



VAHLE

Insulated Conductor Systems U10

SYSTEMS IN MOTION



Table of Contents

Basic description.....	2
Technical Data.....	4
Joint Feed.....	5
Feed Terminal.....	5
Isolating Assembly.....	5
Distance Bracket.....	5
Expansion Section.....	6
Transfer Guide.....	6
Anchor Bar (for transfer guide).....	7
Compact Hanger.....	8
Locating Clamp.....	8
Transfer Funnel EFT10.....	9
Compact Collectors.....	10
Current Collector Trailer.....	11
Collector Brushes.....	13
Springs.....	13
Connecting Cables.....	14
Terminal Boxes.....	15
Wear Indicator.....	16
Installation Tools.....	17
Application Questionnaire.....	19

General

The U10 isolated conductor system has been constructed in accordance with VDE 0100. It complies with current conductor bar safety requirements and is protected against contact in accordance with VDE 0370, Part 1 (EN60529) (Protection class: IP 21).

Fig. 1 shows that the VDE test “fingers” are unable to come into contact with the live parts.

Protection from accidental contact applies to the compact collectors only when fully and properly inserted into the conductor system. Conductors systems located within reach of personnel, and in which the collectors leave the system during operation, must be equipped with protection against contact at the installation site. E.G., with the use of barriers or shutoff switches. This is required for voltages above 25 Volts AC or 60 volts DC.

Indoor applications only.

Any number of conductors can be installed side by side at minimum space requirement. The grinding surface order can be configured downwards or to the side.

Standard rail sections are 6 m long, shorter sections are available.

The standard grounding conductor bar is marked with a yellow stripe on the housing. The U10 PE-VP grounding conductor bar utilizes a special geometrical design of the PE conductor bar and housing to prevent accidental contact of the PE collector with a phase conductor.

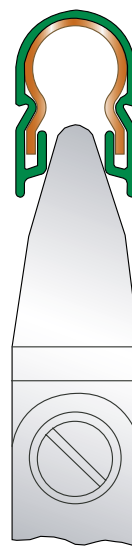


Fig. 1: VDE test finger

Approvals

UL approval. Please consult us when ordering.

Compact hangers

Compact hangers are used for rail support. They guarantee the defined phase spacing of 14 mm. Standard support distance for U10 is 0.6 m, in curves 0.3 m.

Joints

The electrical and mechanical connection of the conductor sections is done by the use of feed joints. Each joint is protected against accidental touch with the use of a joint cap. Each joint can compensate an expansion of up to 3 mm.

Feed terminals

Feed terminals can be installed at every joint. Furthermore, feed terminals can also be installed at isolating assemblies and transfer guides with the use of spade connectors. For additional feeding points please use feed terminals.

Transfer Guides

Transfer guides serve as an end protection of system runs and accomplish smooth collector transfer in case of switches, drop sections etc. In combination with the corresponding aluminium anchor bar (BFU), the transfer guide holds the conductor rail in place on the support profile, hence creating a fix point.

Isolating assemblies

Isolating sections interrupts the conductor system electrically. Under normal operating conditions a cross over with collectors to switch the voltage off or on is only allowed with low power ratings (control current).

Conductor isolating assemblies are available for sectionalizing control circuits, maintenance bays etc. They can be supplied with or without feed clip.

Curves

Insulated conductors U10 can be used for horizontal or vertical curves. A special curve tool for individual field preparation is available.

Collectors

The current collectors are made of re-inforced polyamide/poly-carbonate and stainless steel parts. The current is drawn with a carbon brush.

The length of the collector connecting cable does not exceed 3 m, if the preprend overload protection is not suitable for the load of the connecting cable. Please refer to DIN VDE 0100, Part 430 and DIN EN 60204-32.

The delivered connecting cables are suitable for the mentioned nominal currents. For the different laying systems please consider the reduction factors according to DIN VDE 0298-4.

Safety advise

It must be ensured that the arrangement of the conductor system provides minimum distances (0.5 m) between fixed and mobile plant parts (i. e. between conductor rails, collector trolleys and towing arms) so as to avoid the risk of pinching.

Electrical properties

Type	Di-electric strength DIN 53481	Specific resistance IEC 60093	Surface resistance IEC 60093	Comparable figure/tracking according to IEC 60112
standard shroud, color green	> 25 kV/mm	> 1×10^{16} Ohm x cm	$2,1 \times 10^{15}$ Ohm	CTI 400 – 1,1
high temp. shroud, color gray	> 25 kV/mm	> 1×10^{14} Ohm x cm	$2,1 \times 10^{15}$ Ohm	CTI 400 – 1,1

Mechanical properties

Type	Flexible strength according to ISO 178	Tensile strength according to ISO 527	Ultraviolet resistance	Max relativ humidity	Temperature resistance ⁽¹⁾	Flame test proof
standard shroud, color green	74 - 85 N/mm ²	44 - 55 N/mm ²	Xenon test > 1500	< 100 %	- 30 °C bis + 55 °C	no flaming particles, self extinguishing, UL 94 V0
high temp. shroud, color gray	90 - 100 N/mm ²	47 - 65 N/mm ²	Xenon test > 1500	< 100 %	- 30 °C bis + 85 °C	no flaming particles, self extinguishing, UL 94 V0

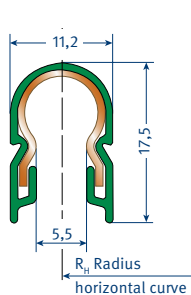
Resistance to chemicals:⁽²⁾ generally resistant against gasoline, oil, weak bases and weak acids

(1) For use below 0 °C continuous temperature (deep freeze storage) please contact the factory.

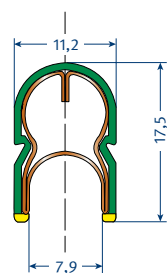
(2) Consult factory when synthetic oil and grease involved.

Technical Data

Conductor cross-section



Standard



PE-VP

Conductor code

U = unipole insulated conductor
 10 = shroud size
 25 = conductor cross sectional area (mm²)
 C = copper conductor
 E = stainless steel conductor

Length

6 m is standard length, shorter lengths are available

Support spacing

for straight runs 0.6 m
 for curves 0.3 m

Conductor spacing

14 mm with compact hangers

Bending of conductor:

Without prebending $\infty \geq R \geq 5000$ mm
 On Site:
 Horizontal curves $5000 \text{ mm} \geq R \geq 750$ mm
 Inside-/Outside curves $5000 \text{ mm} \geq R \geq 750$ mm
 Factory $750 \text{ mm} \geq R \geq 300$ mm

Use

Indoor systems only

Phase (standard)

Type U 10 Standard shroud, color green	Weight kg/m	Order- No. Phase ⁽¹⁾
U10/25C-....PH-B	0,267	167 00•
U10/25E-....PH-B	0,246	167 02•

Ground (standard)

Type U 10 Standard shroud, color green	Weight kg/m	Order- No. ground ⁽¹⁾
U10/25C-....PE-A	0,267	167 06•
U10/25E-....PE-A	0,246	167 08•
U10/25C-....VP-A	0,267	143 19•

Phase (high temperature)

Type U10 High temperature shroud, color gray	Weight kg/m	Order- No. Phase ⁽¹⁾
U10/25C-....PH-D85	0,267	167 03•
U10/25E-....PH-D85	0,246	167 05•

Ground (high temperature)

Type U10 High temperature shroud, color gray	Weight kg/m	Order- No. ground ⁽¹⁾
U10/25C-....PE-C85	0,267	167 09•
U10/25E-....PE-C85	0,246	167 11•
U10/25C-....VP-C85	0,267	143 20•

Engineering data

Type	Leakage distance of covers mm	max. Nominal Voltage ⁽³⁾	max. Continuous ampere capacity A	Resistance Ohm/1000 m	Impendanz ⁽²⁾ Ohm/1000 m
U10/25 C	30	690	100	0,744	0,748
U10/25 E	30	690	10	31,328	31,328

Selection of Conductors

in accordance to ampere load and environmental conditions

- U10/25 C copper conductor for power-, control- and data-transmission.
- U10/25 E stainless steel conductor for control and data-transmission in corrosive atmospheres.

(1) Complement types: For example, U10/25E-**6000**PH-B for 6 m phase, order number 167 026
 The 4-digit number (in bold) in the type designation indicates the length of the section in mm.

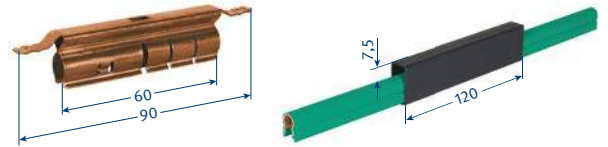
(2) Based on 14 mm conductor spacing and with 50 Hz.

(3) Not with UL approval $U_{UL} = 600$ V

• Fill-in last number (1, 2, 3, 4, 5 or 6 m suffix) in accordance to bars required.

Feed joint

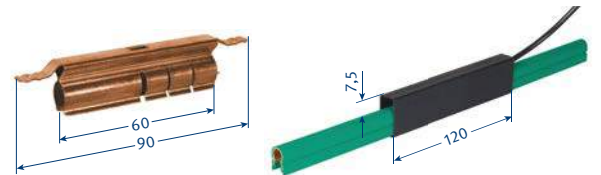
max. 2 x 40A continuous current
Compensates for expansion up to 3mm.
The connection cable has to be ordered separately (Page 14)



Type	Weight kg	Order-No.
VM-UEV10/C	0,026	165 006
VM-UEV10VP/C	0,026	143 213

Feed terminal

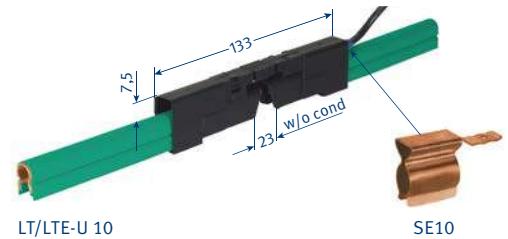
max. 2 x 50 A continuous current
The connection cable has to be ordered separately (Page 14)



Type	Weight kg	Order-No.
ES-UES10	0,026	165 212
ES-UES10VP	0,026	143 214

Isolating assembly

max. 40A continuous current
The two transfer button elements are pressed together to form a rigid, well aligned unit.
SE 10 with flat plug connection 6,3 x 0,8 mm (max. 40A continuous current)



Type	Feed point	Weight kg	Comprising	Order-No.
ST-LT/LT10		0,017	2 x LT/U 10	165 025
ST-LT/LTE10(1)		0,021	2 x LT/U 10 units w/1 feed	165 114
ST-LTE/LTE10(1)		0,025	2 x LT/U 10 units w/2 feeds	165 026

Distance bracket

for plugging onto the isolating assembly point at an installation height⁽¹⁾ of 16.5 mm.



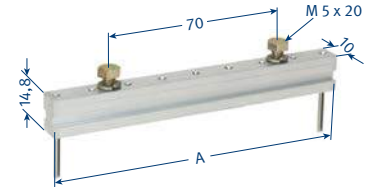
Type	Weight kg	Order-No.
EU-DK10/16,5	0,002	165 682

(1) installation height = grinding surface to mounting surface of compact hanger

Anchor bar (for transfer guide)

for bolting to the track, consisting of:

1 aluminium profile bar, 2 hex. screws M 5 w/washer, 2 locking pins 2 x 20 (loose delivery).



BFU 10A

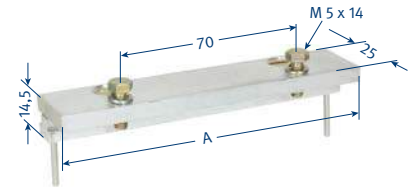
16.5 mm distance between conductor-surface and track

Type	Poles	A mm	Weight kg	Order-No.
MU-BFU10H8/16,5/14-118/70	1 - 8	118	0,048	165 168
MU-BFU10H10/16,5/14-143/70	1 - 10	143	0,056	165 176

BFU 10B

Use with oblique cut of the conductor. (see sketch on page 6),

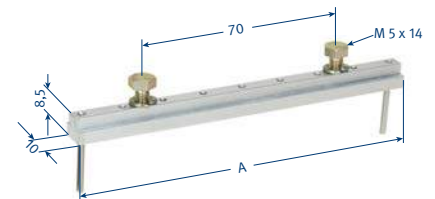
16.5 mm distance between conductor-surface and track



Type	Poles	A mm	Weight kg	Order-No.
MU-BFU10H8/16,5/14-118/70-25	1 - 8	118	0,077	165 272
MU-BFU10H10/16,5/14-143/70-25	1 - 10	143	0,089	165 274

BFU 10

10 mm distance between conductor-surface and track



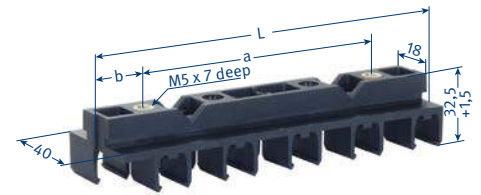
Type	Poles	A mm	Weight kg	Order-No.
MU-BFU10-H8/10/14-118/70	1 - 8	118	0,030	165 115
MU-BFU10-H10/10/14-143/70	1 - 10	143	0,034	165 123

(1) installation height = grinding surface to mounting surface of compact hanger

Compact hanger

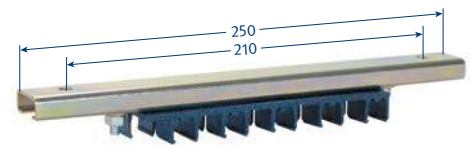
for up to 10 conductors

Any number of conductors can be assembled by combining the compact hangers.



KA10 (direct bolting)

Type	Poles engaged	L	a	b	Weight kg	Order-No.
AH-KA10L-2/16,5-N-PA-14	2	29	0	20,5	0,012	142 072
AH-KA10L-4/16,5-10N-PA-14	4	57	42	7,5	0,024	142 073
AH-KA10L-6/16,5-10N-PA-14	6	85	42	21,5	0,033	142 757
AH-KA10L-8/16,5-10N-PA-14	8	113	42	35,5	0,045	142 075
AH-KA10L-10/16,5-N-PA-14	10	141	100	20,5	0,056	142 076



KH10 (with bracket profile)

Type	Poles engaged	L	Weight kg	Order-No.
AH-KH10H-10/16,5-N-PA-14	10	141	0,356	142 077

Locating clamp

Locating clamp standard

for each anchor point use one bolted hanger with 2 locating clamps per conductor bar

Type	Weight kg	Order-No.
USK10	0,006	165 645



Fig. shows a compact hanger with two locating clamps

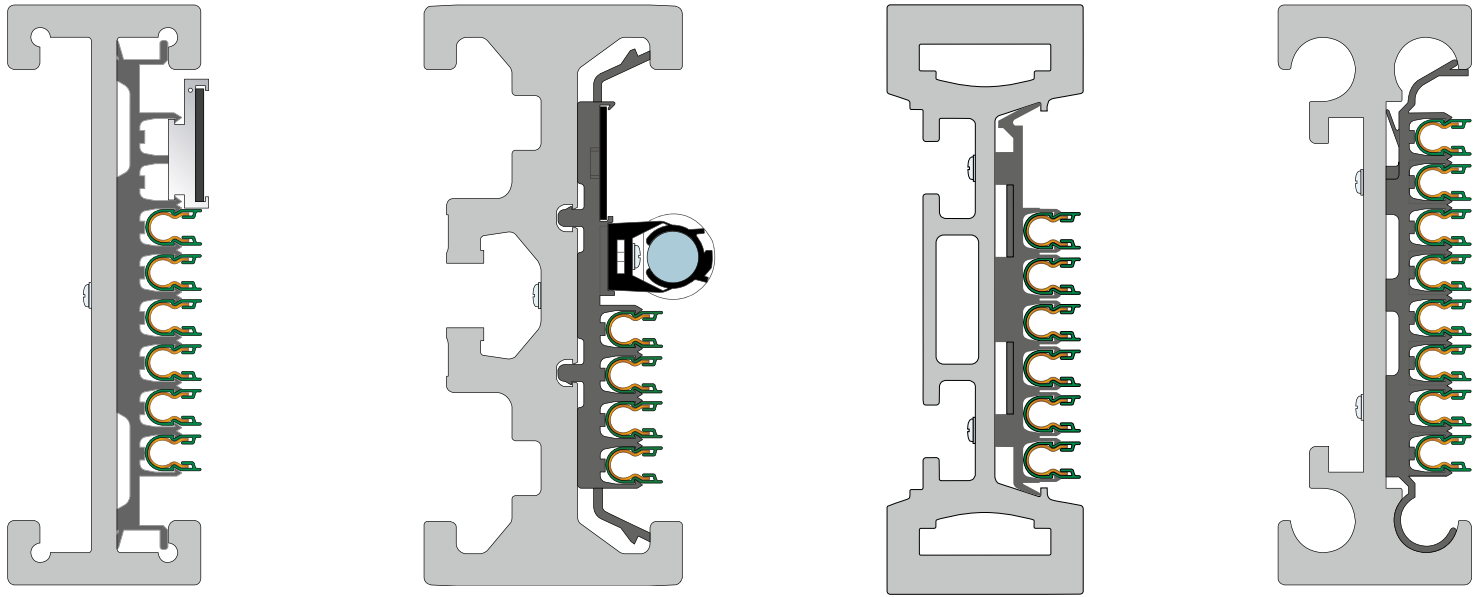
Locating clamp PE-VP

Type	Weight kg	Order-No.
USK10A-VP	0,001	2823268



Compact hanger, special edition

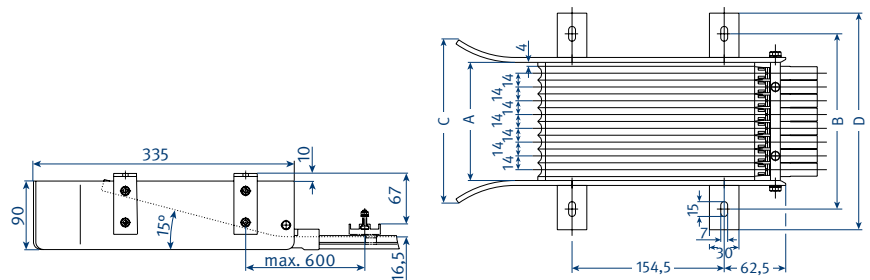
on special order to fit to your monorail track



Transfer funnel EFT10

for current collector KUFU 25

Please note: The transfer funnel must be driven without power from the current collector.



Type	Poles	A mm	B mm	C mm	D mm	Weight kg	Order-No.
MU-EFT10-2-KUFU	2	36	94	82	136	1,145	167 675
MU-EFT10-3-KUFU	3	50	108	96	150	1,230	167 676
MU-EFT10-4-KUFU	4	64	122	110	164	1,315	167 677
MU-EFT10-5-KUFU	5	78	136	124	178	1,400	167 678
MU-EFT10-6-KUFU	6	92	150	138	192	1,485	167 679
MU-EFT10-7-KUFU	7	106	164	152	206	1,570	167 680
MU-EFT10-8-KUFU	8	120	178	166	220	1,655	167 681
MU-EFT10-9-KUFU	9	134	192	180	234	1,740	167 682
MU-EFT10-10-KUFU	10	148	206	194	248	1,825	167 683

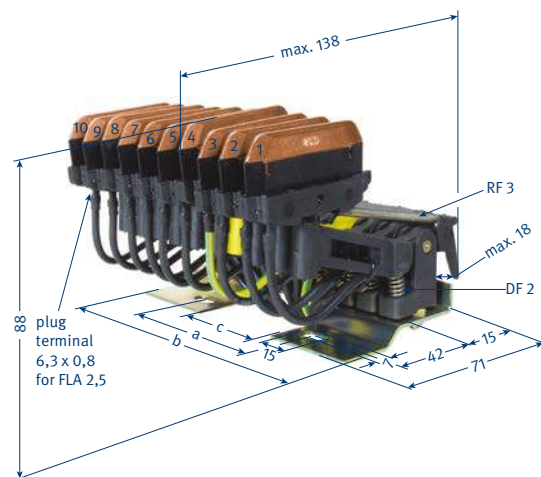
Compact-collector

KUFU25

for transfer funnel EFT10
with 1 connecting cable, type FLA 2,5
Ampacity: 25 A

Lift: +15 mm / -10 mm
Swivel: ±15 mm
Contact pressure: ca. 3.5 N per brush

Ground at No. 4, 3-pole at No. 3, 2-pole at No. 2
Other positions on request. For safety reasons during maintenance
ground collector is always first and last contact.



Type	Poles	dim. a mm	dim. b mm	dim. c mm	Weight kg	base plate	Order-No.	
							for power w/1 ground	for control
SA-KUFU25/2/14HS1,0/2/2	2	-	34	-	0,228	2 - pole	168 040	-
SA-KUFU25/2/14SS1,0/2	2	-	34	-	0,228	2 - pole	-	168 051
SA-KUFU25/3/14HS1,0/3/4/4	3	28	62	-	0,340	4 - pole (No. 4 = blank)	168 041	-
SA-KUFU25/3/14SS1,0/4/4	3	28	62	-	0,340	4 - pole (No. 4 = blank)	-	168 052
SA-KUFU25/4/14HS1,0/4/4	4	28	62	-	0,428	4 - pole	168 042	-
SA-KUFU25/4/14SS1,0/4	4	28	62	-	0,428	4 - pole	-	168 053
SA-KUFU25/5/14HS1,0/4/6/6	5	56	90	-	0,549	6 - pole (No. 6 = blank)	168 043	-
SA-KUFU25/5/14SS1,0/6/6	5	56	90	-	0,549	6 - pole (No. 6 = blank)	-	168 054
SA-KUFU25/6/14HS1,0/4/6	6	56	90	-	0,637	6 - pole	168 044	-
SA-KUFU25/6/14SS1,0/6	6	56	90	-	0,637	6 - pole	-	168 055
SA-KUFU25/7/14HS1,0/4/8/8	7	80	118	53	0,744	8 - pole (No. 8 = blank)	168 045	-
SA-KUFU25/7/14SS1,0/8/8	7	80	118	53	0,744	8 - pole (No. 8 = blank)	-	168 056
SA-KUFU25/8/14HS1,0/4/8	8	80	118	53	0,832	8 - pole	168 046	-
SA-KUFU25/8/14SS1,0/8	8	80	118	53	0,832	8 - pole	-	168 057
SA-KUFU25/9/14HS1,0/4/10/10	9	80	146	53	0,959	10 - pole (No. 10 = blank)	168 047	-
SA-KUFU25/9/14SS1,0/10/10	9	80	146	53	0,959	10 - pole (No. 10 = blank)	-	168 058
SA-KUFU25/10/14HS1,0/4/10	10	80	146	53	1,047	10 - pole	168 048	-
SA-KUFU25/10/14SS1,0/10/10	10	80	146	53	1,047	10 - pole	-	168 059
Single unit, without connecting cable							phase black	ground yellow
SA-KUFU25/28PH-78/15-0,0					0,051		168 015	-
SA-KUFU25/28PE-78/15-0,0					0,051		-	168 016

KDS2/40

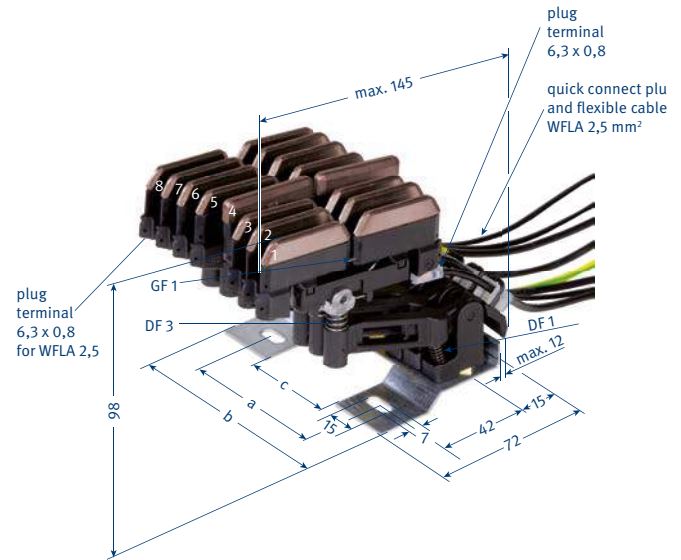
PE-VP for EMS-systems

with 1 x 0,5 m connecting cable, type WFLA 2,5

Ampacity: 1 Plug terminal 2,5 mm² 25 A
2 Plug terminals 2,5 mm² 40 A

Lift: ± 15 mm
Swivel: ± 15 mm
Contact pressure: ca. 3.5 N per brush
Feed cable: 2,5 mm² Typ WFLA 2,5 ultraflexible, incl.

Ground at No. 4, other positions on request!



Type	Poles	dim. a mm	dim. b mm	dim. c mm	Weight kg	base plate	Order-No.	
							with PE-VP	w/o PE-VP
SA-KDS2/40/4/14VP0,5/4/4	4	28	62	-	0,428	4 - pole	143 277	-
SA-KDS2/40/4/14SS0,5/4	4	28	62	-	0,428	4 - pole	-	168 094
SA-KDS2/40/5/14VP0,5/4/6/6	5	56	90	-	0,549	6 - pole (No. 6 = blank)	143 332	-
SA-KDS2/40/5/14SS0,5/6/6	5	56	90	-	0,549	6 - pole (No. 6 = blank)	-	168 095
SA-KDS2/40/6/14VP0,5/4/6	6	56	90	-	0,637	6 - pole	143 219	-
SA-KDS2/40/6/14SS0,5/6	6	56	90	-	0,637	6 - pole	-	168 096
SA-KDS2/40/7/14VP0,5/4/8/8	7	80	118	53	0,744	8 - pole (No. 8 = blank)	143 377	-
SA-KDS2/40/7/14SS0,5/8/8	7	80	118	53	0,744	8 - pole (No. 8 = blank)	-	168 097
SA-KDS2/40/8/14VP0,5/4/8	8	80	118	53	0,832	8 - pole	143 220	-
SA-KDS2/40/8/14SS0,5/8	8	80	118	53	0,832	8 - pole	-	168 098
SA-KDS2/40/9/14VP0,5/4/10/10	9	80	156	53	0,959	10 - pole (No. 10 = blank)	143 378	-
SA-KDS2/40/9/14SS0,5/10/10	9	80	156	53	0,959	10 - pole (No. 10 = blank)	-	168 099
SA-KDS2/40/10/14VP0,5/4/10	10	80	156	53	1,047	10 - pole	143 379	-
SA-KDS2/40/10/14SS0,5/10	10	80	156	53	1,047	10 - pole	-	168 100
SA-KDS2/40/11/14VP0,5/4/12/12	11	120	174	80	1,142	12 - pole (No. 12 = blank)	143 380	-
SA-KDS2/40/11/14SS0,5/12/12	11	120	174	80	1,142	12 - pole (No. 12 = blank)	-	168 101
SA-KDS2/40/12/14VP0,5/4/12	12	120	174	80	1,230	12 - pole	143 381	-
SA-KDS2/40/12/14SS0,5/12	12	120	174	80	1,230	12 - pole	-	168 102
Single unit with 0,5 m connecting cable							phase black	ground yellow
SA-KDS2/40/04PH-88/15-0,5					0,088	w/o	168 073	-
SA-KDS2/40/30VP-79/15-0,5					0,087	w/o	-	143 218

Current collector trailer

1-pole on base plate

Type	dim. a mm	dim. b mm	dim. c mm	Weight kg	base plate	Order-No.
SA-KDS2/40/1/14VP0,5/4/4/1-3	28	62	-	0,164	4 - pole	143 361
SA-KDS2/40/1/14VP0,5/4/6/1-3U5-6	56	90	-	0,197	6 - pole	143 369
SA-KDS2/40/1/14VP0,5/4/8/1-3U5-8	80	118	53	0,216	8 - pole	143 635

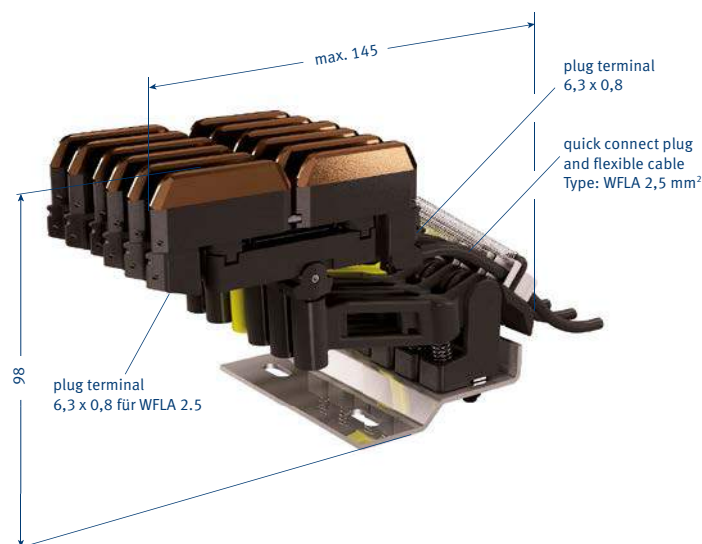
KUFR2/40

two-way conveying
with 1 x 0,5 m connecting cable, type WFLA 2,5

Ampacity: 1 Plug terminal 2,5 mm² 25 A
2 Plug terminal 2,5 mm² 40 A

Lift: ± 15 mm
Swivel: ± 15 mm
Contact pressure: ca. 3,5 N per brush
Feed cable: 2,5 mm² Typ WFLA 2,5
Length: 0,5 m, ultraflexible, incl.

Ground at No. 4, other positions on request!
Dimensions of the base plate similar to KDS2/40.

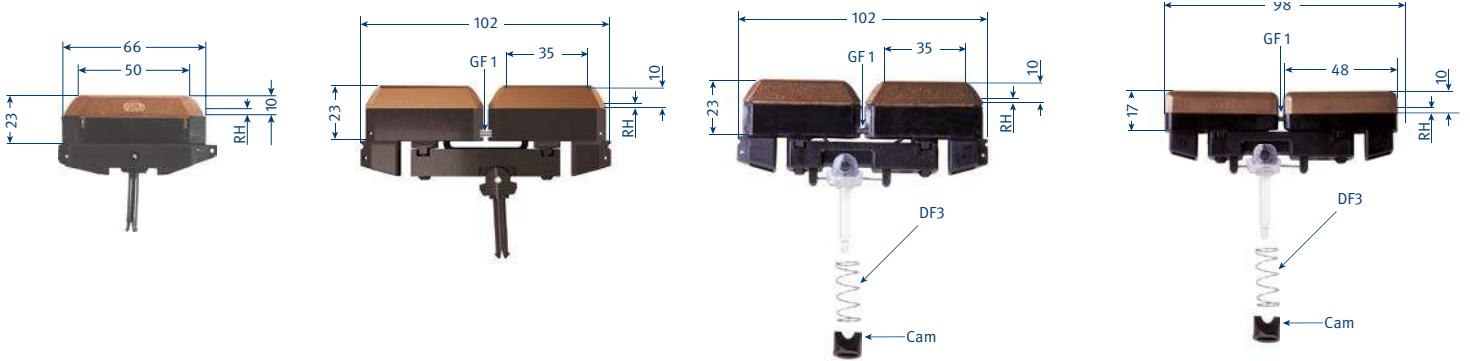


Type	Poles	Weight kg	base plate	Order-No.	
				for power w/1 ground	for control
SA-KUFR2/40/2/14HS0,5/2/2	2	0,230	2 - pole	165 925	-
SA-KUFR2/40/2/14SS0,5/2	2	0,230	2 - pole	-	165 936
SA-KUFR2/40/3/14HS0,5/3/4/4	3	0,355	4 - pole (No. 4 = blank)	165 926	-
SA-KUFR2/40/3/14SS0,5/4/4	3	0,355	4 - pole (No. 4 = blank)	-	165 937
SA-KUFR2/40/4/14HS0,5/4/4	4	0,448	4 - pole	165 927	-
SA-KUFR2/40/4/14SS0,5/4	4	0,448	4 - pole	-	165 938
SA-KUFR2/40/5/14HS0,5/4/6/6	5	0,573	6 - pole (No. 6 = blank)	165 928	-
SA-KUFR2/40/5/14SS0,5/6/6	5	0,573	6 - pole (No. 6 = blank)	-	165 939
SA-KUFR2/40/6/14HS0,5/4/6	6	0,666	6 - pole	165 929	-
SA-KUFR2/40/6/14SS0,5/6	6	0,666	6 - pole	-	165 940
SA-KUFR2/40/7/14HS0,5/4/8/8	7	0,779	8 - pole (No. 8 = blank)	165 930	-
SA-KUFR2/40/7/14SS0,5/8/8	7	0,779	8 - pole (No. 8 = blank)	-	165 941
SA-KUFR2/40/8/14HS0,5/4/8	8	0,872	8 - pole	165 931	-
SA-KUFR2/40/8/14SS0,5/8	8	0,872	8 - pole	-	165 942
SA-KUFR2/40/9/14HS0,5/4/10/10	9	1,004	10 - pole (No. 10 = blank)	165 932	-
SA-KUFR2/40/9/14SS0,5/10/10	9	1,004	10 - pole (No. 10 = blank)	-	165 943
SA-KUFR2/40/10/14HS0,5/4/10	10	1,097	10 - pole	165 933	-
SA-KUFR2/40/10/14SS0,5/10	10	1,097	10 - pole	-	165 944
SA-KUFR2/40/11/14HS0,5/4/12/12	11	1,197	12 - pole (No. 12 = blank)	165 934	-
SA-KUFR2/40/11/14SS0,5/12/12	11	1,197	12 - pole (No. 12 = blank)	-	165 945
SA-KUFR2/40/12/14HS0,5/4/12	12	1,290	12 - pole	165 935	-
SA-KUFR2/40/12/SS0,5/12	12	1,290	12 - pole	-	165 946
Single unit with 0,5 m connecting cable				phase black	ground yellow
SA-KUFR2/40/28PH-88/15-0,5		0,093		165 955	-
SA-KUFR2/40/28PE-88/15-0,5		0,091		-	165 956

Collector Brushes

Rest of height (RH) min. 3 mm

3,8mm width of all copper-graphite brushes



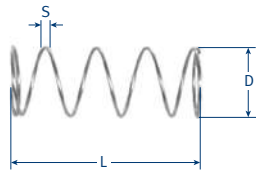
SK-KMKU25-28-14

SK-KMKF2/40-20-14

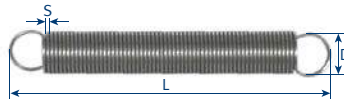
SK-DSW2/40-04-14-FN

SK-DSW2/40VP-30-14-FN

Type	for collectors	Weight kg	Order-No.
SK-KMKU25-28-14	KUFU25	0,030	168 000
SK-DSW2/40-04-14-FN	KDS2/40	0,049	168 151
SK-DSW2/40VP-30-14-FN	KDS2/40 PE-VP	0,060	144 059
SK-KMKF2/40-20-14	KUFR2/40	0,050	143 942



Pressure spring DF3



Tension spring RF3



Guiding spring GF1



Cam

Springs

Type	for collectors	S mm	D mm	L mm	Order-No.
DF3	KDS2/40	0,55	9,55	24,00	152 011
RF3	KUFU25, KUFR2/40	0,40	4,40	31,00	153 849
GF1	KDS2/40, KUFR2/40	-	2,00	21,50	153 850
Cam	KDS2/40				1011917

Connecting cables

Connecting cables, high flexible

for collectors, feed terminals, transfer guides and isolating assemblies
(for collector KDS, connecting cable WFLA 2.5)



Length: 0.5 m long with quick connect plug 6.3x0.8. Longer cable available.

Length: 1 m long with quick connect plug 6.3x0.8. Longer cable available.

Connecting cables, heavy double insulation

for collectors or feeds

Type	Cross section mm ²	ø mm		Weight kg		Order-No. phase black	Order-No. ground green/yellow
		PH	PE	PH	PE		
AL-FLA2,5PH1-6,3	2,50	3,9	-	0,037	-	165 049	-
AL-FLA2,5PE1-6,3	2,50	-	3,6	-	0,035	-	165 050
AL-FLA4PH1-6,3	4,00	5,4	-	0,064	-	165 051	-
AL-FLA4PE1-6,3	4,00	-	5,2	-	0,059	-	165 052
AL-FLA6PH1-6,3	6,00	5,7	-	0,086	-	166 368	-
AL-FLA6PE1-6,3	6,00	-	5,7	-	0,083	-	166 369
AL-WFLA2,5PH0,5-6,3	2,50	3,9	-	0,020	-	168 107	-
AL-WFLA2,5PE0,5-6,3	2,50	-	3,6	-	0,018	-	168 108

Connecting cables, simple insulation

only for feeds

Type	Cross section mm ²	A ø mm		Weight kg		Order-No. phase black	Order-No. ground green/yellow
		PH	PE	PH	PE		
AL-IFKA1,5PH1-6,3	1,50	3,0	-	0,020	-	166 557	-
AL-IFKA1,5PE1-6,3	1,50	-	3,0	-	0,020	-	166 558
AL-IFKA2,5PH1-6,3	2,50	3,7	-	0,032	-	166 238	-
AL-IFKA2,5PE1-6,3	2,50	-	3,7	-	0,032	-	166 239
AL-IFKA4PH1-6,3	4,00	4,3	-	0,050	-	166 240	-
AL-IFKA4PE1-6,3	4,00	-	4,3	-	0,050	-	166 241
AL-IFKA6-PH1-6,3	6,00	4,9	-	0,064	-	166 242	-
AL-IFKA6-PE1-6,3	6,00	-	4,9	-	0,064	-	166 243

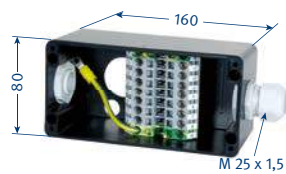
Plug only

Type	for cable ø mm	Weight kg	Order-No.
FH2,5	2,5	0,002	165 120
FH4-6	4-6	0,002	165 121
WFH2,5	2,5	0,002	168 109

Terminal boxes

Terminal box AKE

for feeding, with max. 7 x 6 mm² series terminals , phase and 2 x 6 mm² earth conductor terminals.



Terminal box AKB

for sectionalizing with 7 x 6 mm² series terminals, phase and 2 x 6 mm² earth conductor terminals.



Type	Weight kg	Order-No.
ES-AKE1-PH7x2L6-PE2x2L6-M25	0,445	169 462
ES-AKB1-PH4x2L6-PE2x2L6	0,469	169 481

Brush wear indicator

Please advise the conductor type when ordering the brush wear indicator. The unit is installed on 0,5 m conductor rail.

The brush wear indicator checks the carbon wear automatically. The indicator can be infinitely adjusted to the wear height of the carbon. If the carbon is worn-out a impulse will be released. Installation before a repair zone can allow the automatic activation of a track switch for worn collectors.

Track- and vehicle-drawings will be useful for a smooth coordination.
Opening in the track, length: min. 70 mm, height: 50 mm.



Brush wear indicator with inductive proximity switch

With brush wear indicators of a odd numbered type the lower Pole is not used.

Type	Poles	Weight kg	Order-No. PE-VP at Nr. 4
VT-KVT10-4-14VP4B	4	2,011	143 637
VT-KVT10-5-14VP4B/6	5	2,252	144 093
VT-KVT10-6-14VP4B	6	2,453	143 304
VT-KVT10-7-14VP4B/8	7	2,692	143 466
VT-KVT10-8-14VP4B	8	2,893	143 646
VT-KVT10-9-14VP4B/10	9	3,131	144 094
VT-KVT10-10-14VP4B	10	3,335	144 095
VT-KVT10-11-14VP4B/12	11	3,595	144 096
VT-KVT10-12-14VP4B	12	3,801	144 097

Installation tools

Curve tool

for bending of conductor U10 and U15 vertically and horizontally.
The filling rod has to be ordered separately.



Type	Description	Weight kg	Order-No.
MZ-BVU10-VP	Curve tool	10,000	143 318
MZ-FU10	Filler rod for PH/PE (4 m)	0,200	165 234
MZ-FU10-S-VP	Filler rod for PE-VP (4 m)	0,340	143 279

Table saw

To cut the isolating and conductor profiles with length gauge.
Connection 230V, 50Hz.



Type	Weight kg	Order-No.
MZ-KS10	6,500	165 276
MZ-SB	0,070	165 263

Conductor punch tool

To stamp the joint notch into the conductor profile at short lengths.
Combitool U10 and U10-VP.



Type	Weight kg	Order-No.
MZ-LZ10PE-VP	2,400	143 223

Deburring tools



Type	Weight kg	Application	Order-No.
Round file RF-150 long/ Cut 3/D=6MM	0,085	Round file RF to deburr the inner sides of the conductor profile on short lengths.	143 330
Half round file HRF-150 long/Cut 3	0,085	Half round file HRF to deburr the outer sides of the conductor profile on short lengths	165 264
Deburring tool EGM	0,018	Deburring tool EGM for the inner side of the conductor profile PE-VP at short length	165 275

Adjustment jig

To adjust the conductor profile and the isolating profile at short length.



Type	Weight kg	Order-No.
MZ-ST10	0,150	165 091

Conductor joint assembling tool

1. to push the conductor profile in the joint.
2. if necessary, to expand the conductor opening.
3. to move the joint cap.



Type	Weight kg	Order-No.
MZ-MG-SW10	0,125	165 093

Locking pin driver

To adopt the split pins while using the anchor bar for transfer guide (Aluminium).



Type	Weight kg	Order-No.
MZ-ED10	0,010	165 277

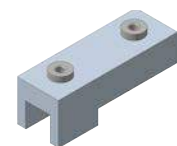
Conductor dismantle tool

To dismantle the conductor from the compact hangers.



Type	Weight kg	Order-No.
MZ-DMW10	0,039	165 119

Drilling jig at fixpoint



Type	Weight kg	Order-No.
MZ-BS10A	0,036	143 425

Spiral drill

To create drillings for the locating clamps USK 10 A at fixpoints 11



Type	Weight kg	Order-No.
SPIRAL DRILL Ø3,2 MM, TYP N	0,003	143 426

Products and Service

Catalog No.

1 Open conductor systems	
Open conductor systems	1a
2 Insulated conductor systems	
U10	2a
FABA 100	2b
U15, U25, U35	2c
U20, U30, U40	2d
3 Compact conductor systems	
VKS 10	3a
VKS - VKL	3b
VMT	3c
4 Enclosed conductor systems	
KBSL - KSL	4a
KBH	4b
MKLD - MKLF - MKLS	4c
LSV - LSVG	4d
5 Contactless power supply	
Contactless power supply (CPS®)	5a
6 Data transmission	
VAHLE Powercom®	6a
Slotted Microwave Guide (SMG)	6b
7 Positioning systems	
VAHLE APOS®	7a
VAHLE APOS® Optic	7b
8 Festoon systems and cables	
Festoon systems for □ -tracks	8a
Festoon systems for flat cables on I-track	8b
Festoon systems for round cables on I-track	8c
Festoon systems for ◇ -track	8d
Cables	8e
9 Reels	
Spring operated cable reels	9a
Motor powered cable reels	9b
10 Other	
Battery charging systems	10a
Heavy enclosed conductor systems	10b
Tender	10c
Contact wire	10d
11 Automotive Handling	
Mobile Control Systems	11a
BOK	11b
Assemblies / Commissioning	
Spare parts / Maintenance service	



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ELECTRIFICATION SYSTEMS