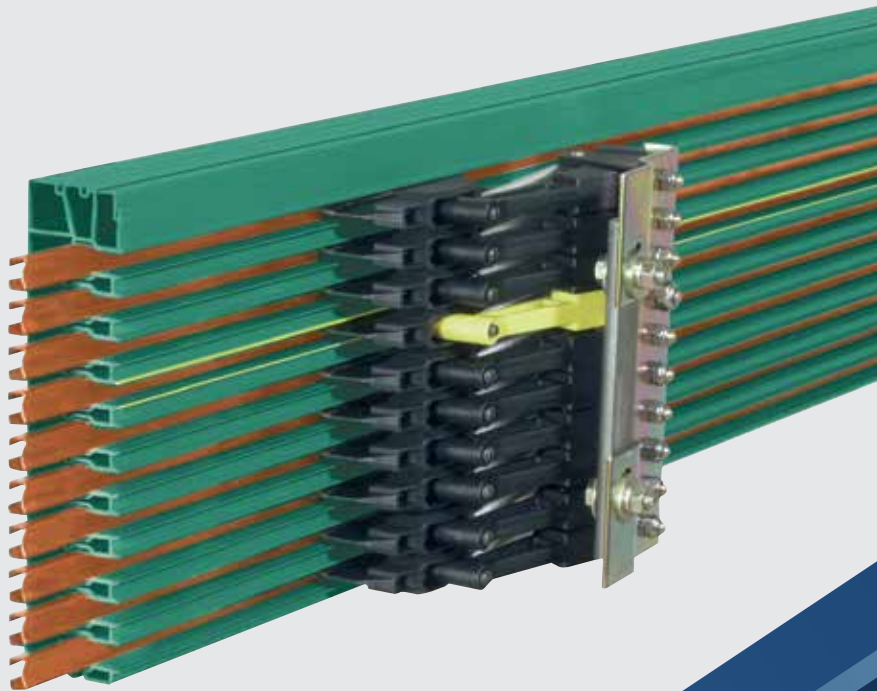




**VKS10
COMPACT CONDUCTOR SYSTEM**



COMPACT CONDUCTOR SYSTEM VKS10

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SYSTEM OVERVIEW

VAHLE's VKS 10 compact conductor bar is a specially designed member of the vCONDUCTOR product family for use in warehouse and logistics applications. It consists of a compact, insulated & accidental touch-safe housing with up to 10 integrated copper conductors. These conductors are protected according to European standard EN 60529, comply with accident and VDE regulations for electrical, mechanical and fire safety and are protected to IP 21 standards. Contact protection for the system collectors is only applicable if the carbon brushes are fully inserted into the housing. For systems in which the collectors leave the conductor bar during operation, additional protection against contact must be made at the installation site, e.g. physical barriers and/or shut off switches.

VKS 10's compact design allows for easy accommodations in all typical warehouse and material handling systems. Additionally, specialty VAHLE support profiles are available for increased installation flexibility. The conductor bar is designed for indoor use, may be installed in horizontal or vertical orientation, and for straight or curved system layouts.

TECHNICAL DATA

CHEMICAL RESISTANCE OF THE INSULATED HOUSING AT +45 °C AMBIENT TEMPERATURE:

Petrol, mineral oil, greases resistant
 Caustic soda up to 50 % resistant
 Hydrochloric acid, concentrated resistant
 Sulfuric acid up to 50 % resistant
 UV (Xenon test > 1500) resistant
 Water absorption: 20 °C = 0.06 %
 Ambient temperature: -30 °C to 55 °C
 (Application area)
 Max. temperature differences: 50 °C ($50 \leq \Delta T$)⁽²⁾
 from -10 °C to +40 °C with supply length = 6 m
 from -30 °C to +20 °C with supply length = 4 m (deep freeze storage⁽²⁾)

ELECTRICAL VALUES OF THE CONDUCTOR SYSTEM

Max. continuous current: 140 A⁽¹⁾
 Permitted operating voltage (UL): 690 V (600 V)
 Dielectric strength in accord. with DIN 53481: > 25 kV/mm
 Specific resistance in acc. with IEC 60093: > 1x10¹⁴ Ω x cm
 Surface resistivity IEC 60093 2.1 x 10¹³ Ω
 Leakage resistance in acc. with IEC 60112: CTI > 400
 Combustibility: flame retardant, self-extinguishing, UL 94 V0

Please note: When using extra-low voltages please submit detailed information with your inquiry, especially with regard to the ambient conditions. In order to process quotations and orders, we require drawings if the conductor system includes curves or rail section isolation.

Please use our questionnaire on page 26.

Conductor Material	Copper				Unit
	16	25	30	35	
Cross section	16	25	30	35	mm ²
Impedance at 60Hz ⁽³⁾	1.106	0.728	0.602	0.510	Ω/1000 m
Resistance	1.102	0.723	0.595	0.510	Ω
Ampacity	60	100	120	140 ⁽¹⁾	A

(1) 80 % duty cycle

(3) By parallel circuit (doubling of cross section) the impedance and the resistance are halved

(2) Cold store applications on request

SYSTEM DETAILS

VKS 10 COMPACT CONDUCTOR SYSTEM

SECTIONS

The insulated housing accommodates up to a maximum of 10 conductors and provides reliable insulation. The standard length is 6 meters, shorter lengths can be supplied. The ground conductor rail is identified with continuous yellow marking. The asymmetric design eliminates the possibility of reversing the phases during installation.

JOINTS

The insulated housing sections are connected with joint caps, the conductors are joined with copper plug-in connectors.

FEEDS

Feed units can be supplied as either end or line feeds. Line feeds are available with plastic terminal boxes or flat line feeds for direct single core cable connection. Both line feed types are supplied pre-assembled on a 1 m conductor rail section. Custom length line feed sections are available on request.

The end feeds are supplied loose and must be used in conjunction with the VLS line feed.

HANGERS

The maximum distance between suspension points must not exceed

1.2 m. The hangers are available for the following mounting options:

1. For assembly in VAHLE support profile (self-locking)
2. For assembly in c-rail (bolted type)
3. For assembly to plain surface (bolted type)

The conductor system can move with the sliding hangers for longitudinal expansion. One fixpoint hanger is required for each conductor section. At the fixpoint it is locked by an additional screw. The distance between two fixpoints is max. 6 m.

ISOLATING SECTIONS

Conductor dead sections are electrical interrupts of the conductor.

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 dead sections can be mounted at any position of the system.

The plastic inserts are pushed into the copper profiles and ensure a smooth transfer of the collector brushes. The length of the isolating section has to consider the total length of the carbon brush and whether the carbon brush must or must not bridge the isolation area.

Attention: Special attention is required for double collectors or collectors switched in parallel. Use double isolating sections where necessary.

CURRENT COLLECTORS

The current collectors are manufactured from impact resistant plastic and stainless steel parts. The current is transmitted by a carbon brush. According to the application, one or more current collectors are required per phase and ground conductor. The current collectors for the ground conductor can be identified by yellow color-coding and are equipped with different fixings to make them not-interchangeable with the phase current collectors. Springs in the current collectors ensure even pressure of the carbon brush against the conductor, thus maintaining reliable contact.

The current collectors must be mounted on base plates or rectangular brackets.

The length of the current collector cable should not exceed 3 m, if the connected overload protection is not according to the load of this connecting cable. See as well DIN VDE 0100, part 430 and DIN EN 60204-32.

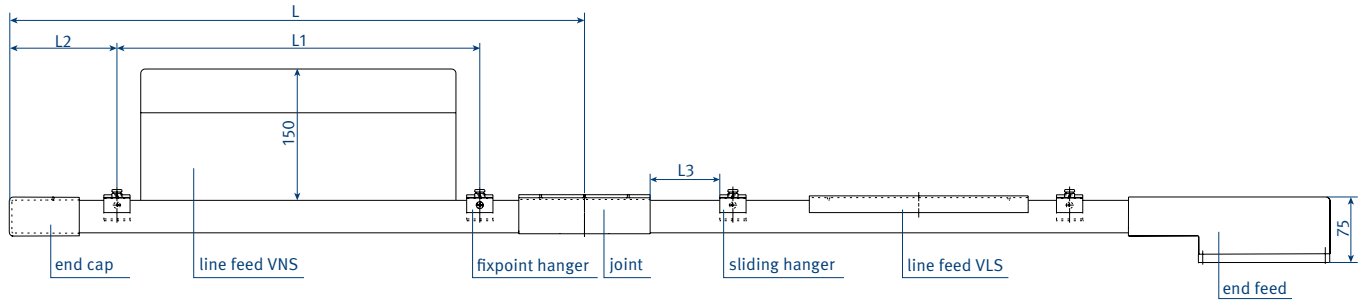
(Note: This often occurs in systems with more collectors per system.)

The connection cables provided are adequately sized for the specified nominal currents. Reduction factors in accordance with DIN VDE 0298-4 are to be taken into account for various layout methods.

LAYOUT PLAN

Applications requiring curves, transfers, switches or isolations require a completed and approved layout plan prior to delivery.

SYSTEM LAYOUT



L = length of conductor section (standard length: 1m, 2m, 3m, 4m, 5m, 6m respectively short length)
 L1 = support distance for straight runs: max. 1.2m in curves: max. 0.6m
 L2 = overhang (max. 350mm)
 L3 = distance, to be allowed for conductor system expansion (min. 50mm)

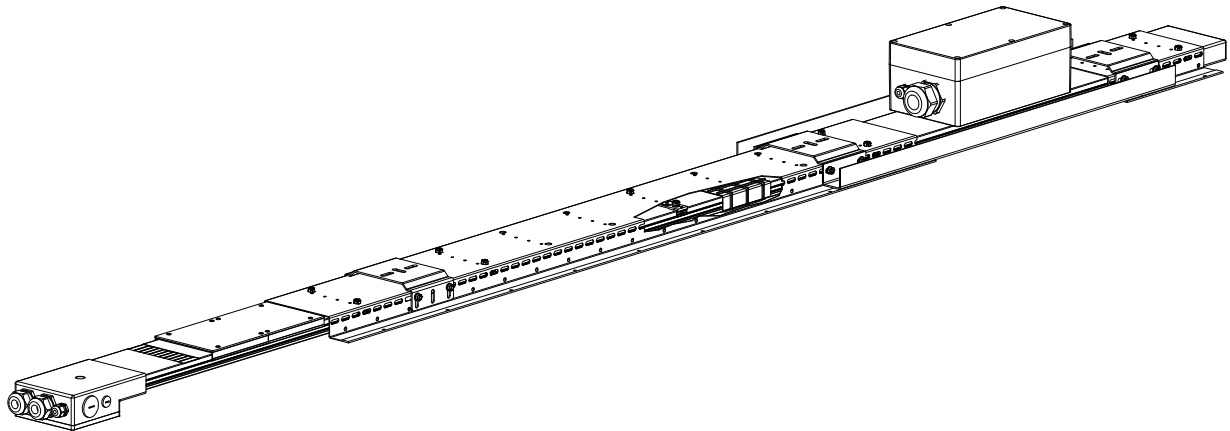
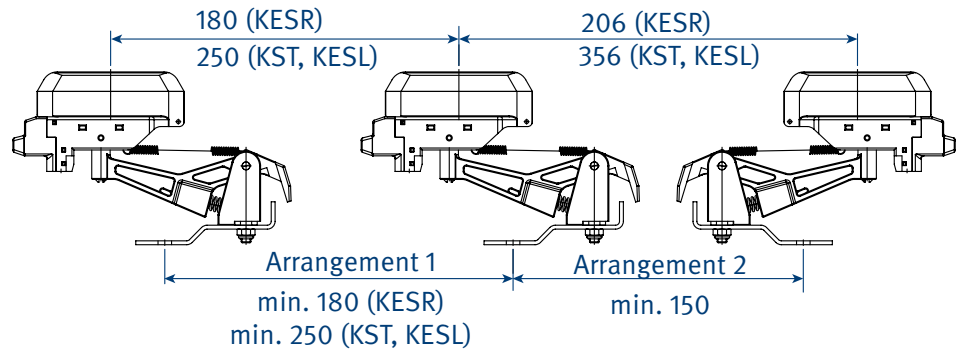
MAX. HANGER DISTANCE

CONDUCTOR SYSTEM VKS10

- In straight runs 1.2 m
- In curves 0.6 m
- Horizontal 0.6 m

SUPPORT PROFILE VTP10

- On rack uprights 4.5 m
- On support posts 4.0 m
- Horizontal arrangement 3.0 m
- Attached to the wall 3.0 m



STANDARD SECTIONS


Standard lengths: 6 m
Cold stores: 4 m
HS = with ground

Standard length is 6 meters, please
change order no. suffix to 1, 2, 3, 4, 5 as
required.

ATTENTION: Joints to be ordered
separately (see page 8).

Example Order-No: 780 046
Example Order-No: 780 044



Type	Weight kg/m	Max. continuous current A at 35 °C	Nominal Voltage V ⁽⁵⁾	Conductor cross section			No. of conductors	Order-No.
				Phase L1, L2, L3		5-10 ⁽⁴⁾		
VKS10-4/63 HS	2.020	63	690	3x16	1x16	-	4	780 996
VKS10-4/100 HS	2.250	100	690	3x25	1x16	-	4	780 716
VKS10-4/120 HS	2.359	120	690	3x30	1x16	-	4	780 906
VKS10-4/140 HS	2.520	140 ⁽¹⁾	690	3x35	1x16	-	4	780 686
VKS10-5/63 HS	2.156	63	690	3x16	1x16	1x16	5	780 616
VKS10-5/100 HS	2.384	100	690	3x25	1x16	1x16	5	780 706
VKS10-5/120 HS	2.729	120	690	3x30	1x16	1x16	5	780 626
VKS10-5/140 HS	2.864	140 ⁽¹⁾	690	3x35	1x16	1x16	5	781 286
VKS10-6/63 HS	2.300	63	690	3x16	1x16	2x16	6	780 046
VKS10-6/100 HS	2.540	100	690	3x25	1x16	2x16	6	780 056
VKS10-6/120 HS	2.640	120	690	3x30	1x16	2x16	6	780 066
VKS10-6/140 HS	2.810	140 ⁽¹⁾	690	3x35	1x16	2x16	6	780 076
VKS10-7/63 HS	2.450	63	690	3x16	1x16	3x16	7	780 036
VKS10-7/100 HS	2.680	100	690	3x25	1x16	3x16	7	780 086
VKS10-7/120 HS	2.810	120	690	3x30	1x16	3x16	7	780 096
VKS10-7/140 HS	2.950	140 ⁽¹⁾	690	3x35	1x16	3x16	7	780 016
VKS10-8/63 HS	2.590	63	690	3x16	1x16	4x16	8	780 216
VKS10-8/100 HS	2.830	100	690	3x25	1x16	4x16	8	780 226
VKS10-8/120 HS	2.960	120	690	3x30	1x16	4x16	8	780 236
VKS10-8/140 HS	3.090	140 ⁽¹⁾	690	3x35	1x16	4x16	8	780 246
VKS10-9/63 HS	2.740	63	690	3x16	1x16	5x16	9	780 256
VKS10-9/100 HS	2.970	100	690	3x25	1x16	5x16	9	780 266
VKS10-9/120 HS	3.110	120	690	3x30	1x16	5x16	9	780 276
VKS10-9/140 HS	3.240	140 ⁽¹⁾	690	3x35	1x16	5x16	9	780 286
VKS10-9/200 HS	3.280	200 ⁽²⁾	690	6x25	1x25	2x16	9	780 146
VKS10-9/240 HS	3.600	240 ⁽²⁾	690	6x30	1x30	2x16	9	780 136
VKS10-9/280 HS	3.910	280 ⁽¹⁾⁽²⁾	690	6x35	1x35	2x16	9	780 126

(1) At 80% duty cycle


(2) 2 conductors per phase

(3) Copper projecting length 34 mm at 20 °C ambient

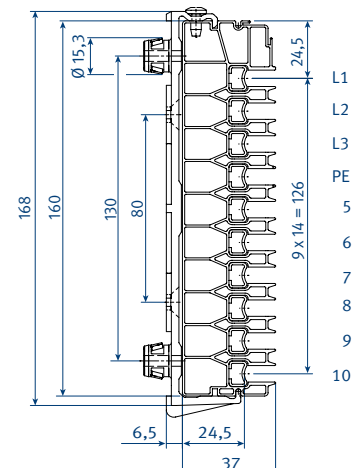
(4) Consult factory in case of circuits incl. N conductors.

(5) Not with UL-approval: $U_{UL}=600$ V

STANDARD SECTIONS CONT.

Type	Weight kg/m	Max. continuous current A at 35 °C	Nominal Voltage V ⁽⁵⁾	Conductor cross section			No. of conductors	Order-No.
				Phase L1, L2, L3		5-10 ⁽⁴⁾		
VKS10-10/63 HS	2.880	60	690	3x16	1x16	6x16	10	780 296
VKS10-10/100 HS	3.110	100	690	3x25	1x16	6x16	10	780 206
VKS10-10/120 HS	3.250	120	690	3x30	1x16	6x16	10	780 306
VKS10-10/140 HS	3.380	140 ⁽¹⁾	690	3x35	1x16	6x16	10	780 316
VKS10-10/200 HS	3.430	200 ⁽²⁾	690	6x25	1x25	3x16	10	780 106
VKS10-10/240 HS	3.740	240 ⁽²⁾	690	6x30	1x30	3x16	10	780 116
VKS10-10/280 HSA	4.050	280 ⁽¹⁾⁽²⁾	690	6x35	1x35	3x16	10	780 026

POLE CONFIGURATION



VKS10-4/ 60-140	VKS10-5/ 60-140	VKS10-6/ 60-140	VKS10-7/ 60-140	VKS10-8/ 60-140	VKS10-9/ 60-140	VKS10-9/ 200-280 ⁽²⁾	VKS10-10/ 60-140	VKS10-10/ 200-280 ⁽²⁾
L1	L1	L1	L1	L1	L1	L1	L1	L1
L2	L2	L2	L2	L2	L2	L2	L2	L2
L3	L3	L3	L3	L3	L3	L3	L3	L3
PE	PE	PE	PE	PE	PE	PE	PE	PE
free	5	5	5	5	5	I1	5	I1
free	free	6	6	6	6	I2	6	I2
free	free	free	7	7	7	I3	7	I3
free	free	free	free	8	8	8	8	8
free	free	free	free	free	9	9	9	9
free	free	free	free	free	free	free	10	10

(1) At 80% duty cycle

(2) 2 conductors per phase

(3) Powerail projecting length 34 mm at 20 °C ambient

(4) Consult factory in case of circuits incl. N conductors.

(5) Not with UL-approval: $U_{UL}=600$ V

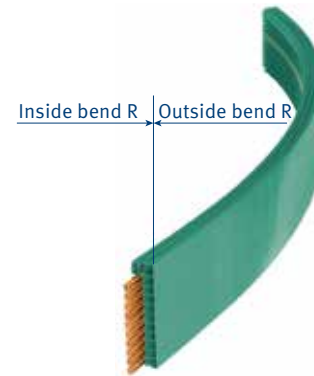
CURVED SECTIONS

SPECIFICATIONS

Minimum copper cross section = 25mm²
 Maximum curve length = 5.3 meters
 Hanger distance = 0.6 meter
 Maximum angle = 180°
 Inside bend = conductors inside
 Outside bend = conductors outside
 Minimum horizontal radius (inside) = 1000mm⁽¹⁾
 Minimum horizontal radius (outside) = 1500mm⁽¹⁾

TO ORDER

Identify desired VKS 10 type (pg. 6-7).
 Supply desired type and system layout drawing to factory. Consult factory for parameters outside listed specs. Vertical curves possible. Consult factory for details. Bends are supplied with straight ends, each 250mm long.



JOINT KITS

Each kit supplied with joint material & joint cover.
 See "No. of Poles" for quantity of joint material per kit.
 One joint kit required per system joint.

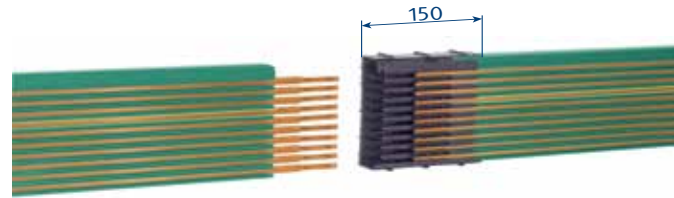
JOINT MATERIAL



**Plug-in joint
for 140-280 A**



**Plug-in joint
for 60 A and 100 - 120 A**



Type	Weight kg	No. of Poles	Order No.
SV10-4/63	0.165	4	781 321
SV10-4/100-120	0.165	4	781 322
SV10-4/140	0.344	4	781 323
SV10-5/63	0.385	5	781 315
SV10-5/100-120	0.385	5	781 320
SV10-5/140	0.366	5	781 277
SV10-6/63	0.407	6	781 150
SV10-6/100-120	0.407	6	781 151
SV10-6/140	0.388	6	781 152
SV10-7/63	0.429	7	781 153
SV10-7/100-120	0.429	7	781 154
SV10-7/140	0.410	7	781 155
SV10-8/63	0.451	8	781 156

Type	Weight kg	No. of Poles	Order No.
SV10-8/100-120	0.451	8	781 157
SV10-8/140	0.432	8	781 158
SV10-9/63	0.473	9	781 159
SV10-9/100-120	0.473	9	781 160
SV10-9/140	0.454	9	781 161
SV10-9/200-240	0.473	9	781 162
SV10-9/280	0.423	9	781 163
SV10-10/63	0.495	10	781 164
SV10-10/100-120	0.495	10	781 165
SV10-10/140	0.476	10	781 166
SV10-10/200-240	0.495	10	781 167
SV10-10/280	0.450	10	781 168

(1) Smaller radius on request

SYSTEM COMPONENTS

FIXPOINT HANGER

On C-rail consisting of hanger clamp and fixing screw and C-rail



Type	Weight kg	Order-No.
VEPS10-H	0.224	780 007

SLIDING HANGER

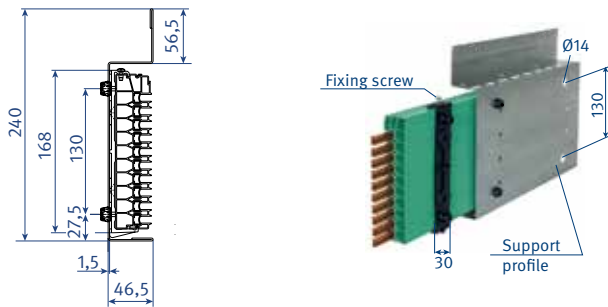
On C-rail consisting of hanger clamp and C-rail



Type	Weight kg	Order-No.
VAS10-H	0.223	780 008

FIXPOINT HANGER

For support profile VTP 10 consisting of hanger and fixing screw



Type	Weight kg	Order-No.
VEPS10-VTP	0.033	780 009

SLIDING HANGER

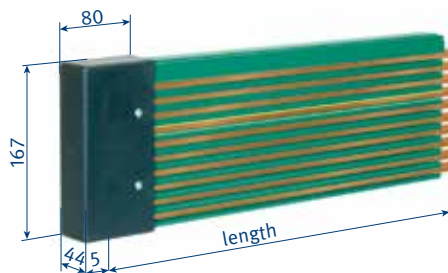
For support profile VTP 10 consisting of hanger clamp



Type	Weight kg	Order-No.
VAS10-VTP	0.032	780 010

END CAP

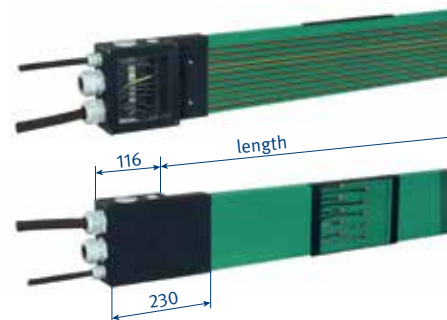
Can be used right or left handed. Supplied loose as individual part with fixing screws.



Type	Weight kg	Order-No.
VES10L	0.210	780 004

END FEED

Terminal box supplied loose, only in conjunction with line feed VLS⁽²⁾



Type	Weight kg	Order-No.
VEKS10-10/63-280 ⁽¹⁾	0.664	780 018

(1) Cable glands 2 x ST-M 40 x 1.5 for Ø = 19-28 mm, 1 x ST-M 20 x 1.5 für Ø = 7-13 mm

(2) Please order VLS line feed separately

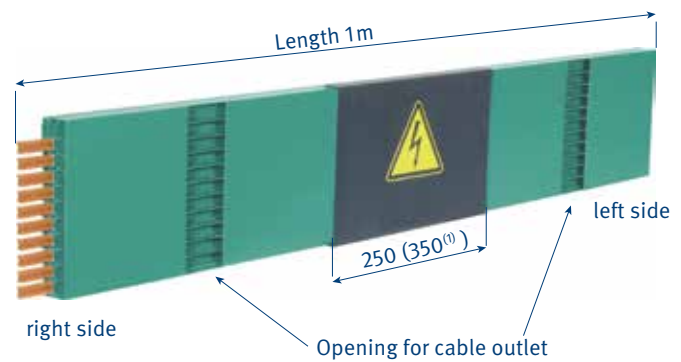
LINE FEEDS

LINE FEED VLS

For direct connection of single core cables
 M6 terminal with special cable shoe for single core cables;
 35 mm² (up to cable Ø 8.5 mm) for 140 A.
 25 mm² (up to cable Ø 8.2 mm) for 100 A - 120 A.
 or feed bolts for 60 A conductor system

Note: 1 meter section must be ordered separately.

May be used in conjunction with end feed VEKS



Type	Weight kg	Current (A)	No. of poles	Order-No.
VLS10-4/63	0.217	60	4	781 445
VLS10-4/100-120	0.382	100-120	4	781 479
VLS10-4/140	0.574	140	4	781 478
VLS10-5/63	0.230	60	5	780 610
VLS10-5/100-120	0.426	100-120	5	780 759
VLS10-5/140	0.630	140	5	780 745
VLS10-6/63	0.217	60	6	780 047
VLS10-6/100-120	0.382	100-120	6	780 060
VLS10-6/140	0.574	140	6	780 187
VLS10-7/63	0.230	60	7	780 049
VLS10-7/100-120	0.426	100-120	7	780 188
VLS10-7/140	0.630	140	7	780 189
VLS10-8/63	0.243	60	8	780 050
VLS10-8/100-120	0.470	100-120	8	780 196
VLS10-8/140	0.686	140	8	780 198
VLS10-9/63	0.256	60	9	780 058
VLS10-9/100-120	0.514	100-120	9	780 199
VLS10-9/140	0.742	140	9	780 191
VLS10-9/200-240 ⁽¹⁾	0.744	200-240	9	780 322
VLS10-9/280 ⁽¹⁾	0.828	280	9	780 321
VLS10-10/63	0.269	60	10	780 059
VLS10-10/100-120	0.558	100-120	10	780 192
VLS10-10/140	0.798	140	10	780 208
VLS10-10/200-240 ⁽¹⁾	0.757	200-240	10	780 318
VLS10-10/280 ⁽¹⁾	0.815	280	10	780 317

(1) Larger cap

LINE FEEDS

LINE FEED VNS

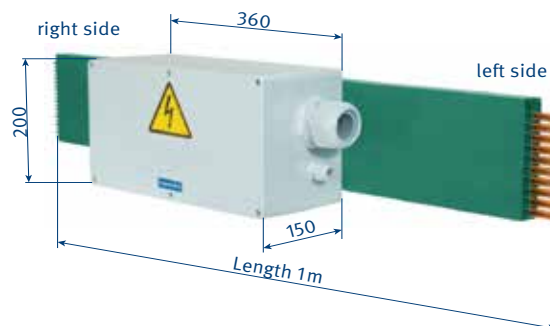
With terminal box

Cable gland: STR-M 63 x 1.5 for $\varnothing = 28-45$
STR-M 20 x 1.5 for $\varnothing = 5-13$

Connection cable: to be supplied by customer

Cable connection: Main current: M10
Control current: M5

Note: 1 meter section must be ordered separately.
Standard cable payout on left.

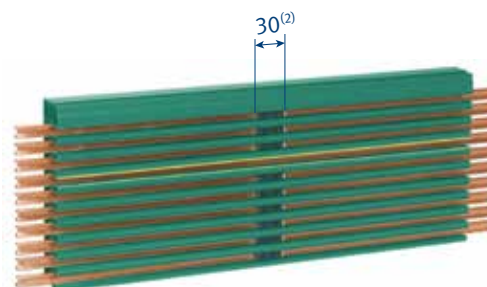


Type	Weight kg	Current A	No. of poles	Order-No.
VNS10-4/63-140	2.354	60-140	4	780 527
VNS10-5/63-140	2.580	60-140	5	780 537
VNS10-6/63-140	2.766	60-140	6	780 327
VNS10-7/63-140	2.952	60-140	7	780 328
VNS10-8/63-140	3.138	60-140	8	780 329
VNS10-9/63-140	3.324	60-140	9	780 330
VNS10-9/200-280	2.840	200-280	9	780 334
VNS10-10/63-140	3.510	60-140	10	780 331
VNS10-10/200-280	2.865	200-280	10	780 332

ISOLATING SECTION ⁽¹⁾

Specify the position of the isolating sections and the designation of the conductor profiles, which are to be separated, when ordering.

The sections are factory assembled on customer chosen conductor section, loose delivery on request only.



Type	Weight kg/m (lbs)	Order No.
VSTS1/10-63M	0.004	156 933
VSTS1/100M	0.004	150 150
VSTS1/120M	0.004	151 674
VSTS1/140M	0.004	156 335

(1) For specification of the conductor profile refer to page 7

(2) Length of the conductor interruption (longer interruptions on request).

TRANSFER FUNNELS & GUIDES

TRANSFER FUNNEL

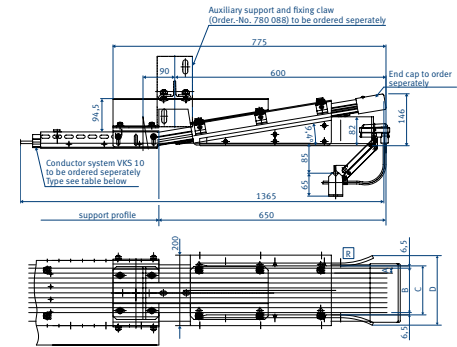
For current collector KSTU 30-63-14

Max. speed $v = 100$ m/min.

Tolerances: $x = \pm 10$ mm

$y = \pm 10$ mm

Note: Conductor section must be ordered separately. See below & page 6-7



Type	Weight kg	A mm	B mm	C mm	D mm	No. of poles	Order-No.
EFTV10-4-KSTU30/63-14L	7.594	14	42	55	109	4	781 441
EFTV10-4-KSTU30/63-14R	7.594	14	42	55	109	4	781 440
EFTV10-5-KSTU30/63-14L	7.584	14	56	69	123	5	780 746
EFTV10-5-KSTU30/63-14R	7.584	14	56	69	123	5	780 747
EFTV10-6-KSTU30/63-14L	7.574	14	70	83	137	6	780 350
EFTV10-6-KSTU30/63-14R	7.574	14	70	83	137	6	780 173
EFTV10-7-KSTU30/63-14L	7.564	14	84	97	151	7	780 349
EFTV10-7-KSTU30/63-14R	7.564	14	84	97	151	7	780 172
EFTV10-8-KSTU30/63-14L	7.554	14	98	111	165	8	780 348
EFTV10-8-KSTU30/63-14R	7.554	14	98	111	165	8	780 171
EFTV10-9-KSTU30/63-14L	7.554	14	112	125	179	9	780 347
EFTV10-9-KSTU30/63-14R	7.544	14	112	125	179	9	780 170
EFTV10-7-KSTU30/63-14L	7.534	14	126	139	193	10	780 349
EFTV10-10-KSTU30/63-14R	7.534	14	126	139	193	10	780 169

CONDUCTOR SECTION FOR EFTV FUNNEL

Must be ordered in conjunction with EFTV funnel. All cross sections 25 mm², length 1365 mm

Type	Order-No.
VKS10-4/100-1365HS	781 442
VKS10-5/100-1365HS	780 743
VKS10-6/100-1365HS	780 247
VKS10-7/100-1365HS	780 248

Type	Order-No.
VKS10-8/100-1365HS	780 249
VKS10-9/100-1365HS	780 250
VKS10-9/100-1365HS	780 250
VKS10-10/100-1365HS02AT	780 257

TRANSFER FUNNELS & GUIDES

TANGENTIAL ENTRY FUNNEL

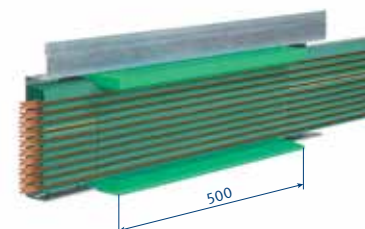
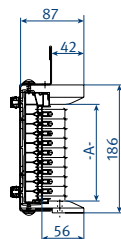
For collector KSTU 30-63

Max. entry speed $v = 100$ m/min.

Copper cross section min. 25 mm^2

Tolerances: $x = \pm 10$ mm

$y = + 8$ mm, -7 mm



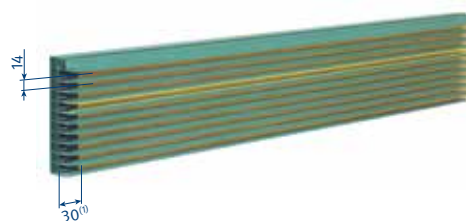
Type	Weight kg	Current (A)	No. of poles	Order-No.
DSEV10-4-KSTU30/63	1.888	56.5	4	781 453
DSEV10-5-KSTU30/63	1.884	70.5	5	781 452
DSEV10-6-KSTU30/63	1.880	84.5	6	780 168
DSEV10-7-KSTU30/63	1.876	98.5	7	780 167
DSEV10-8-KSTU30/63	1.872	112.5	8	780 166
DSEV10-9-KSTU30/63	1.868	126.5	9	780 165
DSEV10-10-KSTU30/63	1.575	140.5	10	780 164

TRANSFER GUIDE VU 10

For cross travel and terminal lines

Max. height- and lateral off-set: ± 2 mm

Max. air gap between the transfer guides: 5 mm



Type	Assignment from top	Order-No.
VU10-4L	conductor 1-4	781 456
VU10-4R	conductor 1-4	781 457
VU10-5L	conductor 1-5	781 458
VU10-5R	conductor 1-5	781 459
VU10-6L	conductor 1-6	780 287
VU10-6R	conductor 1-6	780 288
VU10-7L	conductor 1-7	780 227
VU10-7R	conductor 1-7	780 228
VU10-8L	conductor 1-8	780 229
VU10-8R	conductor 1-8	780 230
VU10-9L	conductor 1-9	780 289
VU10-9R	conductor 1-9	780 290
VU10-10L	conductor 1-10	780 269
VU10-10R	conductor 1-10	780 270

(1) Length of the conductor dead section (longer dead sections on request)

COMPACT CURRENT COLLECTORS

COMPACT CURRENT COLLECTOR KESR 32-55

Reverse run

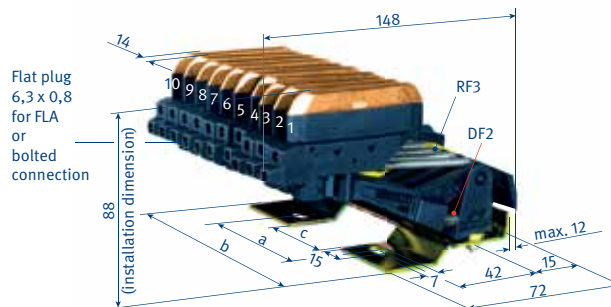
Distance between conductors: 14 mm

Lift and swivel ± 15 mm

Contact pressure: approx.: 7 N per carbon brush

PE (ground) on No. 4, (other combinations possible)

The ground collector always moves first when entering the conductor system.



Max. current	Flat plug	Bolted connection
32 A	FLA 2.5	AEA 2.5
40 A	FLA 4.0	AEA 4.0
55 A	FLA 6.0	AEA 6.0

KESR-F

Connecting cables with flat plug, see page 19

Type	Weight kg	a mm	b mm	c mm	No. of Poles	Baseplate	Order-No.	
KESR 32-55 F 4-14 HS	0.480	28	62	-	4	4-pole	143 170	
KESR 32-55 F 5-14 HS	0.540	56	90	-	5	6-pole (no. 6 free)	143 373	
KESR 32-55 F 6-14 HS	0.600	56	90	-	6	6-pole	143 113	
KESR 32-55 F 7-14 HS	0.660	80	118	53	7	8-pole (no. 8 free)	143 114	
KESR 32-55 F 8-14 HS	0.720	80	118	53	8	8-pole	143 115	
KESR 32-55 F 9-14 HS	0.780	80	146	53	9	10-pole (no. 10 free)	143 116	
KESR 32-55 F 10-14 HS	0.840	80	146	53	10	10-pole	143 117	
Single collector							Phase	Ground
KESR 32-55 F/14	0.060						143 111	143 112

KESR-S

Connecting cables with bolted connection, see page 19

Type	Weight kg	a mm	b mm	c mm	No. of Poles	Baseplate	Order-No.	
KESR 32-55 S 4-14 HS	0.504	28	62	-	4	4-pole	142 937	
KESR 32-55 S 5-14 HS	0.570	56	90	-	5	6-pole (no. 6 free)	142 938	
KESR 32-55 S 6-14 HS	0.636	56	90	-	6	6-pole	142 939	
KESR 32-55 S 7-14 HS	0.702	80	118	53	7	8-pole (no. 8 free)	142 940	
KESR 32-55 S 8-14 HS	0.768	80	118	53	8	8-pole	142 941	
KESR 32-55 S 9-14 HS	0.834	80	146	53	9	10-pole (no. 10 free)	142 942	
KESR 32-55 S 10-14 HS	0.890	80	146	53	10	10-pole	142 943	
Single collector							Phase	Ground
KESR 32-55 S/14	0.066						143 120	143 121

COMPACT CURRENT COLLECTORS

COMPACT CURRENT COLLECTOR KESR 63 S

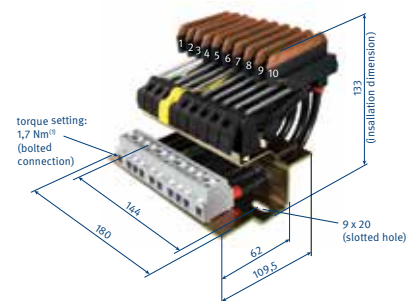
Reverse run with adapter plate and clamping block.

Distance between conductors: 14 mm

Lift and swivel ± 15 mm

Contact pressure: approx.: 7 N per carbon brush

The ground collector always moves first when entering the conductor system.



LEFT HAND VERSION

Ground on No.4 (as shown in image)

Type	No. of Poles	Configuration	Order-No.
KESR 63S-4-14-HS-KBL	4	1- 4	781 089
KESR 63S-5-14-HS-KBL	5	1- 6	781 088
KESR 63S-6-14-HS-KBL	6	1- 6	781 087
KESR 63S-7-14-HS-KBL	7	1- 7	781 086
KESR 63S-8-14-HS-KBL	8	1- 8	781 085
KESR 63S-9-14-HS-KBL	9	1- 9	781 084
KESR 63S-10-14-HS-KBL	10	1-10	781 083

RIGHT HAND VERSION

Ground on No. 7

Type	No. of Poles	Configuration	Order-No.
KESR 63S-4-14-HS-KBR	4	7-10	781 096
KESR 63S-5-14-HS-KBR	5	6-10	781 095
KESR 63S-6-14-HS-KBR	6	5-10	780 094
KESR 63S-7-14-HS-KBR	7	4-10	781 093
KESR 63S-8-14-HS-KBR	8	3-10	781 092
KESR 63S-9-14-HS-KBR	9	2-10	781 091
KESR 63S-10-14-HS-KBR	10	1-10	781 090

COLLECTOR SPARE PARTS

Type	Description	Order-No.
MK 63S-14	Carbon brush	780 921
KESR32-55S/14PE	Current collector PE	143 121
KESR32-55S/14PH	Current collector PH	143 120

(1) Max. cross section of connecting cable 16 mm² (UL = 10 mm²)

COMPACT CURRENT COLLECTORS

COMPACT CURRENT COLLECTOR KESL 32-63

Reverse run

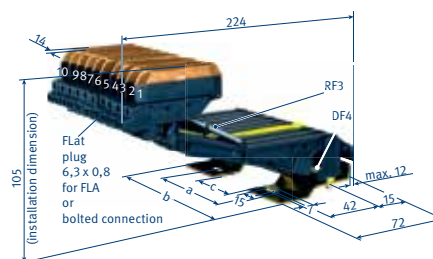
Distance between conductors: 14 mm

Lift and swivel ± 30 mm

Contact pressure approx.: 7 N per carbon brush

PE (ground) on No. 4, (other combinations possible)

The ground collector always moves first when entering the conductor system.



Max. current	Flat plug	Bolted connection
32 A	FLA 2.5	AEA 2.5
40 A	FLA 4.0	AEA 4.0
55 A	FLA 6.0	AEA 6.0
63 A	-	AEA 10.0

KESL-F

For connecting cables with flat plug, see page 19

Type	Weight kg	a mm	b mm	c mm	No. of Poles	Baseplate	Order-No.	
KESL 32-55 F-4-14 HS	0.536	28	62	-	4	4-pole	143 152	
KESL 32-55 F-5-14 HS	0.612	56	90	-	5	6-pole (no. 6 free)	781 257	
KESL 32-55 F-6-14 HS	0.688	56	90	-	6	6-pole	142 883	
KESL 32-55 F-7-14 HS	0.764	80	118	53	7	8-pole (no. 8 free)	142 884	
KESL 32-55 F-8-14 HS	0.840	80	118	53	8	8-pole	142 885	
KESL 32-55 F-9-14 HS	0.916	80	118	53	9	10-pole (no. 10 free)	142 886	
KESL 32-55 F-10-14 HS	0.992	80	118	53	10	10-pole	142 887	
Single collector							Phase	Ground
KESL 32-55F/14	0.076						142 881	142 882

KESL-S

For connecting cables with bolted connection, see page 19

Type	Weight kg	a mm	b mm	c mm	No. of Poles	Baseplate	Order-No.	
KESL 32-63 S-4-14 HS	0.553	28	62	-	4	4-pole	143 539	
KESL 32-63 S-5-14 HS	0.637	56	90	-	5	6-pole (no. 6 free)	143 354	
KESL 32-63 S-6-14 HS	0.721	56	90	-	6	6-pole	142 888	
KESL 32-63 S-7-14 HS	0.803	80	118	53	7	8-pole (no. 8 free)	142 889	
KESL 32-63 S-8-14 HS	0.885	80	118	53	8	8-pole	142 890	
KESL 32-63 S-9-14 HS	0.967	80	118	53	9	10-pole (no. 10 free)	142 891	
KESL 32-63 S-10-14 HS	1.049	80	118	53	10	10-pole	142 892	
Single collector							Phase	Ground
KESL 32-63S/14	0.084						168 395	142 880

COMPACT CURRENT COLLECTORS

COMPACT CURRENT COLLECTOR KESL 63 S

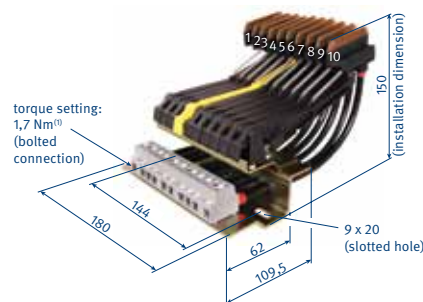
For reverse run with adapter plate and clamping block.

Distance between conductors: 14 mm

Lift and swivel ± 30 mm

Contact pressure: approx.: 7 N per carbon brush

The ground collector always moves first when entering the conductor system.



LEFT HAND VERSION

As shown. Ground on No.4

Type	No. of Poles	Configuration	Order-No.
KESL 63S-4-14-HS-KBL	4	1- 4	781 075
KESL 63S-5-14-HS-KBL	5	1- 5	781 074
KESL 63S-6-14-HS-KBL	6	1- 6	781 073
KESL 63S-7-14-HS-KBL	7	1- 7	781 072
KESL 63S-8-14-HS-KBL	8	1- 8	781 071
KESL 63S-9-14-HS-KBL	9	1- 9	781 070
KESL 63S-10-14-HS-KBL	10	1-10	781 069

RIGHT HAND VERSION

Ground on No. 7

Type	No. of Poles	Configuration	Order-No.
KESL 63S-4-14-HS-KBR	4	7-10	781 082
KESL 63S-5-14-HS-KBR	5	6-10	781 081
KESL 63S-6-14-HS-KBR	6	5-10	781 080
KESL 63S-7-14-HS-KBR	7	4-10	781 079
KESL 63S-8-14-HS-KBR	8	3-10	781 078
KESL 63S-9-14-HS-KBR	9	2-10	781 077
KESL 63S-10-14-HS-KBR	10	1-10	781 076

SPARE PARTS

Type	Description	Order-No.
MK63S-31-14	Carbon brush	780 921
KESL32-63S/14PE-31-0	Current collector PE	142 880
KESL32-63S/14PH-31-0	Current collector PH	168 395

(1) Max. cross section of connecting cable 16 mm² (UL = 10 mm²)

COLLECTORS

SINGLE CURRENT COLLECTOR

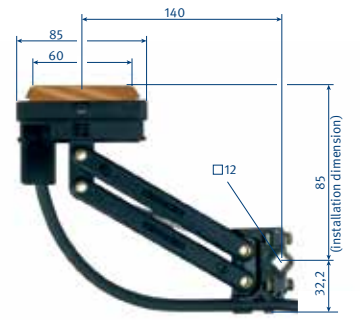
CURRENT COLLECTOR KST

Reverse run

incl. 2 connecting cable

Lift and swivel ± 20 mm

Contact pressure approx: 5 N



Type	Weight kg	Current A	Connection cable		Order-No.	
			A in mm ²	d max. in mm	Phase	Ground (yellow)
KST 30	0.240	30	2.50	5	152 085	152 086
KST 55	0.368	55	6.00	11	154 438	154 439
KST 63	0.394	63	10.00	9	156 791	156 792

CURRENT COLLECTOR KSTU

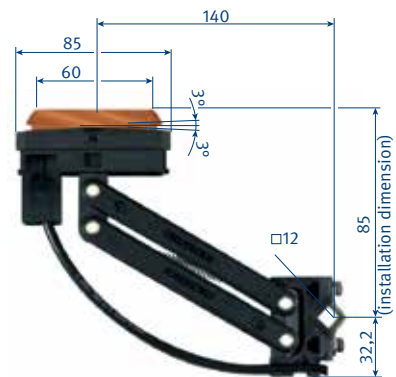
Reverse run

for funnels and tangential entry funnels
(multi systems)

incl. 2 connecting cable

Lift and swivel ± 20 mm (in funnels
10 mm to all sides)

Contact pressure approx: 5 N



Type	Weight kg	Current A	Connection cable		Order-No.	
			A in mm ²	d max. in mm	Phase	Ground (yellow)
KSTU 30	0.240	30	2.50	5	168 363	168 364
KSTU 55	0.368	55	6.00	11	168 361	168 362
KSTU 63	0.394	63	10.00	9	148 018	148 019

CONNECTING CABLES

CONNECTING CABLE FLA

Highly flexible, for current collectors with flat plug "F"

Note quantity requirements per collector

Length: 1 m incl. flat plug 6.3 x 0.8

Longer connecting length available on request

Temperature range: 5 °F to + 158 °F



Type	Weight kg	A in mm ²	d max. in Ø mm	Order-No.	
				Phase	Ground (yellow)
FLA 2.5	0.080	2.50	4.00	165 049	165 050
FLA 4	0.100	4.00	6.00	165 051	165 052
FLA 6	0.150	6.00	7.00	166 368	166 369

Max. current	Flat plug	Bolted connection
32 A	FLA 2.5	AEA 2.5
40 A	FLA 4.0	AEA 4.0
55 A	FLA 6.0	AEA 6.0
63 A	-	AEA 10.0

CONNECTING CABLE AEA

Highly flexible, for current collectors with flat plug "S"

Note quantity requirements per collector

Length: 1 m

Longer connecting length available on request

Temperature range: 5 °F to + 158 °F



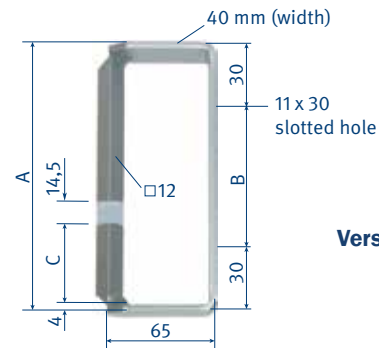
Type	Weight kg	A mm ²	d max. Ø mm	Order-No.	
				Phase	Ground (yellow)
AEA 2.5	0.038	2.50	4.00	143 080	143 079
AEA 4	0.063	4.00	5.50	143 078	143 077
AEA 6	0.085	6.00	6.00	143 076	143 075
AEA 10	0.160	10.00	9.00	143 074	143 073

SPARE PARTS & ACCESSORIES

COLLECTOR BRACKET

For current collectors KST 30-63 (page 18).

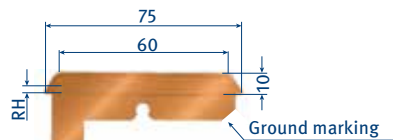
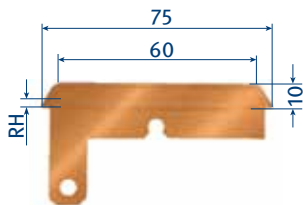
Version "R" with ground



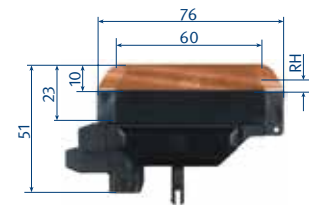
Version "R" shown with ground

Type	Weight kg	A mm	B mm	C mm	Order-No.
UMA 12HS-B-4-14L-80	0.33	80	20	50	781 444
UMA 12HS-B-4-14R-80	0.33	80	20	50	781 443
UMA 12HS-B-5-14L-94	0.36	94	34	50	780 186
UMA 12HS-B-5-14R-94	0.36	94	34	50	780 185
UMA 12HS-B-6-14L-108	0.39	108	48	50	780 184
UMA 12HS-B-6-14R-108	0.39	108	48	50	780 183
UMA 12HS-B-7-14-122	0.42	122	62	50	780 181
UMA 12HS-B-8-14L-136	0.46	136	76	50	780 180
UMA 12HS-B-8-14R-136	0.46	136	76	50	780 179
UMA 12HS-B-9-14L-150	0.49	150	90	50	780 178
UMA 12HS-B-9-14R-150	0.49	150	90	50	780 177
UMA 12 HS-B-10-14L-164	0.52	164	104	50	780 176
UMA 12HS-B-10-14R-164	0.52	164	104	50	780 175

CARBON BRUSHES



KMK30-63 PE

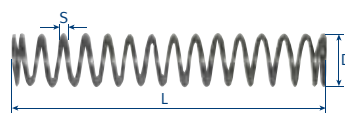


MK55 PH/PE

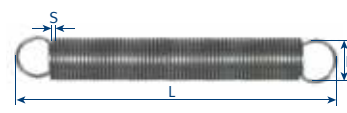
Type	Weight kg	RH mm	for current collector	Carbon brush thickness mm	Order-No.
KMK 30-63 PH	0.031	4.00	KST 30-KST 63 und KSTU 30-63	4.40	154 440
KMK 30-63 PE	0.031	4.00	KST 30-KST 63 und KSTU 30-63	4.40	154 453
MK 55F-31-14	0.040	3.50	KESR 32-55F und KESL 32-55F	4.20	780 920
MK 63S-31-14	0.046	3.50	KESR 32-63S und KESL 32-63S	4.20	780 921

SPARE PARTS & ACCESSORIES

SPRINGS



Pressure spring DF



Tension spring RF

Type	for current collector	S mm	D mm	L mm	Order-No.
DF 2	KESR 32-63	0.90	7.70	43.00	153 848
RF 3	KESR 32-53 KESL 32-63	0.40	4.40	31.00	153 849
DF 4	KESL 32-63	1.10	6.40	41.00	157 312

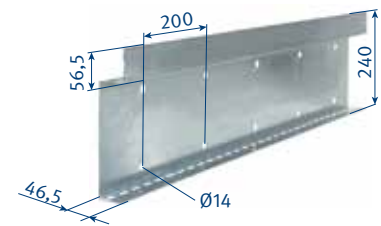
SPARE PARTS VKS 10

Type	Description	Order-No.
SV10	Connector cap	780 137
STV60-VKS10	Plug-in joint (10 – 60 a)	780 807
STV100-120-VKS10	Plug-in joint (100 – 120 a)	780 808
STV140-VKS10	Plug-in joint (140 a)	780 028
AB-VLS10/200-280	Connection bolts, complete for VLS 10/ 60 + 200-280	780 138
AB-VLS10/60-280	Connection bolts, complete for VLS 10/100-140	780 130
AB-VNS10/60-280	Connection bolts, complete for VNS 10/ 60-280	780 139
DSEV10	Plastic glue for tangential funnel DSEV 10	780 280

AUXILIARY SUPPORT

SUPPORT PROFILE

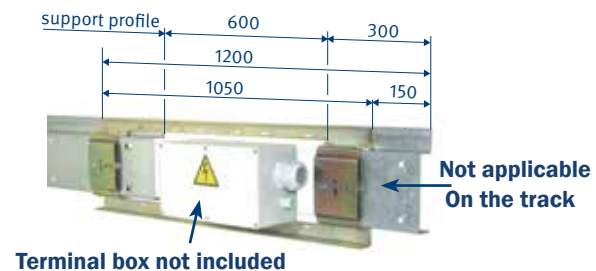
Length: 6 m



Type	Weight kg	Order-No.
VTP10-6000	4.300	781 006

SUPPORT PROFILE VTP 10

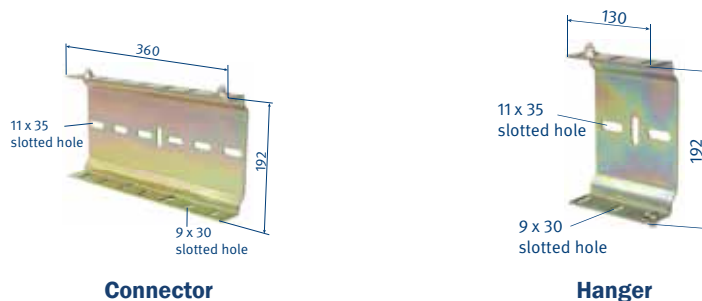
for feed VNS 10, VLS 10



Type	Description	Order-No.
VTPB1050-ESAE	Version for initial / end section	780 100
VTPB1050-ESST	Version on the track	780 098

CONNECTOR AND HANGER

Only as single component otherwise included in the attachment material of the support profile (page 21)



Type	Weight kg	Description	Order-No.
VTPV 10	2.398	Connector	781 000
VTPA10-130	0.878	Hanger	781 007

AUXILIARY SUPPORT

Length: 500 mm

Incl. fixing material



Type	Weight kg	Order-No.
HSE-500	1.894	781 677

SUPPORT PROFILE ATTACHMENTS

FIG. 1: VTPB-P

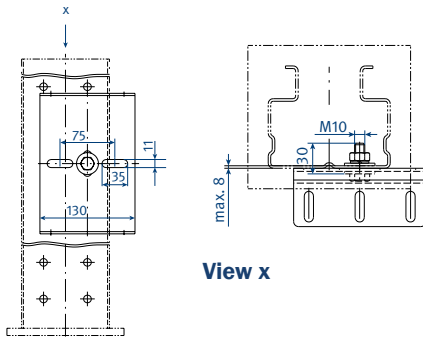


FIG. 2: VTPB-35-165

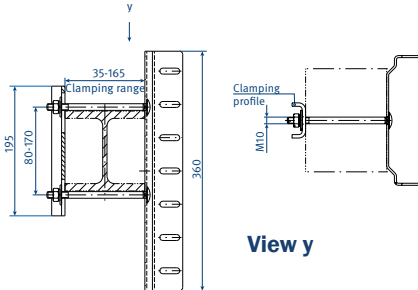


FIG. 3: VTPB-360-SPR

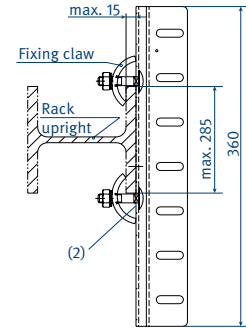


FIG. 4: VTPD 130-SPW

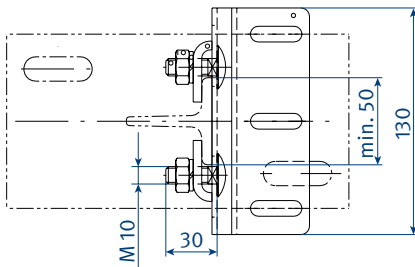


FIG. 5: VTPB 130-S1/2

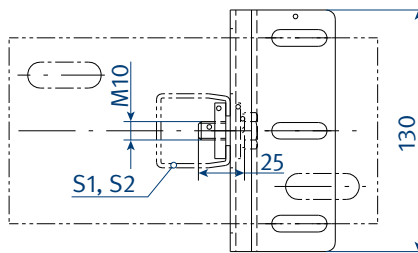
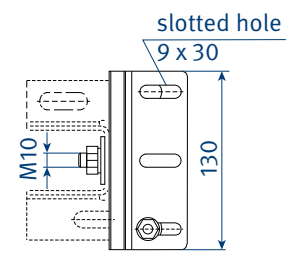


FIG. 6: VTPB 130-HST

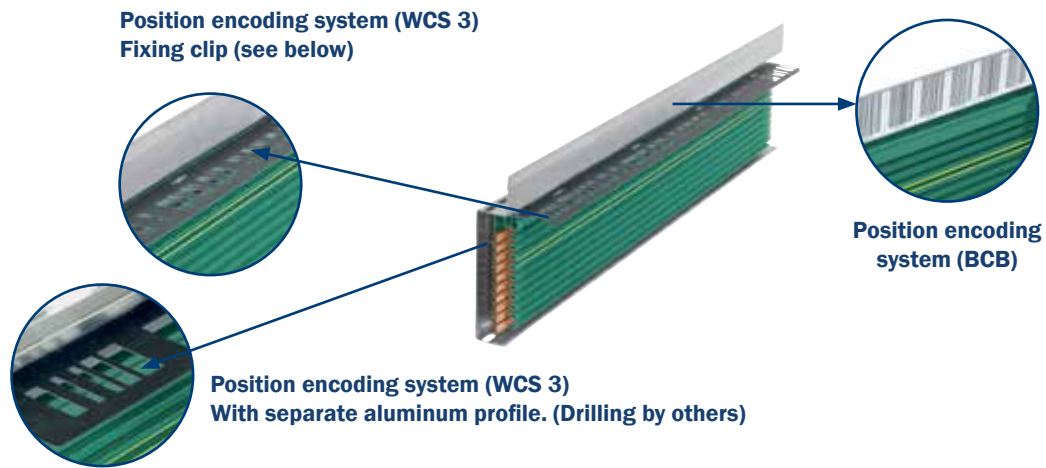


Type ⁽¹⁾	Weight kg	Clamping range mm	Fig.	Order-No.
VTPB130-P-30	0.938	Max. 8	1	780 147
VTPB360-SPR	2.674	Max. 15	3	780 149
VTPB130-SPW	1.066	Max. 6	4	780 148
VTPB360-35-45	3.054	35-45	2	780 150
VTPB360-45-55	3.062	45-55	2	780 151
VTPB360-55-65	3.076	55-65	2	780 152
VTPB360-65-75	3.084	65-75	2	780 153
VTPB360-75-85	3.096	75-85	2	780 154
VTPB360-85-95	3.102	85-95	2	780 155
VTPB360-90-105	3.110	90-105	2	780 156
VTPB360-100-115	3.118	100-115	2	780 157
VTPB360-110-125	3.132	110-125	2	780 158
VTPB360-120-135	3.144	120-135	2	780 159
VTPB360-130-145	3.152	130-145	2	780 160
VTPB360-140-155	3.164	140-155	2	780 161
VTPB360-150-165	3.712	150-165	2	780 162
VTPB130-S1/2	0.944	Max. 8	5	780 163
VTPB130-HST	0.922	Max. 8	6	781 678

(1) Bigger clamping range on request

(2) Locking torque of the round-head screw M 10, MA= 18 Nm

POSITIONING SYSTEMS



EARTHING OF THE CODE RAIL:

Ensure the WCS code rail is connected to a low Ohmic potential every 30m or less.

Type	Weight kg	Order-No.
WCS3-EVTP10	0.026	302 160

FIXING CLIP

For laminate band
Fixing distance 0.2 m



Type	Weight kg	Order-No.
WCS3-BKK	0.002	780 193

POSITIONING

Encoding band



Type	Weight kg	Description	Order-No.
WCS3-CS70-L2	0.040	Plastic laminate band with special perforation (WCS 3)	302 106
WCS3-FPK	0.001	Screws for fixation	780 140
BCB-50	0.015	Barcode band (BCB)	302 107

(1) Max. travel length 327 m

(2) Max. travel length 10,000 m

INSTALLATION TOOLS

JOINT CAP ASSEMBLY TOOL

For use with support profile



Type	Weight kg	Order-No.
MGVK	0.350	780 070

COPPER CONNECTOR

MOUNTING LEVER

For use with support profile



Type	Weight kg	Order-No.
MGVS	1.50	780 090

INSTALLATION COMB

Set for VKS10

To adjust the air gap at the joint



Type	Weight kg	Order-No.
MK	0.230	781 112

QUESTIONNAIRE

Company: _____ Fax: _____
 Date: _____ Email: _____
 Phone: _____ Internet: _____

1. Number of conductor system installations: _____
2. Type of equipment to be powered: _____
3. Operating voltage: _____ Volt Frequency: _____ Hz
 Three phase voltage: AC voltage: DC voltage:
4. Track length: _____
5. Number of conductors: _____ neutral: _____ control: _____ ground: _____
6. Mounted position of conductor system:
 Conductor pendant / collector cable facing to the bottom Conductor pendant / collector cable lateral payout⁽¹⁾
 Support distance (m): _____ Other: _____
7. Number of consumers per system: _____
8. Indoor: Outdoor:
9. Special operating conditions (humidity, dust, chemical influences etc.) _____
10. Ambient temperature: _____ °C min. _____ °C max.
11. Hall expansion joints: _____ pieces. min. _____ max. _____ expansion
12. Position and number of feeding points⁽¹⁾: _____
13. Position and number of isolating sections (e.g. for maintenance⁽¹⁾): _____
14. How will the conductor system be arranged?⁽¹⁾: _____
15. Brackets required: yes ; no c/c distance beam / conductor system _____
 Flange width of beam: _____
16. Travel speed: _____ in curves: _____ at transfers: _____
17. Max. voltage drop from the conductor feed point to the consumer considering starting current:
 3% other _____ % referring to the nominal voltage.
18. Power consumption of the individual consumer loads: _____

Motor Data	Crane 1						Crane 2							
	Power kW	Nominal current			Starting current		Type of Motors ⁽²⁾	Power kW	Nominal current			Starting current		Type of Motors ⁽²⁾
		A	cos ΦN	% DC	A	cos ΦN			A	cos ΦN	% DC	A	cos ΦN	
Hoist motors														
Auxiliary hoist														
Long travel														
Cross travel														

Mark with * those motors which can run simultaneously

Mark with Δ those motors which can start up simultaneously

Further remarks: _____

Signature _____

(1) Sketches required for quotation

(2) Use: K for squirrel cage motor, S for slipring motor, F for frequency controlled motor



SERVICE & SUPPORT

WE DEVELOP TAILOR-MADE SOLUTIONS FOR YOUR APPLICATIONS

The successful range of VAHLE systems is complemented by a comprehensive range of services tailored to meet our customers' requirements, including

- System design
- Project management
- Commissioning
- Engineering
- Installation & installation supervising
- After-sales service
- Product training courses
- Maintenance packages

We will be glad to apply our expertise to develop specific solutions for your company. Give us a call and arrange for an appointment to learn more about VAHLE systems and services to meet your requirements.



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