	36780.34	PFK2-B SKL 34	36784.34	6 - 8 mm	8 - 11 mm	10
PFK2-A SKL 40	36780.40	PFK2-B SKL 40	36784.40	8 - 11 mm	blank	10
PFK2-A SKL 41	36780.41	PFK2-B SKL 41	36784.41	8 - 11 mm	1.5 - 3 mm	10
PFK2-A SKL 42	36780.42	PFK2-B SKL 42	36784.42	8 - 11 mm	3 - 6 mm	10
PFK2-A SKL 43	36780.43	PFK2-B SKL 43	36784.43	8 - 11 mm	6 - 8 mm	10

### Product description

PFK2|SKL shield clamps can be used for shielding two single cables. The shield clamps are easy to use and enable a reliable shielding of cables.

PFK2|SKL clamps are used where a screw connection is either not possible or wanted. The PFK2|SKL is simply clamped on the sheet. The claws provide a secure grip, even in case of vibrations.

### Advantages

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

### Specifications

**Material**  
SKL-clamp Spring steel, zinc plated  
PFK2-foot Spring steel

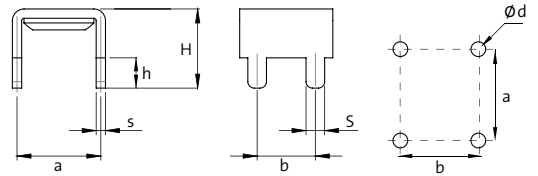
Type A: For wall/sheet thickness 1.5 - 2 mm  
Type B: For wall/sheet thickness 2 - 3 mm

### Accessories

Stripping tool 113

# PCB|SKL

EMC Shield clamps for printed circuit boards



## Product description

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

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

Type	Order No.	Height H [mm]	Width s [mm]	Pin h [mm]	Pin S [mm]	Grid a x b [mm]	Drill-hole d [mm]	PU
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	5 x 7.2	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	5 x 7.2	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	5 x 7.2	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	5 x 10.1	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	5 x 10.1	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	5 x 10.1	Ø 1.8	10

4

## Advantages

- Permanent, continuous pressure on the cable shield, no adjustment of the spring load required
- Optimal contact of the cable shield

## Specifications

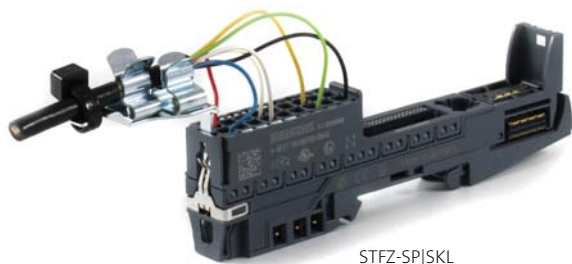
**Material**  
 SKL-clamp Spring steel, zinc plated  
 PCB-foot Brass, tin plated

## Accessories

Stripping tool 113

# 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 GmbH**  
All PSSu-Modules with shield terminals 13 and 23
  - **Siemens**  
All terminals of the ET200s range.  
Terminals 4 and 8 must not be used for signal I/O.
  - **TURCK**  
For terminals of the BL20 I/O system.
  - **VIPA SLIO**  
All terminals of the SLIO range. Terminals 4+8 must not be used for signal I/O.
  - **WAGO**  
All terminals of the WAGO I/O Systems 750.  
Terminals 4 and 8 must not be used for signal I/O.
  - **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 shielding 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

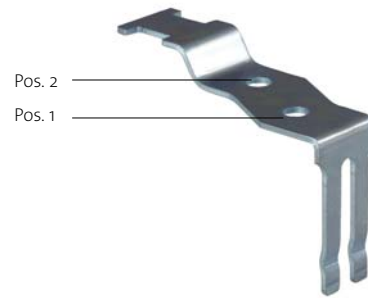
STFZ I/O Insert Tool for quick and easy mounting of STFZ terminal clamps.

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 shielding for decentralised bus modules (see compatibility table page 105).

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

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

## Specifications

### Material

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

## Accessories

KB Cable ties 159  
Stripping tool 113  
STFZ I/O Insert Tool 105

Type	Shield diameter Pos. 1	Shield diameter Pos. 2	Order No.	PU
<b>STFZ SKL with one shield clamp:</b>				
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
<b>STFZ2 SKL with two shield clamps:</b>				
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



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	1.5 - 3 mm	-	37512.1	10
STFZ-U SKL 1.5-3	1.5 - 3 mm	-	37514.1	10
STFZ-SP SKL 3-6	3 - 6 mm	-	37512.2	10
STFZ-U SKL 3-6	3 - 6 mm	-	37514.2	10
STFZ-SP SKL 6-8	6 - 8 mm	-	37512.3	10
STFZ-U SKL 6-8	6 - 8 mm	-	37514.3	10

**STFZ2-SP|SKL with two shield clamps:**

STFZ2-SP 01	blank	1.5 - 3 mm	37507.01	10
STFZ2-SP 02	blank	3 - 6 mm	37507.02	10
STFZ2-SP 03	blank	6 - 8 mm	37507.03	10
STFZ2-SP 10	1.5 - 3 mm	blank	37507.10	10
STFZ2-SP 11	1.5 - 3 mm	1.5 - 3 mm	37507.11	10
STFZ2-SP 12	1.5 - 3 mm	3 - 6 mm	37507.12	10
STFZ2-SP 13	1.5 - 3 mm	6 - 8 mm	37507.13	10
STFZ2-SP 20	3 - 6 mm	blank	37507.20	10
STFZ2-SP 21	3 - 6 mm	1.5 - 3 mm	37507.21	10
STFZ2-SP 22	3 - 6 mm	3 - 6 mm	37507.22	10
STFZ2-SP 23	3 - 6 mm	6 - 8 mm	37507.23	10
STFZ2-SP 30	6 - 8 mm	blank	37507.30	10
STFZ2-SP 31	6 - 8 mm	1.5 - 3 mm	37507.31	10
STFZ2-SP 32	6 - 8 mm	3 - 6 mm	37507.32	10
STFZ2-SP 33	6 - 8 mm	6 - 8 mm	37507.33	10

### Product description

The STFZ-SP|SKL EMC terminal clamp provides strain relief, cable guidance and shielding 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 105).

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

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

### Advantages

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

### Specifications

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

### Accessories

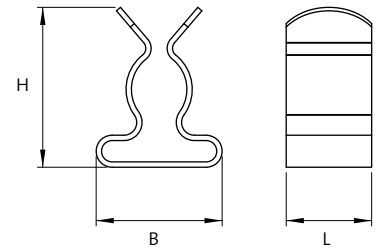
KB Cable ties 159  
 Stripping tool 113  
 STFZ I/O Insert Tool 105



STFZ-U|SKL

# SKL

## EMC Shield clamps, single



### Product description

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

Shield clamps can be easily attached via screw or rivet.

### Advantages

- Optimal contact of the cable shield
- Simple and tool-free assembly
- Permanent and continuous spring load on the cable shield, no adjustment of the spring load required
- Vibration proof, maintenance free
- High packing density due to optimised arrangement possibilities

### Specifications

**Material**

SKL-clamp Spring steel, zinc plated

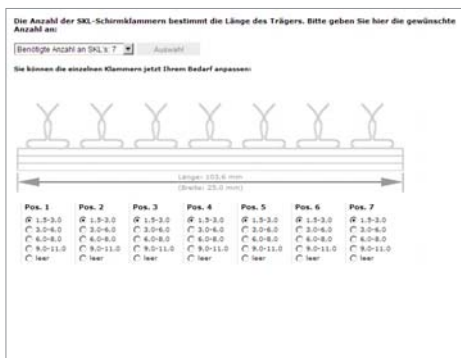
Type	Order No.	Clamping range [mm]	Dimensions L × B × H [mm]	Fixing hole	PU
SKL 1.5-3	36200	1.5 - 3 mm	8 × 11.8 × 13	3.1 mm	50
SKL 3-6	36202	3 - 6 mm	8 × 11.8 × 13.6	3.1 mm	50
SKL 6-8	36204	6 - 8 mm	8 × 11.8 × 15	3.1 mm	50
SKL 8-11	36205	8 - 11 mm	8 × 14 × 20	3.1 mm	50
SKL 12-16	36206	12 - 16 mm	8 × 21 × 27.5	3.1 mm	50
SKL 17-22	36207	17 - 22 mm	8 × 26.5 × 34.5	3.1 mm	50
SKL 23-29	36208	23 - 29 mm	8 × 35 × 39.5	3.1 mm	50
SKL 30-37	36209	30 - 37 mm	11 × 48.3 × 54.7	3.1 mm	5
SKL 38-48	36213	38 - 48 mm	13 × 55 × 67	2 × 4.1 mm Hole spacing: 9.2 mm	5



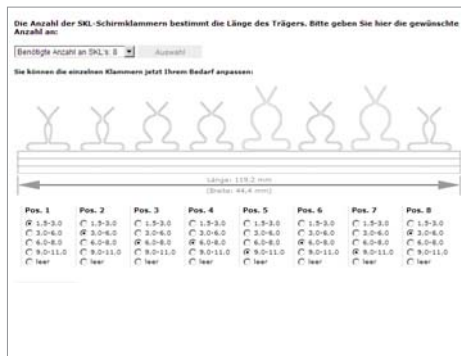
**EMC shield clamp design tool**

By using the EMC design tool (located at [www.icotek.com](http://www.icotek.com)) you can create an EMC shield clamp assembly configuration specifically for your application.

The following drawings are examples for configurations with 7 and 8 shield clamps.



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



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



**Product description**

The design tool located at [www.icotek.com](http://www.icotek.com) enables numerous configurations to be utilised on a single carrier which reduces time and material costs.

You can quickly configure your own “standard” EMC shield clamp assembly.

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

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

**Advantages**

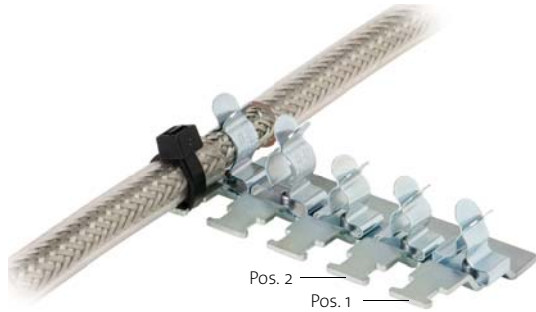
- User designed carrier configuration with SKL shield clamps
- Cost-effective even for small quantities
- Design online at [www.icotek.com](http://www.icotek.com)

**Specifications**

**Material**  
Clamp assembly Sheet steel, galvanically zinc plated  
SKL-clamp Spring steel, zinc plated

# RLFZ

## EMC Clamp assembly with strain relief



Type	Order No. (unfitted)	Number of shield clamps	Length	Width	PU
RLFZ (x3)	38005	3× SKL	41.2 mm	44.4 mm	1
RLFZ (x4)	38010	4× SKL	56.8 mm	44.4 mm	1
RLFZ (x5)	38015	5× SKL	72.4 mm	44.4 mm	1
RLFZ (x6)	38020	6× SKL	88 mm	44.4 mm	1
RLFZ (x7)	38025	7× SKL	103.6 mm	44.4 mm	1
RLFZ (x8)	38030	8× SKL	119.2 mm	44.4 mm	1
RLFZ (x9)	38035	9× SKL	134.8 mm	44.4 mm	1
RLFZ (x10)	38040	10× SKL	150.4 mm	44.4 mm	1
RLFZ (x11)	38045	11× SKL	166 mm	44.4 mm	1
RLFZ (x12)	38050	12× SKL	181.6 mm	44.4 mm	1

### Product description

The RLFZ range is a further development of the EMC clamp assembly.

The combination of EMC shielding and strain relief is the key feature of this system. Thus the specification according EN 50262 / 62444 is achieved.

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

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

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

### Advantages

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

### Specifications

#### Material

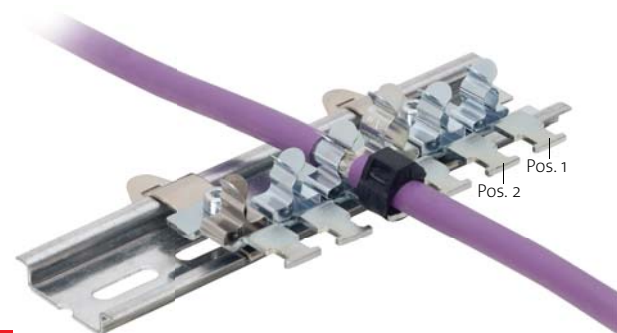
- SKL-clamp Spring steel, zinc plated
- RLFZ-foot Sheet steel, galvanically zinc plated

### Accessories

- KB Cable ties 159
- Stripping tool 113

# SF|RLFZ

## EMC Clamp assembly for 35 mm DIN rail



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

### Product description

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

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

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

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

### Advantages

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

### Specifications

#### Material

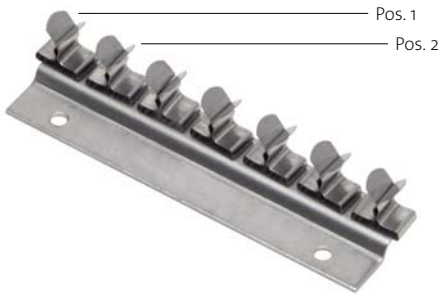
SKL-clamp    Spring steel, zinc plated  
 RLFZ-foot    Sheet steel, galvanically zinc plated

### Accessories

KB Cable ties    159  
 Stripping tool    113

# RLF

## EMC Clamp assembly



### Product description

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

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

The EMC shield clamps as listed below are available to mount

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

### Advantages

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

### Specifications

**Material**

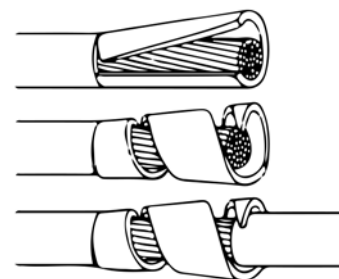
SKL-clamp **Spring steel, zinc plated**  
 RLF-foot **Stainless steel**

### Accessories

Stripping tool 113

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

## EMC Stripping tools



Stripping functions

### Stripping tools

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



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

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



- Precise setting for the different insulations is easily made by means of the 9-position setting wheel
- Diameter range 2.5 - 11 mm
- Thickness of Isolation up to 1 mm
- Spare blades available
- Weight: 28 g

### Product description

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

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

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

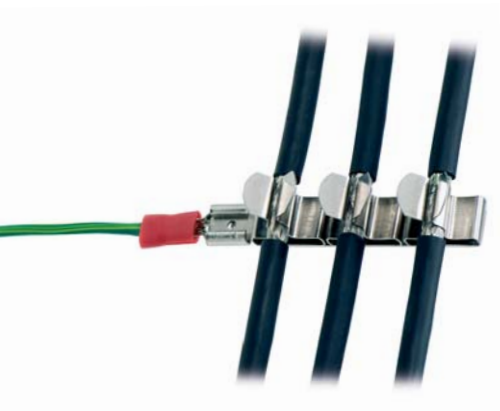
### Product description

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

For removal of most multi wire cable jackets and fibre optics up to a diameter of 11 mm.

# EMC

## Customised solutions



### Product description

Aside from 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 110 - 112).

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

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



# EMC Customised solutions

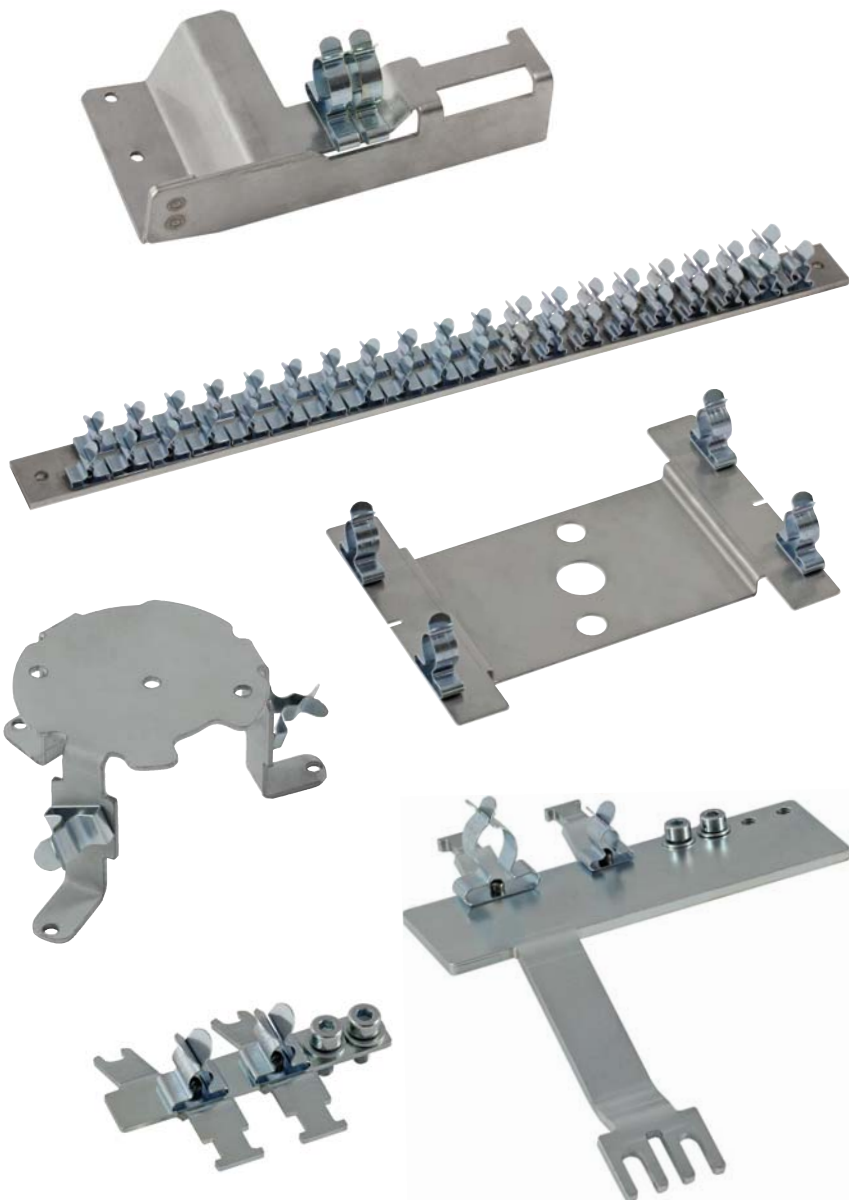


## Advantages

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

## Specifications

<b>Material</b>	
Carrier	According to specification
SKL-clamp	Spring steel, zinc-plated

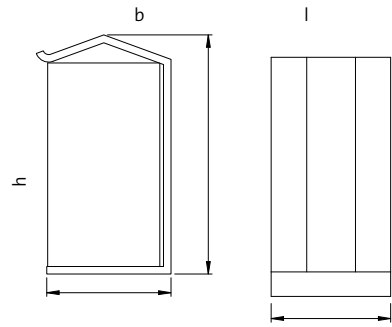


# SK

## EMC Shield brackets



Dimensions SK bracket (without mounting foot):



### Product description

SK shield brackets can be used where the shield of single cables has to be earthed.

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

### Advantages

- Simple assembly on TS35 DIN rails and 10 x 3 mm bus bars
- Various sizes and possibilities for mounting



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

### Specifications

**Material**

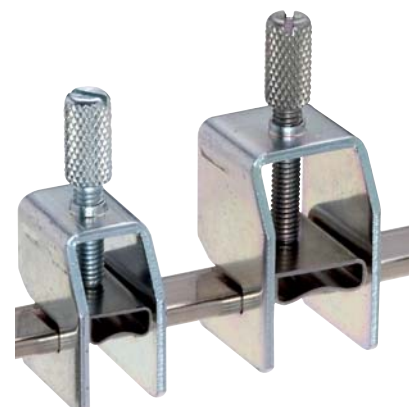
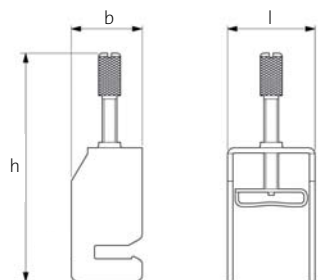
SK-bracket Sheet steel, galvanically zinc plated  
 SF-foot Spring steel

### Accessories

Bus bar 10 x 3 93  
 Stripping tool 113

Description	Type	Order No.	Shield diameter	Dimensions l x b x h [mm]	PU
<b>For direct mounting (M4-screw included):</b>					
	SK 3-8	36222	3 - 8 mm	18 x 14 x 26	10
	SK 4-13.5	36224	4 - 13.5 mm	20 x 20 x 31	10
	SK 10-20	36226	10 - 20 mm	26 x 24 x 40	10
	SK 15-32	36228	15 - 32 mm	32 x 35 x 64	10
<b>For 35 mm DIN-rail shape H:</b>					
	SF SK 3-8	36500	3 - 8 mm	18 x 14 x 26	10
	SF SK 4-13.5	36502	4 - 13.5 mm	20 x 20 x 31	10
	SF SK 10-20	36504	10 - 20 mm	26 x 24 x 40	10
	SF SK 15-32	36506	15 - 32 mm	32 x 35 x 64	10
<b>For 10 x 3 mm bus bar:</b>					
	SS SK 3-8	36235	3 - 8 mm	18 x 14 x 26	10
	SS SK 4-13.5	36236	4 - 13.5 mm	20 x 20 x 31	10
	SS SK 10-20	36237	10 - 20 mm	26 x 24 x 40	10
	SS SK 15-32	36238	15 - 32 mm	32 x 36 x 64	10
<b>For 35 mm DIN-rail shape C:</b>					
	SC SK 3-8	36696	3 - 8 mm	18 x 14 x 26	10
	SC SK 4-13.5	36700	4 - 13.5 mm	20 x 20 x 31	10
	SC SK 10-20	36704	10 - 20 mm	26 x 24 x 40	10
	SC SK 15-32	36708	15 - 32 mm	32 x 36 x 64	10

# SKS EMC Shield brackets



Type	Order No.	Shield diameter	Dimensions l x b x h [mm]	PU	Description
------	-----------	-----------------	---------------------------	----	-------------

SKS 2-5	36282	2 - 5 mm	9 × 19.5 × 47	10	
SKS 3-8	36283	3 - 8 mm	12 × 19.5 × 49	10	
SKS 3-14	36284	3 - 14 mm	17.5 × 19.5 × 60	10	
SKS 3-20	36285	3 - 20 mm	24.5 × 19.5 × 75	10	
SKS 5-28	36286	5 - 28 mm	31 × 20 × 93	10	
SKS 20-35	36287	20 - 35 mm	41 × 20 × 107	10	

## Product description

SKS shield brackets can be used where the shield of single cables has to be earthed.

SKS shield brackets can be assembled on 10 × 3 mm bus bars.

## Advantages

- One SKS shield bracket supports a wide range of cables
- Simple assembly on 10 × 3 mm bus bars

## Specifications

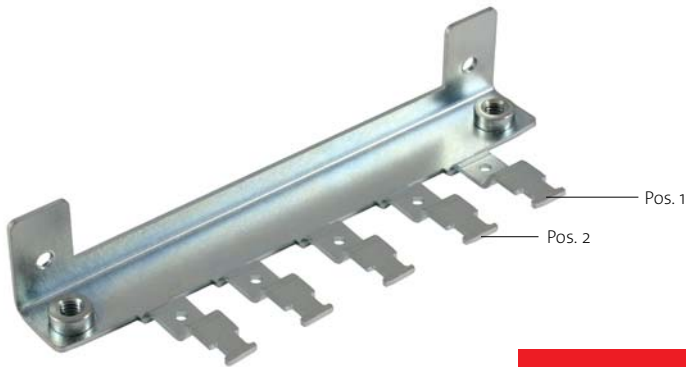
**Material**  
SKS-bracket Sheet steel, galvanically zinc plated

## Accessories

Bus bar 10 × 3 93  
Stripping tool 113

# KEL-EMC-Z

## Cable assembly with strain relief



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

KEL-EMC-Z 16 4	36525	4	long side	KEL-E4 KEL 16 x KEL-U 16 x KEL-ER 16 x KEL-QUICK 16	1
KEL-EMC-Z 24 5	36527	5	long side	KEL-E5 KEL 24 x KEL-U 24 x KEL-ER 24 x KEL-QUICK 24	1

### Product description

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

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

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

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

### Advantages

- Large surface contact between cable shield and housing/cabinet, especially with conductive coating on treated surfaces
- Sealing by outer cable jacket – EMC shielding by cable shield (in acc. with regulations)
- Combined routing and fastening with the KEL cable entry system
- Available without SKL shield clamps if only additional strain relief is required
- Connection for earthing tape or PE conductor M6

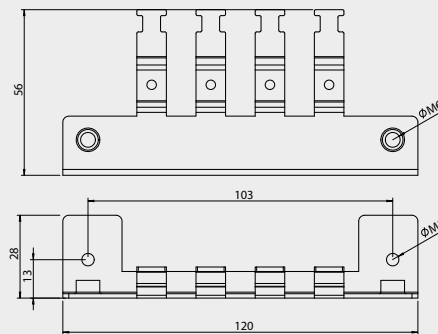
### Specifications

Material Sheet steel, zinc plated

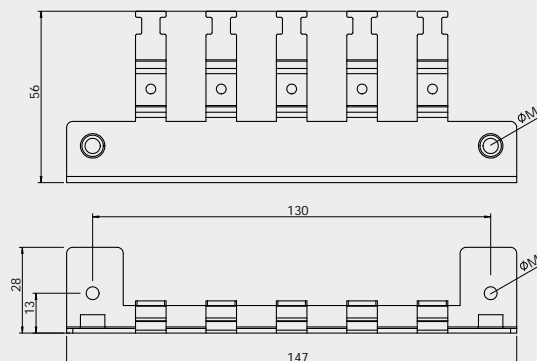
### Fits with

KEL-U Cable entry frames	6 - 14
KEL-ER Cable entry frames	7 - 15
KEL Cable entry frames	16 - 19
KEL-QUICK Cable entry frames	50 - 51

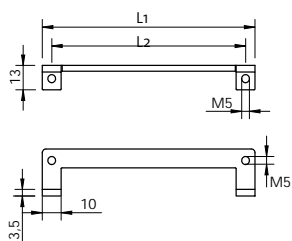
KEL-EMC-Z 16|4



KEL-EMC-Z 24|5



# KEL-EMC-PF Bracket version



Type	Fits with	Order No.	Length L1	Length L2	PU
KEL-EMC-PF B4	KEL-E2 KEL-B KEL-U-B KEL-ER-B	39150	68 mm	58 mm	1
KEL-EMC-PF 10	KEL-E3 KEL 10 x KEL-U 10 x KEL-ER 10 x	39160	93 mm	83 mm	1
KEL-EMC-PF 16	KEL-E4 KEL 16 x KEL-U 16 x KEL-ER 16 x	39170	113 mm	103 mm	1
KEL-EMC-PF 24	KEL-E5 KEL 24 x KEL-U 24 x KEL-ER 24 x KEL-DPZ 24 x KEL-DPZ-E	39180	140 mm	130 mm	1

## Product description

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

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

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

## Advantages

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

## Specifications

Material Sheet steel, galvanically zinc plated

## Fits with

KEL-U Cable entry frames	6 - 14
KEL-ER Cable entry frames	7 - 15
KEL Cable entry frames	16 - 19
KEL-QUICK Cable entry frames	50 - 51
KEL-BES Brush frames	57
KEL-DPZ 24 Cable entry plates	62 - 63
KEL-DPZ-B Cable entry plates	64
KEL-DPZ-E Cable entry plates	65
PFSZ SKL Shield clamps	92
PFS SKL Shield clamps	93

# KEL-EMC

## Cable assembly



### Product description

Installation of pre-terminated cables without shield interruption.

### Advantages

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

### Specifications

Material **Stainless steel**

### Fits with

KEL-U Cable entry frames	6 - 14
KEL-ER Cable entry frames	7 - 15
KEL Cable entry frames	16 - 19
KEL-QUICK Cable entry frames	50 - 51

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

# KVT-EMC

## EMC bracket for cable glands



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

### Product description

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

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

Separate functions according to regulations – carried out quickly and easily!

### Advantages

- Simple and tool free assembly
- Optimal contact of the cable shield
- Subsequent assembly possible
- Additional M5 hole for earthing tape

### Specifications

Material Sheet steel, zinc plated

### Fits with

KVT Split cable glands 32 - 36  
 QVT Split cable glands 52

# KAFM-EMC

## Cable assembly



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

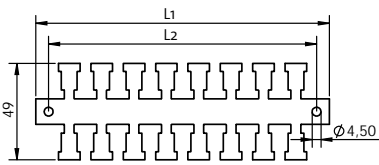


Type DH: Mounted on bushing for flexible fixation on bottom sheet

### Product description

The cable assembly 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**

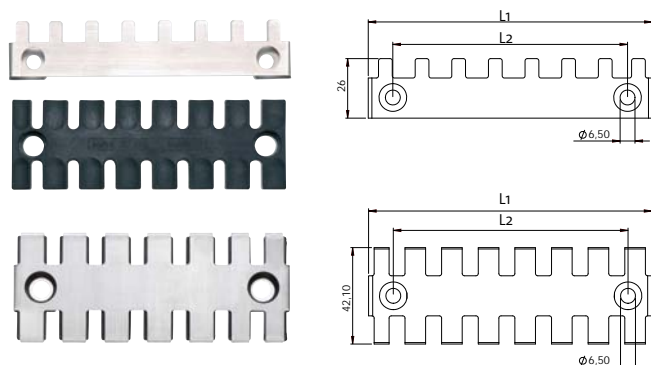
### Accessories

KB Cable ties 159  
Stripping tool 113

Type	Order No.	Order No.	Order No.	Order No.	Order No.	Length L1	Length L2	No. of teeth
	Type SF	Type SK	Type SC	Type DH	loose rail			
KAFM 2	36442	36432	36412	36482	36422	50.5	37.5	2
KAFM 4	36444	36434	36414	36484	36424	83.5	70.5	4
KAFM 6	36446	36436	36416	36486	36426	116.5	103.5	6
KAFM 8	36448	36438	36418	36488	36428	149.5	136.5	8
KAFM 10	36450	36440	36400	36490	36430	182.5	169.5	10
KAFM 16	36452	36470	36465	36460	36530	281.5	268.5	16
KAFM 29	36454	36471	36466	36462	36540	494.5	481.5	29
KAFM 59	36458	36472	36467	36464	36550	990	978	59
KAFM 59 zinc plated	36459	-	-	-	36562	990	978	59
SF	36230	Snap foot loose, for 35 mm DIN-rail shape H						
SK	36232	Screw-foot loose, for 35 mm DIN-rail shape H						
SC	36231	Screw-foot loose, for 30 mm DIN-rail shape C						
Bushing	36234	Distance bushing 8 mm high						
Screw	99017	M4 × 16 DIN 912						
Washer	42100	Washer ø 4.3 mm DIN 125						

## ZL|SB-EMC

### Shield plate for strain relief plates



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

### Product description

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

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

### Fits with

SF|ZL Strain relief plates 81  
ZL Strain relief plates 82  
ZL-AB Strain relief plates 83

# 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 M6 or M8 connections and in some sizes with both connection sizes combined.

Type	Order No.	Length L [mm]	Cross-section mm <sup>2</sup>	Hole size	PU
MB 100 6 M6	32700	100	6	M6	1
MB 150 6 M6	32701	150	6	M6	1
MB 200 6 M6	32702	200	6	M6	1
MB 250 6 M6	32706	250	6	M6	1
MB 300 6 M6	32703	300	6	M6	1
MB 400 6 M6	32704	400	6	M6	1
MB 500 6 M6	32705	500	6	M6	1
MB 100 10 M6	32730	100	10	M6	1
MB 100 10 M8	32731	100	10	M8	1
MB 150 10 M8	32732	150	10	M8	1
MB 200 10 M6	32733	200	10	M6	1
MB 200 10 M8	32734	200	10	M8	1
MB 200 10 M6+M8	32741	200	10	M6 + M8	1
MB 250 10 M6+M8	32742	250	10	M6 + M8	1
MB 300 10 M6	32735	300	10	M6	1
MB 300 10 M8	32736	300	10	M8	1
MB 300 10 M6+M8	32743	300	10	M6 + M8	1
MB 400 10 M6	32737	400	10	M6	1
MB 400 10 M8	32738	400	10	M8	1
MB 500 10 M6	32739	500	10	M6	1
MB 100 16 M6	32760	100	16	M6	1
MB 100 16 M8	32761	100	16	M8	1
MB 150 16 M6	32762	150	16	M6	1
MB 150 16 M8	32763	150	16	M8	1
MB 200 16 M6	32764	200	16	M6	1
MB 200 16 M8	32765	200	16	M8	1

# MB Earthing tapes



Connecting end pads (copper)



Type	Order No.	Length L [mm]	Cross-section mm <sup>2</sup>	Hole size	PU
MB 200 16 M6+M8	32773	200	16	M6 + M8	1
MB 250 16 M8	32766	250	16	M8	1
MB 250 16 M6+M8	32774	250	16	M6 + M8	1
MB 300 16 M6	32767	300	16	M6	1
MB 300 16 M8	32768	300	16	M8	1
MB 300 16 M6+M8	32775	300	16	M6 + M8	1
MB 350 16 M8	32769	350	16	M8	1
MB 400 16 M8	32770	400	16	M8	1
MB 500 16 M8	32771	500	16	M8	1
MB 600 16 M8	32772	600	16	M8	1
MB 100 25 M10	32800	100	25	M10	1
MB 150 25 M10	32801	150	25	M10	1
MB 200 25 M8	32802	200	25	M8	1
MB 200 25 M10	32803	200	25	M10	1
MB 250 25 M8	32804	250	25	M8	1
MB 250 25 M10	32805	250	25	M10	1
MB 300 25 M8	32806	300	25	M8	1
MB 300 25 M10	32807	300	25	M10	1
MB 350 25 M10	32808	350	25	M10	1
MB 400 25 M8	32809	400	25	M8	1
MB 500 25 M8	32810	500	25	M8	1
MB 600 25 M8	32811	600	25	M8	1

## Advantages

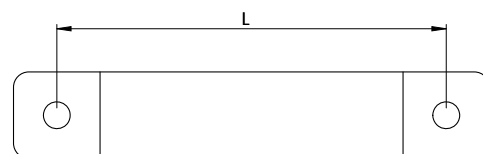
- Available in various lengths and cross-sections
- Cost-effective in comparison to PE conductors
- Low transition impedances

## Specifications

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

## Current load

Cross-section:	Current load:
6 mm <sup>2</sup>	40-50 A
10 mm <sup>2</sup>	75-105 A
16 mm <sup>2</sup>	100-150 A
25 mm <sup>2</sup>	145-195 A
35 mm <sup>2</sup>	170-235 A



# 5

## CONFiX Conduit Entry System



CONFiX FWS

CONFiX SH

CONFiX WST

### Benefits ...

#### 1. Fast and easy assembly

The liftable cover of the bulkhead fitting CONFiX FWS is tightly fixed by a hinge to the mounting box. The system is therefore very easy to mount and equip.

#### 2. Easy to maintain

The split version of the corrugated conduits CONFiX WST offers the possibility of routing standard or pre-terminated cables in harsh environments.

#### 3. Flexible

The corrugated conduits CONFiX WS can be used for various applications, depending on the material. UV resistant polyamide conduits for high mechanical requirements (indoor and outdoor use), polypropylene conduits with high resistance against acids / alkalis.

### At a glance ...

The 90° angled conduit fitting CONFiX FWS is perfect for installation of parallel corrugated cable protection conduits, e.g. in machines, control panels or control cabinets. The liftable cover is tightly fixed by a hinge to the mounting box. Therefore, the system is very easy to handle.

Corrugated conduits CONFiX WS for cable routing are used where cables have to be protected from mechanical damage or certain weather conditions.

In addition, icotek offers split corrugated conduits CONFiX WST for routing pre-terminated cables and corresponding conduit clips CONFiX SH.

### CONFiX FWS Assembly

Installation of CONFiX FWS is quite easy:

1. Fix FWS with screws
2. Insert conduit with cables
3. Lock FWS with screws



1  
Fix



2  
Insert



3  
Lock

# Product group 5

## CONFIX Conduit Entry System

### Chapter content

<b>Bulkhead fittings IP54</b> CONFIX FWS	Page 128 - 129
<b>Corrugated conduits</b> CONFIX WS	Page 130 - 131
<b>Split corrugated conduits</b> CONFIX WST	Page 132
<b>Conduit clips for WST</b> CONFIX SH	Page 133

# 5

# CONFIX FWS-A

Bulkhead fittings for conduit screw connections



IP54



Metric internal thread for conduit screwing

## Product description

The 90° angled conduit fitting CONFIX FWS is for installation of parallel corrugated cable protection conduits, e.g. in machines, control panels or control cabinets.

The liftable cover is tightly fixed by a hinge to the mounting box. Therefore, the system is very easy to handle.

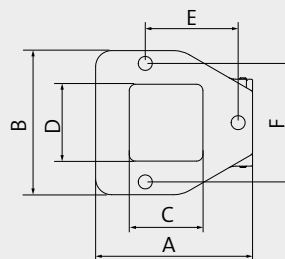
CONFIX FWS is offered in the following versions:

CONFIX FWS-A with metric internal thread M16 to M50

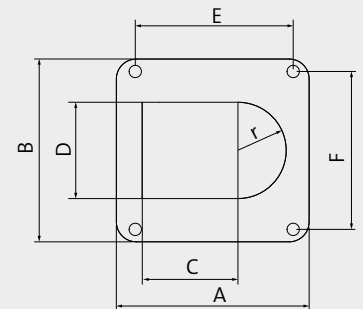
CONFIX FWS-B with a grooved conduit clip for types with sizes NW 13, 17, 23, 29, 37 and 50.

The available colours are grey (RAL 7011) and black (RAL 9005).

Type	Internal Thread	Hole Ø [mm]	Size (A × B) [mm]	Cut-out (C × D) [mm]	Drill. Templ. (E × F) [mm]	Order No.	PU
CONFIX FWS-A16	M16 × 1.5	3 × 4.3	49 × 45	22 × 22.6	29 × 37	■ 31380 ■ 31381	10
CONFIX FWS-A20	M20 × 1.5	3 × 4.3	49 × 45	22 × 22.6	29 × 37	■ 31383 ■ 31384	10
CONFIX FWS-A25	M25 × 1.5	3 × 6.6	67 × 63	37 × 28	41.5 × 51.5	■ 31386 ■ 31387	10
CONFIX FWS-A32	M32 × 1.5	4 × 6.6	85.5 × 76	41.9 × 40 r = 20	64.5 × 64.5	■ 31389 ■ 31390	10
CONFIX FWS-A40	M40 × 1.5	4 × 6.6	97 × 92	48.3 × 48.4 r = 24.2	79.5 × 79.5	■ 31392 ■ 31393	5
CONFIX FWS-A50	M50 × 1.5	4 × 6.6	111.5 × 100.5	53 × 60.5 r = 30.25	87.5 × 87.5	■ 31395 ■ 31396	5



Size / Drilling template FWS-A 16 to 25



Size / Drilling template FWS-A 32 to 50

## Accessories

CONFIX WS conduits 130 - 131

# CONFIX FWS-B

Bulkhead fittings for direct conduit pickup



Grooved conduit clip



Fixed cover due to hinges



IP54

Type	Dimension*	Hole Ø [mm]	Size (A × B) [mm]	Cut-out (C × D) [mm]	Drill. Templ. (E × F) [mm]	Order No.	PU
CONFIX FWS-B 11	NW 13	3 × 4.3	49 × 45	22 × 22.6	29 × 37	■ 31410 ■ 31411	10
CONFIX FWS-B 16	NW 17	3 × 4.3	49 × 45	22 × 22.6	29 × 37	■ 31413 ■ 31414	10
CONFIX FWS-B 21	NW 23	3 × 6.6	67 × 63	37 × 28	41.5 × 51.5	■ 31416 ■ 31417	10
CONFIX FWS-B 29	NW 29	4 × 6.6	85.5 × 76	41.9 × 40 r = 20	64.5 × 64.5	■ 31419 ■ 31420	10
CONFIX FWS-B 36	NW 37	4 × 6.6	97 × 92	48.3 × 48.4 r = 24.2	79.5 × 79.5	■ 31422 ■ 31423	5
CONFIX FWS-B 48	NW 50	4 × 6.6	111.5 × 100.5	53 × 60.5 r = 30.25	87.5 × 87.5	■ 31425 ■ 31426	5

## Advantages

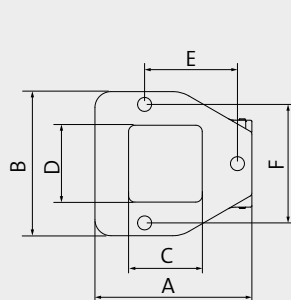
- Fixed cover
- Fast and easy installation
- Functional design
- Protection class IP54

## Specifications

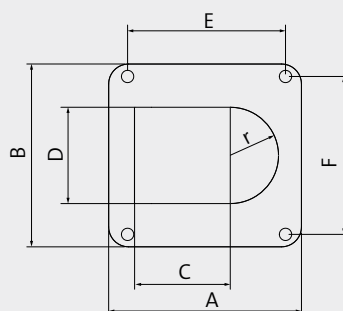
Material	Polycarbonate (PC)
Colour	■ black (RAL 9005) ■ grey (RAL 7011)
Protection class	IP54
Flame class	UL94-V0, self-extinguishing
Temperature	-30°C to +100°C (static)
Properties	Halogen free, silicone free

## Accessories

CONFIX WS conduits 130 - 131



Size / Drilling template FWS-B 11 to 21



Size / Drilling template FWS-B 29 to 48

\* For parallel corrugated cable protection conduit with dimension (NW)

# CONFIX WS

## Corrugated conduits



Fits with CONFIX FWS-B

### Product description

Parallel corrugated conduits for cable routing are used where cables have to be protected from mechanical damage or certain weather conditions.

icotek provides conduits in sizes NW 7.5, 8.5, 10, 13, 17, 23, 29, 37, and 50. Conduits from size NW 13 can be mounted with CONFIX FWS bulkhead fittings.

Parallel corrugated conduits are available in 3 different versions:

- **CONFIX WS-PA:** Polyamide conduit for high mechanical requirements (e.g. engine compartments, car bodies, construction machines, ship building, rail transportation technology, switch cabinets).  
→ Perfect for ground installation
- **CONFIX WS-PAL (light):** Polyamide conduit for high mechanical requirements  
→ Perfect for suspended installation
- **CONFIX WS-PP:** Polypropylene conduit for use in engine compartments, car bodies and for static installation at machinery and plant engineering.  
→ Advantages: Cost-effective, flame class UL94-V2, temperature resistant, resistant to chemicals

### Fits with

CONFIX FWS Bulkhead fitting	Page 118 - 119
Cable entry systems for pre-terminated cables	Page 6 - 49
Cable entry systems for standard cables	Page 52 - 67

Type	External Ø	Internal Ø	Fits with:	Order No.	PU (Length)
CONFIX WS-G-PA-NW 7.5	Ø 10 mm	Ø 6.7 mm	-	■ 31550	50 m
CONFIX WS-B-PA-NW 7.5	Ø 10 mm	Ø 6.7 mm	-	■ 31570	50 m
CONFIX WS-G-PA-NW 8.5	Ø 11.7 mm	Ø 8.4 mm	-	■ 31552	50 m
CONFIX WS-B-PA-NW 8.5	Ø 11.7 mm	Ø 8.4 mm	-	■ 31572	50 m
CONFIX WS-G-PA-NW 10	Ø 13 mm	Ø 9.9 mm	-	■ 31554	50 m
CONFIX WS-B-PA-NW 10	Ø 13 mm	Ø 9.9 mm	-	■ 31574	50 m
CONFIX WS-G-PA-NW 13	Ø 15.8 mm	Ø 12.7 mm	CONFIX FWS-B 11	■ 31556	50 m
CONFIX WS-B-PA-NW 13	Ø 15.8 mm	Ø 12.7 mm	CONFIX FWS-B 11	■ 31576	50 m
CONFIX WS-G-PA-NW 17	Ø 21.2 mm	Ø 16.6 mm	CONFIX FWS-B 16	■ 31558	50 m
CONFIX WS-B-PA-NW 17	Ø 21.2 mm	Ø 16.6 mm	CONFIX FWS-B 16	■ 31578	50 m
CONFIX WS-G-PA-NW 23	Ø 28.3 mm	Ø 23.2 mm	CONFIX FWS-B 21	■ 31560	50 m
CONFIX WS-B-PA-NW 23	Ø 28.3 mm	Ø 23.2 mm	CONFIX FWS-B 21	■ 31580	50 m
CONFIX WS-G-PA-NW 29	Ø 34.5 mm	Ø 29 mm	CONFIX FWS-B 29	■ 31562	25 m
CONFIX WS-B-PA-NW 29	Ø 34.5 mm	Ø 29 mm	CONFIX FWS-B 29	■ 31582	25 m
CONFIX WS-G-PA-NW 37	Ø 42.4 mm	Ø 36 mm	CONFIX FWS-B 36	■ 31564	25 m
CONFIX WS-B-PA-NW 37	Ø 42.4 mm	Ø 36 mm	CONFIX FWS-B 36	■ 31584	25 m
CONFIX WS-G-PA-NW 50	Ø 54 mm	Ø 47.7 mm	CONFIX FWS-B 48	■ 31566	25 m
CONFIX WS-B-PA-NW 50	Ø 54 mm	Ø 47.7 mm	CONFIX FWS-B 48	■ 31586	25 m

# CONFIX WS

## Corrugated conduits



Type	External Ø	Internal Ø	Fits with:	Order No.	PU (Length)
CONFIX WS-B-PAL-NW 7,5	Ø 10 mm	Ø 6.7 mm	-	■ 31590	50 m
CONFIX WS-B-PAL-NW 8,5	Ø 11.5 mm	Ø 8.5 mm	-	■ 31592	50 m
CONFIX WS-B-PAL-NW 10	Ø 13.2 mm	Ø 10.1 mm	-	■ 31594	50 m
CONFIX WS-B-PAL-NW 13	Ø 16 mm	Ø 13 mm	CONFIX FWS-B 11	■ 31596	50 m
CONFIX WS-B-PAL-NW 17	Ø 21.2 mm	Ø 17.1 mm	CONFIX FWS-B 16	■ 31598	50 m
CONFIX WS-B-PAL-NW 23	Ø 28.4 mm	Ø 23.5 mm	CONFIX FWS-B 21	■ 31600	50 m
CONFIX WS-B-PAL-NW 29	Ø 34.5 mm	Ø 29.4 mm	CONFIX FWS-B 29	■ 31602	25 m
CONFIX WS-B-PAL-NW 37	Ø 42.2 mm	Ø 36.7 mm	CONFIX FWS-B 36	■ 31604	25 m
CONFIX WS-B-PAL-NW 50	Ø 54 mm	Ø 48.1 mm	CONFIX FWS-B48	■ 31606	25 m
CONFIX WS-B-PP-NW 7,5	Ø 9.9 mm	Ø 6.9 mm	-	■ 31610	50 m
CONFIX WS-B-PP-NW 8,5	Ø 11.6 mm	Ø 8.5 mm	-	■ 31612	50 m
CONFIX WS-B-PP-NW 10	Ø 12.7 mm	Ø 10.1 mm	-	■ 31614	50 m
CONFIX WS-B-PP-NW 13	Ø 15.8 mm	Ø 12.9 mm	CONFIX FWS-B 11	■ 31616	50 m
CONFIX WS-B-PP-NW 17	Ø 21 mm	Ø 16.8 mm	CONFIX FWS-B 16	■ 31618	50 m
CONFIX WS-B-PP-NW 23	Ø 28 mm	Ø 23.7 mm	CONFIX FWS-B 21	■ 31620	50 m
CONFIX WS-B-PP-NW 29	Ø 33.9 mm	Ø 29.3 mm	CONFIX FWS-B 29	■ 31622	25 m
CONFIX WS-B-PP-NW 37	Ø 42 mm	Ø 36.7 mm	CONFIX FWS-B 36	■ 31624	25 m
CONFIX WS-B-PP-NW 50	Ø 53.6 mm	Ø 47.8 mm	CONFIX FWS-B 48	■ 31626	25 m

\* For parallel corrugated cable protection conduit with dimension (NW)

### Specifications WS-PA

Material Polyamide  
 Colour ■ black  
 ■ grey  
 Flame class UL94-HB  
 Temperature -40°C to +120°C  
 Properties Halogen free, UV resistant, according to DIN EN ISO 8580

### Specifications WS-PAL

Material Polyamide  
 Colour ■ black  
 Flame class UL94-HB  
 Temperature -40°C to +120°C  
 Properties Halogen free, UV resistant according to DIN EN ISO 8580

### Specifications WS-PP

Material Polypropylene  
 Colour ■ black  
 Flame class UL94-V2, self-extinguishing  
 Temperature -40°C to +135°C  
 Properties Halogen free, high resistance against acids / alkalis

### Fits with

CONFIX FWS Bulkhead fitting 128 - 129  
 Cable entry systems for pre-terminated cables 6 - 57  
 Cable entry systems for standard cables 60 - 77

# CONFIX WST

## Split corrugated conduits



Individual lengths are possible!

### Product description

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

In conjunction with e.g. KVT-W90, a high degree of flexibility is achieved. Numerous conduit sizes can be used thanks to the wide variety of split grommets offered (see KT grommets on pages 30 - 32).

**The length of the CONFIX WST split corrugated conduit is individually adjustable. All conduits are available by the metre (0.5 m steps).**

### Advantages

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

### Specifications

Material Polypropylene, black  
 Flame class UL94-V2  
 Temperature - 40°C to + 105°C  
 Properties UV resistant

### Fits with

CONFIX FWS-B 36/48 Bulkhead fitting 128 - 129  
 CONFIX SH Conduit clip 133  
 Cable entry systems for pre-terminated cables 6 - 57  
 Cable entry systems for standard cables 60 - 77

Type	Order No.	Internal diameter	External diameter	Fits with grommet	Fits with CONFIX FWS	Dimensions	Ring length*
CONFIX WST NW 10	31200	8.7 mm	13.6 mm	KT 13 KTRS 13	-	10 mm	50 m*
CONFIX WST NW 14	31210	12.5 mm	18.5 mm	KT 18	-	14 mm	50 m*
CONFIX WST NW 20	31220	19.5 mm	25.5 mm	KT 25	-	20 mm	50 m*
CONFIX WST NW 23	31230	24.2 mm	31 mm	KT 30	-	23 mm	50 m*
CONFIX WST NW 37	31240	31 mm	41.4 mm	KTMB-P	CONFIX FWS-B 36	37 mm	25 m*
CONFIX WST NW 45	31250	42.7 mm	54 mm	KTMB-Q	CONFIX FWS-B 48	45 mm	25 m*
CONFIX WST NW 70	31260	66.5 mm	79.8 mm	KTMB-S	-	70 mm	10 m*

\* All conduits are also available by the metre (0.5 m steps).



## CONFIX SH

Conduit clips for WST



Type	Order No.	Suitable conduit	Fixing hole	Width [mm]	Height [mm]	PU
------	-----------	------------------	-------------	------------	-------------	----

CONFIX SH 10	31300	NW 10	M3	18.5	21	10
CONFIX SH 14	31310	NW 14	M3	24	25.5	10
CONFIX SH 20	31320	NW 20	M5	35	36	10
CONFIX SH 23	31330	NW 23	M5	42	43.5	10
CONFIX SH 37	31340	NW 37	M6	55	56.5	10
CONFIX SH 45	31350	NW 45	M6	67	68	10

### Product description

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

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

### Specifications

Material	Polyamide (PA), black
Flame class	UL94-V2
Temperature	- 40°C to + 140°C
Properties	Halogen free, silicone free

### Fits with

CONFIX WST  
Split corrugated conduit 132

# 6 Switch cabinet accessories

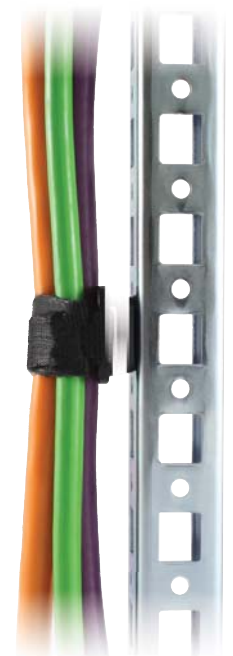
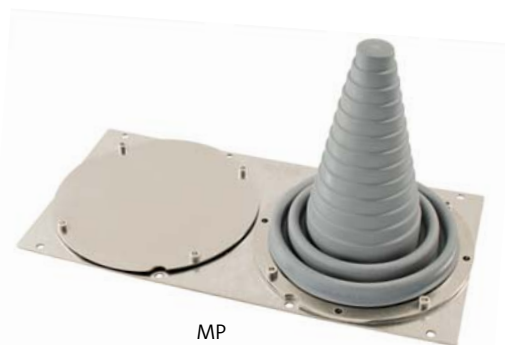


## At a glance ...

For assembly of cable entry systems and EMC products icotek offers many useful accessories as well as helpful cable management components.

Flanged plates with cut outs e.g. for Rittal AE enclosures or KL terminal boxes as well as base plates for switch cabinets make work much easier by far.

10 x 3 mm bus bars, a big variety of earthing tapes and many more clever solutions like cable ties with hook-and-loop fastener that can be opened and closed numerous times as well as suitable holders and more round up our portfolio.



## Benefits of base plates...

### 1. Flexible

For mounting cable entry systems for pre-terminated and standard cables there are several designs of base plates and flanged plates available.

### 2. Fast and easy assembly

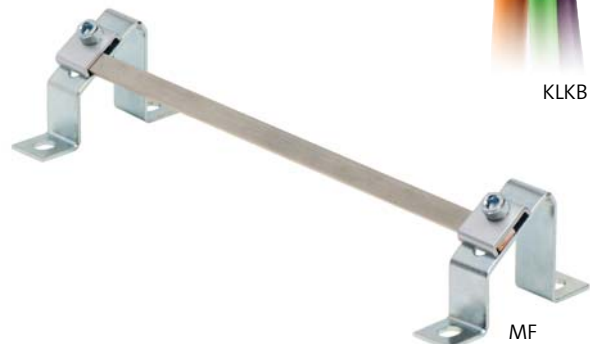
The base plates are shipped ready for assembly. No sheet metal work required. Threaded holes incorporated in the base plates provide quick and easy installation.

### 3. Secure hold

Strain relief and a tight seal is incorporated in the system. No additional clamping rails required.

### 4. Easy to maintain

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



# Product group 6

## Switch cabinet accessories

### Chapter content

	<b>Cabinet base plate with slide frames</b> KDR-ESR	Page 136 - 137
	<b>Split cabinet base plates</b> KDR 2	Page 138 - 139
<b>NEW</b>	<b>Cabinet base plate with brush grommets</b> KDR-BES	Page 140 - 141
	<b>Cable entry frame</b> KDR / KEL-R	Page 142 - 143
<b>NEW</b>	<b>Cabinet base plate for module plates</b> KDR-BMP	Page 144 - 145
	<b>Module plates</b> MP	Page 146 - 147
	<b>Flanged plates for enclosures</b> FP	Page 148 - 153
	<b>Blind plates</b> BPK / BPK-RF / BPM / BPK-SNAP	Page 154 - 156
	<b>Supports for DIN rails and bus bars</b> MF Supports	Page 157
	<b>Hexagonal Locknuts</b> KGM / GM / GMT	Page 158
	<b>Cable ties and pliers</b> KB	Page 159
	<b>Cable ties with hook-and-loop fastener</b> KLKB / KLB	Page 160
	<b>Holder for hook-and-loop fastener</b> KBH	Page 161

# 6

# KDR-ESR

## Cabinet base plate with slide frames



### KDR-ESR Assembly

### Product description

The KDR-ESR is a one-piece plate to be assembled on cabinet bases. Slide frames for the KEL cable entry frames are already pre-assembled.

After fitting all cables into the KEL frames, they are easily and quickly inserted into the slide frames and fixed. During maintenance, the KEL frames are removed without tools from the slide frames. Due to the combination KDR-ESR and KEL cable entry frames, a rating of IP54 is achieved (with correct selection of cable grommets). Slide frames which are no longer required, are closed with BPK-SNAP blind plates.

### Advantages and notes

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

### Specifications

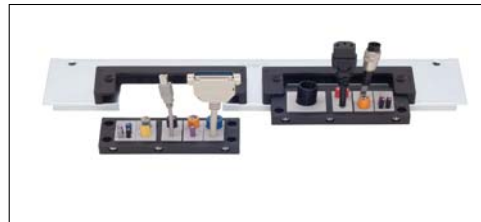
Material	<b>Base plate: Sheet steel, zinc-plated</b> <b>KDR-ESR Frame: Polyamide (PA)</b>
Flame class	<b>UL94-Vo, self-extinguishing</b>
Protection class	<b>IP54, with gasket and correct selection of cable entry devices</b>
Temperature Properties	<b>- 40°C to + 90°C (static)</b> <b>Halogen free, silicone free</b>

### Fits with

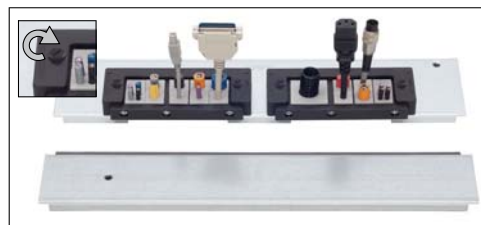
KEL(-U) 16 / 24 Cable entry frames	6 - 19
KEL-JUMBO Cable entry frames	48
BPK-SNAP 16 / 24 Blind plates	156



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



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



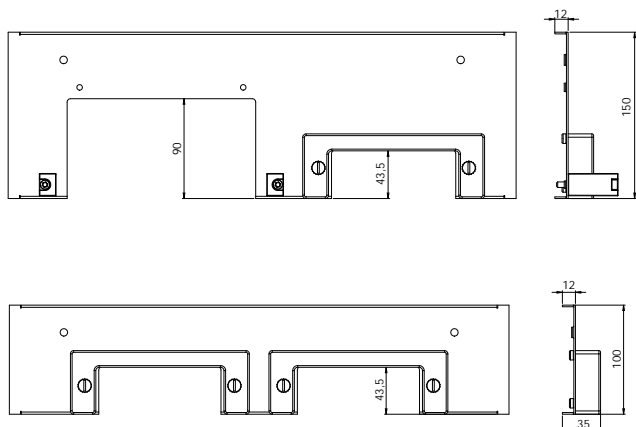
3  
Afterwards the KEL frames are pushed into the Slide frames and fixed with the knurled screws.



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

# KDR-ESR

## Cabinet base plate with slide frames

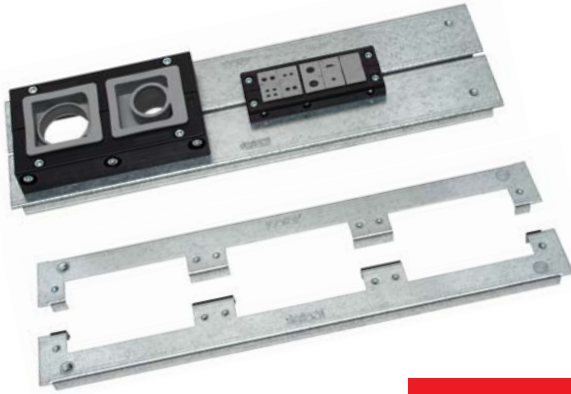


Control cabinet type	Control cabinet width	Total length base plate	Sight size of base plate opening	No. of possible cable entries				Order No.
				JUMBO 1	JUMBO 2	KEL(-U) 16 ...	KEL(-U) 24 ...	
TS8	600 mm	458 mm	436 mm	-	-	-	2	43079
	600 mm	458 mm	436 mm	-	1	-	1	43070
	600 mm	458 mm	436 mm	1	-	2	-	43071
TS8	800 mm	658 mm	636 mm	-	-	1	3	43080
	800 mm	658 mm	636 mm	1	-	-	3	43072
	800 mm	658 mm	636 mm	-	1	-	2	43073
TS8	1000 mm without division bar	858 mm	836 mm	-	-	-	5	43081
	1000 mm without division bar	858 mm	836 mm	1	-	-	4	43074
	1000 mm without division bar	858 mm	836 mm	-	1	-	3	43075
TS8	1000 mm with division bar	420 mm	398 mm	-	-	-	2	43082
	1000 mm with division bar	420 mm	398 mm	1	-	-	1	43076
	1000 mm with division bar	420 mm	398 mm	-	1	-	1	43077
TS8	1200 mm*	518 mm	496 mm	-	-	-	3	43083
	1200 mm*	518 mm	496 mm	1	-	-	2	43078
	1200 mm*	518 mm	496 mm	-	1	-	1	43084

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

## KDR 2

### Split cabinet base plates



## KDR 2 Assembly

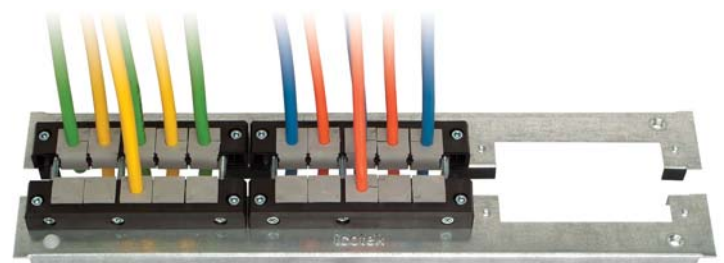
### Product description

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

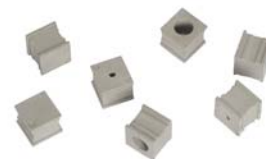
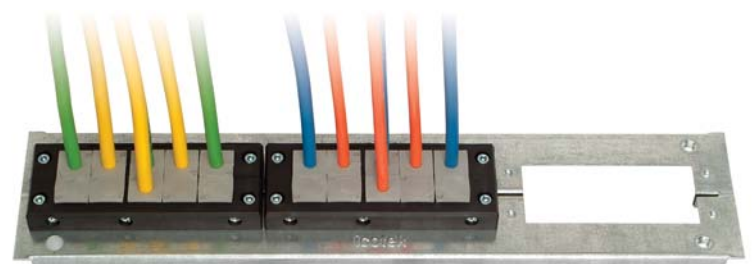
Integrated screw holes provide quick and easy installation of KEL frames.

### Advantages and notes

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



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



The frame parts with grommets have to be built up before final assembly, i.e. before screwing the system together.

Screwing of the cable entry frames tightens both parts of the split base plate.

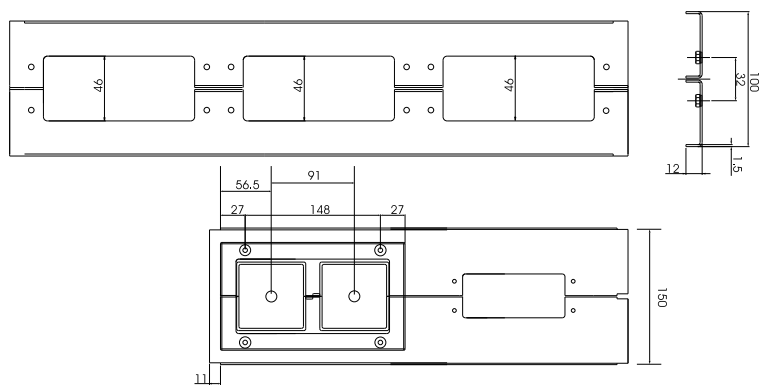
### Specifications

Material Sheet steel, zinc-plated

### Fits with

KEL 24 Cable entry frames	16
KEL-U 24 Cable entry frames	6
KEL-JUMBO Cable entry frames	48
BPM Blind plates metal	156

## KDR 2 Split cabinet base plates



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

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

## KDR-BES

Cabinet base plate  
with brush grommets



For standard cut-outs:  
KEL-BES - see page 57

### KDR-BES Assembly

#### Product description

The new 2-piece cabinet base plates KDR-BES are supplied with preassembled brush grommets.

The base plates are installed with standard Rittal clips.

Depending on the maximum cable diameter to be routed, the 2 halves of the brush base plate are aligned further or closer to each other.

The base plates KDR-BES are perfect for protection of the cabinet interiors against rough dirt.

#### Advantages and notes

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



#### Specifications

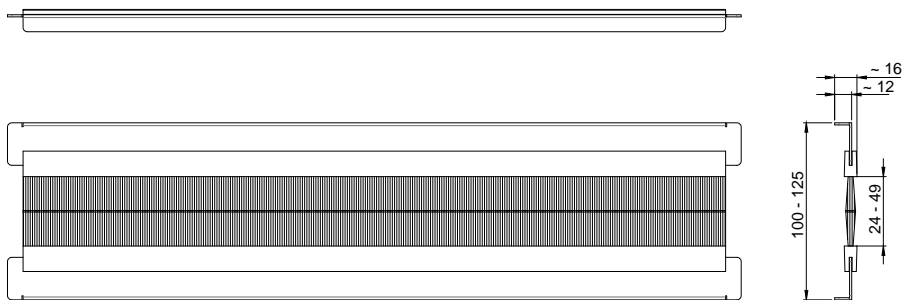
Material	Base plate: Sheet steel, zinc-plated Brush grommets: Polyamide (PA)
Temperature	- 20°C to + 90°C (static)
Properties	Halogen free, silicone free

#### Accessories

ZL Strain relief plates 80 - 84

# KDR-BES

Cabinet base plate with brush grommets



Type	Control cabinet type	Control cabinet width	Total length base plate	Sight size of base plate opening	Order No.
KDR-BES-TS8-600	TS8	600 mm	458 mm	436 mm	58000
KDR-BES-TS8-800	TS8	800 mm	658 mm	636 mm	58006
KDR-BES-TS8-1000	TS8	1000 mm without division bar	858 mm	836 mm	58012
KDR-BES-TS8-1200	TS8	1200 mm*	518 mm	496 mm	58018

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

# KDR

Cable entry frame for cabinet bases



## KDR Cable entry system

### Product description

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

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

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

### Advantages

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

### Specifications

Material Aluminium

### Fits with

- KEL Cable entry frames 6 - 19
- KEL-R Cable entry frames 143

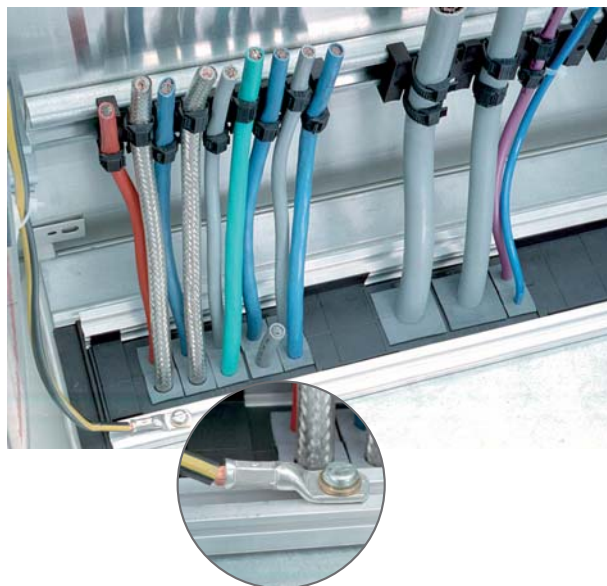
### Function

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

No extra components are necessary for installation of cables.

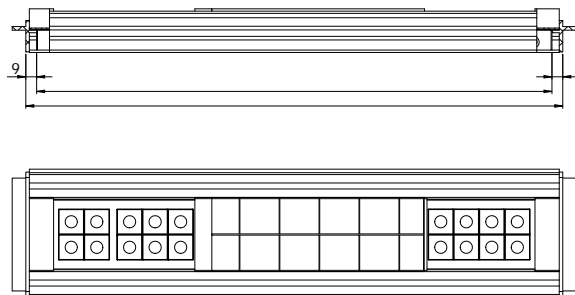
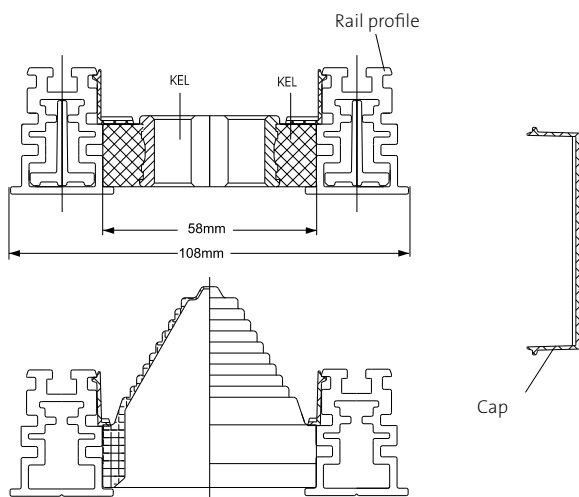
The grommets assembled in the cable entry frames guarantee strain relief of the cables (observe the correct selection of grommets according to the cable diameter).

Additional earthing e.g. via PE conductor or earthing tape is possible.



# KDR

## Cable entry frame for cabinet bases



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

### KDR ordering information

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

A = sight cut-out size of cabinet base

Example:

A = 999 mm equals KDR order no. 44999

Total length can be equipped as desired with any types from table on left.

#### Scope of delivery:

1× KDR frame by length

2× end pieces

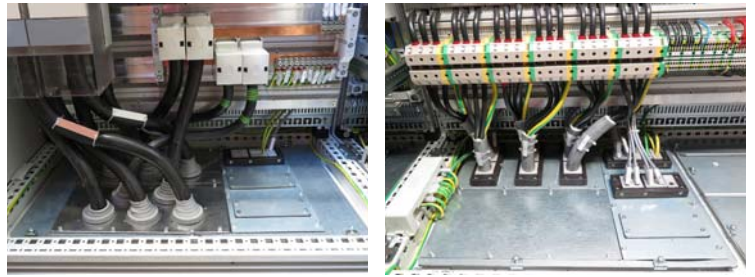
1× cap

### Assembly

For assembly instructions go to [www.icotek.com/downloads](http://www.icotek.com/downloads)

# KDR-BMP

Cabinet base plates for module plates



## Product description

The cabinet base plates KDR-BMP for Rittal enclosures TS8 can be used instead of the 3-piece standard base plates.

The base plates are as well installed with standard Rittal clips.

On KDR-BMP base plates, our MP Module Plates MPo-MP8 can be easily mounted and used for installation of cable entry components.

## Advantages

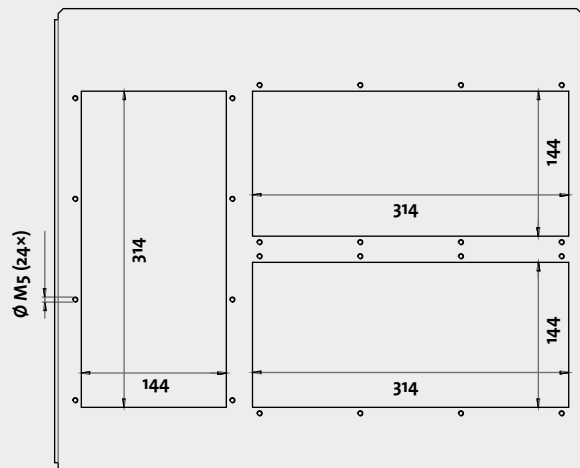
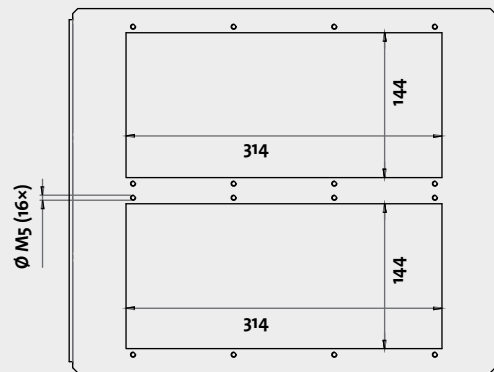
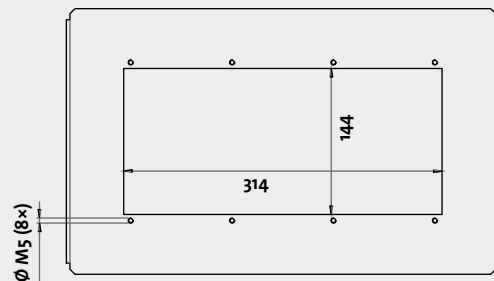
- Very simple mounting
- No sheet metal work required

## Specifications

Material **Sheet steel, zinc-plated**  
 Protection class **IP54, with gasket and correct selection of cable entry devices**

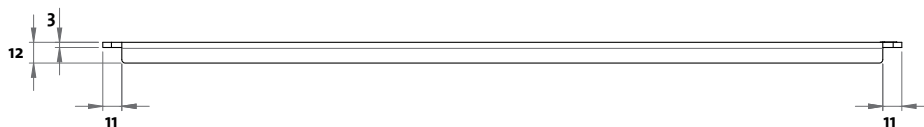
## Fits with

MP Module plates 146



# KDR-BMP

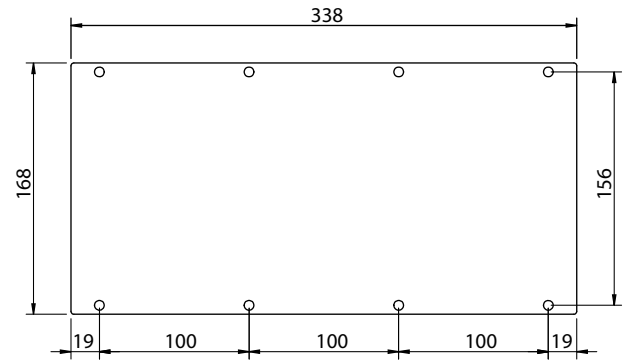
## Cabinet base plates for module plates



Type	Control cabinet type	Control cabinet width	Enclosure depth	No. of cut-outs for module plates	Order No.
KDR-BMP 600/400	TS8	600 mm	400 mm	1	43300
KDR-BMP 600/500		600 mm	500 mm	2	43302
KDR-BMP 600/600		600 mm	600 mm	2	43304
KDR-BMP 800/400	TS8	800 mm	400 mm	1	43306
KDR-BMP 800/500		800 mm	500 mm	3	43308
KDR-BMP 800/600		800 mm	600 mm	3	43310
KDR-BMP 1000/400	TS8	1000 mm with division bar	400 mm	1	43312
KDR-BMP 1000/500		1000 mm with division bar	500 mm	2	43314
KDR-BMP 1000/600		1000 mm with division bar	600 mm	2	43316
KDR-BMP 1200/400	TS8	1200 mm with division bar	400 mm	1	43318
KDR-BMP 1200/500		1200 mm with division bar	500 mm	2 × 3	43320
KDR-BMP 1200/600 for left section		1200 mm with division bar	600 mm	3	43322
KDR-BMP 1200/600 for right section		1200 mm with division bar	600 mm	3	43324

# MP

## Module plates



### Product description

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

- Separation plates
- Closed bottom of the switch box
- Switch cabinets by Rittal / Lohmeier

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

Module plates are supplied with a gasket.

### Specifications

Material **Sheet steel, zinc-plated Aluminium (Order No. 43883)**  
 Dimension **338 × 168 × 2 mm**

### Fits with

KEL 24 Cable entry frames	16
KEL-U 24 Cable entry frames	6
KEL-SNAP snap frames	28 - 29
KEL-JUMBO Cable entry frames	48
KEL-DPF Cable entry grommets	75
KEL-JUMBO flex Cable entry ins.	76
KEL-ULTRA flex Cable entry ins.	77
Blind plates	154 - 156

Description	Type	Order No.	Fits with
	MP 0	43882	Module plate, blind
	MP 1	43891	3× KEL(-U) 24 x
	MP 2	43890	4× KEL(-U) 24 x
	MP 3	43886	1× KEL-JUMBO 1 1× KEL-JUMBO 2
	MP 4	43888	2× KEL-JUMBO 1
	MP 5	43887	2× KEL(-U) 24 x 1× KEL-JUMBO 1
	MP 6	43883	5× cut-out M50 for KEL-DPF or KEL-DPZ
	MP 7	43889	Cut-out 3× KEL-JUMBO flex
	MP 8	43894	Cut-out 2× KEL-ULTRA flex

# MP

## Module plate, pre-assembled



MP 8 Set



MP 6 Set

Type	Order No.	Scope of delivery
------	-----------	-------------------

MP 6 Set	43883.001	MP 6, 338 × 168 × 2 mm 5× KEL-DPF 50 1× locking screw M50
MP 8 Set	43894.001	MP 8, 338 × 168 × 2 mm 1× KEL-ULTRA flex 1× BPM-ULTRA

### Product description

KEL / BPM are pre-assembled in all module plate sets. The module plates can be fixed on the following positions:

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

The shipment includes a suitable gasket.

### Specifications

Material     Sheet steel, zinc-plated  
                 Aluminium (Order No. 43883)  
Dimension    338 × 168 × 2 mm

## FP-AE

### Flanged plates for compact enclosures



#### Description

### Product description

We supply complete flanged plates FP with 112 × 36 mm cut-outs for compact enclosures of the AE series. The cut-outs, as well as the drilling template, conform to the standard cut-outs for 24-pole industrial connectors.

All flanged plates are RAL 7035 powder-coated. Please use the gaskets of the standard plates. Enclosures are supplied with gaskets and screws.

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

### Advantages

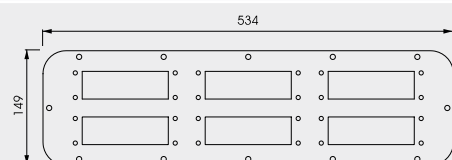
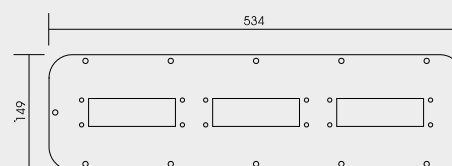
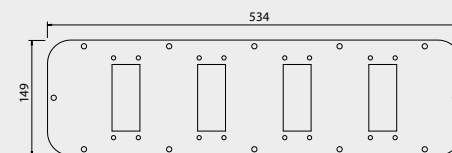
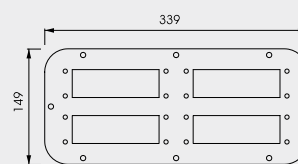
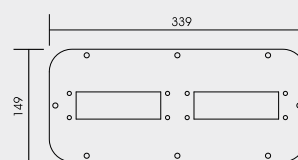
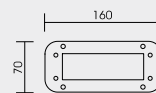
- No expensive extra sheet metal work is required
- High packing density is achieved by using KEL, KEL-U, KEL-DPZ or KEL-DP
- Reduce labour costs by using cable entry systems KEL, KEL-U, KEL-DPZ or KEL-DP compared to the assembly of conventional cable glands

### Specifications

Material **Sheet steel, powder coated**

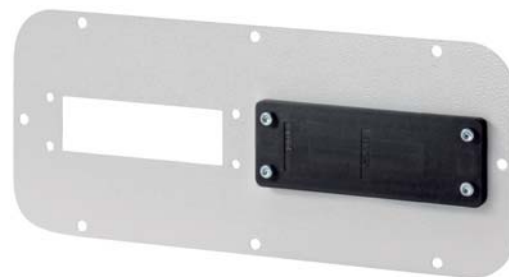
### Fits with

KEL Cable entry frames	16 - 19
KEL-U Cable entry frames	6 - 14
KEL-SNAP Mounting frames	28 - 29
KEL-QTA Cable entry frames	54 - 55
KEL-DPZ Cable entry plates	62 - 63
KEL-DP Cable entry plates	70
Blind plates	154 - 156



# FP-AE

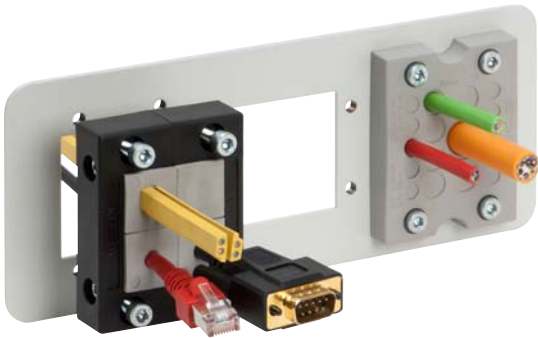
## Flanged plates for compact enclosures



Type	Order No. RAL 7035	Fits with: (Product Group 1)	Fits with: (Product Group 2)	Size FP	Fits with (e.g. for Rittal)
FP-AE 160 70 Version with 1 cut-out KEL 24	43836	KEL 24 KEL-U 24 KEL-QTA 24	KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	1	AE 1032 AE 1035
FP-AE-24 330 90 Version with 2 cut-outs KEL 24	43838	KEL 24 KEL-U 24 KEL-QTA 24	KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	3	AE 1030 AE 1031 AE 1038 AE 1380
FP-AE-16 330 90 Version with 2 cut-outs KEL 16	43861	KEL 16 KEL-U 16		3	
FP-AE 339 149 Version with 2 cut-outs KEL 24	43840	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-QTA 24	KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	4	AE 1037   CS 9751.125 AE 1045   CS 9751.145 AE 1050   CS 9751.165 AE 1057   CS 9752.125 AE 1100   AE 1110   TP 6710 AE 1114   TP 6712 AE 1130   TP 6714 AE 1213   TP 6716 AE 1338 AE 1350
FP-AE 339 149 Version with 4 cut-outs KEL 24	43846	KEL 24 KEL-U 24 KEL-QTA 24	KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	4	
FP-AE 534 149 Version with 4 cut-outs KEL 16	43871	KEL 16 KEL-U 16 KEL-SNAP 16		5	AE 1039   EL 1919 AE 1054   EL 1926 AE 1055   AE 1060   IN 1076.290 AE 1073   AE 1076   TP 6711 AE 1077   TP 6713 AE 1090   TP 6715 AE 1180   TP 6717 AE 1260 AE 1280 AE 1339 AE 1360 AE 1376 AE 1958
FP-AE 534 149 Version with 3 cut-outs KEL 24	43842	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-QTA 24	KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	5	
FP-AE 534 149 Version with 6 cut-outs KEL 24	43848	KEL 24 KEL-U 24 KEL-QTA 24	KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	5	

## FP-KL

### Flanged plates for terminal boxes



#### Description

### Product description

The FP flanged plates type KL, designed to fit the Rittal KL series terminal boxes, are installed in combination with a cable entry system for either pre-terminated or standard cables. FP flanged plates are pre-cut, pre-drilled and painted for easy and quick installation of icotek cable routing products.

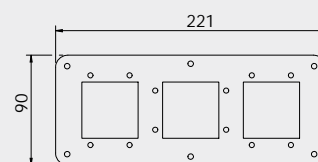
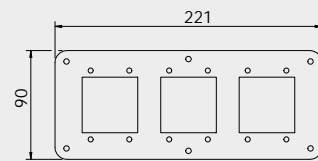
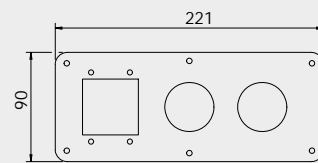
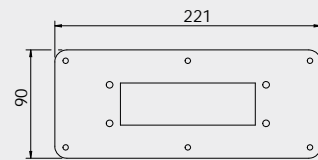
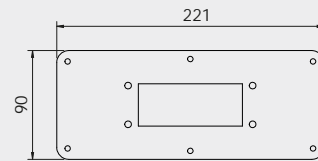
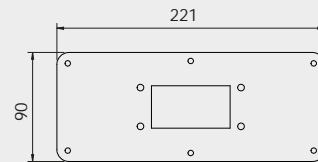
We recommend fastening the cable entry systems with a torque of 1.5 - 2.0 Nm.

### Specifications

Material **Sheet steel, powder coated**

### Fits with

KEL Cable entry frames	16 - 19
KEL-U Cable entry frames	6 - 14
KEL-SNAP Mounting frames	28 - 29
KEL-QTA Cable entry frames	54 - 55
KEL-DPZ Cable entry plates	62 - 63
KEL-DP Cable entry plates	70
KEL-DPF Cable entry grommets	75
Blind plates	154 - 156



## FP-KL

### Flanged plates for terminal boxes



Type	Order No. RAL 7035	Flanged plates fit with	Size FP	Fits with (e.g. for Rittal)
<b>FP-KL 221x90 10</b> Version with 1 cut-out KEL 10	43853	KEL 10 KEL-U 10 KEL-SNAP 10	2	Terminal boxes Type KL
<b>FP-KL 221x90 16</b> Version with 1 cut-out KEL 16	43855	KEL 16 KEL-U 16 KEL-SNAP 16	2	Terminal boxes Type KL
<b>FP-KL 221x90 24</b> Version with 1 cut-out KEL 24	43834	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	2	Terminal boxes Type KL
<b>FP-KL 221x90 A</b> Version with 3 cut-outs	43852	KEL-B KEL-U-B KEL-SNAP-B KEL-DPZ-B KEL-DPZ 40 KEL-DPF 40	2	Terminal boxes Type KL
<b>FP-KL 221x90 B</b> Version with 3 cut-outs KEL-B	43854	Use with 2x KEL-SNAP-B and 1x KEL-DPZ-B	2	Terminal boxes Type KL
<b>FP-KL 221x90 C</b> Version with 3 cut-outs KEL-B	43856	KEL-B KEL-U-B KEL-DPZ-B	2	Terminal boxes Type KL

## FP-BG

### Flanged plates for bus enclosures



#### Description

### Product description

The FP flanged plates type BG, designed to fit the Rittal BG series enclosures, have up to 3 cut-outs that match the dimensions of the standard cut-outs for the 24-pole industrial connectors. These flanged plates are installed in combination with a cable entry system for either pre-terminated cables (KEL 24 or KEL-U 24) or standard cables (KEL-DPZ 24, KEL-DPU 24 or KEL-DP 24).

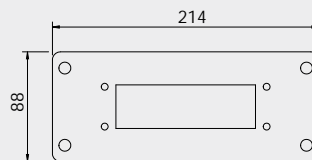
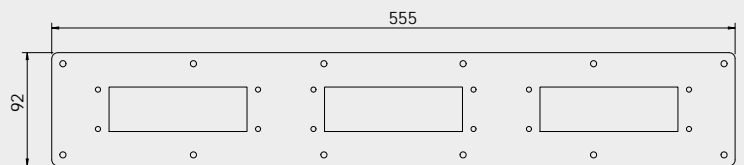
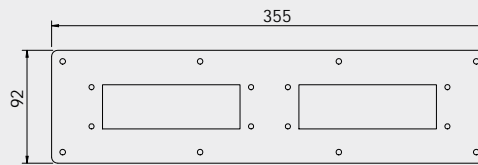
We recommend fastening the cable entry systems with a torque of 1.5 - 2.0 Nm.

### Specifications

Material **Sheet steel, powder coated**

### Fits with

KEL 24 Cable entry frames	16 - 19
KEL-U 24 Cable entry frames	6 - 14
KEL-SNAP Mounting frames	28 - 29
KEL-QTA Cable entry frames	54 - 55
KEL-DPZ 24 Cable entry plates	62 - 63
KEL-DP 24 Cable entry plates	70
Blind plates	154 - 156



## FP-BG

### Flanged plates for bus enclosures



Type	Order No. RAL 7035	Flanged plates fit with	Size FP.	Fits with (e.g. for Rittal)
FP-BG 355x92 Version with 2 cut-outs KEL 24	43866	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	-	BG 1558.510
FP-BG 555x92 Version with 3 cut-outs KEL 24	43865	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	6	BG 1050.900 BG 1559.510 IN 1510.280
FP-FL 21 Version with 1 cut-out KEL 24	43832	KEL 24 KEL-U 24 KEL-SNAP 24 KEL-DPZ 24 KEL-DPU 24 KEL-DP 24	-	Fibox plates

# BPK

## Blind plates, plastic



BPK-RF: Snap function, tool-free assembly



BPK: screwable

## Product description

BPK Blind plates seal cut-outs for standard 10-pole / 16-pole / 24-pole industrial connectors with protection class up to IP64.

Plastic blind plates are available in two different versions:

- Type BPK: Blind plates for screw connection
- Type BPK-RF A: Blind plates for snapping into metal sheet plates up to a thickness from 1.5 to 3 mm

## Advantages

- Fast mounting of the blind plates BPK-RF range by snapping into the cut-out
- Integrated circular sealing (up to IP64)

## Specifications

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

## Fits with

FP Flanged plates 148 - 153

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

# BPM

## Blind plates, metal



Type	Order No.	Blind plate for KEL cut-out	Dimensions	PU
BPM-B	42013	KEL-B KEL-U-B KEL-QUICK-B	75 × 58 mm	10
BPM 6 BPM 6 V2A	42011 41991	standard 6-pole industrial connectors	90 × 52 mm	10
BPM 10 BPM 10 V2A	42014 41992	KEL 10 KEL-U 10	99 × 58 mm	10
BPM-FG B	42012	KEL-FG B	80 × 58 mm	10
BPM 16 BPM 16 V2A	42025 41994	KEL 16 KEL-U 16 KEL-QUICK 16	118 × 56 mm	10
BPM 16-E	42023	KEL 16-E	120 × 87 mm	10
BPM 16-MT	42026	KEL 16-MT	120 × 102 mm	10
BPM 16-2MT	42031	KEL 16-2MT	120 × 146 mm	10
BPM 24 BPM 24 V2A	42027 41995	KEL 24 KEL-U 24 KEL-QUICK 24	145 × 56 mm	10
BPM 24-E	42029	KEL 24-E	143 × 83 mm	10
BPM 24-MT	42028	KEL 24-MT	147 × 102 mm	1
BPM-JUMBO flex	42033	KEL-JUMBO flex	88 × 88 mm	1
BPM-JUMBO 1	42030	KEL-JUMBO 1	116 × 110 mm	1
BPM-JUMBO 2	42032	KEL-JUMBO 2	200 × 116 mm	1
BPM-ULTRA	42633	KEL-ULTRA flex	∅ 168 mm Width: 1,5 mm	1

### Product description

Blind plates to close cut-outs for standard 6-pole / 10-pole / 16-pole / 24-pole industrial connectors.

Blind plates are supplied with a gasket.

### Specifications

Material           Steel, zinc-plated  
                          Width 2 mm  
Protection class   IP54

### Fits with

KDR 2 Split base plates   138 - 139  
FP Flanged plates        148 - 153  
MP Module plates         146 - 147

# BPK-SNAP

Blind plates for KEL-SNAP frames



## Product description

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

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

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

BPK-SNAP 16 and BPK-SNAP 24 for closing cut-outs of the KEL-SNAP mounting frames and unused Slide frames of the KDR-ESR base plates.

## Specifications

Material	Polyethylene (PE)
Flame class	UL94-HB
Protection class	IP54
Temperature	- 40°C to + 80°C (static)
Properties	Silicone free

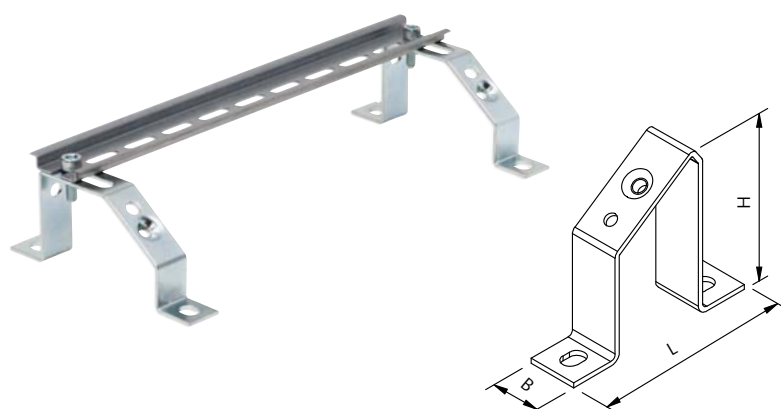
## Fits with

KEL-SNAP Mounting frames	28 - 29
KDR-ESR Base plate with Slide frames	136 - 137

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

# MF

## Supports for DIN rails and bus bars



Description	Type	Version	Order No. without Clip	Order No. with Clip	Dimension [L × B × H]	PU
-------------	------	---------	---------------------------	------------------------	--------------------------	----

Type A		MF-A49	Type A	36056	36058	80 × 20 × 49 mm	10
		MF-A68	Type A	36064	36066	80 × 20 × 68 mm	10
		MF-A88	Type A	36072	36074	80 × 20 × 88 mm	10
Type B		MF-B20	Type B	36000	36002	80 × 20 × 20 mm	10
		MF-B30	Type B	36008	36010	80 × 20 × 30 mm	10
		MF-B50	Type B	36016	36018	80 × 20 × 50 mm	10
Type C		MF-B90	Type B	36024	36026	80 × 20 × 90 mm	10
		MF-C40	Type C	36032	36034	40 × 18 × 40 mm	10
Type D		MF-C53	Type C	36040	36042	40 × 18 × 53 mm	10
		MF-D49	Type D	36048	36050	120 × 20 × 49 mm	10
		Bus bar 10 × 3 mm	-	36100	-	10 × 3 × 1000 mm*	1

\* Other lengths available on request

### Product description

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

A mounting clip is used for fastening the bus bar to the supports. The support has M6 female screw threads to affix the mounting clip of the DIN rail with a M6 screw.

Mounting clip  
Order No. 36150

### Advantages

- Wide variety of supports with different sizes and designs
- Simple assembly of TS35 DIN rails and 10 × 3 mm bus bars
- Support type D provides possibility to affix 2 TS335 DIN rails

### Specifications

Material Sheet steel, galvanically zinc-plated

### Accessories

Bus bar Order No. 36100  
Mounting clip Order No. 36150

# KGM

## Locknuts



Type KGM: Standard nut, plastic



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



Type GMT: Split locknut

### Product description

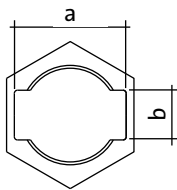
Hexagonal locknut with metric threads for attaching components together.

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

**KGM-SUB-D9** fits D-Sub 9 connectors  
(Required wall cut-out:  $\varnothing$  36 mm)

**KGM-PB** fits DVI and PROFIBUS connectors  
(Required wall cut-out:  $\varnothing$  42 mm)

**KGM-SUB-D25** fits SUB-D25 connectors  
(Required wall cut-out:  $\varnothing$  50 mm)



### Specifications

Material	Polyamide (PA) / Polycarbonate (PC) / Brass (BR), nickel-plated
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input type="checkbox"/> black
Flame class	UL94-Vo, self-extinguishing
Temperature Properties	- 30°C to + 120°C Halogen free, silicone free

### Fits with

KVT, KVT-SNAP, KVT-W90	
Split cable glands	31 - 36
QVT Split cable glands	52
KEL-DPZ Cable entry plates	68 - 69
KEL-DPF Cable entry grommets	75

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

#### Type KGM: Standard nut, plastic

M16 × 1.5	KGM 16	<input type="checkbox"/> 52272 <input type="checkbox"/> 52283	PA	4.3	SW 22.8	28.2	-	10
M20 × 1.5	KGM 20	<input type="checkbox"/> 52273 <input type="checkbox"/> 52283	PA	7	SW 26	28.2	-	10
M25 × 1.5	KGM 25	<input type="checkbox"/> 52274 <input type="checkbox"/> 52284	PA	7	SW 32	36	-	10
M32 × 1.5	KGM 32	<input type="checkbox"/> 52275 <input type="checkbox"/> 52285	PA	7	SW 41	46	-	10
M40 × 1.5	KGM 40	<input type="checkbox"/> 52276 <input type="checkbox"/> 52286	PA	7	SW 50	56	-	10
M50 × 1.5	KGM 50	<input type="checkbox"/> 52277 <input type="checkbox"/> 52287	PA	8.6	SW 60	66	-	10
M63 × 1.5	KGM 63	<input type="checkbox"/> 52278 <input type="checkbox"/> 52288	PA	8.6	SW 75	83	-	5

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

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

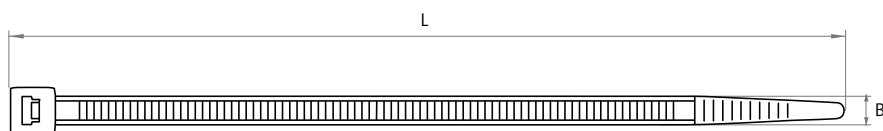
#### Type GMT: Split locknut

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

\* Only valid for grey product types

# KB

## Cable ties and pliers



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

### Product description

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

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

### ■ Specifications KB 28

Material Polyamide 12 (PA), black  
 Flame class UL94-V2  
 Temperature - 40°C to + 100°C  
 Properties Oil- and mould-resistant

### □ Specifications KB natural

Material Polyamide 6.6 (PA), natural  
 Flame class UL94-V2  
 Temperature - 40°C to + 100°C  
 Properties Oil- and mould-resistant

### ■ Specifications KB black

Material Polyamide 6.6 (PA), black  
 Flame class UL94-V2  
 Temperature - 40°C to + 100°C  
 Properties UV-resistant, particularly matching for outdoor use

## KLKB / KLB

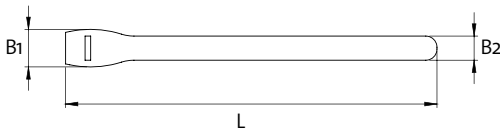
Cable ties with hook-and-loop fastener



### Product description

Cable ties with hook-and-loop fastener are a more and more common fixing mode for cables. Cable ties with hook-and-loop fastener are used instead of standard cable ties, because they can be easily closed and opened several times. The soft material is gentle on cables, especially where vibrations are present.

Cable ties with hook-and-loop fastener are available individually (KLKB) in four different sizes or as a continuous roll (KLB) in four different sizes.



### Advantages

- Reusable
- Adaptable
- The cable tie material is gentle on cables, especially if there are vibrations

### Specifications

Material **Polypropylene + Velours PA**  
 Colour **black**  
 Flame class **UL94-V2**  
 Temperature **-30°C to +80°C**

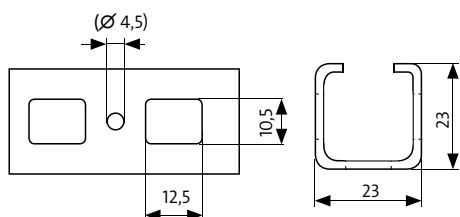
### Accessories

KBH Holder for hook-and-loop fastener 161

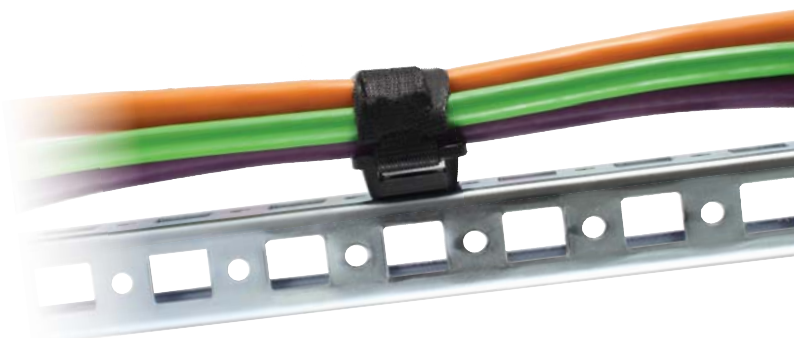
Type	Size [mm]			Order No.	PU
	L	B1	B2		
KLKB 200 × 7 bk	200	13	7	61021	100
KLKB 200 × 13 bk	200	20	13	61022	100
KLKB 230 × 13 bk	230	20	13	61023	100
KLKB 300 × 17 bk	300	25	17	61024	100
KLB 10 bk			10	61011	25 m
KLB 15 bk			15	61012	25 m
KLB 20 bk			20	61013	25 m
KLB 25 bk			25	61014	25 m

# KBH

## Holder for hook-and-loop fastener



23 × 23 mm mounting rail



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

\* Only KBH-S / KBH-R

### Product description

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

Large variety of holders provides unique and numerous mounting possibilities.

### Advantages

- Assembly within seconds
- Secure hold
- Flexible usage

### Specifications KBH-S / KBH-R

Material	Polyamide (PA)
Colour	■ black
Flame class	UL94-Vo, self-extinguishing
Temperature	- 40°C to + 110°C
Properties	Halogen free, silicone free

### Specifications KBH-SB / KBH-RBA

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

### Specifications KBH-RBB

Material	Polyamide (PA)
Colour	■ black
Temperature	- 40°C to + 120°C

### Fits with

KLKB / KLB Cable ties with hook-and-loop fastener 160



# 7 Cable entry systems

## for potentially explosive atmospheres



### Directive 94/9/EC (ATEX)

ATEX stands for „ATmosphères EXplosives“ and is the short name for the European Directive 94/9/EC, regulating the market launch of explosion protected electrical and non-electrical devices, components and protection systems. Since July 1, 2003 in effect, it applies to all new equipment and protective devices. The directive is aimed at manufacturers and importers in the 27 member states of the EU as well as the 4 EFTA member states and Turkey.

The ATEX directive applies to all electrical and non-electrical equipment and protective systems intended for use in potentially explosive atmospheres.

Moreover, the directive includes controlling, monitoring or regulating equipment which may be located outside of explosive atmospheres, but ensures the safe operation of devices and safety systems inside.

The ATEX directive applies to all explosive industrial atmospheres, including mining. The directive describes basic safety and health requirements for equipment and components intended for use in potentially explosive atmospheres. It describes procedures to demonstrate conformity with the directive. Depending on the risk area in which the product is used, (conformity assessment procedures) requirements and procedures for assessing fulfilment are different.

Since 2003, every new Ex device must be certified according to the EU Directive, labelled with the CE marking and the special marks for prevention of explosions. icotek has certified a wide variety of products.

All devices, components and protective systems intended for use in potentially explosive atmospheres, have to comply with the European Directive 94/9/EC.

### Important notice!

**Only intended for fixed installation of cables!**

The cable entry is only suitable for fixed installation of cables where strain and torsional loading on the cable is not possible.

### The ATEX directive 94/9 EC regulates:

- Product approval
- Conformity procedure (consisting of EC type examination, quality control and EC declaration of conformity)
- CE marking of conformity for equipment and protective systems

For use in potentially explosive atmospheres, icotek offers a wide range of cable entry systems for zones G (gas) and D (dust) in equipment group II, category 2 + 3, certified to the ATEX directive.

The icotek cable entry systems comply with the EU Directive 94/9/EC (ATEX) for equipment and protective systems intended for use in potentially explosive atmospheres of zones 1, 2, 21 and 22.

For application in Ex atmospheres, cable grommets (finding use in various icotek ATEX products) can only be used in grey (RAL 7035).

## Product group 7

Cable entry systems for potentially explosive atmospheres



### Chapter content

<b>NEW</b>	<b>ATEX Cable entry frames IP54</b> KEL 24 / KEL 16 / KEL 10 / KEL-B / KEL-E / KEL 24-E / KEL 24-MT / KEL 24-2MT	Page 164 - 167
	<b>ATEX Cable entry frames IP65</b> KEL-ER 24 / KEL-ER 16 / KEL-ER 10 / KEL-ER-B	Page 165
	<b>Split ATEX cable glands IP54</b> KVT 80	Page 168
	<b>ATEX Cable grommets</b> KT / KT-DPF / KTMB / DT	Page 169 - 170
	<b>ATEX Cable entry plates IP65/66/68</b> KEL-DPZ 24 / KEL-DPZ-B / KEL-DPZ-E / KEL-DPZ round	Page 171 - 172
	<b>ATEX Cable entry grommets IP68</b> KEL-DPF	Page 173

# 7

# KEL ATEX

## Cable entry frames



IP54



V2A anti-corrosive  
KEL also available with V2A screws.



KEL on request also available with threaded bushings.

### Product description

The KEL cable entry frames match exactly the cut-out dimensions for 10-, 16- or 24-pole standard industrial connectors. Either a cut-out of 36 mm or 46 mm in height can be chosen, depending on the cables being routed. This flexibility is perfect for pre-terminated cables. The KEL-B matches exactly the cut-out dimensions of 46x46 mm measuring instruments.

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

### Advantages

- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets
Temperature	- 30°C to + 90°C (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen free, silicone free
Height	17 mm

### Accessories

KT Cable grommets, grey 38 - 42

For application in Ex atmospheres, cable grommets can only be used in grey (RAL 7035)!

Type	Order No.	Cut-out	Protection class	Grommets small   large	PU
KEL 24 10 ATEX	49109	36 × 112 mm	IP54	10 -	10
KEL 24 10 ATEX with V2A screws	49109.200	36 × 112 mm	IP54	10 -	10
KEL 24 7 ATEX	49111	36 × 112 mm	IP54	6 1	10
KEL 24 7 ATEX with V2A screws	49111.200	36 × 112 mm	IP54	6 1	10
KEL 24 5 ATEX	49112	36 × 112 mm	IP54	5 -	10
KEL 24 5 ATEX with V2A screws	49112.200	36 × 112 mm	IP54	5 -	10
KEL 24 4 ATEX	49110	36 × 112 mm	IP54	2 2	10
KEL 24 4 ATEX with V2A screws	49110.200	36 × 112 mm	IP54	2 2	10
KEL 16 8 ATEX	49104	36 × 86 mm	IP54	8 -	10
KEL 16 8 ATEX with V2A screws	49104.200	36 × 86 mm	IP54	8 -	10
KEL 16 5 ATEX	49103	36 × 86 mm	IP54	4 1	10
KEL 16 5 ATEX with V2A screws	49103.200	36 × 86 mm	IP54	4 1	10
KEL 16 4 ATEX	49102	36 × 86 mm	IP54	4 -	10
KEL 16 4 ATEX with V2A screws	49102.200	36 × 86 mm	IP54	4 -	10
KEL 16 2 ATEX	49101	36 × 86 mm	IP54	- 2	10
KEL 16 2 ATEX with V2A screws	49101.200	36 × 86 mm	IP54	- 2	10
KEL 10 6 ATEX	49108	36 × 65 mm	IP54	6 -	10
KEL 10 6 ATEX with V2A screws	49108.200	36 × 65 mm	IP54	6 -	10
KEL 10 3 ATEX	49107	36 × 65 mm	IP54	2 1	10
KEL 10 3 ATEX with V2A screws	49107.200	36 × 65 mm	IP54	2 1	10
KEL-B4 ATEX	49105	46 × 46 mm	IP54	4 -	10
KEL-B4 ATEX with V2A screws	49105.200	46 × 46 mm	IP54	4 -	10
KEL-B1 ATEX	49106	46 × 46 mm	IP54	- 1	10
KEL-B1 ATEX with V2A screws	49106.200	46 × 46 mm	IP54	- 1	10



# KEL-ER ATEX

## Cable entry frames



V2A anti-corrosive  
KEL-ER also available with V2A screws.



KEL-ER on request also available with threaded bushings.



Type	Order No.	Cut-out	Protection class	Grommets small   large	PU
KEL-ER 24 10 ATEX	49228	36 × 112 mm	IP65	10 -	10
KEL-ER 24 10 ATEX with V2A screws	49228.200	36 × 112 mm	IP65	10 -	10
KEL-ER 24 7 ATEX	49230	36 × 112 mm	IP65	6 1	10
KEL-ER 24 7 ATEX with V2A screws	49230.200	36 × 112 mm	IP65	6 1	10
KEL-ER 24 4 ATEX	49229	36 × 112 mm	IP65	2 2	10
KEL-ER 24 4 ATEX with V2A screws	49229.200	36 × 112 mm	IP65	2 2	10
KEL-ER 16 8 ATEX	49223	36 × 86 mm	IP65	8 -	10
KEL-ER 16 8 ATEX with V2A screws	49223.200	36 × 86 mm	IP65	8 -	10
KEL-ER 16 5 ATEX	49222	36 × 86 mm	IP65	4 1	10
KEL-ER 16 5 ATEX with V2A screws	49222.200	36 × 86 mm	IP65	4 1	10
KEL-ER 16 2 ATEX	49221	36 × 86 mm	IP65	- 2	10
KEL-ER 16 2 ATEX with V2A screws	49221.200	36 × 86 mm	IP65	- 2	10
KEL-ER 10 6 ATEX	49227	36 × 65 mm	IP65	6 -	10
KEL-ER 10 6 ATEX with V2A screws	49227.200	36 × 65 mm	IP65	6 -	10
KEL-ER 10 3 ATEX	49226	36 × 65 mm	IP65	2 1	10
KEL-ER 10 3 ATEX with V2A screws	49226.200	36 × 65 mm	IP65	2 1	10
KEL-ER-B4 ATEX	49224	46 × 46 mm	IP65	4 -	10
KEL-ER-B4 ATEX with V2A screws	49224.200	46 × 46 mm	IP65	4 -	10
KEL-ER-B1 ATEX	49225	46 × 46 mm	IP65	- 1	10
KEL-ER-B1 ATEX with V2A screws	49225.200	46 × 46 mm	IP65	- 1	10

### Product description

Split cable entry system for routing and sealing pre-terminated cables, providing a protection class of IP65 and strain relief for cable diameters from 2 to 16 mm (KT 2 - 15) and 16 to 34 mm (KT 16 - 34).

The new cable entry system is easy to install. Cable grommets are placed into compartments and are securely fixed to the frame during assembly.

The KEL-ER frames match exactly the cut-out dimensions for 24-, 16- and 10-pole standard industrial connectors. The KEL-ER-B matches cut-out dimensions of 46×46 mm measuring instruments.

### Advantages

- Warranty of pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density, wide variety of frames and grommets
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-V0, self-extinguishing
Protection class	IP65, with gasket and correct selection of single grommets
Temperature	- 30°C to + 90°C (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen free, silicone free
Height	17 mm

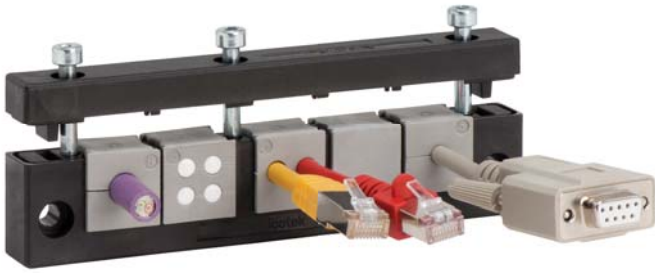
### Accessories

KT Cable grommets, grey 38 - 42

For application in Ex atmospheres, cable grommets can only be used in grey (RAL 7035)!

# KEL-E ATEX

## Cable entry frames



KEL-E also available with V2A screws.



KEL-E on request also available with threaded bushings.

### Product description

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

For inserting cables up to 17 mm in diameter.

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- Space saving shape
- Optimal for D-Sub connectors
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets
Temperature	- 30°C to + 90°C (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen free, silicone free
Height	17 mm

Description	Type	Order No.	Cut-out [mm]	Grommets small   large	PU
	KEL-E2 ATEX	49150	43 × 24	2 -	10
	KEL-E2 ATEX with V2A screws	49150.200	43 × 24	2 -	10
	KEL-E3 ATEX	49152	65 × 24	3 -	10
	KEL-E3 ATEX with V2A screws	49152.200	65 × 24	3 -	10
	KEL-E4 ATEX	49154	86 × 24	4 -	10
	KEL-E4 ATEX with V2A screws	49154.200	86 × 24	4 -	10
	KEL-E5 ATEX	49156	112 × 24	5 -	10
	KEL-E5 ATEX with V2A screws	49156.200	112 × 24	5 -	10

### Accessories

KT Cable grommets, grey 38 - 41

For application in Ex atmospheres, cable grommets can only be used in grey (RAL 7035)!

# KEL 24-E/-MT/-2MT ATEX

## Cable entry frames



V2A anti-corrosive  
KEL also available with V2A screws.



KEL on request also available with threaded bushings.



Type	Order No.	Cut-out	Protection class	Grommets small   large	PU
KEL 24 15-E	49158	66 × 112 mm	IP54	15 -	10
KEL 24 15-E with V2A screws	49158.200	66 × 112 mm	IP54	15 -	10
KEL 24 12-E	49160	66 × 112 mm	IP54	11 1	10
KEL 24 12-E with V2A screws	49160.200	66 × 112 mm	IP54	11 1	10
KEL 24 9-E	49162	66 × 112 mm	IP54	7 2	10
KEL 24 9-E with V2A screws	49162.200	66 × 112 mm	IP54	7 2	10
KEL 24 10-E	49164	66 × 112 mm	IP54	10 -	10
KEL 24 10-E with V2A screws	49164.200	66 × 112 mm	IP54	10 -	10
KEL 24 20-MT	49166	82 × 112 mm	IP54	20 -	10
KEL 24 20-MT with V2A screws	49166.200	82 × 112 mm	IP54	20 -	10
KEL 24 17-MT	49168	82 × 112 mm	IP54	16 1	10
KEL 24 17-MT with V2A screws	49168.200	82 × 112 mm	IP54	16 1	10
KEL 24 14-MT	49170	82 × 112 mm	IP54	12 2	10
KEL 24 14-MT with V2A screws	49170.200	82 × 112 mm	IP54	12 2	10
KEL 24 11-MT	49172	82 × 112 mm	IP54	8 3	10
KEL 24 11-MT with V2A screws	49172.200	82 × 112 mm	IP54	8 3	10
KEL 24 8-MT	49174	82 × 112 mm	IP54	4 4	10
KEL 24 8-MT with V2A screws	49174.200	82 × 112 mm	IP54	4 4	10
KEL 24 30-2 MT	49176	126 × 112 mm	IP54	30 -	10
KEL 24 30-2 MT with V2A screws	49176.200	126 × 112 mm	IP54	30 -	10
KEL 24 27-2 MT	49178	126 × 112 mm	IP54	26 1	10
KEL 24 27-2 MT with V2A screws	49178.200	126 × 112 mm	IP54	26 1	10
KEL 24 24-2 MT	49180	126 × 112 mm	IP54	22 2	10
KEL 24 24-2 MT with V2A screws	49180.200	126 × 112 mm	IP54	22 2	10
KEL 24 21-2 MT	49182	126 × 112 mm	IP54	18 3	10
KEL 24 21-2 MT with V2A screws	49182.200	126 × 112 mm	IP54	18 3	10
KEL 24 12-2 MT	49184	126 × 112 mm	IP54	6 6	10
KEL 24 12-2 MT with V2A screws	49184.200	126 × 112 mm	IP54	6 6	10

### Product description

The cable entry frames KEL 24-E/-MT/-2MT ATEX series are KEL frames extended with one or two additional middle frames for routing additional cables.

Thus allowing the quick, easy and cost effective routing solution for up to 120 cables in hazardous areas.

### Advantages

- Warranty on pre-terminated cables remains
- Retrofitting and maintenance can be carried out easily and quickly
- High packing density
- Vibration proof

### Specifications

Material	Polyamide (PA)
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets
Temperature	- 30°C to + 90°C (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen free, silicone free
Height	17 mm

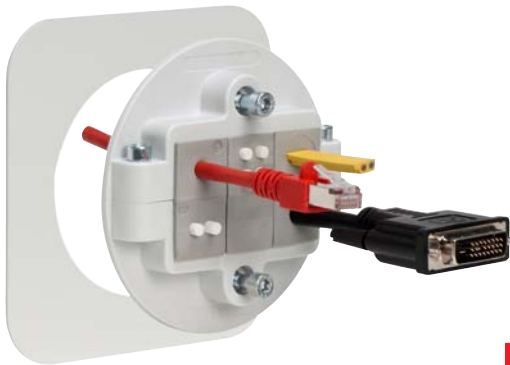
### Accessories

KT Cable grommets, grey 38 - 42

For application in Ex atmospheres, cable grommets can only be used in grey (RAL 7035)!

# KVT 80 ATEX

## Split cable glands



Type	Order No.	Cut-out	Protection class	Grommets small   large	PU
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### Product description

The KVT 80 split cable glands are designed for routing and sealing pre-terminated cables.

By connecting the two half shells via attached screws, the grommets provide sufficient pressure on the routed cables. The KVT 80 can be fitted to a wall thickness from 1.5 mm to 10 mm.

### Advantages

- Insertion of pre-terminated cables
- Warranty of pre-terminated cables remains
- Easy and quick retrofitting and maintenance
- High packing density, wide variety of grommets
- Quick and easy assembly from the front side

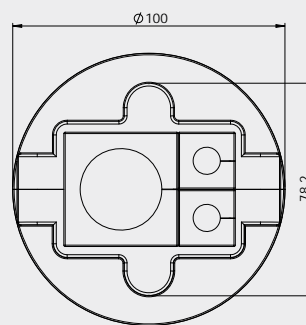
### Note

When mounting the KVT 80 on sheet metal, we recommend the following torque values:  
 1.5 mm sheet = 1 Nm / From 2 mm sheet = 1.5 Nm

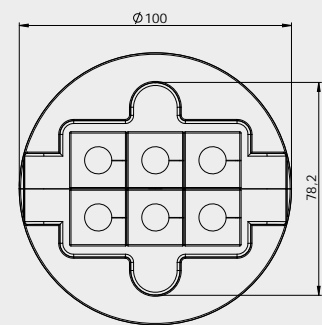
### Specifications

Material	Polycarbonate (PC)
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo, self-extinguishing
Protection class	IP54, with gasket and correct selection of cable grommets
Temperature	-30°C to +90°C (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen free, silicone free

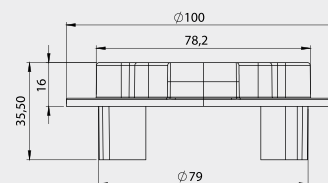
KVT 80 3 ATEX	<input type="checkbox"/> 49120 <input checked="" type="checkbox"/> 49123	∅ 80 mm	IP54	2 1	1
KVT 80 6 ATEX	<input type="checkbox"/> 49121 <input checked="" type="checkbox"/> 49122	∅ 80 mm	IP54	6 -	1



KVT 80|3 ATEX



KVT 80|6 ATEX

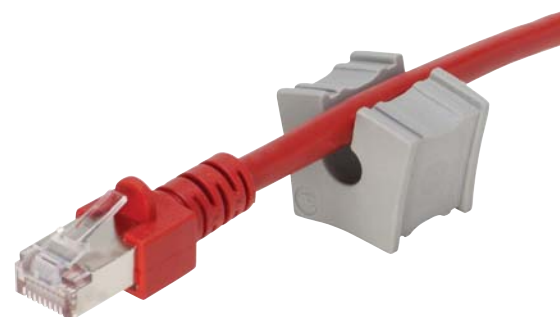


\*Only valid for grey product types

### Accessories

KT Cable grommets, grey 38 - 42  
 For application in Ex atmospheres, cable grommets can only be used in grey (RAL 7035)!

## KT ATEX Cable grommets



Type	Page	Clamping range	Description
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BTK	38	Blind grommet	
KT 2 - KT 15	38	2 - 17 mm	
KTs 16 - KTs 17	38	16 - 17 mm	
KT S1	38		
KT oval	38	approx. 8 × 4 mm	
KT tele	38	Telephone cable	
KT tele1	38	Data cable RJ12	
KT tele2	38	Data cable RJ10 / RJ45	
KT 2 2 - KT 2 8	39	2× Ø 2 mm - 2× Ø 8 mm	
KT 4 2 - KT 4 6	39	4× Ø 2 mm - 4× Ø 6 mm	
KT-ASI	39	1 ASI-cable	
KT-ASI2 r	39	2 ASI-cables	
KT-ASI2 l	39	2 ASI-cables	
ATG	40	Adapter grommet	
BTG	40	Blind grommet	
KT 16 - KT 34	40	16 - 34 mm	

### Product description

Cable grommets KT are used with the following ATEX cable entry frames:

- KEL ATEX | Page 164 - 167
- KEL-ER ATEX | Page 165
- KVT 8o ATEX | Page 168

The model range KT is designed for cable diameters from 2 to 34 mm.

For application in Ex atmospheres, cable grommets can only be used in grey (RAL 7035)!

### Specifications

Material	Elastomer
Flame class	UL94-Vo, self-extinguishing
Temperature	- 30°C to + 90°C (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen free, silicone free

# KT-DPF | KTMB | DT ATEX

## Cable grommets, multi-range



### Product description

The KTMB / KT-DPF ATEX grommets accept a wide range of cable diameters. A great benefit when the exact cable diameter is not known in advance. The KTMB ATEX grommets are not split and therefore only usable for cables without connectors. Cutting of KT-DPF ATEX grommets: Cable diameter less 20%.

**For application in Ex atmospheres, cable grommets can only be used in grey (RAL 7035)!**

The DT ATEX cable grommets are designed for standard cables (without connectors). A large number of cables can be routed utilising minimal space. DT ATEX grommets are designed to fit in KT ATEX large grommet spaces

### Advantages

- Combination of routing pre-terminated and standard cables with one cable entry frame
- Enables sub-assembly of cable harnesses
- High packing density (DT ATEX)
- Grommets allow dynamic and flexible movement of rigid cables

### Specifications

Material	Elastomer
Flame class	UL94-Vo, self-extinguishing
Temperature	- 30°C to + 90°C (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen free, silicone free

Description	Type	Page	Clamping range
-------------	------	------	----------------

	KT-DPF-A	41	3 - 12 mm
	KT-DPF-B	41	4 - 18 mm
	KT-DPF-C	41	14 - 26 mm
	KTMB-A	41	2.5 - 6.5 mm
	KTMB-B	41	4 - 7.5 mm
	KTMB-C	41	6.5 - 10 mm
	KTMB-D	41	9.5 - 13 mm
	KTMB-E	41	13 - 16 mm
	KTMB-G	41	13 - 18 mm
	KTMB-H	41	18 - 23 mm
	KTMB-I	41	23 - 28 mm
	KTMB-J	41	28 - 33 mm
	KTMB-K	41	2x 13 - 18 mm
	DT 1	42	12x max. 6.5 mm 2x max. 12.2 mm
	DT 2	42	16x max. 7.1 mm
	DT 3	42	4x max. 6.5 mm 3x max. 9.5 mm 3x max. 11.3 mm
	DT 4	42	9x max. 9.5 mm



# KEL-DPZ ATEX

## Cable entry plates



Membrane on front



Conical shape on back provides additional sealing.



Type	Order No.	Cut-out	Number of cables	Protection class	PU
KEL-DPZ 24 14 ATEX	☐ 49201 ■ 49211	36 × 112 mm	10× 3.2 - 6.5 mm 4× 16 - 22 mm	IP65	10
KEL-DPZ 24 15 ATEX	☐ 49205 ■ 49215	36 × 112 mm	15× 7.2 - 12 mm	IP65	10
KEL-DPZ 24 16 ATEX	☐ 49206 ■ 49216	36 × 112 mm	8× 3.2 - 6.5 mm 4× 5 - 9.7 mm 2× 9 - 16.2 mm 2× 16 - 22 mm	IP65	10
KEL-DPZ 24 17 ATEX	☐ 49202 ■ 49212	36 × 112 mm	6× 3.2 - 6.5 mm 6× 5 - 10.2 mm 5× 9 - 16.2 mm	IP65	10
KEL-DPZ 24 25 ATEX	☐ 49203 ■ 49213	36 × 112 mm	12× 3.2 - 6.5 mm 7× 4.8 - 9.7 mm 6× 7.5 - 12 mm	IP65	10
KEL-DPZ 24 32 ATEX	☐ 49207 ■ 49217	36 × 112 mm	21× 3.2 - 6.5 mm 8× 5 - 10.2 mm 3× 7.5 - 12 mm	IP65	10
KEL-DPZ 24 42 ATEX	☐ 49204 ■ 49214	36 × 112 mm	42× 3.2 - 6.5 mm	IP65	10
KEL-DPZ 24 121 ATEX	☐ 49208 ■ 49218	36 × 112 mm	119× 1.5 - 2.6 mm 2× 2.5 - 5 mm	IP65	10
KEL-DPZ-B 13 ATEX	☐ 49311 ■ 49317	46 × 46 mm	8× 3.2 - 6.5 mm 4× 5 - 10.2 mm 1× 16 - 22 mm	IP66	10
KEL-DPZ-B 17 ATEX	☐ 49312 ■ 49318	46 × 46 mm	10× 3.2 - 6.5 mm 4× 5 - 10.2 mm 2× 7.5 - 12 mm 1× 9 - 16.2 mm	IP66	10
KEL-DPZ-B 25 ATEX	☐ 49313 ■ 49319	36 × 112 mm	25× 3.2 - 6.5 mm	IP66	10
KEL-DPZ-E 112 7 ATEX	☐ 49301 ■ 49306	18 × 112 mm	7× 7.5 - 12 mm	IP66	10
KEL-DPZ-E 112 21 ATEX	☐ 49302 ■ 49307	18 × 112 mm	21× 3.2 - 6.5 mm	IP66	10

### Product description

KEL-DPZ 24, KEL-DPZ-B and KEL-DPZ-E cable entry plates are designed to route and seal standard cables (from 1.5 mm to 22 mm in diameter) in limited space.

The assembly of the KEL-DPZ with cables or pneumatic hoses can be done within seconds. Simply put a small slit in the thin membrane, push standard cables through and it's immediately sealed (IP65 / IP66).

### Advantages

- Assembly within seconds
- High packing density
- Dual sealing of cables according to IP65 / IP66
- Space saving shapes

### Specifications

Material	Frame: Polyamide (PA) Sealing plate: Elastomer
Colour	☐ grey (similar RAL 7035) ■ black
Protection class	IP65 / IP66
Flame class	UL94-Vo, self-extinguishing
Temperature	- 30°C to + 90°C (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen free, silicone free
Height	10 mm

\*Only valid for grey product types

# KEL-DPZ ATEX

## Cable entry plates, round



Membrane on front



Conical shape on back provides additional sealing

### Product description

KEL-DPZ round entry plates are designed to route and seal standard cables (from 1.5 mm to 22 mm in diameter) in limited space. The assembly of the KEL-DPZ with cables or pneumatic hoses can be done within seconds. Simply put a small slit in the thin membrane, push standard cables through and it's immediately sealed with IP68.

The round versions of the KEL-DPZ series have a thread to fit in metric cut-outs from M32 to M63. Thus cut-outs for standard metric cable glands can be used.

### Advantages

- Assembly within seconds
- High packing density
- Dual sealing of cables according to IP68
- Suitable for standard or metric cut-outs
- Polyamide locknuts are included in the shipment

### Specifications

Material	Thread frame: Polyamide (PA)
Colour	Sealing plate: Elastomer <input type="checkbox"/> grey (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo, self-extinguishing
Protection class	IP68
Temperature	- 30°C to + 90°C (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen free, silicone free
Thread length	14 mm
Height	8 mm

Type	Order No.	Number of cables	Thread metric	External diameter	PU
KEL-DPZ 32 4 ATEX	<input type="checkbox"/> 49420 <input checked="" type="checkbox"/> 49440	3× 3.2 - 6.5 mm 1× 7.2 - 12.5 mm	M 32	44 mm	10
KEL-DPZ 32 4-2 ATEX	<input type="checkbox"/> 49421 <input checked="" type="checkbox"/> 49441	4× 5 - 9.5 mm	M 32	44 mm	10
KEL-DPZ 32 7 ATEX	<input type="checkbox"/> 49422 <input checked="" type="checkbox"/> 49442	7× 3.2 - 6.5 mm	M 32	44 mm	10
KEL-DPZ 40 8 ATEX	<input type="checkbox"/> 49423 <input checked="" type="checkbox"/> 49443	4× 3.2 - 6.5 mm 4× 5 - 10.2 mm	M 40	52 mm	10
KEL-DPZ 50 8 ATEX	<input type="checkbox"/> 49424 <input checked="" type="checkbox"/> 49444	5× 5 - 10.2 mm 3× 7.2 - 12.5 mm	M 50	62 mm	10
KEL-DPZ 50 10 ATEX	<input type="checkbox"/> 49425 <input checked="" type="checkbox"/> 49445	7× 3.2 - 6.5 mm 2× 5 - 10.2 mm 1× 16 - 22.2 mm	M 50	62 mm	10
KEL-DPZ 50 12 ATEX	<input type="checkbox"/> 49426 <input checked="" type="checkbox"/> 49446	4× 3.2 - 6.5 mm 8× 5 - 10.2 mm	M 50	62 mm	10
KEL-DPZ 50 19 ATEX	<input type="checkbox"/> 49428 <input checked="" type="checkbox"/> 49448	19× 3.2 - 6.5 mm	M 50	62 mm	10
KEL-DPZ 50 78 ATEX	<input type="checkbox"/> 49427 <input checked="" type="checkbox"/> 49447	76× 1.5 - 2.6 mm 2× 2.5 - 5 mm	M 50	62 mm	10
KEL-DPZ 63 9 ATEX	<input type="checkbox"/> 49429 <input checked="" type="checkbox"/> 49449	1× 3.2 - 6.5 mm 3× 5 - 10.2 mm 4× 9 - 16.2 mm 1× 16 - 22.2 mm	M 63	75 mm	10
KEL-DPZ 63 13 ATEX	<input type="checkbox"/> 49430 <input checked="" type="checkbox"/> 49450	4× 3.2 - 6.5 mm 4× 5 - 10.2 mm 5× 9 - 16.2 mm	M 63	75 mm	10
KEL-DPZ 63 14 ATEX	<input type="checkbox"/> 49432 <input checked="" type="checkbox"/> 49452	14× 5 - 10.2 mm	M 63	75 mm	10
KEL-DPZ 63 35 ATEX	<input type="checkbox"/> 49431 <input checked="" type="checkbox"/> 49451	35× 3.2 - 6.5 mm	M 63	75 mm	10

\*Only valid for grey product types



## KEL-DPF ATEX Cable entry grommets



Type	Order No.	Thread metric	Clamping range	External dimension	PU
KEL-DPF 25 3-17 ATEX	<input type="checkbox"/> 49401 <input checked="" type="checkbox"/> 49410	M 25	3 - 17 mm	39 mm	5
KEL-DPF 32 6-24 ATEX	<input type="checkbox"/> 49402 <input checked="" type="checkbox"/> 49411	M 32	6 - 24 mm	46 mm	5
KEL-DPF 40 11-32 ATEX	<input type="checkbox"/> 49403 <input checked="" type="checkbox"/> 49412	M 40	11 - 32 mm	54 mm	5
KEL-DPF 50 17-42 ATEX	<input type="checkbox"/> 49404 <input checked="" type="checkbox"/> 49413	M 50	17 - 42 mm	64 mm	5
KEL-DPF 63 23-55 ATEX	<input type="checkbox"/> 49405 <input checked="" type="checkbox"/> 49414	M 63	23 - 55 mm	77 mm	5

### Product description

The KEL-DPF was developed particularly for routing large or unknown size of service cables into the switch cabinet. Due to the flexibility and unique pyramid shape, cable entry and flexible positioning is much easier compared to using conventional cable glands.

Cutting of DPF grommets:

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

### Advantages

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

### Specifications

Material	Thread frame: Polyamide (PA) Pyramid: Elastomer
Colour	<input type="checkbox"/> grey (similar RAL 7035) <input checked="" type="checkbox"/> black
Flame class	UL94-Vo, self-extinguishing
Protection class	IP68
Temperature	- 30°C to + 90°C (static)
Equipment group	II
Category	2G, 3G, 2D, 3D
Zone	1 + 21, 2+22
Test standard	EN 60079-0
Properties	Halogen free, silicone free
Thread length	14 mm

\*Only valid for grey product types

# Appendix

## Technical data and comments



### At a glance ...

Technical data and drilling templates at a glance.

IP rating according to IEC/EN 60529 and flammability classification according to UL94.

Reference list, abbreviations and certificates.



# Appendix

Technical data and comments

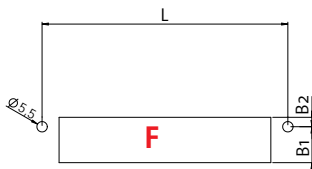
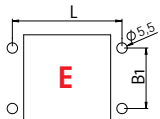
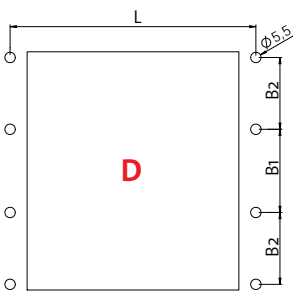
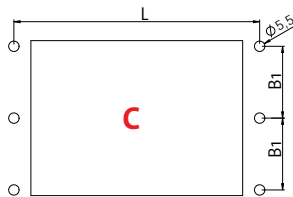
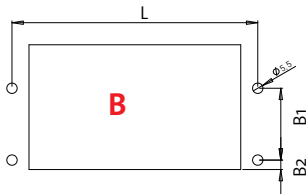
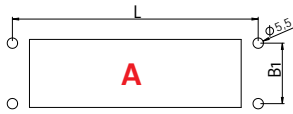
## Chapter content

<b>Technical data</b> Drilling templates and cut-outs	Page	176 - 177
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# Technical data

## Drilling templates



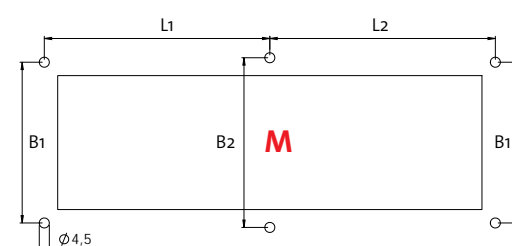
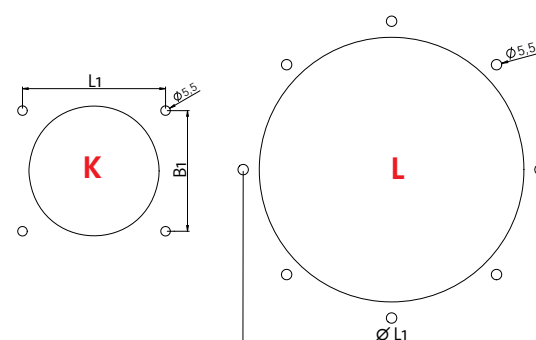
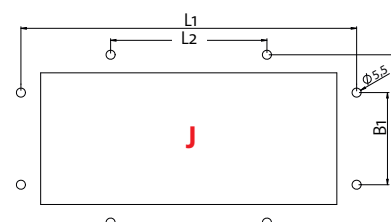
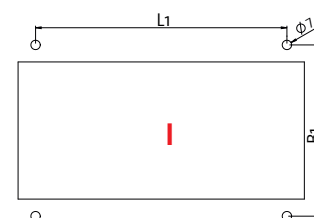
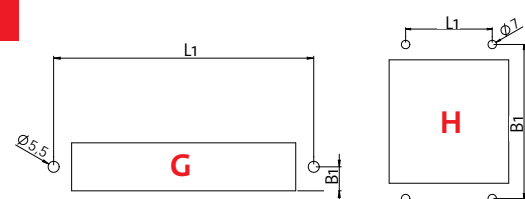
Type	Page	Cut-out type	Drilling template [mm]			Cut-out h x l [mm]
			L	B1	B2	
KEL 24 x KEL-ER 24 x KEL-FG A KEL-QUICK 24 KEL-DPZ 24 x	6 7 20 43 52	A	130	32	-	112 x 36
KEL-SNAP 24	23	A	130	32	-	max. 112 x 46
KEL 16 x KEL-ER 16 x KEL-QUICK 16	8 9 42 - 43	A	103	32	-	86 x 36
KEL-SNAP 16	22	A	103	32	-	max. 86 x 46
KEL 10 x KEL-ER 10 x KEL-SNAP 10	10 11 22	A	83	32	-	65 x 36
KEL 24 x-E	16	B	130	38	5	112 x 66
KEL 24 x-MT	17	C	130	38	-	112 x 82
KEL 24 x-2MT	18	D	130	44	38	112 x 126
KEL-B KEL-ER-B KEL-DPZ-B	12 13 54	E	58	32	-	46 x 46
KEL-SNAP-B KEL-QUICK-B	22 43	E	56	32	-	38 x 46
KEL-FG B	21	E	62.5	32	-	36 x 46
KEL-E x KEL-FL x	14 36	F	KEL-E2: 58 KEL-E3: 83 KEL-E4: 103 KEL-E5: 130	19	5	KEL-E2: 43 x 24 KEL-E3: 65 x 24 KEL-E4: 86 x 24 KEL-E5: 112 x 24



# Technical data

## Drilling templates

Type	Page	Cut-out type	Drilling template [mm]				Cut-out h x l [mm]
			L1	L2	B1	B2	
KEL-DPZ-E	55	G	130	-	9	-	112 x 18
KEL-JUMBO 1	40	H	56.5	-	100.5	-	78 x 80.5
KEL-JUMBO 2	40	I	147.5	-	100.5	-	168 x 80.5
KEL 183	38	J	204	95	56	102	180 x 80
KEL-JUMBO flex	66	K	70	-	70	-	∅ 75.5
KEL-ULTRA flex	67	L	∅ 157	-	-	-	∅ 140
KEL-DPZ-KL	56	M	101	101	72	76	190 x 60



# Appendix

## Certificates

### Certificates

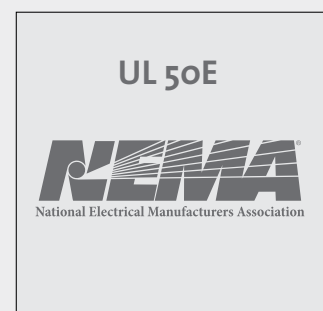
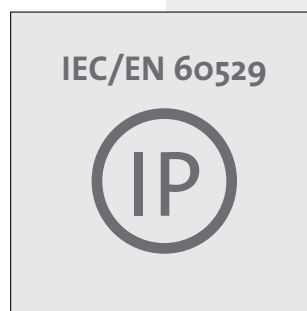
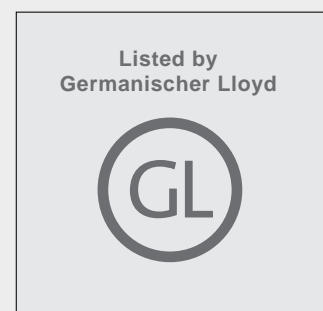
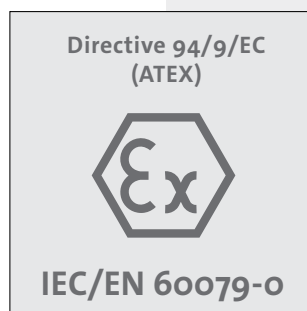
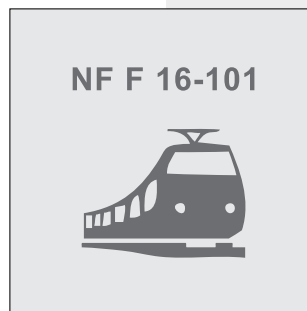
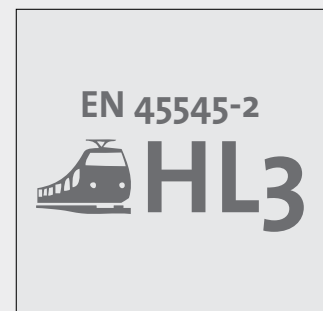
- **ISO 9001:2008**  
Management Certificate

Most of our products meet the following standards:

- **EN 45545-2**  
European railway standard
- **DIN 5510-2**  
German railway standard
- **NF F 16-101**  
French railway standard
- **UL E 336024**  
Product safety certification for USA and Canada
- **GL**  
International safety standard for shipbuilding
- **Directive 94/9/EC (ATEX) according to IEC/EN 60079-0**  
for use in potentially explosive atmospheres
- **IP according to IEC/EN 60529**  
Sealing rates for solid and water protection
- **NEMA according to UL 50E**  
Sealing rates for solid and liquid protection

Additional information / specifications are available in the download section of our website: [www.icotek.com](http://www.icotek.com)

Certificates are available upon request.



# Appendix Certificates

Product	IP54	IP64	IP65	IP66	IP67	IP68	NEMA 12	NEMA 4X	UL US	GL	HL3 EN 45545-2	Ex	RoHS compliant	Flame class UL94			Silicone free	Halogen free
	Protection class IP						up to NEMA		UL/UR	GL	EN45545-2	ATEX	RoHS					
	IP54	IP64	IP65	IP66	IP67	IP68	12	4X			HL3			HB	V2	Vo		
<b>Product group 1:</b>																		
KEL 24/16/10/-B	■						■		■	■	■	■	■			■	■	■
KEL 24-E/-MT/-2MT	■								■	■	■	■	■			■	■	■
KEL 16-E/-MT/-2MT	■										■	■	■			■	■	■
KEL-ER 24/16/10/-B			■					■	■		■	■	■			■	■	■
KEL-U 24/16/10/-B	■						■		■		■		■			■	■	■
KEL-E	■						■		■	■	■	■	■			■	■	■
KEL-ER-E			■				■		■		■		■			■	■	■
KEL-FG A	■									■	■		■			■	■	■
KEL-FG B	■									■	■		■			■	■	■
KEL-SNAP	■						■		■				■			■	■	■
KVT gy	■						■		■	■	■		■			■	■	■
KVT bk	■						■		■	■			■			■	■	■
KVT 80 gy	■						■				■		■			■	■	■
KVT 80 bk	■						■		■			■	■			■	■	■
KVT-SNAP	■								■	■	■		■			■	■	■
KVT-W90 gy	■								■	■	■		■			■	■	■
KVT-W90 bk	■								■	■			■			■	■	■
KT small gy	■		■				■	■	■		■	■	■			■	■	■
KT small bk	■		■										■	■				
KT large gy	■		■				■	■	■		■	■	■			■	■	■
KT large bk	■		■										■	■				
KTMB small/ large	■						■		■		■	■	■			■	■	■
KT-DPF small gy	■						■		■		■	■	■			■	■	■
KT-DPF small bk	■												■	■				
KT-DPF large gy	■						■		■		■	■	■			■	■	■
KT-DPF large bk	■												■	■				
DT	■						■		■		■	■	■			■	■	■
ST							■		■				■			■	■	■
KEL-FL	■								■	■	■		■			■	■	■
FT	■								■	■	■		■			■	■	■
KEL 183	■						■		■		■		■			■	■	■
KTMB 183	■						■		■		■		■			■	■	■
KEL-JUMBO 1 & 2	■						■		■		■		■			■	■	■
KTF	■						■		■		■		■			■	■	■
KEL-QUICK 24/16/-B	■								■		■		■			■	■	■
QVT	■									■	■		■			■	■	■
QVT-CLICK	■										■		■			■	■	■
KEL-QTA 24/10/-B/ round	■								■		■		■			■	■	■
KEL-QTE	■								■		■		■			■	■	■
QT	■								■		■		■			■	■	■
KEL-BES 24/16/10													■			■	■	■

# Appendix

## Certificates

	IP54	IP64	IP65	IP66	IP67	IP68	NEMA 12	NEMA 4X	cUL US	GL	HL3 EN 45545-2	Ex	RoHS compliant				Silicone free	Halogen free	
Product	Protection class IP						up to NEMA		UL/UR	GL	EN45545-2	ATEX	RoHS	Flame class UL94					
	IP54	IP64	IP65	IP66	IP67	IP68	12	4X			HL3			HB	V2	Vo			
<b>Product group 2:</b>																			
KEL-DPU 24 gy			■	■				■	■		■		■				■	■	■
KEL-DPU 24 bk			■	■				■	■				■				■	■	■
KEL-DPZ 24 gy			■				■		■	■	■	■	■				■	■	■
KEL-DPZ 24 bk			■				■		■	■	■	■	■				■	■	■
KEL-DPZ-B gy				■			■		■	■	■	■	■				■	■	■
KEL-DPZ-B bk				■			■		■	■	■	■	■				■	■	■
KEL-DPZ-E gy				■			■		■	■	■	■	■				■	■	■
KEL-DPZ-E bk				■			■		■	■	■	■	■				■	■	■
KEL-DPZ-KL gy			■				■		■	■	■	■	■				■	■	■
KEL-DPZ-KL bk			■				■		■	■	■	■	■				■	■	■
KEL-DPZ round gy				■	■	■		■	■	■	■	■	■				■	■	■
KEL-DPZ round bk				■	■	■		■	■	■	■	■	■				■	■	■
KEL-DP 24 gy		■					■		■	■	■	■	■				■	■	■
KEL-DP 24 bk		■					■		■	■	■	■	■				■	■	■
KEL-DP-E gy		■					■		■	■	■	■	■				■	■	■
KEL-DP-E bk		■					■		■	■	■	■	■				■	■	■
KEL-DP round gy			■				■		■	■	■	■	■				■	■	■
KEL-DP round bk			■				■		■	■	■	■	■				■	■	■
ST-B							■		■				■				■	■	■
KEL-DPF gy				■		■		■	■		■	■	■				■	■	■
KEL-DPF bk				■		■		■	■		■	■	■				■	■	■
KEL-JUMBO flex	■						■		■		■	■	■				■	■	■
KEL-ULTRA flex				■			■		■		■	■	■				■	■	■
<b>Product group 3:</b>																			
KZL										■	■		■				■	■	■
SF ZL										■	■		■				■	■	■
ZL										■	■		■				■	■	■
ZL-AB										■	■		■				■	■	■
ZL 03 04 05										■	■		■				■	■	■
<b>Product group 5:</b>																			
CONFIX FWS-A/-B gy	■												■				■	■	■
CONFIX FWS-A/-B bk	■												■				■	■	■
<b>Product group 6:</b>																			
KDR-ESR	■										■		■				■	■	■
BPK		■					■		■				■				■	■	■
BPK-RF	■						■		■				■				■	■	■
BPM	■												■						
BPK-SNAP	■												■	■				■	
KGM									■		■		■				■	■	■
KBH-S/KBH-R											■								

## Appendix

### Flammability classification according to UL94



#### Flame class UL94-HB

Applying the horizontal burning test the material burns slowly. For parts with a thickness up to 3 mm the burning speed must not be faster than 3 inches/min and for parts with a thickness over 3 mm the burning speed must not be faster than 1.5 inches/mm.

Materials which burn faster are not UL certified.

#### Flame class UL94-V2

Applying the vertical burning test, the material must normally extinguish itself after 25 seconds or less, but max. after 30 seconds. The material may drop and cotton wool placed under the probe may inflame. The material must not glow longer than 60 seconds.

#### Flame class UL94-V1

Applying the vertical burning test, the material must normally extinguish itself after 25 seconds or less, but max. after 30 seconds. The material may drop and cotton wool placed under the probe may inflame. The material must not glow longer than 30 seconds.

#### Flame class UL94-V0

Applying the vertical burning test, the material must normally extinguish itself after 5 seconds or less, but max. after 10 seconds. The material may drop down, but cotton wool placed under the probe must not inflame. The material must not glow longer than 30 seconds.

# Appendix

## Sealing rates according to IEC/EN 60529

The protection class is labelled by a letter-figure combination consisting of two letters “IP” and a figure of two digits (e.g. IP54).

### Degree of protection for contact and solid protection

First code digit	Description	Description of scope of protection
0	<b>Not protected</b>	No protection of persons against direct contact with active or moveable parts. No protection against the penetration of solid foreign bodies
1	<b>Protected against large solids</b>	Protection against accidental large area contact of active and internal moveable parts, e.g. by hand, but no protection against intentional access to these parts. Protection against the penetration of solid foreign bodies with a diameter greater than 50 mm
2	<b>Protected against middle solids</b>	Protection against contact with active or internal moveable parts. Protection against the penetration of solid foreign bodies with a diameter greater than 12.5 mm
3	<b>Protected against small solids</b>	Protection against contact with active or internal moveable parts under voltage with tools, wires etc. of a thickness greater than 2.5 mm. Protection against the penetration of solid foreign bodies with a diameter greater than 2.5 mm
4	<b>Protected against grainy solids</b>	Protection against contact with active or internal moveable parts under voltage with tools, wires etc. of a thickness greater than 1 mm
5	<b>Dust protected</b>	Complete protection against contact with standing or internal moveable parts under voltage, protection against dangerous dust deposits. Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety
6	<b>Dust tight</b>	Protection against contact with standing or internal moveable parts under voltage. Protection against penetration of dust

### Degree of protection for water protection

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



## Appendix

### General reference notes

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

Please do your own examinations and tests to determine the practical suitability of the products for the usage intended.

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

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

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

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# Appendix

## Reference list 1|8

Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type	Order No.	Page	Type
31100	158	GMT 25	31393	128	CONFIX FWS-A 40 gy	31576	130	CONFIX WS-B-PA-NW 13	32116	84	ZL 05
31100	158	GMT 25	31395	128	CONFIX FWS-A 50 bk	31576	130	CONFIX WS-B-PA-NW 13	32222	82	ZL 39
31110	158	GMT 20	31395	128	CONFIX FWS-A 50 bk	31578	130	CONFIX WS-B-PA-NW 17	32222	82	ZL 39
31110	158	GMT 20	31396	128	CONFIX FWS-A 50 gy	31578	130	CONFIX WS-B-PA-NW 17	32224	82	ZL 60
31120	158	GMT 32	31396	128	CONFIX FWS-A 50 gy	31580	130	CONFIX WS-B-PA-NW 23	32224	82	ZL 60
31120	158	GMT 32	31410	129	CONFIX FWS-B 11 bk	31580	130	CONFIX WS-B-PA-NW 23	32226	82	ZL 70
31140	158	GMT 50	31410	129	CONFIX FWS-B 11 bk	31582	130	CONFIX WS-B-PA-NW 29	32226	82	ZL 70
31140	158	GMT 50	31411	129	CONFIX FWS-B 11 gy	31582	130	CONFIX WS-B-PA-NW 29	32228	82	ZL 87
31200	132	CONFIX WST NW 10	31411	129	CONFIX FWS-B 11 gy	31584	130	CONFIX WS-B-PA-NW 37	32228	82	ZL 87
31200	132	CONFIX WST NW 10	31413	129	CONFIX FWS-B 16 bk	31584	130	CONFIX WS-B-PA-NW 37	32230	82	ZL 103
31210	132	CONFIX WST NW 14	31413	129	CONFIX FWS-B 16 bk	31586	130	CONFIX WS-B-PA-NW 50	32230	82	ZL 103
31210	132	CONFIX WST NW 14	31414	129	CONFIX FWS-B 16 gy	31586	130	CONFIX WS-B-PA-NW 50	32232	82	ZL 121
31220	132	CONFIX WST NW 20	31414	129	CONFIX FWS-B 16 gy	31590	131	CONFIX WS-B-PAL-NW 7,5	32232	82	ZL 121
31220	132	CONFIX WST NW 20	31416	129	CONFIX FWS-B 21 bk	31590	130	CONFIX WS-B-PAL-NW 7,5	32234	82	ZL 140
31230	132	CONFIX WST NW 23	31416	129	CONFIX FWS-B 21 bk	31592	131	CONFIX WS-B-PAL-NW 8,5	32234	82	ZL 140
31230	132	CONFIX WST NW 23	31417	129	CONFIX FWS-B 21 gy	31592	130	CONFIX WS-B-PAL-NW 8,5	32236	82	ZL 180
31240	132	CONFIX WST NW 37	31417	129	CONFIX FWS-B 21 gy	31594	131	CONFIX WS-B-PAL-NW 10	32236	82	ZL 180
31240	132	CONFIX WST NW 37	31419	129	CONFIX FWS-B 29 bk	31594	130	CONFIX WS-B-PAL-NW 10	32250	80	KZL 11
31250	132	CONFIX WST NW 45	31419	129	CONFIX FWS-B 29 bk	31596	131	CONFIX WS-B-PAL-NW 13	32251	85	DH 30
31250	132	CONFIX WST NW 45	31420	129	CONFIX FWS-B 29 gy	31596	130	CONFIX WS-B-PAL-NW 13	32251	85	DH 30
31260	132	CONFIX WST NW 70	31420	129	CONFIX FWS-B 29 gy	31598	131	CONFIX WS-B-PAL-NW 17	32252	85	DH 32
31260	132	CONFIX WST NW 70	31422	129	CONFIX FWS-B 36 bk	31598	130	CONFIX WS-B-PAL-NW 17	32252	85	DH 32
31300	133	CONFIX SH 10	31422	129	CONFIX FWS-B 36 bk	31600	131	CONFIX WS-B-PAL-NW 23	32260	80	KZL 39 H
31300	133	CONFIX SH 10	31423	129	CONFIX FWS-B 36 gy	31600	130	CONFIX WS-B-PAL-NW 23	32260	80	KZL 39 H
31310	133	CONFIX SH 14	31423	129	CONFIX FWS-B 36 gy	31602	131	CONFIX WS-B-PAL-NW 29	32261	80	KZL 39 C
31310	133	CONFIX SH 14	31425	129	CONFIX FWS-B 48 bk	31602	130	CONFIX WS-B-PAL-NW 29	32261	80	KZL 39 C
31320	133	CONFIX SH 20	31425	129	CONFIX FWS-B 48 bk	31604	131	CONFIX WS-B-PAL-NW 37	32262	80	KZL 80 H
31320	133	CONFIX SH 20	31426	129	CONFIX FWS-B 48 gy	31604	130	CONFIX WS-B-PAL-NW 37	32262	80	KZL 80 H
31330	133	CONFIX SH 23	31426	129	CONFIX FWS-B 48 gy	31606	131	CONFIX WS-B-PAL-NW 50	32263	80	KZL 80 C
31330	133	CONFIX SH 23	31550	130	CONFIX WS-G-PA-NW 7,5	31606	130	CONFIX WS-B-PAL-NW 50	32263	80	KZL 80 C
31340	133	CONFIX SH 37	31550	130	CONFIX WS-G-PA-NW 7,5	31610	131	CONFIX WS-B-PP-NW 7,5	32264	80	KZL 140 H
31340	133	CONFIX SH 37	31552	130	CONFIX WS-G-PA-NW 8,5	31610	130	CONFIX WS-B-PP-NW 7,5	32264	80	KZL 140 H
31350	133	CONFIX SH 45	31552	130	CONFIX WS-G-PA-NW 8,5	31612	131	CONFIX WS-B-PP-NW 8,5	32265	80	KZL 140 C
31350	133	CONFIX SH 45	31554	130	CONFIX WS-G-PA-NW 10	31612	130	CONFIX WS-B-PP-NW 8,5	32265	80	KZL 140 C
31380	128	CONFIX FWS-A 16 bk	31554	130	CONFIX WS-G-PA-NW 10	31614	131	CONFIX WS-B-PP-NW 10	32270	83	ZL 39 AB M4
31380	128	CONFIX FWS-A 16 bk	31556	130	CONFIX WS-G-PA-NW 13	31614	130	CONFIX WS-B-PP-NW 10	32270	83	ZL 39 AB M4
31381	128	CONFIX FWS-A 16 gy	31556	130	CONFIX WS-G-PA-NW 13	31616	131	CONFIX WS-B-PP-NW 13	32271	83	ZL 60 AB M4
31381	128	CONFIX FWS-A 16 gy	31558	130	CONFIX WS-G-PA-NW 17	31616	130	CONFIX WS-B-PP-NW 13	32271	83	ZL 60 AB M4
31383	128	CONFIX FWS-A 20 bk	31558	130	CONFIX WS-G-PA-NW 17	31618	131	CONFIX WS-B-PP-NW 17	32272	83	ZL 70 AB M4
31383	128	CONFIX FWS-A 20 bk	31560	130	CONFIX WS-G-PA-NW 23	31618	130	CONFIX WS-B-PP-NW 17	32272	83	ZL 70 AB M4
31384	128	CONFIX FWS-A 20 gy	31560	130	CONFIX WS-G-PA-NW 23	31620	131	CONFIX WS-B-PP-NW 23	32273	83	ZL 87 AB M4
31384	128	CONFIX FWS-A 20 gy	31562	130	CONFIX WS-G-PA-NW 29	31620	130	CONFIX WS-B-PP-NW 23	32274	83	ZL 140 AB M4
31386	128	CONFIX FWS-A 25 bk	31562	130	CONFIX WS-G-PA-NW 29	31622	131	CONFIX WS-B-PP-NW 29	32275	83	ZL 103 AB M4
31386	128	CONFIX FWS-A 25 bk	31564	130	CONFIX WS-G-PA-NW 37	31622	130	CONFIX WS-B-PP-NW 29	32276	83	ZL 180 AB M4
31387	128	CONFIX FWS-A 25 gy	31564	130	CONFIX WS-G-PA-NW 37	31624	131	CONFIX WS-B-PP-NW 37	32277	83	ZL 121 AB M4
31387	128	CONFIX FWS-A 25 gy	31566	130	CONFIX WS-G-PA-NW 50	31624	130	CONFIX WS-B-PP-NW 37	32280	83	ZL 39 AB M5
31389	128	CONFIX FWS-A 32 bk	31566	130	CONFIX WS-G-PA-NW 50	31626	131	CONFIX WS-B-PP-NW 50	32281	83	ZL 60 AB M5
31389	128	CONFIX FWS-A 32 bk	31570	130	CONFIX WS-B-PA-NW 7,5	31626	130	CONFIX WS-B-PP-NW 50	32282	83	ZL 70 AB M5
31390	128	CONFIX FWS-A 32 gy	31570	130	CONFIX WS-B-PA-NW 7,5	32112	84	ZL 03	32283	83	ZL 87 AB M5
31390	128	CONFIX FWS-A 32 gy	31572	130	CONFIX WS-B-PA-NW 8,5	32112	84	ZL 03	32284	83	ZL 103 AB M5
31392	128	CONFIX FWS-A 40 bk	31572	130	CONFIX WS-B-PA-NW 8,5	32114	84	ZL 04	32285	83	ZL 121 AB M5
31392	128	CONFIX FWS-A 40 bk	31574	130	CONFIX WS-B-PA-NW 10	32114	84	ZL 04	32286	83	ZL 140 AB M5
31393	128	CONFIX FWS-A 40 gy	31574	130	CONFIX WS-B-PA-NW 10	32116	84	ZL 05	32287	83	ZL 180 AB M5

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32290	83	ZL 39 AB M6	32769	125	MB 350 16 M8	36226	116	SK 10-20	36440	122	KAFM 10 SK
32291	83	ZL 60 AB M6	32770	125	MB 400 16 M8	36228	116	SK 15-32	36442	122	KAFM 2 SF
32292	83	ZL 70 AB M6	32771	125	MB 500 16 M8	36229	90	SFS single	36444	122	KAFM 4 SF
32293	83	ZL 87 AB M6	32772	125	MB 600 16 M8	36230	122	SF single	36446	122	KAFM 6 SF
32294	83	ZL 103 AB M6	32773	125	MB 200 16 M6+M8	36231	122	SC single	36448	122	KAFM 8 SF
32295	83	ZL 121 AB M6	32774	125	MB 250 16 M6+M8	36232	122	SK single	36450	122	KAFM 10 SF
32296	83	ZL 140 AB M6	32775	125	MB 300 16 M6+M8	36234	122	Bushing	36452	122	KAFM 16 SF
32297	83	ZL 180 AB M6	32800	125	MB 100 25 M10	36235	116	SS SK 3-8	36454	122	KAFM 29 SF
32351	81	SF ZL 39	32801	125	MB 150 25 M10	36236	116	SS SK 4-13.5	36458	122	KAFM 59 SF
32352	81	SF ZL 60	32802	125	MB 200 25 M8	36237	116	SS SK 10-20	36459	122	KAFM 59 Zn SF
32353	81	SF ZL 70	32803	125	MB 200 25 M10	36238	116	SS SK 15-32	36460	122	KAFM 16 DH
32354	81	SF ZL 87	32804	125	MB 250 25 M8	36243	89	SF SKL 1.5-3	36462	122	KAFM 29 DH
32355	81	SF ZL 103	32805	125	MB 250 25 M10	36244	89	SF SKL 3-6	36464	122	KAFM 59 DH
32356	81	SF ZL 121	32806	125	MB 300 25 M8	36245	89	SF SKL 6-8	36465	122	KAFM 16 SC
32357	81	SF ZL 140	32807	125	MB 300 25 M10	36246	89	SF SKL 8-11	36466	122	KAFM 29 SC
32358	81	SF ZL 180	32808	125	MB 350 25 M10	36247	89	SF SKL 12-16	36467	122	KAFM 59 SC
32360	83	ZL 39 AB M5 BR	32809	125	MB 400 25 M8	36248	89	SF SKL 17-22	36470	122	KAFM 16 SK
32361	83	ZL 60 AB M5 BR	32810	125	MB 500 25 M8	36249	89	SF SKL 23-29	36471	122	KAFM 29 SK
32362	83	ZL 70 AB M5 BR	32811	125	MB 600 25 M8	36250	89	SF SKL 30-37	36472	122	KAFM 59 SK
32363	83	ZL 87 AB M5 BR	36000	157	MF-B20	36251	98	LF SKL 1.5-3	36482	122	KAFM 2 DH
32364	83	ZL 103 AB M5 BR	36002	157	MF-B20 Clip	36252	89	SF SKL 38-48	36484	122	KAFM 4 DH
32365	83	ZL 121 AB M5 BR	36008	157	MF-B30	36253	98	LF SKL 3-6	36486	122	KAFM 6 DH
32366	83	ZL 140 AB M5 BR	36010	157	MF-B30 Clip	36255	98	LF SKL 6-8	36488	122	KAFM 8 DH
32367	83	ZL 180 AB M5 BR	36016	157	MF-B50	36256	98	LF SKL 8-11	36490	122	KAFM 10 DH
32700	124	MB 100 6 M6	36018	157	MF-B50 Clip	36257	98	LF SKL 12-16	36500	116	SF SK 3-8
32701	124	MB 150 6 M6	36024	157	MF-B90	36258	98	LF SKL 17-22	36502	116	SF SK 4-13.5
32702	124	MB 200 6 M6	36026	157	MF-B90 Clip	36259	98	LF SKL 23-29	36504	116	SF SK 10-20
32703	124	MB 300 6 M6	36032	157	MF-C40	36282	117	SKS 2-5	36506	116	SF SK 15-32
32704	124	MB 400 6 M6	36034	157	MF-C40 Clip	36283	117	SKS 3-8	36520	120	KEL-EMC-B
32705	124	MB 500 6 M6	36040	157	MF-C53	36284	117	SKS 3-14	36522	120	KEL-EMC 10
32706	124	MB 250 6 M6	36042	157	MF-C53 Clip	36285	117	SKS 3-20	36524	120	KEL-EMC 16 4
32730	124	MB 100 10 M6	36048	157	MF-D49	36286	117	SKS 5-28	36525	118	KEL-EMC-Z 16 4
32731	124	MB 100 10 M8	36050	157	MF-D49 Clip	36287	117	SKS 20-35	36526	120	KEL-EMC 24 5
32732	124	MB 150 10 M8	36056	157	MF-A49	36322	123	ZL 39 SB-EMC-1	36527	118	KEL-EMC-Z 20 5
32733	124	MB 200 10 M6	36058	157	MF-A49 Clip	36324	123	ZL 87 SB-EMC-1	36530	122	KAFM 16 single
32734	124	MB 200 10 M8	36064	157	MF-A68	36326	123	ZL 140 SB-EMC-1	36540	122	KAFM 29 single
32735	124	MB 300 10 M6	36066	157	MF-A68 Clip	36328	123	ZL 60 SB-EMC-1	36550	122	KAFM 59 single
32736	124	MB 300 10 M8	36072	157	MF-A88	36330	123	ZL 121 SB-EMC-1	36562	122	KAFM 59 Zn single
32737	124	MB 400 10 M6	36074	157	MF-A88 Clip	36332	123	ZL 103 SB-EMC-1	36696	116	SC SK 3-8
32738	124	MB 400 10 M8	36100	157	Bus bar 10x3	36400	122	KAFM 10 SC	36700	116	SC SK 4-13.5
32739	124	MB 500 10 M6	36150	143	Clip	36412	122	KAFM 2 SC	36704	116	SC SK 10-20
32741	124	MB 200 10 M6+M8	36200	108	SKL 1.5-3 single	36414	122	KAFM 4 SC	36708	116	SC SK 15-32
32742	124	MB 250 10 M6+M8	36202	108	SKL 3-6 single	36416	122	KAFM 6 SC	36810	90	SFS SKL 1.5-3
32743	124	MB 300 10 M6+M8	36204	108	SKL 6-8 single	36418	122	KAFM 8 SC	36815	90	SFS SKL 3-6
32760	124	MB 100 16 M6	36205	108	SKL 8-11 single	36422	122	KAFM 2 single	36820	90	SFS SKL 6-8
32761	124	MB 100 16 M8	36206	108	SKL 12-16 single	36424	122	KAFM 4 single	36850	88	SFZ SKL 1.5-3
32762	124	MB 150 16 M6	36207	108	SKL 17-22 single	36426	122	KAFM 6 single	36855	88	SFZ SKL 3-6
32763	124	MB 150 16 M8	36208	108	SKL 23-29 single	36428	122	KAFM 8 single	36860	88	SFZ SKL 6-8
32764	124	MB 200 16 M6	36209	108	SKL 30-37 single	36430	122	KAFM 10 single	36865	88	SFZ SKL 8-11
32765	124	MB 200 16 M8	36213	108	SKL 38-48 single	36432	122	KAFM 2 SK	36870	88	SFZ SKL 12-16
32766	125	MB 250 16 M8	36220	116	SC single	36434	122	KAFM 4 SK	36875	88	SFZ SKL 17-22
32767	125	MB 300 16 M6	36222	116	SK 3-8	36436	122	KAFM 6 SK	36880	88	SFZ SKL 23-29
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36920	96	LFZ SKL 6-8	36781.02	102	PFKZ2-A SKL 02	36785.01	102	PFKZ2-B SKL 01	36788.41	95	PFS2 SKL 41
36925	96	LFZ SKL 8-11	36781.03	102	PFKZ2-A SKL 03	36785.02	102	PFKZ2-B SKL 02	36788.42	95	PFS2 SKL 42
36930	96	LFZ SKL 12-16	36781.04	102	PFKZ2-A SKL 04	36785.03	102	PFKZ2-B SKL 03	36788.43	95	PFS2 SKL 43
36935	96	LFZ SKL 17-22	36781.10	102	PFKZ2-A SKL 10	36785.04	102	PFKZ2-B SKL 04	36789.01	94	PFSZ2 SKL 01
36940	96	LFZ SKL 23-29	36781.11	102	PFKZ2-A SKL 11	36785.10	102	PFKZ2-B SKL 10	36789.02	94	PFSZ2 SKL 02
36952	112	RLF (x6)	36781.12	102	PFKZ2-A SKL 12	36785.11	102	PFKZ2-B SKL 11	36789.03	94	PFSZ2 SKL 03
36953	112	RLF (x8)	36781.13	102	PFKZ2-A SKL 13	36785.12	102	PFKZ2-B SKL 12	36789.04	94	PFSZ2 SKL 04
36954	112	RLF (x10)	36781.14	102	PFKZ2-A SKL 14	36785.13	102	PFKZ2-B SKL 13	36789.10	94	PFSZ2 SKL 10
36955	112	RLF (x11)	36781.20	102	PFKZ2-A SKL 20	36785.14	102	PFKZ2-B SKL 14	36789.11	94	PFSZ2 SKL 11
36958	112	RLF (x5)	36781.21	102	PFKZ2-A SKL 21	36785.20	102	PFKZ2-B SKL 20	36789.12	94	PFSZ2 SKL 12
36962	112	RLF (x12)	36781.22	102	PFKZ2-A SKL 22	36785.21	102	PFKZ2-B SKL 21	36789.13	94	PFSZ2 SKL 13
36963	112	RLF (x7)	36781.23	102	PFKZ2-A SKL 23	36785.22	102	PFKZ2-B SKL 22	36789.14	94	PFSZ2 SKL 14
36965	112	RLF (x3)	36781.24	102	PFKZ2-A SKL 24	36785.23	102	PFKZ2-B SKL 23	36789.20	94	PFSZ2 SKL 20
36984	112	RLF (x4)	36781.30	102	PFKZ2-A SKL 30	36785.24	102	PFKZ2-B SKL 24	36789.21	94	PFSZ2 SKL 21
36985	112	RLF (x9)	36781.31	102	PFKZ2-A SKL 31	36785.30	102	PFKZ2-B SKL 30	36789.22	94	PFSZ2 SKL 22
36650.1	104	PCB-4-V-6,8 SKL 1.5-3	36781.32	102	PFKZ2-A SKL 32	36785.31	102	PFKZ2-B SKL 31	36789.23	94	PFSZ2 SKL 23
36650.2	104	PCB-4-V-6,8 SKL 3-6	36781.33	102	PFKZ2-A SKL 33	36785.32	102	PFKZ2-B SKL 32	36789.24	94	PFSZ2 SKL 24
36650.3	104	PCB-4-V-6,8 SKL 6-8	36781.34	102	PFKZ2-A SKL 34	36785.33	102	PFKZ2-B SKL 33	36789.30	94	PFSZ2 SKL 30
36656.1	104	PCB-4-V-12,5 SKL 1.5-3	36781.40	102	PFKZ2-A SKL 40	36785.34	102	PFKZ2-B SKL 34	36789.31	94	PFSZ2 SKL 31
36656.2	104	PCB-4-V-12,5 SKL 3-6	36781.41	102	PFKZ2-A SKL 41	36785.40	102	PFKZ2-B SKL 40	36789.32	94	PFSZ2 SKL 32
36656.3	104	PCB-4-V-12,5 SKL 6-8	36781.42	102	PFKZ2-A SKL 42	36785.41	102	PFKZ2-B SKL 41	36789.33	94	PFSZ2 SKL 33
36778.1	101	PFK-A SKL 1.5-3	36781.43	102	PFKZ2-A SKL 43	36785.42	102	PFKZ2-B SKL 42	36789.34	94	PFSZ2 SKL 34
36778.2	101	PFK-A SKL 3-6	36782.1	101	PFK-B SKL 1.5-3	36785.43	102	PFKZ2-B SKL 43	36789.40	94	PFSZ2 SKL 40
36778.3	101	PFK-A SKL 6-8	36782.2	101	PFK-B SKL 3-6	36786.1	93	PFS SKL 1.5-3	36789.41	94	PFSZ2 SKL 41
36778.4	101	PFK-A SKL 8-11	36782.3	101	PFK-B SKL 6-8	36786.2	93	PFS SKL 3-6	36789.42	94	PFSZ2 SKL 42
36779.1	100	PFKZ-A SKL 1.5-3	36782.4	101	PFK-B SKL 8-11	36786.3	93	PFS SKL 6-8	36789.43	94	PFSZ2 SKL 43
36779.2	100	PFKZ-A SKL 3-6	36783.1	100	PFKZ-B SKL 1.5-3	36786.4	93	PFS SKL 8-11	36886.1	97	LFZ-U4 SKL 1.5-3
36779.3	100	PFKZ-A SKL 6-8	36783.2	100	PFKZ-B SKL 3-6	36786.5	93	PFS SKL 12-16	36886.2	97	LFZ-U4 SKL 3-6
36779.4	100	PFKZ-A SKL 8-11	36783.3	100	PFKZ-B SKL 6-8	36786.6	93	PFS SKL 17-22	36886.3	97	LFZ-U4 SKL 6-8
36780.01	103	PFK2-A SKL 01	36783.4	100	PFKZ-B SKL 8-11	36787.1	92	PFSZ SKL 1.5-3	36886.4	97	LFZ-U4 SKL 8-11
36780.02	103	PFK2-A SKL 02	36784.01	103	PFK2-B SKL 01	36787.2	92	PFSZ SKL 3-6	36887.1	97	LFZ-U5 SKL 1.5-3
36780.03	103	PFK2-A SKL 03	36784.02	103	PFK2-B SKL 02	36787.3	92	PFSZ SKL 6-8	36887.2	97	LFZ-U5 SKL 3-6
36780.04	103	PFK2-A SKL 04	36784.03	103	PFK2-B SKL 03	36787.4	92	PFSZ SKL 8-11	36887.3	97	LFZ-U5 SKL 6-8
36780.10	103	PFK2-A SKL 10	36784.04	103	PFK2-B SKL 04	36788.01	95	PFS2 SKL 01	36887.4	97	LFZ-U5 SKL 8-11
36780.11	103	PFK2-A SKL 11	36784.10	103	PFK2-B SKL 10	36788.02	95	PFS2 SKL 02	37150	123	ZL 39 SB-EMC-2
36780.12	103	PFK2-A SKL 12	36784.11	103	PFK2-B SKL 11	36788.03	95	PFS2 SKL 03	37152	123	ZL 60 SB-EMC-2
36780.13	103	PFK2-A SKL 13	36784.12	103	PFK2-B SKL 12	36788.04	95	PFS2 SKL 04	37154	123	ZL 87 SB-EMC-2
36780.14	103	PFK2-A SKL 14	36784.13	103	PFK2-B SKL 13	36788.10	95	PFS2 SKL 10	37156	123	ZL 103 SB-EMC-2
36780.20	103	PFK2-A SKL 20	36784.14	103	PFK2-B SKL 14	36788.11	95	PFS2 SKL 11	37158	123	ZL 121 SB-EMC-2
36780.21	103	PFK2-A SKL 21	36784.20	103	PFK2-B SKL 20	36788.12	95	PFS2 SKL 12	37159	123	ZL 140 SB-EMC-2
36780.22	103	PFK2-A SKL 22	36784.21	103	PFK2-B SKL 21	36788.13	95	PFS2 SKL 13	37180.1	121	KVT-EMC-25 1.5-3
36780.23	103	PFK2-A SKL 23	36784.22	103	PFK2-B SKL 22	36788.14	95	PFS2 SKL 14	37180.2	121	KVT-EMC-25 3-6
36780.24	103	PFK2-A SKL 24	36784.23	103	PFK2-B SKL 23	36788.20	95	PFS2 SKL 20	37180.3	121	KVT-EMC-25 6-8
36780.30	103	PFK2-A SKL 30	36784.24	103	PFK2-B SKL 24	36788.21	95	PFS2 SKL 21	37180.4	121	KVT-EMC-25 8-11
36780.31	103	PFK2-A SKL 31	36784.30	103	PFK2-B SKL 30	36788.22	95	PFS2 SKL 22	37181.1	121	KVT-EMC-32 1.5-3
36780.32	103	PFK2-A SKL 32	36784.31	103	PFK2-B SKL 31	36788.23	95	PFS2 SKL 23	37181.2	121	KVT-EMC-32 3-6
36780.33	103	PFK2-A SKL 33	36784.32	103	PFK2-B SKL 32	36788.24	95	PFS2 SKL 24	37181.3	121	KVT-EMC-32 6-8
36780.34	103	PFK2-A SKL 34	36784.33	103	PFK2-B SKL 33	36788.30	95	PFS2 SKL 30	37181.4	121	KVT-EMC-32 8-11
36780.40	103	PFK2-A SKL 40	36784.34	103	PFK2-B SKL 34	36788.31	95	PFS2 SKL 31	37505.01	106	STFZ2 01
36780.41	103	PFK2-A SKL 41	36784.40	103	PFK2-B SKL 40	36788.32	95	PFS2 SKL 32	37505.02	106	STFZ2 02
36780.42	103	PFK2-A SKL 42	36784.41	103	PFK2-B SKL 41	36788.33	95	PFS2 SKL 33	37505.03	106	STFZ2 03
36780.43	103	PFK2-A SKL 43	36784.42	103	PFK2-B SKL 42	36788.34	95	PFS2 SKL 34	37505.10	106	STFZ2 10

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37505.12	106	STFZ2 12	38150	111	SF RLFZ (x12)	41211	38	KT 11 gy	41325	40	KT 25 bk
37505.13	106	STFZ2 13	39110	120	KEL-EMC F	41212	38	KT 12 gy	41326	40	KT 26 bk
37505.20	106	STFZ2 20	39150	119	KEL-EMC-PF B4	41213	38	KT 13 gy	41327	40	KT 27 bk
37505.21	106	STFZ2 21	39160	119	KEL-EMC-PF 10	41214	38	KT 14 gy	41328	40	KT 28 bk
37505.22	106	STFZ2 22	39170	119	KEL-EMC-PF 16	41215	38	KT 15 gy	41329	40	KT 29 bk
37505.23	106	STFZ2 23	39180	119	KEL-EMC-PF 24	41216	40	KT 16 gy	41330	40	KT 30 bk
37505.30	106	STFZ2 30	39800	29	KMS Template	41217	40	KT 17 gy	41332	40	KT 32 bk
37505.31	106	STFZ2 31	39900	38	KTS 17 gy	41218	40	KT 18 gy	41334	40	KT 34 bk
37505.32	106	STFZ2 32	39901	38	KTS 16 gy	41219	40	KT 19 gy	41351	38	BTK bk
37505.33	106	STFZ2 33	39902	39	KT-ASI gy	41220	40	KT 20 gy	41352	40	BTG bk
37507.01	107	STFZ2-SP 01	39903	39	KT-ASI bk	41221	40	KT 21 gy	41353	40	ATG bk
37507.02	107	STFZ2-SP 02	39904	39	KT 2 5 bk	41222	40	KT 22 gy	41360	41	KT-DPF-A bk
37507.03	107	STFZ2-SP 03	39905	39	KT 2 6 bk	41223	40	KT 23 gy	41361	41	KT-DPF-B bk
37507.10	107	STFZ2-SP 10	39906	39	KT 2 4 gy	41224	40	KT 24 gy	41362	41	KT-DPF-C bk
37507.11	107	STFZ2-SP 11	39907	39	KT 2 4 bk	41225	40	KT 25 gy	41410	47	KTMB-O
37507.12	107	STFZ2-SP 12	39908	39	KT 4 5 gy	41226	40	KT 26 gy	41415	47	KTMB-P
37507.13	107	STFZ2-SP 13	39909	39	KT 4 4 gy	41227	40	KT 27 gy	41420	47	KTMB-Q
37507.20	107	STFZ2-SP 20	39910	39	KT 4 5 bk	41228	40	KT 28 gy	41425	47	KTMB-R
37507.21	107	STFZ2-SP 21	39911	39	KT 4 4 bk	41229	40	KT 29 gy	41430	47	KTMB-S
37507.22	107	STFZ2-SP 22	39912	38	KTS 16 bk	41230	40	KT 30 gy	41432	41	KTMB-A gy
37507.23	107	STFZ2-SP 23	39913	38	KTS 17 bk	41232	40	KT 32 gy	41434	41	KTMB-B gy
37507.30	107	STFZ2-SP 30	39914	39	KT 4 3 gy	41234	40	KT 34 gy	41436	41	KTMB-C gy
37507.31	107	STFZ2-SP 31	39915	39	KT 4 3 bk	41251	38	BTK gy	41438	41	KTMB-D gy
37507.32	107	STFZ2-SP 32	39916	39	KT 2 7 bk	41252	40	BTG gy	41440	41	KTMB-E gy
37507.33	107	STFZ2-SP 33	39917	39	KT 2 8 gy	41253	40	ATG gy	41460	41	KTMB-G gy
37510.1	106	STFZ SKL 1.5-3	39918	39	KT 2 8 bk	41257	38	KT tele1	41465	41	KTMB-H gy
37510.2	106	STFZ SKL 3-6	39921	39	KT-ASl2 gy	41258	38	KT tele2	41470	41	KTMB-I gy
37510.3	106	STFZ SKL 6-8	39922	39	KT-ASl2 gy	41260	41	KT-DPF-A gy	41475	41	KTMB-J gy
37512.1	107	STFZ-SP SKL 1.5-3	39923	39	KT-ASl2 bk	41261	41	KT-DPF-B gy	41480	41	KTMB-K gy
37512.2	107	STFZ-SP SKL 3-6	39924	39	KT-ASl2 bk	41262	41	KT-DPF-C gy	41500	42	DT 1
37512.3	107	STFZ-SP SKL 6-8	39929	38	KT tele	41302	38	KT 2 bk	41510	42	DT 2
37514.1	107	STFZ-U SKL 1.5-3	39930	38	KT oval	41303	38	KT 3 bk	41520	42	DT 3
37514.2	107	STFZ-U SKL 3-6	39931	38	KT S1	41304	38	KT 4 bk	41530	42	DT 4
37514.3	107	STFZ-U SKL 6-8	39932	39	KT 4 6 gy	41305	38	KT 5 bk	41991	155	BPM 6 V2A
38005	110	RLFZ (x3)	39933	39	KT 4 6 bk	41306	38	KT 6 bk	41992	155	BPM 10 V2A
38010	110	RLFZ (x4)	39934	38	KT 2 gy	41307	38	KT 7 bk	41994	155	BPM 16 V2A
38015	110	RLFZ (x5)	39935	39	KT 2 2 gy	41308	38	KT 8 bk	41995	155	BPM 24 V2A
38020	110	RLFZ (x6)	39936	39	KT 2 2 bk	41309	38	KT 9 bk	42003	156	BPK-SNAP-B
38025	110	RLFZ (x7)	39937	39	KT 4 2 gy	41310	38	KT 10 bk	42004	156	BPK-SNAP 10
38030	110	RLFZ (x8)	39938	39	KT 4 2 bk	41311	38	KT 11 bk	42007	156	BPK-SNAP 16
38035	110	RLFZ (x9)	39939	39	KT 2 3 gy	41312	38	KT 12 bk	42010	154	BPK-B
38040	110	RLFZ (x10)	39940	39	KT 2 3 bk	41313	38	KT 13 bk	42010	140	BPK-B
38045	110	RLFZ (x11)	41200	39	KT 2 5 gy	41314	38	KT 14 bk	42011	155	BPM 6
38050	110	RLFZ (x12)	41201	39	KT 2 6 gy	41315	38	KT 15 bk	42012	155	BPM-FG B
38105	111	SF RLFZ (x3)	41202	39	KT 2 7 gy	41316	40	KT 16 bk	42013	155	BPM-B
38110	111	SF RLFZ (x4)	41203	38	KT 3 gy	41317	40	KT 17 bk	42014	155	BPM 10
38115	111	SF RLFZ (x5)	41204	38	KT 4 gy	41318	40	KT 18 bk	42015	154	BPK 10
38120	111	SF RLFZ (x6)	41205	38	KT 5 gy	41319	40	KT 19 bk	42015	140	BPK 10
38125	111	SF RLFZ (x7)	41206	38	KT 6 gy	41320	40	KT 20 bk	42016	154	BPK 16
38130	111	SF RLFZ (x8)	41207	38	KT 7 gy	41321	40	KT 21 bk	42016	140	BPK 16
38135	111	SF RLFZ (x9)	41208	38	KT 8 gy	41322	40	KT 22 bk	42017	156	BPK-SNAP 24
38140	111	SF RLFZ (x10)	41209	38	KT 9 gy	41323	40	KT 23 bk	42024	154	BPK 24



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42027	155	BPM 24	42330	27	KEL-FG B4	42630	77	KEL-ULTRA flex 1	42024.002	140	BPK 24- RF A
42028	155	BPM 24 20	42332	27	KEL-FG B1	42631	77	KEL-ULTRA flex 2	42140.200	23	KEL 16 6- E V2A
42029	155	BPM 24- E	42350	48	KEL-JUMBO 2	42633	155	BPM-ULTRA	42141.200	23	KEL 16 12- E V2A
42030	155	BPM-JUMBO 1	42360	48	KEL-JUMBO 1	42652	75	KEL-DPF 25 3-17	42143.200	24	KEL 16 4-MT V2A
42032	155	BPM-JUMBO 2	42370	49	KTA	42653	75	KEL-DPF 32 6-24	42144.200	24	KEL 16 10-MT V2A
42033	155	BPM-JUMBO flex	42371	49	KTF 00	42654	75	KEL-DPF 40 11-32	42145.200	24	KEL 16 16-MT V2A
42038	28	KEL-SNAP-B4	42376	49	KTF 34	42655	75	KEL-DPF 50 17-42	42147.200	25	KEL 16 6-2 MT V2A
42039	28	KEL-SNAP 10	42379	49	KTF 38	42656	75	KEL-DPF 63 23-55	42148.200	25	KEL 16 12-2MT V2A
42040	28	KEL-SNAP 16	42382	49	KTF 42	42801	74	ST-B Assortment	42149.200	25	KEL 24-2MT V2A
42042	29	KEL-SNAP 24	42385	49	KTF 46	42806	74	ST-B 6	42162.200	17	KEL 16 2 V2A
42044	29	KEL-SNAP 24E	42388	49	KTF 50	42810	74	ST-B 10	42164.200	17	KEL 16 4 V2A
42046	29	KEL-SNAP 24MT	42391	49	KTF 54	42812	74	ST-B 12	42165.200	17	KEL 16 5 V2A
42100	122	Washer	42394	49	KTF 58	42816	74	ST-B 16	42168.200	8	KEL 16 8 V2A
42140	23	KEL 16 6- E	42397	49	KTF 62	42822	74	ST-B 22	42204.200	19	KEL-B4 V2A
42141	23	KEL 16 12- E	42410	50	KEL-QUICK 24 10	42877	43	ST ASI	42206.200	19	KEL-B1 V2A
42143	24	KEL 16 4 - MT	42414	51	KEL-QUICK 16 4	42881	43	ST 17	42207.200	20	KEL 24 9 E V2A
42144	24	KEL 16 10-MT	42415	50	KEL-QUICK 24 5	42883	43	ST 16	42208.200	20	KEL 24 12 E V2A
42145	24	KEL 16 16-MT	42418	50	KEL-QUICK 16 8	42885	43	ST 15	42209.200	20	KEL 24 15 E V2A
42147	25	KEL 16 6-2 MT	42430	51	KEL-QUICK-B2	42887	43	ST 14	42212.200	18	KEL 10 3 V2A
42148	25	KEL 16 12-2MT	42434	51	KEL-QUICK-B4	42889	43	ST 13	42216.200	18	KEL 10 6 V2A
42149	25	KEL 24-2MT	42503	56	QT 3	42891	43	ST 12	42221.200	21	KEL 24 8 MT V2A
42162	17	KEL 16 2	42504	56	QT 4	42893	43	ST 11	42222.200	21	KEL 24 11 MT V2A
42164	17	KEL 16 4	42505	56	QT 5	42895	43	ST 10	42223.200	22	KEL 24 12 2MT V2A
42165	17	KEL 16 5	42506	56	QT 6	42897	43	ST 9	42224.200	21	KEL 24 17 MT V2A
42168	17	KEL 16 8	42507	56	QT 7	42899	43	ST 8	42225.200	21	KEL 24 14 MT V2A
42204	19	KEL-B4	42508	56	QT 8	42901	43	ST 3	42226.200	22	KEL 24 21 2MT V2A
42206	19	KEL-B1	42509	56	QT 9	42903	43	ST 6	42227.200	22	KEL 24 24 2MT V2A
42207	20	KEL 24 9 E	42510	56	QT 10	42905	43	ST 7	42232.200	21	KEL 24 20 MT V2A
42208	20	KEL 24 12 E	42511	56	QT 11	42906	43	ST 5	42233.200	22	KEL 24 27 2MT V2A
42209	20	KEL 24 15 E	42512	56	QT 12	42908	43	ST 4	42234.200	22	KEL 24 30 2MT V2A
42212	18	KEL 10 3	42513	56	QT 13	42909	43	ST 2	42241.200	16	KEL 24 10 V2A
42216	18	KEL 10 6	42514	56	QT 14	42920	139	KDR2-1200	42244.200	16	KEL 24 4 V2A
42221	21	KEL 24 8 MT	42540	56	QTB	42922	139	KDR2-800	42247.200	16	KEL 24 7 V2A
42222	21	KEL 24 11 MT	42566	56	QT 2 3	42923	139	KDR2-1000	42248.200	16	KEL 24 5 V2A
42223	22	KEL 24 12 2MT	42568	56	QT 2 4	42924	139	KDR2-600	42249.200	14	KEL-E2 V2A
42224	21	KEL 24 17 MT	42570	56	QT 2 5	42941	139	KDR2-600	42250.200	14	KEL-E5 V2A
42225	21	KEL 24 14 MT	42571	56	QT 2 5,5	42943	139	KDR2-1200	42258.200	14	KEL-E3 V2A
42226	22	KEL 24 21 2MT	42572	56	QT 2 6	42945	139	KDR2-800	42259.200	14	KEL-E4 V2A
42227	22	KEL 24 24 2MT	42573	56	QT-ASI 1	42952	139	KDR2-1000	42320.200	26	KEL-FG A10 V2A
42232	21	KEL 24 20 MT	42574	56	QT-ASI 2	42953	139	KDR2-600	42322.200	26	KEL-FG A7 V2A
42233	22	KEL 24 27 2MT	42575	56	QT tele	42954	139	KDR2-800	42324.200	26	KEL-FG A4 V2A
42234	22	KEL 24 30 2MT	42576	56	QT 2 6,5	42955	139	KDR2-1000	42330.200	27	KEL-FG B4 V2A
42241	16	KEL 24 10	42578	56	QT 2 7	42956	139	KDR2-1200	42332.200	27	KEL-FG B1 V2A
42244	16	KEL 24 4	42580	56	QT 4 3	42957	139	KDR2-1000	42350.200	48	KEL-JUMBO 2 V2A
42247	16	KEL 24 7	42582	56	QT 4 4	42958	139	KDR2-1000	42360.200	48	KEL-JUMBO 1 V2A
42248	16	KEL 24 5	42583	56	QT 4 4,5	42959	139	KDR2-1000	43675.001	66	KEL-DPZ-KL 72
42249	14	KEL-E2	42584	56	QT 4 5	42010.002	154	BPK-B-RF A	43675.101	66	KEL-DPZ-KL 72 bk
42250	14	KEL-E5	42585	56	QT 4 5,5	42010.002	140	BPK-B-RF A	43883.001	147	MP 6 Set
42258	14	KEL-E3	42586	56	QT 4 6	42015.002	154	BPK-10- RF A	43894.001	147	MP 8 Set
42259	14	KEL-E4	42614	76	KEL-JUMBO flex 27	42015.002	140	BPK 10- RF A	47200.200	46	KEL 183 2 V2A
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47250.200	46	KEL 183-E4 V2A	43521	70	KEL-DP 24 42 B	43732	68	KEL-DPZ 32 4	45027	32	KVT 32 + SUB-D9 bk
43070	137	KDR-ESR 600	43522	70	KEL-DP 24 14 B	43733	68	KEL-DPZ 32 4-2	45028	32	KVT 40 bk
43071	137	KDR-ESR 600	43523	70	KEL-DP 24 17 B	43734	68	KEL-DPZ 32 7	45029	32	KVT 40 + PB bk
43072	137	KDR-ESR 800	43524	70	KEL-DP 24 19 B	43735	63	KEL-DPZ 24 121	45030	33	KVT 50 2 bk
43073	137	KDR-ESR 800	43525	70	KEL-DP 24 26 B	43741	68	KEL-DPZ 40 8	45031	33	KVT 50 + SUB-D25 bk
43074	137	KDR-ESR 1000	43526	70	KEL-DP 24 48 B	43750	68	KEL-DPZ 50 8	45034	32	KVT 20 gy
43075	137	KDR-ESR 1000	43527	70	KEL-DP 24 50 B	43751	68	KEL-DPZ 50 10	45035	32	KVT 25
43076	137	KDR-ESR 1000	43528	70	KEL-DP 24 18 B	43752	68	KEL-DPZ 50 12	45036	32	KVT 32
43077	137	KDR-ESR 1000	43531	72	KEL-DP 25 6 A	43758	68	KEL-DPZ 50 19	45037	32	KVT 32 + SUB-D9
43078	137	KDR-ESR 1200	43532	72	KEL-DP 32 10 A	43760	68	KEL-DPZ 63 9	45105	158	KGM SUB-D9
43079	137	KDR-ESR 600	43533	72	KEL-DP 25 4 A	43761	68	KEL-DPZ 63 13	45106	158	KGM SUB-D9 bk
43080	137	KDR-ESR 800	43550	73	KEL-DP 50 16 A	43762	68	KEL-DPZ 63 14	45107	158	KGM SUB-PB
43081	137	KDR-ESR 1000	43551	73	KEL-DP 50 12 A	43763	68	KEL-DPZ 63 35	45108	158	KGM SUB-D25
43082	137	KDR-ESR 1000	43552	73	KEL-DP 50 20 A	43780	65	KEL-DPZ-E 112 7	45109	158	KGM SUB-PB bk
43083	137	KDR-ESR 1200	43553	73	KEL-DP 50 18 A	43790	65	KEL-DPZ-E 112 21	45110	158	KGM SUB-D25 bk
43084	137	KDR-ESR 1200	43554	72	KEL-DP 50 9 A	43794	64	KEL-DPZ-B 13	45112	33	KVT 63 1 bk
43100	143	KT - Uni	43555	72	KEL-DP 50 11 A	43796	64	KEL-DPZ-B 17	45115	33	KVT 63 4 bk
43150	143	Cap	43556	73	KEL-DP 50 35 A	43798	64	KEL-DPZ-B 25	45130	35	KVT-SNAP 32
43160	143	End piece	43560	72	KEL-DP 32 10 B	43832	153	FP-FL 21	45134	35	KVT-SNAP 40
43162	143	KEL-R 16 2	43562	73	KEL-DP 50 12 B	43834	151	FP-KL 221x90 24	45152	35	KVT-SNAP 63 4
43164	143	KEL-R 16 4	43564	73	KEL-DP 50 16 B	43836	149	FP-AE 160 70	45154	35	KVT-SNAP 63 1
43165	143	KEL-R 16 5	43566	73	KEL-DP 50 20 B	43838	149	FP-AE 330 90	45203	32	KVT 40
43168	143	KEL-R 16 8	43567	73	KEL-DP 50 18 B	43840	149	FP-AE 339 149	45204	33	KVT 50 2
43240	143	KEL-R 24 10	43568	72	KEL-DP 50 9 B	43842	149	FP-AE 534 149	45205	32	KVT 40 + PB
43244	143	KEL-R 24 4	43569	72	KEL-DP 50 11 B	43846	149	FP-AE 339 149	45206	33	KVT 50 + SUB-D25
43245	143	KEL-R 24 5	43570	73	KEL-DP 50 35 B	43848	149	FP-AE 534 149	45212	33	KVT 63 1 gy
43247	143	KEL-R 24 7	43576	71	KEL-DP-E 112 16	43852	151	FP-KL 221x90 A	45215	25	KVT 63 4 gy
43300	145	KDR-BMP 600/400	43578	71	KEL-DP-E 112 21	43853	151	FP-KL 221x90 10	45236	34	KVT 80 3
43302	145	KDR-BMP 600/500	43581	71	KEL-DP-E 86 13	43854	151	FP-KL 221x90 B	45237	34	KVT 80 6
43304	145	KDR-BMP 600/600	43583	71	KEL-DP-E 86 17	43855	151	FP-KL 221x90 16	45238	34	KVT 80 3 bk
43306	145	KDR-BMP 800/400	43585	71	KEL-DP-E 46 7	43856	151	FP-KL 221x90 C	45239	34	KVT 80 6 bk
43308	145	KDR-BMP 800/500	43587	71	KEL-DP-E 46 9	43861	149	FP-AE 330 90	45404	36	KVT 32-W90
43310	145	KDR-BMP 800/600	43591	71	KEL-DP-S 69 8	43865	153	FP-BG 555x92	45406	36	KVT 32-W90 bk
43312	145	KDR-BMP 1000/400	43622	55	KEL-QTA 50 A	43866	153	FP-BG 355x92	45414	36	KVT 50 1-W90
43314	145	KDR-BMP 1000/500	43626	55	KEL-QTA 50 B	43871	149	FP-AE 534 149	45416	36	KVT 50 1-W90 bk
43316	145	KDR-BMP 1000/600	43632	55	KEL-QTA 32 A	43882	146	MP 0	45424	36	KVT 50 4-W90
43318	145	KDR-BMP 1200/400	43636	55	KEL-QTA 32 B	43883	146	MP 6	45426	36	KVT 50 4-W90 bk
43320	145	KDR-BMP 1200/500	43642	54	KEL-QTA 24 2 A	43886	146	MP 3	45692	52	QVT 16
43322	145	KDR-BMP 1200/600	43643	54	KEL-QTA 24 2 B	43887	146	MP 5	45695	52	QVT 20
43324	145	KDR-BMP 1200/600	43644	54	KEL-QTA 24 4 A	43888	146	MP 4	45702	52	QVT 25
43412	55	KEL-QTE 20 2,5	43645	54	KEL-QTA 24 4 B	43889	146	MP 7	45711	52	QVT 32
43413	55	KEL-QTE 20 3	43655	54	KEL-QTA 10 1-DP18 A	43890	146	MP 2	45715	52	QVT 40 2
43414	55	KEL-QTE 20 4	43656	54	KEL-QTA 10 2-DP6 A	43891	146	MP 1	45722	52	QVT 50 4
43415	55	KEL-QTE 20 5	43658	54	KEL-QTA 10 1-DP18 B	43894	146	MP 8	45730	53	QVT-CLICK 25
43508	70	KEL-DP 24 12 gy	43659	54	KEL-QTA 10 2-DP6 B	43930	61	KEL-DPU 24 21 gy	45732	53	QVT-CLICK 32
43511	70	KEL-DP 24 42 A	43660	54	KEL-QTA-B4	43932	60	KEL-DPU 24 16-1 gy	45734	53	QVT-CLICK 40
43512	70	KEL-DP 24 14 A	43700	62	KEL-DPZ 24 14	43934	60	KEL-DPU 24 17 gy	46100	44	KEL-FL A
43514	70	KEL-DP 24 17 A	43705	62	KEL-DPZ 24 17	43936	60	KEL-DPU 24 16 gy	46105	44	KEL-FL B
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43516	70	KEL-DP 24 19 A	43715	63	KEL-DPZ 24 42	43942	61	KEL-DPU 24 32 gy	46115	44	KEL-FL D
43518	70	KEL-DP 24 26 A	43720	62	KEL-DPZ 24 15	45024	32	KVT 20 bk	46120	44	KEL-FL E
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46135	44	KEL-FL H	49056	20	KEL 24 10-E	49313	153	KEL-DPZ-B 25 ATEX	50520	70	KEL-DP 24 50 A bk
46140	44	KEL-FL I	49101	164	KEL 16 2 ATEX	49317	153	KEL-DPZ-B 13 ATEX bk	50521	70	KEL-DP 24 42 B bk
46145	44	KEL-FL J	49102	164	KEL 16 4 ATEX	49318	153	KEL-DPZ-B 17 ATEX bk	50522	70	KEL-DP 24 14 B bk
46150	44	KEL-FL K	49103	164	KEL 16 5 ATEX	49319	153	KEL-DPZ-B 25 ATEX bk	50523	70	KEL-DP 24 17 B bk
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46201	45	FT-1 o	49105	164	KEL-B4 ATEX	49402	155	KEL-DPF 32 6-24 ATEX	50525	70	KEL-DP 24 26 B bk
46202	45	FT-2 o	49106	164	KEL-B1 ATEX	49403	155	KEL-DPF 40 11-32 ATEX	50526	70	KEL-DP 24 48 B bk
46203	45	FT-3 o	49107	164	KEL 10 3 ATEX	49404	155	KEL-DPF 50 17-42 ATEX	50527	70	KEL-DP 24 50 B bk
46204	45	FT-4 o	49108	164	KEL 10 6 ATEX	49405	155	KEL-DPF 63 23-55 ATEX	50528	70	KEL-DP 24 18 B bk
46210	45	FT-1 A	49109	164	KEL 24 10 ATEX	49410	155	KEL-DPF 25 3-17 ATEX bk	50531	72	KEL-DP 25 6 A bk
46211	45	FT-1 B	49110	164	KEL 24 4 ATEX	49411	155	KEL-DPF 32 6-24 ATEX bk	50532	72	KEL-DP 32 10 A bk
46212	45	FT-1 C	49111	164	KEL 24 7 ATEX	49412	155	KEL-DPF 40 11-32 ATEX bk	50533	72	KEL-DP 25 4 A bk
46214	45	FT-1 E	49112	164	KEL 24 5 ATEX	49413	155	KEL-DPF 50 17-42 ATEX bk	50550	73	KEL-DP 50 16 A bk
46215	45	FT-1 F	49120	152	KVT 80 3 ATEX	49414	155	KEL-DPF 63 23-55 ATEX bk	50551	73	KEL-DP 50 12 A bk
46250	45	FT-2 A	49121	152	KVT 80 6 ATEX	49420	154	KEL-DPZ 32 4 ATEX	50552	73	KEL-DP 50 20 A bk
46251	45	FT-2 B	49122	152	KVT 80 6 ATEX	49421	154	KEL-DPZ 32 4-2 ATEX	50553	73	KEL-DP 50 18 A bk
46252	45	FT-2 C	49123	152	KVT 80 3 ATEX	49422	154	KEL-DPZ 32 7 ATEX	50554	72	KEL-DP 50 9 A bk
46255	45	FT-2 F	49150	166	KEL-E2 ATEX	49423	154	KEL-DPZ 40 8 ATEX	50555	72	KEL-DP 50 11 A bk
46256	45	FT-2 G	49152	166	KEL-E3 ATEX	49424	154	KEL-DPZ 50 8 ATEX	50556	73	KEL-DP 50 35 A bk
46300	45	FT-3 A	49154	166	KEL-E4 ATEX	49425	154	KEL-DPZ 50 10 ATEX	50560	72	KEL-DP 32 10 B bk
46330	45	FT-4 A	49156	166	KEL-E5 ATEX	49426	154	KEL-DPZ 50 12 ATEX	50562	73	KEL-DP 50 12 B bk
47200	46	KEL 18 3 2	49201	153	KEL-DPZ 24 14 ATEX	49427	154	KEL-DPZ 50 78 ATEX	50564	73	KEL-DP 50 16 B bk
47220	46	KEL 18 3 5	49202	153	KEL-DPZ 24 17 ATEX	49428	154	KEL-DPZ 50 19 ATEX	50566	73	KEL-DP 50 20 B bk
47240	46	KEL 18 3 8	49203	153	KEL-DPZ 24 25 ATEX	49429	154	KEL-DPZ 63 9 ATEX	50567	73	KEL-DP 50 18 B bk
47250	46	KEL 183-E4	49204	153	KEL-DPZ 24 42 ATEX	49430	154	KEL-DPZ 63 13 ATEX	50568	72	KEL-DP 50 9 B bk
48162	9	KEL-ER 16 2	49205	153	KEL-DPZ 24 15 ATEX	49431	154	KEL-DPZ 63 35 ATEX	50569	72	KEL-DP 50 11 B bk
48165	9	KEL-ER 16 5	49206	153	KEL-DPZ 24 16 ATEX	49432	154	KEL-DPZ 63 14 ATEX	50570	73	KEL-DP 50 35 B bk
48168	9	KEL-ER 16 8	49207	153	KEL-DPZ 24 32 ATEX	49440	154	KEL-DPZ 32 4 ATEX bk	50576	71	KEL-DP-E 112 16 bk
48204	13	KEL-ER-B4	49208	153	KEL-DPZ 24 121 ATEX	49441	154	KEL-DPZ 32 4-2 ATEX bk	50578	71	KEL-DP-E 112 21 bk
48206	13	KEL-ER-B1	49211	153	KEL-DPZ 24 14 ATEX bk	49442	154	KEL-DPZ 32 7 ATEX bk	50581	71	KEL-DP-E 86 13 bk
48212	11	KEL-ER 10 3	49212	153	KEL-DPZ 24 17 ATEX bk	49443	154	KEL-DPZ 40 8 ATEX bk	50583	71	KEL-DP-E 86 17 bk
48216	11	KEL-ER 10 6	49213	153	KEL-DPZ 24 25 ATEX bk	49444	154	KEL-DPZ 50 8 ATEX bk	50585	71	KEL-DP-E 46 7 bk
48241	7	KEL-ER 24 10	49214	153	KEL-DPZ 24 42 ATEX bk	49445	154	KEL-DPZ 50 10 ATEX bk	50587	71	KEL-DP-E 46 9 bk
48244	7	KEL-ER 24 4	49215	153	KEL-DPZ 24 15 ATEX bk	49446	154	KEL-DPZ 50 12 ATEX bk	50591	71	KEL-DP-S 69 8 bk
48247	7	KEL-ER 24 7	49216	153	KEL-DPZ 24 16 ATEX bk	49447	154	KEL-DPZ 50 78 ATEX bk	50652	75	KEL-DPF 25 3-17 bk
48249	15	KEL-ER-E2	49217	153	KEL-DPZ 24 32 ATEX bk	49448	154	KEL-DPZ 50 19 ATEX bk	50653	75	KEL-DPF 32 6-24 bk
48250	15	KEL-ER-E5	49218	153	KEL-DPZ 24 121 ATEX bk	49449	154	KEL-DPZ 63 9 ATEX bk	50654	75	KEL-DPF 40 11-32 bk
48258	15	KEL-ER-E3	49221	153	KEL-ER 16 2 ATEX bk	49450	154	KEL-DPZ 63 13 ATEX bk	50655	75	KEL-DPF 50 17-42 bk
48259	15	KEL-ER-E4	49222	153	KEL-ER 16 5 ATEX bk	49451	154	KEL-DPZ 63 35 ATEX bk	50656	75	KEL-DPF 63 23-55 bk
48162.200	9	KEL-ER 16 2 V2A	49223	153	KEL-ER 16 8 ATEX bk	49452	154	KEL-DPZ 63 14 ATEX bk	50700	62	KEL-DPZ 24 14 bk
48165.200	9	KEL-ER 16 5 V2A	49224	153	KEL-ER-B4 ATEX bk	49056.200	20	KEL 24 10-E V2A	50705	62	KEL-DPZ 24 17 bk
48168.200	9	KEL-ER 16 8 V2A	49225	153	KEL-ER-B1 ATEX bk	49150.200	166	KEL-E2 ATEX V2A	50710	63	KEL-DPZ 24 25 bk
48204.200	13	KEL-ER-B4 V2A	49226	165	KEL-ER 10 3 ATEX bk	49152.200	166	KEL-E3 ATEX V2A	50715	63	KEL-DPZ 24 42 bk
48206.200	13	KEL-ER-B1 V2A	49227	165	KEL-ER 10 6 ATEX bk	49154.200	166	KEL-E4 ATEX V2A	50720	62	KEL-DPZ 24 15 bk
48212.200	11	KEL-ER 10 3 V2A	49228	165	KEL-ER 24 10 ATEX bk	49156.200	166	KEL-E5 ATEX V2A	50725	62	KEL-DPZ 24 16 bk
48216.200	11	KEL-ER 10 6 V2A	49229	165	KEL-ER 24 4 ATEX bk	50508	70	KEL-DP 24 12 bk	50730	63	KEL-DPZ 24 32 bk
48241.200	7	KEL-ER 24 10 V2A	49230	165	KEL-ER 24 7 ATEX bk	50511	70	KEL-DP 24 42 A bk	50732	68	KEL-DPZ 32 4 bk
48244.200	7	KEL-ER 24 4 V2A	49301	153	KEL-DPZ-E 112 7 ATEX	50512	70	KEL-DP 24 14 A bk	50733	68	KEL-DPZ 32 4-2 bk
48247.200	7	KEL-ER 24 7 V2A	49302	153	KEL-DPZ-E 112 21 ATEX	50514	70	KEL-DP 24 17 A bk	50734	68	KEL-DPZ 32 7 bk
48249.200	15	KEL-ER-E2 V2A	49306	153	KEL-DPZ-E 112 7 ATEX bk	50515	70	KEL-DP 24 18 A bk	50735	63	KEL-DPZ 24 121 bk
48250.200	15	KEL-ER-E5 V2A	49307	153	KEL-DPZ-E 112 21 ATEX bk	50516	70	KEL-DP 24 19 A bk	50741	68	KEL-DPZ 40 8 bk
48258.200	15	KEL-ER-E3 V2A	49311	153	KEL-DPZ-B 13 ATEX	50518	70	KEL-DP 24 26 A bk	50750	68	KEL-DPZ 50 8 bk

# Appendix

## Reference list 8|8 / Abbreviations

Order No.	Page	Type	Order No.	Page	Type						
50751	68	KEL-DPZ 50 10 bk	54241.200	6	KEL-U 24 10 V2A						
50752	68	KEL-DPZ 50 12 bk	54244.200	6	KEL-U 24 4 V2A						
50756	68	KEL-DPZ 50 78 bk	54247.200	6	KEL-U 24 7 V2A						
50758	68	KEL-DPZ 50 19 bk	58000	141	KDR-BES-TS8-600						
50760	68	KEL-DPZ 63 9 bk	58006	141	KDR-BES-TS8-800						
50761	68	KEL-DPZ 63 13 bk	58012	141	KDR-BES-TS8-1000						
50762	68	KEL-DPZ 63 14 bk	58018	141	KDR-BES-TS8-12000						
50763	68	KEL-DPZ 63 35 bk	61002	161	KBH-SB						
50780	65	KEL-DPZ-E 112 7 bk	61003	161	KBH-RBA nc						
50790	65	KEL-DPZ-E 112 21 bk	61004	161	KBH-RBB						
50794	64	KEL-DPZ-B 13 bk	61011	160	KLB 10						
50796	64	KEL-DPZ-B 17 bk	61012	160	KLB 15						
50798	64	KEL-DPZ-B 25 bk	61013	160	KLB 20						
50930	61	KEL-DPU 24 21 bk	61014	160	KLB 25						
50932	60	KEL-DPU 24 16-1 bk	61018	161	KBH-R						
50934	60	KEL-DPU 24 17 bk	61019	161	KBH-S						
50936	60	KEL-DPU 24 16 bk	61021	160	KLKB 200x7						
50938	61	KEL-DPU 24 20 bk	61022	160	KLKB 200x13						
50942	61	KEL-DPU 24 32 bk	61023	160	KLKB 230x13						
51505	57	KEL-BES 10	61024	160	KLKB 300x17						
51510	57	KEL-BES 16	61115	159	KB 15 nc						
51515	57	KEL-BES 24	61120	159	KB 20 nc						
52272	158	KGM 16 gy	61125	159	KB 22 nc						
52273	158	KGM 20 gy	61130	159	KB 25 nc						
52274	158	KGM 25 gy	61135	159	KB 30 nc						
52275	158	KGM 32 gy	61140	159	KB 45 nc						
52276	158	KGM 40 gy	61145	159	KB 50 nc						
52277	158	KGM 50 gy	61150	159	KB 55 nc						
52278	158	KGM 63 gy	61155	159	KB 75 nc						
52282	158	KGM 16 bk	61160	159	KB 100 nc						
52283	158	KGM 20 bk	61215	159	KB 20 bk						
52284	158	KGM 25 bk	61220	159	KB 25 bk						
52285	158	KGM 32 bk	61225	159	KB 28 bk						
52286	158	KGM 40 bk	61230	159	KB 30 bk						
52287	158	KGM 50 bk	61235	159	KB 45 bk						
52288	158	KGM 63 bk	61240	159	KB 55 bk						
54162	8	KEL-U 16 2	61245	159	KB 75 bk						
54165	8	KEL-U 16 5	61250	159	KB 100 bk						
54168	8	KEL-U 16 8	61300	159	KBW 9						
54204	12	KEL-U-B4	61400	113	EMC-Wz Type A						
54206	12	KEL-U-B1	61410	113	EMC-Wz Type B						
54212	10	KEL-U 10 3	61430	105	STFZ I/O Insert Tool						
54216	10	KEL-U 10 6	61435	53	QVT-CLICK Tool						
54241	6	KEL-U 24 10	88001	37	KT ServiceBox						
54244	6	KEL-U 24 4	88002	91	EMC ServiceBox						
54247	6	KEL-U 24 7	99017	122	Screw						
54162.200	8	KEL-U 16 2									
54165.200	8	KEL-U 16 5 V2A									
54168.200	8	KEL-U 16 8 V2A									
54204.200	12	KEL-U-B4 V2A									
54206.200	12	KEL-U-B1 V2A									
54212.200	10	KEL-U 10 3 V2A									
54216.200	10	KEL-U 10 6 V2A									

Abbreviations	
Colours	
bk	black
gy	grey
nc	natural colour
Material	
BR	Brass
Cu-ETP	Copper
PA	Polyamide
PC	Polycarbonate
PE	Polyethylene
PP	Polypropylene
Zn	zinc plated
Other	
PU	Packaging Unit



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