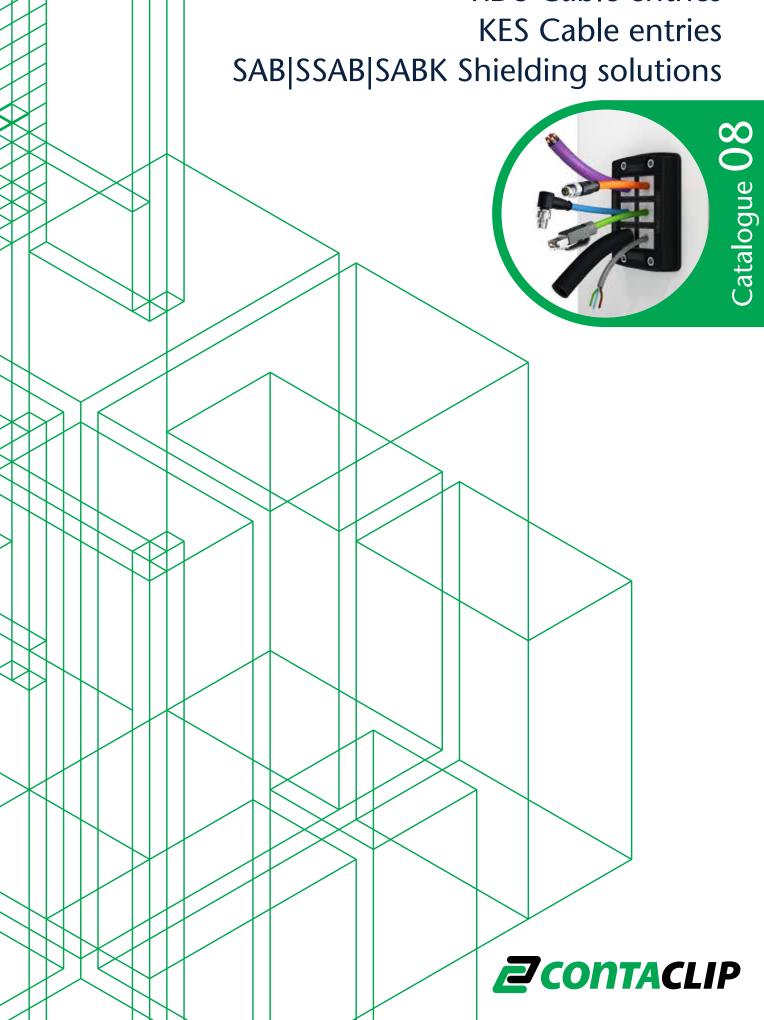


**KDS** Cable entries



# Contents

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KDS-EMV-SAB 87 Shield-connection rails	18	KDS-SR Modular cable entry system
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KDS/KES-VS 89 Seal plugs for all KDS and KES systems	32	KDS-R Round cable entries
Punching tools 90	40	KDS-KV Separable cable glands
Shield-connection clip 94	46	KDS-FB Cable entry system for flat cables
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# 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 terminals and accessories, CONTA-CABLE cable management systems, CONTA-ELECTRONICS for electrical and electronic cabinet components, CONTA-LABEL for marking systems, CONTA-BOX for housings, and CONTA-CON for PCB terminals 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.

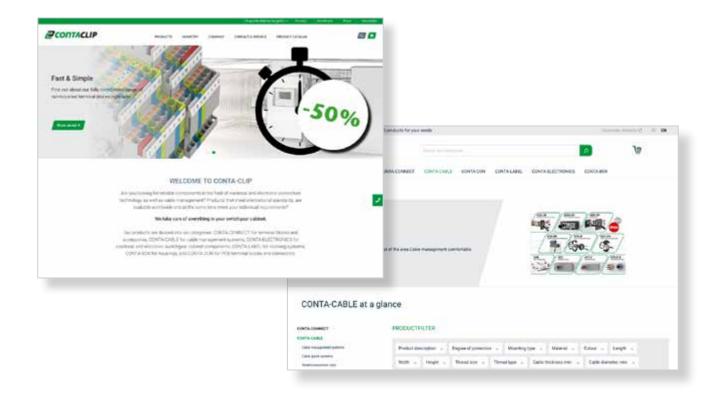
**Application films:** Complex functions be explained easily and clearly with sounds and images.

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

Poland Portugal Romania Serbia Slovakia

Norway

Slovenia 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 mm<sup>2</sup> to 25 mm<sup>2</sup>.



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 mm<sup>2</sup> to 16 mm<sup>2</sup> 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 rials, 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 electrical 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**

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 shield-connection clips can be used to provide a reliable shield contact with wire 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 CONTA-CON's wide range of PCB terminals and plug-in connector systems, as well as the modular feed-through terminal systems of the SDK series. 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.



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, electrical 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 140 variants and is constantly being expanded.

#### **KES** cable entries

The **KES** cable entries enable unassembled cables or pneumatic hoses to be quickly inserted into electrical 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.



now with

#### **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 65 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.



**KDSI-SR** 

Inverted, modular cable entry system

The inverted **KDSI-SR** screw frames enable a complete assembly from the outside. They extend the range of our proven KDS cable entry systems.

Page 10



**KDS-SR** 

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 18



#### **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 24



#### KDS-R

Round cable entries

Thanks to three 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 modularly with the round **KSR-R** cable entries. Assembly is carried out from the outside inwards.

Page 32



#### **KDS-KV**

Separable cable glands

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

Page 40

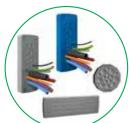


#### KDS-FB

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 46



#### **KES**

**Cable entries** 

The **KES**, **KES**-**R**, **KES**-**GB**, **KES**-**E** and **KES**-**E** cable entry systems are suitable when feeding in unassembled cables or pneumatic and hydraulic hoses. The **KES**-**GB**-**FDA**, which are made of FDA-compliant TPE, are available for use in food industry applications.

Page 62



#### SAB

**Shielding solutions** 

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

Page 94

### KDSI-SR Inverted, modular cable entry system

The inverted **KDSI-SR** screw frames enable a complete assembly from the outside. They extend the range of our proven **KDS** cable entry systems. The design and the simple, established assembly principle remain practically unchanged. The changes to the inverted versions are the new mirrored geometry of the frame's opening tapers and an additional two-part protective hood, which ensures the tight fit of the sealing elements towards the outside.

The safe IP66 seal and the reliable static strain relief in accordance with DIN EN 62444 is further ensured by the integrated frame gaskets and the conical shape of the sealing elements, which are pressed into the frame openings from the outside.

As with all **KDS** cable entry systems, the modular click-and-plug principle of the **KDSI-SR** means that individual cable entry openings and seals can be reconfigured at any time as required without any extra installation work.





### Your advantages

- Complete assembly from outside inwards
- Guarantee retained for assembled cables
- Retrofitting and servicing can be done quickly and easily
- High-density assemblies
- Protection: IP66

### The basic components of the modular system

Frames. Inlays. Seals. Protective hood. The modular design – with four 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 integrated TPE gasket guarantees an optimal seal with IP66 protection, even on painted or rough surfaces. The frames also fit the standard cut-outs for 10-, 16- and 24-pole connectors.



#### 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 sealing elements allows them to be easily pressed in. This also reliably seals the gaps and provides static strain relief in accordance with DIN EN 62444. The seals are installed by pressing them from the outside inwards 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 140 different seals that can be used for sealing cables of various diameters and sizes.



#### 4. Protective hood

The two-part protective hood has TPE gaskets at three different levels; this ensures that an IP66 seal is achieved.

The two-part protective hood also guarantees the tight fit of the pressed-in sealing elements to the outside and covers the screws of the one-part frame.





### Your advantages: More versatility and safety

The sealing elements can be released by pressing from the inside to the outside. Changes, retrofits, servicing or the readjustment of the cable lengths can be made at any time without dismantling the frame.

### KDSI-SR Inverted, modular cable entry system

### An overview of your advantages

#### Attaching the frame

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

# Fast assembly from outside inwards for easier, friendlier servicing

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

#### **Protective hood**

The two-part protective hood has TPE gaskets at three levels and guarantees IP66 protection. A tight fit for the sealing elements, pressed in from the outside, is also guaranteed.

### No loss of guarantee: assembled cables

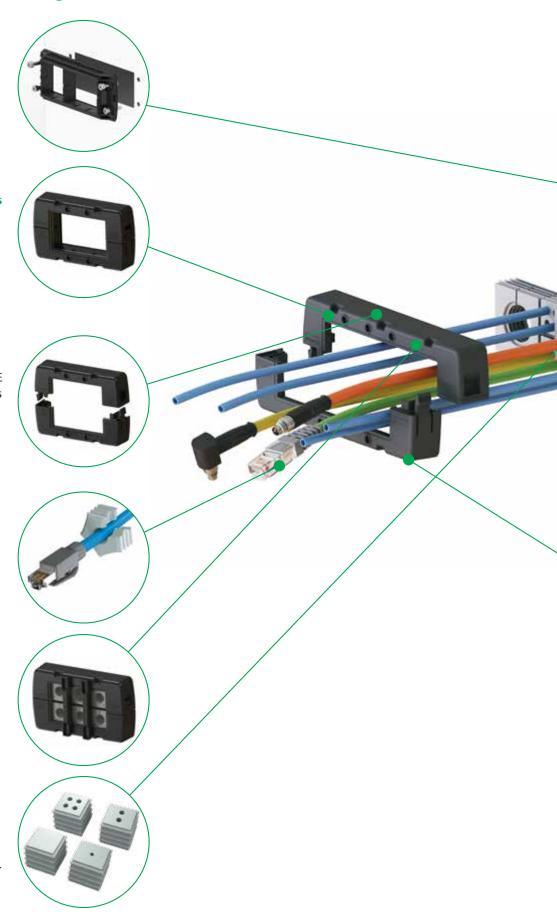
No need to disassemble and reconnect connectors, so manufacturer's warranty is not voided.

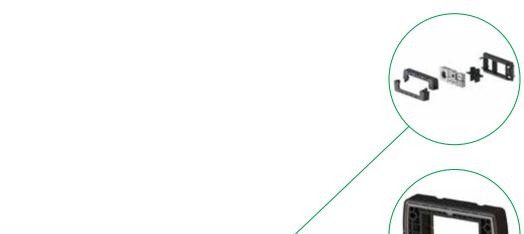
### Optional external locking mechanism

The optional external locking mechanism **KDSI-AVR** secures the sealing elements so that they cannot be pressed out without tools.

### Versatile, high-density assemblies are possible

1-way, 2-way, 3-way and 4-way seals and dummy plugs provide you with excellent versatility for cable management.





#### **Outstanding versatility with** optimized warehousing

The frames, inlays, seals and protective hoods can be combined in many ways - ensuring you many versatile configuration options.



#### Captive gasket

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



#### Safe and quick installation with feedback

An audible "click" confirms that the inlay has been properly installed in the frame.



#### Integrated strain relief

The absolute tight fit of the sealing elements also ensures a static strain relief mechanism for the cables according to DIN EN 62444.



#### **Outstanding IP66 seal**

Conic-tapered seals feature inner and outer sealing gills.



#### Smart separation of the seals

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



**IP66** 

UL TYPE Rating

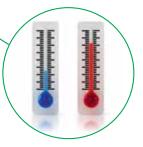
**UL TYPE**\* Rating **4**x



compliant

Made in Germany





#### Can be used from -40 °C to +120 °C

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

<sup>\* 4</sup>x is for indoor use only

# KDSI-SR Inverted, modular cable entry system

Frames and inlays	KDSI-SR 1-4	KDSI-SR 6/10		KDSI-SR 8/16		KDSI-SR 10/24	
Diagram	Page 16	Page 16		Page 16		Page 16	
Туре	KDSI-SR 1-4 BK	KDSI-SR 6/10 BK		KDSI-SR 8/16 BK		KDSI-SR 10/24 BK	
	ty. 28880.4	1 28881.4	1	28882.4	1		1
Description	Screw frame with two-part protective hoo	Screw frame		Screw frame with two-part protective ho	ood	Screw frame with divided protective ho	-
Type / Set	KDSI-Set 1-4 BK	KDSI-Set 6/10 BK		KDSI-Set 8/16 BK		KDSI-Set 10/24 BK	
· ·	ty. 28890.4	1 28891.4	1	28892.4	1		1
<b>Description</b> Set consists of:	1 x KDSI-SR 1-4 BK, 1 x KDS-Inlay 4 BK	1 x KDSI-SR 6/10 BK, 1 x KDS-Inlay 2 BK, 1 x KDS-Inlay 6 BK		1 x KDSI-SR 8/16 BK, 1 x KDS-Inlay 1 BK, 2 x KDS-Inlay 4 BK		1 x KDSI-SR 10/24 BK, 1 x KDS-Inlay 2 BK, 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. Q	ty. 28516.4	<b>5</b> 28516.4	5	28516.4	5	28516.4	5
Description	For separating vertically	For separating vertically		For separating vertically		For separating vertically	
Inlay	KDS-Inlay 2 BK	KDS-Inlay 2 BK		KDS-Inlay 2 BK		KDS-Inlay 2 BK	
Cat. no. Q	ty. 28517.4	<b>5</b> 28517.4	5	28517.4	5	28517.4	5
Description	T-shape	T-shape		T-shape		T-shape	
Inlay	KDS-Inlay 4 BK	KDS-Inlay 4 BK		KDS-Inlay 4 BK		KDS-Inlay 4 BK	
	ty. 28518.4	5 28518.4	5	28518.4	5	28518.4	5
Description	for 4-way splits	for 4-way splits		for 4-way splits		for 4-way splits	
Inlay		KDS-Inlay 6 BK	_	KDS-Inlay 6 BK	_	KDS-Inlay 6 BK	5
Cat. no. Q	.y.	28519.4	3	28519.4	3	28519.4	3
Description Replacement protective hoc	od KDSI-AD 1-4 BK	for 6-way splits KDSI-AD 6/10 BK		for 6-way splits KDSI-AD 8/16 BK		for 6-way splits KDSI-AD 10/24 BK	
(two-part)	ND31-AD 1-4 BK	RD31-AD 0/ 10 BK		RD31-AD 0/ 10 BK		RD3I-AD 10/24 DK	
	ty. 28885.4	1 28886.4	1	28887.4	1	28888.4	1
Description	Spare cover	Spare cover		Spare cover		Spare cover	
Outer locking mechanism (optional)	KDSI-AVR BK	KDSI-AVR BK		KDSI-AVR BK		KDSI-AVR BK	
Cat. no. Q	ty. 28894.4	20 28894.4	20	28894.4	20	28894.4	20
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. Q	ty. 28674.0	1 28675.0	1	28676.0	1	28677.0	1
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 hol points		For sheet steel up to 2 mm; also for marking drilling ho points		For sheet steel up to 2 mm also for marking drilling ho points	
Actuating tool	KDS BW 1	KDS BW 1		KDS BW 1		KDS BW 1	
Cat. no. Q	ty. 28622.0	1 28622.0	1	28622.0	1	28622.0	1
Seals							
Grey	Small and large	Small and large		Small and large		Small and large	
Cat. no.	Page 56	Page 56		Page 56		Page 56	
Seals							
Black	Small and large	Small and large		Small and large		Small and large	
Cat. no.	Page 57	Page 57		Page 57		Page 57	



UL TYPE Rating 12 UL TYPE\*
Rating
4x





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

# **KDSI-SR** Combination examples

#### KDSI-SR 1-4





**KDSI-SR 6/10** 





KDS-Inlay 6 BK 28519.4





KDS-Inlay 2 BK 28517.4

#### **KDSI-SR 8/16**





KDS-Inlay 4 BK



KDS-Inlay 4 BK 28518.4





KDS-Inlay 4 BK 28518.4



#### **KDSI-SR 10/24**







KDS-Inlay 6 BK





KDS-Inlay 6 BK 28519.4

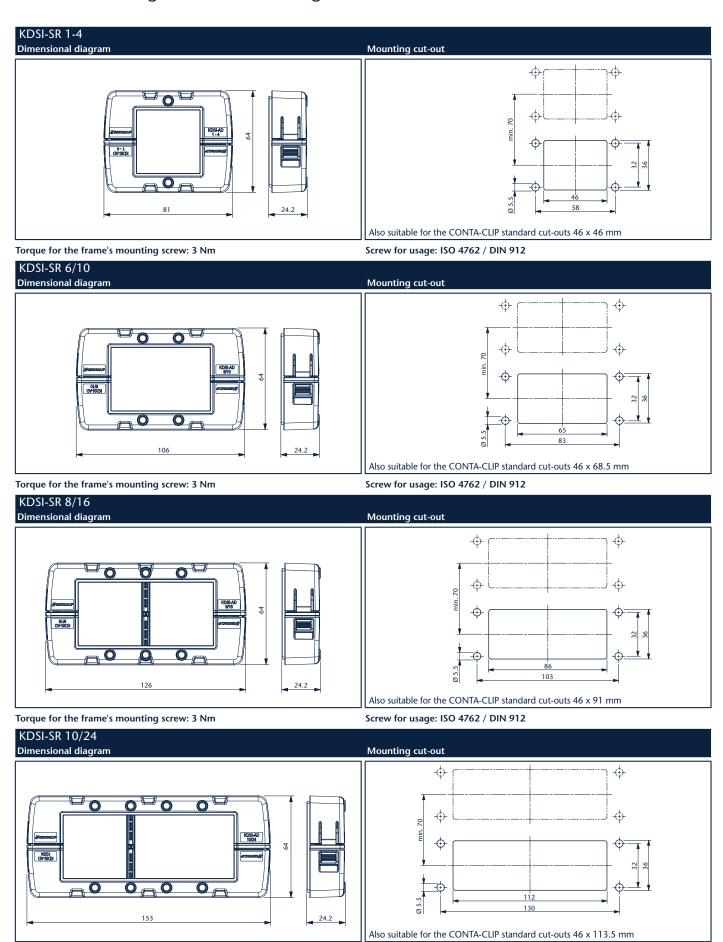




KDS-Inlay 2 BK 28517.4

### **KDSI-SR**

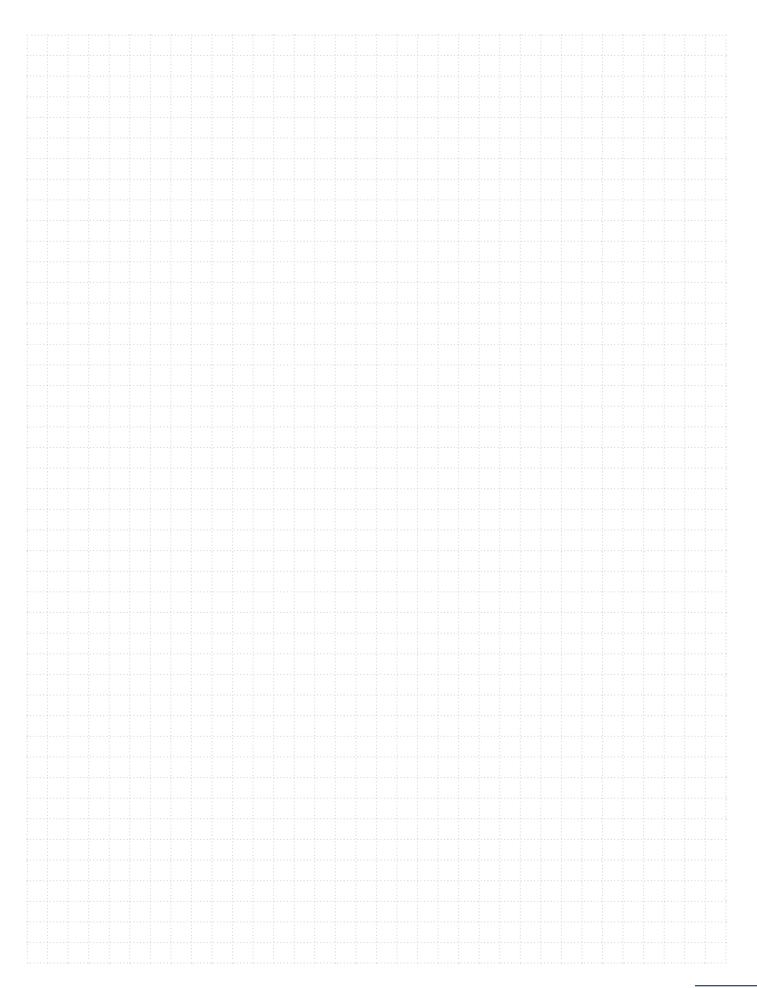
### Dimensional diagrams and mounting cut-outs



Torque for the frame's mounting screw: 3 Nm

Screw for usage: ISO 4762 / DIN 912

# Notes



# KDS-SR Modular cable entry system

A revolutionary cable entry systems:

Fast. Safe. Turning cables inside out!

The **KDS-SR** cable entry system is a cable management solution for electrical cabinets, housings and machines that features secure seals and strain relief for pre-assembled and non-assembled cables – with or without connectors. This 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 gasket 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 sealing elements allows them to be easily pressed in. This also reliably seals the gaps and provides 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 140 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.

### KDS-SR 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 gasket

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, 3-way and 4-way seals and dummy plugs provide you with excellent versatility for cable management.







**Products** 

compliant

certified

Germany

<sup>\* 4</sup>x is for indoor use only

# KDS-SR 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 30		Page 30		Page 30		Page 30	
Type		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	1	28500.4	1	28502.4	1		1
Description	Qty.	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.		1	28603.4	1	28604.4	1	28605.4	1
Description	ζ-9.	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	
Inlay				KDS-Inlay 2 BK				KDS-Inlay 2 BK	
Cat. no.	Qty.			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	10	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 92		Page 92		Page 92		Page 92	
Description		For sheet steel up to 2 mm also for marking drilling ho points		For sheet steel up to 2 m also for marking drilling points		For sheet steel up to 2 mn also for marking drilling h points		For sheet steel up to 2 m also for marking drilling h points	
Actuating tool		KDS BW 1		KDS BW 1		KDS BW 1		KDS BW 1	
Cat. no.	Qty.	28622.0	1	28622.0	1	28622.0	1	28622.0	1
Seals									
small		KDS-DE		KDS-DE		KDS-DE		KDS-DE	
Cat. no.	Qty.	Pages 56/57	10	Pages 56/57	10	Pages 56/57	10	Pages 56/57	10
large		KDS-DEG		KDS-DEG		KDS-DEG		KDS-DEG	
Cat. no.	Qty.	Pages 56/57	10	Pages 56/57	10	Pages 56/57	10	Pages 56/57	10
KDS-DES		KDS-DES		KDS-DES		KDS-DES		KDS-DES	
Cat. no.	Qty.	Pages 58/59	10	Pages 58/59	10	Pages 58/59	10	Pages 58/59	10
Screw plugs Mounting screws		KDS-VS-SR BK		KDS-VS-SR BK		KDS-VS-SR BK		KDS-VS-SR BK	
Cat. no.	Qty.	28779.4	100	28779.4	100	28779.4	100	28779.4	100
Cat. no.	Qty.	28779.4	100	28779.4	100	28779.4	100	28779.4	10



**IP66** 

UL TYPE Rating 12 UL TYPE\* Rating **4x** 





Made in Germany



**DNV-GL** Approved Products



### **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

\* 4x is for indoor use only

# KDS-SR 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







28516.4





Combination options with KDS-SR 10/24











KDS-Inlay 6 BK





KDS-Inlay 1 BK

28516.4





KDS-Inlay 2 BK 28517.4

KDS-Inlay 4 BK 28518.4

### KDS-FP Flange plates

The new versatile solution for managing cables: The **KDS-FP** flange plate provides machine manufacturers with a very cost-effective, convenient feed-through solution. It can be used to adapt housings and electrical cabinets to fit your updated requirements at any time, and can also considerably simplify your warehousing. You no longer have to stock electrical 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
- Guarantee retained for assembled cables
- Versatile, high-density assemblies are possible
- Outstanding IP66 seal
- Integrated strain relief
- Outstanding versatility with optimized warehousing

### 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 cut-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 sealing elements allows them to be easily pressed in. This also reliably seals the gaps and provides 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 140 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 gasket

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, 3-way and 4-way seals and dummy plugs 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.

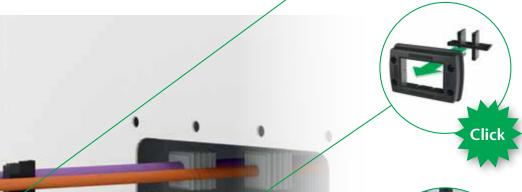






### Outstanding versatility with optimized warehousing

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 has been properly installed in the frame.



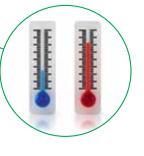
#### Integrated strain relief

The absolute tight fit of the sealing elements also ensures a static strain relief mechanism for the cables according to 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** 

UL TYPE Rating 12 UL TYPE\* Rating 4x



RoHS compliant

Made in Germany



<sup>\* 4</sup>x is for indoor use only

# KDS-FP Flange plates







**IP66** 

**UL TYPE** Rating 12





\* 4x is for indoor use only

RoHS compliant

Made in Germany



Diagram	
Type	
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.



5

5

5

5

20

10



Cat. no.

Cat. no.

Cat. no.

# 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.

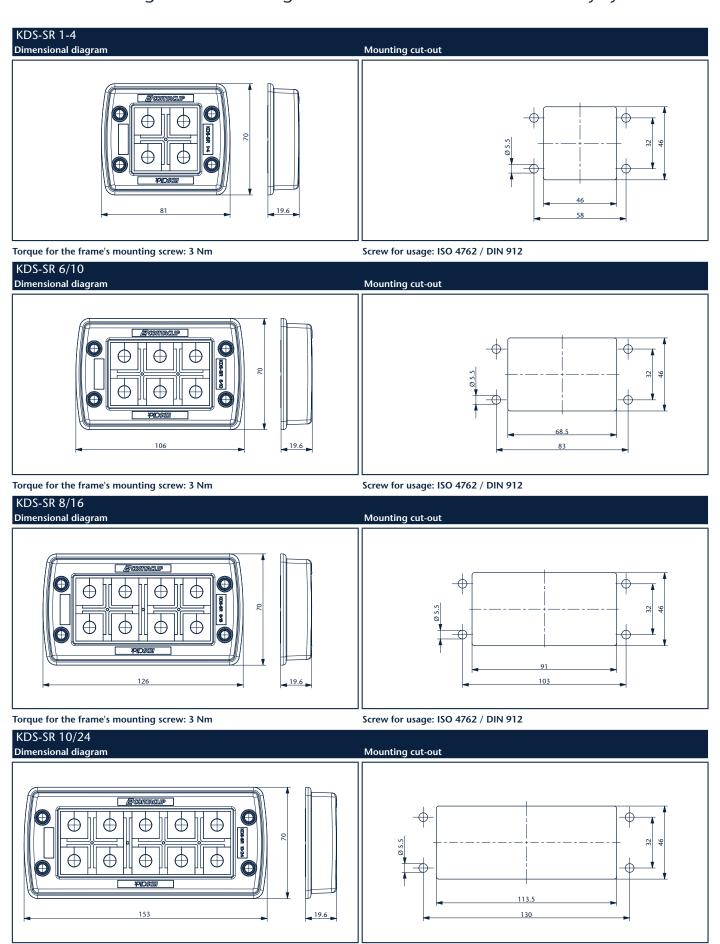


### **Features**

- 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

### **KDS-SR**

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

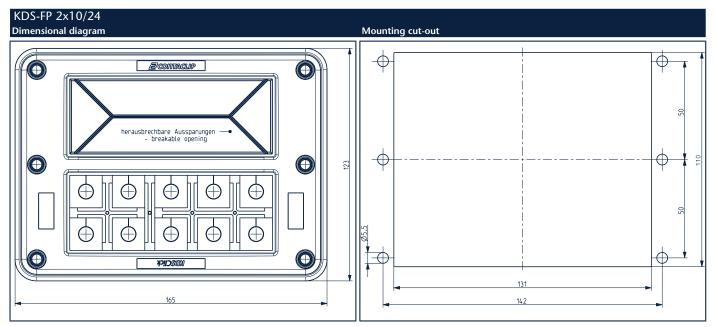


Torque for the frame's mounting screw: 3 Nm

Screw for usage: ISO 4762 / DIN 912

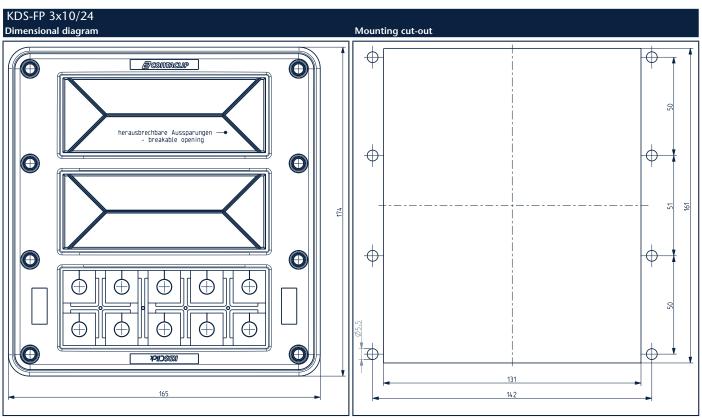
### **KDS-FP**

### Dimensional diagrams / 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 cut-outs 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 electrical 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 electrical 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 cut-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 electrical cabinets. The gaskets (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 electrical cabinet or housing interior are available respectively in six common diameters for metric cut-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 **KDS-DE** / **KDS-DEG** seal enables user-friendly pressing-in of the seal, reliable sealing of the gaps and ensures a 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 140 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

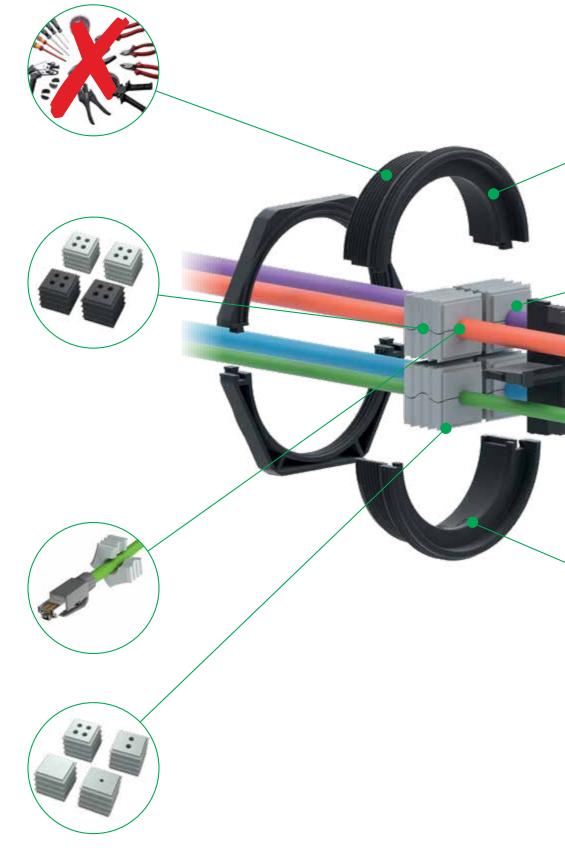
Up to 16 cables can be fed through thanks to the compatibility of the KDS-R 40-63 with the KDS inlay 4.

### 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, 3-way and 4-way seals and dummy plugs provide you with excellent versatility for cable management.





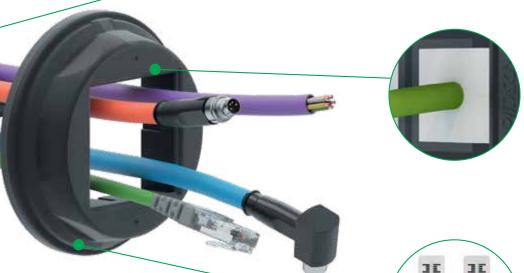
#### Two round cable entries for six metric break-through sizes

Thanks to six different thread and locking adapters and two external frame sizes, the metric breakthrough 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.



#### **Outstanding IP66 seal**

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



#### Integrated strain relief

The absolute tight fit of the sealing elements also ensures a static strain relief mechanism for the cables according to DIN EN 62444.



### Can be used from -40 °C to +120 °C

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



**UL TYPE** Rating 12

**UL TYPE**\*
Rating **4**x

Made in Germany





Maintenance work is possible during operation due to the separation of the thread adapter and the locknut.



RoHS compliant



# KDS-R Round cable entries

Round cable entries		KDS-R 20-32		KDS-RGA M20/25/32		KDS-GM 20/25/32	2
				S		()	)
Description		Round cable entry	_	Thread and locking adapter		Separable locknut	
Type / colour		KDS-R 20-32 BK		KDS-RGA M20 BK		KDS-GM M20 BK	
Cat. no.	Qty.		0	28771.4	5	28616.4	10
Type / colour	ζ.j.			KDS-RGA M25 BK		KDS-GM M25 BK	
Cat. no.	Qty.			28772.4	5	28617.4	10
Type / colour	ζ.j.			KDS-RGA M32 BK		KDS-GM M32 BK	
Cat. no.	Qty.			28773.4	5	28618.4	10
Cable diameter	ν-γ.				_		
KDS-DE		1-13 mm		1-13 mm		1-13 mm	
KDS-DEG							
Accessories							
Thread adapters		KDS-RGA M20 BK					
Cat. no.	Qty.		5				
Thread adapters	~,,	KDS-RGA M25 BK					
Cat. no.	Qty.	28772.4	5				
Thread adapters	1	KDS-RGA M32 BK					
Cat. no.	Qty.	28773.4	5				
Locknut				KDS-GM M20 BK			
Cat. no.	Qty.			28616.4	10		
Locknut				KDS-GM M25 BK			
Cat. no.	Qty.			28617.4	10		
Locknut				KDS-GM M32 BK			
Cat. no.	Qty.			28618.4	10		
Inlay							
Cat. no.	Qty.						
Inlay							
Cat. no.	Qty.						
Inlay							
Cat. no.	Qty.						
Actuating tool (refer to page 86)		KDS BW 1					
Cat. no.	Qty.	28622.0	1				
Sheet-metal hole punch (refer to page 92)				BL KDS-KV M20			
Cat. no.	Qty.			28746.0	1		
Sheet-metal hole punch (refer to page 92)				BL KDS-KV M25			
Cat. no.	Qty.			28747.0	1		
Sheet-metal hole punch (refer to page 92)				BL KDS-KV M32			
Cat. no.	Qty.			28748.0	1		











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Round cable entries		KDS-R 40-63 BK		KDS-RGA M40/50/6	63	KDS-GM 40/50/6	53
		0		C			
Description		Round cable entry		Thread and locking adapt	ter	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.	28517.4	5				
Inlay		KDS-Inlay 4 BK					
Cat. no.	Qty.	28518.4	5				
Actuating tool (refer to page 86)		KDS BW 1					
Cat. no.	Qty.	28622.0	1				
Sheet-metal hole punch (refer to page 92)				BL KDS-KV M40			
Cat. no.	Qty.			28749.0	1		
Sheet-metal hole punch (refer to page 92)				BL KDS-KV M50			
Cat. no.	Qty.			28750.0	1		
Sheet-metal hole punch (refer to page 92)				BL KDS-KV M63			
Cat. no.	Qty.			28751.0	1		



- Material: polyamide PA 6.6, glass-fibre reinforced | Gasket: 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
KDS-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
KDS-DE 5-6 GR	28566.6	KDS-DE 5-6 BK	28525.4
KDS-DE 6-7 GR	28567.6	KDS-DE 6-7 BK	28526.4
KDS-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
KDS-DE 9-10 GR	28570.6	KDS-DE 9-10 BK	28529.4
KDS-DE 10-11 GR	28571.6	KDS-DE 10-11 BK	28530.4
KDS-DE 11-12 GR	28572.6	KDS-DE 11-12 BK	28531.4
KDS-DE 12-13 GR	28573.6	KDS-DE 12-13 BK	28532.4
KDS-DE 13-14 GR	28574.6	KDS-DE 13-14 BK	28533.4
KDS-DE 14-15 GR	28609.6	KDS-DE 14-15 BK	28608.4
KDS-DE 15-16 GR	28671.6	KDS-DE 15-16 BK	28670.4
KDS-DE 2 x 4-5 GR	28595.6	KDS-DE 2 x 4-5 BK	28555.4
KDS-DE 2 x 5-6 GR	28596.6	KDS-DE 2 x 5-6 BK	28556.4
KDS-DE 2 x 6.5 GR	28607.6	KDS-DE 2 x 6.5 BK	28682.4
KDS-DE 4 x 2-3 GR	28597.6	KDS-DE 4 x 2-3 BK	28557.4
KDS-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 4 x 6 GR	28762.6	KDS-DE 4 x 6 BK	28763.4
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
	<u> </u>		
Grey large		Black large	
Гуре	Cat. no.	Туре	Cat. no.
KDS-DEG/B GR	28575.6	KDS-DEG/B BK	28534.4
	28576.6		28535.4
KDS-DEG 14-15 GR		KDS-DEG 14-15 BK	
KDS-DEG 15-16 GR	28577.6	KDS-DEG 15-16 BK	28536.4
KDS-DEG 16-17 GR	28578.6	KDS-DEG 16-17 BK	28537.4
KDS-DEG 17-18 GR	28579.6	KDS-DEG 17-18 BK	28538.4
KDS-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
KDS-DEG 25-26 GR	28587.6	KDS-DEG 25-26 BK	28546.4
KDS-DEG 26-27 GR	28588.6	KDS-DEG 25-20 BK	28547.4
	28589.6	KDS-DEG 20-27 BK KDS-DEG 27-28 BK	
KDS-DEG 27-28 GR			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
KDS-DEG 33-34 GR	28731.6	KDS-DEG 33-34 BK	28730.4
KDS-DEG 34-35 GR	28733.6	KDS-DEG 34-35 BK	28732.4
Canal Canal			
	Min.	KDS-DES	
	Small seals	Туре	Cat. no.
		KDS-DES 2X10.5 GR	28800.6
		KDS-DES 3X9.5 GR	28801.6
- COL-		KDS-DES 3X8.5 GR	28802.6
		KDS-DES 4X7.5 GR	28803.6
ALA	Management		
OP O	• 1.	KDS-DES 7X6.5 GR	28804.6
900	Large seals		28804.6 28805.6
9391	Large seals	KDS-DES 7X6.5 GR KDS-DES 8X5.5 GR	28805.6
9391	Large seals	KDS-DES 7X6.5 GR KDS-DES 8X5.5 GR KDS-DES 8X4.5 GR	28805.6 28806.6
	Large seals	KDS-DES 7X6.5 GR KDS-DES 8X5.5 GR KDS-DES 8X4.5 GR KDS-DE-FB1/A GR	28805.6 28806.6 28713.6
	Large seals	KDS-DES 7X6.5 GR KDS-DES 8X5.5 GR KDS-DES 8X4.5 GR KDS-DE-FB1/A GR KDS-DE-FB1/B GR	28805.6 28806.6 28713.6 28714.6
		KDS-DES 7X6.5 GR KDS-DES 8X5.5 GR KDS-DES 8X4.5 GR KDS-DE-FB1/A GR KDS-DE-FB1/B GR KDS-DE-FB1/C GR	28805.6 28806.6 28713.6 28714.6 28715.6
	Large seals  DES seals	KDS-DES 7X6.5 GR KDS-DES 8X5.5 GR KDS-DES 8X4.5 GR KDS-DE-FB1/A GR KDS-DE-FB1/B GR KDS-DE-FB1/C GR KDS-DE-FB1/D GR	28805.6 28806.6 28713.6 28714.6 28715.6 28716.6
		KDS-DES 7X6.5 GR KDS-DES 8X5.5 GR KDS-DES 8X4.5 GR KDS-DE-FB1/A GR KDS-DE-FB1/B GR KDS-DE-FB1/C GR	28805.6 28806.6 28713.6 28714.6 28715.6

Round cable entries K	CDS-R				
KDC D MAG	KDS-R 20 – 32 KDS-R M25	KDC D M22	KDC P M 40	KDS-R 40 – 63	KDC DA463
KDS-R M20	KDS-R M25	KDS-R M32	KDS-R M40	KDS-R M50	KDS-R M63
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# KDS-KV Separable cable glands

All-round "cornered" solutions for your requirements! All-round "cornered" solutions for your requirements! For metric cut-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 electrical 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 attach-

ment. 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 cut-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 gasket 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 sealing elements allows them to be easily pressed in. This also reliably seals the gaps and provides 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 140 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

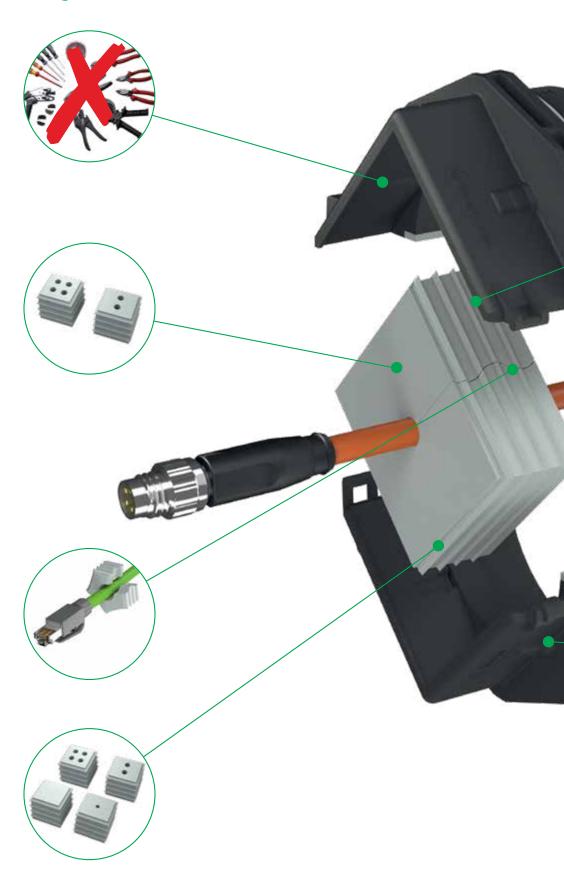
Up to 4 cables can be fed through using just one cable gland.

# 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, 3-way and 4-way seals and dummy plugs 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 _,	Ø 40	Ø 40
	SW 38 SW 28 M20x1.5	SW 38 SW 33 M25x1.5	SW 38 SW 40
Туре	KDS-KV M20 BK	KDS-KV M25 BK	KDS-KV M32 BK
	ry. 28610.4 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 CM 30 BK	KDS-GM 25 BK	KDS-GM 32 BK
	KDS-GM 20 BK cy. 28616.4 10		28618.4 10
Description	Separable locknut	Separable locknut	Separable locknut
Seals	Separable rocking	Separable lockilat	Separable lockilat
small	KDS-DE	KDS-DE	KDS-DE
Cat. no. Q	r <b>y</b> . Pages 56 – 59	Pages 56 – 59	Pages 56 – 59
Tightening torque of lock nut, in Nm	4	4	4
Combinations			
Accessories			
Sheet-metal hole punch (refer to page 92)	BL KDS-KV M20	BL KDS-KV M25	BL KDS-KV M32
Cat. no. Q	ry. 28746.0 1	28747.0	28748.0 1





- Material: polyamide PA 6.6, glass-fibre reinforced | Gasket: 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

Supported by:



on the basis of a decision by the German Bundestag

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.

#### Attaching the frame

Made from a single mould, the onepiece frame is quick and easy to assemble. It is made of sturdy, glassfibre 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 gasket

The moulded-in frame gasket eliminates the risk of incorrect assembly (forgotten gasket) 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 140 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	
		545 STATE					
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
<b>Seals</b> (refer to pages 56 – 57, or pages 52 – 53)	Qty.	20/00.4	10	20/01.4	10	20/02.4	10
KDS-DE						1 x	
KDS-DE-FB1		1 x				1 x	
KDS-DE-FB2		I X		1 x		IX	
KDS-DE-FB3				17			
KDS-DE-FB4							
Accessories							
Actuating tool (refer to page 86)		KDS BW 1		KDS BW 1		KDS BW 1	
Cat. no.	Qty.	28622.0	1	28622.0	1	28622.0	1
Sheet-metal hole punch (refer to page 92)	~,,	BL-VA KDS-FB1		BL-VA KDS-FB2		BL-VA KDS-FB2	
Cat. no.	Qty.	28729.0	1	28741.0	1	28741.0	1
Frame		KDS-SR-FB4/A		KDS-SR-FB4/B		KDS-SR-FB4/C	
Frame		KDS-SR-FB4/A		KDS-SR-FB4/B		KDS-SR-FB4/C	
Frame		KDS-SR-FB4/A		KDS-SR-FB4/B		KDS-SR-FB4/C	
Frame		KDS-SR-FB4/A		KDS-SR-FB4/B		KDS-SR-FB4/C	
Frame	1	KDS-SR-FB4/A		KDS-SR-FB4/B		KDS-SR-FB4/C	10
	)	KDS-SR-FB4/A	]*	KDS-SR-FB4/B	10	KDS-SR-FB4/C	Je.
	)	KDS-SR-FB4/A	10	KDS-SR-FB4/B	10	KDS-SR-FB4/C	Te
	)	KDS-SR-FB4/A	]°	KDS-SR-FB4/B	le l	KDS-SR-FB4/C	J.e
		KDS-SR-FB4/A Page 43	0	KDS-SR-FB4/B		KDS-SR-FB4/C	0
	)						0
Diagram	Qty.	Page 43	10	Page 43	10	Page 43 KDS-SR-FB4/C BK	10
Diagram Type / colour	Qty.	Page 43 KDS-SR-FB4/A BK	10	Page 43 KDS-SR-FB4/B BK	10	Page 43 KDS-SR-FB4/C BK	10
Diagram Type / colour Cat. no.	Qty.	Page 43 KDS-SR-FB4/A BK	10	Page 43 KDS-SR-FB4/B BK	10	Page 43 KDS-SR-FB4/C BK	10
Diagram  Type / colour  Cat. no.  Seals (refer to pages 56 – 57, or pages 52 – 53)	Qty.	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	10
Diagram  Type / colour  Cat. no.  Seals (refer to pages 56 – 57, or pages 52 – 53)  KDS-DE	Qty.	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	10
Diagram  Type / colour Cat. no. Seals (refer to pages 56 – 57, or pages 52 – 53) KDS-DE KDS-DE-FB1	Qty.	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	10
Diagram  Type / colour Cat. no. Seals (refer to pages 56 – 57, or pages 52 – 53) KDS-DE KDS-DE-FB1 KDS-DE-FB2	Qty.	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	10
Diagram  Type / colour  Cat. no.  Seals (refer to pages 56 – 57, or pages 52 – 53)  KDS-DE  KDS-DE-FB1  KDS-DE-FB2  KDS-DE-FB3  KDS-DE-FB4  Accessories	Qty.	Page 43  KDS-SR-FB4/A BK 28707.4	10	Page 43  KDS-SR-FB4/B BK 28708.4  2 x  1 x	10	Page 43  KDS-SR-FB4/C BK 28709.4  1 x 2 x	10
Diagram  Type / colour  Cat. no.  Seals (refer to pages 56 – 57, or pages 52 – 53)  KDS-DE  KDS-DE-FB1  KDS-DE-FB2  KDS-DE-FB3  KDS-DE-FB4  Accessories  Actuating tool (refer to page 86)		Page 43  KDS-SR-FB4/A BK 28707.4  1 x  KDS BW 1		Page 43  KDS-SR-FB4/B BK 28708.4  2 x  1 x		Page 43  KDS-SR-FB4/C BK 28709.4  1 x 2 x	
Diagram  Type / colour  Cat. no.  Seals (refer to pages 56 – 57, or pages 52 – 53)  KDS-DERB1  KDS-DE-FB2  KDS-DE-FB3  KDS-DE-FB4  Accessories  Actuating tool (refer to page 86)  Cat. no.	Qty.	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	Page 43  KDS-SR-FB4/C BK 28709.4  1 x 2 x  KDS BW 1 28622.0	10
Diagram  Type / colour  Cat. no.  Seals (refer to pages 56 – 57, or pages 52 – 53)  KDS-DE  KDS-DE-FB1  KDS-DE-FB2  KDS-DE-FB3  KDS-DE-FB4  Accessories  Actuating tool (refer to page 86)		Page 43  KDS-SR-FB4/A BK 28707.4  1 x  KDS BW 1	1	Page 43  KDS-SR-FB4/B BK 28708.4  2 x  1 x	1	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







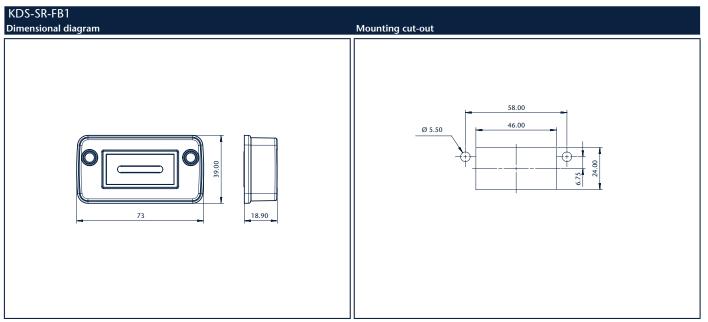


Made in Germany



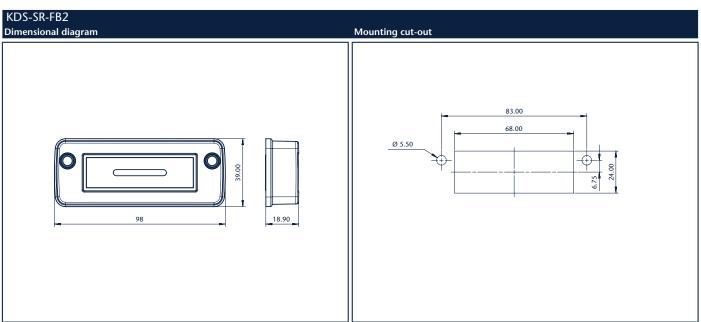
## KDS-FB

## Dimensional diagrams / Mounting cut-outs



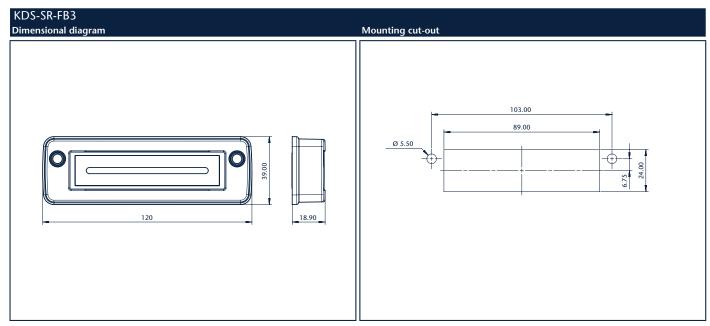
Torque for the frame's mounting screw: 3 Nm

Screw for usage: ISO 4762 / DIN 912



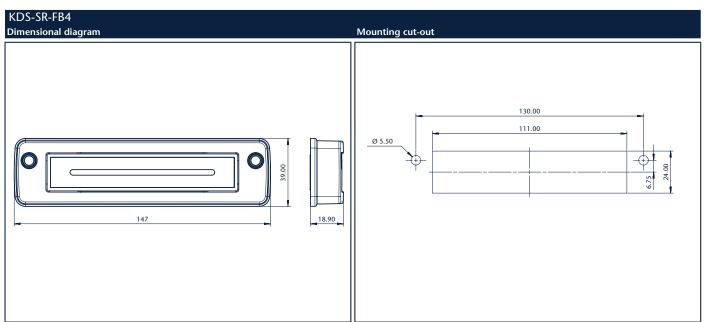
Torque for the frame's mounting screw: 3 Nm

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



#### 28740.6 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 28722.6		•			•	
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						

<sup>\*</sup> An overview of all seals with the external dimensions 20 x 20 can be found on pages 56 – 57.

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
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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
No.	KDS-DE 2-3 GR	28563.6	3 mm
14	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	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	15 mm
Coole	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
(An accessed	KDS-DEG 19-20 GR	28581.6	20 mm
	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 KDS-DEG 25-26 GR	28586.6 10 28587.6 10	25 mm 26 mm
	KDS-DEG 23-26 GR KDS-DEG 26-27 GR	28588.6 10	27 mm
	KDS-DEG 20-27 GR KDS-DEG 27-28 GR	28589.6 10	28 mm
2.78	KDS-DEG 27-28 GR KDS-DEG 28-29 GR	28590.6	29 mm
	KDS-DEG 29-30 GR	28591.6	30 mm
	KDS-DEG 30-31 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	35 mm
Seals	Grey multiple		
with multiple holes	- Date j - Martipic		
	KDS-DE 2x4-5 GR	28595.6 10	5 mm
N. 48-70 - 2 - 2	KDS-DE 2x5-6 GR	28596.6	6 mm
· · /	KDS-DE 2x6.5 GR	28607.6	6.5 mm
20 . /k 100mm	KDS-DE 2x7 GR	28690.6	
	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 4x4.5 GR KDS-DE 4x5 GR	28606.6 10 28673.6 10	4.5 mm 5 mm
	KDS-DE 4x5 GR KDS-DE 4x6 GR	28762.6 10	6 mm
Seals for AS interface cables	Grey		
To the interface cubics —	LEDE DE /1ASL CD	28500 (	
A A	KDS-DE/1xASI GR KDS-DE/2xASI GR	28599.6 10 28600.6 10	
S /k / 1000	NO 3-DE/ ZAASI GR	20000.0	
	_		





UL TYPE Rating 12







Made in Germany







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

<sup>\* 4</sup>x is for indoor use only

Seals	Black small			
30013		Cat. no.	Otv	Max. Ø
	Type KDS-DE/B BK	28520.4	Qty. 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	28524.4	10	5 mm
	KDS-DE 5-6 BK	28525.4	10	6 mm
	KDS-DE 6-7 BK KDS-DE 7-8 BK	28526.4 28527.4	10 10	7 mm 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
(Approximately)	KDS-DEG 19-20 BK	28540.4	10	20 mm
	KDS-DEG 20-21 BK	28541.4	10	21 mm
	KDS-DEG 21-22 BK	28542.4	10	22 mm
	KDS-DEG 22-23 BK KDS-DEG 23-24 BK	28543.4 28544.4	10 10	23 mm 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 multiple			
	KDS-DE 2x4-5 BK	28555.4	10	5 mm
	KDS-DE 2x5-6 BK	28556.4	10	
	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	10	4.5 mm
	KDS-DE 4x5 BK	28672.4 28763.4	10 10	5 mm 6 mm
Saala		20703.1	10	O TIMIT
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
<b>A</b>	KDS-DEG/K 7-24 BK	28554.4	10	24 mm





I

UL TYPE Rating 12







Made in Germany



**DNV-GL** Approved Products



#### **Features**

- Material: TPE
- Flammability: UL 94 HB
- Temperature range: -40 °C to +120 °C (static)
- Halogen-free, silicone-free
- High chemical resistance
- UV-stabilized
- Protection: IP66

\* 4x is for indoor use only

## **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 60 – 61).

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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# Combination options for the modular KDSClick system

#### **KDSI-SR frames**



4-piece frame KDSI-SR 1-4 BK 28880.4



6-piece frame KDSI-SR 6/10 BK 28881.4



8-piece frame KDSI-SR 8/16 BK 28882.4



10-piece frame KDSI-SR 10/24 BK 28883.4

#### **KDS-SR frames** ●



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



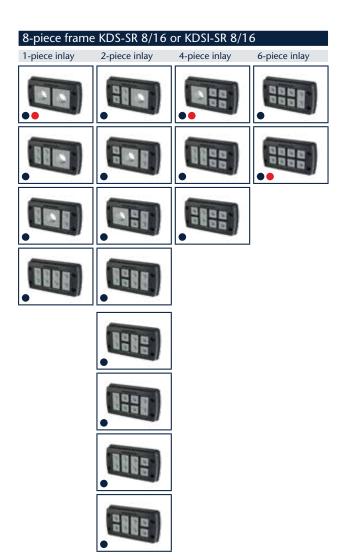
KDS-Inlay 2 BK 28517.4



KDS-Inlay 4 BK 28518.4



KDS-Inlay 6 BK 28519.4





# KES Cable entries

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** 

UL TYPE Rating 12 UL TYPE\* Rating **4x** 



RoHS compliant

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# KES Cable entries

### 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, 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** 

UL TYPE Rating 12 UL TYPE\*
Rating
4x

**EC©LAB**° certified



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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.



# KES Cable entries

Cable entries		KES 13/24		KES 14/24		KES 16/24	
		91019		. 13:5:52		, to the same	
Diagram		Page 60		Page 60		Page 60	
Mounting type							
Screw-on mount	9						
Type / colour		KES 13/24 GR ●		KES 14/24 GR ●		KES 16/24 GR ●	
Cat. no.	Qty.	28630.6	10	28631.6	10	28632.6	10
Type / colour		KES 13/24 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.	•						
Type / colour		KES-GB 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	Qty.	KES-GB 13/24 BK ●	10	KES-GB 14/24 BK ●	10	KES-GB 16/24 BK ●	10
Cat. no.	Qty.	28640.4	10	28641.4	10	28642.4	10
Mounting type	Qty.	20010.1		20071.7		20012.1	
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.		10	28651.6	10	28652.6	10
Type / colour	1	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)		10 x 3.2 – 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 1 x 8 – 12.5 3 x 12 – 16.2		2 x 9.5 – 14.5	
Features				10.2			
Material of frame / sealing plate		PA 6.6 GF / elastomer		PA 6.6 GF / elastomer		PA 6.6 GF / elastomer	
Temperature range		-40 °C to +90 °C		-40 °C to +90 °C		-40 °C to +90 °C	
Protection		IP66 (with snap-in mount	t: IP54)	IP66 (with snap-in mount:	IP54)	IP66 (with snap-in moun	nt: IP54)
Flammability class		UL 94 V-0		UL 94 V-0		UL 94 V-0	
Accessories							
Sheet-metal hole punch (refer to page 92)		BL KES		BL KES		BL KES	
Cat. no.	Qty.	28744.0	1	28744.0	1	28744.0	1



**IP66** 

UL TYPE Rating 12

UL TYPE\* Rating **4x** 



RoHS compliant

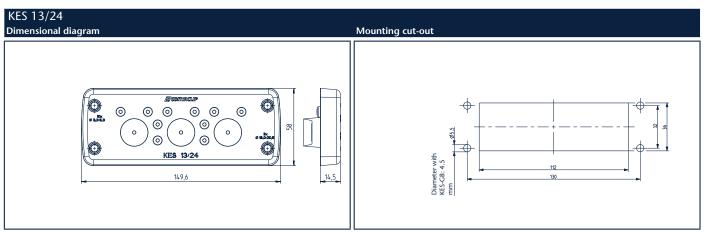
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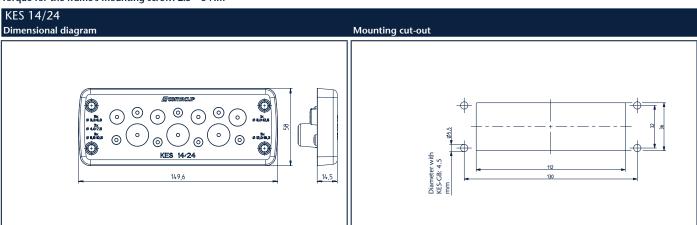
KES 16-1/24		KES 17/24		KES 20/24		KES 21/24		KES 32/24	
THE SEAL OF				· Moster ·		· STANSES .	W. C. C.	ARRESTO.	
Page 60		Page 61		Page 61		Page 61		Page 61	
KES 16-1/24 GR		KES 17/24 GR ●		KES 20/24 GR		KES 21/24 GR ●		KES 32/24 GR ●	
28633.6	10	28634.6	10	28635.6	10	28636.6	10	28637.6	10
KES 16-1/24 BK ●		KES 17/24 BK ●		KES 20/24 BK ●	4.0	KES 21/24 BK ●		KES 32/24 BK ●	4.0
28633.4	10	28634.4	10	28635.4	10	28636.4	10	28637.4	10
KES-GB 16-1/24 GR ● 28643.6 KES-GB 16-1/24 BK ● 28643.4		KES-GB 17/24 GR ● 28644.6 KES-GB 17/24 BK ● 28644.4		KES-GB 20/24 GR ● 28645.6 KES-GB 20/24 BK ● 28645.4		KES-GB 21/24 BK ●		KES-GB 32/24 GR	10
KES-R 16-1/24 GR	10	KES-R 17/24 GR ● 28654.6 KES-R 17/24 BK ●	10	KES-R 20/24 GR    28655.6 KES-R 20/24 BK    ■	10	KES-R 21/24 GR	10	KES-R 32/24 GR	10
28653.4	10	28654.4	10	28655.4	10	28656.4	10	28657.4	10
2 4 2 2 6 2		4 v 2 2 6 2		12 2 2 6 2		1 , 2 2 6 2		22 4 2 2 6 2	
2 x 3.2 – 6.3 9 x 4 – 7.5		4 x 3.2 – 6.3 2 x 4 – 7.5		12 x 3.2 – 6.3 8 x 5.5 – 10.5		1 x 3.2 – 6.3 14 x 4 – 7.5		32 x 3.2 – 6.3	
1 x 5.5 – 10.5		1 x 5.5 – 10.5		0 X 3.3 - 10.3		4 x 5.5 – 10.5			
1 x 8 – 12.5		10 x 8 – 12.5				2 x 8 – 12.5			
3 x 12 – 16.2									
PA 6.6 GF / elastomer -40 °C to +90 °C IP66 (with snap-in mount: I UL 94 V-0	P54)	PA 6.6 GF / elastomer -40 °C to +90 °C IP66 (with snap-in mount: II UL 94 V-0	P54)	PA 6.6 GF / elastomer -40 °C to +90 °C IP66 (with snap-in mount: UL 94 V-0	IP54)	PA 6.6 GF / elastomer -40 °C to +90 °C IP66 (with snap-in mount: IP5 UL 94 V-0	54)	PA 6.6 GF / elastomer -40 °C to +90 °C IP66 (with snap-in mount: UL 94 V-0	IP54)
BL KES		BL KES		BL KES		BL KES		BL KES	
28744.0	1	28744.0	1	28744.0	1	28744.0	1	28744.0	1

## **KES**

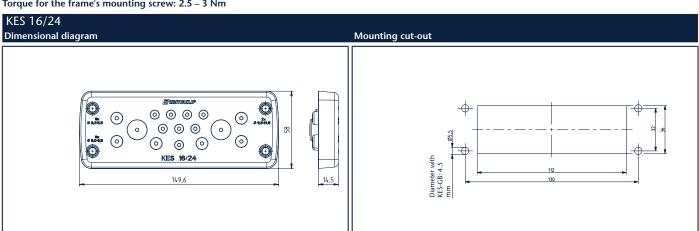
### Dimensional diagrams / Mounting cut-out for cable entries



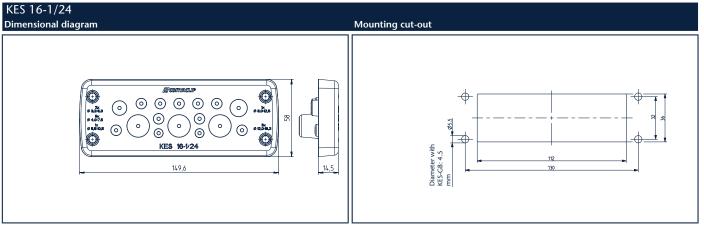
Torque for the frame's mounting screw: 2.5 – 3 Nm



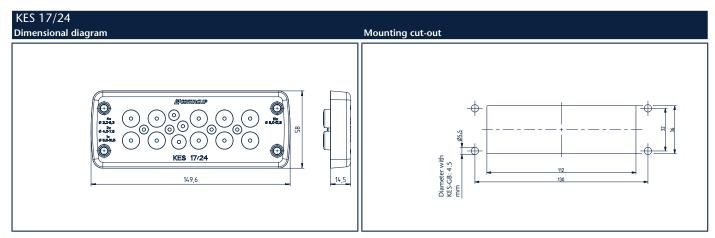
Torque for the frame's mounting screw: 2.5 – 3 Nm



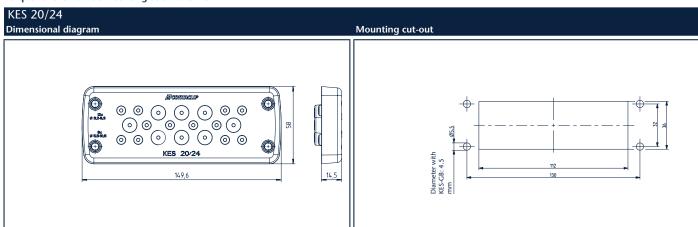
Torque for the frame's mounting screw: 2.5 – 3 Nm



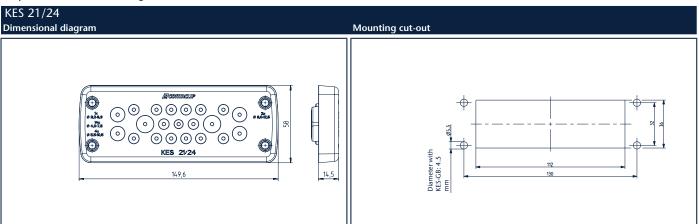
Torque for the frame's mounting screw: 2.5 - 3 Nm



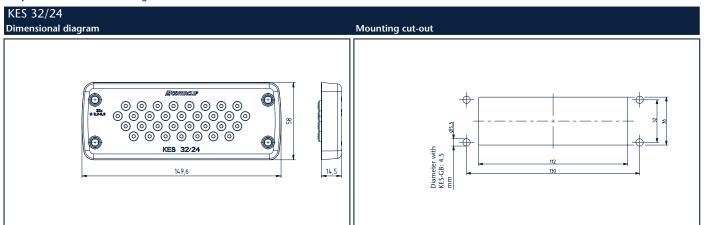
Torque for the frame's mounting screw: 2.5 - 3 Nm



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



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

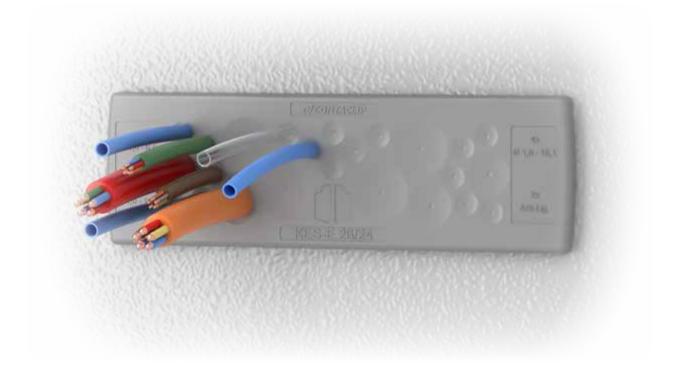


Torque for the frame's mounting screw: 2.5 – 3 Nm

# KES-E Cable entries

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** 









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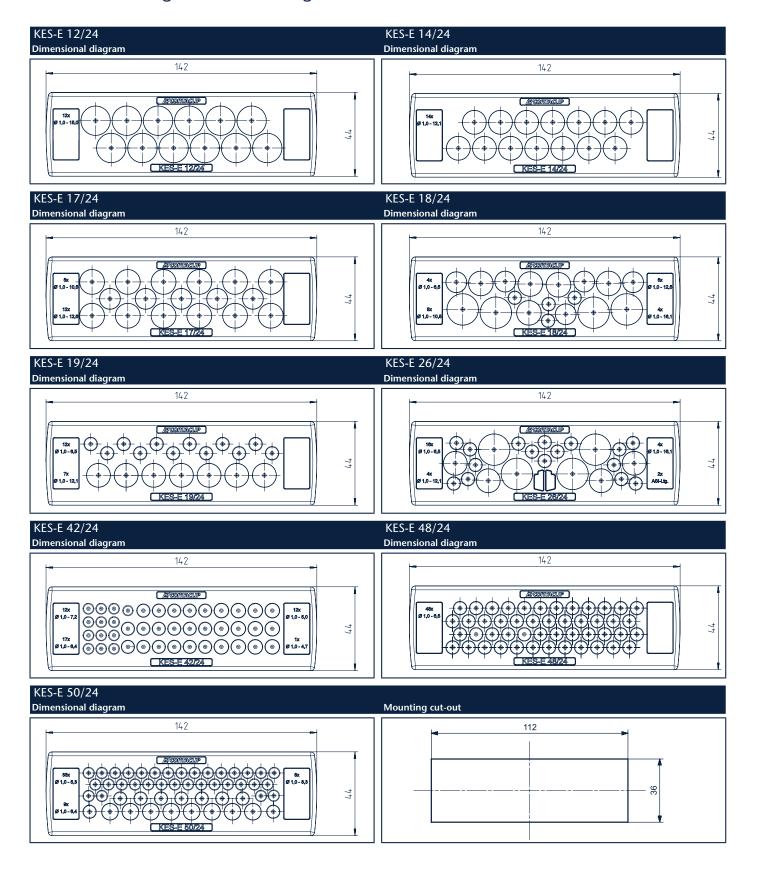


# KES-E Cable entries

Cilliandia		VEC E 12/24		KEC E 14/24	VEC E 17/24
Cable entries		KES-E 12/24		KES-E 14/24	KES-E 17/24
				THE RESERVE OF	THE RESERVE OF THE PARTY OF THE
		Manage and a	ш	PERCHANISM !	
			_		
Туре		KES-E 12/24 A GR ●		KES-E 14/24 A GR	KES-E 17/24 A GR ●
Cat. no.	Qty.	28810.6	10		0 28812.6
For wall thickness  Type		1.5 – 2.5 <b>KES-E 12/24 B GR</b> ●		1.5 – 2.5 KES-E 14/24 B GR ●	1.5 – 2.5 <b>KES-E 17/24 B GR</b> ●
Cat. no.	Qty.	28840.6	10		0 28842.6 10
For wall thickness		2.5-4.0		2.5-4.0	2.5 – 4.0
Connection data		1210. 15.0		1410. 12.1	5 1 0 . 10 5
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 12 x 1.0 – 12.6
Features					12.71.0 12.0
Protection		IP54		IP54	IP54
Cable entries		VEC E 10/24		VFC F 10/24	VEC E 26/24
Cable entries		KES-E 18/24		KES-E 19/24	KES-E 26/24
		PRINCIPLE -	iii	Trans - 18 1 - 3	TO SECURITION
		Market Land	1		Market St. Committee Commi
		And the second second			Tales
			-		
Туре		KES-E 18/24 A GR ●		KES-E 19/24 A GR	KES-E 26/24 A GR ●
Cat. no.	Qty.		10		0 28815.6 10
For wall thickness  Type		1.5 – 2.5 KES-E 18/24 B GR ●		1.5 – 2.5 <b>KES-E 19/24 B GR</b> ●	1.5 – 2.5 KES-E 26/24 B GR ●
Cat. no.	Qty.		10		0 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		12 x 1.0 – 6.5	16 x 1.0 – 6.5
Number of Cables x Cable diameter (mm)		5 x 1.0 – 0.5		7 x 1.0 – 12.1	4x1.0-0.3
		5 x 1.0 – 12.5		7 X 1.0 12.1	4×1.0-16.1
		4 x 1.0 – 16.1			2 x ASI
Features		IDC 4		IDC 4	105.4
Protection		IP54		IP54	IP54
Cable entries		KES-E 42/24		KES-E 48/24	KES-E 50/24
		1125 2 12/2 1		1120 2 10/2 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
			_		
		RESERVED TO THE RESERVED TO TH		- CONTRACTOR OF THE	
		CONTRACTOR OF SECUL		100000000000000000000000000000000000000	AND
			3		
Туре		KES-E 42/24 A GR ●		KES-E 48/24 A GR ●	KES-E 50/24 A GR ●
Cat. no.	Qty.		10		0 28818.6 10
For wall thickness		1.5-2.5		1.5-2.5	1.5-2.5
Type Cat. no.	04	KES-E 42/24 B GR	10	KES-E 48/24 B GR • 1	KES-E 50/24 B GR ● 0 28848.6 10
Cat. no. For wall thickness	Qty.	28846.6 2.5 – 4.0	10	28847.6 <b>1</b> 2.5–4.0	<b>0</b> 28848.6 <b>10</b> 2.5 – 4.0
Connection data					
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			9 x 1.0 – 6.4
		12 x 1.0 – 5.0 1 x 1.0 – 4.7			8 x 1.0 – 8.3
Features					
Protection		IP54		IP54	IP54

# **KES-E**

#### Dimensional diagrams / Mounting cut-out for cable entries









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# 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



#### **Features**

- 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-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













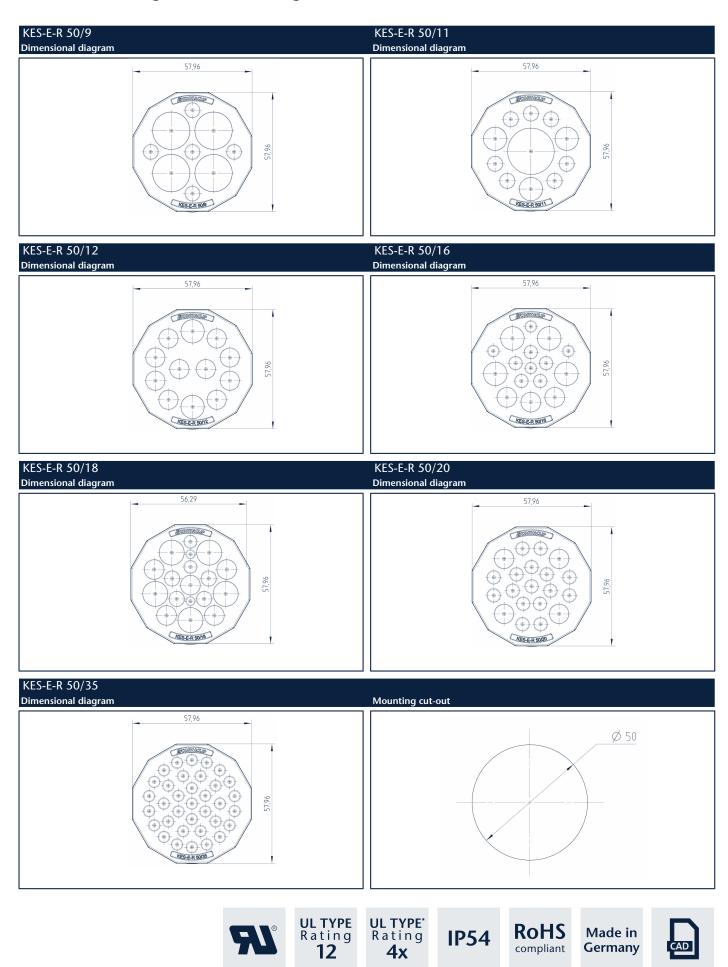


# KES-E-R Round cable entries

Round cable entries		KES-E-R 50/9	KES-E-R 50/11	KES-E-R 50/12
Round Cable entries	_	KE3-E-R 30/9	KES-E-R SU/TT	KES-E-R 30/12
Туре		KES-E-R 50/9 A GR ●	KES-E-R 50/11 A GR ●	KES-E-R 50/12 A GR ●
	ty.	•		28831.6
For wall thickness		1.5 – 2.5	1.5-2.5	1.5 – 2.5
Type	14.,	KES-E-R 50/9 B GR ●	KES-E-R 50/11 B GR ●	<b>KES-E-R 50/12 B GR ●</b> 28861.6 <b>10</b>
Cat. no. Qt For wall thickness	ety.	28859.6 <b>10</b> 2.5 – 4.0	28860.6 2.5-4.0	2.5-4.0
Connection data		2.3 1.0	2.3	2.3
Number of cables x cable diameter (mm)		5 x 1.0-7.0	7x 1.0 – 7.2	10 x 1.0 – 9.2
		4 x 1.0 – 18.0	3 x 1.0 – 11.2	2 x 1.0 – 11.2
Features			1 x 1.0 – 22.5	
Protection		IP54	IP54	IP54
Round cable entries		KES-E-R 50/16	KES-E-R 50/18	KES-E-R 50/20
		.000		0000
Туре		KES-E-R 50/16 A GR ●	KES-E-R 50/18 A GR ●	KES-E-R 50/20 A GR ●
Cat. no. Qt For wall thickness	ty.	28832.6 <b>10</b> 1.5 – 2.5	28833.6 <b>10</b> 1.5–2.5	28834.6 1.5-2.5
Type		KES-E-R 50/16 B GR	KES-E-R 50/18 B GR ●	KES-E-R 50/20 B GR ●
	ty.			28864.6
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 – 5.3	2 x 1.0-4.0	16 x 1.0 – 6.3
Number of Cables & Cable diameter (mm)		5 x 1.0-6.3	2 x 1.0-4.0 2 x 1.0-6.0	4 x 1.0 – 9.3
		3 x 1.0-9.5	4 x 1.0 – 7.2	
		4 x 1.0 – 11.3	5 x 1.0 – 9.4	
Features			5 x 1.0 – 12.0	
Protection		IP54	IP54	IP54
Round cable entries		KES-E-R 50/35		
Туре		KES-E-R 50/35 A GR ●		
Cat. no. Qt	ty.	28835.6 10		
For wall thickness		1.5 – 2.5		
Type Cat. no. Qt	)tv	<b>KES-E-R 50/35 B GR</b>		
For wall thickness	cry.	2.5-4.0		
Connection data				
Number of cables x cable diameter (mm)		35 x 1.0 – 5.2		
Features Protection		IP54		

# KES-E-R

## Dimensional diagrams / Mounting cut-out for cable entries



# KES-GB-FDA Cable entries for food industry applications

In the food industry, there are strict hygiene regulations which require that all surfaces in the immediate vicinity of the process can be cleaned easily, thoroughly and without abrasion.

Of course, these cover the cable entries and cable glands that seal the passages of cables and hoses into the interior of machine housings or switchgear. These must not have any rough surfaces, crevices or cracks that could promote germ build-up. The housing materials and sealing systems must also be able to withstand frequent cleaning processes, even when aggressive chemicals are used.

The cable entry plates from our **KES-GB-FDA** series meet the requirements for use in food production applications. They enable the reliable sealing of up to 32 cables in a very confined space.







- Can be screwed/snapped on
- Very high stability (core: PA 6.6 GF)
- Outstanding strain relief (cone grommet)
- Very simple assembly (with marked centering point)
- High-density assemblies
- double seal/tightness: IP66
- Hygienic design: no dirt-prone niches
- Large assortment (8 varieties)
- UL-listed plastic materials
- UL 94 HB
- FDA-compliant material

#### Two components

The **KES-GB-FDA** 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. The **KES-GB-FDA** system uses threaded bushes and snap-in hooks from the inside as the attachment mechanism. The corresponding membrane must be pierced (center point is marked) to insert the cables.



#### **FDA-compliant material**

The FDA-compliant TPE material meets the requirements of the Food Industry Regulations 1935/2004/EC and (EU) 10/2011, as well as the requirements from the US Food and Drug Administration (FDA).

FDA compliant means that a material meets all FDA guidelines determining the safe and direct contact with food.







Made in Germany



# KES-GB-FDA Cable entries for food industry applications

#### 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

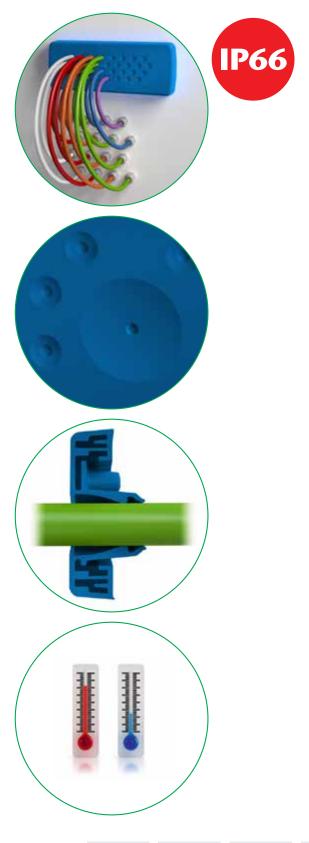
The piercing points are clearly marked so that cables and hoses can be centred precisely.

#### Integrated strain relief

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

# Can be used from -40 °C to +80 °C

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







Made in Germany



#### Simple installation

Screw-on mount with threaded bushes and latching clips





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

# KES-GB-FDA Cable entries for food industry applications

Cable entries	KES-GB-FDA 13/24	KES-GB-FDA 14/24	KES-GB-FDA 16/24
		WHYE!	
Diagram	Page 84	Page 84	Page 84
Mounting type			
Screw fastening with pressed- in threaded bush and snap-in latching clips.			
Type / colour	KES-GB-FDA 13/24 BU	KES-GB-FDA 14/24 BU	KES-GB-FDA 16/24 BU
Cat. no.	ety. 28900.5 10	28901.5 <b>10</b>	28902.5 <b>10</b>
Connection data			
Number of cables x cable diameter (mm)	10 x 3.2 – 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			
Material of frame / sealing plate	PA 6.6 GF / elastomer	PA 6.6 GF / elastomer	PA 6.6 GF / elastomer
Temperature range	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C
Protection	IP66	IP66	IP66
Flammability class	UL 94 HB	UL 94 HB	UL 94 HB
Accessories			
Sheet-metal hole punch (refer to page 92)	BL KES	BL KES	BL KES
Cat. no.	ty. 28744.0 1	28744.0 1	28744.0 1



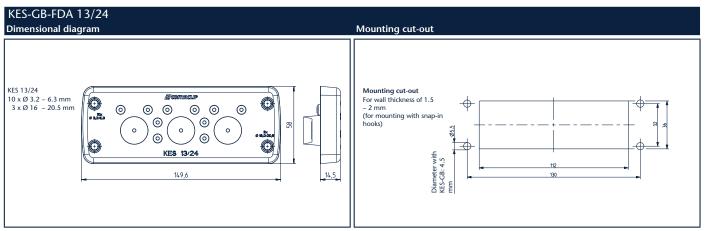




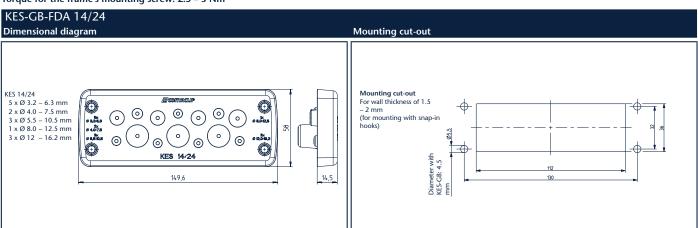
KES-GB-FDA 16-1/24	KES-GB-FDA 17/24	KES-GB-FDA 20/24	KES-GB-FDA 21/24	KES-GB-FDA 32/24
	DENESS.	WEST.	SHAWAS .	10000
Page 84	Page 85	Page 85	Page 85	Page 85
KES-GB-FDA 16-1/24 BU	KES-GB-FDA 17/24 BU	KES-GB-FDA 20/24 BU	KES-GB-FDA 21/24 BU	KES-GB-FDA 32/24 BU
28903.5	28904.5	28905.5	28906.5	28907.5
2 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 5.5 – 10.5		4 x 5.5 – 10.5	
1 x 8 – 12.5	10 x 8 – 12.5		2 x 8 – 12.5	
3 x 12 – 16.2				
PA 6.6 GF / elastomer				
-40 °C to +80 °C				
IP66	IP66	IP66	IP66	IP66
UL 94 HB				
BL KES				
28744.0	28744.0	28744.0	28744.0	28744.0

## **KES-GB-FDA**

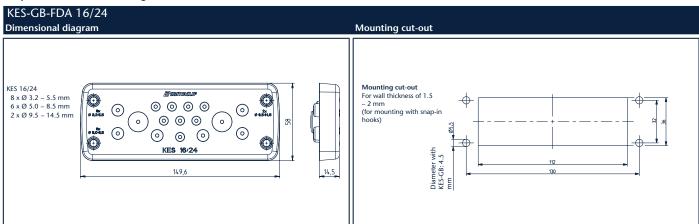
#### Dimensional diagrams / Mounting cut-out for cable entries



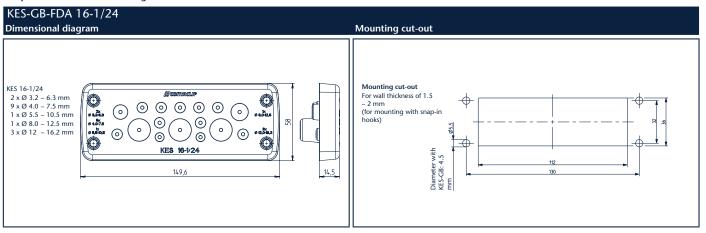
Torque for the frame's mounting screw: 2.5 - 3 Nm



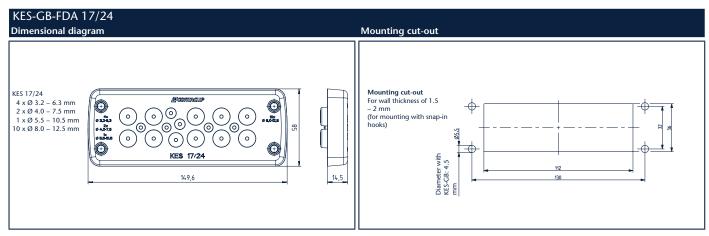
Torque for the frame's mounting screw: 2.5 - 3 Nm



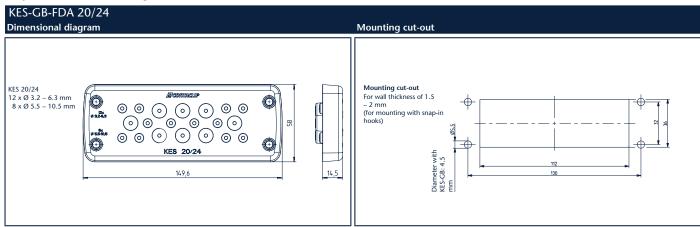
Torque for the frame's mounting screw: 2.5 – 3 Nm



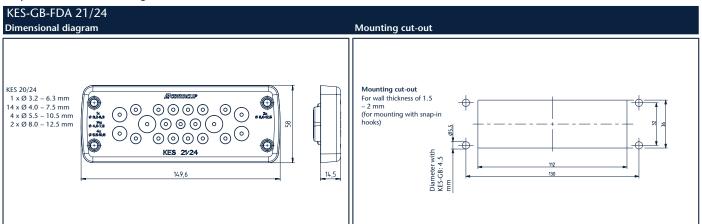
Torque for the frame's mounting screw: 2.5 - 3 Nm



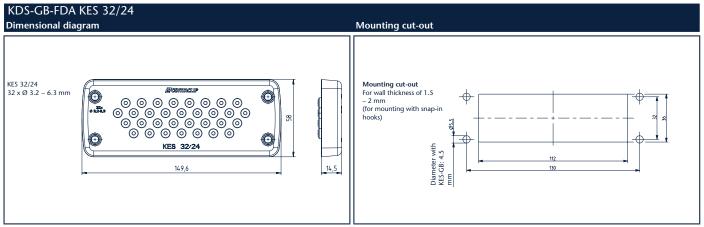
Torque for the frame's mounting screw: 2.5 - 3 Nm



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



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



# 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



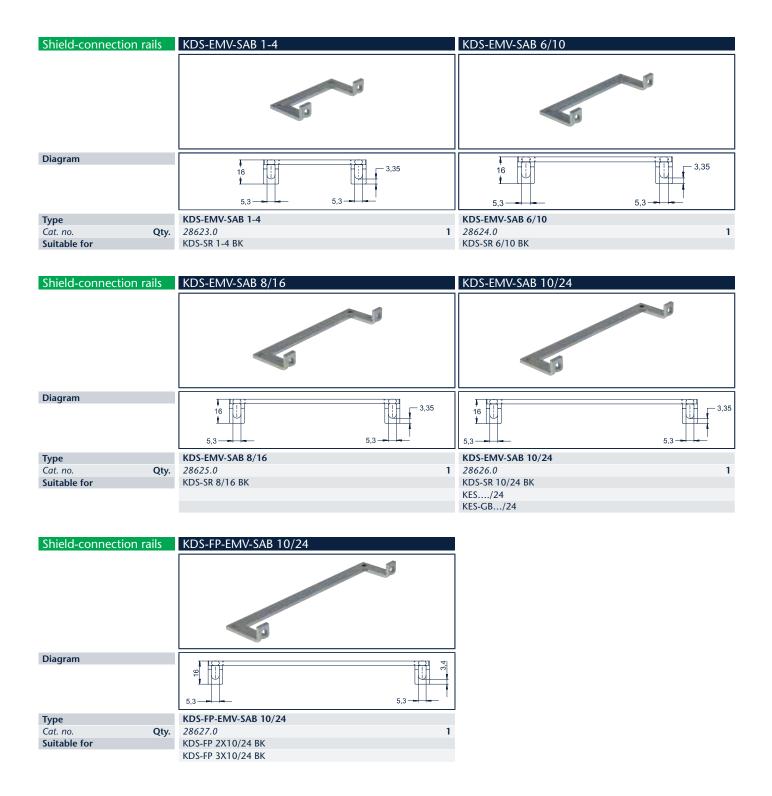


KDSClick assortment box	
28764.0	1
20 small dummy elements KDS-DE/B	
220 small seals KDS-DE 2-14 mm	
100 small multiple seals KDS-DE 4-6.5 mm	
5 large dummy elements KDS-DEG/B	
20 large seals KDS-DEG 14-21 mm	
7 universal cone seals KDS-DE/K 2-24 mm	
37 x inlay 1 to inlay 6	
1 actuating tool KDS BW 1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

The **KDS-EMV-SAB** shield-connection rails are fastened on the inside of the electrical 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.

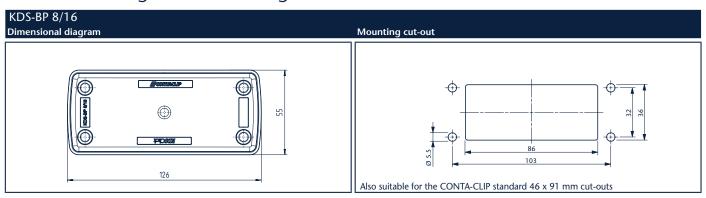


# **KDS-BP** blanking plates

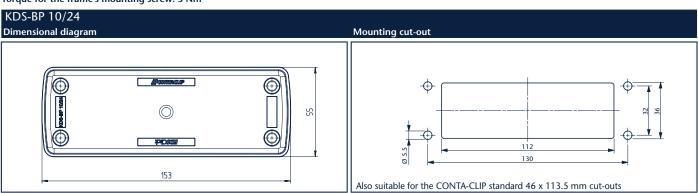


## KDS-BP

#### Dimensional diagrams / Mounting cut-out for cable entries



Torque for the frame's mounting screw: 3 Nm



Torque for the frame's mounting screw: 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. Qt	. 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> <b>10</b>	0	
seals or in already pierced <b>KES</b> cable entries. The geometry of the head prevents splashed water or dust from penetrating from the outside. Thus, protection class IP66 is ensured.				
mas, protection class it oo is cristica.				
Seal plugs				
	KDS/KES-VS 2 WH	28781.7 <b>2</b>	5 2	5
	KDS/KES-VS 3 WH	28782.7 <b>2</b>	5 3	6
. Ø A .	KDS/KES-VS 4 WH	28783.7 <b>2</b>		7
<del></del>	KDS/KES-VS 5 WH	28784.7 <b>2</b>	5 5	8
	KDS/KES-VS 6 WH	28785.7 <b>2</b>	5 6	9
	KDS/KES-VS 7 WH	28786.7 <b>2</b>		10
	KDS/KES-VS 8 WH		5 8	11
	KDS/KES-VS 9 WH	28788.7 <b>2</b>		12
	KDS/KES-VS 10 WH	28789.7 <b>2</b>		13
	KDS/KES-VS 11 WH	28790.7 <b>2</b>		14
	KDS/KES-VS 12 WH	28791.7 <b>2</b>		15
	KDS/KES-VS 13 WH	28792.7 <b>2</b>		16
	KDS/KES-VS 14 WH	28793.7 <b>2</b>		17
	KDS/KES-VS 15 WH	28794.7 <b>2</b>		18
	KDS/KES-VS 16 WH	28795.7 <b>2</b>		19
	KDS/KES-VS 17 WH	28796.7 <b>2</b>		20
	KDS/KES-VS 22 WH	28797.7 <b>2</b>	5 22	25
Seal plugs				
Seal plugs AS interface cables				
	KDC VC ACI/O WILL	20700 7	5 461	
11,9	KDS-VS ASI/2 WH	28798.7 2	5 ASI	
17.				
<del>       </del>				





#### **Features**

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

# **Punching tools**

The hydraulic hand pump, when used together with our hole punch, is perfectly suited for quickly producing precise chip-free cut-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 cut-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 sheet-metal hole punch for the cable entry systems **KDS-SR**, **KDSI-SR**, **KDS-FP**, **KDS-FB**, **KDS-R/KDS-KV** and for the cable entry system **KES**. Using the sheet-metal punches, your desired cut-outs can be made in a few minutes without any chips or splintering. The built-in punch-hole marking tip can be used to punchmark 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 Hyd	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.	Qty.	28674.0 <b>1</b>	1 2	28675.0	1	28676.0	1
Maximum wall thickness		2.0 mm with \$ 235 sheet metal	al 2	2.0 mm with \$ 235 sheet meta	al	2.0 mm with S 235 sheet m	netal
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, loc nut, plastic case	ck-

VA 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
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		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 KES	BL KDS-FP2	BL KDS-KV M20
Туре	BL KES	BL KDS-FP2	BL KDS-KV M20
Cat. no. Qt	y. 28744.0 1	28745.0 <b>1</b>	28746.0
Maximum wall thickness	2.0 mm with S 235 sheet metal	2.0 mm with \$ 235 sheet metal	2.0 mm with 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

VA 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	28734.0	28735.0	28736.0	<i>28737.0</i> <b>1</b>
2.0 mm with S 235 sheet metal	2.0 mm with \$ 235 sheet metal	2.0 mm with \$ 235 sheet metal	2.0 mm with \$ 235 sheet metal	2.0 mm with S 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	28729.0	28741.0 <b>1</b>	28742.0 <b>1</b>	28743.0 <b>1</b>
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				

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	28748.0	28749.0	28750.0	28751.0
2.0 mm with S 235 sheet metal	2.0 mm with \$ 235 sheet metal	2.0 mm with \$ 235 sheet metal	2.0 mm with S 235 sheet metal	2.0 mm with \$ 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 M3.	2	BL-VA KDS-KV M40	)	BL-VA KDS-KV M50		BL-VA KDS-KV M63	
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	
28755.0	1	28756.0		<b>1</b> 28757.0	1	28758.0	1	28759.0	1
2.0 mm with stainless steel sheet		2.0, with stainless steel	sheet	2.0, with stainless steel s	sheet	2.0, with stainless steel shee	et	2.0 mm with stainless steel sheet	
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 103



SABKM.../D Page 102

#### **C-rail mounting**



SAB.../GWP Page 107

#### **Busbar mounting**



SABKM.../SSCH/Z Page 104



SABKMD.../SSCH/Z Page 104



SAB Page 105



SSAB Page 106

#### Mounting on the DIN rail



SAB.../F Page 109



SAB .../MF Page 110



SABKM.../MF/35/Z Page 108

# 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 **SABKM**. 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 installation

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 30 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 mm to 30 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



 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	
With strain relief	
MF/D M4/Z	
17977.0	10
Steel	



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

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

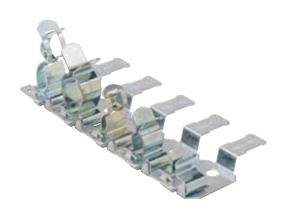
The **RMF/D/Z M4** row-mounted foot for direct mounting serves as a universal carrier for up to 12 shield-connection clips with clamping diameters from 1.5 mm to 30 mm. The row-mounted foot can be shortened to the desired length by breaking it at one of its breakage points. Either screws or rivets can be used to secure it in position.

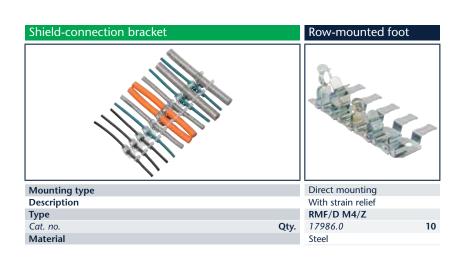


## Your advantages

- 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 mm to 30 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 installation

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 30 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 mm to 30 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 installation

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 30 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 mm to 30 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



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	



Mounting on the DIN rail	
With strain relief	
MF-SABK/35/Z	
17978.0	10
Steel	



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

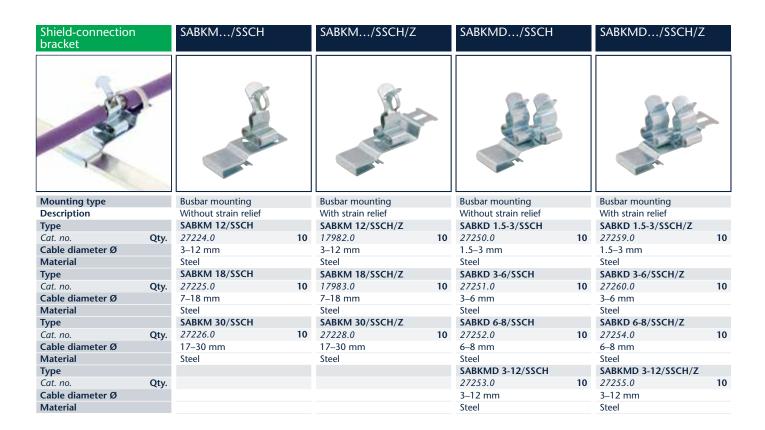


# SABKM.../SSCH M4 Multi shield-connection clip on mounting foot for mounting to busbars

The Multi shield-connection clip on the mounting foot **SABKM.../SSCH M4** can be snapped onto a 10 x 3 mm 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.



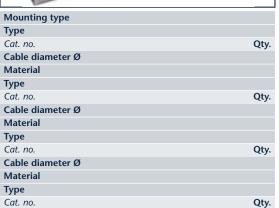
## Your advantages

- 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

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 mounting to DIN rail

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	

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	Mounting on the DIN rail	
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 SABK 12/MF/35/Z 17980.0 10 3–12 mm SABKM 18/MF/35/Z 17981.0 10	With strain relief	
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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	6–8 mm	
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	SABK 11/MF/35/Z	
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17980.0 10 3–12 mm SABKM 18/MF/35/Z 17981.0 10	17-30 mm	
3–12 mm <b>SABKM 18/MF/35/Z</b> <i>17981.0</i> <b>10</b>	SABKM 12/MF/35/Z	
SABKM 18/MF/35/Z 17981.0 10	17980.0	10
17981.0 10	3–12 mm	
	SABKM 18/MF/35/Z	
7–18 mm	17981.0	10
	7–18 mm	

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

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

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 mounting to DIN rail

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.

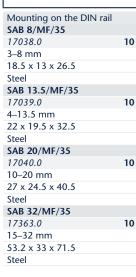


- Simple tool-free installation
- Different cable cross-sections can be accommodated by the elastic nature of the spring
- Easy to work with
- /S version can be rotated and fixed in position using the fastening screw











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/35/S	
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 10 x 3 mm 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 10 x 3 mm 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 10 x 3 mm 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

B	Туре	Cat. no.	Page	Туре	Cat. no.	Page	Туре	Cat. no.	Page
BL KDS-FIRT								28543.4	
BLKD5-FR2	В			KDS-DE 2x6.5 GR	28607.6	56	KDS-DEG 22-23 GR	28584.6	56
BE NOS-IRB	BL KDS-FB1	28734.0	93	KDS-DE 2x7 BK	28689.4	57	KDS-DEG 23-24 BK	28544.4	57
18. NDS-FIH4	BL KDS-FB2	28735.0	93	KDS-DE 2x7 GR	28690.6	56	KDS-DEG 23-24 GR	28585.6	56
IR. KDS-FP7	BL KDS-FB3	28736.0	93	KDS-DE 2x8 BK	28691.4	57	KDS-DEG 24-25 BK	28545.4	57
BR KDS-SYM M22	BL KDS-FB4	28737.0	93	KDS-DE 2x8 GR	28692.6	56	KDS-DEG 24-25 GR	28586.6	56
BR. KDS-RV M25  BR. KDS-RV M25  BR. KDS-RV M25  BR. KDS-RV M26  BR. KDS-RV M36  BR. KDS-RV M36	BL KDS-FP 2	28745.0	92	KDS-DE 3 BK	28697.4	57	KDS-DEG 25-26 BK	28546.4	57
BL KDS-KV M32	BL KDS-KV M20	28746.0	92	KDS-DE 3 GR	28698.6	56	KDS-DEG 25-26 GR	28587.6	56
BLKDS-KV MMO	BL KDS-KV M25	28747.0	93	KDS-DE 3-4 BK	28523.4	57	KDS-DEG 26-27 BK	28547.4	57
BLKDS-KV M50	BL KDS-KV M32	28748.0	93	KDS-DE 3-4 GR	28564.6	56	KDS-DEG 26-27 GR	28588.6	56
BK NDS-NK MM3	BL KDS-KV M40	28749.0	93	KDS-DE 3x5-6 BK	28687.4	57	KDS-DEG 27-28 BK	28548.4	57
BLKDS-SR 11-4	BL KDS-KV M50	28750.0	93	KDS-DE 3x5-6 GR	28688.6	56	KDS-DEG 27-28 GR	28589.6	56
BR KDS-SR 10/24	BL KDS-KV M63	28751.0	93	KDS-DE 4-5 BK	28524.4	57	KDS-DEG 28-29 BK	28549.4	57
BLKDS-SR 6/10	BL KDS-SR 1-4	28674.0	92	KDS-DE 4-5 GR	28565.6	56	KDS-DEG 28-29 GR	28590.6	56
BL KUSS STR B/16	BL KDS-SR 10/24	28677.0	93	KDS-DE 4X2-3 BK	28557.4	57	KDS-DEG 29-30 BK	28550.4	57
BLKES   287440   92   NDS-DE 434-5 RK   28898.6   56   NDS-DEC 30-32 RK   28552.4   57   BLSFT MECHANGS   287660   92   NDS-DE 434-5 RK   28606.6   56   NDS-DEC 31-32 BK   28552.4   57   BLSFT MECHANGS   28729.0   93   NDS-DE 434-5 RK   28607.4   57   NDS-DEC 31-32 BK   28552.4   57   BLVA KDS-REI   28729.0   93   NDS-DE 434-5 RK   28607.4   57   NDS-DEC 31-32 BK   28552.4   57   BLVA KDS-REI   28729.0   93   NDS-DE 436-5 RK   28607.6   56   NDS-DEC 31-32 BK   28573.6   56   BLVA KDS-REI   28729.0   93   NDS-DE 436 RK   28673.6   56   NDS-DEC 32-33 BK   28594.6   56   BLVA KDS-REI   287420   93   NDS-DE 436 RK   28673.6   56   NDS-DEC 32-33 BK   28594.6   56   BLVA KDS-REI   287430   93   NDS-DE 436 RK   28673.6   56   NDS-DEC 33-34 BK   28734.4   57   BLVA KDS-REI   287430   92   NDS-DE 436 RK   28524.6   56   NDS-DEC 33-34 BK   28734.4   57   BLVA KDS-RW MZS   287530   93   NDS-DE 436 RK   28524.4   57   NDS-DEC 34-35 RK   28731.6   56   BLVA KDS-RW MZS   287530   93   NDS-DE 436 RK   28566.6   56   NDS-DEC 34-35 RK   28731.6   56   BLVA KDS-RW MZS   287530   93   NDS-DE 436 RK   28567.4   57   NDS-DEC 34-5 RK   28567.4   57   BLVA KDS-RW MZS   287530   93   NDS-DE 436 RK   28567.4   57   NDS-DEC 34-5 RK   28567.4   57   BLVA KDS-RW MZS   287530   93   NDS-DE 436 RK   28567.4   57   NDS-DEC 34-5 RK   28567.4   57   BLVA KDS-RW MZS   287530   93   NDS-DE 436 RK   28567.4   57   NDS-DEC 34-5 RK   28567.4   57   BLVA KDS-RW MZS   287530   93   NDS-DE 436 RK   28567.4   57   NDS-DEC 34-5 RK   28567.4   57   BLVA KDS-RW MZS   287530   93   NDS-DE 436 RK   28567.4   57   NDS-DEC 34-5 RK   28567.4   57   BLVA KDS-RW MZS   287530   93   NDS-DE 436 RK   28567.4   57   NDS-DES 348.5 RK   2860.6   59   BLVA KDS-RW MZS   287530   93   NDS-DE 436 RK   28567.4   57   NDS-DES 348.5 RK   2860.6   59   BLVA KDS-RW MZS   28666.0   93   NDS-DE 436 RK   28567.4   57   NDS-DES 3475.5 RK   2860.6   59   BLVA KDS-RW MZS   28667.0   28667.0   28667.0   28667.0   28667.0   28667.0   28667.0   28667.0   28667.0   28667.0   28667.0   2	BL KDS-SR 6/10	28675.0	92	KDS-DE 4X2-3 GR	28597.6	56	KDS-DEG 29-30 GR	28591.6	56
BLSET metangle 2876.0 92 KDS-DE 4A4.5 BK 28681.4 57 KDS-DE 631-32 BK 2852.4 57 KDS-DE 631-32 BK 2867.6 56 KDS-DE 631-32 BK 2867.6 56 KDS-DE 631-32 BK 28601.4 57 KDS-DE 632-33 BK 28601.4 58 KDS-DE 63	BL KDS-SR 8/16	28676.0	92	KDS-DE 4X3-4 BK	28558.4	57	KDS-DEG 30-31 BK	28551.4	57
BLSTE Teckangle 28761.0 92 KDS-DE 44.5 CR 28606.6 56 KDS-DEC 43.2 CR 2893.6 56 KDS-DEC 43.2 38 2899.1 55 BLVA KDS-BE 2872.0 93 KDS-DE 45.5 GR 28673.6 56 KDS-DEC 43.2 38 CR 2899.6 56 KDS-DE 43.2 36 KDS-DE 45.5 GR 2873.6 56 KDS-DEC 43.2 38 KB 2873.6 57 KDS-DE 45.6 GR 2873.6 56 KDS-DEC 43.2 38 KB 2873.6 57 KDS-DE 45.6 GR 2873.6 56 KDS-DEC 43.2 34 KB 2873.6 57 KDS-DE 45.6 GR 2873.6 56 KDS-DEC 43.3 44 GR 2873.6 56 KDS-DEC 43.3 45 GR 2880.6 59 KDS-DE 59 GR 2850.6 59 KDS-DE 59 GR 285	BL KES	28744.0	92	KDS-DE 4X3-4 GR	28598.6	56	KDS-DEG 30-31 GR	28592.6	56
BLVA KDS-FB1	BL SET M16-M63	28766.0	92	KDS-DE 4x4.5 BK	28681.4	57	KDS-DEG 31-32 BK	28552.4	57
BLVA KDS-FB3   2874-0   93   KDS-DE 4/S CR   28673-6   56   KDS-DE 6/3-3 GR   28594-6   56   KDS-DE 6/3-3 GR   28594-6   56   KDS-DE 6/3-3 GR   28594-6   56   KDS-DE 6/3-3 GR   28794-6   57   KDS-	BL SET rectangle	28761.0	92	KDS-DE 4x4.5 GR	28606.6	56	KDS-DEG 31-32 GR	28593.6	56
BL-VA KDS-FB4	BL-VA KDS-FB1	28729.0	93	KDS-DE 4X5 BK	28672.4	57	KDS-DEG 32-33 BK	28601.4	57
BLWA KDS-FP2   2873.0   93   KDS-DE-14-G CR   2876.6   56   KDS-DEC 33-43 CR   28731.6   56   56   57   57   57   57   57   5	BL-VA KDS-FB2	28741.0	93	KDS-DE 4X5 GR	28673.6	56	KDS-DEG 32-33 GR	28594.6	56
BLVAK RDS-FP 2	BL-VA KDS-FB3	28742.0	93	KDS-DE 4x6 BK	28763.4	57	KDS-DEG 33-34 BK	28730.4	57
BLVAR KDS-W M25 2875-0 93 KDS-DE 5-6 CR 2856-6 56 KDS-DEC 34-35 CR 2873-6 56 KUS-LOR WAS 2875-0 93 KDS-DE 6-7 CR 2852-4 57 KDS-DEC/B RK 2857-6 95 KDS-DEC/B RK 2857-0 93 KDS-DE 6-7 CR 2856-6 56 KDS-DEC/B CR 2857-5 95 KDS-DEC/B RK 2857-0 93 KDS-DE 6-7 CR 2856-6 56 KDS-DEC/B CR 2857-5 45 KDS-DEC/B CR 2857-6 95 KDS-DEC/B CR 2857-6 56 KDS-DES/B CR 2857-6 SP KDS-DES/B CR	BL-VA KDS-FB4	28743.0	93	KDS-DE 4x6 GR	28762.6	56	KDS-DEG 33-34 GR	28731.6	56
BLVAK RDS-KW M25	BL-VA KDS-FP 2	28753.0	92	KDS-DE 5-6 BK	28525.4	57	KDS-DEG 34-35 BK	28732.4	57
BLVAK KDS-KW M02	BL-VA KDS-KV M20	28754.0	92	KDS-DE 5-6 GR	28566.6	56	KDS-DEG 34-35 GR	28733.6	56
BLVAK DDS-KW M400	BL-VA KDS-KV M25	28755.0	93	KDS-DE 6-7 BK	28526.4	57	KDS-DEG/B BK	28534.4	57
BL-VAK NDS-VM M50	BL-VA KDS-KV M32	28756.0	93	KDS-DE 6-7 GR	28567.6	56	KDS-DEG/B GR	28575.6	56
BL-VA KDS-KV M63	BL-VA KDS-KV M40	28757.0	93	KDS-DE 7-8 BK	28527.4	57	KDS-DEG/K 7-24 BK	28554.4	57
BL-VA KDS-SR 10/24   28686.0   92   KDS-DE-8.9 CR   28596.6   56   KDS-DE-8.3V.9 S.GR   28801.6   59	BL-VA KDS-KV M50	28758.0	93	KDS-DE 7-8 GR	28568.6	56	KDS-DES 2X10.5 GR	28800.6	59
BL-VA KDS-SR 10/24 28686.0 92 KDS-DE-89-0R 28596.6 56 KDS-DES 3/VS-DES 3/VS-DE 3/VS-DES 3/VS-	BL-VA KDS-KV M63	28759.0	93		28528.4	57		28802.6	59
BL-VA KDS-SR 10/24   28686.0   93   KDS-DE 9-10 RK   2852-4   57   KDS-DES 4X7,5 GR   28804.6   59	BL-VA KDS-SR 1-4	28683.0	92		28569.6	56		28801.6	59
BILVAK NDS-SR 8/10 28685.0 92 KDS-DE 9-10 CR 28570.6 56 NDS-DES 7X6.5 CR 28804.6 59 RILVA KDS-SR 8/16 28685.0 93 KDS-DE-IBI/A CR 28713.6 52 KDS-DES 7X6.5 CR 28805.6 59 RILVA KES 28752.0 92 KDS-DE-IBI/A CR 28713.6 52 KDS-DES 8X5.5 CR 28805.6 59 RILVA KES 28760.0 92 KDS-DE-IBI/A CR 28713.6 52 KDS-DES 8X5.5 CR 28805.6 59 RILVA SET Tectangle 28760.0 93 KDS-DE-IBI/C CR 28713.6 53 KDS-EMV-SAB 1/1-4 28626.0 87 KDS-DE-IBI/A CR 28713.6 53 KDS-EMV-SAB 1/1-4 28626.0 87 KDS-DE-IBI/C CR 28713.6 53 KDS-EMV-SAB 6/10 28624.0 87 KDS-DE-IBI/C CR 28713.6 53 KDS-EMV-SAB 6/10 28624.0 87 KDS-DE-IBI/C CR 28719.6 53 KDS-EMV-SAB 8/10 28624.0 87 KDS-DE-IBI/C CR 28720.6 52 KDS-EMV-SAB 8/10 28624.0 87 KDS-DE-IBI/C CR 28720.6 52 KDS-EMV-SAB 8/10 28624.0 28 KDS-DE-IBI/C CR 28720.6 52 KDS-EMV-SAB 8/10 28624.0 28 KDS-DE-IBI/C CR 28720.6 52 KDS-EMV-SAB 8/10 28624.0 28 KDS-DE-IBI/C CR 28722.6 52 KDS-EM-VSAB 8/10 28624.0 28 KDS-DE-IBI/C CR 28722.6 52 KDS-EM-VSAB 8/10/24 28627.0 87 KDS-DE-IBI/C CR 28723.6 53 KDS-CM 20 BK 28616.4 36 KDS-DE-IBI/C CR 28723.6 53 KDS-CM 20 BK 28616.4 36 KDS-DE-IBI/C CR 28723.6 53 KDS-CM 20 BK 28616.4 36 KDS-DE-IBI/C CR 28723.6 53 KDS-CM 20 BK 28616.4 36 KDS-DE-IBI/C CR 28724.6 53 KDS-CM 20 BK 28618.4 36 KDS-DE-IBI/C CR 28723.6 53 KDS-CM 20 BK 28614.4 37 KDS-DE-IS-SBK 28691.4 57 KDS-DE-IBI/G CR 28723.6 53 KDS-CM 20 BK 28614.4 37 KDS-DE-IS-SBK 28691.4 57 KDS-DE-IBI/G CR 28724.6 53 KDS-CM 40 BK 28619.4 37 KDS-DE-IS-SC RR 28691.4 57 KDS-DE-IBI/G CR 28736.6 55 KDS-CM 40 BK 28619.4 37 KDS-DE-IS-SC RR 28691.4 57 KDS-DE-IBI/G CR 28736.6 56 KDS-DE-IBI/G CR 28736.4 57 KDS-D	BL-VA KDS-SR 10/24	28686.0	93		28529.4	57	KDS-DES 4X7.5 GR	28803.6	59
BL-VA KES   2875.0   92   KDS-DE-FBI/A GR   28713.6   52   KDS-DES 8X4.5 GR   28806.6   59	BL-VA KDS-SR 6/10	28684.0	92		28570.6	56		28804.6	59
BLVAX EST M16-M63	BL-VA KDS-SR 8/16	28685.0	92		28713.6	52		28806.6	59
BL-VA SET MIG-MG3		28752.0	92						
BLAVA SET rectangle 28760.0 92 KDS-DE-FB1/C GR 28716.6 53 KDS-EMV-SAB 6/10 28624.0 87  BS M 4x8 2262.0 111 KDS-DE-FB1/E GR 28718.6 53 KDS-EMV-SAB 8/16 28625.0 87  E	BL-VA SET M16-M63	28765.0	93						
BS M 4x8         2262.0         111         KDS-DE-FBI/F GR         28717.6         53         KDS-EMV-SAB 6/10         28624.0         87           E         KDS-DE-FBI/F GR         28719.6         53         KDS-EMV-SAB 8/16         28625.0         87           ES 35/K/ST BG         2828.0         111         KDS-DE-FB2/B GR         28719.6         53         KDS-FP 2x10/24 BK         2866.14         28           Hydraulic hand pump for sheet-metal         28679.0         91         KDS-DE-FB2/F GR         28721.6         52         KDS-FP-AXI0/24 BK         28665.8         28           KDS BW 1         28679.0         91         KDS-DE-FB2/F GR         28722.6         53         KDS-FP-AXIO/24 BK         28661.4         36           KDS BW 1         28622.0         86         KDS-DE-FB2/F GR         28723.6         53         KDS-FP-RIV-SAB 10/24         28664.3         28           KDS BW 1         28622.0         86         KDS-DE-FB2/F GR         28723.6         53         KDS-FP-RIV-SAB 10/24 BK         28661.4         36           KDS BW 1         28622.0         86         KDS-DE-FB2/F GR         28723.6         53         KDS-FP-AVIN OB         286618.4         36           KDS BW 2         2809.4         57<		28760.0	92						
ROS-DE-FB1/F GR		2262.0	111		28717.6			28624.0	87
ES 35/K/ST BG 2828.0 111 KDS-DE-FB2/A GR 2872.6 53 KDS-FP 2x10/24 BK 28660.4 28 KDS 55/K/ST BG 2828.0 111 KDS-DE-FB2/B GR 2872.6 52 KDS-FP 3x10/24 BK 28661.4 28 KDS-DE-FB2/C GR 2872.6 52 KDS-FP-AVD/LL YE 28665.8 28 KDS-DE-FB2/C GR 2872.6 52 KDS-P-AVD/LL YE 28665.8 28 KDS-DE-FB2/C GR 2872.6 52 KDS-P-AVD/LL YE 28665.8 28 KDS-DE-FB2/C GR 2872.6 53 KDS-P-R-MV-SAB 10/24 28627.0 87 KDS-DE-FB2/C GR 2872.6 53 KDS-DE-P-EMV-SAB 10/24 28627.0 87 KDS-DE-FB2/F GR 2872.6 53 KDS-CM 20 BK 28616.4 36 KDS-DE-FB3/A GR 2872.6 53 KDS-CM 20 BK 28616.4 36 KDS-DE-FB3/A GR 2872.6 53 KDS-CM 20 BK 28616.4 36 KDS-DE-FB3/A GR 2872.6 52 KDS-CM 32 BK 28619.4 37 KDS-DE-FB4/A GR 2872.6 52 KDS-CM 32 BK 28619.4 37 KDS-DE-FB4/A GR 2872.6 52 KDS-CM 50 BK 28620.4 37 KDS-DE-1.5 GR 28693.4 57 KDS-DE-FB4/A GR 2872.6 52 KDS-CM 50 BK 28620.4 37 KDS-DE-1.5 CR 28694.6 56 KDS-DE-FB4/A GR 2872.6 53 KDS-CM 33 KDS-CM 32 BK 28621.4 37 KDS-DE-1.5 CR 28694.6 56 KDS-DE-FB4/A GR 2872.6 52 KDS-CM 30 BK 28620.4 37 KDS-DE-1.5 CR 28694.6 56 KDS-DE-FB4/A GR 2872.6 52 KDS-CM 30 BK 28620.4 37 KDS-DE-1.5 CR 28694.6 56 KDS-DE-FB4/A GR 2872.6 53 KDS-CM 30 BK 28620.4 37 KDS-DE-1.5 CR 28520.4 57 KDS-LDL 32 BK 28511.4 14 KDS-DE 1.5 CR 28520.4 57 KDS-LDL 34 BK 28511.4 14 KDS-DE 1.5 CR 28520.4 57 KDS-LDL 34 BK 28511.4 14 KDS-DE 1.5 CR 28520.4 57 KDS-LDL 34 BK 28511.4 14 KDS-DE 1.1 CR 28571.6 56 KDS-DE/ZAS1 GR 28500.6 56 KDS-VIR 1.4 BK 28501.4 22 KDS-DE 1.1 12 GR 28572.6 56 KDS-DE/B BK 28520.4 57 KDS-LDL 34 BK 28511.4 44 KDS-DE 1.3 CR 28572.6 56 KDS-DE/B BK 28531.4 57 KDS-DE/B BK 2	г								
Hydraulic hand pump for sheet-metal plane professees metal plane pump for sheet-metal plane pump for s	E				28719.6	53		28660.4	28
Hydraulic hand pump for sheet-metal hole pumch    Bydraulic hand pump for sheet-metal hole pumch   Section   Section	ES 35/K/ST BG	2828.0	111	KDS-DE-FB2/B GR	28720.6			28661.4	
Hydraulic hand pump for sheet-metal   28679.0   91   KDS-DE-FB2/D GR   28722.6   52   KDS-FP-IRMV-SAB 10/24   28627.0   87   KDS-DE-B2/F GR   28723.6   53   KDS-FP-IRV GG   28664.3   28   KDS-DE-B2/F GR   28724.6   53   KDS-GM 25 BK   28616.4   36   KDS-BP 10/24 BK   28509.4   88   KDS-DE-FB3/B GR   28726.6   53   KDS-GM 25 BK   28618.4   36   KDS-BP 10/24 BK   28509.4   88   KDS-DE-FB3/B GR   28726.6   53   KDS-GM 32 BK   28618.4   36   KDS-BP 8/16 BK   28509.4   88   KDS-DE-FB3/B GR   28727.6   52   KDS-GM 40 BK   28620.4   37   KDS-DE 1.5 BK   28693.4   57   KDS-DE-FB4/B GR   28727.6   52   KDS-GM 50 BK   28620.4   37   KDS-DE 1.5 GR   28694.6   56   KDS-DE-FB4/C GR   28740.6   53   KDS-Inlay 1 BK   28516.4   14   KDS-DE 1.5 CR   28524.6   56   KDS-DE-FB4/C GR   28740.6   53   KDS-Inlay 1 BK   28516.4   14   KDS-DE 1.5 CR   28526.6   56   KDS-DE/TAXSI BK   28559.4   57   KDS-Inlay 2 BK   28517.4   14   KDS-DE 10-11 BK   28530.4   57   KDS-DE/TAXSI BK   28599.6   56   KDS-Inlay 4 BK   28519.4   14   KDS-DE 10-11 BK   28530.4   57   KDS-DE/ZXASI BK   28500.6   56   KDS-Inlay 6 BK   28519.4   14   KDS-DE 10-11 GR   28571.6   56   KDS-DE/ZXASI GR   28520.4   57   KDS-INLAY 4 BK   28531.4   22   KDS-DE 11-12 GR   28532.4   57   KDS-DE/B GR   28520.4   57   KDS-INLAY 4 BK   28531.4   22   KDS-DE 11-12 GR   28532.4   57   KDS-DE/B GR   28520.4   57   KDS-INLAY 6/10 BK   28503.4   22   KDS-DE 11-12 GR   28533.4   57   KDS-DE/B GR   28553.4   57   KDS-INLAY 6/10 BK   28503.4   22   KDS-DE 13-14 GR   28533.4   57   KDS-DE/G 11-15 GR   2857.6   56   KDS-INLAY 6/10 BK   28503.4   22   KDS-DE 13-14 GR   28573.6   56   KDS-DE/G 11-15 GR   28576.6   56   KDS-INLAY 6/10 BK   28503.4   22   KDS-DE 13-14 GR   28573.6   56   KDS-DE/G 11-15 GR   28576.6   56   KDS-KV M20 BK   28610.4   44   KDS-DE 13-14 GR   28574.6   56   KDS-DE/G 11-15 GR   28576.6   56   KDS-KV M20 BK   28610.4   44   KDS-DE 13-14 GR   28600.6   56   KDS-DE/G 11-15 GR   28576.6   56   KDS-LV M30 BK   28611.4   45   KDS-DE 13-16 GR   28600.6   56   KDS-DE/G	ш			KDS-DE-FB2/C GR	28721.6	52		28665.8	28
Hydraulic hand pump for sheet-metal   28679.0   91   KDS-DE-FB2/F GR   28723.6   53   KDS-FP-IVR OG   28664.3   28   KDS-DE-FB2/F GR   28724.6   53   KDS-GM 20 BK   28616.4   36   KDS-BW 1   28622.0   86   KDS-DE-FB3/A GR   28725.6   53   KDS-GM 25 BK   28617.4   36   KDS-BP 10/24 BK   28509.4   88   KDS-DE-FB3/G GR   28726.6   53   KDS-GM 25 BK   28618.4   36   KDS-BP 10/24 BK   28509.4   88   KDS-DE-FB3/G GR   28726.6   53   KDS-GM 32 BK   28619.4   37   KDS-BP 8/16 BK   28693.4   57   KDS-DE-FB3/G GR   28726.6   52   KDS-GM 40 BK   28620.4   37   KDS-DE 1.5 BK   28694.6   56   KDS-DE-FB4/G GR   28726.6   52   KDS-GM 50 BK   28621.4   37   KDS-DE 1.5 GR   28694.6   56   KDS-DE-FB4/G GR   28726.6   52   KDS-GM 50 BK   28621.4   37   KDS-DE 1.5 GR   28694.6   56   KDS-DE-FB4/G GR   28726.6   52   KDS-GM 50 BK   28517.4   14   KDS-DE 1.5 2 BK   28517.4   14   KDS-DE 1.5 2 BK   28517.4   15   KDS-DE 1.5 2 BK   28517.4   14   KDS-DE 1.5 2 BK   28517.4   14   KDS-DE 1.5 2 BK   28517.4   14   KDS-DE 1.1 1 BK   28530.4   57   KDS-DE/TAXSI GR   28599.6   56   KDS-Inlay 2 BK   28518.4   14   KDS-DE 10-11 BK   28530.4   57   KDS-DE/ZXASI BK   28500.4   57   KDS-Inlay 6 BK   28518.4   14   KDS-DE 11-12 BK   28511.4   57   KDS-DE/B BK   28500.4   57   KDS-INLAY BK   28500.4   57   KDS-INLAY BK   28500.4   22   KDS-DE 11-12 BK   28531.4   57   KDS-DE/B BK   28500.4   57   KDS-INLAY BK   28500.4   22   KDS-DE 11-12 BK   28531.4   57   KDS-DE/B BK   28500.4   57   KDS-INLAY BK   28500.4   22   KDS-DE 11-12 BK   28531.4   57   KDS-DE/B BK   28500.4   57   KDS-INLAY BK   28500.4   22   KDS-DE 13-14 BK   28530.4   57   KDS-DE/B BK   28500.4   22   KDS-DE 13-14 BK   28530.4   57   KDS-DE/B BK   28500.4   22   KDS-DE 13-14 BK   28530.4   57   KDS-DE/B BK   28500.4   22   KDS-DE 13-14 BK   28530.4   57   KDS-DE/B BK   28500.4   22   KDS-DE 13-14 BK   28530.4   57   KDS-DE/B BK   28500.4   22   KDS-DE 13-14 BK   28530.4   57   KDS-DE/B BK   28500.4   22   KDS-DE/B BK   28500.4   22   KDS-DE/B BK   28500.4   28500.4   28500.4   28					28722.6	52		28627.0	
KDS-DE-FB2/F GR 28724.6 53 KDS-GM 20 BK 28616.4 36 KDS-DE-FB3/A CR 28725.6 53 KDS-GM 20 BK 28616.4 36 KDS-DE-FB3/A CR 28725.6 53 KDS-GM 25 BK 28617.4 36 KDS-BP 10/24 BK 28509.4 88 KDS-DE-FB3/B GR 28726.6 53 KDS-GM 32 BK 28618.4 36 KDS-BP 10/24 BK 28508.4 88 KDS-DE-FB3/C GR 28739.6 52 KDS-GM 32 BK 28619.4 37 KDS-DE 1.5 BK 2869.4 57 KDS-DE-FB4/A GR 28727.6 52 KDS-GM 63 BK 28620.4 37 KDS-DE 1.5 GR 28694.6 56 KDS-DE-FB4/B GR 28728.6 52 KDS-GM 63 BK 28621.4 37 KDS-DE 1.5 GR 28694.6 56 KDS-DE-FB4/C GR 28740.6 53 KDS-Inlay 1 BK 28516.4 14 KDS-DE 1.5-2 BK 28521.4 57 KDS-DE-FB4/C GR 28740.6 53 KDS-Inlay 2 BK 28517.4 14 KDS-DE 1.5-2 BK 28521.4 57 KDS-DE/T/AXSI BK 28599.4 57 KDS-Inlay 2 BK 28517.4 14 KDS-DE 1.5-10 CR 28571.6 56 KDS-DE/Z/AXSI GR 28690.6 56 KDS-Inlay 2 BK 28519.4 14 KDS-DE 10-11 BK 28530.4 57 KDS-DE/Z/AXSI GR 28690.6 56 KDS-Inlay 6 BK 28519.4 14 KDS-DE 1-12 GR 28571.6 56 KDS-DE/Z/AXSI GR 28600.6 56 KDS-INR 1-4 BK 28507.4 22 KDS-DE 11-12 GR 28572.6 56 KDS-DE/Z/AXSI GR 28500.6 56 KDS-INR 1-4 BK 28507.4 22 KDS-DE 11-12 GR 28572.6 56 KDS-DE/Z/AXSI GR 28500.6 56 KDS-INR 1-4 BK 28507.4 22 KDS-DE 12-13 BK 28531.4 57 KDS-DE/E/B GR 28551.4 57 KDS-DE/B GR 28551.4 57 KDS-DE/B GR 28551.4 57 KDS-DE/R GR 28507.6 56 KDS-DE/Z/AXSI GR 28501.4 22 KDS-DE 12-13 GR 28573.6 56 KDS-DE/Z/ASSI GR 28503.4 57 KDS-DE/Z/ASSI GR 28501.4 57 KDS-DE/Z/ASSI GR 28501.4 22 KDS-DE 12-13 GR 28573.6 56 KDS-DE/Z/ASSI GR 28503.4 57 KDS-DE/Z/AS	Hydraulic hand pump for sheet-metal	28679.0	91		28723.6	53		28664.3	28
KDS BW 1         28622.0         86         KDS-DE-FB3/B GR         28726.6         53         KDS-GM 32 BK         28618.4         36           KDS-BP 10/24 BK         28509.4         88         KDS-DE-FB3/C GR         28739.6         52         KDS-GM 40 BK         28619.4         37           KDS-DE 1.5 BK         28508.4         88         KDS-DE-FB4/B GR         28728.6         52         KDS-GM 50 BK         28620.4         37           KDS-DE 1.5 GR         28694.6         56         KDS-DE-FB4/C GR         28740.6         53         KDS-Inlay 1 BK         28511.4         37           KDS-DE 1.5-2 BK         28521.4         57         KDS-DE/TXASI BK         28559.4         57         KDS-Inlay 2 BK         28517.4         14           KDS-DE 1.5-2 GR         28562.6         56         KDS-DE/TXASI GR         28560.4         57         KDS-Inlay 2 BK         28511.4         14           KDS-DE 10-11 BK         28530.4         57         KDS-DE/ZXASI BK         28560.4         57         KDS-Inlay 2 BK         28518.4         14           KDS-DE 10-11 GR         28571.6         56         KDS-DE/ZXASI BK         28560.4         57         KDS-Inlay 2 BK         28511.4         14           KDS-DE 10-11 GR				KDS-DE-FB2/F GR	28724.6			28616.4	
KDS-BP 10/24 BK 28509.4 88 KDS-DE-FB3/C GR 28739.6 52 KDS-GM 40 BK 28619.4 37 KDS-BP 8/16 BK 28508.4 88 KDS-DE-FB4/A GR 28727.6 52 KDS-CM 50 BK 28620.4 37 KDS-DE 1.5 GR 28693.4 57 KDS-DE-FB4/B GR 287240.6 53 KDS-Inlay 1 BK 28516.4 14 KDS-DE 1.5 CGR 28694.6 56 KDS-DE-FB4/C GR 28740.6 53 KDS-Inlay 1 BK 28516.4 14 KDS-DE 1.5 CGR 28562.6 56 KDS-DE/IXASI BK 28559.4 57 KDS-Inlay 2 BK 28517.4 14 KDS-DE 1.5 LGR 28593.4 57 KDS-DE/IXASI GR 28599.6 56 KDS-Inlay 6 BK 28518.4 14 KDS-DE 10-11 GR 28571.6 56 KDS-DE/IXASI GR 28590.6 56 KDS-INLAY 6 BK 28519.4 14 KDS-DE 10-11 GR 28571.6 56 KDS-DE/IXASI GR 28500.4 57 KDS-INLAY 6 BK 28501.4 22 KDS-DE 11-12 GR 28572.6 56 KDS-DE/B BK 28520.4 57 KDS-INLAY 6 BK 28501.4 22 KDS-DE 11-12 GR 28572.6 56 KDS-DE/B GR 28551.4 57 KDS-VM 8/16 BK 28501.4 44 KDS-DE 13-14 BK 28533.4 57 KDS-DE/B GR 28551.4 57 KDS-DE/B GR 28551.4 57 KDS-VM 8/16 BK 28501.4 44 KDS-DE 13-14 GR 28574.6 56 KDS-DEG 15-16 GR 28577.6 56 KDS-KV M40 BK 28613.4 45 KDS-DE 13-16 BK 28608.4 57 KDS-DEG 15-16 GR 28577.6 56 KDS-KV M40 BK 28613.4 45 KDS-DE 13-16 BK 28608.4 57 KDS-DEG 15-16 GR 28578.6 56 KDS-KV M40 BK 28613.4 45 KDS-DE 13-16 BK 28608.4 57 KDS-DEG 15-16 GR 28578.6 56 KDS-KV M40 BK 28613.4 45 KDS-DE 13-16 BK 28608.4 57 KDS-DEG 15-16 GR 28580.6 56 KDS-RGA M20 BK 28774.4 37 KDS-DE 23 BK 28696.6 56 KDS-DEG 17-18 BK 28538.4 5	K			KDS-DE-FB3/A GR	28725.6	53	KDS-GM 25 BK	28617.4	36
KDS-BP 10/24 BK 28509.4 88 KDS-DE-FB3/C GR 28739.6 52 KDS-GM 40 BK 28619.4 37 KDS-BP 8/16 BK 28508.4 88 KDS-DE-FB4/A GR 28727.6 52 KDS-CM 50 BK 28620.4 37 KDS-DE 1.5 BK 28693.4 57 KDS-DE-FB4/B GR 28728.6 52 KDS-GM 63 BK 28621.4 37 KDS-DE 1.5 GR 28694.6 56 KDS-DE-FB4/C GR 28740.6 53 KDS-Inlay 1 BK 28516.4 14 KDS-DE 1.5 CR 28521.4 57 KDS-DE/TXASI BK 28559.4 57 KDS-Inlay 2 BK 28517.4 14 KDS-DE 1.5 LS GR 28562.6 56 KDS-DE/TXASI BK 28559.4 57 KDS-Inlay 6 BK 28518.4 14 KDS-DE 10.11 BK 28530.4 57 KDS-DE/ZXASI BK 28560.4 57 KDS-Inlay 6 BK 28519.4 14 KDS-DE 10.11 GR 28571.6 56 KDS-DE/ZXASI GR 28600.6 56 KDS-IVR 1-4 BK 28530.4 57 KDS-DE/ZXASI GR 28500.6 56 KDS-IVR 1-4 BK 28507.4 22 KDS-DE 11-12 BK 28531.4 57 KDS-DE/B BK 2850.4 57 KDS-IVR 1-6 BK 28501.4 22 KDS-DE 11-12 GR 28572.6 56 KDS-DE/B GR 28561.6 56 KDS-IVR 1-6 BK 28503.4 22 KDS-DE 12-13 BK 28533.4 57 KDS-DE/B GR 28553.4 57 KDS-VM 20 BK 28501.4 44 KDS-DE 13-14 BK 28533.4 57 KDS-DE/B GR 28553.4 57 KDS-VM 20 BK 28501.4 44 KDS-DE 13-14 GR 28574.6 56 KDS-DE/B GR 28576.6 56 KDS-VM 20 BK 28611.4 44 KDS-DE 13-15 GR 28504.6 57 KDS-DE G 15-16 GR 28576.6 56 KDS-KV M40 BK 28613.4 45 KDS-DE 15-16 GR 28571.6 56 KDS-DEG 15-16 GR 28571.6 56 KDS-KV M50 BK 28614.4 45 KDS-DE 15-16 GR 28571.6 56 KDS-DEG 16-17 BK 28538.4 57 KDS-KV M50 BK 28614.4 45 KDS-DE 15-16 GR 28571.6 56 KDS-DEG 17-18 BK 28538.4 57 KDS-KV M50 BK 28614.4 45 KDS-DE 15-16 GR 28571.6 56 KDS-DEG 17-18 BK 28538.4 57 KDS-RGA M25 BK 28613.4 45 KDS-DE 15-16 GR 28571.6 56 KDS-RGA M25 BK 28613.4 45 KDS-DE 23 BK 28596.6 56 KDS-DEG 17-18 BK 28538.4 57 KDS-RGA M25 BK 28774.4 37 KDS-DE 23 GR 28596.6 56 KDS-DEG 19-20 GR 28580.6 56 KDS-RGA M40 BK 28773.4 36 KDS-DE 23 GR 28596.6 56 KDS-DEG 19-2	KDS BW 1	28622.0	86		28726.6		KDS-GM 32 BK	28618.4	
KDS-BP 8/16 BK 28508.4 88 KDS-DE-FB4/A GR 28727.6 52 KDS-GM 50 BK 28620.4 37 KDS-DE 1.5 BK 28693.4 57 KDS-DE-FB4/B GR 28728.6 52 KDS-GM 63 BK 28621.4 37 KDS-DE 1.5 GR 28694.6 56 KDS-DE-FB4/C GR 28740.6 53 KDS-Inlay 1 BK 28516.4 14 KDS-DE 1.5 2 BK 28521.4 57 KDS-DE/IXASI BK 28559.4 57 KDS-Inlay 2 BK 28517.4 14 KDS-DE 1.5 2 GR 28562.6 56 KDS-DE/IXASI GR 28599.6 56 KDS-Inlay 4 BK 28518.4 14 KDS-DE 10-11 BK 28530.4 57 KDS-DE/IXASI BK 28500.6 56 KDS-INLAY 4 BK 28519.4 14 KDS-DE 10-11 GR 28571.6 56 KDS-DE/IXASI BK 28500.6 56 KDS-INLAY 4 BK 28507.4 22 KDS-DE 11-12 BK 28531.4 57 KDS-DE/EXASI BK 28520.4 57 KDS-INLAY 6 BK 28501.4 22 KDS-DE 11-12 GR 28572.6 56 KDS-DE/EXASI BK 28520.4 57 KDS-INLAY 6 G K 28501.4 22 KDS-DE 11-12 GR 28572.6 56 KDS-DE/B GR 28561.6 56 KDS-INLAY 6 G K 28503.4 22 KDS-DE 12-13 GR 28573.6 56 KDS-DEG 14-15 BK 28533.4 57 KDS-DEG 14-15 BK 28533.4 57 KDS-DEG 14-15 BK 28533.4 57 KDS-DEG 14-15 GR 28574.6 56 KDS-DEG 14-15 GR 28576.6 56 KDS-EV M20 BK 28610.4 44 KDS-DE 13-14 GR 28574.6 56 KDS-DEG 15-16 GR 28576.6 56 KDS-KV M20 BK 28611.4 44 KDS-DE 13-14 GR 28574.6 56 KDS-DEG 15-16 GR 28576.6 56 KDS-KV M20 BK 28611.4 44 KDS-DE 13-14 GR 28574.6 56 KDS-DEG 15-16 GR 28574.6 56 KDS-DEG 16-17 BK 28538.4 57 KDS-KV M20 BK 28613.4 45 KDS-DE 13-16 GR 28670.4 57 KDS-DEG 15-16 GR 28574.6 56 KDS-DEG 16-17 BK 28538.4 57 KDS-KV M30 BK 28613.4 45 KDS-DE 15-16 GR 28670.6 56 KDS-DEG 16-17 BK 28538.4 57 KDS-KV M30 BK 28613.4 45 KDS-DE 15-16 GR 28670.6 56 KDS-DEG 16-17 BK 28538.4 57 KDS-DEG 16-17 BK 28538.4 57 KDS-DEG 18-19 GR 28574.6 56 KDS-KV M60 BK 28613.4 45 KDS-DE 2 BK 28696.6 56 KDS-DEG 16-17 BK 28538.4 57 KDS-DEG 18-19 BK 28539.4 57 KDS-DEG 18-19 BK 28539.4 57 KD				KDS-DE-FB3/C GR	28739.6	52	KDS-GM 40 BK	28619.4	37
KDS-DE 1.5 BK 28693.4 57 KDS-DE-FB4/B GR 28728.6 52 KDS-GM 63 BK 28621.4 37 KDS-DE 1.5 GR 28694.6 56 KDS-DE-FB4/C GR 28740.6 53 KDS-Inlay 1 BK 28516.4 14 KDS-DE 1.5-2 BK 28521.4 57 KDS-DE/1XAS1 BK 28559.4 57 KDS-Inlay 2 BK 28517.4 14 KDS-DE 1.5-2 GR 28662.6 56 KDS-DE/1XAS1 BK 28599.6 56 KDS-Inlay 4 BK 28518.4 14 KDS-DE 10-11 BK 28530.4 57 KDS-DE/2XAS1 BK 28500.4 57 KDS-Inlay 6 BK 28519.4 14 KDS-DE 10-11 GR 28571.6 56 KDS-DE/2XAS1 GR 28600.6 56 KDS-Inlay 6 BK 28501.4 22 KDS-DE 11-12 BK 28531.4 57 KDS-DE/2XAS1 GR 28600.6 56 KDS-INR 1-4 BK 28507.4 22 KDS-DE 11-12 GR 28572.6 56 KDS-DE/B K 28520.4 57 KDS-INR 1-6 BK 28501.4 22 KDS-DE 11-12 GR 28573.6 56 KDS-DE/B GR 28561.6 56 KDS-INR 8/16 BK 28503.4 22 KDS-DE 12-13 BK 28532.4 57 KDS-DE/B GR 28553.4 57 KDS-INR 10/24 BK 28503.4 22 KDS-DE 12-13 GR 28573.6 56 KDS-DE/G 14-15 BK 28535.4 57 KDS-INR 10/24 BK 28505.4 22 KDS-DE 13-14 BK 28533.4 57 KDS-DEG 14-15 GR 28576.6 56 KDS-KV M25 BK 28611.4 44 KDS-DE 13-14 GR 28574.6 56 KDS-DEG 15-16 GR 28576.6 56 KDS-KV M25 BK 28611.4 44 KDS-DE 13-14 GR 28574.6 56 KDS-DEG 15-16 GR 28576.6 56 KDS-KV M40 BK 28613.4 45 KDS-DE 14-15 GR 28600.6 56 KDS-DEG 15-16 GR 28577.6 56 KDS-KV M40 BK 28613.4 45 KDS-DE 15-16 GR 28671.6 56 KDS-DEG 15-16 GR 28578.6 56 KDS-KV M40 BK 28613.4 45 KDS-DE 15-16 GR 28671.6 56 KDS-DEG 17-18 BK 28538.4 57 KDS-RQ ABS BK 28613.4 45 KDS-DE 15-16 GR 28671.6 56 KDS-DEG 17-18 BK 28538.4 57 KDS-RQ ABS BK 28614.4 45 KDS-DE 15-16 GR 28671.6 56 KDS-DEG 17-18 BK 28538.4 57 KDS-RQ ABS BK 28774.4 36 KDS-DE 2-3 BK 28695.4 57 KDS-DEG 18-19 GR 28579.6 56 KDS-RQ ABS BK 28774.4 37 KDS-DE 2-3 GR 28696.6 56 KDS-DEG 17-18 BK 28539.4 57 KDS-RQ ABS BK 28774.4 37 KDS-DE 2-3 GR 28696.6 56 KDS-DEG 18-19 GR 28580.6 56 KDS-RQ ABS BK 28774.4 36 KDS-DE 2-3 GR 28696.6 56 KDS-DEG 18-19 GR 28580.6 56 KDS-RQ ABS BK 28774.4 36 KDS-DE 2-3 GR 28696.6 56 KDS-DEG 18-19 GR 28580.6 56 KDS-RQ ABS BK 28775.4 36 KDS-DE 2-3 GR 28696.6 56 KDS-DEG 19-20 GR 28580.6 56 KDS-RQA M50 BK 28775.4 37 KDS-DEG 20-21 GR 28580.6 56 KDS-RQA M50 BK 28775.4 37 KDS-DEG 20-21 G					28727.6			28620.4	
KDS-DE 1.3 GR         28694.6         56         KDS-DE-FB4/C GR         28740.6         53         KDS-Inlay 1 BK         28516.4         14           KDS-DE 1.5-2 BK         28521.4         57         KDS-DE/IXASI BK         28559.6         56         KDS-Inlay 2 BK         28517.4         14           KDS-DE 1.5-2 GR         28562.6         56         KDS-DE/IXASI GR         28599.6         56         KDS-Inlay 4 BK         28518.4         14           KDS-DE 10-11 BK         28530.4         57         KDS-DE/2XASI GR         28600.6         56         KDS-Inlay 6 BK         28519.4         14           KDS-DE 10-11 GR         28571.6         56         KDS-DE/2XASI GR         28600.6         56         KDS-INR 1.4 BK         28507.4         22           KDS-DE 10-11 GR         28571.6         56         KDS-DE/B GR         28501.6         56         KDS-INR 8/16 BK         28501.4         22           KDS-DE 11-12 BK         28531.4         57         KDS-DE/B GR         28561.6         56         KDS-INR 8/16 BK         28501.4         22           KDS-DE 12-13 BK         28573.6         56         KDS-DE/B GR         28561.6         56         KDS-INR 8/16 BK         28503.4         22           KDS-DE 12-13 GR <td></td> <td></td> <td></td> <td></td> <td>28728.6</td> <td>52</td> <td>KDS-GM 63 BK</td> <td>28621.4</td> <td>37</td>					28728.6	52	KDS-GM 63 BK	28621.4	37
KDS-DE 1.5-2 BK         28521.4         57         KDS-DE/1XASI BK         28559.4         57         KDS-Inlay 2 BK         28517.4         14           KDS-DE 1.5-2 GR         28562.6         56         KDS-DE/1XASI GR         28599.6         56         KDS-Inlay 4 BK         28518.4         14           KDS-DE 10-11 BK         28501.6         56         KDS-DE/2XASI BK         28500.4         57         KDS-Inlay 4 BK         28518.4         14           KDS-DE 10-11 GR         28571.6         56         KDS-DE/2XASI GR         28600.6         56         KDS-INF 14 BK         28507.4         22           KDS-DE 11-12 GR         28571.6         56         KDS-DE/B BK         28520.4         57         KDS-INF 6/10 BK         28501.4         22           KDS-DE 12-13 BK         28532.4         57         KDS-DE/K 2-11 BK         28553.4         57         KDS-INF 10/24 BK         28503.4         22           KDS-DE 12-13 GR         28573.6         56         KDS-DEC 14-15 BK         28533.4         57         KDS-INF 10/24 BK         28503.4         22           KDS-DE 13-14 BK         28533.4         57         KDS-DEC 14-15 BK         28535.4         57         KDS-INF 10/24 BK         28503.4         42           KD					28740.6			28516.4	
KDS-DE 1.5-2 GR					28559.4	57	•	28517.4	14
KDS-DE 10-11 BK				KDS-DE/1XASI GR	28599.6	56	KDS-Inlay 4 BK	28518.4	14
KDS-DE 10-11 GR         28571.6         56         KDS-DE/2XASI GR         28600.6         56         KDS-IVR 1-4 BK         28507.4         22           KDS-DE 11-12 BK         28531.4         57         KDS-DE/B BK         28520.4         57         KDS-IVR 6/10 BK         28501.4         22           KDS-DE 11-12 GR         28572.6         56         KDS-DE/B GR         28561.6         56         KDS-IVR 8/16 BK         28503.4         22           KDS-DE 12-13 BK         28532.4         57         KDS-DE/K 2-11 BK         28533.4         57         KDS-IVR 10/24 BK         28505.4         22           KDS-DE 12-13 GR         28573.6         56         KDS-DEG 14-15 BK         28535.4         57         KDS-KV M20 BK         28611.4         44           KDS-DE 13-14 BK         28533.4         57         KDS-DEG 14-15 GR         28576.6         56         KDS-KV M25 BK         28611.4         44           KDS-DE 13-14 GR         28574.6         56         KDS-DEG 15-16 BK         28536.4         57         KDS-KV M25 BK         28611.4         44           KDS-DE 13-14 GR         28574.6         56         KDS-DEG 15-16 BK         28537.6         56         KDS-KV M25 BK         28611.4         44           KDS-DE 13-				KDS-DE/2XASI BK	28560.4	57	KDS-Inlay 6 BK	28519.4	14
KDS-DE 11-12 BK 28531.4 57 KDS-DE/B BK 28520.4 57 KDS-IVR 6/10 BK 28501.4 22 KDS-DE 11-12 GR 28572.6 56 KDS-DE/B GR 28561.6 56 KDS-IVR 8/16 BK 28503.4 22 KDS-DE 12-13 BK 28532.4 57 KDS-DE/K 2-11 BK 28553.4 57 KDS-IVR 10/24 BK 28505.4 22 KDS-DE 12-13 GR 28573.6 56 KDS-DEC 14-15 BK 28535.4 57 KDS-KV M20 BK 28610.4 44 KDS-DE 13-14 BK 28533.4 57 KDS-DEC 14-15 GR 28576.6 56 KDS-KV M25 BK 28611.4 44 KDS-DE 13-14 GR 28574.6 56 KDS-DEC 15-16 BK 28536.4 57 KDS-KV M32 BK 28613.4 44 KDS-DE 14-15 BK 28608.4 57 KDS-DEC 15-16 GR 28577.6 56 KDS-KV M40 BK 28613.4 45 KDS-DE 14-15 GR 28609.6 56 KDS-DEC 16-17 BK 28537.4 57 KDS-KV M40 BK 28613.4 45 KDS-DE 15-16 BK 28670.4 57 KDS-DEC 16-17 BK 28538.4 57 KDS-KV M63 BK 28614.4 45 KDS-DE 15-16 GR 28671.6 56 KDS-DEC 17-18 BK 28538.4 57 KDS-DE 2 BK 28695.4 57 KDS-DEC 17-18 GR 28579.6 56 KDS-KV M63 BK 28770.4 36 KDS-DE 2 GR 28696.6 56 KDS-DEC 18-19 BK 28539.4 57 KDS-DEC 3 BK 28771.4 36 KDS-DE 2 GR 28563.6 56 KDS-DEC 18-19 BK 28539.4 57 KDS-RGA M20 BK 28771.4 36 KDS-DE 2 GR 28563.6 56 KDS-DEC 18-19 GR 28540.4 57 KDS-RGA M20 BK 28771.4 36 KDS-DE 2 GR 28563.6 56 KDS-DEC 18-19 GR 28540.4 57 KDS-RGA M20 BK 28771.4 36 KDS-DE 2 GR 28563.6 56 KDS-DEC 18-19 GR 28540.4 57 KDS-RGA M25 BK 28773.4 36 KDS-DE 2 ALS BK 28555.4 57 KDS-DEC 18-19 GR 28580.6 56 KDS-RGA M25 BK 28773.4 36 KDS-DE 2 ALS BK 28555.4 57 KDS-DEC 18-19 GR 28580.6 56 KDS-RGA M40 BK 28773.4 36 KDS-DE 2 ALS BK 28555.4 57 KDS-DEC 19-20 BK 28540.4 57 KDS-RGA M40 BK 28773.4 36 KDS-DE 2 ALS BK 28555.4 57 KDS-DEC 19-20 BK 28540.4 57 KDS-RGA M40 BK 28773.4 36 KDS-DE 2 ALS BK 28555.4 57 KDS-DEC 20-21 BK 28541.4 57 KDS-RGA M40 BK 28775.4 37 KDS-DE 2 ALS BK 28556.4 57 KDS-DEC 20-21 BK 28581.6 56 KDS-RGA M63 BK 28776.4 37 KDS-DE 2 ALS BK 28556.6 56 KDS-RGA M63 BK 28777.4 37 KDS-DE 2 ALS GR 28596.6 56 KDS-DEC 20-21 BK 28581.6 56 KDS-RGA M63 BK 28777.4 37 KDS-DE 2 ALS GR 28596.6 56 KDS-DEC 20-21 BK 28582.6 56 KDS-RGA M63 BK 28777.4 37 KDS-DE 2 ALS GR 28596.6 56 KDS-DEC 20-21 GR 28582.6 56 KDS-RGA M63 BK 28777.4 37 KDS-DE 2 ALS GR 28596.6 56 KDS-DE					28600.6		•		
KDS-DE 11-12 GR         28572.6         56         KDS-DE/B GR         28561.6         56         KDS-IVR 8/16 BK         28503.4         22           KDS-DE 12-13 BK         28532.4         57         KDS-DE/K 2-11 BK         28553.4         57         KDS-IVR 10/24 BK         28505.4         22           KDS-DE 12-13 GR         28573.6         56         KDS-DEG 14-15 BK         28535.4         57         KDS-KV M20 BK         28610.4         44           KDS-DE 13-14 BK         28533.4         57         KDS-DEG 14-15 GR         28576.6         56         KDS-KV M25 BK         28611.4         44           KDS-DE 13-14 GR         28574.6         56         KDS-DEG 15-16 BK         28577.6         56         KDS-KV M32 BK         28613.4         44           KDS-DE 13-15 BK         28608.4         57         KDS-DEG 15-16 GR         28577.6         56         KDS-KV M40 BK         28613.4         45           KDS-DE 14-15 GR         28609.6         56         KDS-DEG 16-17 BK         28578.6         56         KDS-KV M50 BK         28614.4         45           KDS-DE 15-16 GR         28670.4         57         KDS-DEG 16-17 GR         28578.6         56         KDS-KV M63 BK         28615.4         45           KDS-DE									
KDS-DE 12-13 BK 28532.4 57 KDS-DE/K 2-11 BK 28553.4 57 KDS-IVR 10/24 BK 28505.4 22 KDS-DE 12-13 GR 28573.6 56 KDS-DEG 14-15 BK 28535.4 57 KDS-KV M20 BK 28610.4 44 KDS-DE 13-14 BK 28533.4 57 KDS-DEG 14-15 GR 28576.6 56 KDS-KV M25 BK 28611.4 44 KDS-DE 13-14 GR 28574.6 56 KDS-DEG 15-16 BK 28536.4 57 KDS-KV M32 BK 28612.4 44 KDS-DE 14-15 BK 28608.4 57 KDS-DEG 15-16 GR 28577.6 56 KDS-KV M40 BK 28613.4 45 KDS-DE 14-15 GR 28609.6 56 KDS-DEG 16-17 BK 28537.4 57 KDS-KV M50 BK 28614.4 45 KDS-DE 15-16 GR 28576.6 56 KDS-KV M63 BK 28614.4 45 KDS-DE 15-16 GR 28670.4 57 KDS-DEG 16-17 GR 28578.6 56 KDS-KV M63 BK 28615.4 45 KDS-DE 2 BK 28695.4 57 KDS-DEG 17-18 BK 28538.4 57 KDS-R 20-32 BK 28770.4 36 KDS-DE 2 GR 28696.6 56 KDS-DEG 18-19 BK 28539.4 57 KDS-R 20-32 BK 28774.4 37 KDS-DE 2-3 BK 28522.4 57 KDS-DEG 18-19 GR 28580.6 56 KDS-R 40-63 BK 28771.4 36 KDS-DE 2-3 GR 28563.6 56 KDS-DEG 19-20 BK 28540.4 57 KDS-RGA M20 BK 28773.4 36 KDS-DE 2-3 GR 28563.6 56 KDS-DEG 19-20 BK 28540.4 57 KDS-RGA M20 BK 28773.4 36 KDS-DE 2-3 GR 28563.6 56 KDS-DEG 19-20 BK 28540.4 57 KDS-RGA M40 BK 28773.4 36 KDS-DE 2-3 GR 28563.6 56 KDS-DEG 19-20 BK 28540.4 57 KDS-RGA M40 BK 28773.4 36 KDS-DE 2-3 GR 28563.6 56 KDS-DEG 19-20 BK 28540.4 57 KDS-RGA M40 BK 28773.4 36 KDS-DE 2-3 GR 28563.6 56 KDS-DEG 19-20 BK 28540.4 57 KDS-RGA M40 BK 28773.4 36 KDS-DE 2-3 GR 28563.6 56 KDS-DEG 19-20 BK 28540.4 57 KDS-RGA M40 BK 28773.4 36 KDS-DE 2-3 GR 28563.6 56 KDS-DEG 19-20 BK 28540.4 57 KDS-RGA M40 BK 28773.4 36 KDS-DE 2-3 GR 28563.6 56 KDS-DEG 19-20 GR 28581.6 56 KDS-RGA M40 BK 28773.4 36 KDS-DE 2-3 GR 28595.6 56 KDS-DEG 20-21 BK 28541.4 57 KDS-RGA M63 BK 28777.4 37 KDS-DE 2X5-6 GR 28596.6 56 KDS-DEG 20-21 GR 28582.6 56 KDS-RGA M63 BK 28777.4 37 KDS-DE 2X5-6 GR 28596.6 56 KDS-DEG 21-22 BK 28542.4 57 KDS-DEG 11-22 BK 285				·					
KDS-DE 12-13 GR         28573.6         56         KDS-DEG 14-15 BK         28535.4         57         KDS-KV M20 BK         28610.4         44           KDS-DE 13-14 BK         28533.4         57         KDS-DEG 14-15 GR         28576.6         56         KDS-KV M25 BK         28611.4         44           KDS-DE 13-14 GR         28574.6         56         KDS-DEG 15-16 BK         28536.4         57         KDS-KV M32 BK         28612.4         44           KDS-DE 14-15 BK         28608.4         57         KDS-DEG 15-16 GR         28577.6         56         KDS-KV M40 BK         28613.4         45           KDS-DE 14-15 GR         28609.6         56         KDS-DEG 16-17 BK         28537.4         57         KDS-KV M40 BK         28613.4         45           KDS-DE 15-16 BK         28670.4         57         KDS-DEG 16-17 GR         28578.6         56         KDS-KV M63 BK         28614.4         45           KDS-DE 15-16 GR         28671.6         56         KDS-DEG 17-18 BK         28538.4         57         KDS-RV M63 BK         28615.4         45           KDS-DE 2 BK         28695.4         57         KDS-DEG 17-18 BK         28579.6         56         KDS-R 40-63 BK         28770.4         36           KDS-DE 2 G									
KDS-DE 13-14 BK									
KDS-DE 13-14 GR									
KDS-DE 14-15 BK									
KDS-DE 14-15 GR									
KDS-DE 15-16 BK 28670.4 57 KDS-DEG 16-17 GR 28578.6 56 KDS-KV M63 BK 28615.4 45 KDS-DE 15-16 GR 28671.6 56 KDS-DEG 17-18 BK 28538.4 57 KDS-R 20-32 BK 28770.4 36 KDS-DE 2 BK 28695.4 57 KDS-DEG 17-18 GR 28579.6 56 KDS-R 40-63 BK 28774.4 37 KDS-DE 2 GR 28696.6 56 KDS-DEG 18-19 BK 28539.4 57 KDS-RGA M20 BK 28771.4 36 KDS-DE 2-3 BK 28522.4 57 KDS-DEG 18-19 GR 28580.6 56 KDS-RGA M25 BK 28772.4 36 KDS-DE 2-3 GR 28563.6 56 KDS-DEG 19-20 BK 28540.4 57 KDS-RGA M32 BK 28773.4 36 KDS-DE 2X4-5 BK 28555.4 57 KDS-DEG 19-20 GR 28581.6 56 KDS-RGA M40 BK 28775.4 37 KDS-DE 2X4-5 GR 28595.6 56 KDS-DEG 20-21 BK 28541.4 57 KDS-RGA M50 BK 28776.4 37 KDS-DE 2X5-6 BK 28556.4 57 KDS-DEG 20-21 GR 28582.6 56 KDS-RGA M63 BK 28777.4 37 KDS-DE 2X5-6 GR 28596.6 56 KDS-DEG 21-22 BK 28542.4 57 KDS-Set 1-4 BK 28602.4 22					28537.4				
KDS-DE 15-16 GR       28671.6       56       KDS-DEG 17-18 BK       28538.4       57       KDS-R 20-32 BK       28770.4       36         KDS-DE 2 BK       28695.4       57       KDS-DEG 17-18 GR       28579.6       56       KDS-R 40-63 BK       28774.4       37         KDS-DE 2 GR       28696.6       56       KDS-DEG 18-19 BK       28539.4       57       KDS-RGA M20 BK       28771.4       36         KDS-DE 2-3 BK       28522.4       57       KDS-DEG 18-19 GR       28580.6       56       KDS-RGA M25 BK       28772.4       36         KDS-DE 2-3 GR       28563.6       56       KDS-DEG 19-20 BK       28540.4       57       KDS-RGA M32 BK       28773.4       36         KDS-DE 2X4-5 BK       28555.4       57       KDS-DEG 19-20 GR       28581.6       56       KDS-RGA M40 BK       28775.4       37         KDS-DE 2X4-5 GR       28595.6       56       KDS-DEG 20-21 BK       28541.4       57       KDS-RGA M50 BK       28776.4       37         KDS-DE 2X5-6 BK       28556.4       57       KDS-DEG 20-21 GR       28582.6       56       KDS-RGA M63 BK       28777.4       37         KDS-DE 2X5-6 GR       28596.6       56       KDS-DEG 21-22 BK       28542.4       57       KD									
KDS-DE 2 BK       28695.4       57       KDS-DEG 17-18 GR       28579.6       56       KDS-R 40-63 BK       28774.4       37         KDS-DE 2 GR       28696.6       56       KDS-DEG 18-19 BK       28539.4       57       KDS-RGA M20 BK       28771.4       36         KDS-DE 2-3 BK       28522.4       57       KDS-DEG 18-19 GR       28580.6       56       KDS-RGA M25 BK       28772.4       36         KDS-DE 2-3 GR       28563.6       56       KDS-DEG 19-20 BK       28540.4       57       KDS-RGA M32 BK       28773.4       36         KDS-DE 2X4-5 BK       28555.4       57       KDS-DEG 19-20 GR       28581.6       56       KDS-RGA M40 BK       28775.4       37         KDS-DE 2X4-5 GR       28595.6       56       KDS-DEG 20-21 BK       28541.4       57       KDS-RGA M50 BK       28776.4       37         KDS-DE 2X5-6 BK       28556.4       57       KDS-DEG 20-21 GR       28582.6       56       KDS-RGA M63 BK       28777.4       37         KDS-DE 2X5-6 GR       28596.6       56       KDS-DEG 21-22 BK       28542.4       57       KDS-Set 1-4 BK       28602.4       22									
KDS-DE 2 GR       28696.6       56       KDS-DEG 18-19 BK       28539.4       57       KDS-RGA M20 BK       28771.4       36         KDS-DE 2-3 BK       28522.4       57       KDS-DEG 18-19 GR       28580.6       56       KDS-RGA M25 BK       28772.4       36         KDS-DE 2-3 GR       28563.6       56       KDS-DEG 19-20 BK       28540.4       57       KDS-RGA M32 BK       28773.4       36         KDS-DE 2X4-5 BK       28555.4       57       KDS-DEG 19-20 GR       28581.6       56       KDS-RGA M40 BK       28775.4       37         KDS-DE 2X4-5 GR       28595.6       56       KDS-DEG 20-21 BK       28541.4       57       KDS-RGA M50 BK       28776.4       37         KDS-DE 2X5-6 BK       28556.4       57       KDS-DEG 20-21 GR       28582.6       56       KDS-RGA M63 BK       28777.4       37         KDS-DE 2X5-6 GR       28596.6       56       KDS-DEG 21-22 BK       28542.4       57       KDS-Set 1-4 BK       28602.4       22									
KDS-DE 2-3 BK       28522.4       57       KDS-DEG 18-19 GR       28580.6       56       KDS-RGA M25 BK       28772.4       36         KDS-DE 2-3 GR       28563.6       56       KDS-DEG 19-20 BK       28540.4       57       KDS-RGA M32 BK       28773.4       36         KDS-DE 2X4-5 BK       28555.4       57       KDS-DEG 19-20 GR       28581.6       56       KDS-RGA M40 BK       28775.4       37         KDS-DE 2X4-5 GR       28595.6       56       KDS-DEG 20-21 BK       28541.4       57       KDS-RGA M50 BK       28776.4       37         KDS-DE 2X5-6 BK       28556.4       57       KDS-DEG 20-21 GR       28582.6       56       KDS-RGA M63 BK       28777.4       37         KDS-DE 2X5-6 GR       28596.6       56       KDS-DEG 21-22 BK       28542.4       57       KDS-Set 1-4 BK       28602.4       22									
KDS-DE 2-3 GR       28563.6       56       KDS-DEG 19-20 BK       28540.4       57       KDS-RGA M32 BK       28773.4       36         KDS-DE 2X4-5 BK       28555.4       57       KDS-DEG 19-20 GR       28581.6       56       KDS-RGA M40 BK       28775.4       37         KDS-DE 2X4-5 GR       28595.6       56       KDS-DEG 20-21 BK       28541.4       57       KDS-RGA M50 BK       28776.4       37         KDS-DE 2X5-6 BK       28556.4       57       KDS-DEG 20-21 GR       28582.6       56       KDS-RGA M63 BK       28777.4       37         KDS-DE 2X5-6 GR       28596.6       56       KDS-DEG 21-22 BK       28542.4       57       KDS-Set 1-4 BK       28602.4       22									
KDS-DE 2X4-5 BK       28555.4       57       KDS-DEG 19-20 GR       28581.6       56       KDS-RGA M40 BK       28775.4       37         KDS-DE 2X4-5 GR       28595.6       56       KDS-DEG 20-21 BK       28541.4       57       KDS-RGA M50 BK       28776.4       37         KDS-DE 2X5-6 BK       28556.4       57       KDS-DEG 20-21 GR       28582.6       56       KDS-RGA M63 BK       28777.4       37         KDS-DE 2X5-6 GR       28596.6       56       KDS-DEG 21-22 BK       28542.4       57       KDS-Set 1-4 BK       28602.4       22									
KDS-DE 2X4-5 GR       28595.6       56       KDS-DEG 20-21 BK       28541.4       57       KDS-RGA M50 BK       28776.4       37         KDS-DE 2X5-6 BK       28556.4       57       KDS-DEG 20-21 GR       28582.6       56       KDS-RGA M63 BK       28777.4       37         KDS-DE 2X5-6 GR       28596.6       56       KDS-DEG 21-22 BK       28542.4       57       KDS-Set 1-4 BK       28602.4       22									
KDS-DE 2X5-6 BK         28556.4         57         KDS-DEG 20-21 GR         28582.6         56         KDS-RGA M63 BK         28777.4         37           KDS-DE 2X5-6 GR         28596.6         56         KDS-DEG 21-22 BK         28542.4         57         KDS-Set 1-4 BK         28602.4         22									
KDS-DE 2X5-6 GR <b>28596.6</b> 56 KDS-DEG 21-22 BK <b>28542.4</b> 57 KDS-Set 1-4 BK <b>28602.4</b> 22									
			30	KDS-DEG 21-22 GR	28583.6	56	KDS-Set 10/24 BK	28605.4	22

Туре	Cat. no.	Page	Туре	Cat. no.	Page	Туре	Cat. no.	Page
KDS-Set 6/10 BK	28603.4	22	KES-E 42/24 A GR	28816.6	72	SAB 20	1529.0	105
KDS-Set 8/16 BK	28604.4	22	KES-E 42/24 B GR	28846.6	72	SAB 20/D	1551.0	103
KDS-SR 1-4 BK	28506.4	22	KES-E 48/24 A GR	28817.6	72	SAB 20/F	1573.0	109
KDS-SR 10/24 BK	28504.4	22	KES-E 48/24 B GR	28847.6	72	SAB 20/GWP	17358.0	107
KDS-SR 6/10 BK	28500.4	22	KES-E 50/24 A GR	28818.6	72	SAB 20/MF/35	17040.0	110
KDS-SR 8/16 BK	28502.4	22	KES-E 50/24 B GR	28848.6	72	SAB 20/MF/35/S	17342.0	110
KDS-SR-FB1/A BK	28700.4	48	KES-E-R 50/11 A GR	28830.6	76	SAB 32	17360.0	105
KDS-SR-FB2/A BK	28701.4	48	KES-E-R 50/11 B GR	28860.6	76	SAB 32/D	17361.0	103
KDS-SR-FB2/B BK	28702.4	48	KES-E-R 50/12 A GR	28831.6	76	SAB 32/GWP	17359.0	107
KDS-SR-FB3/A BK	28703.4	49	KES-E-R 50/12 B GR	28861.6	76	SAB 32/MF/35	17363.0	110
KDS-SR-FB3/B BK	28704.4	49	KES-E-R 50/16 A GR	28832.6	76	SAB 32/MF/35/S	17343.0	110
KDS-SR-FB3/C BK	28705.4	49	KES-E-R 50/16 B GR	28862.6	76	SAB 8	1527.0	105
KDS-SR-FB3/D BK	28706.4	49	KES-E-R 50/18 A GR	28833.6	76	SAB 8/D	1549.0	103
KDS-SR-FB4/A BK	28707.4	48	KES-E-R 50/18 B GR	28863.6	76	SAB 8/D/M5	1526.0	103
KDS-SR-FB4/B BK	28708.4	48	KES-E-R 50/20 A GR	28834.6	76	SAB 8/F	1571.0	109
KDS-SR-FB4/C BK	28709.4	48	KES-E-R 50/20 B GR	28864.6	76	SAB 8/GWP	17356.0	107
KDS-SR-FB4/D BK	28710.4	49	KES-E-R 50/35 A GR	28835.6	76	SAB 8/MF/35	17038.0	110
KDS-SR-FB4/E BK	28711.4	49	KES-E-R 50/35 B GR	28865.6	76	SAB 8/MF/35/S	17340.0	110
KDS-SR-FB4/F BK	28712.4	49	KES-E-R 50/9 A GR	28829.6	76	SABK 11	17973.0	96
KDS-VS-SR BK	28779.4	89	KES-E-R 50/9 B GR	28859.6	76	SABK 11/MF/35	27232.0	108
KDS/KES-VS 10 WH	28789.7	89	KES-GB 13/24 BK	28640.4	66	SABK 11/MF/35/Z	27243.0	108
KDS/KES-VS 11 WH	28790.7	89	KES-GB 13/24 GR	28640.6	66	SABK 16	17974.0	96
KDS/KES-VS 12 WH	28791.7	89	KES-GB 14/24 BK	28641.4	66	SABK 16/MF/35	27233.0	108
KDS/KES-VS 13 WH	28792.7	89	KES-GB 14/24 GR	28641.6	66	SABK 16/MF/35/Z	27244.0	108
KDS/KES-VS 14 WH	28793.7	89	KES-GB 16-1/24 BK	28643.4	67	SABK 3	17970.0	96
KDS/KES-VS 15 WH	28794.7	89	KES-GB 16-1/24 GR	28643.6	67	SABK 3/D M4	27263.0	102
KDS/KES-VS 16 WH	28795.7	89	KES-GB 16/24 BK	28642.4	66	SABK 3/MF/35	27229.0	108
KDS/KES-VS 17 WH	28796.7	89	KES-GB 16/24 GR	28642.6	66	SABK 3/MF/35/Z	27240.0	108
KDS/KES-VS 2 WH	28781.7	89	KES-GB 17/24 BK	28644.4	67	SABK 30	17997.0	96
KDS/KES-VS 22 WH	28797.7	89	KES-GB 17/24 GR	28644.6	67	SABK 30/MF/35	27234.0	108
KDS/KES-VS 3 WH	28782.7	89	KES-GB 20/24 BK	28645.4	67	SABK 30/MF/35/Z	27245.0	108
KDS/KES-VS 4 WH	28783.7	89	KES-GB 20/24 GR	28645.6	67	SABK 6	17971.0	96
KDS/KES-VS 5 WH	28784.7	89	KES-GB 21/24 BK	28646.4	67	SABK 6/MF/35	27230.0	108
KDS/KES-VS 6 WH	28785.7	89	KES-GB 21/24 GR	28646.6	67	SABK 6/MF/35/Z	27241.0	108
KDS/KES-VS 7 WH	28786.7	89	KES-GB 32/24 BK	28647.4	67	SABK 8	17972.0	96
KDS/KES-VS 8 WH	28787.7	89	KES-GB 32/24 GR	28647.6	67	SABK 8/MF/35	27231.0	108
KDS/KES-VS 9 WH	28788.7	89	KES-GB-FDA 13/24 BU	28900.5	82	SABK 8/MF/35/Z	27242.0	108
KDS/KES-VS ASI/2 WH	28798.7	89	KES-GB-FDA 14/24 BU	28901.5	82	SABKD 1.5-3/SSCH	27250.0	104
KDSI-AD 10/24 BK	28888.4	14	KES-GB-FDA 16-1/24 BU	28903.5	83	SABKD 1.5-3/SSCH/Z	27259.0	104
KDSI-AD 8/16 BK	28887.4	14	KES-GB-FDA 16/24 BU	28902.5	82	SABKD 3-6/SSCH	27251.0	104
KDSI-AD 1-4 BK	28885.4	14	KES-GB-FDA 17/24 BU	28904.5	83	SABKD 3-6/SSCH/Z	27260.0	104
KDSI-AD 6/10 BK	28886.4	14	KES-GB-FDA 20/24 BU	28905.5	83	SABKD 6-8/SSCH	27252.0	104
KDSI-AVR BK	28894.4	14	KES-GB-FDA 21/24 BU	28906.5	83	SABKD 6-8/SSCH/Z	27254.0	104
KDSI-SET 1-4 BK	28890.4	14	KES-GB-FDA 32/24 BU	28907.5	83	SABKM 12	17975.0	97
KDSI-SET 10/24 BK	28893.4	14	KES-R 13/24 BK	28650.4	66	SABKM 12/D M4	27246.0	102
KDSI-SET 6/10 BK	28891.4	14	KES-R 13/24 GR	28650.6	66	SABKM 12/D M4/Z	17984.0	102
KDSI-SET 8/16 BK	28892.4	14	KES-R 14/24 BK	28651.4	66	SABKM 12/MF/35	27237.0	108
KDSI-SR 1-4 BK	28880.4	14	KES-R 14/24 GR	28651.6	66	SABKM 12/MF/35/Z	17980.0	108
KDSI-SR 10/24 BK	28883.4	14	KES-R 16-1/24 BK	28653.4	67	SABKM 12/SSCH	27224.0	104
KDSI-SR 6/10 BK	28881.4	14	KES-R 16-1/24 GR	28653.6	67	SABKM 12/SSCH/Z	17982.0	104
KDSI-SR 8/16 BK	28882.4	14	KES-R 16/24 BK	28652.4	66	SABKM 18	17976.0	97
KES 13/24 BK	28630.4	66	KES-R 16/24 GR	28652.6	66	SABKM 18/D M4	27247.0	102
KES 13/24 GR	28630.6	66	KES-R 17/24 BK	28654.4	67	SABKM 18/D M4/Z	17985.0	102
KES 14/24 BK	28631.4	66	KES-R 17/24 GR	28654.6	67	SABKM 18/MF/35	27238.0	108
KES 14/24 GR	28631.6	66	KES-R 20/24 BK	28655.4	67	SABKM 18/MF/35/Z	17981.0	108
KES 16-1/24 BK	28633.4	67	KES-R 20/24 GR	28655.6	67	SABKM 18/SSCH	27225.0	104
KES 16-1/24 GR	28633.6	67	KES-R 21/24 BK	28656.4	67	SABKM 18/SSCH/Z	17983.0	104
KES 16/24 BK	28632.4	66	KES-R 21/24 GR	28656.6	67	SABKM 30/D M4	27248.0	102
KES 16/24 GR	28632.6	66	KES-R 32/24 BK	28657.4	67	SABKM 30/D M4/Z	27220.0	102
KES 17/24 BK	28634.4	67	KES-R 32/24 GR	28657.6	67	SABKM 30/SSCH	27226.0	104
KES 17/24 GR	28634.6	67			0.	SABKM 30/SSCH/Z	27228.0	104
KES 20/24 BK	28635.4	67	M			SABKM 35/D M4	27256.0	102
KES 20/24 GR	28635.6	67	MF-SABK/35	27261.0	101	SABKM 35/MF/35	27239.0	108
KES 21/24 BK	28636.4	67	MF-SABK/35/Z	17978.0	101	SABKM 65/D M4	27257.0	102
KES 21/24 GR	28636.6	67	MF-SABK/SSCH	27218.0	100	SABKM 65/MF/35	27258.0	102
KES 32/24 BK	28637.4	67	MF-SABK/SSCH/Z	17979.0	100	SABKMD 3-12/SSCH	27253.0	104
KES 32/24 GR	28637.6	67	MF/D M4	27217.0	98	SABKMD 3-12/SSCH/Z	27255.0	104
KES-E 12/24 A GR	28810.6	72	MF/D M4/Z	17977.0	98	SH 1 BG	2318.2	111
KES-E 12/24 B GR	28840.6	72			,,	SH SAB BG	1530.2	111
KES-E 14/24 A GR	28811.6	72	R			KDSClick assortment box	28764.0	86
KES-E 14/24 B GR	28841.6	72	RMF/D M4/Z	17986.0	99	SSAB 14	3696.0	106
KES-E 17/24 A GR	28812.6	72				SSAB 20	3697.0	106
KES-E 17/24 B GR	28842.6	72	S			SSAB 28	3698.0	106
	28813.6	72	SAB 13.5	1528.0	105	SSAB 35	3699.0	106
	20013.0			1550.0	103	SSAB 5	3694.0	106
KES-E 18/24 A GR	28843 6	72	SAR 13 5/D		103	33/10 3		100
KES-E 18/24 A GR KES-E 18/24 B GR	28843.6 28814.6	72 72	SAB 13.5/D SAB 13.5/F					
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28651.6	KES-R 14/24 GR	66	28734.0	BL KDS-FB1	93	28833.6	KES-E-R 50/18 A GR	76
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28657.6	KES-R 32/24 GR	67	28747.0	BL KDS-KV M25	93	28859.6	KES-E-R 50/9 B GR	76
28660.4	KDS-FP 2x10/24 BK	28	28748.0	BL KDS-KV M32	93	28860.6	KES-E-R 50/11 B GR	76
28661.4	KDS-FP 3x10/24 BK	28	28749.0	BL KDS-KV M40	93	28861.6	KES-E-R 50/12 B GR	76
28664.3	KDS-FP-IVR OG	28	28750.0	BL KDS-KV M50	93	28862.6	KES-E-R 50/16 B GR	76
28665.8	KDS-FP-AD/UL YE	28	28751.0	BL KDS-KV M63	93	28863.6	KES-E-R 50/18 B GR	76
28670.4	KDS-DE 15-16 BK	57	28752.0	BL-VA KES	92	28864.6	KES-E-R 50/20 B GR	76
28671.6	KDS-DE 15-16 GR	56	28753.0	BL-VA KDS-FP 2	92	28865.6	KES-E-R 50/35 B GR	76
28672.4	KDS-DE 4X5 BK	57	28754.0	BL-VA KDS-KV M20	92	28880.4	KDSI-SR 1-4 BK	14
28673.6	KDS-DE 4X5 GR	56	28755.0	BL-VA KDS-KV M25	93	28881.4	KDSI-SR 6/10 BK	14
28674.0	BL KDS-SR 1-4	92	28756.0	BL-VA KDS-KV M32	93	28882.4	KDSI-SR 8/16 BK	14
28675.0 28676.0	BL KDS-SR 6/10 BL KDS-SR 8/16	92 92	28757.0 28758.0	BL-VA KDS-KV M40	93 93	28883.4 28885.4	KDSI-SR 10/24 BK	14 14
28677.0	BL KDS-SR 10/24	93	28759.0	BL-VA KDS-KV M50 BL-VA KDS-KV M63	93	28886.4	KDSI-AD 1-4 BK KDSI-AD 6/10 BK	14
28679.0	Hydraulic hand pump for sheet-metal	91	28760.0	BL-VA SET rectangle	92	28887.4	KDSI-AD 8/16 BK	14
20077.0	hole punch	21	28761.0	BL SET rectangle	92	28888.4	KDSI-AD 0/10 BK	14
28681.4	KDS-DE 4x4.5 BK	57	28762.6	KDS-DE 4x6 GR	56	28890.4	KDSI-Set 1-4 BK	14
28682.4	KDS-DE 2x6.5 BK	57	28763.4	KDS-DE 4x6 BK	57	28891.4	KDSI-Set 6/10 BK	14
28683.0	BL-VA KDS-SR 1-4	92	28764.0	KDSClick assortment box	86	28892.4	KDSI-Set 8/16 BK	14
28684.0	BL-VA KDS-SR 6/10	92	28765.0	BL-VA SET M16-M63	93	28893.4	KDSI-Set 10/24 BK	14
28685.0	BL-VA KDS-SR 8/16	92	28766.0	BL SET M16-M63	92	28894.4	KDSI-AVR BK	14
28686.0	BL-VA KDS-SR 10/24	93	28770.4	KDS-R 20-32 BK	36	28900.5	KES-GB-FDA 13/24 BU	82
28687.4	KDS-DE 3x5-6 BK	57	28771.4	KDS-RGA M20 BK	36	28901.5	KES-GB-FDA 14/24 BU	82
28688.6	KDS-DE 3x5-6 GR	56	28772.4	KDS-RGA M25 BK	36	28902.5	KES-GB-FDA 16/24 BU	82
28689.4	KDS-DE 2x7 BK	57	28773.4	KDS-RGA M32 BK	36	28903.5	KES-GB-FDA 16-1/24 BU	83
28690.6	KDS-DE 2x7 GR	56	28774.4	KDS-R 40-63 BK	37	28904.5	KES-GB-FDA 17/24 BU	83
28691.4	KDS-DE 2x8 BK	57	28775.4	KDS-RGA M40 BK	37	28905.5	KES-GB-FDA 20/24 BU	83
28692.6	KDS-DE 2x8 GR	56	28776.4	KDS-RGA M50 BK	37	28906.5	KES-GB-FDA 21/24 BU	83
28693.4	KDS-DE 1.5 BK	57	28777.4	KDS-RGA M63 BK	37	28907.5	KES-GB-FDA 32/24 BU	83
28694.6	KDS-DE 1.5 GR	56	28779.4	KDS-VS-SR BK	89			
28695.4	KDS-DE 2 BK	57	28781.7	KDS/KES-VS 2 WH	89			115



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