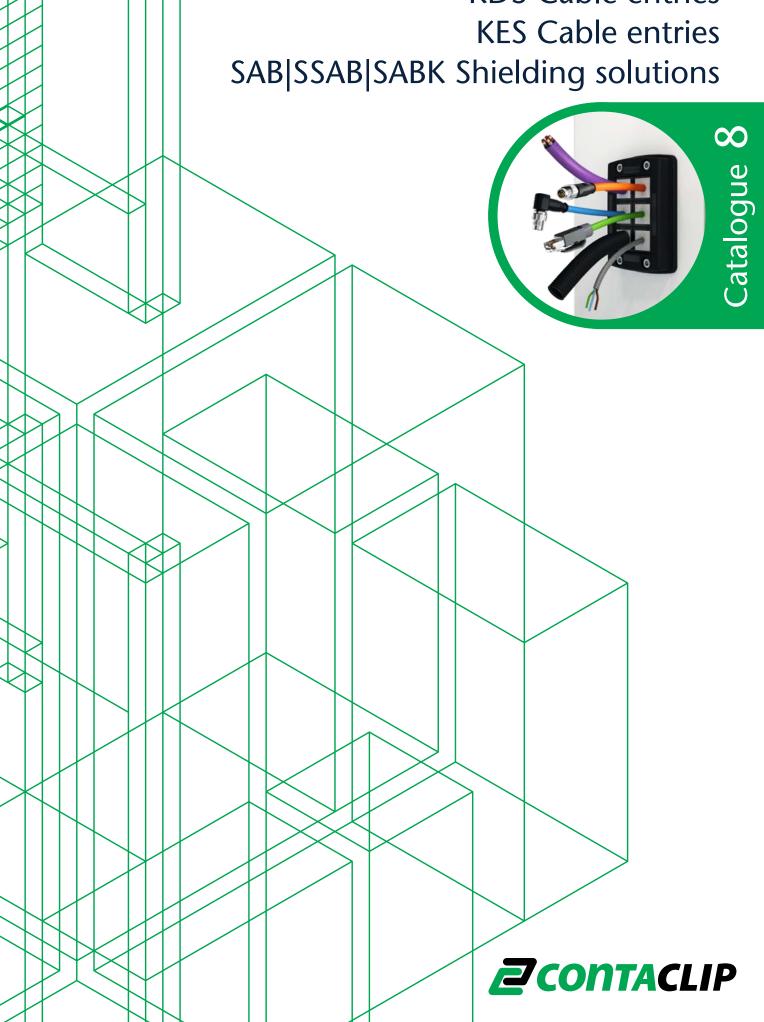


KDS Cable entries **KES Cable entries**



Contents

66	Res-E-R Round cable entries		— Our company
70	BW 1	4	The advantages online
	Actuating tool KDSClick assortment box	5	Globally available for you
71	KDS-EMV-SAB	6	Catalogues
	Shield-connection rails	8	Product portfolio
72	KDS-BP Blanking plates	10	KDSClick Modular cable entry system
73	KDS/KES-VS Seal plugs for all KDS and KES systems	16	KDS-FP Flange plates
74	Punching tools	24	KDS-R Round cable entries
78	Shield-connection clip	32	KDS-KV Separable cable glands
95	Busbar holder		
		38	KDS-FB Cable entry system for flat cables
		48	Sealing elements KDS systems
		50	KDS-DES Seals
		52	KDSClick Combination options for the modular KDSClick system
		54	KES Cable entries
		62	KES-E Cable entries



CONTA-CLIP – Thinking ahead with connection technology

CONTA-CLIP was founded in 1978. We operate globally as an owner-operated medium-sized company.

Users of electrical and electronic connection systems trust our reliable products and our many years of industrial and global market expertise.

Our company is now one of the most important manufacturers in the field.

For over 40 years, our components and solutions have been used in process and industrial automation applications, including: railway technology, materials handling, building automation, air conditioning, mechanical and facility engineering, measurement and control technology, control panel construction, shipbuilding, transformer construction and environmental technology.

Over the years, we have evolved into an innovator that sets the tone with new ideas and creative impulses.

Our employees come from a wide variety of industries and are true connectivity specialists. They understand the specific problems, requirements and challenges of our customers. This results in communication among equals.

The profits then flow into the development of new products and into modern, efficient manufacturing processes. High quality standards throughout all departments are our top priority.

Our top-class products are supported by this interplay between top-class men and machinery. We have also designed our range of services to align with customer needs.

Our products are divided into six categories: CONTA-CONNECT for terminal blocks and accessories, CONTA-CABLE cable management systems, CONTA-ELECTRONICS for electrical and electronic switchgear cabinet components, CONTA-LABEL for marking systems, CONTA-BOX for housings, and CONTA-CON for PCB terminal blocks and connectors.

We design customer-specific solutions for electronics, provide completely assembled housings and assemblies as needed, assemble terminal blocks for series production, and quickly handle component labelling tasks.

We greet these challenges with passion and enthusiasm, because we see each customer as our partner.

CONTA-CLIP customer representatives are always ready to offer their support to the customer, because service and helpfulness are rooted deeply in our corporate philosophy.

Advantage online: the CONTA-CLIP Online Catalogue

No matter where you are, as long as you're online you can access our digital catalogue to look at our services and quickly identify suitable solutions for your requirements.

Fast results Use the full-text search, enter an order number or use the convenient "step-by-step" feature search function.

Project planning at a glance: After you've selected the products, all the master data for the materials (sales data, technical data, drawings, connection diagrams, classifications and approvals) are made available as a data sheet or export file.

Detailed inquiries about components can be sent via the shopping cart directly to our headquarters. Upon request, you will receive an e-mailed copy of your inquiry.

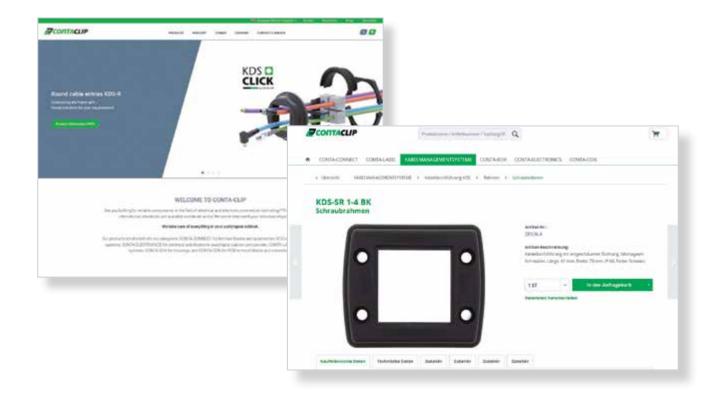
Application films: Complex functions be explained easily and clearly with sounds and images.

Printed catalogue: Would you like an offline overview? Please ask for our free printed catalogues.

Industry-specific: You will find the solutions that are relevant for your industry, according to your expertise.

Newsletter: Do you want to stay up to date? Subscribe to our newsletter! Simply register, confirm our authentication e-mail, and you'll be regularly informed about all CONTA-CLIP news.

Discover how the world of CONTA-CLIP and our website can deliver added value for you and your projects!



Globally available for you

Are you working abroad? No problem. Our worldwide sales and distribution partners help us to be globally networked and provide on-time reliable deliveries. Simply scan the QR code shown and you'll learn on our website about the sales partner responsible for your country.





Our locations in Africa

Algeria Morocco South Africa

Our locations in Asia

Bahrain
China
Hong Kong
India
Israel
Jordan
Malaysia
Oman
Pakistan
Qatar
Saudi Arabia
Singapore
South Korea
Taiwan
Turkey

United Arab Emirates

Our locations in Oceania

Australia New Zealand

Our locations in Europe

Austria Belarus Belgium Bulgaria Croatia Czech Republic Denmark **Finland** France Germany **Great Britain** Greece Hungary Iceland Ireland Italy Latvia Netherlands Norway

Poland

Portugal Romania Russia Serbia Slovakia Slovenia Spain

Spain Sweden Switzerland Ukraine

Our locations in North America

Canada Mexico United States

Our locations in South America

Bolivia Brazil Chile Columbia Ecuador

A complete line of products to meet your demands The CONTA-CLIP Catalogues



CONTA-CONNECT

Terminal blocks with push-in connection system

Our wide range of innovative PRK and FRK terminal blocks with the Push-in connection system include feed-through terminals, PE terminals, disconnect terminals, fused terminals, multi-level terminals, installation terminals and initiator terminals, for conductor cross-sections from 0.2 mm² to 25 mm².



Cat. no. 98070.2



2 CONTA-CONNECT

Terminal blocks with screw connection system and special purpose terminals Everything for classic wiring with screw connection system, also for high currents: SRK feed-through and PE terminals, RK high-temperature variants, TK transformer terminals, HSK high-power stud terminals and the SVB series screw distributor blocks.



Cat. no. 98071.2



CONTA-CONNECT

Terminal blocks with tension-spring connection system

Our versatile line of terminals with tension spring connections for conductor cross-sections from 0.2 mm² to 16 mm² includes: the ZRK/ZSL series of feed-through and PE terminals, the double-level ZRKD/ZSLD, the ZIKD three-level terminal blocks, motor-connection terminals, (blade-) disconnect terminals, fused terminals, direct-mount terminals, and initiator/actuator terminals for transmitting positioning, encoder and alert signals.



Cat. no. 98072.2



CONTA-CONNECT

Installation materials and other accessories for terminal blocks

Our installation products include cabling ducts, assembly tools, cable glands with metric or PG threads, DIN rails, rail holders, rail cutters and punching tools. The terminal block accessories include different versions of end stops, wire-end ferrules, and connectors.



Cat. no. 98073.2



CONTA-LABEL

Marking components for thermal-transfer marking systems

CONTA-CLIP provides the TTPCard thermal-transfer printer and a large selection of PC, PVC and PVCF markers or labels in card format: for professional, permanent labelling of terminals, devices, conductors, cables, facilities and switchgear cabinets.



Cat. no. 98074.2

Our catalogues are available in many languages!





CONTA-LABEL

Marking components for ink-based marking systems

The CONTA-LABEL products provide polyamide markers for labelling conductors, cables, devices and facilities with ink print. These markers are available in many shapes and colours: in the classic MC Maxi-Card format for self-printing with the EMS plotter system EMS or other ink-jet systems, or ready-to-use customized printed in the PMC Pocket-Maxi-Card format.



Cat. no. 98075.2



CONTA-BOX

Housings

Our wide variety of housings made of polystyrene, polycarbonate, polyester, ABS and aluminium deliver solutions for protecting electronic circuits, integrated devices and terminal blocks. On request, the housings can be custom-processed and assembled with our CONTA-CONNECT, CONTA-ELECTRONICS and CONTA-CON product lines.



Cat. no. 98076.2



CONTA-CABLE MANAGEMENT SYSTEMS

KDS cable entries, KES cable entries, SAB|SSAB|SABK shielding solutions The KDS and KES cable entries enable a tool-free, IP66-sealed feed-through for unassembled and assembled cables and hoses. The feed-through openings can be adapted at any time to meet your requirements. The SAB shied-connection clips can be used to provide a reliable shield contact with conductor diameters from 3 mm to 35 mm.



Cat. no. 98077.2



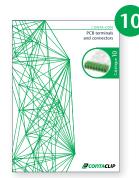
CONTA-ELECTRONICS

Electrical and electronic cabinet components

Our CONTA-ELECTRONICS products provide active and passive components for the transfer and conversion of analogue and digital signals at the coupling level. This product line includes power supplies, multi-function timing relays, coupling relays, digital switching modules, interface modules, opto-couplers, signal converters, GSM communication modules and much more.



Cat. no. 98078.2



CONTA-CON

PCB terminals and connectors

This catalogue presents our wide variety of CONTA-CON PCB terminal blocks and connector systems. The modular components can be configured for any required number of poles. They are available in the wire connection types: wire protection, eccentric, clamping yoke, and (for demanding operating conditions) with tension-spring or Push-in wire terminations. This product range is supplemented by the modular feed-through terminals of the SDK series.



Cat. no. 98079.2

Cable management systems

KDS cable entries

The **KDS** cable entry system has a modular design consisting of frames, frame inlays and seals. This enables quick and easy dimensioning of feed-through openings for pre-assembled cables – without the use of tools. The system reliably ensures an IP66 seal. Since the diameter, shape (round or with corners) and number of frame openings can be adapted at any time without any costly dismantling of the frame, switchgear cabinets or machine housings can be uniformly prepared for different purposes using KDS. This results in significantly less costs and warehousing overhead.

Our wide range of **KDS** seals currently includes more than 130 variants and is constantly being expanded.

KES cable entries

The **KES** cable entries enable unassembled cables or pneumatic hoses to be quickly inserted into switchgear cabinets or housings without using tools. The **KES** entry plates feature a dimensionally stable, elastomer-encapsulated polyamide frame. In order to insert the required number of cables, the surface membrane is first pierced with a screwdriver. Then, the unassembled cables are easily pushed through. Tapered inlet grommets on the back of the plate provide IP66 sealing and reliable strain relief. With up to 32 cables per plate, the **KES** achieves a significantly higher packaging density than conventional entry systems.

The **KES-E** cable entry system enables you to insert many cables (without plugs) with diameters ranging from 1.0 mm to 16.1 mm into a very confined space. No tools are needed to insert the cable entry into the opening provided. For inserting the cables, the appropriate membrane is pierced and the cables are simply installed through it. The material TPE guarantees that IP54 protection is maintained.



SAB|SSAB|SABK shielding solutions

The **SAB** shield-connection clips provides an easy tool-free contact for the cable shield. It is a modular system for mounting on DIN rails, busbars or direct mounting. The system includes shield-connection brackets for cable diameters from 1.5 mm to 18 mm, clamp mounting feet for all attachment types, busbar holders and shield-connection clips with screw or spring contacts. The stripped cable is easily pushed into the SABK shield-connection clips. The spring force in the clip then ensures that the shield has a consistently good contact. The large-area shield contact ensures low-impedance discharge resistances, even at high frequencies. The SAB/SSAB shield-connection clips cover a clamping range for cable diameters from 3 mm to 35 mm. Busbar supports and end stops for mounting to the bars also supplement this product line.



KDSClick Modular cable entry system

The **KDS-SR** screw frames are available in 4 different sizes. The inlays make a wide variety of combinations possible.

Page 10

KDS-FP Flange plates

The **KDS-FP** flange plates are available in 2 different sizes. The inlays make a wide variety of combinations possible.

Page 16

KDS-R Round cable entries

Thanks to six different thread and locking adapters and two external frame sizes, the metric break-through sizes M20 to M32 and M40 to M63 can be equipped with the modular **KSR-R** system. Assembly is carried out from the outside inwards.

Page 24

KDS-KV Separable cable glands

The **KDS-KV** separable cable glands are designed for metric break-outs of 20 to 63 mm diameter.

Page 32

KDS-FB

Cable entry system for flat cables

The **KDS-FB** cable entry system for flat cables provides you with outstanding versatility and saves you time while managing cables, especially for industrial trucks, crane systems and elevator applications.

Page 38

KES

Cable entries

The cable entry systems **KES**, **KES-E** and **KES-E-R** are suitable when feeding in unassembled cables or pneumatic and hydraulic hoses.

Page 54

SAB Shielding solutions

Our shield-connection clip products provide a modular system for direct installations or DIN-rail mounting.

Page 78

KDSClick Modular cable entry system

A revolutionary cable entry systems

Fast. Safe. Turning cables inside out! The **KDSClick** cable entry system is a cable management solution for switchgear cabinets, housings and machines that features secure seals and strain relief for pre-assembled and non-assembled cables – with or without connectors. **KDSClick** saves you time and provides you with maximum versatility.



The basic components of the modular system

Frames. Inlays. Seals. The modular design – 3 basic components – provides more versatility, variability and variety.

1 Frame

Made from a single mould, the one-piece frame is quick and easy to assemble. It is made of sturdy, glass-fibre reinforced plastic. The foamed seal guarantees an optimal seal with IP66 protection, even on painted or rough surfaces.



2. Inlays

The click-in inlays enable needs-based dimensioning of the frame opening, corresponding to the seal being used. An audible "click" confirms a correct installation. So you can variably configure cable entries to match various requirements (for cables, lines, tubing, pneumatic and hydraulic lines).



3. Seals

The conical shape of the seal makes it easy to press in. This also reliably seals the gaps and ensures static strain relief in accordance with DIN EN 62444. The seals are installed by pressing them from the inside outwards into the openings of the previously installed inlays. Their wave-cut profile makes them easy to install and ensures a perfect fit around the cables. There are currently over 130 different seals that can be used for sealing cables of various diameters and sizes.





Your advantages: More versatility and safety

The seals can be removed by pressing from the outside inwards. Changes, retrofits, servicing or the readjustment of the cable lengths can be made at any time without dismantling the frame. Unwanted manipulations from the outside can be prevented by using an optional inner locking frame.

KDSClick Modular cable entry system

An overview of your advantages

Supported by:



on the basis of a decision by the German Bundestag

Attaching the frame

The one-piece frame can be easily and quickly attached to the wall.

Quick inside-outwards assembly for easier servicing work

The frame does not need to be disassembled if your requirements change or if you're carrying out service work.

Captive seal

The foamed-in frame gasket eliminates the risk of incorrect assembly (forgotten gasket) and speeds up the assembly process.

Smart separation of the seals

The wave-cut profile makes them easy to install and ensures a perfect fit around the cables.

No loss of guarantee: assembled cables

No need to disassemble and reconnect connectors, so manufacturer's warranty is not voided.

Versatile, high-density assemblies are possible

1-way, 2-way, and 4-way seals provide you with excellent versatility for cable management.







KDSClick Modular cable entry system

Frames and inlays		KDS-SR 1-4	KDS-SR 6/10		KDS-SR 8/16		KDS-SR 10/24	
Diagram		Page 32	Page 32		Page 32		Page 32	
Туре		KDS-SR 1-4 BK	KDS-SR 6/10 BK		KDS-SR 8/16 BK		KDS-SR 10/24 BK	
Cat. no.	Qty.	28506.4	28500.4	1	28502.4	1	28504.4	1
Description		Screw frame	Screw frame		Screw frame		Screw frame	-
Type / Set		KDS-Set 1-4 BK	KDS-Set 6/10 BK		KDS-Set 8/16 BK		KDS-Set 10/24 BK	
Cat. no.	Qty.	28602.4	·	1	28604.4	1	28605.4	1
Description	ζij.	Set consists of: 1 x KDS-SR 1-4 BK, 1 x KDS-Inlay 4 BK	Set consists of: 1 x KDS-SR 6/10 BK, 1 x KDS-Inlay 2 BK, 1 x KDS-Inlay 6 BK		Set consists of: 1 x KDS-SR 8/16 BK, 1 x KDS-Inlay 1 BK, 2 x KDS-Inlay 4 BK		Set consists of: 1 x KDS-Inlay 4 BK, 1 x KDS-Inlay 6 BK	
Accessories								
Inlay		KDS-Inlay 1 BK	KDS-Inlay 1 BK		KDS-Inlay 1 BK		KDS-Inlay 1 BK	
Cat. no.	Qty.	28516.4 5	28516.4	5	28516.4	5	28516.4	5
Description		For separating vertically	For separating vertically		For separating vertically		For separating vertically	
Cat. no.	Qty.	' ' '	KDS-Inlay 2 BK		, , ,		KDS-Inlay 2 BK	
Inlay			28517.4	5			28517.4	5
Description			T-shape				T-shape for large small	
Inlay		KDS-Inlay 4 BK	·		KDS-Inlay 4 BK		KDS-Inlay 4 BK	
Cat. no.	Qty.	28518.4 5			28518.4	5	28518.4	5
Description	,	for 4-way splits			for 4-way splits		for 4-way splits	
Inlay			KDS-Inlay 6 BK				KDS-Inlay 6 BK	
Cat. no.	Qty.		28519.4	5			28519.4	5
Description	~ ,		for 6-way splits				for 6-way splits	
Inner locking frame (optional)		KDS-IVR 1-4 BK	KDS-IVR 6/10 BK		KDS-IVR 8/16 BK		KDS-IVR 10/24 BK	
Cat. no.	Qty.	28507.4	28501.4	10	28503.4	10	28505.4	10
Sheet-metal hole punch		BL KDS-SR 1-4	BL KDS-SR 6/10		BL KDS-SR 8/16		BL KDS-SR 10/24	
Cat. no.	Qty.	Page 76	Page 76		Page 76		Page 77	
Description	,,	For sheet steel up to 2 mm; also for marking drilling hole points	For sheet steel up to 2 mm; also for marking drilling hole points	:	For sheet steel up to 2 mm; also for marking drilling hole points		For sheet steel up to 2 mr also for marking drilling h points	
Actuating tool		KDS BW 1	KDS BW 1		KDS BW 1		KDS BW 1	
Cat. no.	Qty.	Page 70	Page 70		Page 70		Page 70	
Seals								
small		KDS-DE	KDS-DE		KDS-DE		KDS-DE	
Cat. no.	Qty.	Pages 48/49 10	Pages 48/49	10	Pages 48/49	10	Pages 48/49	10
large		KDS-DEG	KDS-DEG		KDS-DEG		KDS-DEG	
Cat. no.	Qty.	Pages 48/49 10	Pages 48/49	10	Pages 48/49	10	Pages 48/49	10
KDS-DES		KDS-DES	KDS-DES		KDS-DES		KDS-DES	
Cat. no.	Qty.	Pages 50/51 10	Pages 50/51	10	Pages 50/51	10	Pages 50/51	10



IP66

NEMA TYPE 12







Made in Germany





Features

- Material: polyamide PA 6.6, glass-fibre reinforced | TPE
- Colour: black
- Flammability: UL 94 V-0
- Temperature range: -40 °C to +120 °C
- Halogen-free, silicone-free
- Protection: IP66

KDSClick Combination options

Combination options with KDS-SR 1-4







Combination options with KDS-SR 6/10







Combination options with KDS-SR 8/16















KDS-Inlay 4 BK

KDS-Inlay 1 BK 28516.4

KDS-Inlay 4 BK 28518.4

KDS-Inlay 1 BK 28516.4

KDS-Inlay 4 BK 28518.4





KDS-Inlay 2 BK



KDS-Inlay 1 BK 28516.4



KDS-Inlay 1 BK

Combination options with KDS-SR 10/24















KDS-Inlay 4 BK

KDS-Inlay 1 BK

KDS-Inlay 6 BK

KDS-Inlay 1 BK

KDS-Inlay 6 BK















KDS-Inlay 1 BK 28516.4

KDS-Inlay 4 BK 28518.4

KDS-Inlay 1 BK 28516.4

KDS-Inlay 1 BK 28516.4

KDS-Inlay 2 BK 28517.4

KDS-FP Flange plates

Versatility for cable management

The **KDS-FP** flange plate provides manufacturers of machines with a very cost-effective, convenient feed-through solution. It can be used to adapt housings and switchgear cabinets to fit your updated requirements at any time, and can also considerably simplify your warehousing. You no longer have to stock switchgear cabinets or distributors with different configurations of assembled cable and cable outlets.

Instead, you can uniformly prepare your products with the flange plate and then adapt them at any time to your specific cabling or tubing requirements. Your advantage is that you save money by requiring fewer variants.





Your advantages

- Lower costs with increased variability due to standardized opening dimensions
- No loss of guarantee when using assembled cables
- Versatile, high-density assemblies are possible
- Outstanding IP66 seal
- Integrated strain relief
- Outstanding versatility with optimized warehousing
- Can be used from -40 °C to +120 °C

The basic components of the modular system

Flange plate. Inlays. Seals. The modular design – 3 basic components – provides more versatility, variability and variety.

1. Flange plate

The flange plate is available in the versions **KDS-FP** 2x10/24 (up to 20 feed-through openings) or the **KDS-FP** 3x10/24 (for up to 20 or 30 openings). Uniform housing break-outs of 131 mm x 110 mm or 131 mm x 161 mm are used for installation. By screwing the flange plate on the outside of the cabinet, the break-out is completely sealed according to IP66. On the continuous closed plates, there are two or three cover segments with pre-determined breaking points; these can be pushed out (without tools) which then opens up a 110 mm x 40 mm feed-through opening. The click-in KDSClick frame inlays can be used to subdivide this opening in up to ten appropriately sized frame openings.



2. Inlays

The click-in inlays enable needs-based dimensioning of the frame opening, corresponding to the seal being used. An audible "click" confirms a correct installation. So you can variably configure cable entries to match various requirements (for cables, lines, tubing, pneumatic and hydraulic lines).



3. Seals

The conical shape of the seal makes it easy to press in. This also reliably seals the gaps and ensures static strain relief in accordance with DIN EN 62444. The seals are installed by pressing them from the inside outwards into the openings of the previously installed inlays. Their wave-cut profile makes them easy to install and ensures a perfect fit around the cables. There are currently over 130 different seals that can be used for sealing cables of various diameters and sizes.



KDS-FP Flange plates

An overview of your advantages

Flange plate is easy to install

The one-piece flange plate can be easily and quickly attached to the wall.

Captive seal

The foamed-in frame gasket eliminates the risk of incorrect assembly (forgotten gasket) and speeds up the assembly process.

Variability

Can be extended to max. 30 openings, without the use of tools or further machining.

No loss of guarantee: assembled cables

No need to disassemble and reconnect connectors, so manufacturer's warranty is not voided.

Versatile, high-density assemblies are possible

1-way, 2-way, and 4-way seals provide you with excellent versatility for cable management.

Accessories

Locking mechanism can be installed without tools; this provides additional strain relief in direction of cabinet interior







Outstanding versatility with optimized warehousing

The flange plates, inlays and seals can be combined in many ways – ensuring you many versatile configuration options.



Safe and quick installation with feedback

An audible "click" confirms that the inlay and frame have been properly installed.



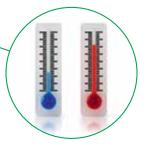
Integrated strain relief

The absolute tightness of the seals ensures a static strain relief mechanism for the cables in accordance with DIN EN 62444.



Outstanding IP66 seal

Multi-resistant, tapered seals feature inner and outer sealing gills.



Can be used from -40 °C to +120 °C

Materials contain no halogen or silicone; suitable for many different applications.



IP66

NEMA TYPE 12 NEMA TYPE **4x**



RoHS compliant

Made in Germany



KDS-FP Flange plates









NEMA TYPE 12





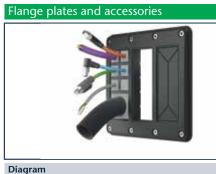
RoHS compliant

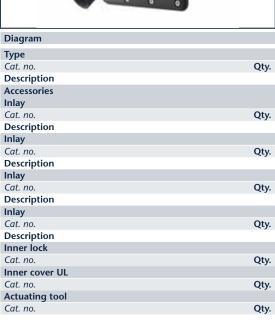
Made in Germany



Diagram	
Туре	
Cat. no.	Qty.
Description	
Accessories	
Inlay	
Cat. no.	Qty.
Description	
Inlay	
Cat. no.	Qty.
Description	
Inlay	
Cat. no.	Qty.
Description	
Inlay	
Cat. no.	Qty.
Description	
Inner lock	
Cat. no.	Qty.
Inner cover UL	
Cat. no.	Qty.
Actuating tool	
Cat. no.	Qty.









Page 23	
KDS-FP 3x10/24 BK	
28661.4	1
Flange plate	
KDS-Inlay 1 BK	
28516.4	5
For separating vertically	
KDS-Inlay 2 BK	
28517.4	5
T-shape for large small	
KDS-Inlay 4 BK	
28518.4	5
for 4-way splits	
KDS-Inlay 6 BK	
28519.4	5
for 6-way splits	
KDS-FP-IVR OG	20
28664.3	20
KDS-FP-AD/UL YE	10
28665.8	10
KDS BW 1	
Page 70	

KDS-FP Combination options

Combination option 1





KDS-Inlay 4 BK 28518.4



KDS-Inlay 1 BK 28516.4



KDS-Inlay 6 BK 28519.4

Combination option 2





KDS-Inlay 1 BK 28516.4



KDS-Inlay 6 BK 28519.4

Combination option 3





KDS-Inlay 1 BK 28516.4



KDS-Inlay 1 BK 28516.4



KDS-Inlay 6 BK 28519.4

Combination option 4





KDS-Inlay 1 BK 28516.4



KDS-Inlay 2 BK 28517.4

Each of the two or three 10-frame openings can be configured with the appropriate inlays to match a wide variety of individual customer requirements.

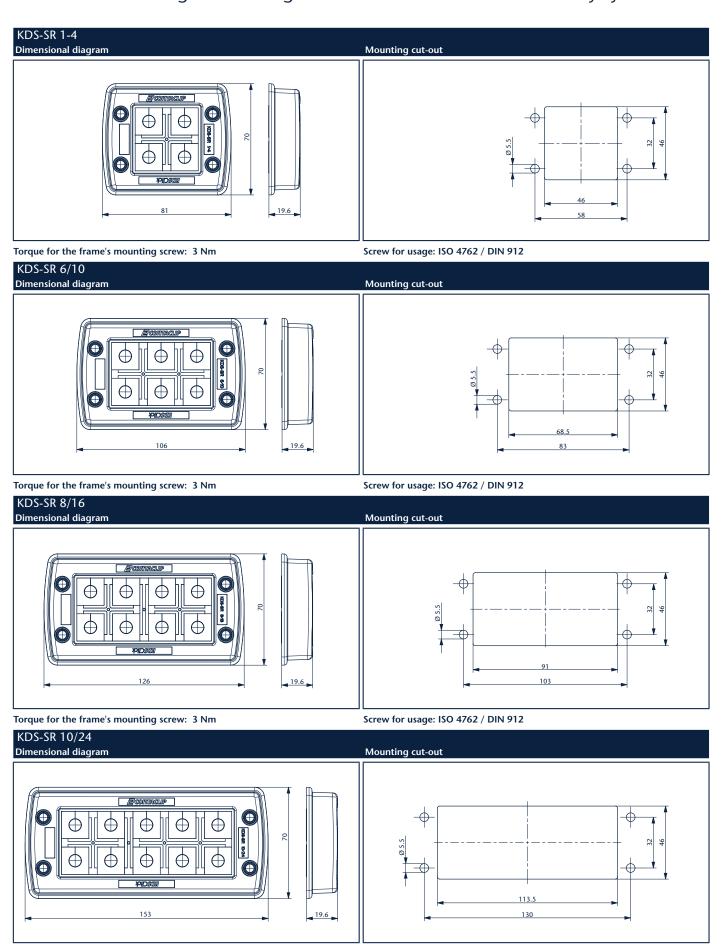


Features

- Material: polyamide PA 6.6, glass-fibre reinforced | TPE
- Colour: black
- Flammability: UL 94 V-0
- \bullet Temperature range: -40 °C to +120 °C
- Halogen-free, silicone-free
- Protection: IP66

KDSClick

Dimensional drawings / Mounting cut-outs for the modular cable entry system

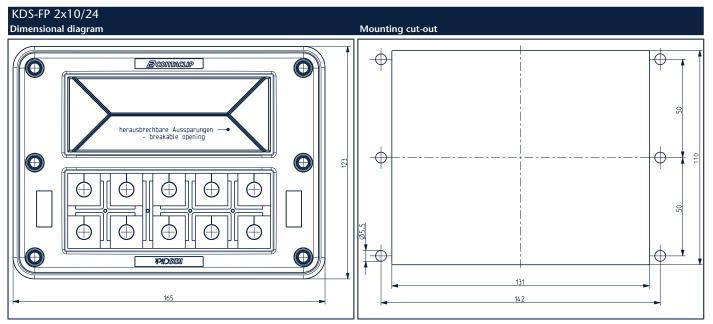


Torque for the frame's mounting screw: 3 Nm

Screw for usage: ISO 4762 / DIN 912

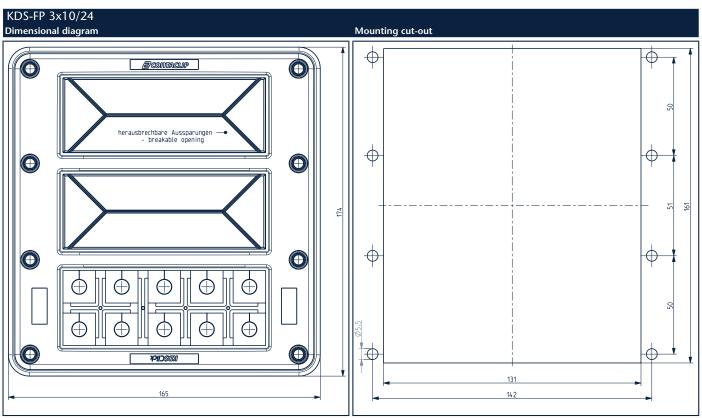
KDS-FP

Dimensional drawings / Mounting cut-outs for the flange plate



Torque for the frame's mounting screw: 3 Nm

Screw for usage: ISO 4762 / DIN 912



Torque for the frame's mounting screw: 3 Nm

Screw for usage: ISO 4762 / DIN 912

KDS-R Round cable entries

Overcoming the frame split: Round solutions for your requirements.

The round **KDS-R** cable entries for metric breakouts from M20 to M63 are designed for cables with and without plugs. In case of maintenance or retrofitting with assembled cable harnesses, cables with diameters from 2 mm to 35 mm can be quickly and safely inserted into the switchgear cabinets or housings and sealed according to IP66. The modular system ensures quick and easy assembly in three steps. A reliable seal and absolute secure fit is also provided by the slitted, tapered seals with a wave-cut profile, which, after the cables are routed through the cable entry, are placed around the cables and then pressed into the round cable entry.

After that, the separable thread and locking adapter on the switchgear cabinet exterior is easily screwed together with the round frame. The separable locknuts that are mounted on the interior of the locking elements ensure safe and secure attachment. This system can be used with a wall thickness up to 6 mm.





Your advantages

- Assembled cables can be guided through
- Guarantee retained for assembled cables
- Retrofitting and servicing can be done quickly and easily
- High-density assemblies
- Can be installed on standard metric break-outs
- Protection: IP66

The basic components of the modular system

1. Round cable entries

The round cable entry **KDS-R** ensures quick and secure assembly of hoses and electrical cables in switchboxes and switchgear cabinets. The seals (TPE) integrated into the cable entry also ensure an outstanding seal in accordance with IP66 on painted and rough surfaces.



2. Inlays

The click-in inlays enable needs-based dimensioning of the frame opening, corresponding to the seal being used.

So you can variably configure cable entries to match various requirements (for cables, lines, tubing, pneumatic and hydraulic lines).



3. Thread and locking adapter

The two-piece thread and locking adapter **KDS-RGA** for versatile installation is screwed together with the round cable entry. It locks with a form fit with the cable entry and therefore ensures that the seals and inlays are mechanically secured. The threads located on the switchgear cabinet or housing interior are available respectively in six common diameters for metric break-outs from M20–M32 and M40–M63.



4. Separable locknuts

The individual parts of the locknut **KDS-GM** can be snapped together quickly and easily via the dovetail guide and then can be mounted on the round cable entry.



5. Seals

The tapered shape of the seal **KDS-DE / KDS-DEG** enables user-friendly pressing-in of the seal, reliable sealing of the gaps and ensures a static strain relief in accordance with DIN EN 62444. To attach them, the seals are pressed from the inside out into the openings of the cable entries. Their wave-cut profile makes them easy to install and ensures a perfect fit around the cables. There are currently over 130 different seals that can be used for sealing cables of various diameters and sizes.



KDS-R Round cable entries

An overview of your advantages

Mounting

The round cable entry is installed without tools.

Variability

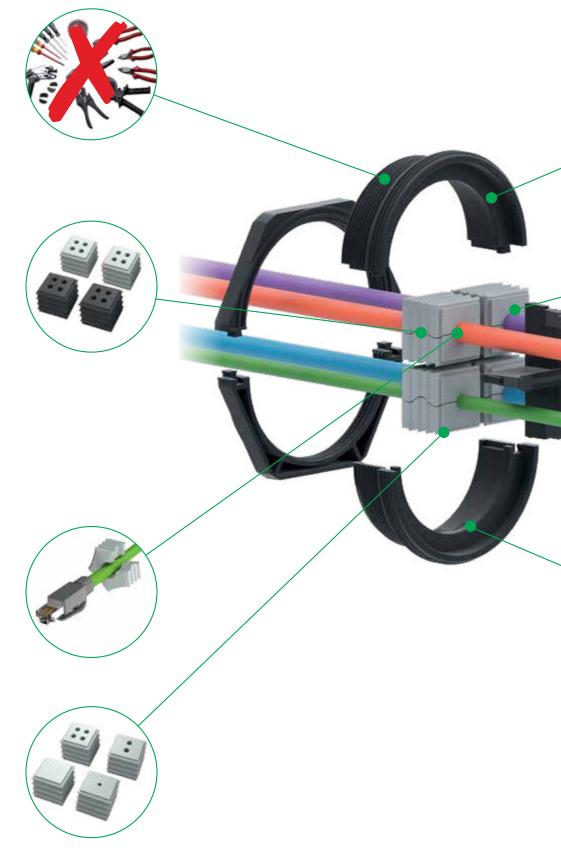
Up to 16 cables can be fed through thanks to the compatibility of the KDS-R 40-63 with the KDS inlay 4.

No loss of guarantee: assembled cables

No need to disassemble and reconnect connectors, so the manufacturer's warranty is not voided.

Versatile, high-density assemblies are possible

1-way, 2-way, and 4-way seals provide you with excellent versatility for cable management.





compliant

Germany

KDS-R Round cable entries

RDS-RGA M25 BK Cat. no. Qty. 28772.4 5 28617.4 10 RDS-RGA M32 BK RDS-GM M32 BK RDS-DE RDS-DE RDS-DE RDS-DE RDS-DE RDS-DE RDS-DE RDS-DE RDS-DE RDS-RGA M20 BK RDS-RGA M20 BK RDS-RGA M25 BK RDS-RGA M25 BK RDS-RGA M25 BK RDS-RGA M25 BK RDS-RGA M32 BK RDS-R	Round cable entries		KDS-R 20-32		KDS-RGA M20/25/32		KDS-GM 20/25/3	32
No. Colour Cot. no. Qty. 28770.4 10 28771.4 5 28616.4 10 10 28771.4 5 28616.4 10 10 28771.4 5 28617.4 10 10 28771.4 5 28617.4 10 10 28771.4 5 28617.4 10 10 28771.4 5 28617.4 10 10 28771.4 5 28617.4 10 10 28771.4 5 28617.4 10 10 28771.4 5 28618.4 10 28773.4 5 28618.4 10 28773.4 5 28618.4 10 28773.4 5 28618.4 28773.4 5 28618.4 28773.4 5 28618.4 28773.4 28773.4 5 28773.4 287					S			
Cat. no.	Description		Round cable entry		Thread and locking adapter	,	Separable locknut	<u>.</u>
Cat. no. Qty. 28770.4 10 28771.4 5 28616.4 10 Type / colour RDS-RGA M25 BK BDS-GM M25 BK Cat. no. 28772.4 5 28617.4 10 Type / colour KDS-RGA M32 BK KDS-GM M32 BK KDS-GM M32 BK KDS-GM M32 BK CDS-GM M32 BK <	Type / colour		KDS-R 20-32 BK		KDS-RGA M20 BK		KDS-GM M20 BK	
Type / colour		ty.	28770.4	10		5		10
Cat. no. Qty. 2877.4 5 28617.4 10 Type / colour KDS-RGA M32 BK KDS-GM M32 BK KDS-GM M32 BK CSCM M32 BK					KDS-RGA M25 BK		KDS-GM M25 BK	
Type / colour Cat. no.		ty.			28772.4	5	28617.4	10
Cat. no. Qty. 28773.4 5 28618.4 10 KDS-DE 1 – 13 mm 1 – 13 mm 1 – 13 mm 1 – 13 mm KDS-DEG Accessories Thread adapters KDS-RGA M20 BK Cat. no. Qty. 28771.4 5 Thread adapters KDS-RGA M25 BK Cat. no. Qty. 28773.4 5 Thread adapters KDS-RGA M32 BK Cat. no. Qty. 28773.4 5 Locknut KDS-GM M20 BK Cat. no. Qty. 28616.4 10 Locknut KDS-GM M32 BK Cat. no. Qty. 28617.4 10 Inlay 28618.4 10 Inlay Inlay					KDS-RGA M32 BK		KDS-GM M32 BK	
Cable diameter KDS-DE 1 – 13 mm 1 – 13 mm 1 – 13 mm 1 – 13 mm KDS-DEG KDS-RGA KDS-RGA M20 BK Image: Control of the contro		ty.			28773.4	5	28618.4	10
KDS-DEG Accessories Thread adapters KDS-RGA M20 BK Cat. no.								
Accessories Cat. no.	KDS-DE		1 – 13 mm		1 – 13 mm		1 – 13 mm	
Cat. no.	KDS-DEG							
Cat. no. Qty. 28771.4 5 Thread adapters KDS-RGA M25 BK 5 Cat. no. Qty. 28772.4 5 Thread adapters KDS-RGA M32 BK 5 Cat. no. Qty. 28773.4 5 Locknut KDS-GM M20 BK 28616.4 10 Locknut KDS-GM M25 BK 28617.4 10 Locknut KDS-GM M32 BK 28617.4 10 Locknut KDS-GM M32 BK 28618.4 10 Locknut 28618.4 10 Cat. no. Qty. 28618.4 10 Inlay Cat. no. Qty. Inlay	Accessories							
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Locknut Cat. no. Qty. 28618.4 10 Inlay Cat. no. Qty. Inlay Qty. Inlay	Locknut				KDS-GM M25 BK			
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Inlay Cat. no. Qty.	Locknut				KDS-GM M32 BK			
Cat. no. Qty. Inlay Cat. no. Qty. Inlay	Cat. no.	ty.			28618.4	10		
Inlay Cat. no. Qty. Inlay								
Cat. no. Qty. Inlay	Cat. no.	ty.						
Inlay	Inlay							
Inlay	Cat. no.	ty.						
Cat. no. Qty.	Cat. no.	ty.						







Round cable entries		KDS-R 40-63 BK		KDS-RGA M40/50/	63	KDS-GM 40/50/6	3
		0		C	1		
Description		Round cable entry		Thread and locking adap	oter	Separable locknut	
Type / colour		KDS-R 40-63 BK		KDS-RGA M40 BK		KDS-GM M40 BK	
Cat. no.	Qty.	28774.4	4	28775.4	5	28619.4	10
Type / colour	.,			KDS-RGA M50 BK		KDS-GM M50 BK	
Cat. no.	Qty.			28776.4	5	28620.4	10
Type / colour				KDS-RGA M63 BK		KDS-GM M63 BK	
Cat. no.	Qty.			28777.4	5	28621.4	10
Cable diameter							
KDS-DE		1 – 13 mm		1 – 13 mm		1 – 13 mm	
KDS-DEG		14 – 35 mm		14 – 35 mm		14 – 35 mm	
Accessories							
Thread adapters		KDS-RGA M40 BK					
Cat. no.	Qty.	28775.4	5				
Thread adapters		KDS-RGA M50 BK					
Cat. no.	Qty.	28776.4	5				
Thread adapters		KDS-RGA M63 BK					
Cat. no.	Qty.	28777.4	5				
Locknut				KDS-GM M40 BK			
Cat. no.	Qty.			28619.4	10		
Locknut				KDS-GM M50 BK			
Cat. no.	Qty.			28620.4	10		
Locknut				KDS-GM M63 BK			
Cat. no.	Qty.			28621.4	10		
Inlay		KDS-Inlay 1 BK					
Cat. no.	Qty.	28516.4	5				
Inlay		KDS-Inlay 2 BK					
Cat. no.	Qty.	2817.4	5				
Inlay		KDS-Inlay 4 BK					
Cat. no.	Qty.	28518.4	5				



Features

- Material: polyamide PA 6.6, glass-fibre reinforced | TPE
- Colour: black
- Flammability: UL 94 V-0
- Temperature range: -40 °C to +120 °C
- Halogen-free, silicone-free
- Protection: IP66

Compatibility matrix for round cable entry systems KDS-R

Seals			
grey small		black small	
Туре	Cat. no.	Туре	Cat. no.
KDS-DE/B GR	28561.6	KDS-DE/B BK	28520.4
KDS-DE 1.5-2 GR	28562.6	KDS-DE 1.5-2 BK	28521.4
KDS-DE 2-3 GR	28563.6	KDS-DE 2-3 BK	28522.4
CDS-DE 3-4 GR	28564.6	KDS-DE 3-4 BK	28523.4
KDS-DE 4-5 GR	28565.6	KDS-DE 4-5 BK	28524.4
CDS-DE 5-6 GR	28566.6	KDS-DE 5-6 BK	28525.4
CDS-DE 6-7 GR	28567.6	KDS-DE 6-7 BK	28526.4
CDS-DE 7-8 GR	28568.6	KDS-DE 7-8 BK	28527.4
KDS-DE 8-9 GR	28569.6	KDS-DE 8-9 BK	28528.4
(DS-DE 9-10 GR	28570.6	KDS-DE 9-10 BK	28529.4
(DS-DE 10-11 GR	28571.6	KDS-DE 10-11 BK	28530.4
(DS-DE 11-12 GR	28572.6	KDS-DE 11-12 BK	28531.4
(DS-DE 12-13 GR	28573.6	KDS-DE 12-13 BK	28532.4
(DS-DE 13-14 GR	28574.6	KDS-DE 13-14 BK	28533.4
(DS-DE 14-15 GR	28609.6	KDS-DE 14-15 BK	28608.4
(DS-DE 15-16 GR	28671.6	KDS-DE 15-16 BK	28670.4
(DS-DE 2 x 4-5 GR	28595.6	KDS-DE 2 x 4-5 BK	28555.4
(DS-DE 2 x 5-6 GR	28596.6	KDS-DE 2 x 5-6 BK	28556.4
(DS-DE 2 x 6.5 GR	28607.6	KDS-DE 2 x 6.5 BK	28682.4
(DS-DE 4 x 2-3 GR	28597.6	KDS-DE 4 x 2-3 BK	28557.4
(DS-DE 4 x 3-4 GR	28598.6	KDS-DE 4 x 3-4 BK	28558.4
KDS-DE 4 x 4.5 GR	28606.6	KDS-DE 4 x 4.5 BK	28681.4
KDS-DE 4 x 5 GR	28673.6	KDS-DE 4 x 5 BK	28672.4
KDS-DE/1 x ASI GR	28599.6	KDS-DE/1 x ASI BK	28559.4
KDS-DE/2 x ASI GR	28600.6	KDS-DE/2 x ASI BK	28560.4
		KDS-DE/K 2-1 BK	28553.4
grey large		black large	
Гуре	Cat. no.	Туре	Cat. no.
(DS-DEG/B GR	28575.6	KDS-DEG/B BK	28534.4
(DS-DEG/D GR	28576.6	KDS-DEG/B BK	28535.4
(DS-DEG 14-13 GK (DS-DEG 15-16 GR	28577.6	KDS-DEG 14-15 BK	28536.4
(DS-DEG 16-17 GR	28578.6	KDS-DEG 15-16 BK	28537.4
KDS-DEG 17-18 GR	28579.6	KDS-DEG 17-18 BK	28538.4
(DS-DEG 18-19 GR	28580.6	KDS-DEG 18-19 BK	28539.4
KDS-DEG 19-20 GR	28581.6	KDS-DEG 19-20 BK	28540.4
KDS-DEG 20-21 GR	28582.6	KDS-DEG 20-21 BK	28541.4
KDS-DEG 21-22 GR	28583.6	KDS-DEG 21-22 BK	28542.4
KDS-DEG 22-23 GR	28584.6	KDS-DEG 22-23 BK	28543.4
KDS-DEG 23-24 GR	28585.6	KDS-DEG 23-24 BK	28544.4
KDS-DEG 24-25 GR	28586.6	KDS-DEG 24-25 BK	28545.4
CDS-DEG 25-26 GR	28587.6	KDS-DEG 25-26 BK	28546.4
KDS-DEG 26-27 GR	28588.6	KDS-DEG 26-27 BK	28547.4
KDS-DEG 27-28 GR	28589.6	KDS-DEG 27-28 BK	28548.4
KDS-DEG 28-29 GR	28590.6	KDS-DEG 28-29 BK	28549.4
KDS-DEG 29-30 GR	28591.6	KDS-DEG 29-30 BK	28550.4
KDS-DEG 30-31 GR	28592.6	KDS-DEG 30-31 BK	28551.4
KDS-DEG 31-32 GR	28593.6	KDS-DEG 31-32 BK	28552.4
KDS-DEG 32-33 GR	28594.6	KDS-DEG 32-33 BK	28601.4
	B/A some	KDS-DES	
	≤/		Cab as
	Small seals	Type	Cat. no.
	7 8 3	KDS-DES 2X10.5 GR	28800.6
		KDS-DES 3X9.5 GR	28801.6
- · · · · · · · · · · · · · · · · · · ·		KDS-DES 3X8.5 GR	28802.6
	A 1	KDS-DES 4X7.5 GR	28803.6
		KDS-DES 7X6.5 GR	28804.6
	Large seals	KDS-DES 8X5.5 GR	28805.6
		KDS-DES 8X4.5 GR	28806.6
		KDS-DE-FB1/A GR	28713.6
1		KDS-DE-FB1/B GR	28714.6
1	332-111	KDS-DE-FB1/C GR	28715.6
	6.6	KDS-DE-FB1/D GR	28716.6
	DES seals	KDS-DF-FB1/F GR	28717.6
3	DES seals	KDS-DE-FB1/E GR KDS-DE-FB1/F GR	28717.6 28718.6

d cable entries l	KDS-R 20 – 32			KDS-R 40 – 63	
KDS-R M20	KDS-R 20 – 32 KDS-R M25	KDS-R M32	KDS-R M40	KDS-R 40 – 63 KDS-R M50	KDS-R M63
KD3-K WIZU	KD3-K WIZ3	KD3-K IVI32	KD3-K WI40	KD3-K IVI30	KD3-K MO3
•	•	•	•	•	•
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KDS-KV Separable cable glands

All-round "cornered" solutions for your requirements!

For metric break-outs from M20 to M63, CONTA-CLIP provides the **KDS-KV** separable cable glands for cables with or without attached plugs. In case of maintenance or retrofitting with assembled cable harnesses, cables with diameters from 2 mm to 35 mm can be quickly and safely inserted into the switchgear cabinets or housings and sealed according to IP66. This separable system ensures quick and simple installation. The slitted seal has a wave-cut profile that ensures a reliable seal and a totally secure attachment.

The seal is first placed around the cable and then inserted in one of the two halves of the cable gland. After inserting the seals, the two halves of the cable gland are simply snapped together. A locknut (which can also be separated) on the inside of the cabinet ensures a safe and secure attachment.





Your advantages

- Assembled cables can be guided through
- Guarantee retained for assembled cables
- Retrofitting and servicing can be done quickly and easily
- High-density assemblies
- Can be installed on standard metric break-outs
- Includes a separable hexagon nut

The basic components of the modular system

1. Split cable glands

Consisting of two half-shells, the cable gland is quick and easy to install. It is made of dimensionally stable, glass-fibre reinforced plastic. The integrated seal guarantees an optimal seal with IP66 protection, even on painted or rough surfaces.



2. Separable locknuts

The individual parts of the locknut can be snapped together quickly and easily via the dovetail guide and then mounted with the gland.



3. Seals

The conical shape of the seal makes it easy to press in. This also reliably seals the gaps and ensures static strain relief in accordance with DIN EN 62444. The seals are installed by pressing them from the inside outwards into the openings of the previously installed inlays. Their wave-cut profile makes them easy to install and ensures a perfect fit around the cables. There are currently over 130 different seals that can be used for sealing cables of various diameters and sizes.



KDS-KV Separable cable glands

An overview of your advantages

Mounting

No tools are required to mount the cable gland.

Variability

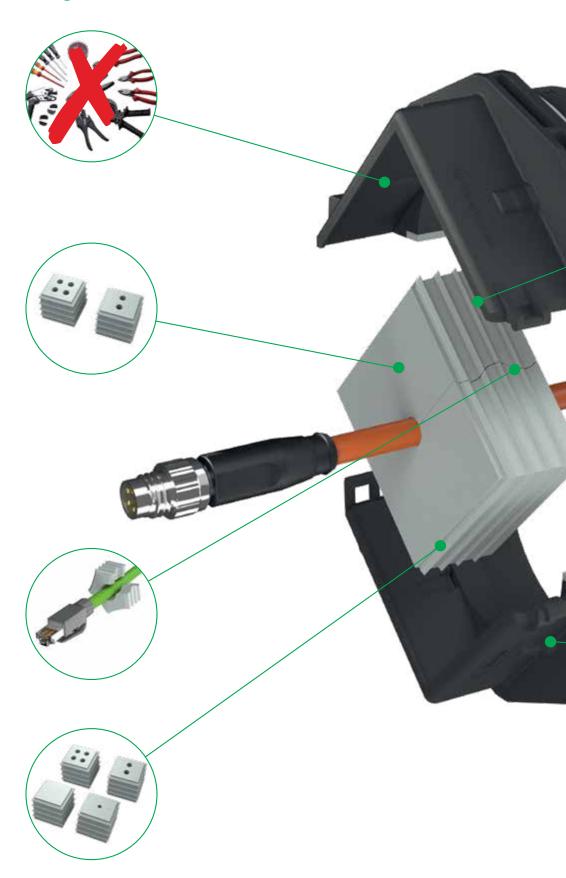
Up to 4 cables can be fed through using just one cable gland.

No loss of guarantee: assembled cables

No need to disassemble and reconnect connectors, so the manufacturer's warranty is not voided.

Versatile, high-density assemblies are possible

1-way, 2-way, and 4-way seals provide you with excellent versatility for cable management.





KDS-KV Separable cable glands

Separable cable glands	KDS-KV M20	KDS-KV M25	KDS-KV M32
Diagram	Ø 40 SW 28 M20x1.5	Ø 40 SW 38 SW 33 M25x1.5	Ø 40 E SW 38 SW 40 M32x1.5
Туре	KDS-KV M20 BK	KDS-KV M25 BK	KDS-KV M32 BK
Cat. no. Qty		28611.4 10	
Description	Separable cable gland, including separable locknut	Separable cable gland, including separable locknut	Separable cable gland, including separable locknut
Cable diameter, mm			
KDS-DE	1 – 13 mm	1 – 14 mm	1 – 14 mm
Accessories			
Locknut	KDS-GM 20 BK	KDS-GM 25 BK	KDS-GM 32 BK
Cat. no. Qt			28618.4
Description	Separable locknut	Separable locknut	Separable locknut
Seals	WDC DE	KDC DE	WDC DE
small Cat. no. Qt	KDS-DE	KDS-DE	KDS-DE
Cat. no. Qtg. Tightening torque of lock nut, in Nm	r. Pages 48 – 51 4	Pages 48 – 51 4	Pages 48 – 51 4
Combinations			





- Material: polyamide PA 6.6, glass-fibre reinforced | TPE
- Colour: black
- Flammability: UL 94 V-0
- Temperature range: -40 °C to +120 °C
- Halogen-free, silicone-free
- Protection: IP66

KDS-FB Cable entry system for flat cables

Fast. Safe. Turning cables inside out! The **KDS-FB** cable entry system for flat cables provides you with outstanding versatility and saves you time while managing cables, especially for industrial trucks, crane systems and elevator applications. The "fish skin" on the seal

mechanically surrounds the inserted flat cable; this ensures outstanding tolerance compensation and IP66 protection.

Supported by:



on the basis of a decision by the German Bundestag

Attaching the frame

Made from a single mould, the one-piece frame is quick and easy to assemble. It is made of sturdy, glass-fibre reinforced plastic.

Quickly assembled from the inside out

The frame does not need to be disassembled if your requirements change or if you're carrying out service work.

Captive seal

The moulded-in frame gasket eliminates the risk of incorrect assembly (forgotten seal) and speeds up the assembly process.

Seals

The seals' conical shape enables them to be easily pressed in so they can seal gaps. To attach them, the seals are pressed from the inside out into the openings. There are currently over 130 different seals that can be used for sealing cables of various diameters and sizes.



IP66



Made in Germany





Your advantages

30% less time required for new installations because of the one-piece frame. Modifications, retrofits, service work or the readjustment of cable lengths can be made at any time without disassembling the frame, since the seals are released from the outside inwards by simply pressing in.



KDS-FB Cable entry system for flat cables

Frame		KDS-SR-FB1/A		KDS-SR-FB2/A		KDS-SR-FB2/B	
0							
Diagram		Page 42		Page 42		Page 42	
Type / colour		KDS-SR-FB1/A BK		KDS-SR-FB2/A BK		KDS-SR-FB2/B BK	
Cat. no.	Qty.	28700.4	10	28701.4	10	28702.4	10
Seals (refer to pages 48 – 49, or pages 44 – 45)	Qty.	20700.4	10	20/01.4	10	20702.4	10
KDS-DE						1 x	
KDS-DE-FB1		1 x				1 x	
KDS-DE-FB2		17		1 x		- 1 X	
KDS-DE-FB3				1 //			
KDS-DE-FB4							
Accessories							
Actuating tool (refer to page 70)		KDS BW 1		KDS BW 1		KDS BW 1	
Cat. no.	Qty.	28622.0	1		1	28622.0	1
Sheet-metal hole punch (refer to page 76)	7.7	BL-VA KDS-FB1		BL-VA KDS-FB2		BL-VA KDS-FB2	
	•	20722	1	28741.0	1	28741.0	1
Cat. no.	Qty.	28729.0	- 1	28/41.0		20/71.0	
Cat. no.	Qty.		'				•
Cat. no. Frame	Qty.	KDS-SR-FB4/A		KDS-SR-FB4/B	·	KDS-SR-FB4/C	
	Qty.				'		
	Qty.						
	Qty.						
Frame	Qty.				10		Te
Frame	Qty.				10		
Frame	Qty.	KDS-SR-FB4/A				KDS-SR-FB4/C	10
Frame	Qty.						10
Frame	Qty.	KDS-SR-FB4/A		KDS-SR-FB4/B		KDS-SR-FB4/C	•
Frame)	KDS-SR-FB4/A Page 43	10	Page 43 KDS-SR-FB4/B BK	10	RDS-SR-FB4/C Page 43 KDS-SR-FB4/C BK	•
Frame Diagram Type / colour	Qty.	Page 43 KDS-SR-FB4/A BK	10	Page 43 KDS-SR-FB4/B BK	10	RDS-SR-FB4/C Page 43 KDS-SR-FB4/C BK	•
Piagram Type / colour Cat. no.)	Page 43 KDS-SR-FB4/A BK	10	Page 43 KDS-SR-FB4/B BK	10	RDS-SR-FB4/C Page 43 KDS-SR-FB4/C BK	•
Diagram Type / colour Cat. no. Seals (refer to pages 48 – 49, or pages 44 – 45))	Page 43 KDS-SR-FB4/A BK	10	Page 43 KDS-SR-FB4/B BK 28708.4	10	Page 43 KDS-SR-FB4/C BK 28709.4	•
Diagram Type / colour Cat. no. Seals (refer to pages 48 – 49, or pages 44 – 45) KDS-DE)	Page 43 KDS-SR-FB4/A BK	10	Page 43 KDS-SR-FB4/B BK 28708.4	10	Page 43 KDS-SR-FB4/C BK 28709.4	•
Piagram Type / colour Cat. no. Seals (refer to pages 48 – 49, or pages 44 – 45) KDS-DE KDS-DE-FB1)	Page 43 KDS-SR-FB4/A BK	10	Page 43 KDS-SR-FB4/B BK 28708.4	10	Page 43 KDS-SR-FB4/C BK 28709.4	•
Frame Diagram Type / colour Cat. no. Seals (refer to pages 48 – 49, or pages 44 – 45) KDS-DE KDS-DE-FB1 KDS-DE-FB2)	Page 43 KDS-SR-FB4/A BK	10	Page 43 KDS-SR-FB4/B BK 28708.4	10	Page 43 KDS-SR-FB4/C BK 28709.4	•
Frame Diagram Type / colour Cat. no. Seals (refer to pages 48 – 49, or pages 44 – 45) KDS-DE KDS-DE-FB1 KDS-DE-FB2 KDS-DE-FB3 KDS-DE-FB3 KDS-DE-FB4 Accessories)	Page 43 KDS-SR-FB4/A BK 28707.4	10	Page 43 KDS-SR-FB4/B BK 28708.4 2x 1 x	10	Page 43 KDS-SR-FB4/C BK 28709.4 1 x 2 x	•
Frame Diagram Type / colour Cat. no. Seals (refer to pages 48 – 49, or pages 44 – 45) KDS-DE KDS-DE-FB1 KDS-DE-FB2 KDS-DE-FB3 KDS-DE-FB4 Accessories Actuating tool (refer to page 70)	Qty.	Page 43 KDS-SR-FB4/A BK 28707.4	10	Page 43 KDS-SR-FB4/B BK 28708.4 2x 1 x	10	Page 43 KDS-SR-FB4/C BK 28709.4 1 x 2 x	10
Frame Diagram Type / colour Cat. no. Seals (refer to pages 48 – 49, or pages 44 – 45) KDS-DE KDS-DE-FB1 KDS-DE-FB2 KDS-DE-FB3 KDS-DE-FB3 KDS-DE-FB4 Accessories Actuating tool (refer to page 70) Cat. no.)	Page 43 KDS-SR-FB4/A BK 28707.4 1 x KDS BW 1 28622.0	10	Page 43 KDS-SR-FB4/B BK 28708.4 2x 1 x KDS BW 1 28622.0	10	RDS-SR-FB4/C Page 43 KDS-SR-FB4/C BK 28709.4 1 x 2 x KDS BW 1 28622.0	10
Frame Diagram Type / colour Cat. no. Seals (refer to pages 48 – 49, or pages 44 – 45) KDS-DE KDS-DE-FB1 KDS-DE-FB2 KDS-DE-FB3 KDS-DE-FB4 Accessories Actuating tool (refer to page 70)	Qty.	Page 43 KDS-SR-FB4/A BK 28707.4	10	Page 43 KDS-SR-FB4/B BK 28708.4 2x 1 x	10	Page 43 KDS-SR-FB4/C BK 28709.4 1 x 2 x	10



- Material: polyamide PA 6.6, glass-fibre reinforced | TPE
- Colour: black
- Flammability: UL 94 V-0
- Temperature range: -40 °C to +120 °C
- Halogen-free, silicone-free
- Protection: IP66



KDS BW 1

BL-VA KDS-FB4

28622.0

1 28743.0

IP66

KDS BW 1

BL-VA KDS-FB4

28622.0

28743.0



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KDS BW 1

BL-VA KDS-FB4

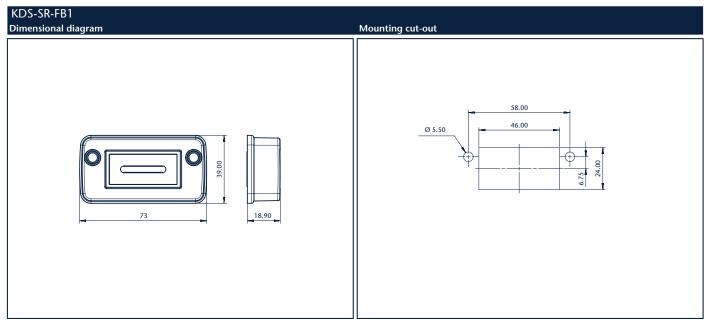
28622.0

1 28743.0



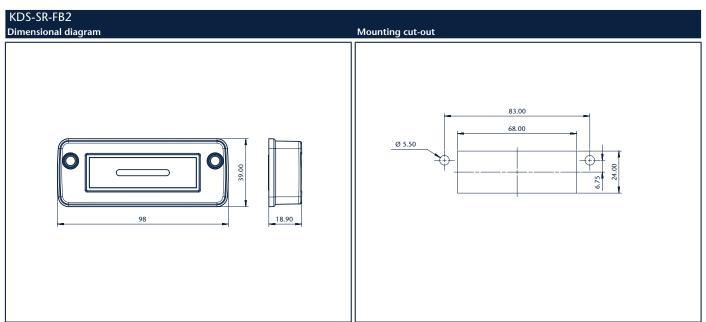
KDS-FB

Dimensional drawing / Mounting cut-out



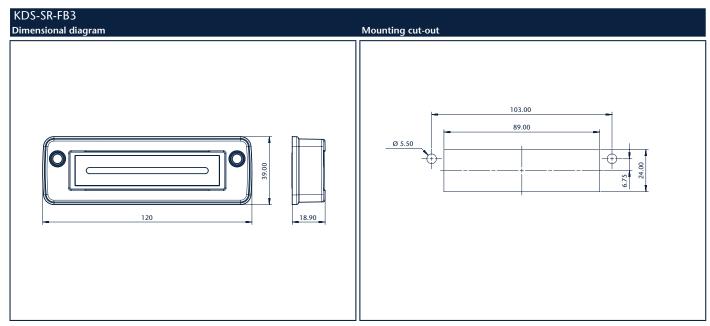
Torque for the frame's mounting screw: 3 Nm

Screw for usage: ISO 4762 / DIN 912



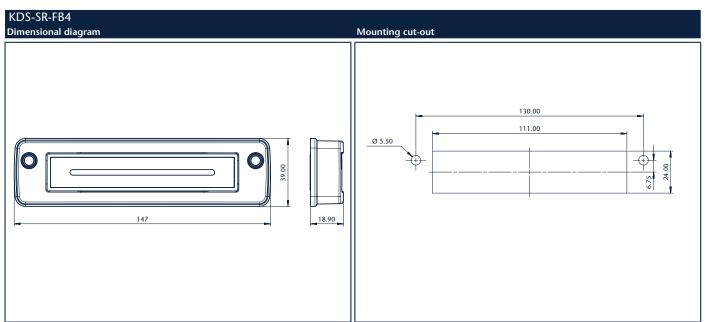
Torque for the frame's mounting screw: 3 Nm

Screw for usage: ISO 4762 / DIN 912



Torque for the frame's mounting screw: 3 Nm

Screw for usage: ISO 4762 / DIN 912



Torque for the frame's mounting screw: 3 Nm

Screw for usage: ISO 4762 / DIN 912

Seals for KDS-FB





- Material: TPE
- Flammability: UL 94 V-0
- Temperature range: -40 °C to +90 °C (static)
- Halogen-free, silicone-free
- Protection: IP66







KDS-DE-FB4/C GR28740.6 5

Width: 94–99 mm

Thickness: 4.2–5.2 mm





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	KDS-SR-FB1/A BK	KDS-SR-FB2/A BK	KDS-SR-FB2/B BK	KDS-SR-FB3/A BK	KDS-SR-FB3/B BK	KDS-SR-FB3/C BK
Cat. no.	28700.4	28701.4	28702.4	28703.4	28704.4	28705.4
			•		•	
KDS-DE-FB1/A GR 28713.6	•		•			•
KDS-DE-FB1/B GR 28714.6	•		•			•
KDS-DE-FB1/C GR 28715.6	•		•			•
KDS-DE-FB1/D GR 28716.6	•		•			•
KDS-DE-FB1/E GR 28717.6	•		•			•
KDS-DE-FB1/F GR 28718.6	•		•			•
KDS-DE-FB2/A GR 28719.6		•			•	
KDS-DE-FB2/B GR 28720.6		•			•	
KDS-DE-FB2/C GR 28721.6		•			•	
KDS-DE-FB2/D GR 28722.4		•			•	
KDS-DE-FB2/E GR 28723.6		•			•	
KDS-DE-FB2/F GR 28724.6		•			•	
KDS-DE-FB3/A GR 28725.6				•		
KDS-DE-FB3/B GR 28726.6				•		
KDS-DE-FB3/C GR 28739.6				•		
KDS-DE-FB4/A GR 28727.6						
KDS-DE-FB4/B GR 28728.6						
KDS-DE-FB4/C GR 28740.6						

 $^{^{\}star}$ An overview of all seals with the external dimensions 20 x 20 can be found on pages 48 – 49.

KDS-SR-FB3/D BK 28706.4	KDS-SR-FB4/A BK 28707.4	KDS-SR-FB4/B BK 28708.4	KDS-SR-FB4/C BK 28709.4	KDS-SR-FB4/D BK 28710.4	KDS-SR-FB4/E BK 28711.4	KDS-SR-FB4/F BK 28712.4
•	•	•	0 0		0 0	•
•		•	•	•		•
•		•		•	•	
•		•		•	•	
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	•					
	•					
	•					

Sealing elements KDS systems

Seals	grey small		
	Туре	Cat. no. Qty.	Max. Ø
	KDS-DE/B GR	28561.6	Blind
	KDS-DE 1.5 GR	28694.6	1.5 mm
	KDS-DE 1.5-2 GR	28562.6	2 mm
	KDS-DE 2 GR	28696.6	2 mm
Annual Control of the	KDS-DE 2-3 GR	28563.6	3 mm
(A) //	KDS-DE 3 GR	28698.6	3 mm
	KDS-DE 3-4 GR	28564.6	4 mm
•	KDS-DE 4-5 GR	28565.6	5 mm
	KDS-DE 5-6 GR	28566.6 10	6 mm
	KDS-DE 6-7 GR	28567.6	7 mm
	KDS-DE 7-8 GR	28568.6	8 mm
	KDS-DE 8-9 GR	28569.6	9 mm
	KDS-DE 9-10 GR	28570.6	10 mm
	KDS-DE 10-11 GR	28571.6	11 mm
	KDS-DE 11-12 GR	28572.6	12 mm
	KDS-DE 12-13 GR	28573.6	13 mm
	KDS-DE 13-14 GR	28574.6	14 mm
	KDS-DE 14-15 GR	28609.6 10 28671.6 10	15 mm
	KDS-DE 15-16 GR	28671.6	16 mm
Seals	grey large		
	KDS-DEG/B GR	28575.6 10	Blind
	KDS-DEG 14-15 GR	28576.6	15 mm
	KDS-DEG 15-16 GR	28577.6	16 mm
	KDS-DEG 16-17 GR	28578.6	17 mm
	KDS-DEG 17-18 GR	28579.6	18 mm
	KDS-DEG 18-19 GR	28580.6	19 mm
	KDS-DEG 19-20 GR	28581.6	20 mm
All and a second	KDS-DEG 20-21 GR	28582.6	21 mm
	KDS-DEG 21-22 GR	28583.6	22 mm
	KDS-DEG 22-23 GR	28584.6	23 mm
	KDS-DEG 23-24 GR	28585.6	24 mm
	KDS-DEG 24-25 GR	28586.6	25 mm
	KDS-DEG 25-26 GR	28587.6	26 mm
	KDS-DEG 26-27 GR	28588.6	27 mm 28 mm
5.75	KDS-DEG 27-28 GR KDS-DEG 28-29 GR	28589.6 10 28590.6 10	29 mm
	KDS-DEG 29-30 GR	28591.6 10	30 mm
	KDS-DEG 20-30 GR	28592.6	31 mm
	KDS-DEG 31-32 GR	28593.6	32 mm
	KDS-DEG 32-33 GR	28594.6	33 mm
	KDS-DEG 33-34 GR	28731.6	34 mm
	KDS-DEG 34-35 GR	28733.6 10	35 mm
Seals with multiple holes	grey		
	3 17		
	KDS-DE 2x4-5 GR	28595.6 10	5 mm
	KDS-DE 2x5-6 GR	28596.6 10	6 mm
	KDS-DE 2x6.5 GR	28607.6	6.5 mm
Distance of the second	KDS-DE 2x7 GR	28690.6 10	
	KDS-DE 2x8 GR		8 mm
	KDS-DE 3x5-6 GR	28688.6	6 mm
	KDS-DE 4x2-3 GR	28597.6	3 mm
	KDS-DE 4x3-4 GR	28598.6	4 mm
	KDS-DE 4x5 GR	28673.6	5 mm
	KDS-DE 4x4.5 GR	28606.6	4.5 mm
	KDS-DE 4x6 GR	28762.6	6 mm
Seals for AS interface cables	grey		
No.	KDS-DE/1xASI GR	28599.6 10	
A A	KDS-DE/2xASI GR	28600.6	
	LES DE/ EARST GR	10	



IP66

NEMA TYPE 12 NEMA TYPE 4x





Made in Germany





- Material: TPE
- Flammability: UL 94 V-0
- Temperature range: -40 °C to +90 °C (static)
- Halogen-free, silicone-free
- Protection: IP66

Seals	black small			
	Туре	Cat. no.	Qty.	Max. Ø
	KDS-DE/B BK	28520.4	10	Blind
	KDS-DE 1.5 BK	28693.4	10	1.5 mm
	KDS-DE 1.5-2 BK	28521.4	10	2 mm
	KDS-DE 2 BK	28695.4	10	2 mm
	KDS-DE 2-3 BK	28522.4	10	3 mm
	KDS-DE 3 BK	28697.4	10	3 mm
	KDS-DE 3-4 BK	28523.4	10	4 mm
	KDS-DE 4-5 BK KDS-DE 5-6 BK	28524.4 28525.4	10 10	5 mm 6 mm
	KDS-DE 6-7 BK	28526.4	10	7 mm
	KDS-DE 7-8 BK	28527.4	10	8 mm
	KDS-DE 8-9 BK	28528.4	10	9 mm
	KDS-DE 9-10 BK	28529.4	10	10 mm
	KDS-DE 10-11 BK	28530.4	10	11 mm
	KDS-DE 11-12 BK	28531.4	10	12 mm
	KDS-DE 12-13 BK	28532.4	10	13 mm
	KDS-DE 13-14 BK	28533.4	10	14 mm
	KDS-DE 14-15 BK	28608.4	10	15 mm
	KDS-DE 15-16 BK	28670.4	10	16 mm
Seals	black large			
	KDS-DEG/B BK	28534.4	10	Blind
	KDS-DEG 14-15 BK	28535.4	10	15 mm
	KDS-DEG 15-16 BK	28536.4	10	16 mm
	KDS-DEG 16-17 BK	28537.4	10	17 mm
	KDS-DEG 17-18 BK	28538.4	10	18 mm
	KDS-DEG 18-19 BK	28539.4	10	19 mm
Page 2	KDS-DEG 19-20 BK	28540.4	10	20 mm
	KDS-DEG 20-21 BK KDS-DEG 21-22 BK	28541.4 28542.4	10 10	21 mm 22 mm
	KDS-DEG 21-22 BK	28543.4	10	23 mm
	KDS-DEG 23-24 BK	28544.4	10	24 mm
	KDS-DEG 24-25 BK	28545.4	10	25 mm
	KDS-DEG 25-26 BK	28546.4	10	26 mm
	KDS-DEG 26-27 BK	28547.4	10	27 mm
	KDS-DEG 27-28 BK	28548.4	10	28 mm
	KDS-DEG 28-29 BK	28549.4	10	29 mm
	KDS-DEG 29-30 BK	28550.4	10	30 mm
	KDS-DEG 30-31 BK	28551.4	10	31 mm
	KDS-DEG 31-32 BK	28552.4	10	32 mm
	KDS-DEG 32-33 BK	28601.4	10	33 mm
	KDS-DEG 33-34 BK	28730.4	10	34 mm
	KDS-DEG 34-35 BK	28732.4	10	35 mm
Seals with multiple holes	black			
	KDS-DE 2x4-5 BK	28555.4	10	5 mm
	KDS-DE 2x5-6 BK	28556.4	10	6 mm
	KDS-DE 2x6.5 BK	28682.4	10	6.5 mm
	KDS-DE 2x7 BK	28689.4	10	7 mm
	KDS-DE 2x8 BK	28691.4	10	8 mm
	KDS-DE 3x5-6 BK	28687.4	10	6 mm
	KDS-DE 4x2-3 BK	28557.4	10	3 mm
	KDS-DE 4x3-4 BK	28558.4	10	4 mm
	KDS-DE 4x4.5 BK KDS-DE 4x5 BK	28681.4 28672.4	10 10	4.5 mm 5 mm
	KDS-DE 4x5 BK KDS-DE 4x6 BK	28763.4	10	5 mm 6 mm
Seals for AS interface cables		20, 03.1	70	
Seals for AS interface cables	black			
	KDS-DE/1xASI BK	28559.4	10	
	KDS-DE/2xASI BK	28560.4	10	
Cone-shaped seals	black			
	KDS-DE/K 2-11 BK	28553.4	10	11 mm
A	KDS-DEG/K 7-24 BK	28554.4 28554.4	10	24 mm





NEMA TYPE 12







Made in Germany





- Material: TPE
- Flammability: UL94 HB
- Temperature range: -40 °C to +120 °C (static)
- Halogen-free, silicone-free
- High chemical resistance
- UV-stabilized
- Protection: IP66

KDS-DES seals

The **KDS-DES** seals enable you to install non-assembled cables. The corresponding membrane must be pierced (center point is marked) to insert the cables. The cables can then be guided through the seal. Thanks to their design based on the proven **KES system**, the **KDS-DES** seals ensure an IP54-tight seal. Despite the high-density assembly (up to eight cables), the **KDS-DES** seals are compatible with almost all **KDS** solutions (refer to the overview on pages 52 - 53).

The seals' conical shape enables them to be easily pressed in so they can seal gaps. For the assembly, they are pressed into the selected **KDS** system from the inside outwards.





- Material: TPE
- Flammability: UL 94 V-0
- Temperature range: -40 °C to +90 °C (static)
- Halogen-free, silicone-free
- Protection class: IP54



The KDS-DES is compatible with the following frames:

Туре	Cat. no.	
KDS-SR-FB1/A BK	28700.4	
KDS-SR-FB2/B BK	28702.4	
KDS-SR-FB3/C BK	28705.4	
KDS-SR-FB3/D BK	28706.4	
KDS-SR-FB4/B BK	28708.4	
KDS-SR-FB4/E BK	28711.4	
KDS-SR 1-4 BK*	28506.4	
KDS-SR 6/10 BK*	28500.4	
KDS-SR 8/16 BK*	28502.4	
KDS-SR 10/24 BK*	28504.4	
KDS-FP 2x10/24 BK*	28660.4	
KDS-FP 3x10/24 BK*	28661.4	*
KDS-KV M40 BK	28613.4	
KDS-KV M50 BK	28614.4	
KDS-KV M63 BK	28615.4	*
KDS-R 40-63 BK**	28774.4	

- Combined with the KDS-Inlay 1 or KDS-Inlay 2
- ** Only in combination with KDS-RGA M63





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KDSClick Combination options for the modular KDSClick system

Frame



4-piece frame KDS-SR 1-4 BK 28506.4



6-piece frame KDS-SR 6/10 BK 28500.4



8-piece frame KDS-SR 8/16 BK 28502.4



10-piece frame KDS-SR 10/24 BK 28504.4

Many combinations for your individual requirements





Inlays







KDS-Inlay 2 BK 28517.4



KDS-Inlay 2 BK 28517.4

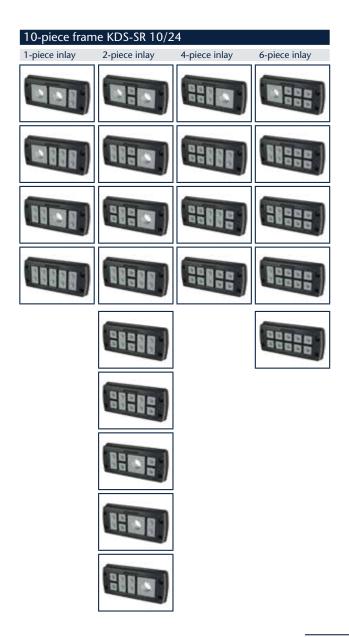


KDS-Inlay 4 BK 28518.4



KDS-Inlay 6 BK 28519.4

8-piece frame	E KDS-SR 8/16		
1-piece inlay	2-piece inlay	4-piece inlay	6-piece inlay
		N00	
BEN		1800	0000
		0000	
BBBB	BEBB		
	BERE		



When feeding in non-assembled cables, lines and pneumatic hoses (without connected plugs), CONTA-CLIP has a wide range of products that offer alternatives to cable glands or single-membrane feed-throughs.

The **KES** cable entries are very flat; they enable space-saving professional cable entries with a very tight seal.

Due to its high assembly density, the **KES** system is well suited for applications where the installations must be carried out in confined spaces.





Your advantages

- Can be screwed/snapped on
- Very high stability (core: PA 6.6 GF)
- Outstanding strain relief (cone grommet)
- Very simple assembly (with marked centring point)
- High-density assemblies
- double seal/tightness: IP66
- Hygienic design: no dirt-prone niches
- Large assortment (48 varieties)
- UL-listed plastic materials
- UL 94 V-0

Two components

The **KES** system consists of two components. The inner core, made of polyamide PA 6.6 GF, is crucial for the stability and strain relief; it is over-moulded in the sealing areas with TPE to ensure an IP66 protective seal.



Many cables in a confined space

Many cables (with various diameters from 3.2 to 20.5 mm) can be inserted in a confined space and double sealed (IP66) thanks to the special construction of the conical grommets. There are three ways that the **KES** system can be installed: screw fastening from outside, screw fastening with threaded bushes and locking hooks from the inside, or snap-in fastening from the outside.

The corresponding membrane must be pierced (center point is marked) to insert the cables.



UL 94 V-0 classification

The **KES** is designed for use in mounting cut-outs of 24-pin heavy-duty connectors. All variants are available in grey and black. The materials used comply with the UL 94 V-0 classification.





IP66

NEMA TYPE 12 NEMA TYPE 4x



RoHS compliant

Made in Germany



An overview of your advantages

High-density assemblies

In contrast to the classic cable gland, the **KES** allows many cables, hoses and lines to be installed in a space-saving manner, even in cramped installation conditions.

Very precise

The piercing points are clearly marked so that cables and hoses can be centred precisely.

Integrated strain relief

The special shape of the multi-layered membrane cone grommet ensures an optimal strain relief mechanism for the cables, working towards in accordance with DIN EN 62444.

Can be used from -40 °C to +90 °C

Materials contain no halogen or silicone; suitable for many different applications.





IP66

NEMA TYPE 12 NEMA TYPE 4x

ECOLAB° certified

RoHS compliant

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KES variety

You can choose one of three attachment options to fit your requirements.

1. Screw-on mount



The **KES** (without threaded bush) is screwed from the outside onto the housing wall.



2. Screw-on mount with threaded bushes and latching clips



Using the latching clips, the **KES-GB** latches onto the outside of the housing wall. It is then screwed on from the inside, through the housing wall, using the integrated threaded bushes.



3. Latched (snap-on) mount using latching hooks



The **KES-R** is latched from outside to the housing wall using the latching clips.



Cable entries	KES 1	13/24		KES 14/24		KES 16/24	
		01010	•	13:3:32		· Totaline	
Diagram	Page 6	0		Page 60		Page 60	
Mounting type							
Screw-on mount	9						
Type / colour	KES 13	3/24 GR ●		KES 14/24 GR ●		KES 16/24 GR ●	
Cat. no.	Qty. 28630		10	28631.6	10	28632.6	10
Type / colour		3/24 BK ●		KES 14/24 BK ●		KES 16/24 BK ●	
Cat. no.	Qty. 28630	.4	10	28631.4	10	28632.4	10
Mounting type							
Screw fastening with pressed- in threaded bush and snap-in latching clips.	O						
Type / colour	KES-G	B 13/24 GR		KES-GB 14/24 GR ●		KES-GB 16/24 GR ●	
Cat. no.	Qty. 28640	.6	10	28641.6	10	28642.6	10
Type / colour	KES-G	B 13/24 BK ●		KES-GB 14/24 BK ●		KES-GB 16/24 BK ●	
Cat. no.	Qty. 28640	.4	10	28641.4	10	28642.4	10
Mounting type							
Tool-free latch-on mount	3						
Type / colour	KES-R	13/24 GR •		KES-R 14/24 GR		KES-R 16/24 GR ●	
Cat. no.	Qty. 28650		10	28651.6	10	28652.6	10
Type / colour	KES-R	13/24 BK ●		KES-R 14/24 BK ●		KES-R 16/24 BK ●	
Cat. no.	Qty. 28650	.4	10	28651.4	10	28652.4	10
Connection data							
Number of cables x cable diameter (mm)		.2 – 6.3		5 x 3.2 – 6.3		8 x 3.2 – 5.5	
	3 x 16	- 20.5		2 x 4 – 7.5		6 x 5 – 8.5	
				3 x 5.5 – 10.5		2 x 9.5 – 14.5	
				1 x 8 – 12.5			
				3 x 12 – 16.2			
Features		CF / I		DA C C CE ! !		DA ((C5 /)	
Material of frame / sealing plate		GF / elastomer		PA 6.6 GF / elastomer		PA 6.6 GF / elastomer	
Temperature range		to +90 °C		-40 °C to +90 °C		-40 °C to +90 °C	
Protection	IP66			IP66		IP66	
Flammability class Sheet-metal hole punch	UL 94			UL 94 V-0		UL 94 V-0	
Sheet-metal hole nunch	Sheet-	metal hole puncl	n	Sheet-metal hole punch		Sheet-metal hole punch	
Cat. no.	Page 7	•		Page 76		Page 76	



IP66

NEMA TYPE 12





RoHS compliant

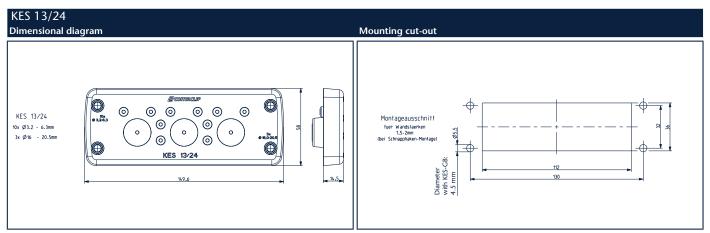
Made in Germany



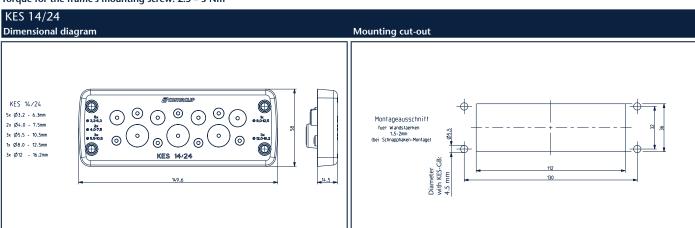
KES 16-1/24		KES 17/24		KES 20/24		KES 21/24		KES 32/24	
· Salarana .		THE SECTION OF THE PARTY OF THE		· Market .		· WHATES	100 miles	. MARRIED.	
Page 60		Page 61		Page 61		Page 61		Page 61	
KES 16-1/24 GR ●		KES 17/24 GR ●		KES 20/24 GR ●		KES 21/24 GR ●		KES 32/24 GR ●	
28633.6	10	28634.6	10	28635.6	10	28636.6	10	28637.6	10
KES 16-1/24 BK ● 28633.4	10	KES 17/24 BK ● 28634.4	10	KES 20/24 BK ● 28635.4	10	KES 21/24 BK ● 28636.4	10	KES 32/24 BK ● 28637.4	10
KES-GB 16-1/24 GR ●		KES-GB 17/24 GR ●		KES-GB 20/24 GR ●		KES-GB 21/24 GR ●		KES-GB 32/24 GR ●	
28643.6	10	28644.6	10	28645.6	10		10	28647.6	10
KES-GB 16-1/24 BK ● 28643.4	10	KES-GB 17/24 BK ● 28644.4	10	KES-GB 20/24 BK ● 28645.4	10	KES-GB 21/24 BK ● 28646.4	10	KES-GB 32/24 BK ● 28647.4	10
KES-R 16-1/24 GR ●		KES-R 17/24 GR ●		KES-R 20/24 GR ●		KES-R 21/24 GR ●		KES-R 32/24 GR ●	
	10	28654.6	10	28655.6	10		10	28657.6	10
KES-R 16-1/24 BK ● 28653.4	10	KES-R 17/24 BK ● 28654.4	10	KES-R 20/24 BK ● 28655.4	10	KES-R 21/24 BK ● 28656.4	10	KES-R 32/24 BK ● 28657.4	10
2 x 3.2 – 6.3		4 x 3.2 – 6.3		12 x 3.2 – 6.3		1 x 3.2 – 6.3		32 x 3.2 – 6.3	
9 x 4 – 7.5		2 x 4 – 7.5		8 x 5.5 – 10.5		14 x 4 – 7.5			
1 x 5.5 – 10.5 1 x 8 – 12.5		1 x 5.5 – 10.5 10 x 8 – 12.5				4 x 5.5 – 10.5 2 x 8 – 12.5			
3 x 12 – 16.2						72.0			
PA 6.6 GF / elastomer		PA 6.6 GF / elastomer		PA 6.6 GF / elastomer		PA 6.6 GF / elastomer		PA 6.6 GF / elastomer	
-40 °C to +90 °C		-40 °C to +90 °C		-40 °C to +90 °C		-40 °C to +90 °C		-40 °C to +90 °C	
IP66		IP66		IP66		IP66		IP66	
UL 94 V-0 Sheet-metal hole punch		UL 94 V-0 Sheet-metal hole punch		UL 94 V-0 Sheet-metal hole punch		UL 94 V-0 Sheet-metal hole punch		UL 94 V-0 Sheet-metal hole punch	
Page 76		Page 76		Page 76		Page 76		Page 76	

KES

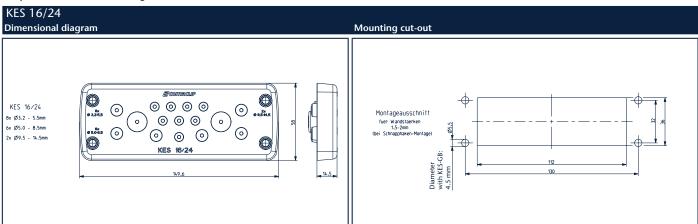
Dimensional drawing / Mounting cut-out for cable entries



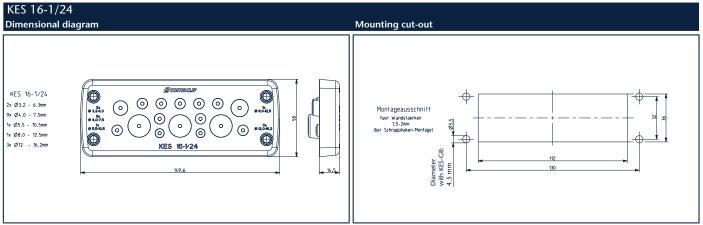
Torque for the frame's mounting screw: 2.5 - 3 Nm



Torque for the frame's mounting screw: 2.5 - 3 Nm

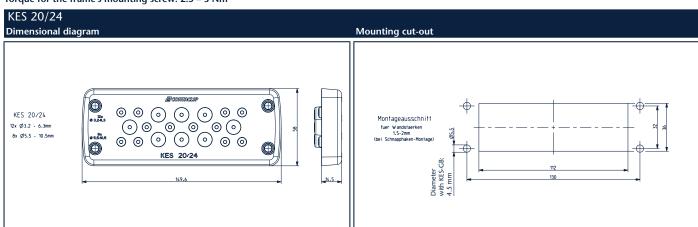


Torque for the frame's mounting screw: 2.5 – 3 Nm

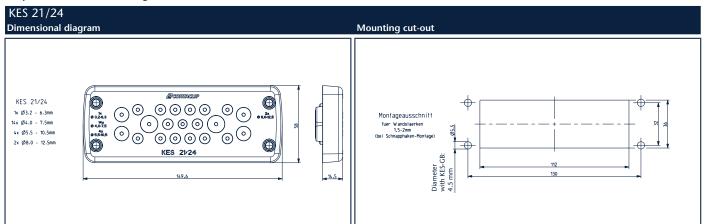


Torque for the frame's mounting screw: 2.5 - 3 Nm

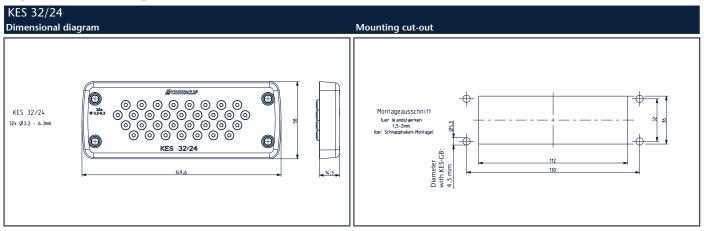
Torque for the frame's mounting screw: 2.5 - 3 Nm



Torque for the frame's mounting screw: 2.5 - 3 Nm

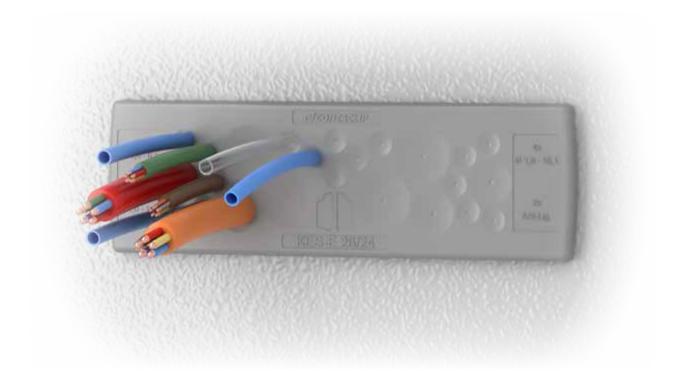


Torque for the frame's mounting screw: 2.5 – 3 Nm



Many cables in a confined space. The **KES-E** cable entry system enables you to insert many cables (without plugs) with diameters ranging from 1.0 mm to 16.1 mm into a very confined space. The cable entry is inserted without tools into the intended opening (variant "A" for wall thickness from 1.5 to 2.5 mm, and variant "B" for wall thickness from 2.5 to 4.0 mm).

In order to insert the cables, the corresponding membrane (with marked centring point) must be pierced; the cables are then simply guided through. The material TPE guarantees that IP54 protection is maintained.





Your advantages

- Tool-free installation
- Outstanding stability
- Simple assembly (with marked centre point)
- High-density assemblies
- Hygienic design
- For walls of various thickness



- Material: TPE
- Flammability: UL 94 V-0
- Temperature range: -40 °C to +90 °C (static)
- Halogen-free, silicone-free
- Wall thickness A: 1.5 2.5 mm, and B: 2.5 4.0 mm
- Protection class: IP54

KES-E variety



KES-E 12/24



KES-E 14/24



KES-E 17/24



KES-E 18/24



KES-E 19/24



KES-E 26/24



KES-E 42/24



KES-E 48/24



KES-E 50/24

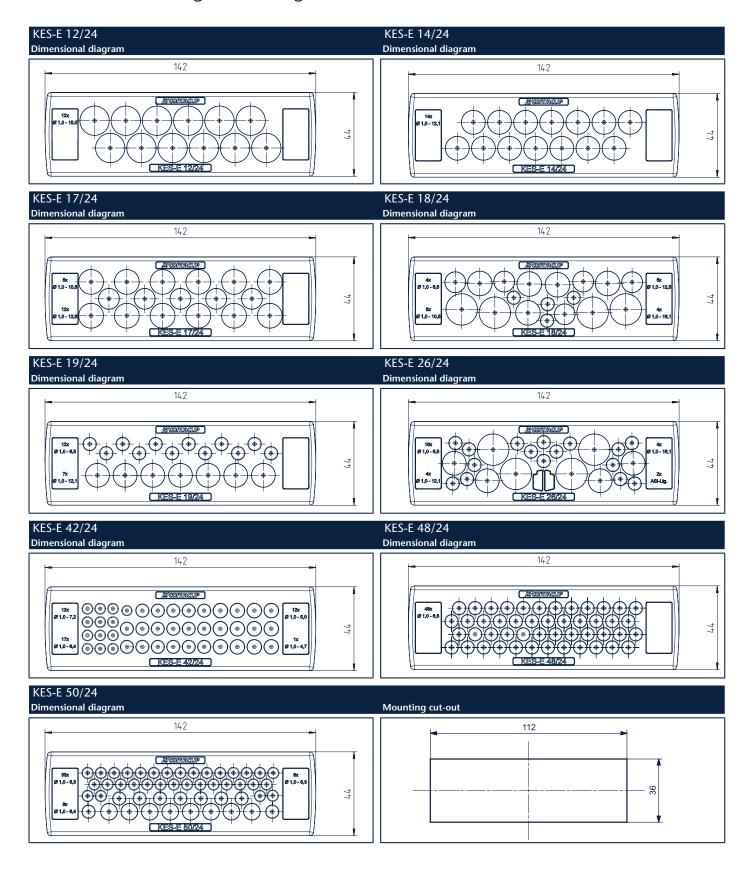




Cable entries		KES-E 12/24		KES-E 14/24		KES-E 17/24
				13		1.5
		- D	-		-	-
		Carried Marie Land				DOMESTIC OF THE PARTY OF
			ш.			
-		VEG E 40/04 4 GD ®		V50 5 4 4 /0 4 4 6 D		
Type Cat. no.	Qty.	KES-E 12/24 A GR ● 28810.6	10	KES-E 14/24 A GR ● 28811.6	10	KES-E 17/24 A GR ● 28812.6 10
For wall thickness	Qty.	1.5 – 2.5	10	1.5 – 2.5	10	1.5 – 2.5
Туре		KES-E 12/24 B GR ●		KES-E 14/24 B GR ●		KES-E 17/24 B GR ●
Cat. no.	Qty.	28840.6	10	28841.6	10	28842.6
For wall thickness Connection data		2.5-4.0		2.5-4.0		2.5-4.0
Number of cables x cable diameter (mm)		12 x 1.0 – 15.0		14 x 1.0 – 12.1		5 x 1.0 – 10.5
Number of cables x cable diameter (min)		12 x 1.0 - 13.0		14 × 1.0 – 12.1		12×1.0–10.5
Features	_					
Protection		IP54		IP54		IP54
Cable entries		KES-E 18/24		KES-E 19/24		KES-E 26/24
			-		-	
		BUTTO FORES	8	Comment of the		TO THE RESERVE
				OE STATE OF THE ST		(805) # 04 III
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			174		-	
Туре		KES-E 18/24 A GR ●		KES-E 19/24 A GR ●		KES-E 26/24 A GR ●
Cat. no. For wall thickness	Qty.	28813.6 1.5 – 2.5	10	28814.6 1.5-2.5	10	28815.6 10 1.5 – 2.5
Type		KES-E 18/24 B GR		1.5 – 2.5 KES-E 19/24 B GR ●		1.5 – 2.5 KES-E 26/24 B GR ●
Cat. no.	Qty.		10	28844.6	10	28845.6 10
For wall thickness	.,	2.5 – 4.0		2.5-4.0		2.5-4.0
Connection data						
Number of cables x cable diameter (mm)		4 x 1.0 – 6.5 5 x 1.0 – 10.5		12×1.0-6.5 7×1.0-12.1		16 x 1.0 – 6.5 4 x 1.0 – 12.1
		5 x 1.0 – 10.5		/ X 1.U – 12.1		4x1.0-16.1
		4 x 1.0 – 16.1				2 x ASI
Features						
Protection		IP54		IP54		IP54
Cable entries		KES-E 42/24		KES-E 48/24		KES-E 50/24
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		100000000000000000000000000000000000000	23	200000000000000000000000000000000000000		755000000000000000000000000000000000000
			ш	10000000000000000000000000000000000000		THE PARTY OF THE P
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			111			
_						
Type	04	KES-E 42/24 A GR	10	KES-E 48/24 A GR	10	KES-E 50/24 A GR ●
Cat. no. For wall thickness	Qty.	28816.6 1.5 – 2.5	10	28817.6 1.5-2.5	10	28818.6 10 1.5 – 2.5
Type		KES-E 42/24 B GR		KES-E 48/24 B GR		KES-E 50/24 B GR
Cat. no.	Qty.		10	28847.6	10	28848.6 10
For wall thickness		2.5-4.0		2.5-4.0		2.5-4.0
Connection data		12 10 72		40 10 17		22 10 52
Number of cables x cable diameter (mm)		12 x 1.0 – 7.2		48 x 1.0 – 6.5		33 x 1.0 – 5.3
		17 x 1.0 – 6.4 12 x 1.0 – 5.0				9 x 1.0 – 6.4 8 x 1.0 – 8.3
		1x1.0-4.7				5 A 1.0 - 0.3
Features						
Protection		IP54		IP54		IP54

KES-E

Dimensional drawing / Mounting cut-out for cable entries







Made in Germany

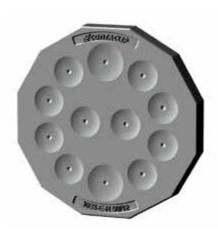


KES-E-R Round cable entries

Many cables in a confined space. The **KES-E-R** cable entry system enables you to insert many cables (without plugs) with diameters ranging from 1.0 mm to 22.5 mm into a very confined space. The cable entry is inserted without tools into the intended opening (variant "A" for wall thickness from 1.5 to 2.5 mm, and variant "B" for wall thickness from 2.5 to 4.0 mm).

In order to insert the cables, the corresponding membrane (with marked centring point) must be pierced; the cables are then simply guided through. The material TPE guarantees that IP54 protection is maintained.







Your advantages

- Tool-free installation
- Outstanding stability
- Simple assembly (with marked centre point)
- High-density assemblies
- Hygienic design
- For walls of various thickness



- Material: TPE
- Flammability: UL 94 V-0
- Temperature range: -40 °C to +90 °C (static)
- Halogen-free, silicone-free
- Wall thickness A: 1.5 2.5 mm, and B: 2.5 4.0
- Protection class: IP54

KES-E-R variety



KES-E-R 50/9



KES-E-R 50/12



KES-E-R 50/18



KES-E-R 50/35



KES-E-R 50/11



KES-E-R 50/16



KES-E-R 50/20



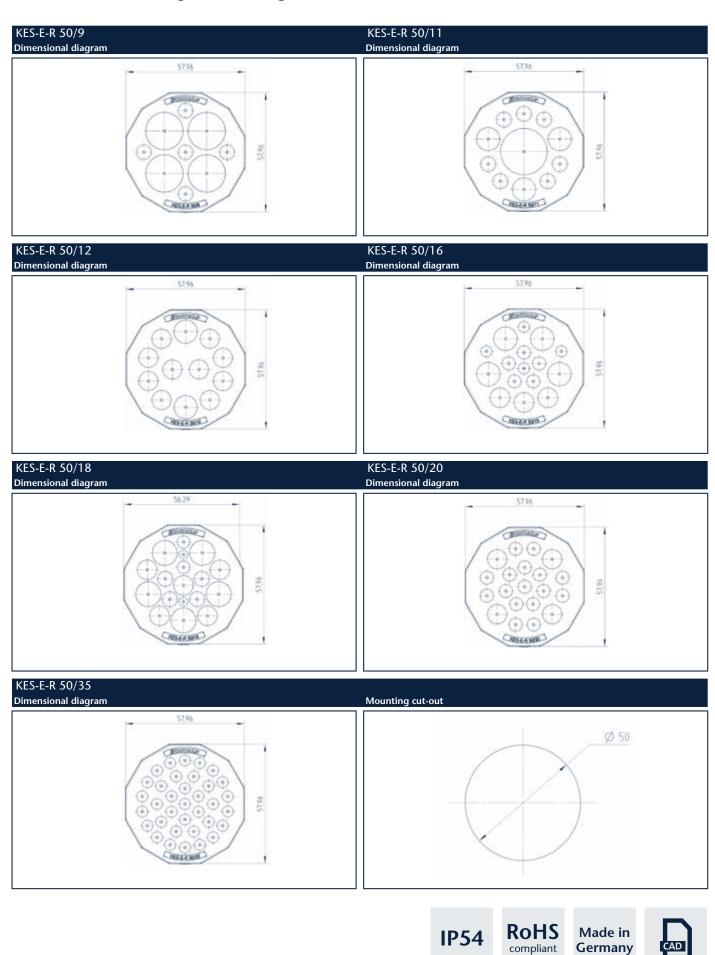


KES-E-R Round cable entries

Round cable entries	KES-E-R 50/9	KES-E-R 50/11	KES-E-R 50/12
For wall thickness Type	1.5 – 2.5 KES-E-R 50/9 B GR ●	1.5 – 2.5 KES-E-R 50/11 B GR ●	KES-E-R 50/12 A GR
Features Protection	IP54	IP54	IP54
Round cable entries	KES-E-R 50/16	KES-E-R 50/18	KES-E-R 50/20
			00000
Type Cat. no. Qty.	KES-E-R 50/16 A GR ● 28832.6 10	KES-E-R 50/18 A GR ● 28833.6 10	KES-E-R 50/20 A GR ● 28834.6 10
For wall thickness Type Cat. no. Qty. For wall thickness Connection data	1.5 – 2.5 KES-E-R 50/16 B GR ● 28862.6 2.5 – 4.0	1.5 – 2.5 KES-E-R 50/18 B GR ● 28863.6 10 2.5 – 4.0	1.5 – 2.5 KES-E-R 50/20 B GR ● 28864.6 2.5 – 4.0
Number of cables x cable diameter (mm)	4 x 1.0-5.3 5 x 1.0-6.3 3 x 1.0-9.5 4 x 1.0-11.3	2 x 1.0-4.0 2 x 1.0-6.0 4 x 1.0-7.2 5 x 1.0-9.4 5 x 1.0-12.0	16 x 1.0 – 6.3 4 x 1.0 – 9.3
Features Protection	IP54	IP54	IP54
Round cable entries	KES-E-R 50/35		
	KES-E-R 50/35 A GR		
For wall thickness Type Cat. no. Qty.	1.5 – 2.5 KES-E-R 50/35 B GR ● 28865.6 10		
For wall thickness Connection data	2.5 – 4.0		
Number of cables x cable diameter (mm) Features	35 x 1.0 – 5.2		
Protection	IP54		

KES-E-R

Dimensional drawing / Mounting cut-out for cable entries



KDS BW 1 actuating tool

Using the **KDS BW1** actuating tool, the seals can be conveniently mounted in and dismantled from the frame

The ergonomic grip and the special shape enable simple and precise installations, especially for cabling applications in confined spaces.









KDS BW 1
28622.0 1
Actuating tool
PA 6.6
varies

KDSClick assortment box

The **KDSClick assortment box** is perfect for installation/maintenance work as well as innovative developments. The large selection of seals and inlays makes it easy to configure all the KDSClick systems to meet your needs.

KDSClick assortment box



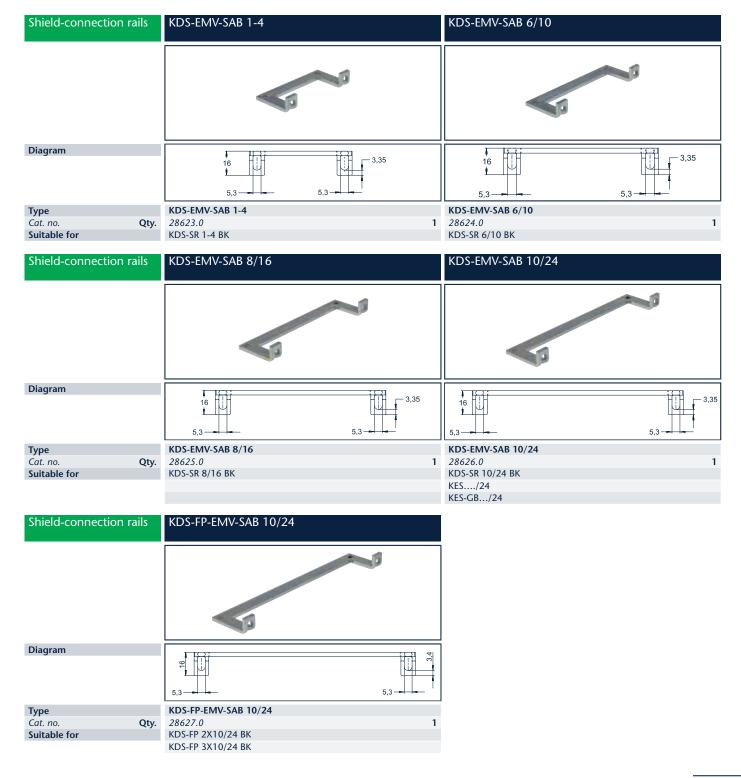


KDSClick assortment box	
28764.0	1
20 small dummy elements KDS-DE/B	
220 small seals KDS-DE 2-14 mm	
100 small multiple seals KDS-DE 4-6.5 mm	
5 large dummy elements KDS-DEG/B	
20 large seals KDS-DEG 14-21 mm	
7 universal cone seals KDS-DE/K 2- 24 mm	
37 x inlays 1 to inlay 6	
1 actuating tool KDS BW 1	
1 plastic mini-calliper gauge	
1 plastic switchgear cabinet key	

KDS-EMV-SAB shield-connection rails

The **KDS-EMV-SAB** shield-connection rails, when used together with our different shield-connection clips, enable cables to be shielded in a quick, practical and uncomplicated process. The cables can be routed through the CONTA-CLIP cable entry systems into housing or switchgear cabinets.

The **KDS-EMV-SAB** shield-connection rails are fastened on the inside of the switchgear cabinet using screws, which are required for mounting the **KDS/KES** system. The appropriate shield clip (depending on the cable diameter) can then be snapped onto the shield-connection rail. The shield-connection clips/brackets are optionally available with a built-in strain relief function.

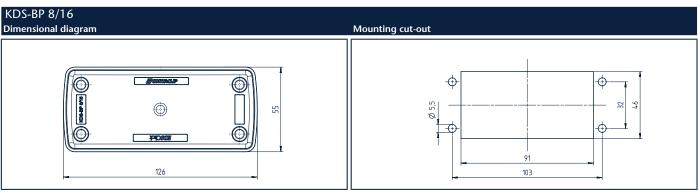


KDS-BP blanking plates

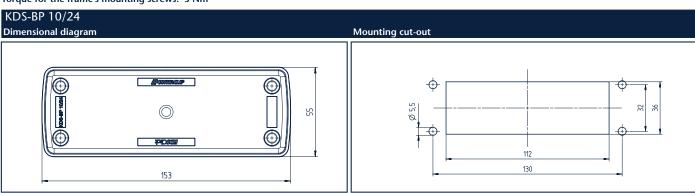


KDS-BP

Dimensional drawing / Mounting cut-out for cable entries



Torque for the frame's mounting screws: 3 Nm



Torque for the frame's mounting screws: 3 Nm



- Material: polyamide PA 6.6, glass-fibre reinforced | TPE
- Colour: black
- Flammability: UL 94 V-0
- Temperature range: -40 °C to +120 °C
- Halogen-free, silicone-free
- Protection: IP66

KDS/KES-VS seal plugs for all KDS and KES systems

Seal plugs, screw frame	Туре	Cat. no.	ty. Diameter (Ø A), mm	Head diameter, mm
The KDS/KES-VS seal plugs allow you to reseal unused holes in KDS	KDS-VS-SR BK	<i>28779.4</i> 1	00	_
seals or in already pierced KES cable entries. The geometry of the head prevents splashed water or dust from penetrating from the outside.	KD3-V3-3K DK	20///.4		
Thus, protection class IP66 is ensured.				
Seal plugs				
	KDS/KES-VS 2 WH	28781.7	25 2	5
	KDS/KES-VS 3 WH		25 2 25 3	6
Ø A	KDS/KES-VS 4 WH		25 4	7
 	KDS/KES-VS 5 WH	28784.7	25 5	8
	KDS/KES-VS 6 WH	28785.7	25 6	9
	KDS/KES-VS 7 WH	28786.7	25 7	10
, ,	KDS/KES-VS 8 WH	28787.7	25 8	11
	KDS/KES-VS 9 WH	28788.7	25 9	12
	KDS/KES-VS 10 WH	28789.7	25 10	13
	KDS/KES-VS 11 WH	28790.7	25 11	14
	KDS/KES-VS 12 WH	28791.7	25 12	15
17,	KDS/KES-VS 13 WH	28792.7	25 13	16
	KDS/KES-VS 14 WH		25 14	17
	KDS/KES-VS 15 WH		25 15	18
	KDS/KES-VS 16 WH		25 16	19
	KDS/KES-VS 17 WH		25 17	20
	KDS/KES-VS 22 WH	28797.7	25 22	25
Seal plugs AS interface cables				
AS interface cables				
11.0	KDS-VS ASI/2 WH	28798.7	25 ASI	
11,9				
-'				





Features

- Material: polyamide PA 6.6 (KDS-VS-SR: TPE)
- Colour: white (KDS-VS-SR: black)
- Flammability: UL 94 V-0
- \bullet Temperature range: -40 °C to +120 °C
- Halogen-free, silicone-free
- Protection: IP66

Punching tool

The hydraulic hand pump, when used together with our hole punches, is perfectly suited for quickly producing precise chip-free break-outs.

Rectangular punches are available for all **KDSClick** cable entry systems and for the **KES** cable entry system. The built-in punch-hole marking tip can be used to punch-mark the drill points clearly for screw-on attachments.

Sheet-metal hole punches are available in circular format for the sizes M20, M25, M32, M40, M50 and M63.

The hydraulic hand pump is also compatible with the hole punches from other popular manufacturers.



Hydraulic hand pump

Hydraulic hand pump

The hydraulic hand pump can be used to punch out openings for various cable feed-through and cable entry systems. The cylinder can be swivelled along 3 axes and rotated 360°, so that the break-outs can also be punched in inconvenient places.



Your advantages

- Easy-to-use format without a tube
- Cylinder can rotate 360° and swivel along 3 axes
- Lightweight aluminium version (weight: 2 kg)
- Can also be used for inconvenient hard-to-reach locations



Features

Punching functionality for max. material thickness

- Round holes 82.0 mm, Steel 3 mm, VA 2 mm
- Square holes 68.0 x 68.0 mm, Steel 3 mm, VA 2 mm
- Rectangular holes 36.0 x 112.0 mm, Steel 3 mm, VA 2 mm

Hydraulic pump





Hydraulic hand pump for sheet-metal hole punch	
28679.0	1
1 hydraulic hand pump	
1 hydraulic screw 19.0 x 130 mm	
1 hydraulic screw 19.0 / 9.5 mm	
1 spacer bushing	
1 tube of anti-wear paste	
1 HSS co-boring drill	
Multi-step drill, steps: 8-10-11.5-12.5 (M12) -14.5-17.5-21	mm
1 transport box	

BL sheet-metal hole punch

The punching tool for cable entry systems **KDSClick**, **KDS-FP**, **KDS-FB**, **KDS-R/KDS-KV** and for the cable entry system **KES**. Using the sheet-metal punches, your desired break-outs can be made in a few minutes without any chips or splintering. The built-in punch-hole marking tip can be used to punch-mark the drill points clearly for screw-on attachments.

These sheet-metal punches are compatible with all common hydraulic pumps.



Punch, die, pulling axle and locknut in plastic case

Sets of sheet-metal hole punches		BL SET RECTANGLE Hyc	d.	BL SET M16-M63 Hyd.		BL-VA SET RECTANGLE Hyd.
Туре		BL SET RECTANGLE Hyd.		BL SET M16-M63 Hyd.		BL-VA SET RECTANGLE Hyd.
Cat. no.	Qty.	28761.0	1	28766.0	1	28760.0 1
Included in delivery		Hydraulic pump + 4 x BL KDS-SR		Hydraulic pump + 7 x BL M16-M63		Hydraulic pump + 4 x BL-VA KDS-SR

Sheet-metal hole punch		BL KDS-SR 1-4	BL KDS-SR 6/10	BL KDS-SR 8/16
Туре		BL KDS-SR 1-4	BL KDS-SR 6/10	BL KDS-SR 8/16
Cat. no. Q	ty.	28674.0	28675.0	28676.0
Maximum wall thickness		2.0 mm, for S 235 sheet metal	2.0 mm, for \$ 235 sheet metal	2.0 mm, for S 235 sheet metal
Dimensions of break-out hole		46 x 46 mm	68.5 x 46 mm	91 x 46 mm
Included in delivery		Punch, die, pulling axle, lock- nut, plastic case	Punch, die, pulling axle, lock- nut, plastic case	Punch, die, pulling axle, lock- nut, plastic case

Sheet-metal hole punch		BL-VA KDS-SR 1-4		BL-VA KDS-SR 6/10		BL-VA KDS-SR 8/16	
Туре		BL-VA KDS-SR 1-4		BL-VA KDS-SR 6/10		BL-VA KDS-SR 8/16	
Cat. no.	Qty.	28683.0	1	28684.0	1	28685.0	1
Maximum wall thickness		2.0 mm, with stainless steel sheet		2.0 mm, with stainless stee sheet		2.0 mm, with stainless stee sheet	el
Dimensions of break-out hole		46 x 46 mm		68.5 x 46 mm		91 x 46 mm	
Included in delivery		Punch, die, pulling axle, lock	-	Punch, die, pulling axle, loonut, plastic case	:k-	Punch, die, pulling axle, lo	ock-

Sheet-metal hole punch		BL KES	BL KDS-FP2	BL KDS-KV M20
Туре		BL KES	BL KDS-FP2	BL KDS-KV M20
Cat. no.	Qty.	28744.0	28745.0	28746.0 1
Maximum wall thickness		2.0 mm, for S 235 sheet metal	2.0 mm, for S 235 sheet metal	2.0 mm, for S 235 sheet metal
Dimensions of break-out hole		112 x 36 mm	110 x 131 mm	20.4 mm
Included in delivery		Punch, die, pulling axle, lock- nut, plastic case	Punch, die, pulling axle, lock- nut, plastic case	Punch, die

Sheet-metal hole punch		BL-VA KES		BL-VA KDS-FP2		BL-VA KDS-KV M20	
Туре		BL-VA KES		BL-VA KDS-FP2		BL-VA KDS-KV M20	
Cat. no.	Qty.	28752.0	1	28753.0	1	28754.0	1
Maximum wall thickness		2.0 mm, with stainless steel sheet		2.0 mm, with stainless steel sheet		2.0 mm, with stainless steel sheet	
Dimensions of break-out hole		112 x 36 mm		110 x 131 mm		20.4 mm	
Included in delivery		Punch, die, pulling axle, lock nut, plastic case	-	Punch, die, pulling axle, lock nut, plastic case	•	Punch, die	

BL KDS-KV sheet-metal hole punch

Hole punch for round cut-outs

BL KDS sheet-metal hole punch



Hole punch for rectangular cut-outs

BL-VA SET M16-M63 Hyd.			
BL-VA SET M16-M63 Hyd.			
28765.0	1		
Hydraulic pump + 7 x B-VAL M16-M63			

BL KDS-SR 10/24	BL KDS-FB1	BL KDS-FB2	BL KDS-FB3	BL KDS-FB4
BL KDS-SR 10/24	BL KDS-FB1	BL KDS-FB2	BL KDS-FB3	BL KDS-FB4
28677.0 1	28734.0	28735.0	28736.0	<i>28737.0</i> 1
2.0 mm, for \$ 235 sheet metal				
113.5 x 46 mm	46 x 24 mm	68 x 24 mm	89 x 24 mm	111 x 24 mm
Punch, die, pulling axle, lock- nut, plastic case				

BL-VA KDS-SR 10/24		BL-VA KDS-FB1		BL-VA KDS-FB2		BL-VA KDS-FB3		BL-VA KDS-FB4	
BL-VA KDS-SR 10/24		BL-VA KDS-FB1		BL-VA KDS-FB2		BL-VA KDS-FB3		BL-VA KDS-FB4	
28686.0	1	28729.0	1	28741.0	1	28742.0	1	28743.0	1
2.0 mm, with stainless steel sheet		2.0, with stainless steel sheet		2.0, with stainless steel sheet		2.0, with stainless steel sheet		2.0 mm, with stainless steel sheet	
113.5 x 46 mm		46 x 24 mm		68 x 24 mm		89 x 24 mm		111 x 24 mm	
Punch, die, pulling axle, lock nut, plastic case	-	Punch, die, pulling axle, lock- nut, plastic case		Punch, die, pulling axle, lock- nut, plastic case		Punch, die, pulling axle, lock- nut, plastic case		Punch, die, pulling axle, loc nut, plastic case	k-

BL KDS-KV M25	BL KDS-KV M32	BL KDS-KV M40	BL KDS-KV M50	BL KDS-KV M63
BL KDS-KV M25	BL KDS-KV M32	BL KDS-KV M40	BL KDS-KV M50	BL KDS-KV M63
28747.0 1	28748.0 1	28749.0	28750.0	28751.0
2.0 mm, for S 235 sheet metal	2.0 mm, for \$ 235 sheet metal	2.0 mm, for S 235 sheet metal	2.0 mm, for S 235 sheet metal	2.0 mm, for S 235 sheet metal
25.4 mm	32.5 mm	40.5 mm	50.5 mm	63.5 mm
Punch, die	Punch, die	Punch, die	Punch, die	Punch, die

BL-VA KDS-KV M25		BL-VA KDS-KV	M32		BL-VA KDS-KV M40		BL-VA KDS-KV M50		BL-VA KDS-KV M63	
BL-VA KDS-KV M25		BL-VA KDS-KV M3	2		BL-VA KDS-KV M40		BL-VA KDS-KV M50		BL-VA KDS-KV M63	
28755.0	1	28756.0		1	28757.0	1	28758.0	1	28759.0	1
2.0 mm, with stainless steel sheet		2.0, with stainless s	teel sheet		2.0, with stainless steel sheet		2.0, with stainless steel shee	t	2.0 mm, with stainless stee sheet	I
25.4 mm		32.5 mm			40.5 mm		50.5 mm		63.5 mm	
Punch, die		Punch, die			Punch, die		Punch, die		Punch, die	

Shield-connection clip

In the field of industrial process engineering, a high degree of interference immunity is required of electrical equipment. This is a critical factor affecting the availability of industrial measurement and control systems.

When constructing low-interference systems, both the cable shielding and the shielded ground are very important. The juncture where the cable shielding connects to the housing ground is a critical point. The connection should be low-ohm and should also feature minimal inductive resistance.

You should be certain that this connection can be established in a practical, simple and quick manner. CONTA-CLIP's **SAB/SSAB** shielding systems are one of the most comprehensive product portfolios on the market. They offer a perfect solution for any application.



Overview of installation types

Direct mounting



SAB.../D Page 87



SABKM.../D Page 86

C-rail mounting



SAB.../GWP Page 91

Busbar mounting



SABKM.../SSCH/Z Page 88



SABKMD.../SSCH/Z Page 88



SAB Page 89



SSAB Page 90

DIN rail mounting



SAB.../F Page 93



SAB .../MF Page 94



SABKM.../MF/35/Z Page 92

SABK Shield-connection bracket

The stripped cable is easily pushed into the **SABK** shield-connection clips. The spring force in the clip then ensures that the shield has a consistently good contact.

The large contact areas ensure excellent dissipation of interference current.

The **SABK** can be used with the mounting feet for various mounting platforms (e.g. on DIN rail, busbar, or for direct installation).

The **SABK** for the proper shield diameter is mounted by simply clipping it on (no tools required).



- The spring exerts continuous contact force on the cable shield
- High conductivity
- Very good dissipation of high-frequency interference current
- No tools are required: all sizes can be clipped onto the various mounting feet





SABKM Shield-connection clip Multi

The **SABKM Multi** shield-connection clip differs from conventional shielding clips because of its two specially shaped legs.

These legs produce force on both sides so that a very large cable clamping range is attained. The stripped cable is easily pushed into the **SABK**. The spring force in the clip then ensures that the shield has a consistently good contact.

The large contact surfaces ensure that any interference current is reliably dissipated.

The **SABKM** can be used with mounting feet for various mounting systems (e.g. on DIN rail, busbar, or for direct installation).

The **SABKM** for the proper shield diameter is mounted by simply clipping it on (no tools required).



- Fewer individual parts because of the large contact/ clamping range
- Consistently good contact force due to spring action
- High conductivity
- Very good dissipation of high-frequency interference current
- No tools are required: all sizes can be clipped onto the various mounting feet



MF-SABK/D Mounting foot for direct mounting

The mounting foot for the **MF-SABK/D** shield-connection clip serves as a universal carrier for the **SABK/SABKM** with clamping diameters from 1.5 mm to 18 mm. It can be installed directly (e.g. screwed directly onto a mounting plate). The suitable **SABK** can then be snapped in and the cable shield can be pressed in.



Your advantages

- Direct mounting using M4 screw
- Universal holder for SABK/SABKM, with cable clamping range from 1.5 to 18 mm
- Variable assembly options leads to less product types
- Less parts in your warehouse
- Very compact construction
- Cable tie can be used for strain relief

Installation of the SABKM shield-connection bracket on the MF-SABK/D mounting foot



1. Screw on the mounting foot



2. Snap on your SABK



3. Press in the cable shield

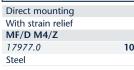


4. Apply strain relief with cable ties



Mounting type	
Description	
Туре	
Cat. no.	Qty.
Material	







Direct mounting
Without strain relief
MF/D M4
27217.0 25
Steel

RMF/D/Z M4 Row-mounted foot for direct mounting

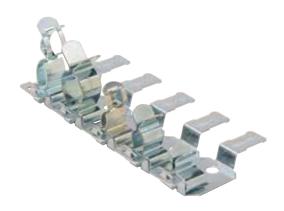
The **RMF/D/Z M4** row-mounted foot for direct mounting serves as a universal carrier for up to 12 shield-connection clips with clamping diameters from 1.5 mm to 18 mm. The row-mounted foot can be shortened to the desired length by breaking it at one of its breakage points. Either screws or rivets can be used to secure it in position.

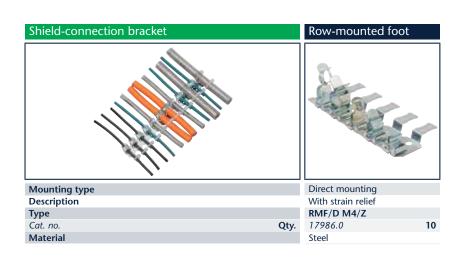


Your advantages

- Up to 12 cable shields can be attached to a single row-mounted foot.
- Space-saving installation on the mounting plate
- Universal holders for SABK/SABKM, with variable cable clamping ranges from 1.5 to 18 mm
- Breakage points permit versatile customization for your required number of cables.
- Less parts in your warehouse
- Very compact construction
- Cable tie can be used for strain relief

Installation of the SABKM shield-connection bracket on the MF-SABK/D mounting foot





MF-SABK/SSCH Mounting foot for busbar mounting

The **MF-SABK/SSCH** mounting foot for busbar mounting serves as a universal carrier for shield-connection clips with cable diameters from 1.5 mm to 18 mm. Simply snap the mounting foot onto the 10 x 3 mm busbar. Then snap in the corresponding shield-connection clip and press in the cable shield.



Your advantages

- Tool-free mounting onto busbars 10 x 3 mm
- For shield-connection brackets with a 1.5 18 mm clamping range
- Variable assembly options leads to less product types
- Less parts in your warehouse
- Very compact construction
- Cable tie can be used for strain relief

Installation of the SABKM shield-connection bracket on the MF-SABK/SSCH mounting foot



1. Screw on the mounting foot



2. Snap on your SABK



3. Press in the cable shield



4. Apply strain relief with cable ties



Mounting type	
Description	
Туре	
Cat. no.	Qty.
Material	



Busbar mounting	
With strain relief	
MF-SABK/SSCH/Z	
17979.0	10
Steel	



Busbar mounting
Without strain relief
MF-SABK/SSCH
27218.0 10
Steel

MF-SABK/35 Mounting foot for DIN rail mounting

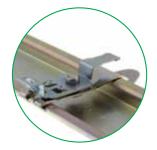
The **MF-SABK/35/Z** mounting foot for **TS 35** DIN rails serves as a universal carrier for shield-connection clips with clamping diameters from 1.5 mm to 18 mm. Simply snap the mounting foot on the DIN rail. The properly sized shield-connection clip is then snapped on and the cable shield is pushed into the shield-connection clip. The variant with a strain relief clip provides cable ties to relieve the strain.



Your advantages

- Tool-free mounting on TS 35 DIN rail
- Universal holder for SABK/SABKM, with cable clamping range from 1.5 to 18 mm
- Variable assembly options leads to less product types
- Less parts in your warehouse
- Cable tie can be used for strain relief

Installation of the SABKM shield-connection bracket on the MF-SABK/35 mounting foot



1. Screw on the mounting foot

Cat. no.

Material



2. Snap on your SABK



3. Press in the cable shield



4. Apply strain relief with cable ties





Qty.



Mounting on the DIN rail
Without strain relief
MF-SABK/35
27261.0 10
Steel

Multi SABKM.../D Shield-connection clip for direct mounting

The **SABKM.../D** shield-connection clip can be installed directly (e.g. screwed directly onto a mounting plate). The cable shield must only be pressed into the **SABKM** in order to establish a reliable contact.

The strain relief clip can be used with a cable tie to relieve strain at the cable sheath.



- Direct mounting using M4 screw
- Very compact construction
- Reduced product types when the Multi shield-connection bracket is used
- Cable tie can be used for strain relief



SAB.../D Shield-connection clip for direct mounting

The **SAB.../D** shield-connection clip can be used for direct mounting installations. The force on the cable comes from a spring-pressure piece. This regulated pressure ensures a constant optimal contact. The **SAB.../D** can be installed with an M4 screw (included in delivery) directly to the mounting plate.

The **SAB 8/D M5** shield-connection clip comes with a special feature; it is equipped with a self-cutting M5 SW3 metal screw. As a result, less time is required to mount the clip on the mounting plate, since you only need to drill one 4.2-mm hole through the plate. The hole threads will then be cut into the plate by the screw.



- Quick snap-on or mounting of the shield-connection clip
- Different cable cross-sections can be accommodated by the elastic nature of the spring
- Easy to work with



SABKM.../SSCH M4 Multi shield-connection clip on mounting foot for mounting to busbars

The Multi shield-connection clip on the mounting foot **SABKM.../SSCH M4** can be snapped onto a 10x3mm busbar without any tools. The cable shield must only be pressed into the Multi shield-connection clip in order to establish a reliable contact.

The strain relief clip can be used with a cable tie to relieve strain.



- Tool-free mounting onto busbars 10 x 3 mm
- Extremely compact construction
- Cable tie can be used for strain relief



SAB Shield-connection clip for busbar mounting

The SAB shield-connection clips enable busbar mounting. After connecting the wiring, the shield-connection clip is mounted by simply swivelling in the **SAB** clip onto the busbar. The force on the cable comes from a spring-pressure piece. This regulated pressure ensures a constant optimal contact. This makes the **SAB** shield-connection clip very convenient to wire. Depending on the length of the terminal blocks, two or more **SH/SAB** busbar supports should be used. These mechanically connect the front busbar with the DIN rail (support).



Your advantages

- Quick snap-on or mounting of the shield-connection clip
- Different cable cross-sections can be accommodated by the elastic nature of the spring
- Easy to work with

Shield-connection clip



Mounting type	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Material	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Material	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Material	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Material	

SAB



Busbar mounting SAB 8	
1527.0	10
3 – 8 mm	. •
Steel	
SAB 13.5	
1528.0	10
4 – 13.5 mm	
Steel	
SAB 20	
1529.0	10
10 – 20 mm	
Steel	
SAB 32	
17360.0	10
15 – 32 mm	
Steel	

SSAB Shield-connection clip for busbar mounting

The **SSAB** shield-connection clips enable busbar mounting. After wiring the terminal block, the shield-connection clip is mounted by simply swivelling in and tightening the knurled thumb screw. This makes the **SSAB** screw-shield-connection clip very convenient to wire. Depending on the length of the terminal blocks, two or more **SH/SAB** busbar supports should be used. These mechanically connect the front busbar with the DIN rail (support). The **SH1** busbar holders are used where a shield-connection system must be mounted directly onto a panel rather than a DIN rail. The 10x3mm busbars can be easily and quickly snapped on to these supports. In both cases, the contact with the earth or ground potential can be established with a **ZB** clamping yoke.



- Screw-on clip for simple retrofitting
- Knurled thumb screw, so no tools required
- Easy to work with
- Large shield surface
- Secure contact



SAB.../GWP Shield-connection clip for C-rail

The **SAB.../GWP** shield-connection clips enable mounting to a C-rail. The **SAB.../GWP** is attached to the threaded plate with an Allen (hex socket) screw. The force on the cable comes from a spring-pressure piece. This regulated pressure ensures a constant optimal contact with the DIN rail.



Your advantages

- Shield-connection clip is quickly mounted
- Different cable cross-sections can be accommodated by the elastic nature of the spring
- Easy to work with

Shield-connection clip for C-rail



Mounting type	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Material	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Material	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Material	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Material	

SAB.../GWP



C-rail mounting	
SAB 8/GWP	
17356.0	10
3 – 8 mm	
Steel	
SAB 13.5/GWP	
17357.0	10
4 – 13.5 mm	
Steel	
SAB 20/GWP	
17358.0	10
10 – 20 mm	
Steel	
SAB 32/GWP	
17359.0	10
15 – 32 mm	
Steel	

SABKM.../MF/35 Shield-connection clip for DIN rail mounting

The Multi **SABKM.../MF/35** shield-connection clip on mounting foot can be snapped onto a **TS 35** DIN rail without using any tools. The cable shield must only be pressed into the Multi shield-connection clip in order to establish a reliable contact. The strain relief clip can be used with a cable tie to relieve strain.



- Simple tool-free installation
- Spring force provides consistently good contact to the cable shield
- Very good dissipation of high-frequency interference current
- Cable tie can be used for strain relief







Mounting type	
Description	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Туре	
Cat. no.	Qty.
Cable diameter Ø	

Mounting on the DIN rail	
Without strain relief	
SABK 3/MF/35	
27229.0	10
1.5 – 3 mm	
SABK 6/MF/35	
27230.0	10
3 – 6 mm	
SABK 8/MF/35	
27231.0	10
6 – 8 mm	
SABK 11/MF/35	
27232.0	10
8 – 11 mm	
SABK 16/MF/35	
27233.0	10
11 – 16 mm	
SABK 30/MF/35	
27234.0	10
17 – 30 mm	
SABKM 12/MF/35	
27237.0	10
3 – 12 mm	
SABKM 18/MF/35	
27238.0	10
7 – 18 mm	
SABKM 35/MF/35	
27239.0	5
16 – 35 mm	
SABKM 65/MF/35	
27258.0	5
35 – 65 mm	

Mounting on the DIN rail	
With strain relief	
SABK 3/MF/35/Z	
27240.0	10
1.5 – 3 mm	
SABK 6/MF/35/Z	
27241.0	10
3 – 6 mm	
SABK 8/MF/35/Z	
27242.0	10
6 – 8 mm	
SABK 11/MF/35/Z	
27243.0	10
8 – 11 mm	
SABK 16/MF/35/Z	
27244.0	10
11 – 16 mm	
SABK 30/MF/35/Z	
27245.0	10
17 – 30 mm	
SABKM 12/MF/35/Z	
17980.0	10
3 – 12 mm	
SABKM 18/MF/35/Z	
17981.0	10
7 – 18 mm	

SAB.../F Shield-connection clip for DIN rail mounting

The **SAB.../F** shield-connection clips enable mounting to the DIN rail. The force exerted on the cable is regulated by a spring-loaded thrust piece. This ensures optimum contact at all times. The **SAB../F** can be mounted directly to the **TS 35** DIN rail using the clamping foot and a mounting screw.



- Shield-connection clip is quickly mounted
- Different cable cross-sections can be accommodated by the elastic nature of the spring
- Easy to work with



Mounting type	
Туре	
Cat. no.	Qty.
Cable diameter Ø	
Size (L x W x H), mm	
Material	



Mounting on the DIN rail	
SAB 8/F	
1571.0	10
3 – 8 mm	
18.5 x 13 x 26.5	
Steel	



Mounting on the DIN rail

SAB 13.5/F

1572.0 10

4 – 13.5 mm

22 x 19.5 x 32.5

Steel



Mounting on the DIN rail

SAB 20/F

1573.0

10 – 20 mm

27 x 13 x 26.5

Steel

SAB.../MF Shield-connection clip for DIN rail mounting

The **SAB.../MF/35** shield-connection clips enable mounting to the DIN rail. The **SAB.../MF/35** is snapped on directly via the internal-spring **MF/35** mounting foot without using any tools. The force exerted on the cable is regulated by a springloaded thrust piece. This ensures that optimal contact is maintained with the DIN rail at all times.



Your advantages

- Simple tool-free installation
- Different cable cross-sections can be accommodated by the elastic nature of the spring
- Easy to work with
- /S version can be rotated and fixed in position using the fastening screw

Shield-connection clip





Mounting on the DIN rail SAB 8/MF/35	
17038.0	10
3 – 8 mm	
18.5 x 13 x 26.5	
Steel	
SAB 13.5/MF/35	
17039.0	10
4 – 13.5 mm	
22 x 19.5 x 32.5	
Steel	
SAB 20/MF/35	
17040.0	10
10 – 20 mm	
27 x 24.5 x 40.5	
Steel	
SAB 32/MF/35	
17363.0	10
15 – 32 mm	
53.2 x 33 x 71.5	
Steel	



Mounting on the DIN rail	
SAB 8/MF/35/S	
17340.0	10
3 – 8 mm	
18.5 x 13 x 26.5	
Steel	
SAB 13.5/MF/3/S5	
17341.0	10
4 – 13.5 mm	
22 x 19.5 x 32.5	
Steel	
SAB 20/MF/35/S	
17342.0	10
10 – 20 mm	
27 x 24.5 x 40.5	
Steel	
SAB 32/MF/35/S	
17343.0	10
15 – 32 mm	
53.2 x 33 x 71.5	
Steel	

Busbar holder

Busbar holders are used for mounting all shield-connection clips with 10x3mm busbars. These can be mounted quickly and flexibly according to your requirements. The **SH1** busbar holders are used where a shield-connection system must be mounted directly onto a panel rather than a DIN rail. The 10x3mm busbars can be easily and quickly snapped on to these supports.

The **SH/SAB** busbar holders mechanically connect the preceding busbar with the DIN rail. Thus, the shield-connection clip can easily be extended directly to the terminal strip.

The **ES 35/K/ST** end support with its integrated receptacles enables you to easily mount 10x3mm busbars directly above a **TS 35** DIN rail.

Depending on the length, two or more holders can be used. In both cases, the contact with the earth or ground potential can be established with a **ZB** clamping yoke.



Types and catalogue numbers, alphabetic

Туре	Cat. no.	Page	Туре	Cat. no.	Page	Туре	Cat. no.	Page
В			KDS-DE 2x4-5 BK	28555.4	49	KDS-DEG 20-21 BK	28541.4	49
			KDS-DE 2x4-5 GR	28595.6	48	KDS-DEG 20-21 GR	28582.6	48
BL KDS-KV M20	28746.0	76	KDS-DE 2x5-6 BK	28556.4	49	KDS-DEG 21-22 BK	28542.4	49
BL KDS-KV M25	28747.0	77	KDS-DE 2x5-6 GR	28596.6	48	KDS-DEG 21-22 GR	28583.6	48
BL KDS-KV M32	28748.0	77	KDS-DE 2x6.5 BK	28682.4	49	KDS-DEG 22-23 BK	28543.4	49
BL KDS-KV M40	28749.0	77	KDS-DE 2x6.5 GR	28607.6	48	KDS-DEG 22-23 GR	28584.6	48
BL KDS-KV M50 BL KDS-KV M63	28750.0 28751.0	77 77	KDS-DE 2x7 BK KDS-DE 2x7 GR	28689.4 28690.6	49 48	KDS-DEG 23-24 BK KDS-DEG 23-24 GR	28544.4 28585.6	49 48
BL KDS-FB1	28734.0	77	KDS-DE 2x8 BK	28691.4	49	KDS-DEG 23-24 GK KDS-DEG 24-25 BK	28545.4	49
BL KDS-FB2	28735.0	77	KDS-DE 2x8 GR	28692.6	48	KDS-DEG 24-25 GR	28586.6	48
BL KDS-FB3	28736.0	77	KDS-DE 3-4 BK	28523.4	49	KDS-DEG 25-26 BK	28546.4	49
BL KDS-FB4	28737.0	77	KDS-DE 3-4 GR	28564.6	48	KDS-DEG 25-26 GR	28587.6	48
BL KDS-FP2	28745.0	76	KDS-DE 3x5-6 BK	28687.4	49	KDS-DEG 26-27 BK	28547.4	49
BL KDS-SR 1-4	28674.0	76	KDS-DE 3x5-6 GR	28688.6	48	KDS-DEG 26-27 GR	28588.6	48
BL KDS-SR 10/24	28677.0	77	KDS-DE 4-5 BK	28524.4	49	KDS-DEG 27-28 BK	28548.4	49
BL KDS-SR 6/10	28675.0	76	KDS-DE 4-5 GR	28565.6	48	KDS-DEG 27-28 GR	28589.6	48
BL KDS-SR 8/16	28676.0	76	KDS-DE 4x2-3 BK	28557.4	49	KDS-DEG 28-29 BK	28549.4	49
BL KES	28744.0	76	KDS-DE 4x2-3 GR	28597.6	48	KDS-DEG 28-29 GR	28590.6	48
BL SET M16-M63 Hyd.	28766.0	76	KDS-DE 4x3-4 BK	28558.4	49	KDS-DEG 29-30 BK	28550.4	49
BL SET RECTANGLE Hyd.	28761.0	76	KDS-DE 4x3-4 GR	28598.6	48	KDS-DEG 29-30 GR	28591.6	48
BL-VA KDS-KV M20	28754.0	76	KDS-DE 4x5 BK	28672.4	49	KDS-DEG 30-31 BK	28551.4	49
BL-VA KDS-KV M25	28754.0	77	KDS-DE 4x5 GR	28673.6	48	KDS-DEG 30-31 GR	28592.6	48
BL-VA KDS-KV M32	28756.0	77 77	KDS-DE 4x4.5 BK KDS-DE 4x4.5 GR	28681.4 28606.6	49 48	KDS-DEG 31-32 BK KDS-DEG 31-32 GR	28552.4	49 48
BL-VA KDS-KV M40 BL-VA KDS-KV M50	28757.0 28758.0	77	KDS-DE 4x4.5 GK KDS-DE 4x6 BK	28606.6 28763.4	48 49	KDS-DEG 31-32 GR KDS-DEG 32-33 BK	28593.6 28601.4	48 49
BL-VA KDS-KV M63	28759.0	77	KDS-DE 4x6 GR	28762.6	48	KDS-DEG 32-33 BR KDS-DEG 32-33 GR	28594.6	48
BL-VA KDS-FB1	28729.0	77	KDS-DE 5-6 BK	28525.4	49	KDS-DEG/B BK	28534.4	49
BL-VA KDS-FB2	28741.0	77	KDS-DE 5-6 GR	28566.6	48	KDS-DEG/B GR	28575.6	48
BL-VA KDS-FB3	28742.0	77	KDS-DE 6-7 BK	28526.4	49	KDS-DEG/K 7-24 BK	28554.4	49
BL-VA KDS-FB4	28743.0	77	KDS-DE 6-7 GR	28567.6	48	KDS-DES 2X10.5 GR	28800.6	51
BL-VA KDS-FP2	28753.0	76	KDS-DE 7-8 BK	28527.4	49	KDS-DES 3X8.5 GR	28802.6	51
BL-VA KDS-SR 1-4	28683.0	76	KDS-DE 7-8 GR	28568.6	48	KDS-DES 3X9.5 GR	28801.6	51
BL-VA KDS-SR 10/24	28686.0	77	KDS-DE 8-9 BK	28528.4	49	KDS-DES 4X7.5 GR	28803.6	51
BL-VA KDS-SR 6/10	28684.0	76	KDS-DE 8-9 GR	28569.6	48	KDS-DES 7X6.5 GR	28804.6	51
BL-VA KDS-SR 8/16	28685.0	76	KDS-DE 9-10 BK	28529.4	49	KDS-DES 8X4.5 GR	28806.6	51
BL-VA KES	28752.0	76	KDS-DE 9-10 GR	28570.6	48	KDS-DES 8X5.5 GR	28805.6	51
BL-VA SET M16-M63 Hyd.	28765.0	77	KDS-DE-FB1/A GR	28713.6	44	KDS-EMV-SAB 1-4	28623.0	71
BL-VA SET RECTANGLE Hyd.	28760.0	76	KDS-DE-FB1/B GR	28714.6	44	KDS-EMV-SAB 10/24	28626.0	71
E			KDS-DE-FB1/C GR	28715.6	45	KDS-EMV-SAB 6/10	28624.0	71
		0.5	KDS-DE-FB1/D GR	28716.6	45	KDS-EMV-SAB 8/16	28625.0	71
ES 35/K/ST BG	2828.0	95	KDS-DE-FB1/E GR	28717.6	44	KDS-FP 2x10/24 BK	28660.4	20
Н			KDS-DE-FB1/F GR	28718.6	44	KDS-FP 3x10/24 BK	28661.4	20
	28679.0	75	KDS-DE-FB2/A GR KDS-DE-FB2/B GR	28719.6 28720.6	44 44	KDS-FP-AD/UL YE KDS-FP-EMV-SAB 10/24	28665.8 28627.0	20 71
Hydraulic hand pump for sheet-metal hole punch	20079.0	/3	KDS-DE-FB2/C GR	28721.6	44	KDS-FP-IVR OG	28664.3	20
			KDS-DE-FB2/D GR	28722.6	44	KDS-GM 20 BK	28616.4	36
K			KDS-DE-FB2/E GR	28723.6	45	KDS-GM 25 BK	28617.4	36
KDS-BP 10/24 BK	28509.4	72	KDS-DE-FB2/F GR	28724.6	45	KDS-GM 32 BK	28618.4	36
KDS-BP 8/16 BK	28508.4	72	KDS-DE-FB3/A GR	28725.6	45	KDS-GM 40 BK	28619.4	37
KDS BW 1	28622.0	70	KDS-DE-FB3/B GR	28726.6	45	KDS-GM 50 BK	28620.4	37
KDSClick assortment box	28764.0	70	KDS-DE-FB4/A GR	28727.6	44	KDS-GM 63 BK	28621.4	37
KDS-DE 1.5 BK	28693.4	49	KDS-DE-FB4/B GR	28728.6	45	KDS-GM M20 BK	28616.4	28
KDS-DE 1.5 GR	28694.6	48	KDS-DE/1XASI BK	28559.4	49	KDS-GM M25 BK	28617.4	28
KDS-DE 1.5-2 BK	28521.4	49	KDS-DE/1XASI GR	28599.6	48	KDS-GM M32 BK	28618.4	28
KDS-DE 1.5-2 GR	28562.6	48	KDS-DE/2xASI BK	28560.4	49	KDS-GM M40 BK	28619.4	29
KDS-DE 10-11 BK	28530.4	49	KDS-DE/2xASI GR	28600.6	48	KDS-GM M50 BK	28620.4	29
KDS-DE 10-11 GR	28571.6	48	KDS-DE/B BK	28520.4	49	KDS-GM M63 BK	28621.4	29
KDS-DE 11-12 BK	28531.4	49	KDS-DE/B GR	28561.6	48	KDS-R 20-32 BK	28770.4	28
KDS-DE 11-12 GR	28572.6	48	KDS-DE/K 2-11 BK	28553.4	49	KDS-R 40-63 BK	28774.4	29
KDS-DE 12-13 BK	28532.4 28573.6	49 48	KDS-DEG 14-15 BK	28535.4 28576.6	49	KDS-RGA M20 BK	28771.4 28772.4	28
KDS-DE 12-13 GR KDS-DE 13-14 BK	28573.6	48	KDS-DEG 14-15 GR KDS-DEG 15-16 BK	28536.4	48 49	KDS-RGA M25 BK KDS-RGA M32 BK	28773.4	28 28
KDS-DE 13-14 GR	28574.6	49	KDS-DEG 15-16 BK KDS-DEG 15-16 GR	28577.6	49	KDS-RGA M40 BK	28775.4	29
KDS-DE 14-15 BK	28608.4	49	KDS-DEG 16-17 BK	28537.4	49	KDS-RGA M50 BK	28776.4	29
KDS-DE 14-15 GR	28609.6	48	KDS-DEG 16-17 GR	28578.6	48	KDS-RGA M63 BK	28777.4	29
KDS-DE 15-16 BK	28670.4	49	KDS-DEG 17-18 BK	28538.4	49	KDS-Inlay 1 BK	28516.4	14
KDS-DE 15-16 GR	28671.6	48	KDS-DEG 17-18 GR	28579.6	48	KDS-Inlay 2 BK	28517.4	14
KDS-DE 2 BK	28695.4	49	KDS-DEG 18-19 BK	28539.4	49	KDS-Inlay 4 BK	28518.4	14
	28696.6	48	KDS-DEG 18-19 GR	28580.6	48	KDS-Inlay 6 BK	28519.4	14
KDS-DE 2 GR	20070.0	10						
KDS-DE 2 GR KDS-DE 2-3 BK	28522.4	49	KDS-DEG 19-20 BK	28540.4	49	KDS-IVR 1-4 BK	28507.4	14

Туре	Cat. no.	Page	Туре	Cat. no.	Page	Туре	Cat. no.	Page
KDS-IVR 6/10 BK	28501.4	14	KES-E 26/24 B GR	28845.6	64	SAB 20/MF/35	17040.0	94
KDS-IVR 8/16 BK	28503.4	14	KES-E 42/24 A GR	28816.6	64	SAB 20/MF/35/S	17342.0	94
KDS-KV M20 BK	28610.4	36	KES-E 42/24 B GR	28846.6	64	SAB 32	17360.0	89
KDS-KV M25 BK	28611.4	36	KES-E 48/24 A GR	28817.6	64	SAB 32/D	17361.0	87
KDS-KV M32 BK	28612.4	36	KES-E 48/24 B GR	28847.6	64	SAB 32/GWP	17359.0	91
KDS-KV M40 BK	28613.4	37	KES-E 50/24 A GR	28818.6	64	SAB 32/MF/35	17363.0	94
KDS-KV M50 BK	28614.4	37	KES-E 50/24 B GR	28848.6	64	SAB 32/MF/35/S	17343.0	94
KDS-KV M63 BK	28615.4	37	KES-E-R 50/11 A GR	28830.6	68	SAB 8	1527.0	89
KDS-Set 1-4 BK	28602.4	14	KES-E-R 50/11 B GR	28860.6	68	SAB 8/D	1549.0	87
KDS-Set 10/24 BK	28605.4	14	KES-E-R 50/12 A GR	28831.6	68	SAB 8/D/M5	1526.0	87
KDS-Set 6/10 BK	28603.4	14	KES-E-R 50/12 B GR	28861.6	68	SAB 8/F	1571.0	93
KDS-Set 8/16 BK	28604.4	14	KES-E-R 50/16 A GR	28832.6	68	SAB 8/GWP	17356.0	91
KDS-SR 1-4 BK	28506.4	14	KES-E-R 50/16 B GR	28862.6	68	SAB 8/MF/35	17038.0	94
KDS-SR 10/24 BK	28504.4	14	KES-E-R 50/18 A GR	28833.6	68	SAB 8/MF/35/S	17340.0	94
KDS-SR 6/10 BK	28500.4	14	KES-E-R 50/18 B GR	28863.6	68	SABK 11	17973.0	80
KDS-SR 8/16 BK	28502.4	14	KES-E-R 50/20 A GR	28834.6	68	SABK 11/MF/35	27232.0	92
KDS-SR-FB1/A BK	28700.4	40	KES-E-R 50/20 B GR	28864.6	68	SABK 11/MF/35/Z	27243.0	92
	28701.4	40	KES-E-R 50/35 A GR	28835.6		SABK 16	17974.0	
KDS-SR-FB2/A BK	28702.4	40	·	28865.6	68 68		27233.0	80 92
KDS-SR-FB2/B BK			KES-E-R 50/35 B GR			SABK 16/MF/35		
KDS-SR-FB3/A BK	28703.4	41	KES-E-R 50/9 A GR	28829.6	68	SABK 16/MF/35/Z	27244.0	92
KDS-SR-FB3/B BK	28704.4	41	KES-E-R 50/9 B GR	28859.6	68	SABK 3	17970.0	80
KDS-SR-FB3/C BK	28705.4	41	KES-GB 13/24 GR	28640.6	58	SABK 3/MF/35	27229.0	92
KDS-SR-FB3/D BK	28706.4	41	KES-GB 14/24 BK	28641.4	58	SABK 3/MF/35/Z	27240.0	92
KDS-SR-FB4/A BK	28707.4	40	KES-GB 14/24 GR	28641.6	58	SABK 30	17997.0	80
KDS-SR-FB4/B BK	28708.4	40	KES-GB 16-1/24 BK	28643.4	59	SABK 30/MF/35	27234.0	92
KDS-SR-FB4/C BK	28709.4	40	KES-GB 16-1/24 GR	28643.6	59	SABK 30/MF/35/Z	27245.0	92
KDS-SR-FB4/D BK	28710.4	41	KES-GB 16/24 BK	28642.4	58	SABK 35/MF/35	27236.0	92
KDS-SR-FB4/E BK	28711.4	41	KES-GB 16/24 GR	28642.6	58	SABK 6	17971.0	80
KDS-SR-FB4/F BK	28712.4	41	KES-GB 17/24 BK	28644.4	59	SABK 6/MF/35	27230.0	92
KDS-VS ASI/2 WH	28798.7	73	KES-GB 17/24 GR	28644.6	59	SABK 6/MF/35/Z	27241.0	92
KDS-VS-SR BK	28779.4	73	KES-GB 20/24 BK	28645.4	59	SABK 8	17972.0	80
KDS-VS 10 WH	28789.7	73	KES-GB 20/24 GR	28645.6	59	SABK 8/MF/35	27231.0	92
KDS-VS 11 WH	28790.7	73	KES-GB 21/24 BK	28646.4	59	SABK 8/MF/35/Z	27242.0	92
KDS-VS 12 WH	28791.7	73	KES-GB 21/24 GR	28646.6	59	SABKM 12	17975.0	81
KDS-VS 13 WH	28792.7	73	KES-GB 32/24 BK	28647.4	59	SABKM 12/D M4	27246.0	86
KDS-VS 14 WH	28793.7	73	KES-GB 32/24 GR	28647.6	59	SABKM 12/D M4/Z	17984.0	86
KDS-VS 15 WH	28794.7	73	KES-R 13/24 BK	28650.4	58	SABKM 12/MF/35	27237.0	92
KDS-VS 16 WH	28795.7	73	KES-R 13/24 GR	28650.6	58	SABKM 12/MF/35/Z	17980.0	92
KDS-VS 17 WH	28796.7	73	KES-R 14/24 BK	28651.4	58	SABKM 12/SSCH	27224.0	88
KDS-VS 2 WH	28781.7	73	KES-R 14/24 GR	28651.6	58	SABKM 12/SSCH/Z	17982.0	88
KDS-VS 22 WH	28797.7	73	KES-R 16-1/24 BK	28653.4	59	SABKM 18	17976.0	81
	28782.7	73		28653.6	59		27247.0	86
KDS-VS 3 WH	28783.7	73	KES-R 16-1/24 GR KES-R 16/24 BK	28652.4	58	SABKM 18/D M4 SABKM 18/D M4/Z	17985.0	86
KDS-VS 4 WH	28784.7	73	•					
KDS-VS 5 WH			KES-R 16/24 GR	28652.6	58	SABKM 18/MF/35	27238.0	92
KDS-VS 6 WH	28785.7	73	KES-R 17/24 BK	28654.4	59	SABKM 18/MF/35/Z	17981.0	92
KDS-VS 7 WH	28786.7	73	KES-R 17/24 GR	28654.6	59	SABKM 18/SSCH	27225.0	88
KDS-VS 8 WH	28787.7	73	KES-R 20/24 BK	28655.4	59	SABKM 18/SSCH/Z	17983.0	88
KDS-VS 9 WH	28788.7	73	KES-R 20/24 GR	28655.6	59	SABKM 30/D M4	27248.0	86
KES 13/24 BK	28630.4	58	KES-R 21/24 BK	28656.4	59	SABKM 30/D M4/Z	27220.0	86
KES 13/24 GR	28630.6	58	KES-R 21/24 GR	28656.6	59	SABKM 30/SSCH	27226.0	88
KES 14/24 BK	28631.4	58	KES-R 32/24 BK	28657.4	59	SABKM 30/SSCH/Z	27228.0	88
KES 14/24 GR	28631.6	58	KES-R 32/24 GR	28657.6	59	SABKM 35/D M4	27256.0	86
KES 16-1/24 BK	28633.4	59	M			SABKM 35/MF/35	27239.0	92
KES 16-1/24 GR	28633.6	59	IVI			SABKM 65/D M4	27257.0	86
KES 16/24 BK	28632.4	58	MF-SABK/35	17261.0	85	SABKM 65/MF/35	27258.0	92
KES 16/24 GR	28632.6	58	MF-SABK/35/Z	17978.0	85	SABKMD 1.5-3/SSCH	27250.0	88
KES 17/24 BK	28634.4	59	MF-SABK/SSCH	27218.0	84	SABKMD 1.5-3/SSCH/Z	27259.0	88
KES 17/24 GR	28634.6	59	MF-SABK/SSCH/Z	17979.0	84	SABKMD 3-12/SSCH	27253.0	88
KES 20/24 BK	28635.4	59	MF/D M4	27217.0	82	SABKMD 3-12/SSCH/Z	27255.0	88
KES 20/24 GR	28635.6	59	MF/D M4/Z	17977.0	82	SABKMD 3-6/SSCH	27251.0	88
KES 21/24 BK	28636.4	59				SABKMD 3-6/SSCH/Z	27260.0	88
KES 21/24 GR	28636.6	59	R			SABKMD 6-8/SSCH	27252.0	88
KES 32/24 BK	28637.4	59	RMF/D M4/Z	17986.0	83	SABKMD 6-8/SSCH/Z	27254.0	88
KES 32/24 GR	28637.6	59				SH 1 BG	2318.2	95
KES-E 12/24 A GR	28810.6	64	S			SH SAB BG	1530.2	95
KES-E 12/24 B GR	28840.6	64	SAB 13.5	1528.0	89	SSAB 14	3696.0	90
KES-E 14/24 A GR	28811.6	64	SAB 13.5/D	1550.0	87	SSAB 20	3697.0	90
KES-E 14/24 B GR	28841.6	64	SAB 13.5/F	1572.0	93	SSAB 28	3698.0	90
KES-E 17/24 A GR	28812.6	64	SAB 13.5/GWP	17357.0	91	SSAB 35	3699.0	90
KES-E 17/24 B GR	28842.6	64	SAB 13.5/MF/35	17337.0	94	SSAB 5	3694.0	90
	28813.6				94		3695.0	90
KES-E 18/24 A GR		64	SAB 13.5/MF/35/S	17341.0		SSAB 8	3073.0	90
KES-E 18/24 B GR	28843.6	64	SAB 20	1529.0	89			
KES-E 19/24 A GR	28814.6	64	SAB 20/D	1551.0	87			
KES-E 19/24 B GR	28844.6	64	SAB 20/F	1573.0	93			
KES-E 26/24 A GR	28815.6	64	SAB 20/GWP	17358.0	91			

Types and catalogue numbers, numeric

Cat. no.	Туре	Page	Cat. no.	Туре	Page	Cat. no.	Туре	Page
1			27231.0	SABK 8/MF/35	92	28548.4	KDS-DEG 27-28 BK	49
1			27232.0	SABK 11/MF/35	92	28549.4	KDS-DEG 28-29 BK	49
1526.0	SAB 8/D/M5	87	27233.0	SABK 16/MF/35	92	28550.4	KDS-DEG 29-30 BK	49
1527.0 1528.0	SAB 8 SAB 13.5	89 89	27234.0	SABK 30/MF/35	92 92	28551.4 28552.4	KDS-DEG 30-31 BK	49 49
1529.0	SAB 20	89	27237.0 27238.0	SABKM 12/MF/35 SABKM 18/MF/35	92	28553.4	KDS-DEG 31-32 BK KDS-DE/K 2-11 BK	49
1530.2	SH SAB BG	95	27239.0	SABKM 35/MF/35	92	28554.4	KDS-DEG/K 7-24 BK	49
1549.0	SAB 8/D	87	27240.0	SABK 3/MF/35/Z	92	28555.4	KDS-DE 2x4-5 BK	49
1550.0	SAB 13.5/D	87	27241.0	SABK 6/MF/35/Z	92	28556.4	KDS-DE 2x5-6 BK	49
1551.0	SAB 20/D	87	27242.0	SABK 8/MF/35/Z	92	28557.4	KDS-DE 4x2-3 BK	49
1571.0	SAB 8/F	93	27243.0	SABK 11/MF/35/Z	92	28558.4	KDS-DE 4x3-4 BK	49
1572.0	SAB 13.5/F	93	27244.0	SABK 16/MF/35/Z	92	28559.4	KDS-DE/1XASI BK	49
1573.0	SAB 20/F	93	27245.0	SABK 30/MF/35/Z	92	28560.4	KDS-DE/2xASI BK	49
2			27246.0	SABKM 12/D M4	86	28561.6	KDS-DE/B GR	48
			27247.0	SABKM 18/D M4	86	28562.6	KDS-DE 1.5-2 GR	48
2318.2	SH 1 BG	95	27248.0	SABKM 30/D M4	86	28563.6	KDS-DE 2-3 GR	48
2828.0	ES 35/K/ST BG	95	27250.0	SABKMD 1.5-3/SSCH	88	28564.6	KDS-DE 3-4 GR	48
3			27251.0 27252.0	SABKMD 3-6/SSCH	88	28565.6	KDS-DE 4-5 GR	48
3694.0	SSAB 5	90	27253.0	SABKMD 6-8/SSCH	88 88	28566.6 28567.6	KDS-DE 5-6 GR KDS-DE 6-7 GR	48 48
3695.0	SSAB 8	90	27254.0	SABKMD 3-12/SSCH SABKMD 6-8/SSCH/Z	88	28568.6	KDS-DE 0-7 GR KDS-DE 7-8 GR	48
3696.0	SSAB 14	90	27255.0	SABKMD 3-12/SSCH/Z	88	28569.6	KDS-DE 8-9 GR	48
3697.0	SSAB 20	90	27256.0	SABKM 35/D M4	86	28570.6	KDS-DE 9-10 GR	48
3698.0	SSAB 28	90	27257.0	SABKM 65/D M4	86	28571.6	KDS-DE 10-11 GR	48
3699.0	SSAB 35	90	27258.0	SABKM 65/MF/35	92	28572.6	KDS-DE 11-12 GR	48
17			27259.0	SABKMD 1.5-3/SSCH/Z	88	28573.6	KDS-DE 12-13 GR	48
17			27260.0	SABKMD 3-6/SSCH/Z	88	28574.6	KDS-DE 13-14 GR	48
17038.0	SAB 8/MF/35	94	28			28575.6	KDS-DEG/B GR	48
17039.0	SAB 13.5/MF/35	94				28576.6	KDS-DEG 14-15 GR	48
17040.0	SAB 20/MF/35	94	28500.4	KDS-SR 6/10 BK	14	28577.6	KDS-DEG 15-16 GR	48
17261.0	MF-SABK/35	85	28501.4	KDS-IVR 6/10 BK	14	28578.6	KDS-DEG 16-17 GR	48
17340.0	SAB 8/MF/35/S	94	28502.4	KDS-SR 8/16 BK	14	28579.6	KDS-DEG 17-18 GR	48
17341.0	SAB 13.5/MF/35/S	94	28503.4	KDS-IVR 8/16 BK	14	28580.6	KDS-DEG 18-19 GR	48
17342.0	SAB 20/MF/35/S	94	28504.4	KDS-SR 10/24 BK	14	28581.6	KDS-DEG 19-20 GR	48
17343.0	SAB 32/MF/35/S	94 91	28505.4 28506.4	KDS-IVR 10/24 BK	14	28582.6 28583.6	KDS-DEG 20-21 GR	48
17356.0 17357.0	SAB 8/GWP SAB 13.5/GWP	91	28507.4	KDS-SR 1-4 BK KDS-IVR 1-4 BK	14 14	28584.6	KDS-DEG 21-22 GR KDS-DEG 22-23 GR	48 48
17357.0	SAB 13.3/GWP	91	28508.4	KDS-BP 8/16 BK	72	28585.6	KDS-DEG 22-23 GR KDS-DEG 23-24 GR	48
17359.0	SAB 32/GWP	91	28509.4	KDS-BP 10/24 BK	72	28586.6	KDS-DEG 23-24 GR KDS-DEG 24-25 GR	48
17360.0	SAB 32	89	28516.4	KDS-Inlay 1 BK	14	28587.6	KDS-DEG 25-26 GR	48
17361.0	SAB 32/D	87	28517.4	KDS-Inlay 2 BK	14	28588.6	KDS-DEG 26-27 GR	48
17363.0	SAB 32/MF/35	94	28518.4	KDS-Inlay 4 BK	14	28589.6	KDS-DEG 27-28 GR	48
17970.0	SABK 3	80	28519.4	KDS-Inlay 6 BK	14	28590.6	KDS-DEG 28-29 GR	48
17971.0	SABK 6	80	28520.4	KDS-DE/B BK	49	28591.6	KDS-DEG 29-30 GR	48
17972.0	SABK 8	80	28521.4	KDS-DE 1.5-2 BK	49	28592.6	KDS-DEG 30-31 GR	48
17973.0	SABK 11	80	28522.4	KDS-DE 2-3 BK	49	28593.6	KDS-DEG 31-32 GR	48
17974.0	SABK 16	80	28523.4	KDS-DE 3-4 BK	49	28594.6	KDS-DEG 32-33 GR	48
17975.0	SABKM 12	81	28524.4	KDS-DE 4-5 BK	49	28595.6	KDS-DE 2x4-5 GR	48
17976.0	SABKM 18	81	28525.4	KDS-DE 5-6 BK	49	28596.6	KDS-DE 2x5-6 GR	48
17977.0	MF/D M4/Z	82	28526.4	KDS-DE 6-7 BK	49	28597.6	KDS-DE 4x2-3 GR	48
17978.0	MF-SABK/35/Z	85	28527.4	KDS-DE 7-8 BK	49	28598.6	KDS-DE 4x3-4 GR	48
17979.0	MF-SABK/SSCH/Z	84	28528.4	KDS-DE 8-9 BK	49	28599.6	KDS-DE/1XASI GR	48
17980.0 17981.0	SABKM 12/MF/35/Z	92	28529.4	KDS-DE 9-10 BK	49	28600.6 28601.4	KDS-DE/2xASI GR	48
17981.0	SABKM 18/MF/35/Z	92 88	28530.4 28531.4	KDS-DE 10-11 BK KDS-DE 11-12 BK	49 49	28601.4 28602.4	KDS-DEG 32-33 BK	49 14
17983.0	SABKM 12/SSCH/Z SABKM 18/SSCH/Z	88	28532.4	KDS-DE 11-12 BK	49	28603.4	KDS-Set 1-4 BK KDS-Set 6/10 BK	14
17984.0	SABKM 12/D M4/Z	86	28533.4	KDS-DE 13-14 BK	49	28604.4	KDS-Set 8/16 BK	14
17985.0	SABKM 18/D M4/Z	86	28534.4	KDS-DEG/B BK	49	28605.4	KDS-Set 10/24 BK	14
17986.0	RMF/D M4/Z	83	28535.4	KDS-DEG 14-15 BK	49	28606.6	KDS-DE 4x4.5 GR	48
17997.0	SABK 30	80	28536.4	KDS-DEG 15-16 BK	49	28607.6	KDS-DE 2x6.5 GR	48
			28537.4	KDS-DEG 16-17 BK	49	28608.4	KDS-DE 14-15 BK	49
27			28538.4	KDS-DEG 17-18 BK	49	28609.6	KDS-DE 14-15 GR	48
27217.0	MF/D M4	82	28539.4	KDS-DEG 18-19 BK	49	28610.4	KDS-KV M20 BK	36
27218.0	MF-SABK/SSCH	84	28540.4	KDS-DEG 19-20 BK	49	28611.4	KDS-KV M25 BK	36
27220.0	SABKM 30/D M4/Z	86	28541.4	KDS-DEG 20-21 BK	49	28612.4	KDS-KV M32 BK	36
27224.0	SABKM 12/SSCH	88	28542.4	KDS-DEG 21-22 BK	49	28613.4	KDS-KV M40 BK	37
27225.0	SABKM 18/SSCH	88	28543.4	KDS-DEG 22-23 BK	49	28614.4	KDS-KV M50 BK	37
27226.0	SABKM 22/SSCH	88	28544.4	KDS-DEG 23-24 BK	49	28615.4	KDS-KV M63 BK	37
27228.0	SABKM 30/SSCH/Z	88	28545.4	KDS-DEG 24-25 BK	49	28616.4	KDS-GM M20 BK	28
27229.0	SABK 3/MF/35	92	28546.4	KDS-DEG 25-26 BK	49	28616.4	KDS-GM 20 BK	36
27230.0	SABK 6/MF/35	92	28547.4	KDS-DEG 26-27 BK	49	28617.4	KDS-GM M25 BK	28

Cat. no.	Туре	Page	Cat. no.	Туре	Page	Cat. no.	Туре	Page
28617.4	KDS-GM 25 BK	36	28679.0	Hydraulic hand pump for	75	28764.0	KDSClick assortment box	70
28618.4	KDS-GM M32 BK	28		sheet-metal hole puncher		28765.0	BL-VA SET M16-M63 Hyd.	77
28618.4	KDS-GM 32 BK	36	28681.4	KDS-DE 4x4.5 BK	49	28766.0	BL SET M16-M63 Hyd.	76
28619.4	KDS-GM M40 BK	29	28682.4	KDS-DE 2x6.5 BK	49	28770.4	KDS-R 20-32 BK	28
28619.4	KDS-GM 40 BK	37	28683.0	BL-VA KDS-SR 1-4	76	28771.4	KDS-RGA M20 BK	28
28620.4	KDS-GM M50 BK	29	28684.0	BL-VA KDS-SR 6/10	76	28772.4	KDS-RGA M25 BK	28
28620.4	KDS-GM 50 BK	37	28685.0	BL-VA KDS-SR 8/16	76	28773.4	KDS-RGA M32 BK	28
28621.4	KDS-GM M63 BK	29	28686.0 28687.4	BL-VA KDS-SR 10/24	77	28774.4 28775.4	KDS-R 40-63 BK	29
28621.4 28622.0	KDS-GM 63 BK	37		KDS-DE 3x5-6 BK	49		KDS-RGA M40 BK	29
28623.0	KDS BW 1	70 71	28688.6 28689.4	KDS-DE 3x5-6 GR	48 49	28776.4 28777.4	KDS-RGA M50 BK KDS-RGA M63 BK	29 29
	KDS-EMV-SAB 1-4		28690.6	KDS-DE 2x7 BK				
28624.0	KDS-EMV-SAB 6/10	71		KDS-DE 2x7 GR	48	28779.4	KDS-VS-SR BK KDS-VS 2 WH	73 73
28625.0 28626.0	KDS-EMV-SAB 8/16	71 71	28691.4	KDS-DE 2x8 BK	49 48	28781.7 28782.7		73 73
28627.0	KDS-EMV-SAB 10/24	71	28692.6 28693.4	KDS-DE 2x8 GR KDS-DE 1.5 BK	49	28783.7	KDS-VS 3 WH KDS-VS 4 WH	73
28630.4	KDS-FP-EMV-SAB 10/24 KES 13/24 BK	58	28694.6	KDS-DE 1.5 GR	48	28784.7	KDS-VS 5 WH	73
28630.4	KES 13/24 GR	58	28695.4	KDS-DE 2 BK	49	28785.7	KDS-VS 6 WH	73
28631.4	KES 14/24 BK	58	28696.6	KDS-DE 2 GR	48	28786.7	KDS-VS 7 WH	73
28631.6		58	28700.4	KDS-SR-FB1/A BK	40	28787.7		73
28632.4	KES 14/24 GR KES 16/24 BK	58	28700.4	KDS-SR-FB2/A BK	40	28788.7	KDS-VS 8 WH KDS-VS 9 WH	73
28632.6			28701.4		40	28789.7		73
28633.4	KES 16/24 GR	58 59	28703.4	KDS-SR-FB2/B BK	41	28790.7	KDS-VS 10 WH	73 73
28633.6	KES 16-1/24 BK	59	28704.4	KDS-SR-FB3/A BK			KDS-VS 11 WH	
	KES 16-1/24 GR			KDS-SR-FB3/B BK	41	28791.7	KDS-VS 12 WH	73
28634.4	KES 17/24 BK	59	28705.4	KDS-SR-FB3/C BK	41	28792.7	KDS-VS 13 WH	73
28634.6	KES 17/24 GR	59	28706.4	KDS-SR-FB3/D BK	41	28793.7	KDS-VS 14 WH	73
28635.4	KES 20/24 BK	59	28707.4	KDS-SR-FB4/A BK	40	28794.7	KDS-VS 15 WH	73
28635.6	KES 20/24 GR	59	28708.4	KDS-SR-FB4/B BK	40	28795.7	KDS-VS 16 WH	73
28636.4	KES 21/24 BK	59	28709.4	KDS-SR-FB4/C BK	40	28796.7	KDS-VS 17 WH	73
28636.6	KES 21/24 GR	59	28710.4	KDS-SR-FB4/D BK	41	28797.7	KDS-VS 22 WH	73
28637.4	KES 32/24 BK	59	28711.4	KDS-SR-FB4/E BK	41	28798.7	KDS-VS ASI/2 WH	73
28637.6	KES 32/24 GR	59	28712.4	KDS-SR-FB4/F BK	41	28800.6	KDS-DES 2X10.5 GR	51
28640.4	KES-GB 13/24 BK	58	28713.6	KDS-DE-FB1/A GR	44	28801.6	KDS-DES 3X9.5 GR	51
28640.6	KES-GB 13/24 GR	58	28714.6	KDS-DE-FB1/B GR	44	28802.6	KDS-DES 3X8.5 GR	51
28641.4	KES-GB 14/24 BK	58	28715.6	KDS-DE-FB1/C GR	44	28803.6	KDS-DES 4X7.5 G	51
28641.6	KES-GB 14/24 GR	58	28716.6	KDS-DE-FB1/D GR	44	28804.6	KDS-DES 7X6.5 GR	51
28642.4	KES-GB 16/24 BK	58	28717.6	KDS-DE-FB1/E GR	44	28805.6	KDS-DES 8X5.5 GR	51
28642.6	KES-GB 16/24 GR	58	28718.6	KDS-DE-FB1/F GR	44	28806.6	KDS-DES 8X4.5 GR	51
28643.4	KES-GB 16-1/24 BK	59	28719.6	KDS-DE-FB2/A GR	44	28810.6	KES-E 12/24 A GR	64
28643.6	KES-GB 16-1/24 GR	59	28720.6	KDS-DE-FB2/B GR	44	28811.6	KES-E 14/24 A GR	64
28644.4	KES-GB 17/24 BK	59	28721.6	KDS-DE-FB2/C GR	44	28812.6	KES-E 17/24 A GR	64
28644.6	KES-GB 17/24 GR	59	28722.6	KDS-DE-FB2/D GR	44	28813.6	KES-E 18/24 A GR	64
28645.4	KES-GB 20/24 BK	59	28723.6	KDS-DE-FB2/E GR	44	28814.6	KES-E 19/24 A GR	64
28645.6	KES-GB 20/24 GR	59	28724.6	KDS-DE-FB2/F GR	44	28815.6	KES-E 26/24 A GR	64
28646.4	KES-GB 21/24 BK	59	28725.6	KDS-DE-FB3/A GR	44	28816.6	KES-E 42/24 A GR	64
28646.6	KES-GB 21/24 GR	59	28726.6	KDS-DE-FB3/B GR	44	28817.6	KES-E 48/24 A GR	64
28647.4	KES-GB 32/24 BK	59	28727.6	KDS-DE-FB4/A GR	44	28818.6	KES-E 50/24 A GR	64
28647.6	KES-GB 32/24 GR	59	28728.6	KDS-DE-FB4/B GR	44	28829.6	KES-E-R 50/9 A GR	68
28650.4	KES-R 13/24 BK	58	28729.0	BL-VA KDS-FB1	77	28830.6	KES-E-R 50/11 A GR	68
28650.6	KES-R 13/24 GR	58	28734.0	BL KDS-FB1	77	28831.6	KES-E-R 50/12 A GR	68
28651.4	KES-R 14/24 BK	58	28735.0	BL KDS-FB2	77	28832.6	KES-E-R 50/16 A GR	68
28651.6	KES-R 14/24 GR	58	28736.0	BL KDS-FB3	77	28833.6	KES-E-R 50/18 A GR	68
28652.4	KES-R 16/24 BK	58	28737.0	BL KDS-FB4	77	28834.6	KES-E-R 50/20 A GR	68
28652.6	KES-R 16/24 GR	58	28741.0	BL-VA KDS-FB2	77	28835.6	KES-E-R 50/35 A GR	68
28653.4	KES-R 16-1/24 BK	59	28742.0	BL-VA KDS-FB3	77	28840.6	KES-E 12/24 B GR	64
28653.6	KES-R 16-1/24 GR	59	28743.0	BL-VA KDS-FB4	77	28841.6	KES-E 14/24 B GR	64
28654.4	KES-R 17/24 BK	59	28744.0	BL KES	76	28842.6	KES-E 17/24 B GR	64
28654.6	KES-R 17/24 GR	59	28745.0	BL KDS-FP2	76	28843.6	KES-E 18/24 B GR	64
28655.4	KES-R 20/24 BK	59	28746.0	BL KDS-KV M20	76	28844.6	KES-E 19/24 B GR	64
28655.6	KES-R 20/24 GR	59	28747.0	BL KDS-KV M25	77	28845.6	KES-E 26/24 B GR	64
28656.4	KES-R 21/24 BK	59	28748.0	BL KDS-KV M32	77	28846.6	KES-E 42/24 B GR	64
28656.6	KES-R 21/24 GR	59	28749.0	BL KDS-KV M40	77	28847.6	KES-E 48/24 B GR	64
28657.4	KES-R 32/24 BK	59	28750.0	BL KDS-KV M50	77	28848.6	KES-E 50/24 B GR	64
28657.6	KES-R 32/24 GR	59	28751.0	BL KDS-KV M63	77	28859.6	KES-E-R 50/9 B GR	68
28660.4	KDS-FP 2x10/24 BK	20	28752.0	BL-VA KES	76	28860.6	KES-E-R 50/11 B GR	68
28661.4	KDS-FP 3x10/24 BK	20	28753.0	BL-VA KDS-FP2	76	28861.6	KES-E-R 50/12 B GR	68
28664.3	KDS-FP-IVR OG	20	28754.0	BL-VA KDS-KV M20	76	28862.6	KES-E-R 50/16 B GR	68
28665.8	KDS-FP-AD/UL YE	20	28755.0	BL-VA KDS-KV M25	77	28863.6	KES-E-R 50/18 B GR	68
28670.4	KDS-DE 15-16 BK	49	28756.0	BL-VA KDS-KV M32	77	28864.6	KES-E-R 50/20 B GR	68
28671.6	KDS-DE 15-16 GR	48	28757.0	BL-VA KDS-KV M40	77	28865.6	KES-E-R 50/35 B GR	68
28672.4	KDS-DE 4x5 BK	49	28758.0	BL-VA KDS-KV M50	77			
28673.6	KDS-DE 4x5 GR	48	28759.0	BL-VA KDS-KV M63	77			
28674.0	BL KDS-SR 1-4	76	28760.0	BL-VA SET RECTANGLE Hyd.	76			
28675.0	BL KDS-SR 6/10	76	28761.0	BL SET RECTANGLE Hyd.	76			
28676.0	BL KDS-SR 8/16	76	28762.6	KDS-DE 4x6 GR	48			



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