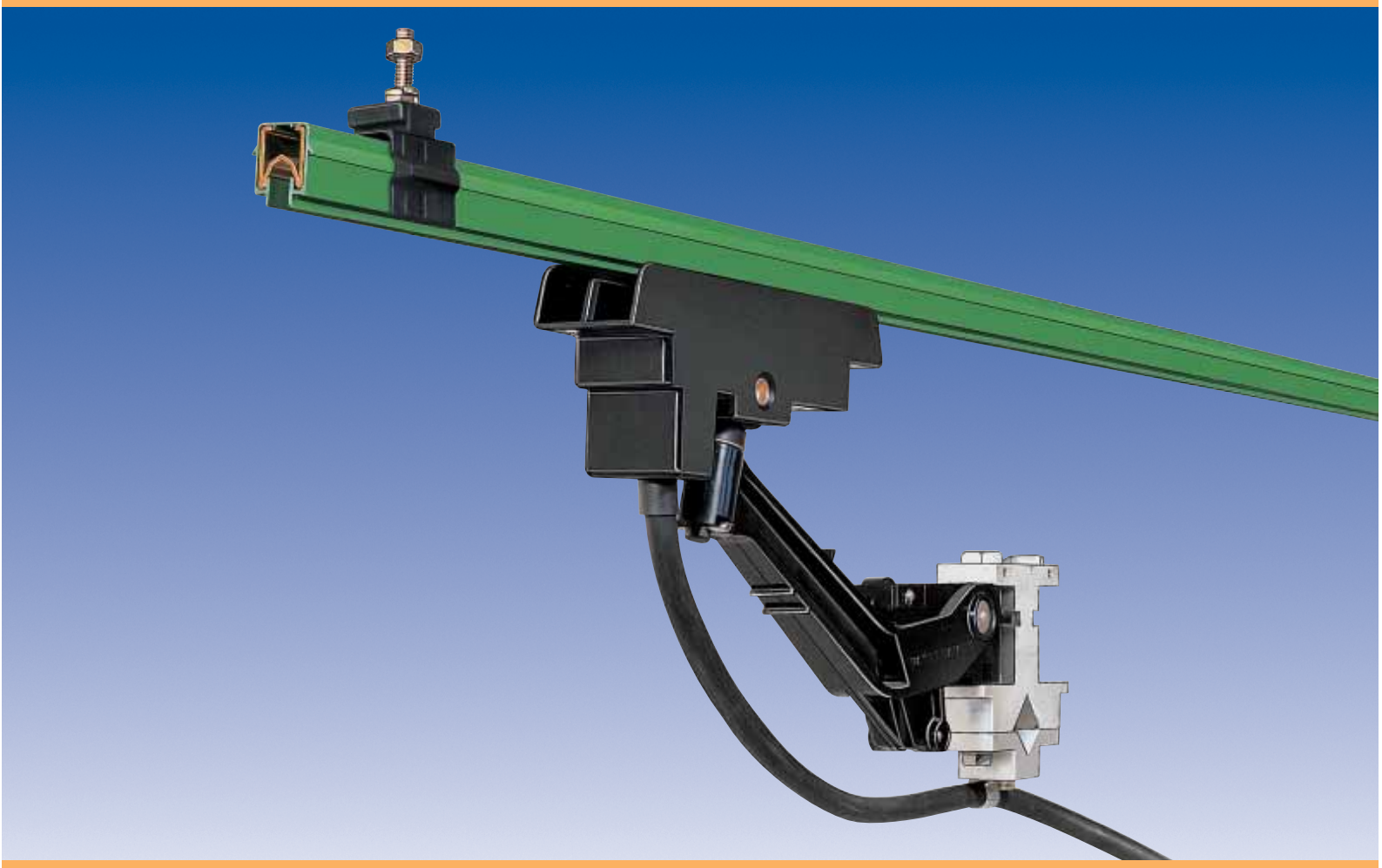


INSULATED CONDUCTORS

U 15 - U 25 - U 35

VAHLE

ELECTRIFICATION SYSTEMS

Collector rings with insulated conductors see leaflet No. 102.

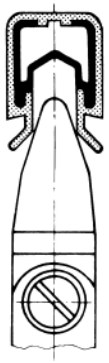
INSULATED CONDUCTORS U 15 – U 25 – U 35

General

VAHLE insulated conductors U 15, U 25 and U 35 are designed in accordance with today's international safety requirements. They fully meet VDE 0100 and are finger safe to VDE 0470, part 1, protection code IP 23.

The adjacent picture demonstrates that the VDE test finger cannot reach live conductors – finger safety is guaranteed.

The shroud which envelopes the various conductors is an excellent insulator. Therefore our unipole insulated conductors guarantee utmost safety in operation.



Any number of conductors can be installed side by side at minimum space requirement.

Standard rail sections U 15, U 25 are 6 m and U 35, 6.25 m long.

Shorter sections are available.
The ground conductor is identified by international colour coding.

For obvious safety reasons phase and ground collectors are not interchangeable.

Approved and listed by

U 15: SEV and CSA,
U 25: UL.
Consult factory label service.

Hangers

Snap-on or bolt-on brackets can be used to install conductors to the runway track. Spacing between rail supports:

U 15: see page 5,
U 25: see page 23,
U 35: see page 34.

Insulators

Insulators are recommended for difficult environmental conditions (extreme humidity, chemicals etc.)

Joint splices

Bolted joint splices are designed to rigidly join conductor bars and provide mechanical and electrical continuity. They include insulated protection covers.

Expansion joint sections must be provided for high temperature fluctuation and for system runs exceeding 100 m for U 15 (150 m for U 25/U 35) – see installation procedure.

Feed terminals

Feed terminal sets are preferably installed at conductor joints. Adequate single core feed cables must be provided for connection of the incoming power.

End caps

The open ends of unipole conductors are closed by end caps.

Transfer funnels and Transfer guides

Single pole and multi pole transfer guides are available for spur-lines, turntables and switches or other tranfer applications.

Isolating sections

Isolating 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 isolating sections are available for sectionalizing control circuits, maintenance bays etc.

Curves

Factory fabricated or field prepared radius bends can be used for horizontal or vertical curves.

Collectors

The current collectors are made of re-inforced polyamide/polycarbonate and stainless steel parts. These spring loaded units provide positive contact with the conductor bars and have one or two pickup-shoes.
The collector of the AE-Conductor which are working with only > 10 m/min. travel speed or stand most of the time are only permitted to work with 50 % of the continuous current.

Safety advice

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.

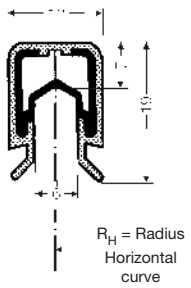
Engineering data of shroud

	standard shroud color green	high temp. shroud color gray
Electrical properties: Di-electric strength DIN 53481	30-40 kV/mm	45 kV/mm
Specific resistance DIN 53482	5 x 10^{15} Ohm/cm	5 x 10^{17} Ohm/cm
Surface resistance DIN 53482	10^{13} Ohm	10^{15} Ohm
Leakage resistance IEC 1112 / VDE 0303	CTI 600-1,1	CTI 600-1,1
Mechanical properties Flexible strength	75 N/mm^2 ± 10%	95 N/mm^2 ± 10%
Tensile strength	50 N/mm^2 ± 10%	50 N/mm^2 ± 10%
Ambient temperature	–30 °C to +55 °C	–30 °C to +85 °C
Flame test proof per DIN 4102 part 1	class B1 no flaming particles, self-extinguishing	

Chemical resistance for both designs:

Shroudings in the standard design (color green) and in the heat resistant design (color grey) are resistance against mineral oil, fats, caustic soda 25%, caustic soda 50%, concentrated hydrochloric acid; suflfuric acid upto 50%.

Please note: For use in galvanizing and pickling plants, under agressive conditions and low voltage applications we would appreciate receiving detailled information,especially of the environmental conditions.
For quotations and order processing including Powerail systems with curves, dead sections, turntables, switches etc. we require your drawings or sketches. Please use our questionnaire, page 44.



Conductor code:

U = unipole insulated conductor
15 = shroud size
25 = conductor cross sectional area (mm^2)
C = copper conductor
E = stainless steel conductor

Length:

6 m is standard length,
shorter lengths are available

Conductor spacing:

on compact hangers 18 mm
on standard hangers with insulators min. 50 mm

Curves:

factory prepared min. radius 400 mm or in the field with curve tool BVU 10/15

Heating system:

available, please consult factory.

Chemical and electrical properties
see page 4

Support spacing:

for straight runs & lateral curves, also horizontal R_H = 5 m[2]
with single collector 1 m
with double collector (KDST) 800 mm

for horizontal curves R_H = 5 m[2]
with single collector 500 mm
with double collector (KDST) 400 mm

Stromschienenausführung

	U 15/25 C	U 15/25 E
Weight kg/m	0,295	0,285
Standard shroud, color green		
Cat-No. phase[1]	162 13 •	162 15 •
Cat-No. ground[1]	162 19 •	162 21 •
High temperature shroud, color gray		
Cat-No. phase[1]	162 16 •	162 18 •
Cat-No. ground[1]	162 22 •	162 24 •

Engineering Data

Conductor Rail Type	Cross sectional area mm^2		Leakage distance of shroud mm	max. voltage V	continuous amp. capacity A at 35 °C	Resistance Ohm/1000 m	Impedance Ohm/1000 m based on 50 Hz & conductor spacing		
	Cu	stainless steel					18 mm	25 mm	50 mm
U 15/25 C	25		30	660	100	0,692	0,698	0,701	0,709
U 15/25 E		25	30	660	10	29,077	29,077	29,077	29,077

Selection of conductors

in accordance to ampere load and environmental conditions

U 15/25 C copper conductor for power and control system applications.

U 15/25 E stainless steel conductor for control and data-transmission in corrosive atmospheres

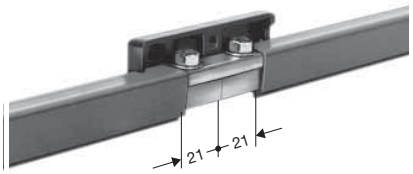
New material handling techniques (automated overhead monorails) require reliable electrification and use U 15 conductors.

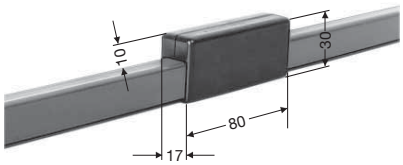
[1] Add last number (1, 2, 3, 4, 5 or 6 m length suffix) in accordance to bars required.
[2] Recommendation

ACCESSORIES FOR U 15

Bolted joint splice

applicable as feed terminal, too.



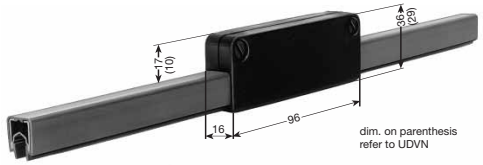


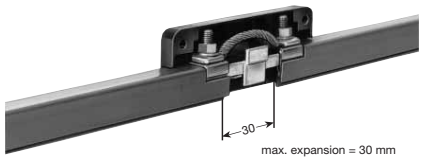
Corresponding to UE 15 K 4

Type	weight kg	Cat.-No.
UV 15 K 4(1)	0,040	160 102

Expansion sections

factory assembled on 1 m long conductor section incl. one joint splice.
The 1 m expansion assembly is part of the system length.





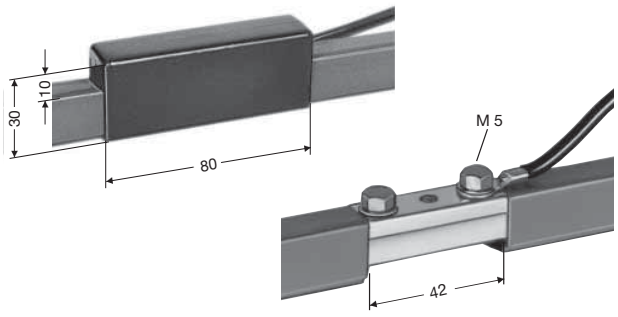
Standard shroud, color green

Type	weight kg	Cat.-No. phase	Cat.-No. ground
UDV(3) 15/25 C K 4(1)	0,430	160 276	160 277
UDV(3) 15/25 E K 4(1)	0,420	160 288	160 289
UDVN(2) 15/25 C K 4(1)	0,430	160 294	160 295
UDVN(2) 15/25 E K 4(1)	0,420	160 306	160 307

High temperature shroud, color gray

Type	weight kg	Cat.-No. phase	Cat.-No. ground
UDV(3) 15/25 C K 4(1)	0,430	160 280	160 281
UDV(3) 15/25 E K 4(1)	0,420	160 292	160 293
UDVN(2) 15/25 C K 4(1)	0,430	160 298	160 299
UDVN(2) 15/25 E K 4(1)	0,420	160 308	160 309

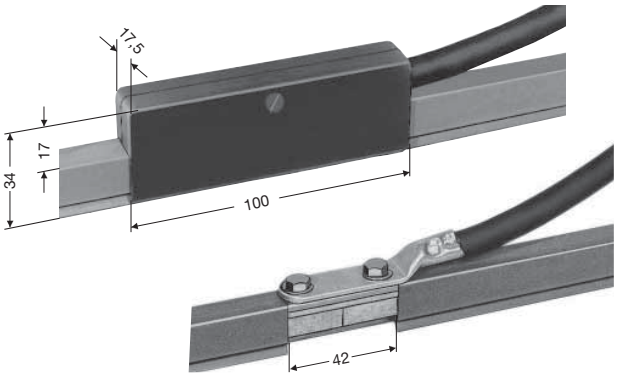
Feed terminals



Corresponding to UV 15 K
Feed cables: 2 of max. 6 mm^2 (AWG 9)

Type	weight kg	Cat.-No.
UE 15 K 4(1)	0,040	160 107

Cable lug and cable by others



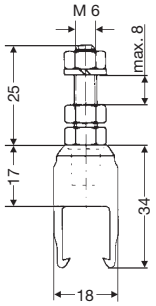
Cross-section connection
Feed cable: 1 of max 25 mm^2 (to ø 8,2 mm) (AWG 3)

Type	weight kg	Cat.-No.
UEG 15 K(1)	0,060	160 216

Cable by others. Staggered installation.
Special cable lug comes with feed terminal.

(1) with stainless steel hardware
(2) max. ampacity 70 A
(3) max. ampacity 100 A

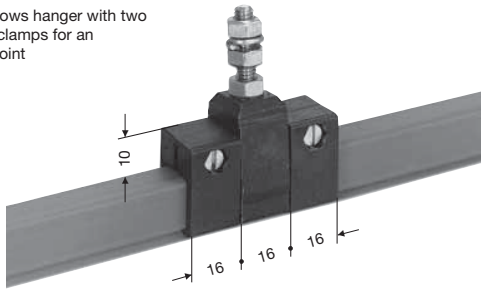
Insulated hangers[2]



Type	weight kg	Cat.-No.
UA 15	0,020	160 113
UA 15 K 4[1]	0,020	160 115

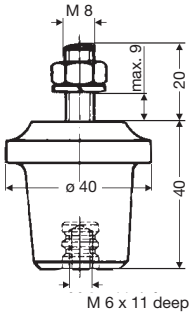
Locating clamp

Photo shows hanger with two locating clamps for an anchor point



Type	weight kg	Cat.-No.
USK 15 K 4[1]	0,030	160 106

Insulators[2]

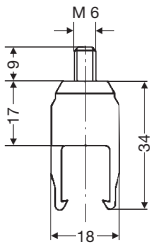


cantilever = 3000 N
creapage distance = 60 mm

Type	weight kg	Cat.-No.
GH 40-M 6	0,100	160 117
GH 40-M 6 K 4[1]	0,100	160 119

Rail holders

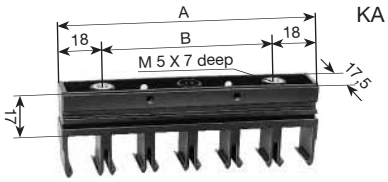
to be used with insulator only



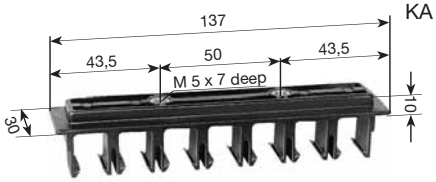
Type	weight kg	Cat.-No.
UAK 15	0,015	160 121
UAK 15 K 4[1]	0,015	160123

Compact hangers 2- to 7pole

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



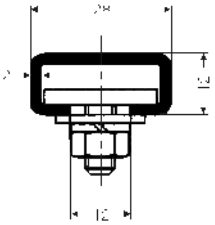
KA 15/6 (KH 15/6)



KA 15/7

For max. 660 volts, conductor spacing 18 mm.
Hanger KA 15 is for direct bolting to the support structure.
Hanger KH 15 to go with bracket profile 28/12.

Type	Dim. A	Dim. B	weight kg	Cat.-No.
KH 15/2	36	–	0,012	161 559
KH 15/3	54	–	0,018	161 453
KH 15/4	72	–	0,023	161 452
KH 15/5	90	–	0,029	161 558
KH 15/6	108	–	0,035	160 139
KA 15/2[2]	36	–	0,015	161 566
KA 15/3[2]	54	–	0,023	161 567
KA 15/4[2]	72	36	0,028	162 010
KA 15/5[2]	90	36	0,033	161 498
KA 15/6[2]	108	72	0,040	160 138
KA 15/7[2]	–	–	0,050	160 140



Bracket profiles 28/12

incl. locking hardware

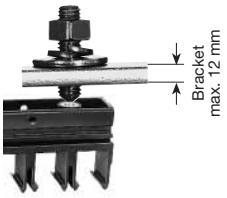
Type	Length mm	for poles	weight kg	Cat.-No.
HU 15/200	200	6 + 7	0,130	161 434
HU 15/330	330	12 +14	0,300	161 435

Longer brackets furnished on special order.

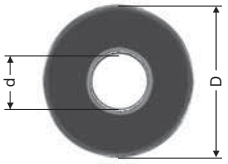
[1] with stainless steel hardware
[2] Attachment hardware (see page 8) to be ordered separately; two flat washers to be used in slotted holes.

ACCESSORIES FOR U 15

Attachment hardware for compact hangers, insulated hangers and insulators



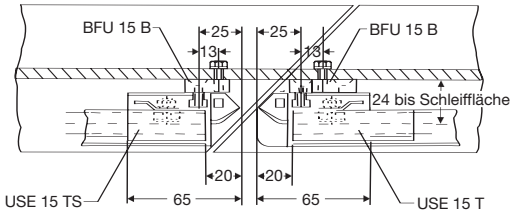
Type	weight kg	Cat.-No.
BE 5 K 4[(1)]	0,001	161 441

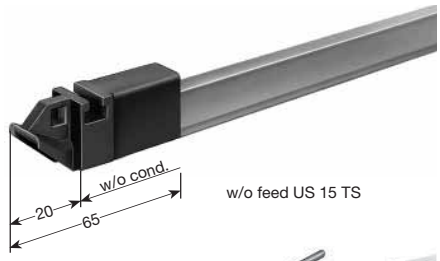


Type	Thread	d mm	D mm	S mm	weight kg	Cat.-No.
Scheibe 5,3 K 4[(1)]	M 5	5,30	15	1,60	0,002	161 408

Transfer guides for monorail systems

with and without feed terminals
(also serving for anchor points in conjunction with BFU 15 B)



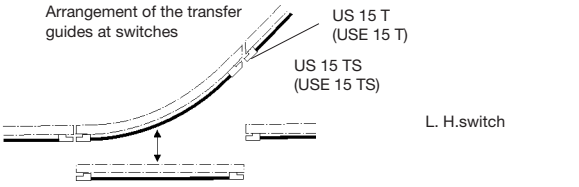


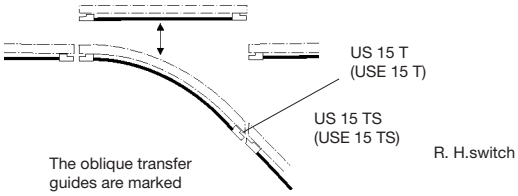
w/o feed US 15 TS

c/w feed USE 15 T
(cable terminal 6.3 mm x 0.8 mm)

max. gap between opposite transfer guides:
6 mm for straight transfers
10 mm for oblique transfers

max. vertical and horizontal offset: ±2 mm

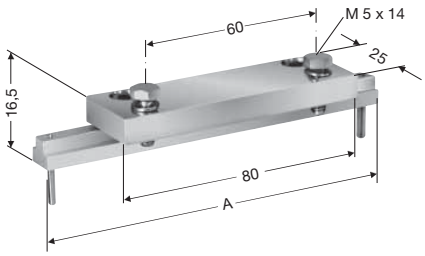




Type	feed terminal	weight kg	Cat.-No.
US 15 T	w/o	0,016	160 840
US 15 TS	w/o	0,016	160 841
USE 15 T	c/w	0,018	160 842
USE 15 TS	c/w	0,018	160 843

Anchor bars for monorail transfer guide

for bolting to the track, consisting of 1 aluminium bar, 2 hex. screws M 5 x 14 with washers, 2 locking pins 2 x 20



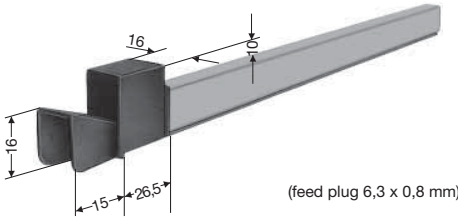
(Distance between conductor sliding surface and track = 24 mm; corresponds to compact hanger KA 15/6)

Type	poles	Dim. A mm	weight kg	Cat.-No.
BFU 15 B-6	1 – 6	116	0,095	160 851
BFU 15 B-8	1 – 8	152	0,120	160 852

(1) with stainless steel hardware

Transfer guides

(no anchor point function)

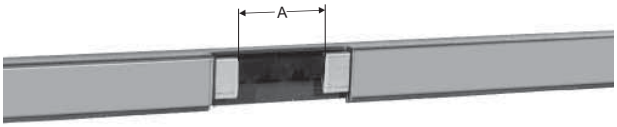


(feed plug 6,3 x 0,8 mm)

max. gap between opposite transfer guides 6 mm
max. vertical and horizontal offset ± 2 mm

Type	feed terminal	weight kg	Cat.-No.
US 15	w/o	0,010	160 125
USE 15	c/w	0,050	160 126
separately available: **SE 15** feed plug		0,040	160 859

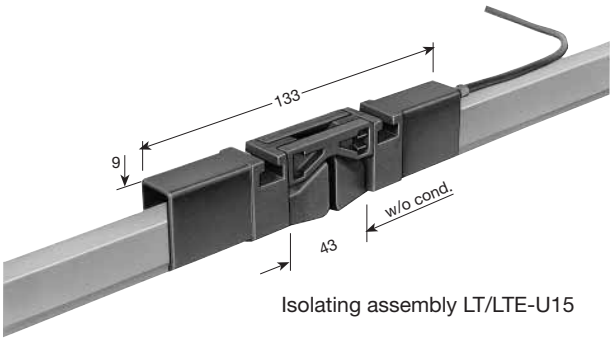
Isolating sections



Typ M: factory assembled per system layout
Typ L: loose
Use two hangers, max. 2 x 200 mm apart for stability.
Conductors and hangers are to be ordered separately.

Type[1]	Length of isolating piece A	weight kg	Cat.-No.
IT/U 15- 5 M	5	0,003	160 111
IT/U 15-15 M	15	0,004	160 240
IT/U 15-30 M	30	0,004	160 112
IT/U 15-90 M	90	0,007	160 241
IT/U 15- 5 L	5	0,003	160 226
IT/U 15-15 L	15	0,004	160 243
IT/U 15-30 L	30	0,004	160 227
IT/U 15-90 L	90	0,007	160 242

Isolating assemblies



Isolating assembly LT/LTE-U15

For ordering feed cable FLA see page 15.
Conductors and hangers are to be ordered separately.
Use two extra hangers, max. 2 x 200 mm apart for stability.

Type	symbol	comprising	weight kg	Cat.-No.
LT /LT -U 15		2 x LT/U 15	0,032	160 844
LT /LTE-U 15		2 x LT/U 15 1 x flat plug	0,034	160 845
LTE/LTE-U 15		2 x LT/U 15 2 x flat plug	0,036	160 846

The two transfer button elements are pressed together to form a rigid, well aligned unit.

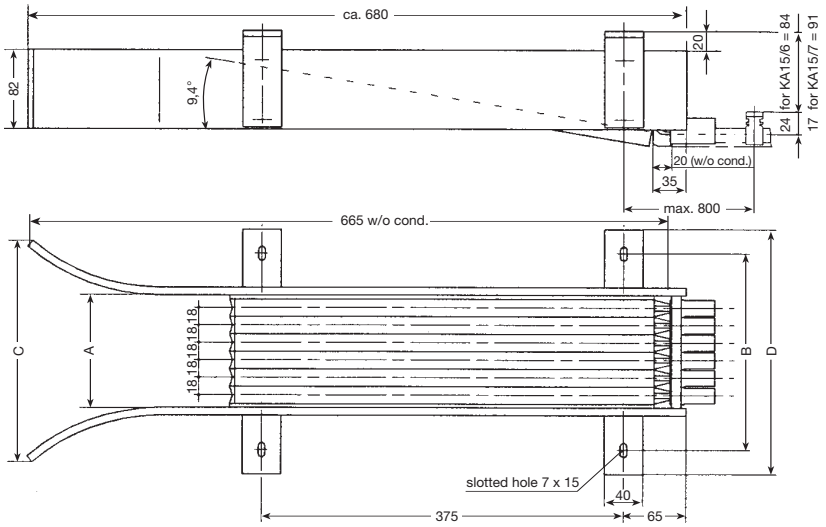
End caps c/w locking pin 3 x 12

Type[1]	weight kg	Cat.-No.
UK 15-M (factory assembled)	0,005	161 656
UK 15-L (loose)	0,005	160 109

[1] Type M = factory assembled
Type L = loose

Transfer funnels for KSTU 30/55

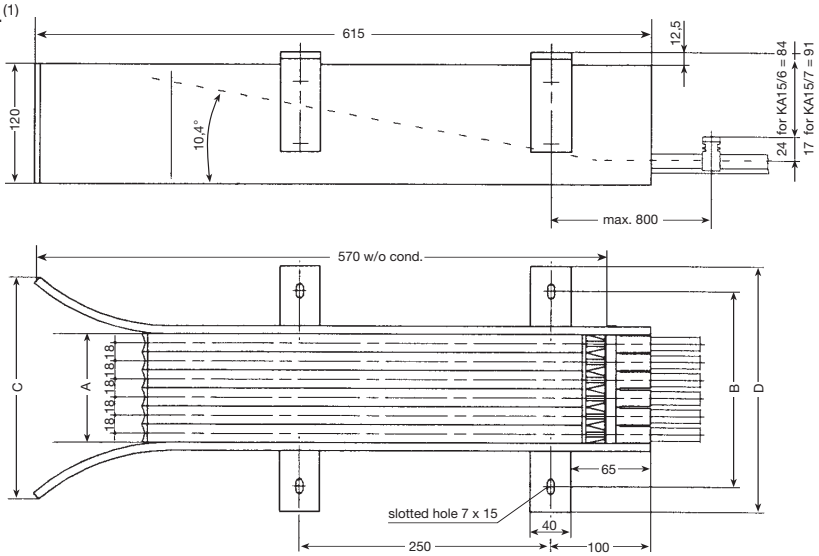
for max. speed v = 120 m/min.(1)



Type	A mm	B mm	C mm	D mm	weight kg	Cat.-No.
EFT U 15-2 - KSTU	44	130	157	180	2,960	161 747
EFT U 15-3 - KSTU	62	148	175	198	3,140	161 748
EFT U 15-4 - KSTU	80	166	193	216	3,320	161 749
EFT U 15-5 - KSTU	98	184	211	234	3,500	161 750
EFT U 15-6 - KSTU	116	202	229	252	3,680	161 751
EFT U 15-7 - KSTU	134	220	247	270	3,860	161 752
EFT U 15-8 - KSTU	162	238	265	288	4,040	161 753

Tranfer funnels for KSTLU / KDSTLU

for max. speed v = 120 m/min.(1)

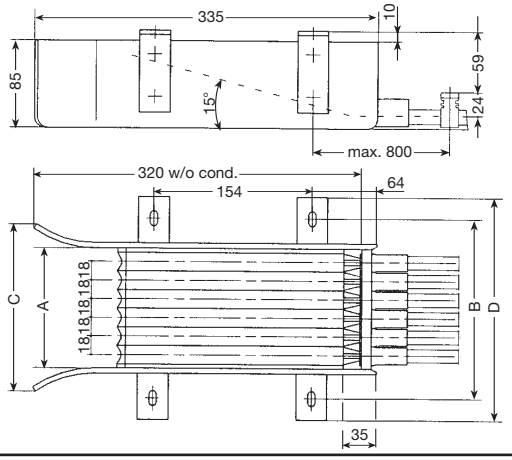


Type	A mm	B mm	C mm	D mm	weight kg	Cat.-No.
EFT U 15-2 - KDSTLU	36	122	148	172	2,860	161 668
EFT U 15-3 - KDSTLU	54	140	166	190	3,060	161 669
EFT U 15-4 - KDSTLU	72	158	184	208	3,260	161 670
EFT U 15-5 - KDSTLU	90	176	202	226	3,460	161 671
EFT U 15-6 - KDSTLU	108	194	220	244	3,650	161 672
EFT U 15-7 - KDSTLU	126	212	238	262	3,850	161 673
EFT U 15-8 - KDSTLU	144	230	256	280	4,050	161 674

(1) Higher speeds on request.

Transfer funnels for KSFU 25

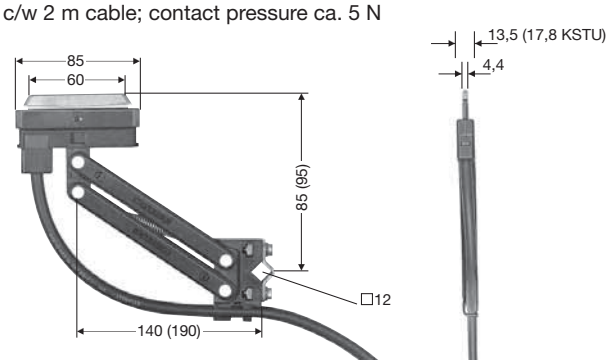
for max. speed v = 100 m/min.[1]

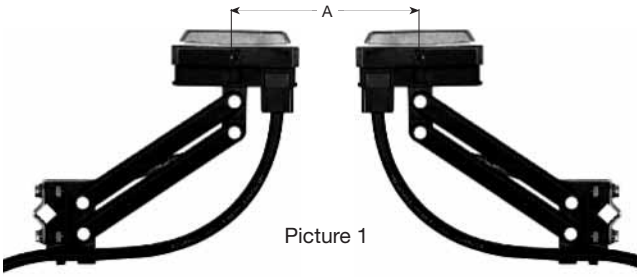


Type	A mm	B mm	C mm	D mm	weight kg	Cat.-No.
EFT U 15-2 - KSFU	44	102	90	144	1,280	161 629
EFT U 15-3 - KSFU	62	120	108	162	1,400	161 630
EFT U 15-4 - KSFU	80	138	126	180	1,520	161 631
EFT U 15-5 - KSFU	98	156	144	198	1,640	161 632
EFT U 15-6 - KSFU	116	174	162	216	1,760	161 633
EFT U 15-7 - KSFU	134	192	180	234	1,880	161 634
EFT U 15-8 - KSFU	152	210	198	252	2,000	161 635

Collectors

c/w 2 m cable; contact pressure ca. 5 N





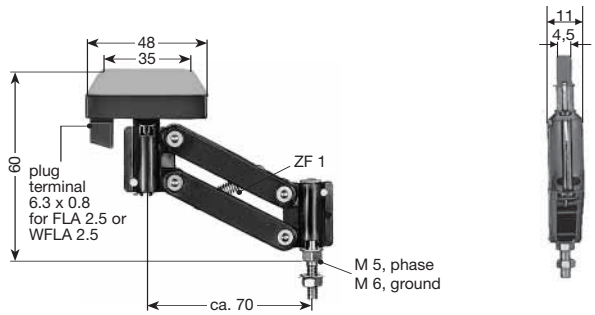
Picture 1

A < 300 mm conductor support spacing 0.8 m
A > 300 mm conductor support spacing 1.0 m

Type[2]	Ampacity A	Connecting cable A/ mm²	Connecting cable D max/ mm	Lift & swivel A mm	weight kg	Cat.-No. phase- black	Cat.-No. ground yellow
KST 30	30	2,50	5	± 20	0,240	152 085	152 086
KST 55	55	6,00	11	± 20	0,368	154 438	154 439
KSTL 30	30	2,50	5	± 30	0,240	152 089	152 091
KSTL 55	55	6,00	11	± 30	0,368	154 443	154 444
KSTU 30[3]	30	2,50	5	± 20	0,240	152 087	152 088
KSTU 55[3]	55	6,00	11	± 20	0,368	154 441	154 442

Type	Conductor support spacing	for straight runs mm	for curves mm
U 15	All type single collectors	1000	500
	with double collector KDST, KDSTL, KDSTLU	800	400

Current collector

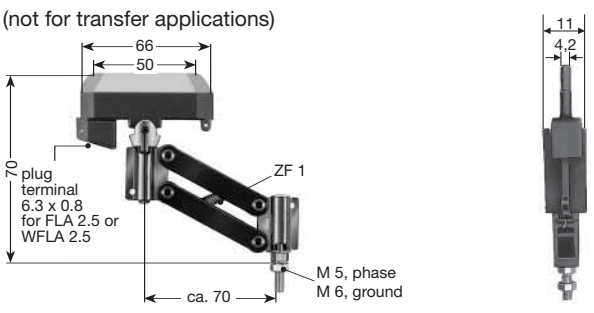


Lift ±10 mm,swivel ±15 mm, contact pressure: ca. 3 N
Connecting cable to be ordered separately.

Type[2]	Ampacity A	weight kg	Cat.-No. phase - black	Cat.-No. ground - yellow
KST 20	20	0,050	155 071	155 072

Current collector

(not for transfer applications)



Lift ±10 mm, swivel ±10 mm, contact pressure: ca. 3.5 N
Connecting cable to be ordered separately.

Type[2]	Ampacity A	weight kg	Cat.No. phase - black	Cat.No. ground - yellow
KST 25	25	0,060	155 013	155 014

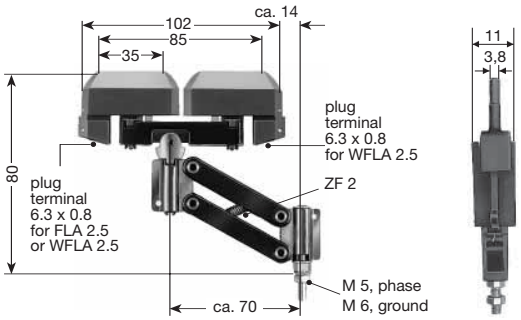
[1] Higher speeds on request.
[2] Suffix types e. g. KST 30 → KST 30 **PH**, Cat.-No. 152 085; KST 30 → KST 30 **PE**, Cat.-No. 152 086
[3] Collectors for transfer funnels EFT U 15 ... KSTU

COLLECTORS FOR U 15

Double current collector

max. ampacity: 1 flat plug 25 A, 2 flat plugs 2 x 20 A

Lift ±10 mm, swivel ±10 mm,
contact pressure: ca. 3.5 N per brush
Connecting cable to be ordered seperately.

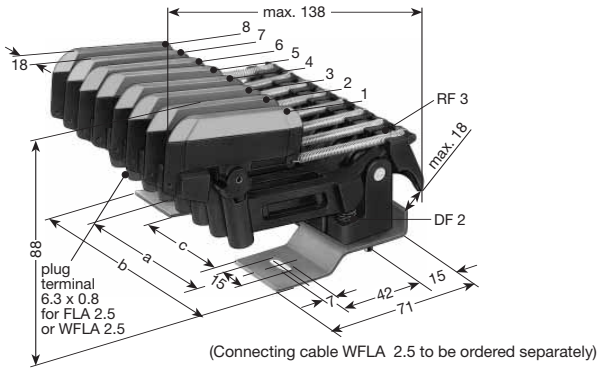


Type[1]	weight kg	Cat.-No. phase - black	Cat.-No. ground - yellow
KST 2/40	0,080	168 137	168 138

Compact current collectors[2]

max. ampacity: 1 flat plug 25 A

For conductor spacing of 18 mm;
Lift & swivel ± 15 mm
Contact pressure:
ca. 3.5 N per brush
Ground at No. 4, 3-pole at No. 3
other position on request.
For safety reasons during
maintenance ground collector is
always first and last contact.



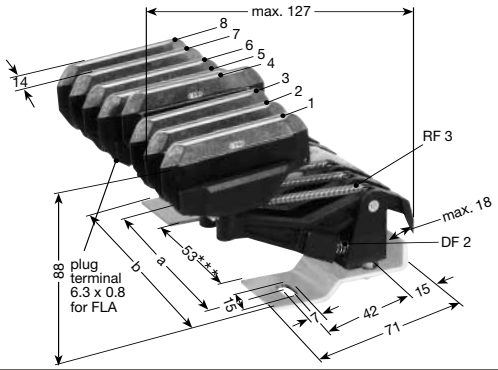
(Connecting cable WFLA 2.5 to be ordered separately)

Type[1]	Poles	a mm	b mm	c mm	weight kg	Base plate	Cat.-No. for power incl. 1 x ground **HS**	Cat.-No. for control **ST**
KSF 25-2	2	18	43	-	0,168	2pole	-	155 038
KSF 25-3	3	54	79	-	0,274	4pole (No. 4 = blank)	155 028	155 039
KSF 25-4	4	54	79	-	0,324	4pole	155 029	155 040
KSF 25-5	5	80	115	53	0,425	6pole (No. 6 = blank)	155 030	155 041
KSF 25-6	6	80	115	53	0,475	6pole	155 031	155 042
KSF 25-7	7	120	151	80	0,581	8pole (No. 8 = blank)	155 032	155 043
KSF 25-8	8	120	151	80	0,631	8pole	155 033	155 044
Separately **available**:							phase	ground
Collector **KSF 25**					0,050		155 023	155 024

Compact current collectors

max. ampacity: 1 flat plug 32 A - FLA 2,5
40 A - FLA 4,0
55 A - FLA 6,0

For conductor spacing of 18 mm;
Lift & swivel ± 15 mm
Contact pressure:
ca. 3.5 N per brush
Ground at No. 4, 3-pole at No. 3
other position on request.
For safety reasons during
maintenance ground collector is
always first and last contact.



Type[1]	Poles	a mm	b mm	c mm	weight kg	Base plate	Cat.-No. for power incl. 1 x ground **HS**	Cat.-No. for control **ST**
KESR 32-55-1-18	1	54	79	-	0,194	4-polig (Nr. 2 - 4 = frei)	155 201	–
KESR 32-55-2-18	2	54	79	-	0,264	4-polig (Nr. 3 + 4 = frei)	155 202	155 209
KESR 32-55-3-18	3	54	79	-	0,334	4-polig (Nr. 4 = frei)	155 203	155 210
KESR 32-55-4-18	4	54	79	-	0,404	4-polig	155 204	155 211
KESR 32-55-5-18	5	80	115	53	0,525	6-polig (Nr. 6 = frei)	155 205	155 212
KESR 32-55-6-18	6	80	115	53	0,595	6-polig	155 206	155 213
KESR 32-55-7-18	7	120	151	80	0,721	8-polig (Nr. 8 = frei)	155 207	155 214
KESR 32-55-8-18	8	120	151	80	0,791	8-polig	155 208	155 215
Separately available:							phase black	ground yellow
Collector **KESR 32-55**, 1pole				0,070	w/o		168 304	168 305

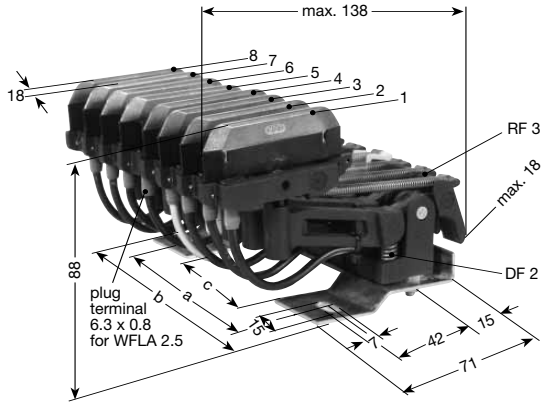
[1] Suffix types e.g.: KST 25 → KST 25 **PH**, Cat.-No. 155 013 KSF 25-3 → KSF 25-3 **HS**, Cat.-No. 155 028

[2] Install collectors in dragging position when equipment moves over transfer guides.

Compact current collectors[1]

max. ampacity: 1 plug terminal 25 A.

For conductor spacing of
18 mm. Lift & swivel ± 15 mm
Contact pressure:
ca. 3.5 N per brush
Ground at No. 4, 3-pole at No. 3
other position on request.
For safety reasons during
maintenance ground collector is
always first and last contact.

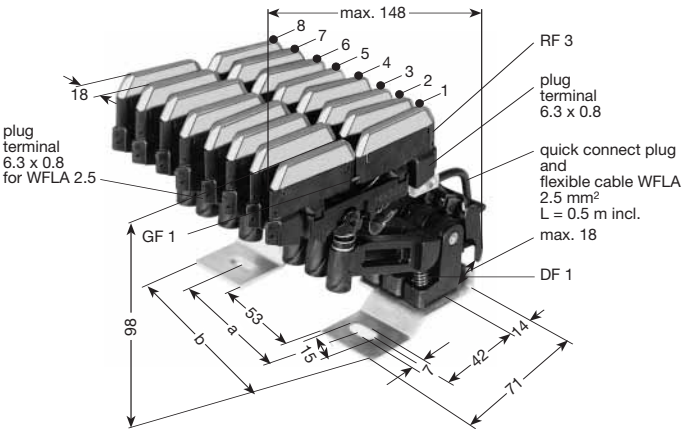


Type[1]	Poles	a mm	b mm	c mm	weight kg	Base plate	Cat.-No. for power incl. 1 x ground **HS**	Cat.-No. for control **ST**
KSFU 25-2	2	18	43	-	0,182	2pole	155 050	155 059
KSFU 25-3	3	54	79	-	0,295	4pole (No. 4 = blank)	155 051	155 060
KSFU 25-4	4	54	79	-	0,352	4pole	155 052	155 061
KSFU 25-5	5	80	115	53	0,460	6pole (No. 6 = blank)	155 053	155 062
KSFU 25-6	6	80	115	53	0,517	6pole	155 054	155 063
KSFU 25-7	7	120	151	80	0,625	8pole (No. 8 = blank)	155 055	155 064
KSFU 25-8	8	120	151	80	0,682	8pole	155 056	155 065
Separately available:							phase	ground
Collector **KSFU 25**					0,057	w/o	155 025	155 026

Compact double current collectors[1]

max. ampacity: 1 plug terminal 25 A, 2 plug terminals 2 x 20 A

For conductor spacing of
18 mm. Lift & swivel ± 15 mm
Contact pressure:
ca. 3.5 N per brush
Ground at No. 4, 3-pole at No. 3
other position on request.
For safety reasons during
maintenance ground collector is
always first and last contact.

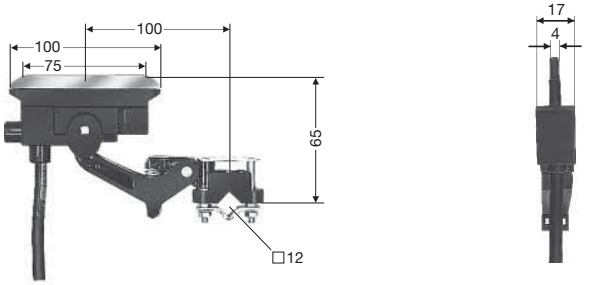


Type[1]	Poles	a mm	b mm	c mm	weight kg	Base plate	Cat.-No. for power incl. 1 x ground **HS**	Cat.-No. for control **ST**
KDS 2/40-1-18	1	54	79	-	0,194	4pole (No. 2 - 4 = blank)	155 077	155 089
KDS 2/40-2-18	2	54	79	-	0,264	4pole (No. 3 + 4 = blank)	155 078	155 090
KDS 2/40-3-18	3	54	79	-	0,334	4pole (No. 4 = blank)	155 079	155 091
KDS 2/40-4-18	4	54	79	-	0,404	4pole	155 080	155 092
KDS 2/40-5-18	5	80	115	53	0,525	6pole (No. 6 = blank)	155 081	155 093
KDS 2/40-6-18	6	80	115	53	0,595	6pole	155 082	155 094
KDS 2/40-7-18	7	120	151	80	0,721	8pole (No. 8 = blank)	155 083	155 095
KDS 2/40-8-18	8	120	151	80	0,791	8pole	155 084	155 096
Separately available:							phase-black	ground-yellow
Collector **KDS 2/40**, 1pole					0,070	w/o	168 073	168 074

[1] Suffix types e.g. KSFU 25-2 → KSFU 25-2 **HS**, Cat.-No. 155 050 · KDS 2/40 -1-18 → KDS 2/40 -1-18 **HS**, Cat.-No. 155 077

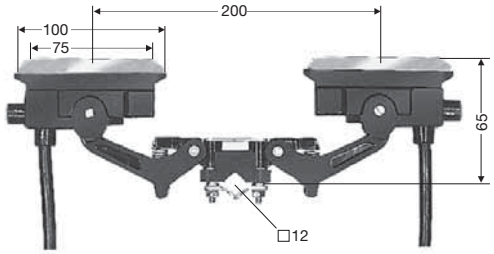
COLLECTORS FOR U 15

Current collectors



c/w 2 m cable · lift & swivel ± 20 mm
contact pressure: 9 N

Double current collectors

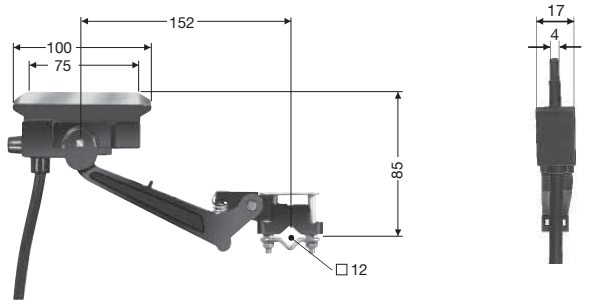


c/w 2 x 2 m cable · lift & swivel ± 20 mm
contact pressure: 9 N per brush

Type[1]	Ampacity A	Connecting cable mm²	Connecting cable Ø max/ mm	weight kg	Cat.-No. phase - black	Cat.-No. ground - yellow
KST 15	15	2,50	8,00	0,256	150 891	150 892
KST 40	40	6,00	11,00	0,428	152 840	152 850
KST 60	60	10,00	12,50	0,588	153 675	153 676

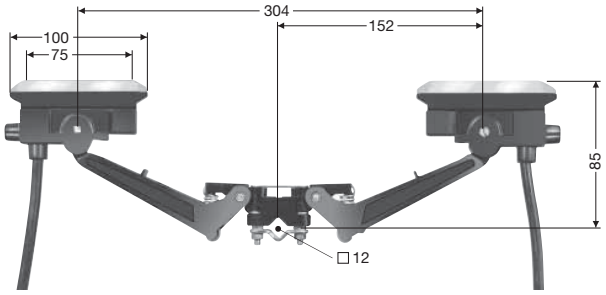
Type[1]	Ampacity A	Connecting cable mm²	Connecting cable Ø max/ mm	weight kg	Cat.-No. phase - black	Cat.-No. ground - yellow
KDST 30	30	2,50	8,00	0,471	150 897	150 898
KDST 80	80	6,00	11,00	0,821	152 960	152 970
KDST 120	120	10,00	12,50	1,114	153 679	153 680

Current collectors



c/w 2 m cable · lift & swivel ± 40 mm
contact pressure: 9 N

Double current collectors

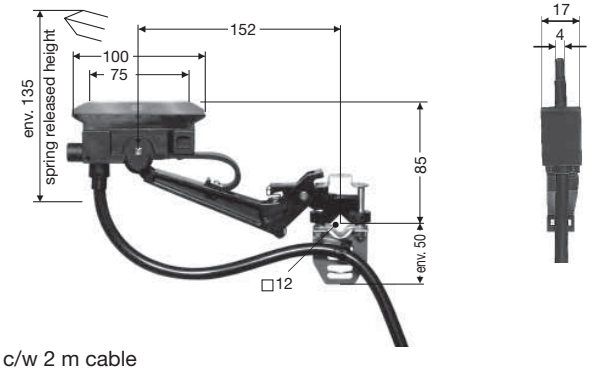


c/w 2 x 2 m cable · lift & swivel ± 40 mm
contact pressure: 9 N per brush

Type[1]	Ampacity A	Connecting cable mm²	Connecting cable Ø max/ mm	weight kg	Cat.-No. phase - black	Cat.-No. ground - yellow
KSTL 15	15	2,50	8,00	0,272	150 893	150 894
KSTL 40	40	6,00	11,00	0,453	152 860	152 870
KSTL 60	60	10,00	12,50	0,591	153 677	153 678

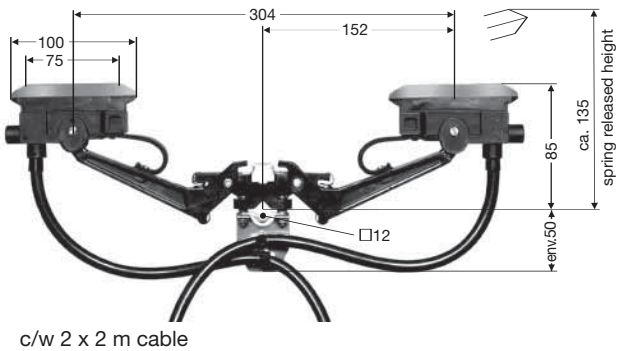
Type[e1]	Ampacity A	Connecting cable mm²	Connecting cable Ø max/ mm	weight kg	Cat.-No. phase - black	Cat.-No. ground - yellow
KDSTL 30	30	2,50	8,00	0,492	150 899	150 901
KDSTL 80	80	6,00	11,00	0,822	152 980	152 990
KDSTL 120	120	10,00	12,50	1,188	153 681	153 682

Current collectors for transfer funnel EFT[2]



c/w 2 m cable
lift ± 20 mm, swivel ± 40 mm contact pressure: 9 N

Double current collectors for transfer funnel EFT[2]



c/w 2 x 2 m cable
lift ± 20 mm, swivel ± 40 mm contact pressure: 9 N per brush

Type[1]	Ampacity A	Connecting cable mm²	Connecting cable Ø max/ mm	weight kg	Cat.-No. phase - black	Cat.-No. ground - yellow
KSTLU 15	15	2,50	8,00	0,313	150 895	150 896
KSTLU 40	40	6,00	11,00	0,499	153 791	153 792
KSTLU 60	60	10,00	12,50	0,652	153 793	153 794

Type[1]	Ampacity A	Connecting cable mm²	Connecting cable Ø max/ mm	weight kg	Cat.-No. phase - black	Cat.-No. ground - yellow
KDSTLU 30	30	2,50	8,00	0,541	150 902	150 903
KDSTLU 80	80	6,00	11,00	0,895	153 786	153 787
KDSTLU 120	120	10,00	12,50	1,231	153 795	153 796

(1) Suffix types e.g. KST 15 → KST 15 **PH** Cat.-No. 150 891.
(2) Released collector maintains center phase position for easy retracking.

Connecting cable, high-flexible for collectors
(see current collectors on pages 12 and 13.)

FH

FLA

WFH

WFLA

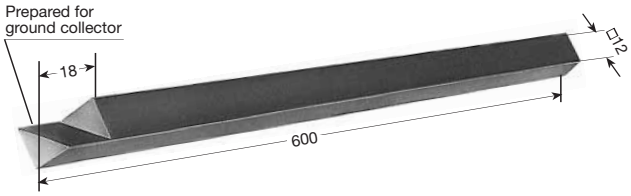
1 m long with flat plug 6.3 x 0.8.
Longer cables available.

Type		Cross section mm²	Outer Ø mm	weight kg	Cat.-No. phase - black	Cat.-No. ground - yellow
FLA	**2,5**	2,50	4	0,080	165 049	165 050
FLA	**4**	4,00	6	0,100	165 051	165 052
FLA	**6**	6,00	7	0,0154	166 368	166 369
WFLA	**2,5**	2,50	4	0,080	168 107	168 108

Flat plugs, only

Type		for cross section mm²	Cat.-No.
FH	**2,5**	2,50	165 120
FH	**4**	4,00	165 121
WFH	**2,5**	2,50	168 109

Collector bracket
for KST 15 thru KDSTLU 120 collector series



Longer brackets furnished on special order.

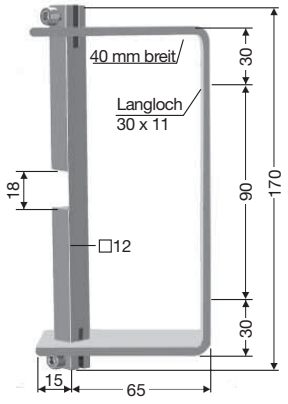
Additional support should then be provided to avoid bending of twisting of the collector bracket.

Type	Length mm	weight kg	Cat.-No.
UM 12	600	0,710	153 506

Cable attachment clamp
for KSTLU 15 thru KDSTLU 120 collector series

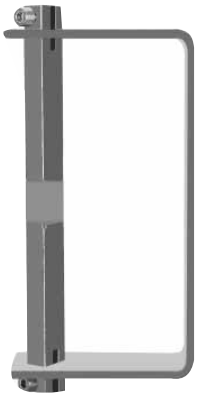
Type	weight kg	Cat.-No.
KBK(1)	0,030	153 519

Collector bracket
for KST 15 thru KDSTLU 120 collectors, see page 14



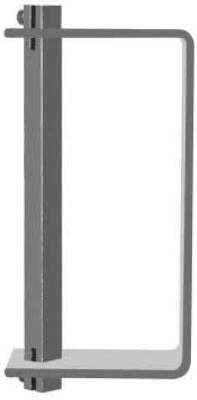
Type	weight kg	Cat-No.
UMAS 12 HS -A	0,600	152 233

for KST 30 thru KSTLU 55 collectors, see page 11



Type	weight kg	Cat-No.
UMAS 12 HS -B	0,600	152 232

for control collectors only



Type	weight kg	Cat-No.
UMAS 12 ST	0,600	152 234

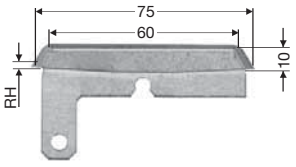
Contact Grease
for joints and feeds

100 ml for approx. 200 joints	Cat-No. 121 502

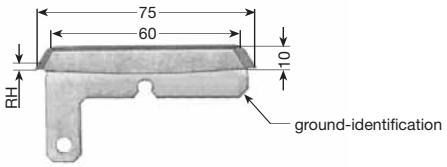
(1) with stainless steel hardware

COLLECTOR COMPONENTS FOR U 15

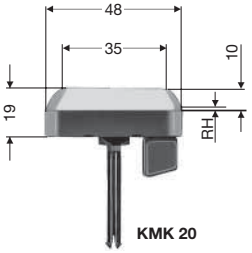
Copper-graphite brushes



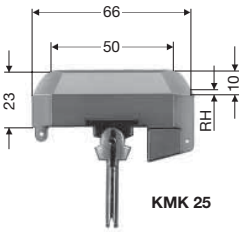
KMK 30-55 phase



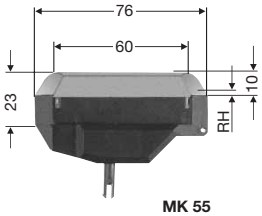
KMK 30-55 ground



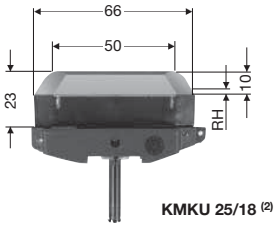
KMK 20



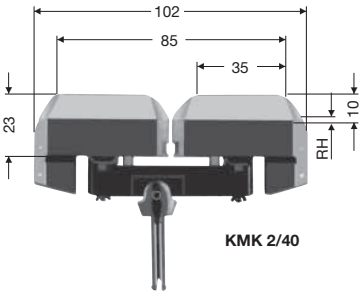
KMK 25



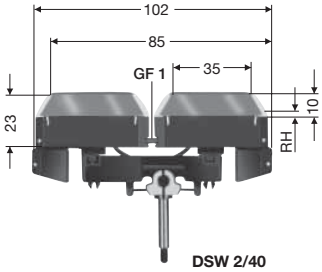
MK 55



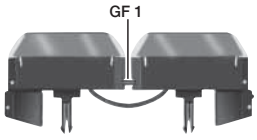
KMKU 25/18 (2)



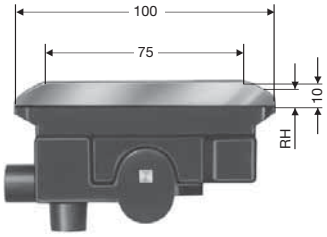
KMK 2/40



DSW 2/40



DS 2/40



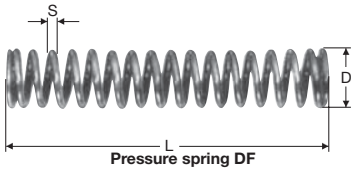
KMK 60

KMK 60 U

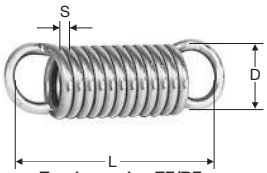
Dim. RH= allowed rest of hight

Type	for collectors	width of carbon brushes mm	RH mm	weight kg	Cat.-No.
KMK 30-55 PH	KST 30 – KSTL 55	4,40	1,50	0,031	154 440
KMK 30-55 PE	KST 30 – KSTL 55	4,40	1,50	0,034	154 453
KMK 20	KST 20	4,50	5,50	0,020	155 068
KMK 25	KST 25, KSF 25	4,20	1,50	0,030	155 000
MK 55	KESR 32-55	4,20	3,50	0,042	168 225
KMKU 25/18	KSFU 25	4,20	1,50	0,035	155 002
KMK 2/40	KST 2/40	3,80	1,00	0,050	168 135
DSW 2/40(1)	KDS 2/40	3,80	1,00	0,050	168 151
DS 2/40	KDS 2/40	3,80	1,00	0,050	168 065
KMK 60	KST 15 – KDSTL 120	4,00	3,00	0,110	153 512
KMK 60 U	KSTLU 15 – KDSTLU 120	4,00	3,00	0,120	153 513

Springs



Pressure spring DF
Guiding spring GF



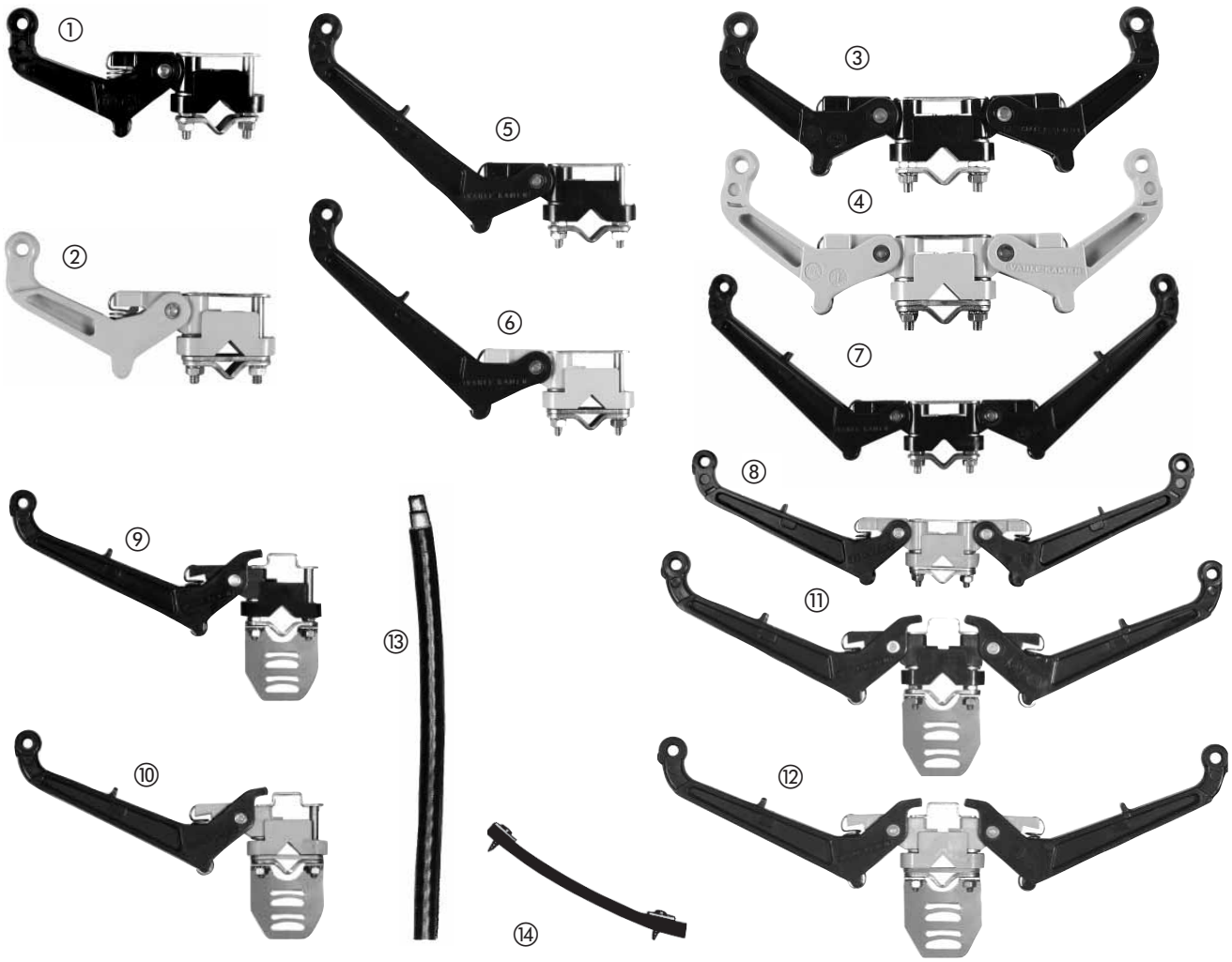
Tension spring ZF/RF

Type	for collectors	S mm	D mm	L mm	Cat.-No.
ZF 1	KST 20, KST 25	0,63	5,40	22,00	153 514
ZF 2	KST 2/40	0,85	6,45	24,00	153 515
ZF 3	KST 15 bis KDST 120	1,10	10,80	28,50	153 516
ZF 4	KSTL 15 bis KDSTL 120 und KSTLU 15 bis KDSTLU 120	1,30	11,00	29,00	153 517
DF 1	KSFR 2/40	1,00	7,00	38,00	153 847
DF 2	KSF 25	0,90	7,70	43,00	153 848
DF 3	KDS 2/40	0,55	9,55	24,00	152 011
RF 3	KSF 25, KSFR 2/40	0,40	4,40	31,00	153 849
GF 1	KSFR 2/40	0,35	2,00	22,00	153 850

(1) Also spare part for collector KSFR 2/40 (old type)
(2) 18 mm wide

For KST 15 thru KDSTLU 120

Part-No.	Description		weight kg	Cat.-No.
1	Collector base for KST 15 thru KST 60	phase PH	0,080	153 736
2	Collector base for KST 15 thru KST 60	groun PE		153 737
3	Collector base for KDST 30 thru KDST 120 (double arm)	phase PH	0,100	153 738
4	Collector base for KDST 30 thru KDST 120 (double arm)	ground PE		153 739
5	Collector base for KSTL 15 thru KSTL 60	phase PH	0,090	153 740
6	Collector base for KSTL 15 thru KSTL 60	ground PE		153 741
7	Collector base for KDSTL 30 thru KDSTL 120 (double arm)	phase PH	0,130	153 742
8	Collector base for KDSTL 30 thru KDSTL 120 (double arm)	ground PE		153 743
9	Collector base for KSTLU 15 thru KSTLU 60	phase PH	0,090	153 804
10	Collector base for KSTLU 15 thru KSTLU 60	groun PE		153 805
11	Collector base for KDSTLU 30 thru KDSTLU 120 (double arm)	phase PH	0,130	153 806
12	Collector base for KDSTLU 30 thru KDSTLU 120 (double arm)	ground PE		153 807
13	Connecting cable AEA 2,5 PH, 2 m long / AEA-KSTLU-2,5 PH, 2 m long	phase PH	0,072	151 374 / 156 431
	Connecting cable AEA 2,5 PE, 2 m long / AEA-KSTLU-2,5 PE, 2 m long	ground PE		151 375 / 156 432
13	Connecting cable AEA 6 PH, 2 m long / AEA-KSTLU-6 PH, 2 m long	phase PH	0,260	153 744 / 156 433
	Connecting cable AEA 6 PE, 2 m long / AEA-KSTLU-6 PE, 2 m long	ground PE		153 745 / 156 434
13	Connecting cable AEA 10 PH, 2 m long / AEA-KSTLU-10 PH, 2 m long	phase PH	0,400	153 746 / 156 427
	Connecting cable AEA 10 PE, 2 m long / AEA-KSTLU-10 PE, 2 m long	ground PE		153 747 / 156 435
14	Rubber spring[1] for KSTLU 15, KSTLU 40, KSTLU 60, KDSTLU 30 KDSTLU 80, KDSTLU 120		0,008	153 748

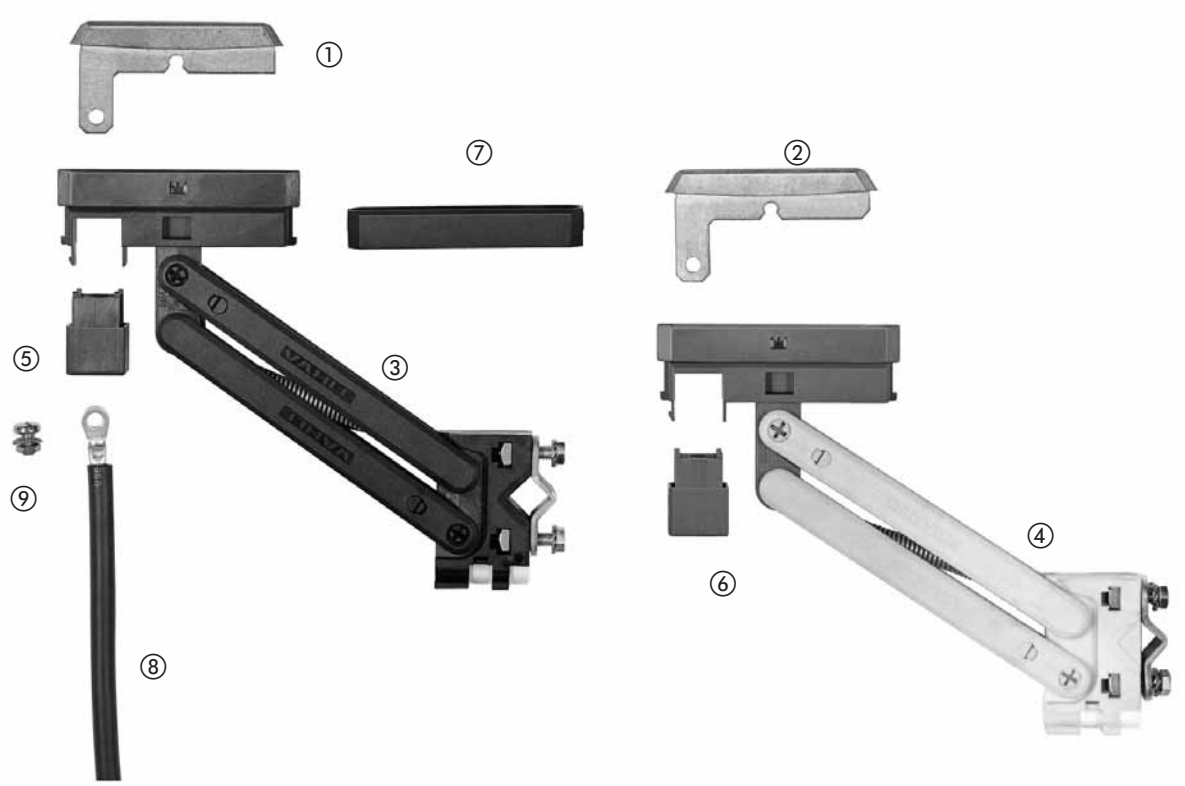


[1] Rubber spring will be included when ordering KMK 60 U brush.

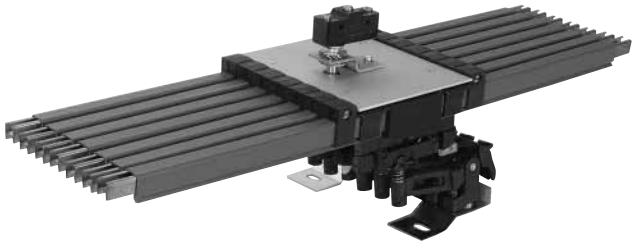
COLLECTOR COMPONENTS FOR U 15

For KST 30-55 thru KSTLU 30-55

Part.-No.	Description		weight kg	Cat.-No.
1	Brush	phase PH	0,031	154 440
2	Brush	ground PE	0,031	154 453
3	Collector base & arm KST, complete	phase PH		152 275
	Collector base & arm KSTL, complete	phase PH	0,083	152 279
4	Collector base & arm KST, complete	ground PE		152 276
	Collector base & arm KSTL, complete	ground PE	0,083	152 281
5	Terminal cap (black)	phase PH	0,002	152 291
6	Terminal cap (green)	ground PE	0,002	152 292
7	Spacer for KSTU 30-55 only		0,003	152 293
8	Connecting cable RKA 2.5 PH, 2 m long	phase PH		154 447
	Connecting cable RKA 2.5 PE, 2 m long	ground PE	0,130	154 448
8	Connecting cable RKA 6 PH, 2 m long	phase PH		154 449
	Connecting cable RKA 6 PE, 2 m long	ground PE	0,250	154 450
9	Terminal bolt		0,002	152 658



Brush wear indicator KVT 15 N



KVT 15 N – 7 for a 7poles installation

The brush wear indicator automatically checks the wear of carbon brushes. The indicator is infinitely variable to the wearing height of carbon brushes. A worn down carbon brush actuates an impulse. It is recommended to place the indicator near a maintenance area in order to open automatically a switch leading the monorail hoist to the repair zone.

Size of web cut of monorail track: 120 x 50 mm (L x H)

Pay attention to the installation instructions. PE always at No 4. Other positioning on request.

Brush wear indicator for U 15 with micro-switch

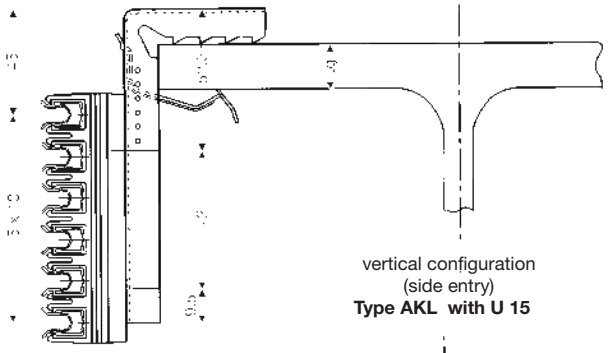
Type	Poles	Dim. a mm	weight kg	Cat.-No.
KVT 15 N-4	4	76	0,860	161 720
KVT 15 N-5	5	94	1,020	161 721
KVT 15 N-6	6	112	1,165	161 722
KVT 15 N-7	7	130	1,310	161 723

Brush wear indicators for uneven number of conductors keep the lowest pole free.

BRACKETS • SNAP-ON BRACKETS FOR U 15

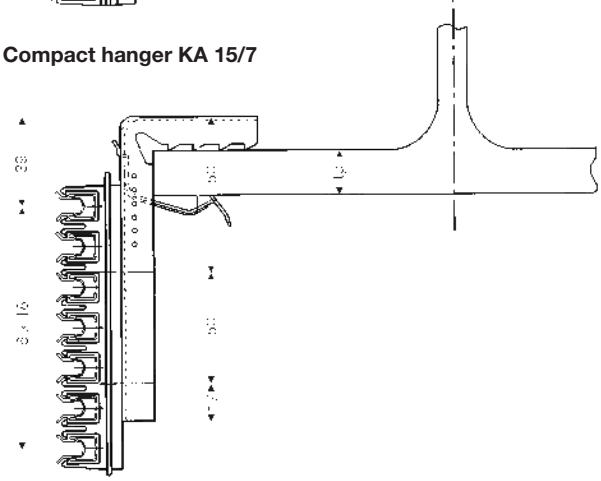
Snap-on brackets facilitate installation of Powerails on flat flange beams I PE, I PB, I PBI and I PBv. They are adjustable to suit beam flange dimensions (tg) of up to 43 mm.

Compact hanger KA 15/6



vertical configuration
(side entry)
Type AKL with U 15

Compact hanger KA 15/7

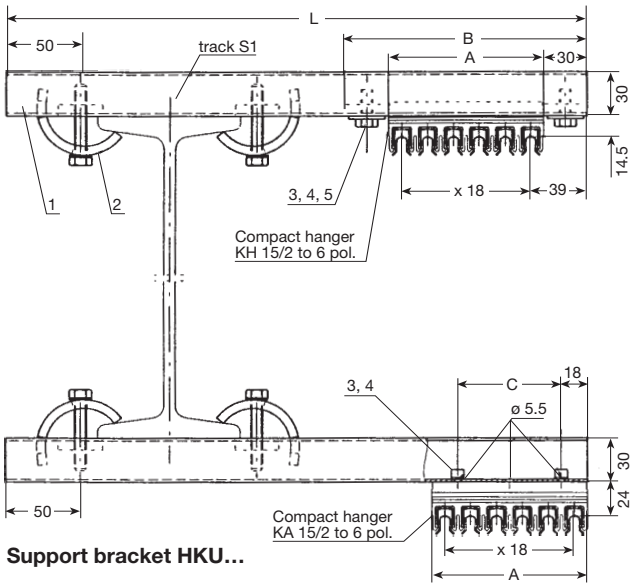


Drawings show snap-on brackets with compact hangers and hardware. Hangers and hardware must be ordered separately see page 7 and 8.

Type	AKL
Flange Dim. tg/mm	8-43
Cat.-No.	151 925
Weight kg	0,184

Hangers for insulated conductors to be ordered separately.

Support bracket HKO...



Support bracket HKU...

Type	Length L mm	Cat.-No.
HKO 400	400	161 605
HKO 500	500	161 606
HKO 600	600	161 607
HKO 700	700	161 608
HKO 800	800	161 609
HKO 900	900	161 610
HKU 400	400	161 799
HKU 500	500	161 800
HKU 600	600	161 801
HKU 700	700	161 802
HKU 800	800	161 803
HKU 900	900	161 804

Type	Dim. A mm	Dim. B mm	Dim. C mm
KH 15/2	36	96	–
KH 15/3	54	114	–
KH 15/4	72	132	36
KH 15/5	90	150	36
KH 15/6	108	168	72

Compact Configuration, 124 m, 5-pole + ground electrification system for 100 Amps.

Qty.	Description			Type	Cat.-No.
100	VAHLE unipole insulated conductors, 6 m long	phase	PH	**U 15/25 C-6**	162 136
5	VAHLE unipole insulated conductors, 2 m long	phase	PH	**U 15/25 C-2**	162 132
20	VAHLE unipole insulated conductors, 6 m long	ground	PE	**U 15/25 C-6**	162 196
1	VAHLE unipole insulated conductor, 2 m long	ground	PE	**U 15/25 C-2**	162 192
10	expansion sections each 1 m long	phase	PH	**UDV 15/25 C K 4**	160 276
2	expansion sections each 1 m long	ground	PE	**UDV 15/25 C K 4**	160 277
120	joint splices			**UV 15 K 4**	160 102
6	feed terminals			**UEG 15 K 4**	160 216
36	locating clamps			**USK 15 K 4**	160 106
12	end caps			**UK 15 - L**	160 109
125	compact hangers			**KH 15/6**	160 139
125	bracket profiles, 200 mm long			**HU 15/200**	161 434
5	current collectors	phase	PH	**KST 25**	155 013
1	current collector	ground	PE	**KST 25**	155 014

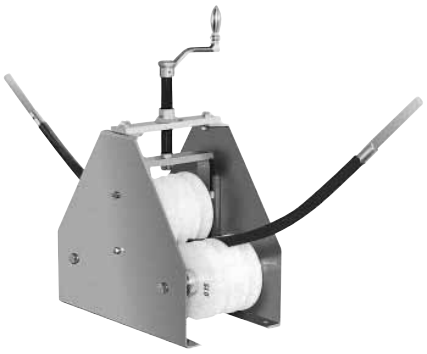
Standard configuration, 40 m, 3-pole + ground electrification system for 10 Amps.

Qty.	Description			Type	Cat.-No.
18	VAHLE unipole insulated conductors, 6 m long	phase	PH	**U 15/25 E-6**	162 156
3	VAHLE unipole insulated conductors, 4 m long	phase	PH	**U 15/25 E-4**	162 154
6	VAHLE unipole insulated conductors, 6 m long	ground	PE	**U 15/25 E-6**	162 216
1	VAHLE unipole insulated conductor, 4 m long	ground	PE	**U 15/25 E-4**	162 214
24	joint splices			**UV 15 K 4**	160 102
4	feed terminals			**UE 15 K 4**	160 107
8	locating clamps			**USK 15 K 4**	160 106
8	end caps			**UK 15-L**	160 109
164	insulated hangers			**UA 15**	160 113
3	current collectors	phase	PH	**KST 25**	155 013
1	current collectors	ground	PE	**KST 25**	155 014

INSTALLATION TOOLS FOR U 15

Curve tool

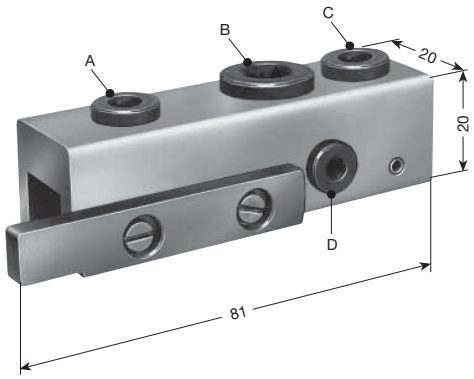
Details for vertical and horizontal curves see bending procedure (installation procedure U 15).
Motor powered tool furnished on special order.
Filler rod is to be ordered separately.



Type	weight kg	Cat.-No.
BVU 10/15	10,000	160 147
FU 15 Filler-rod (4 m)	0,340	160 735

Drill jig

The drill guide should be used when conductor ends have to be prepared for end caps or transfer guides on site.
Drill B and D for end caps.
Drill B for transfer guide US 15 and USE 15.



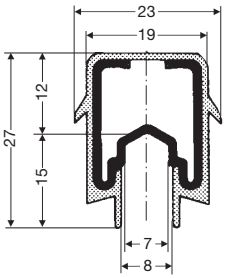
Type	weight kg	Cat.-No.
BS 15	0,100	160 148

Please see installation instructions for U 15.

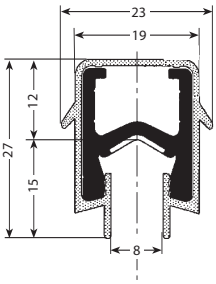
Punch tool

To prepare square holes in the shroud
for types US 15 T thru USE 15 TS transfer guides
and LT/LT-U 15 thru LTE/LTE-U 15 isolating assemblies.

Type	weight kg	Cat.-No.
HST 15	4,300	160 322



U 25 C



U 25 AE

Conductor code:

U	= unipole insulated conductor
25	= shroud size
50-125	= conductor cross sectional area (mm^2)
C	= copper conductor
AE	= Aluminium conductor contact surface stainless steel.

Length:
6 m is standard length,
shorter lengths are available

Conductor spacing:
on standard hangers 50 – 80 mm
on compact hangers 50 mm
Chemical and electrical properties and temperature resistance see page 4.

Support spacing:
- for straight runs & for inside & outside curves: 1500 mm
- horizontal curves: up to R_H = 10 m[1]: 750 mm
- horizontal curves: above R_H = 10 m[1]: 1500 mm

Curves:
factory prepared from R = 800 mm
or in the field:
horizontal curves: from R = 7000 mm
inside & outside curves: from R = 2500 mm
AE-conductor on request.

Heating system available on request.

Type of conductor rail

Type	U 25/50 C	U 25/75 C	U 25/100 C	U 25/125 C	U 25/90 AE	U 25/125 AE
Weight kg/m	0,550	0,740	1,000	1,260	0,450	0,540
Standard shroud, color green						
Cat.-No. phase[2]	171 02 •	171 03 •	171 04 •	171 20 •	171 24 •	171 28 •
Cat.-No. PE[2]	171 12 •	171 13 •	171 14 •	171 21 •	171 25 •	171 29 •
High temperature shroud, color grey						
Cat.-No. phase[2]	171 07 •	171 08 •	171 09 •	171 22 •	171 26 •	171 30 •
Cat.-No. PE[2]	171 17 •	171 18 •	171 19 •	171 23 •	171 27 •	171 31 •

Engineering data

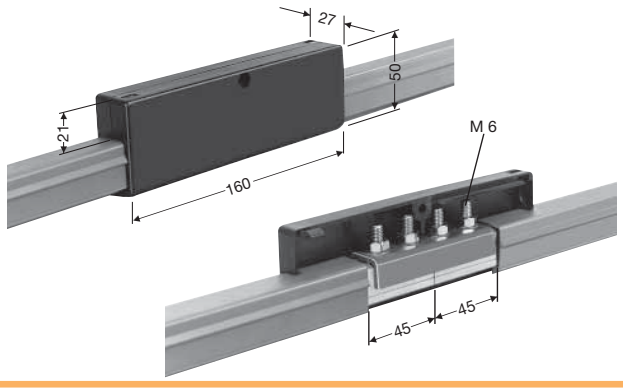
Conductor Rail Type	Cross sectional area mm^2	Leakage distance of covers mm	max. voltage V	max. Amp. capacity A at 35 °C	Resistance Ohm/1000 m	Impedance Ohm/1000 m based on 50 HZ & conductor spacing 50 mm	80 mm
U 25/ 50 C	50	53	1000	200	0,351	0,378	0,388
U 25/ 75 C	75	53	1000	300	0,239	0,269	0,283
U 25/100 C	100	53	1000	400	0,180	0,219	0,236
U 25/125 C	125	53	1000	450	0,140	0,188	0,208
U 25/ 90 AE[3]	90	53	1000	230	0,347	0,369	0,380
U 25/125 AE[3]	125	53	1000	320	0,240	0,271	0,285

Selection of conductors

in accordance to ampere load and environmental conditions.

U 25 / ... C copper conductors for power and control system application.

U 25 / ... AE Aluminium conductor and stainless steel conductor surface for power and control system



Bolted joint splices

Typ UV 25, UV 25 K 4, UV 25 AE and UV 25 AE K 4 applicable as feed terminal, too.

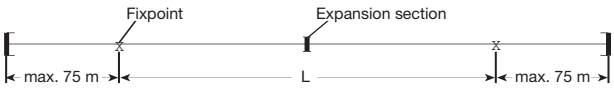
Type	connectin cable max. mm^2	weight kg	Cat.-No.
UV 25	2 x 16	0,190	170 595
UV 25 K 4[4]	2 x 16	0,190	170 596
UV 25 AE	2 x 16	0,150	170 960
UV 25 AE K 4[4]	2 x 16	0,150	170 961

Are adequate fo feed terminal UE

(1) Recommendation.
(2) The last number of the part number indicates the length. Please add 1, 2 ... 6 for your required short length. Interim values have to be rounded up.
(3) With the AE-conductor collectors which constantly stay at one position or work with a very low travel speed (< 10 m/min.) may only operate with 50% of their continous current.
(4) Stainless Steel

Expansion sections

factory assembled on 1.5 m long conductor section incl. one rigid joint and will be installed from 150 m of system length on.



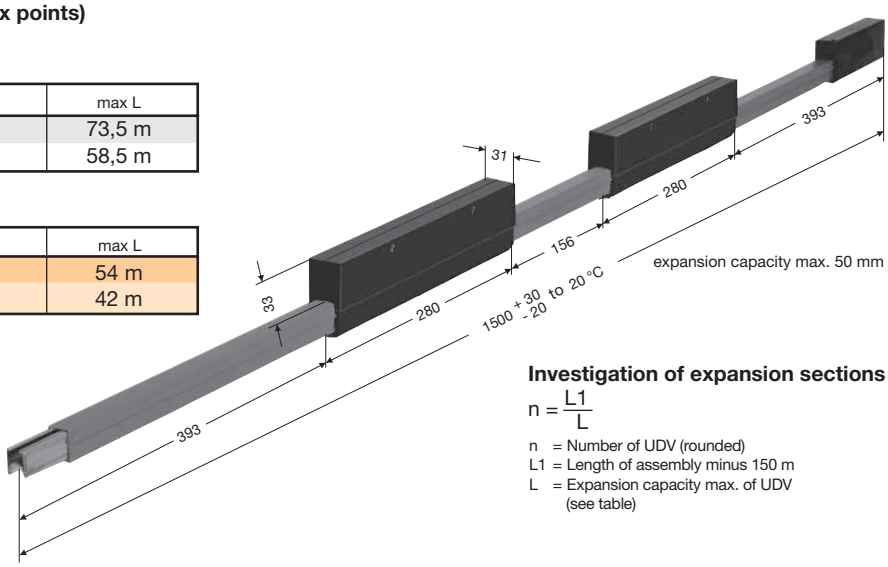
Expansion sections (distance between fix points)

For UDV 25 C

to Δ t	max. L	to Δ t	max L
20 °C	147 m	40 °C	73,5 m
30 °C	97,5 m	50 °C	58,5 m

For UDV 25 AE

to Δ t	max. L	to Δ t	max L
20 °C	108 m	40 °C	54 m
30 °C	72 m	50 °C	42 m



Investigation of expansion sections

$$n = \frac{L1}{L}$$

n = Number of UDV (rounded)
L1 = Length of assembly minus 150 m
L = Expansion capacity max. of UDV (see table)

Standard shroud, color green

Type	weight kg	Cat.-No. phase	Cat.-No. ground
UDV 25 C K 4(1)	2,550	171 057	171 058
UDV 25 AE K 4(1)	1,900	171 059	171 060

High temperature shroud, color gray

Type	weight kg	Cat.-No. phase	Cat.-No. ground
UDV 25 C K 4 (1)	2,550	171 067	171 068
UDV 25 AE K 4(1)	1,900	171 069	171 070

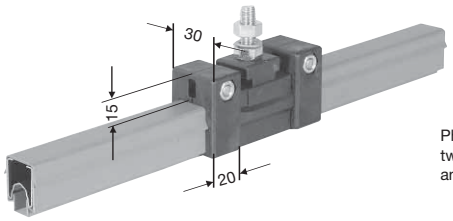


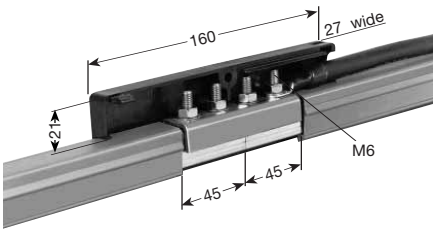
Photo shows hanger with two locating clamps for an anchor point.

Locating clamp

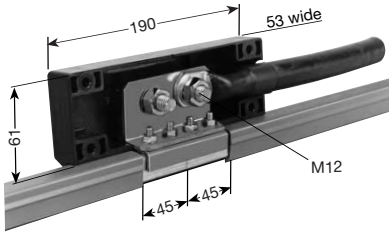
Type	weight kg	Cat.-No.
USK 25 K 4(1)	0,024	170 010

Feed terminals

Types UE 25, UE 25 K 4(1), UE 25 AE and UE 25 AE K 4(1) are adequate to bolted joint splice



UE 25



UEG 25

Type	Connecting cable max. mm²	weight kg	Cat.-No.
UE 25	2 x 16	0,190	170 599
UEG 25	2 x 95	0,560	170 597
UEG 25-M	2 x 95	0,560	170 396
UE 25 K 4(1)	2 x 16	0,190	170 600
UEG 25 K 4(1)	2 x 95	0,560	170 598
UEG 25 K 4(1)-M	2 x 95	0,560	170 397
UE 25 AE	2 x 16	0,150	171 158
UEG 25 AE	2 x 95	0,456	170 962
UEG 25 AE-M	2 x 95	0,456	170 964
UE 25 AE K 4(1)	2 x 16	0,150	171 159
UEG 25 AE K 4(1)	2 x 95	0,456	170 963
UEG 25 AE-K 4(1)-M	2 x 95	0,456	170 965

Cables & lugs by others.
UEG requires staggered arrangement with conductor spacing of less than 80 mm. Type M = factory assembled.

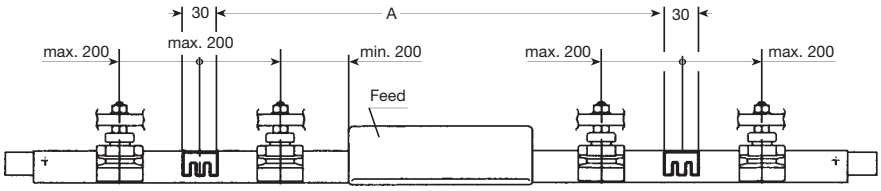
(1) with stainless steel hardware

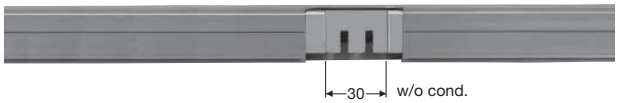
Contact Grease

for joints and feeds

100 ml for approx. 200 joints	Cat.-No. 121 502

Isolating sections





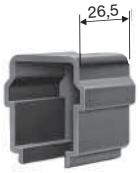
Typ M = Factory assembled according to system layout
Typ L = Loose c/w two locking pins 3 x 20.
Consider one extra hanger. Distance from center of isolating section 200 m.
Conductors, hangers and feeds are to be ordered separately.

Type	weight kg	Cat.-No.
IT/U 25/30 M	0,015	170 070
IT/U 25/30 L	0,015	170 071

In order to avoid voltage bridging and for clearing of maintenance, control and live areas use two isolating sections.
Distance A depends on collector type and length of brake path of machinery.

End caps

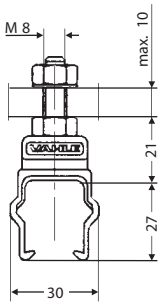
c/w locking pin 3 x 20



Type M = factory assembled
Type L = Loose

Type	weight kg	Cat.-No.
UK 25-M	0,005	170 793
UK 25-L	0,005	170 013

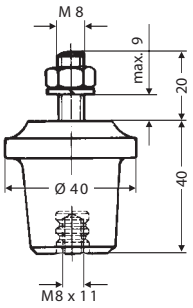
Insulated hangers [1]



Width: 40 mm

Type	weight kg	Cat.-No.
UA 25	0,040	170 761
UA 25 K 4[2]	0,040	170 762

Insulators [1]

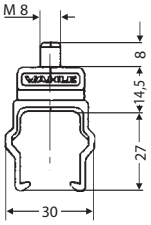


cantilever = 3000 N
creapage distance = 60 mm

Type	weight kg	Cat-No.
GH 40-M 8	0,100	170 146
GH 40-M 8 K 4[2]	0,100	170 148

Rail holders

to be used with insulator

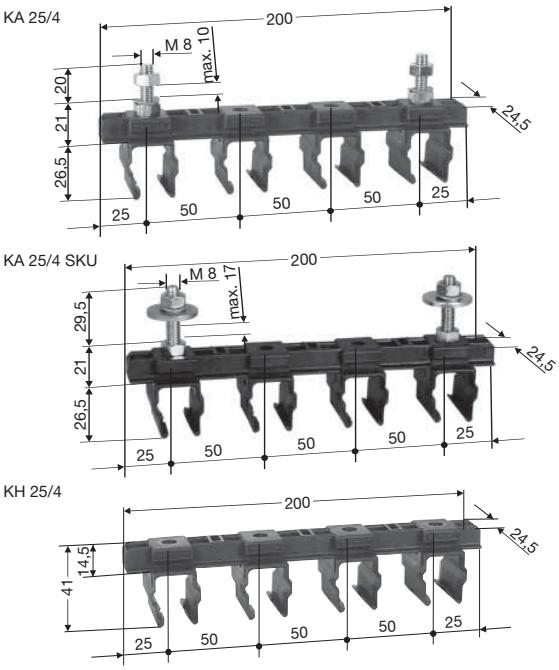


Width: 40 mm

Type	weight kg	Cat-No.
UAK 25	0,023	170 868
UAK 25 K 4[2]	0,023	170 869

[1] Use flat washers (see page 26) on both sides of brackets with slotted holes.
[2] with stainless steel hardware

ACCESSORIES FOR U 25

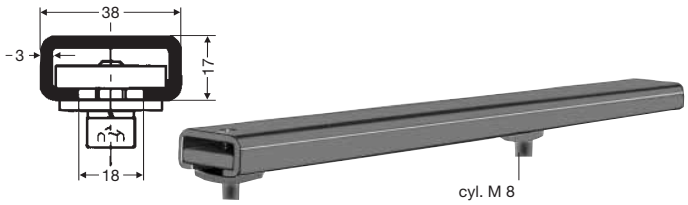


Compact hangers, 2 - 4-pole[1]

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

Conductor spacing 50 mm.
Hanger KA 25 is for direct bolting to the supporting structure
Hanger KH to be used with bracket profile 38/17.
Hanger KA 25/4-SKU to be used with mounting bracket SKU.

Type	weight kg	Cat.-No.
KA 25/2	0,084	170 838
KA 25/3	0,102	170 839
KA 25/4	0,120	170 840
KA 25/2 K 4[2]	0,084	170 853
KA 25/3 K 4[2]	0,102	170 854
KA 25/4 K 4[2]	0,120	170 855
KA 25/4-SKU	0,151	170 878
KH 25/2	0,034	170 848
KH 25/3	0,050	170 849
KH 25/4	0,070	170 850

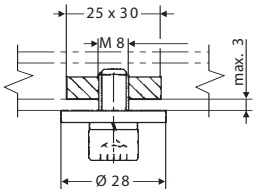


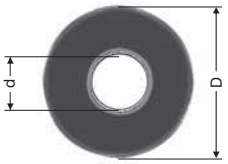
Bracket profiles 38/17

Type	Length mm	Poles	weight kg	Cat.-No.
HU 25/400	400	4 – 5	0,830	170 667
HU 25/600	600	10	1,160	170 668

Longer brackets furnished on special order.[3]

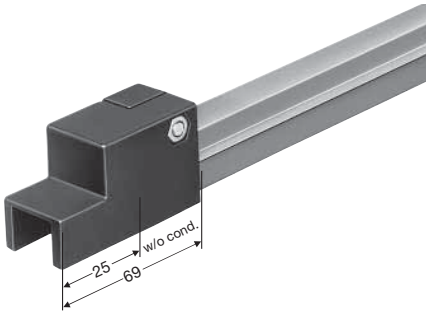
Attachment hardware for Compact hanger KH 25/...





Type	weight kg	Cat.-No.
SE 8	0,055	170 677
SE 8 K 4[2]	0,055	170 955

Type	Thread	d mm	D mm	S mm	weight kg	Cat.-No.
Washer 8,4	M 8	8,40	25	1,60	0,007	170 624
Washer 8,4 K 4[2]	M 8	8,40	25	1,60	0,007	170 625



Transfer guide

This guide serve for transfer
or power interrrupting applications.

Additional hangers are to se planed and ordered seperately.

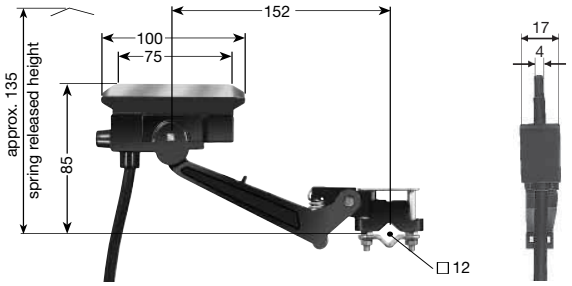
Type	weight kg	Cat.-No.
US 25 K 4[2]	0,060	170 329

Max. horizontal and vertical offset using collectors
KSTL 15-60 - KDSTL 120 ± 3 mm, air gap 2-5 mm
KST 100/25 - KDSTU 350/25 ± 3 mm, air gap 5-8 mm

Transfer guide US 25 is fastened to conductor ends by means of a stainless screw.

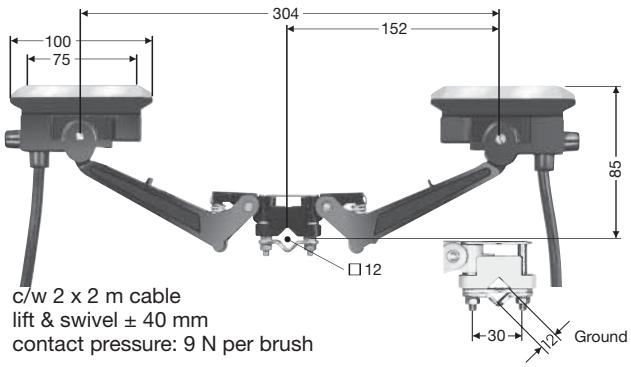
(1) Attachment hardware to be ordered separately; two flat washers to be used in slotted holes.
(2) with stainless steel hardware
(3) Delivery incl. 2 Attachment hardware SE 8.

Current collectors



c/w 2 m cable
lift & swivel ± 40 mm
contact pressure: 9 N

Double current collectors

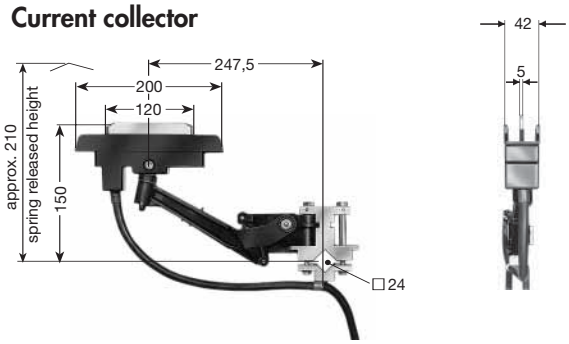


c/w 2 x 2 m cable
lift & swivel ± 40 mm
contact pressure: 9 N per brush

Type	Ampacity A	Connecting cable A/mm²	ø max/mm	weight kg	Cat.-No. phase	ground
KSTL 15	15	2,50	4,40	0,272	150 893	150 894
KSTL 40	40	6,00	11,00	0,453	152 860	152 870
KSTL 60	60	10,00	12,50	0,591	153 677	153 678

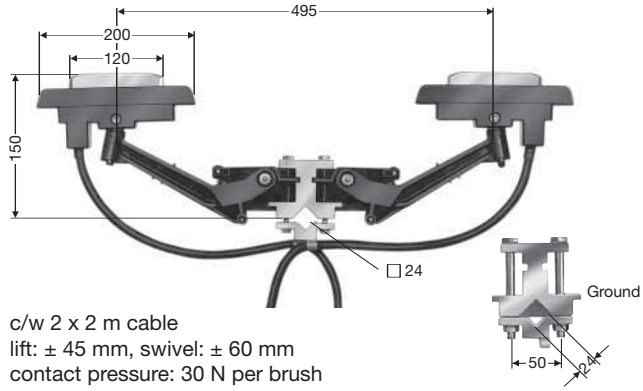
Type	Ampacity A	Connecting cable A/mm²	d max/mm	weight kg	Cat.-No. phase	ground
KDSTL 30	30	2,50	4,40	0,492	150 899	150 901
KDSTL 80	80	6,00	11,00	0,822	152 980	152 990
KDSTL 120	120	10,00	12,50	1,188	153 681	153 682

Current collector



c/w 2 m cable
lift: ± 45 mm, swivel: ± 60 mm
contact pressure: 30 N

Double current collector

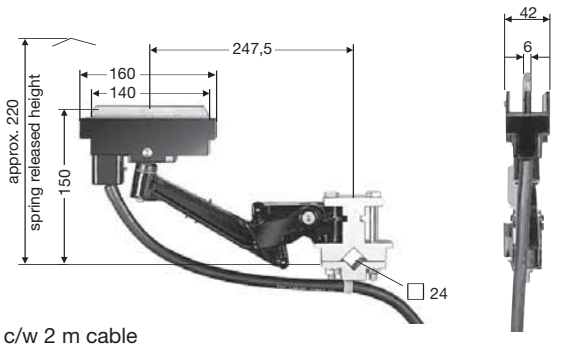


c/w 2 x 2 m cable
lift: ± 45 mm, swivel: ± 60 mm
contact pressure: 30 N per brush

Type	Ampacity A	Connecting cable A/mm²	ø max/mm	weight kg	Cat.-No. phase	ground
KST 100/25	100	16,00	14,50	1,707	170 319	170 320
KST 125/25	125	25,00	166,50	1,800	171 017	171 018

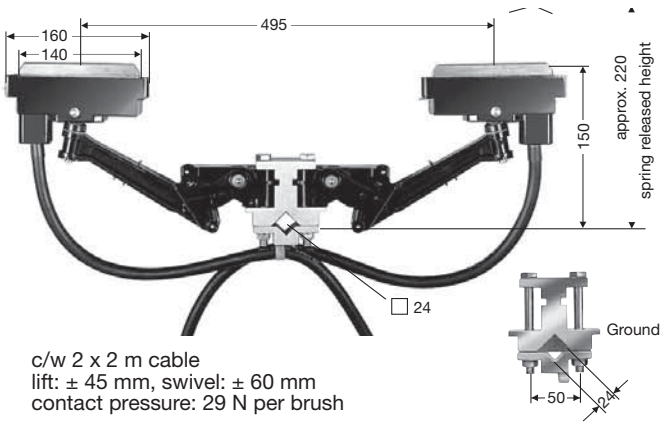
Type	Ampacity A	Connecting cable A/mm²	ø max/mm	weight kg	Cat.-No. phase	ground
KDST 200/25	200	16,00	14,50	3,077	170 321	170 322
KDST 250/25	250	25,00	16,50	3,100	171 019	171 020

Current collectors For transfer funnel use KSTU 140/25 or KSTU 175/25 (2).



c/w 2 m cable
lift: ± 45 mm, swivel: ± 60 mm
contact pressure: 29 N

Double current collectors For transfer funnel use KDSTU 280/25 or KDSTU 350/25 (2).



c/w 2 x 2 m cable
lift: ± 45 mm, swivel: ± 60 mm
contact pressure: 29 N per brush

Type	Ampacity A	Connecting cable A/mm²	ø max/mm	weight kg	Cat.-No. phase	ground
KST 140/25	140	25,00	16,50	1,660	170 538	170 539
KST 175/25	175	35,00	18,50	1,700	171 037	171 038
KSTU 140/25	140	25,00	16,50	1,700	170 540	170 541
KSTU 175/25	175	35,00	18,50	1,800	171 039	171 040

Type	Ampacity A	Connecting cable A/mm²	ø max/mm	weight kg	Cat.-No. phase	ground
KDST 280/25	280	25,00	16,50	3,020	170 542	170 543
KDST 350/25	350	35,00	18,50	3,100	171 047	171 048
KDSTU 280/25	280	25,00	16,50	3,100	170 544	170 545
KDSTU 350/25	350	35,00	18,50	3,200	171 049	171 050

(1) The collector of the AE-conductor which are working with only ≤ 10 m/min. travel speed or stand most of the time are only permitted to work with 50 % of the continuous current.

(2) Special collectors for aggressive environments on request.

Transfer funnels, 2-pole up to 6-pole

assembled per system layout.

Transfer funnels are necessary for passing switches and turntables.

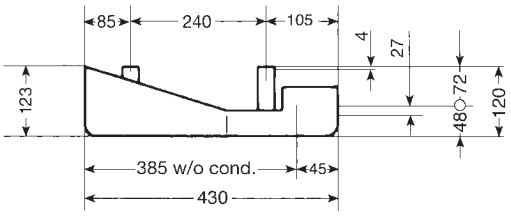
Conductor spacing 50 mm.

The following collectors have to be used:

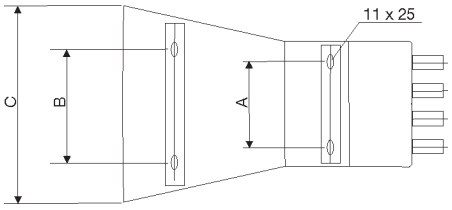
For pendant arrangement: KSTU 140/25, KSTU 175/25, KDSTU 280/25 or KDSTU 350/25.

For lateral arrangement: KSTUR 140/25 on request.

V_{max} = 100 m/min

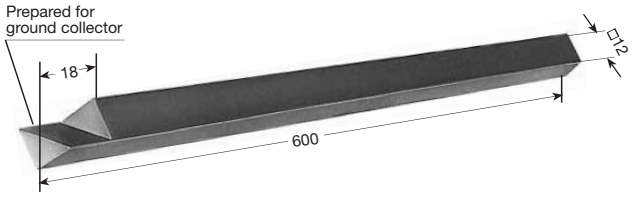


Insulated conductor rails are to se ortered seperalely.



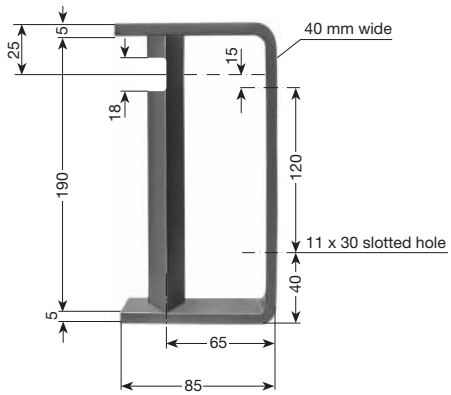
Type	Poles	dim. A mm	dim. B mm	dim. C mm	Cat.-No.
EMK 25/2	2	46	83	216	170 492
EMK 25/3	3	88	125	258	170 493
EMK 25/4	4	130	167	300	170 494
EMK 25/5	5	172	209	342	170 495
EMK 25/6	6	214	251	384	170 496

Collector brackets for KSTL 15 thru KDSTL 120



Type	weight kg	Cat.-No.
UM 12	0,710	153 506

Longer brackets furnished on special order. In this case an extra support is to be provided to avoid bending or twisting of the collector bracket.



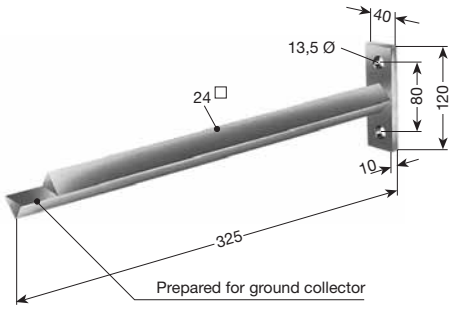
Type	weight kg	Cat.-No.
UMA 12	0,640	170 334

Suitable for conductor spacing 50 mm (3-poles + ground).

Collector brackets for KST 100/25 thru KDSTU 350/25

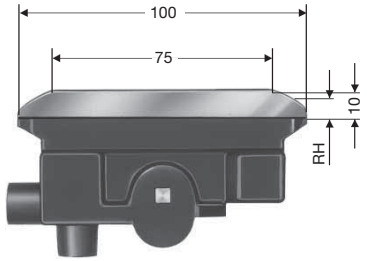
Type	weight kg	Cat.-No.
UM 24	2,600	175 076

Longer brackets furnished on special order. In this case an extra support is to be provided to avoid bending or twisting of the collector bracket.

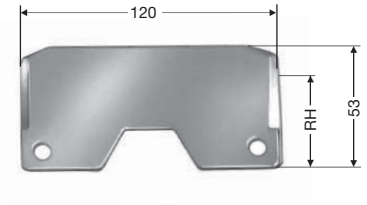


Type	weight kg	Cat.-No.
UMF 24	2,850	170 272

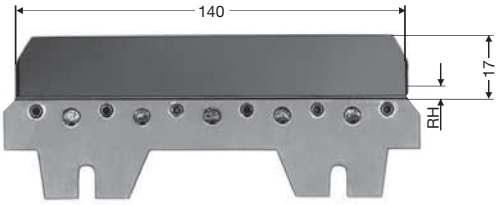
Copper-graphite brush



KMK 60



KMK 100/25

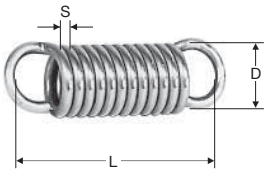


KMK 140/25

Dim. RH: allowed rest of hight

Type	for current collector	RH mm	weight kg	Cat.-No.
KMK 60	KSTL 15, KSTL 40, KSTL 60, KDSTL 30, KDSTL 80, KDSTL 120	7,50	0,110	153 512
KMK 100/25	KST 100/25, KDST 200/25, KST 125/25, KDST 250/25	38,00	0,180	170 768
KMK 140/25	KST 140/25, KDST 280/25, KSTU 140/25, KDSTU 280/25 KST 175/25, KDST 350/25, KSTU 175/25, KDSTU 350/25	1,00	0,152	170 164

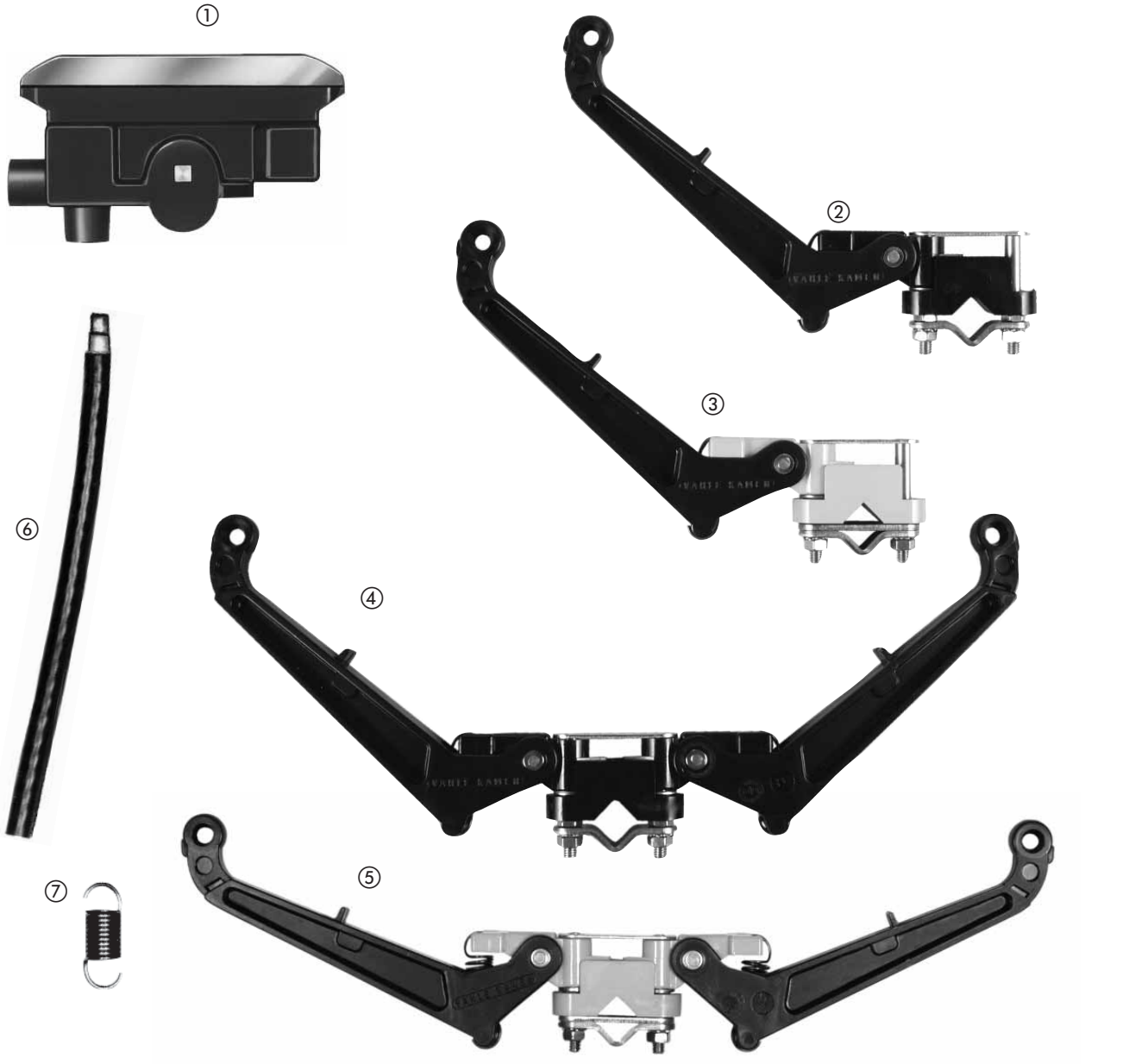
Tension spring (stainless steel)



Type	for current collectors	S mm	D mm	L mm	weight kg	Cat.-No.
ZF 4	KSTL 15, KSTL 40, KSTL 60, KDSTL 30, KDSTL 80, KDSTL 120	1,30	11,00	29,00	0,004	153 517
ZF 6	KST 100/25, KDST 200/25, KST 125/25, KDST 250/25 KST 140/25, KDST 280/25, KSTU 140/25, KDSTU 280/25 KST 175/25, KDST 350/25, KSTU 175/25, KDSTU 350/25	2,25	17,30	56,50	0,023	170 167

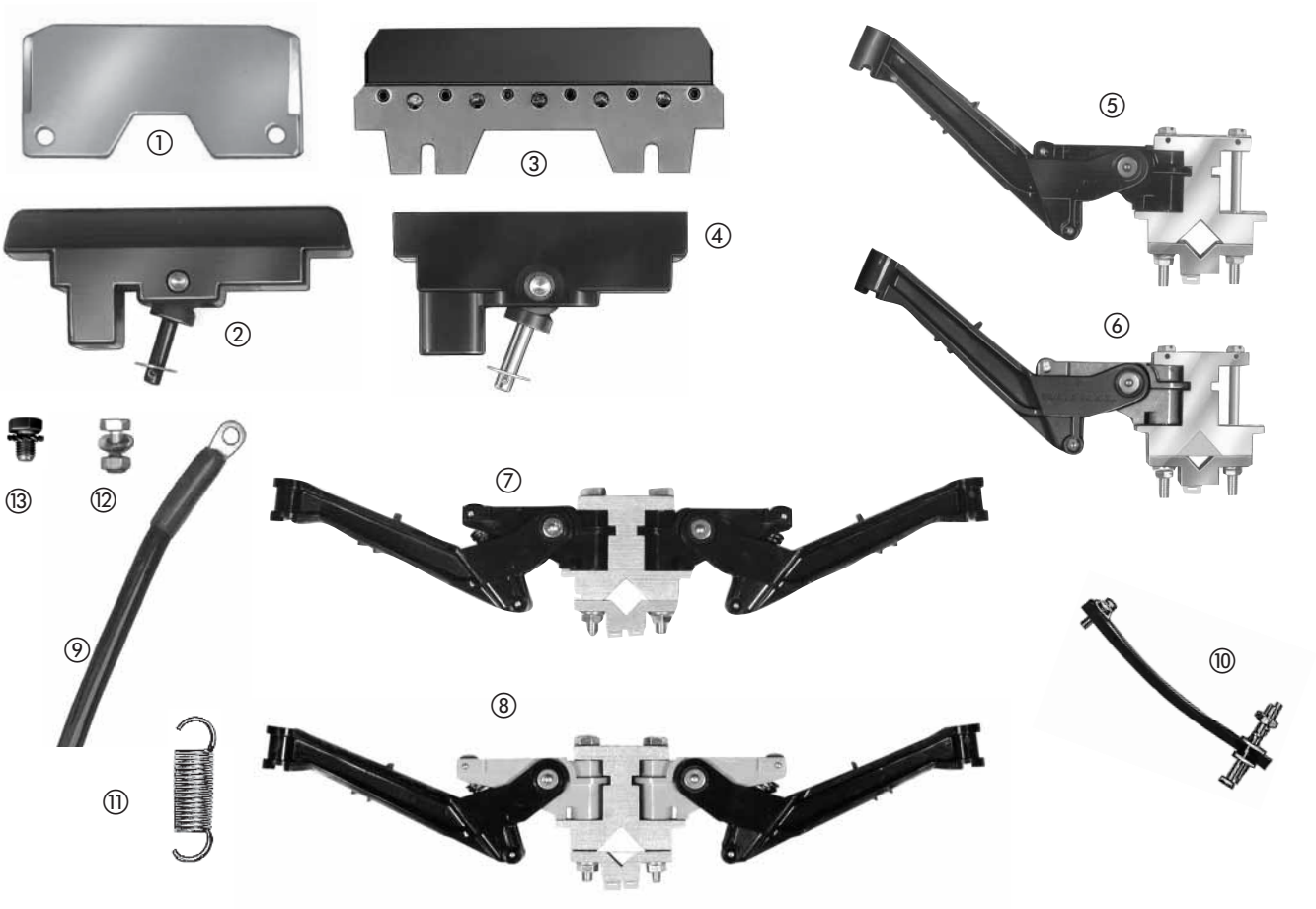
Spares for collectors KSTL 15 thru KDSTL 120

Part.-No.	Description		weight kg	Cat.-No.
1	Brush (see page 29)	–	–	
2	Collector base for KSTL 15 thru KSTL 60	phase PH	0,090	153 740
3	Collector base for KSTL 15 thru KSTL 60	phase PH		153 741
4	Collector base for KDSTL 30 thru KDSTL 120	phase PH	0,130	153 742
5	Collector base for KDSTL 30 thru KDSTL 120	ground PE		153 743
6	Connecting cable AEA 2.5 mm², PH, 2 m long	phase PH	0,072	151 374
	Connecting cable AEA 2.5 mm², PH, 2 m long	ground PE		51 375
6	Connecting cable AEA 6 mm², PH, 2 m long	phase PH	0,260	153 744
	Connecting cable AEA 6 mm², PH, 2 m long	ground PE		153 745
6	Connecting cable AEA 10 mm², PH, 2 m long	phase PH	0,400	153 746
	Connecting cable AEA 10 mm², PH, 2 m long	ground PE		153 747
7	Tension spring (see page 29)			



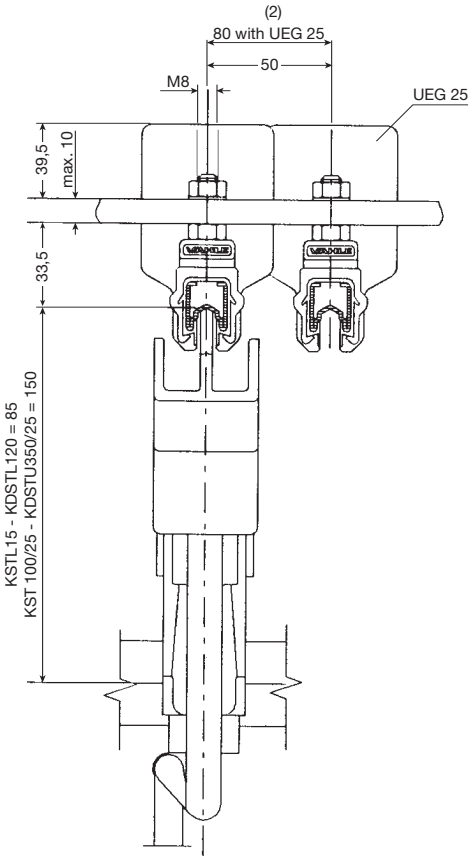
Spares for Collectors KST 100/25 thru KDSTU 350/25

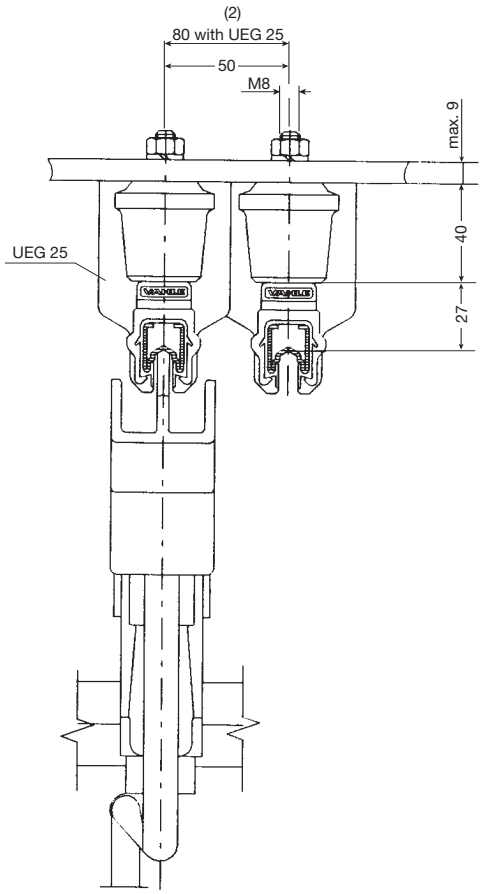
Part.-No.	Description		weight kg	Cat.-No.
1	Brush KMK 100/25 (see page 29)		–	–
2	Brush holder for KST 100/25, KST 125/25, KDST 200/25, KDST 250/25		0,195	170 338
3	Brush KMK 140/25 (see page 29)		–	–
4	Brush holder for KST 140/25, KDST 280/25, KST 175/25, KDST 350/25		0,375	170 169
4	Brush holder[1] for KSTU 140/25, KDSTU 280/25, KSTU 175/25, KDSTU 350/25		0,375	170 406
5	Collector base for KST 100, KST 125, KST 140 and KST 175	phase PH	0,578	170 340
6	Collector base for KST 100, KST 125, KST 140 and KST 175	ground PE		170 341
5	Collector base for KSTU 140, KSTU 175	phase PH	0,555	170 555
6	Collector base for KSTU 140, KSTU 175	ground PE		170 556
7	Collector base for KDST 200, KDST 250,KDST 280, and KDST 350	phase PH	0,795	170 342
8	Collector base for KDST 200, KDST 250,KDST 280, and KDST 350	ground PE		170 343
7	Collector base for KDSTU 280, KDSTU 350	phase PH	0,795	170 557
8	Collector base for KDSTU 280, KDSTU 350	ground PE		170 558
9	Connecting cable RKA 16/8 mm², PH, 2 m long	phase PH	0,614	170 344
	Connecting cable RKA 16/8 mm², PH, 2 m long	ground PE	0,459	170 345
9	Connecting cable RKA 25/8 mm², PH, 2 m long	phase PH	0,840	170 173
9	Connecting cable RKA 25/8 mm², PH, 2 m long	ground PE	0,600	170 174
9	Connecting cable RKA 35/8 mm², PH, 2 m long	phase PH	0,840	170 997
	Connecting cable RKA 35/8 mm², PH, 2 m long	ground PE	0,600	170 998
10	Rubber spring complete for KSTU 140/25, KDSTU 280/25, KSTU 175/25, KDSTU 350/25		0,035	170 412
11	Tension spring (see page 29)		–	–
12	Terminal bolt M 8 x 20 K 4 for KST 100, KST 125,KDST 200 and KDST 250		0,022	170 818
13	Terminal bolt M 8 x 12 K 4 for KST 140, KST 175, KSTU 140, KSTU 175, KDST 280, KDST 350, KDSTU 280 und KDSTU 350		0,010	170 871



[1] Rubber spring (No. 10) is part of the brush holder.

ARRANGEMENT AND EXAMPLE FOR ORDERING U 25





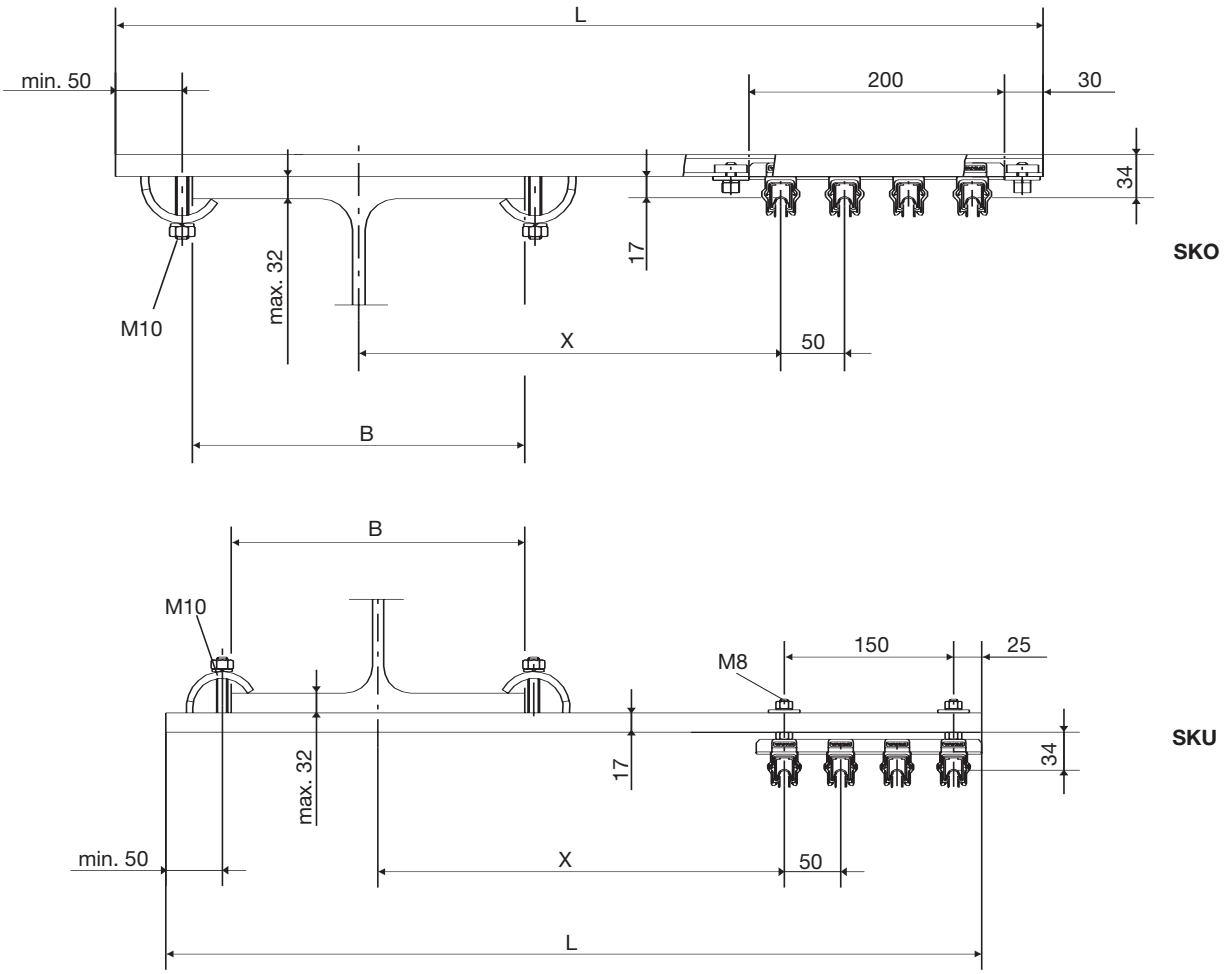
273 m power supply system, 3-pole + ground

Qty.	Description		Type	Cat.-No.
132	VAHLE unipole insulated conductors, 6 m long	phase PH	**U 25/75 C-6**	171 036
3	VAHLE unipole insulated conductors, 5 m long cut to 4.5	phase PH	**U 25/75 C-5**	171 035
44	VAHLE unipole insulated conductors, 6 m long	ground PE	**U 25/50 C-6**(1)	171 126
1	VAHLE unipole insulated conductor, 5 m long cut to 4.5	ground PE	**U 25/50 C-5**(1)	171 125
9	Expansion sections, 1.5 m long	phase PH	**UDV 25 C K 4**	171 057
3	Expansion sections, 1.5 m long	ground PE	**UDV 25 C K 4**	171 058
176	Bolted joint splices		**UV 25**	170 595
8	Feed terminals		**UEG 25**	170 597
32	Locating clamps		**USK 25 K 4**	170 010
8	End caps		**UK 25-L**	170 013
732	Insulated hangers		**UA 25**	170 761
3	Double collectors	Phase PH	**KDST 280/25**	170 542
1	Collector	ground PE	**KST 140/25**	170 539
1	Collector bracket		**UM 24**	175 076
1	Contact greese			120 017

(1) Capacity reduces per VDE 0100, part 540.

(2) In a compact arrangement or a phase distance < 80 mm the feed points UEG have to be arrangend staggered at a min. of 300 mm.

For flange thickness D from 10 to 32 mm



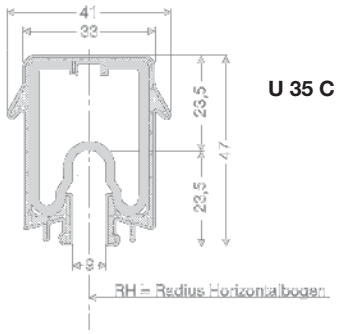
for KH 25/4 and KA 25/4

I-Beam flange width B mm	Distance X for brackets									
	SKO					SKU				
	L = 500	L = 600	L = 700	L = 800	L = 900	L = 500	L = 600	L = 700	L = 800	L = 900
bis 80	170-195	170-295	170-395	170-495	–	120-225	120-325	120-425	120-525	–
über 80 bis 120	–	190-275	190-375	190-475	190-575	140-205	140-305	140-405	140-505	140-605
über 120 bis 160	–	210-255	210-355	210-455	210-555	160-185	160-285	160-385	160-485	160-585
über 160 bis 200	–	230-235	230-335	230-435	230-535	–	180-265	180-365	180-465	180-565
über 200 bis 260	–	–	260-305	260-405	260-505	–	210-235	210-335	210-435	210-535

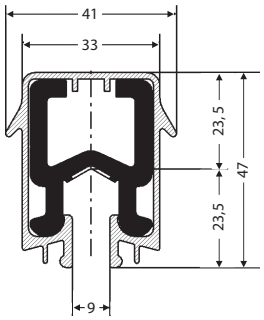
Compact hangers, rail holders and insulators are to be ordered separately

SKO		SKU			
Type	Cat.-No.	Type	Cat.-No.	L mm	weight ca. kg
SKO 500	170 094	**SKU 500**	170 104	500	0,690
SKO 600	170 095	**SKU 600**	170 105	600	0,780
SKO 700	170 096	**SKU 700**	170 106	700	0,870
SKO 800	170 097	**SKU 800**	170 107	800	0,960
SKO 900	170 098	**SKU 900**	170 108	900	1,050

INSULATED CONDUCTORS U 35



U 35 C



U 35 AE

Conductor code:

U	= unipole insulated conductor
35	= shroud size
200, 230, 300, 400, 450, 500	= conductor cross sectional area (mm^2)
C	= copper conductor
AE	= Aluminium conductor contact surface stainless steel

Length:
6,25 m is standard length; other lengths are available

Support spacing:
– for straight runs and vertical inside and outside curves: 2500 mm
– for horizontal curves up to R_H = 15 m[1]: 1250 mm
– for horizontal curves over R_H = 15 m: 2500 mm

Conductor spacing:
– 90 mm for collectors UST 200/35, UDST 400/35 and feed UE
– 130 mm for collectors UST 300/35, UDST 600/35 and feed UEG

Curves:
factory prepared

Heating system:
available

See page 4 for shroud properties.

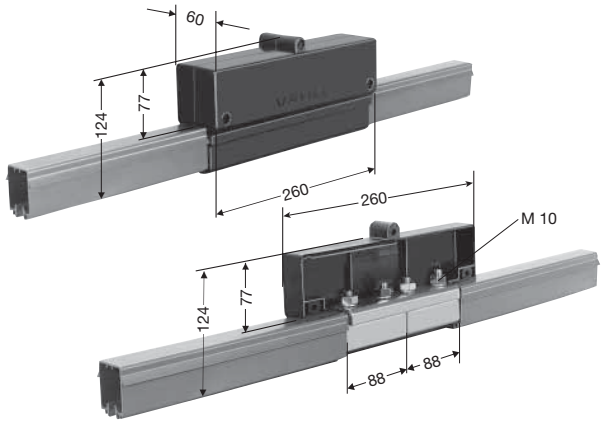
Type of conductor rail

Typ	U 35/200 C	U 35/300 C	U 35/400 C	U 35/500 C	U 35/230 AE	U 35/450 AE	U 35/600 AE
weight (kg/m)	2,400	3,400	4,300	6,100	1,070	1,650	2,112
Standard shroud, color green							
Cat.-No. phase [2]	175 20 •	175 21 •	175 22 •	175 33 •	175 41•	175 45•	175 64•
Cat.-No. ground [2]	175 26 •	175 27 •	175 28 •	175 34 •	175 42•	175 46•	175 66•
High temperature shroud, color gray							
Cat.-No. phase [2]	175 23 •	175 24 •	175 25 •	175 35 •	175 43•	175 47•	175 62•
Cat.-No. ground [2]	175 29 •	175 30 •	175 31 •	175 36 •	175 44•	175 48•	175 65•

Engineering Data

Type	Cross sectional area copper mm^2	Leakage Distance of covers mm	max. voltage V	Continuous Amp. capacity A/35 °C	Resistance Ohm/1000 m	Impedance Ohm/1000 m on 50 Hz, conductor spacing 90 mm	130 mm
U 35/200 C	200	85	1000	600	0,094	0,156	0,174
U 35/300 C	300	85	1000	720	0,060	0,138	0,159
U 35/400 C	400	85	1000	860	0,046	0,132	0,154
U 35/500 C	500	85	1000	1250	0,034	0.131	0,152
U 35/230 AE[4]	230	85	1000	500	0,134	0,183	0,199
U 35/450 AE[4]	450	85	1000	800	0,069	0,143	0,163
U 35/600 AE[4]	600	85	1000	1000	0,052	0,163	0,156

Bolted joint splices



Type	weight kg	Cat.-No.
UV 35/200	0,882	175 574
UV 35/300	1,000	175 012
UV 35/400	1,034	175 126
UV 35/500	1,273	175 369
UV 35/200 K 4[4]	0,882	175575
UV 35/300 K 4[4]	1,000	175 013
UV 35/400 K 4[4]	1,034	175 127
UV 35/500 K 4[4]	1,273	175 370
UV 35/230 AE	0,674	175 491
UV 35/450 AE	0,776	175 492
UV 35/230 AE K 4[4]	0,674	175 495
UV 35/450 AE K 4[4]	0,776	175 496

[1] Recommendation.
[2] Add last number (1, 2, 3, 4, 5 or 6 m length suffix) in accordance to bars required, whereby last number 6 relates to the standard 6.25 m sections.
[3] The collector of the AE-conductor which are working with only ≤ 10 m/min. travel speed or stand most of the time are only permitted to work with 50 % of the continuous current
[4] Stainless steel hardware

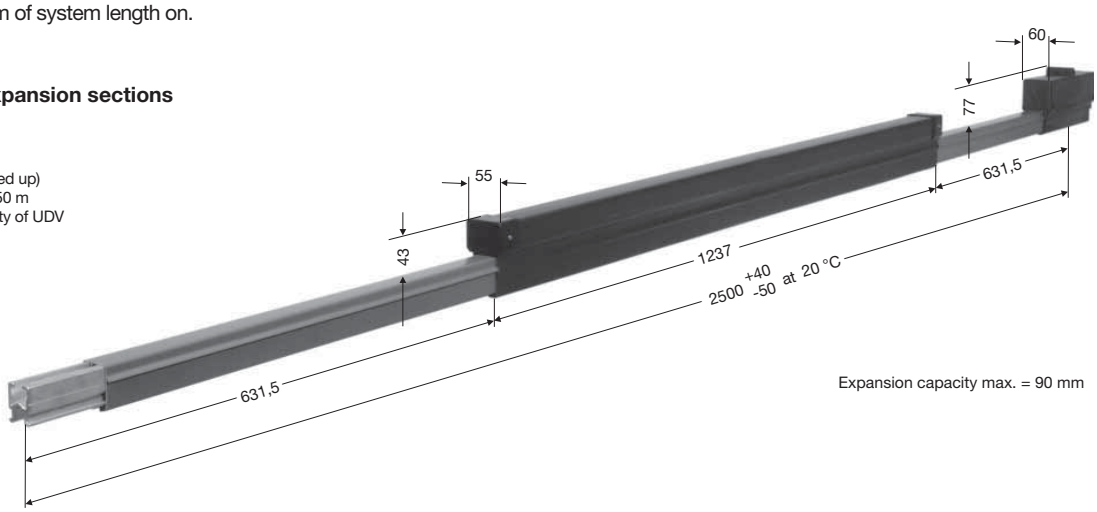
Expansion sections

Factory assembled on 2.5 m conductor section incl. one rigid joint. The 2.5 m expansion assembly is part of the system length and will be installed from 150 m of system length on.

Determination of expansion sections

$$n = \frac{L1}{L}$$

n = Number of UDV (rounded up)
L1 = system length minus 150 m
L = max. expansion capacity of UDV (see table)



Expansion capacity max. = 90 mm

Expansion capacity for UDV 35/200-500 C

to Δ t	max. L	to Δt	max L
30 °C	176 m	50 °C	105,5 m
40 °C	132 m	60 °C	88,0 m

Expansion capacity for UDV 35/230-450 AE

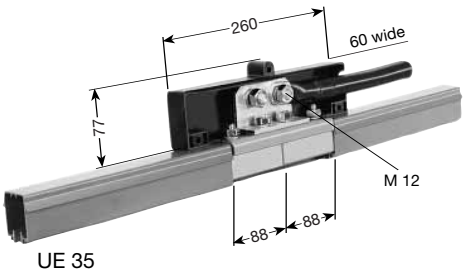
to Δ t	max. L	to Δt	max L
30 °C	130,0 m	50 °C	78,0 m
40 °C	97,5 m	60 °C	65,0 m

Standard shroud, color green

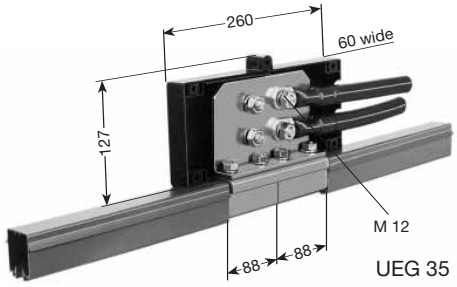
Type	weight kg	Cat.-No. phase	ground
UDV 35/200-400 C K 4(1)	16,00	175 527	175 528
UDV 35/500 C K 4(1)	17,50	175 540	175 541
UDV 35 /230-450 AE K 4(1)	7,00	175 517	175 518

High temperature shroud, color gray

Type	weight kg	Cat.-No. phase	ground
UDV 35/200-400 C K 4(1)	16,000	175 529	175 530
UDV 35/500 C K 4(1)	17,500	175 542	175 543
UDV 35/230-450 AE K 4(1)	7,000	175 519	175 520



UE 35



UEG 35

Feed terminals

Type	Connecting cable max. mm²	weight kg	Cat.-No.
UE 35/200-400	2 x 150	1,264	175 040
UE 35/500	2 x 150	1,204	175 397
UEG 35/200-400	4 x 185	1,930	175 105
UEG 35/200-400 -M	4 x 185	1,930	175 147
UEG 35/500	4 x 185	1,998	175 371
UEG 35/500-M	4 x 185	1,998	175 394
UE 35/200-400 K 4(1)	2 x 150	1,264	175 043
UE 35/500 K 4(1)	2 x 150	1,204	175 398
UEG 35/200-400 K 4(1)	4 x 185	1,930	175 106
UEG 35/200-400 K4(1)-M	4 x 185	1,930	175 324
UEG 35/500 K 4(1)	4 x 185	1,998	175 372
UEG 35/500 K4(1)-M	4 x 185	1,998	175 417
UE 35 AE	2 x 150	0,872	175 489
UEG 35 AE	4 x 185	1,278	175 487
UEG 35 AE-M	4 x 185	1,278	175 521
UE 35 AE K 4(1)	2 x 150	0,872	175 490
UEG 35 AE K 4(1)	4 x 185	1,278	175 488
UEG 35 AE K 4(1)-M	4 x 185	1,278	175 522

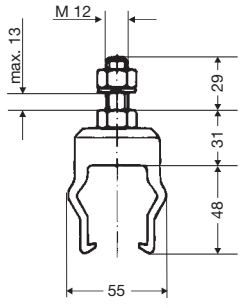
Cable lugs and cables by others. UEG requires staggered arrangement with conductor spacing of less than 130 mm. M = factory assembled.

(1) with stainless steel hardware

ACCESSORIES FOR U 35

Contact grease for joints & feeds

100 ml for approx. 200 joints	Cat.-No. 121 502



Width: 50 mm

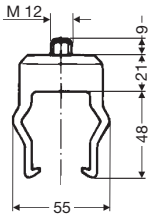
Allowed change power 1050 N

Insulated hangers

Type	weight kg	Cat.-No.
UA 35	0,120	175 137
UA 35 K 4(1)	0,120	175 138

Rail holders

to be used with insulator



Width: 50 mm

Allowed change power 1050 N

Type	weight kg	Cat.-No.
UAK 35	0,060	175 139
UAK 35 K 4(1)	0,060	175 140

Locating clamp

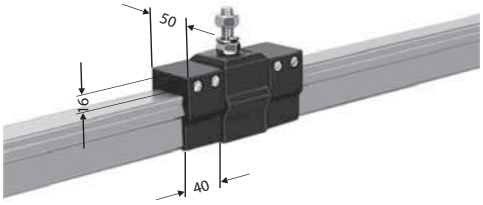
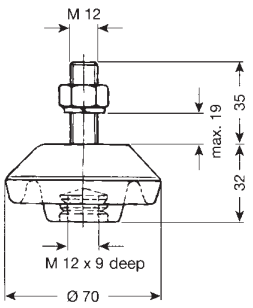


Photo shows hanger with two
ating clamps for an anchor point.

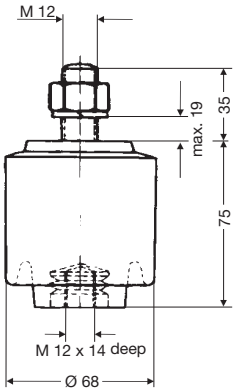
Type	weight kg	Cat.-No.
USK 35 K 4(1)	0,074	175 039

Insulators



Cantilever = 1200 N
Creapage distance = 69 mm

Type	weight kg	Cat.-No.
GHH 30-M 12	0,210	175 052
GHH 30-M 12 K 4(1)	0,210	175 054



Cantilever = 3600 N
Creapage distance = 115 mm

Type	weight kg	Cat.-No.
GHH 75-M 12	0,560	175 056
GHH 75-M 12 K 4(1)	0,560	175 058

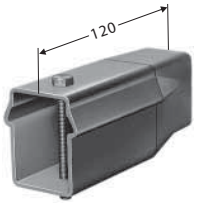
(1) with stainless steel hardware

End caps

with locking pin 3 x 32

Typ M = factory assembled per layout
Typ L = loose

Type	weight kg	Cat.-No.
UK 35-M	0,064	175 171
UK 35-L	0,064	175 060



Transfer guides

Transfer guides are used for transfer or power-interrupting applications.

Max. vertical and horizontal offset ± 6 mm

max. air gap: 20 mm

Type	weight kg	Cat.-No.
UTI 35/200	0,060	175 061
UTI 35/300	0,060	175 123
UTI 35/400	0,060	175 124
UTI 35/500	0,060	175 367
UTI 35/230	0,060	175 501
UTI 35/450	0,060	175 502

UTI 35 are transfer buttons (bellmouth shaped conductor ends) with integrated isolating piece. They are factory assembled to layout plans.

In the area of the transfer guide one hanger and the locating clamps have to be provided

Conductor rails, hangers and locating clamps to be ordered separately.

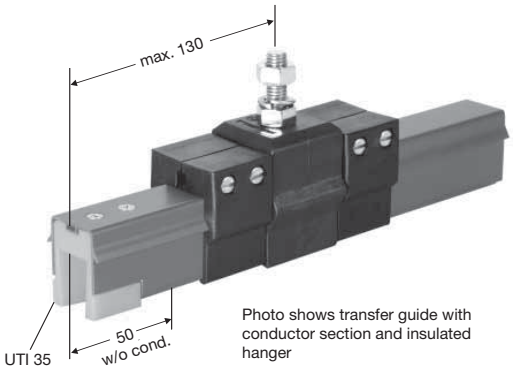


Photo shows transfer guide with conductor section and insulated hanger

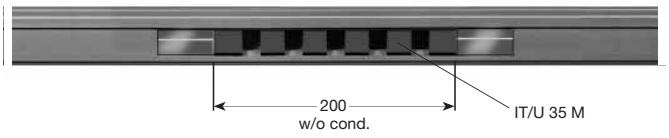
Isolating sections

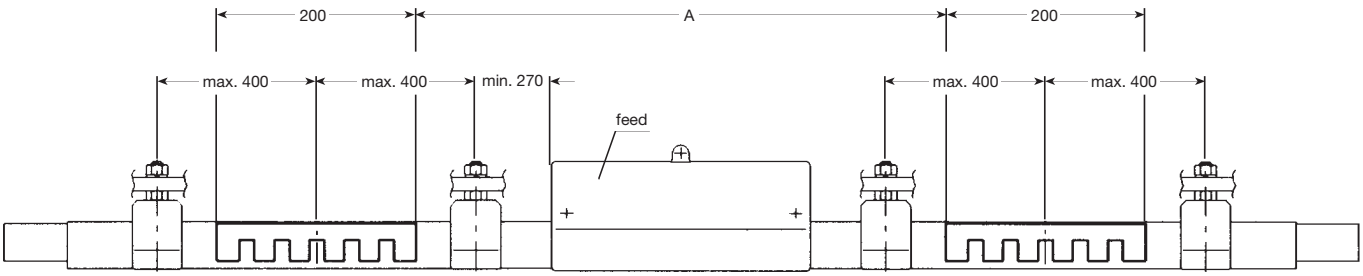
Typ M = factory assembled per layout
Typ L = loose

Consider two extra hangers, max 2 x 400 mm apart for stabilizing

Conductor rail, hangers and feeds are to be ordered separately

Attention: with mounted isolating sections the feed points have to be factory assembled aswell.





In order to avoid voltage bridging and for clearing of maintenance, control and live areas use two isolating sections.
Distance A depends on collector type and length of brake path of machinery.

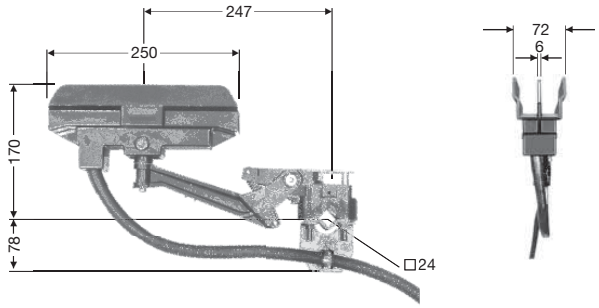
Type	weight kg	Cat.-No.
IT/U 35/200 M	0,200	175 062
IT/U 35/300 M	0,200	175 063
IT/U 35/400 M	0,200	175 064
IT/U 35/500 M	0,200	175 399
IT/U 35/230 M	0,200	175 499
IT/U 35/450 M	0,200	175 500

Type	weight kg	Cat.-No.
IT/U 35/200 L	0,200	175 101
IT/U 35/300 L	0,200	175 102
IT/U 35/400 L	0,200	175 103
IT/U 35/500 L	0,200	175 400
IT/U 35/230 L	0,200	175 497
IT/U 35/450 L	0,200	175 498

COLLECTORS AND COMPONENTS FOR U 35

Current Collectors

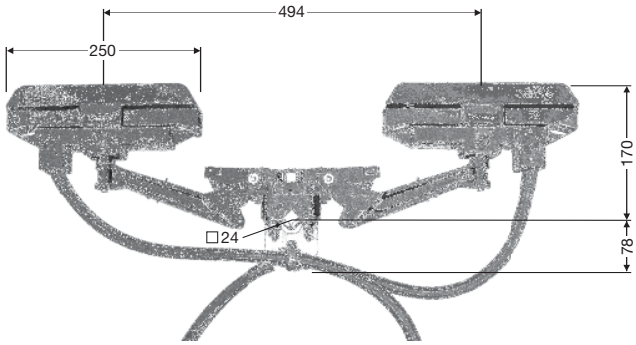
Use current collectors USTR in case of lateral opened conductor system

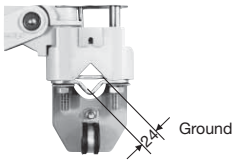


c/w 2.7 m cable
(pendent 2,3 m)
lift & swivel ± 50 mm
contact pressure ca. 30 N

Double current collectors

Use current collectors UDSTR in case of lateral opened conductor system





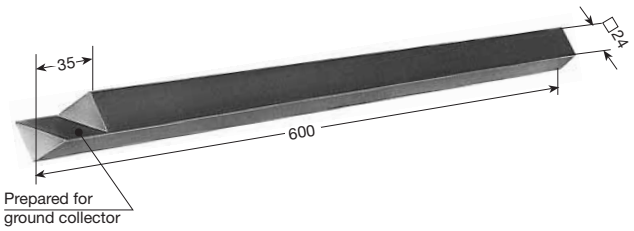
c/w 2 x 2.7 m cable
(pendent 2.3 m)
lift & swivel ± 50 mm
contact pressure: ca. 30 N per brush

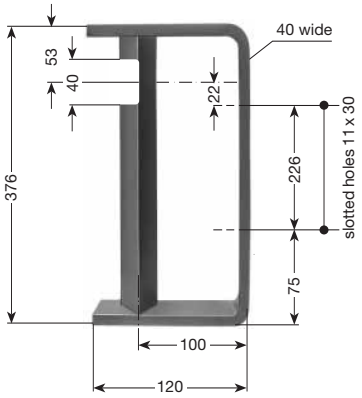
Type	Am-pacity A	Connecting cable A/ mm²	ø max/ mm	weight kg	Cat.-No. phase - black	ground - yellow
UST 200/35	200	50	21	2,000	175 068	175 069
USTR 200/35	200	50	21	2,000	175 169	175 170

Type	Am-pacity A	Connecting cable A/ mm²	ø max/ mm	weight kg	Cat.-No. phase - black	ground - yellow
UDST 400/35	400	50	21	3,700	175 072	175 073
UDSTR 400/35	400	50	21	3,700	175 185	175 186

The collector of the AE-conductor which are working with only ≤ 10 m/min. travel speed or stand most of the time are only permitted to work with 50 % of the continuous current.

Collector brackets





Type	weight kg	Cat.-No.
UM 24	2,600	175 076

Longer brackets furnished on special order.

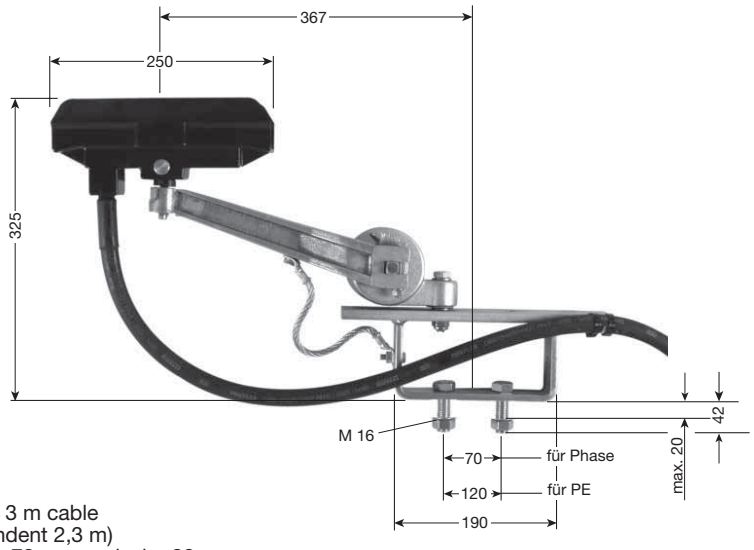
In this case an extra support is to be provided to avoid bending or twisting of the collector bracket.

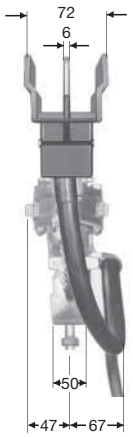
Type	weight kg	Cat.-No.
UMA 24	2,800	175 125

For 3-pole & ground systems c/w 90 mm cond. spacing.

Current collectors

Use current collectors USTR in case of lateral opened conductor system.



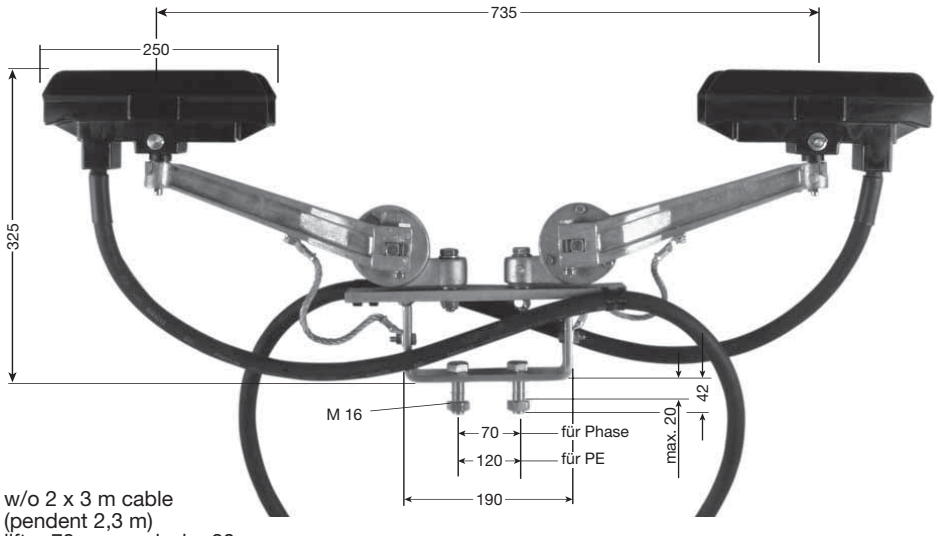


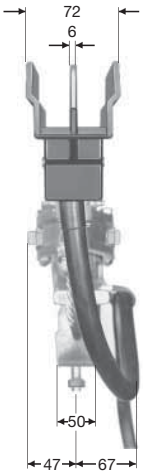
w/o 3 m cable
(pendent 2,3 m)
lift ± 70 mm, swivel ± 80 mm
contact pressure: 50-70 N

Type	Am-pacity A	Connecting cable A/ mm²	ø max/ mm	weight kg	Cat.-No. phase - black	ground - yellow
UST 300/35	300	95	26	10,900	175 087	175 088
USTR 300/35	300	95	26	10,900	175 320	175 321

Double current collectors

Use current collectors UDSTR in case of lateral opened conductor system.





w/o 2 x 3 m cable
(pendent 2,3 m)
lift ± 70 mm, swivel ± 80 mm
contact pressure: 50-70 N per brush

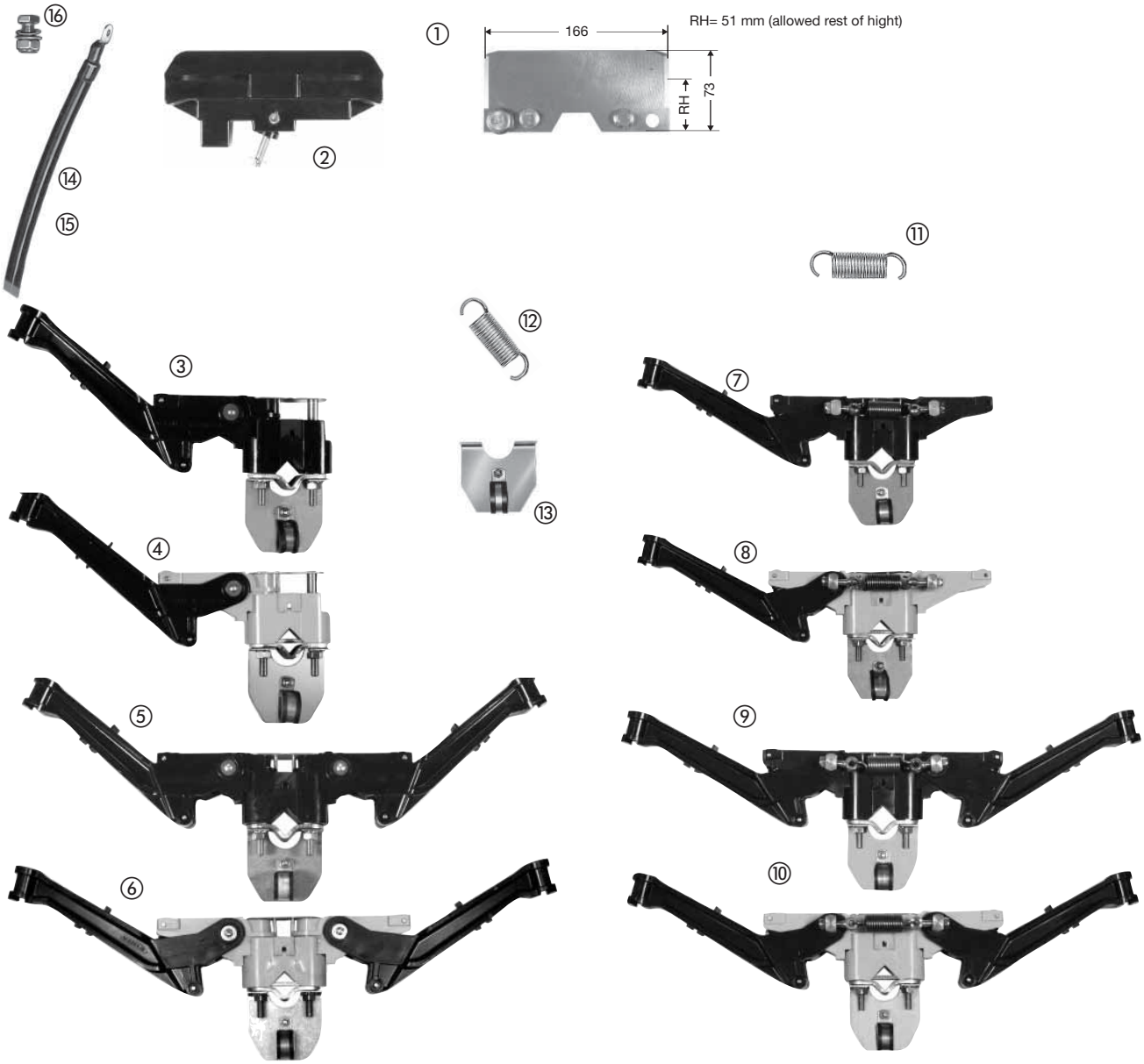
Type	Am-pacity A	Anschlussleitung A/ mm²	ø max/ mm	weight kg	Cat.-No. phase - black	ground - yellow
UDST 600/35	600	95	26	18,300	175 089	175 090
UDSTR 600/35	600	95	26	18,300	175 174	175 175

(1) The collector of the AE-conductor which are working with only ≤ 10 m/min. travel speed or stand most of the time are only permitted to work with 50 % of the continuous current.rden.

COLLECTOR COMPONENTS FOR U 35

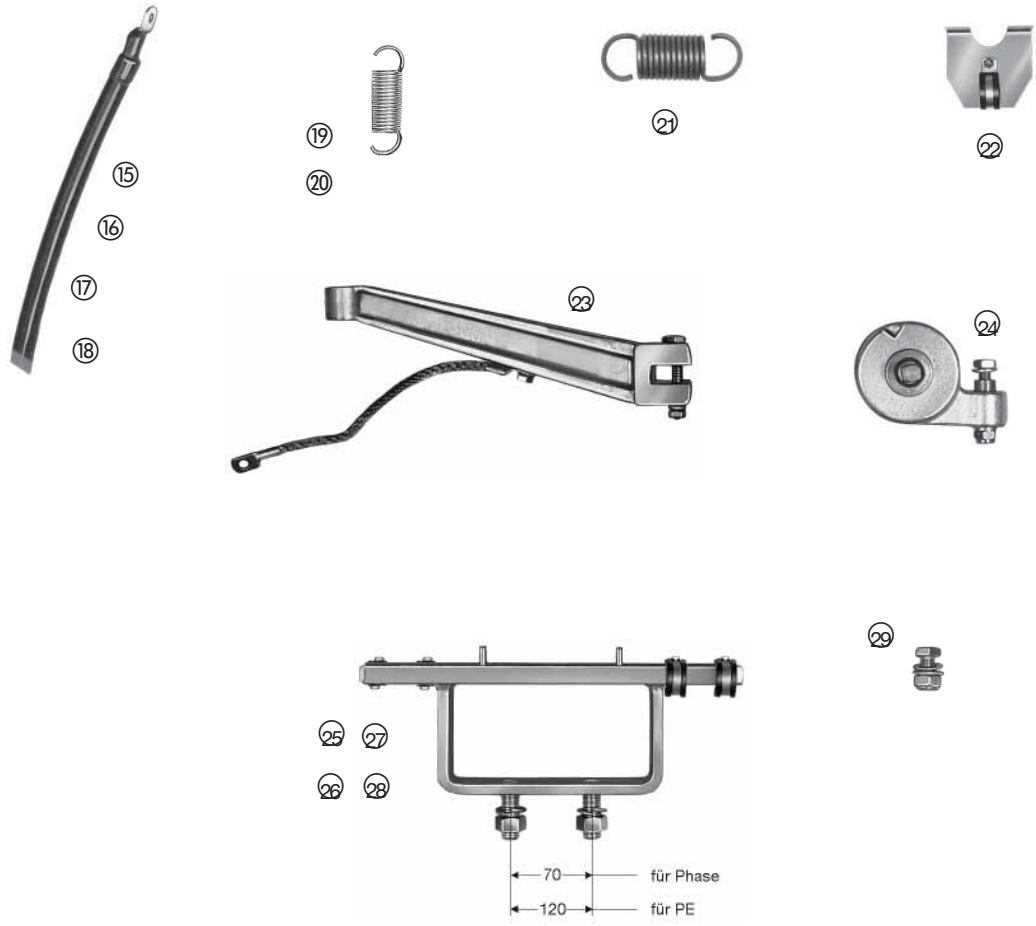
Spares for collectors UST 200/35, UDST 400/35, USTR 200/35, UDST 400/35

Part-No.	Description			weight kg	Cat.-No.
1	Brush KMU 300/35 with fixing and connecting screw			0,400	175 077
2	Brush holder			0,500	175 078
3	Collector base for UST 200/35	phase	PH	0,550	175 080
4	Collector base for UST 200/35	ground	PE		175 081
5	Collector base for UDST 400/35	phase	PH	0,795	175 082
6	Collector base for UDST 400/35	ground	PE		175 083
7	Collector base for USTR 200/35	phase	PH	0,780	175 550
8	Collector base for USTR 200/35	ground	PE		175 551
9	Collector base for UDSTR 400/35	phase	PH	0,940	175 552
10	Collector base for UDSTR 400/35	ground	PE		175 553
11	Lateral tension spring ZF 6 for USTR 200/35 and UDSTR 400/35			0,023	170 167
12	Tension spring ZF 7 for UST 200/35, UDST 400/35, USTR 200/35 and UDSTR 400/35			0,030	160 719
13	Cable attachment clamp			0,150	175 107
14	Connecting cable RKA 50 mm², 2,7 m long	phase	PH	2,220	175 084
15	Connecting cable RKA 50 mm², 2,7 m long	ground	PE		175 085
16	Terminal bolt M 12 x 25 K4			0,054	175 401

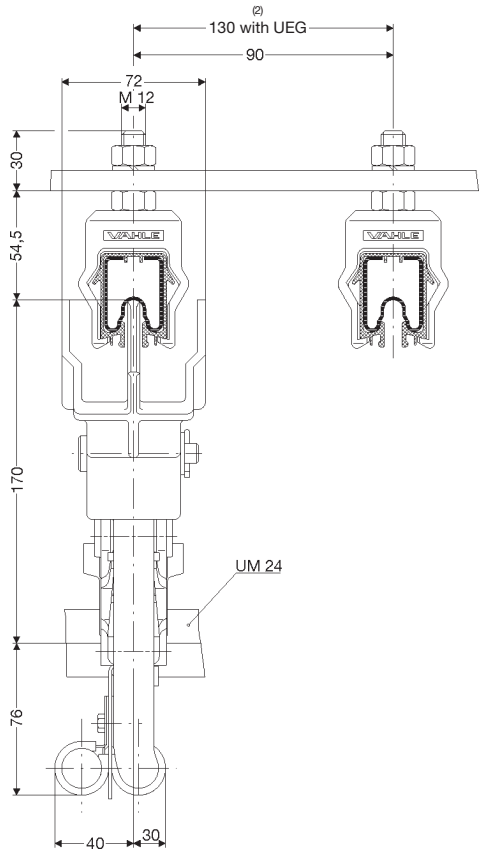


Spares for collectors UST 200/35, UST 300/35, UDST 400/35, UDST 600/35, USTR 200/35 USTR 300/35, UDSTR 400/35 and UDSTR 600/35

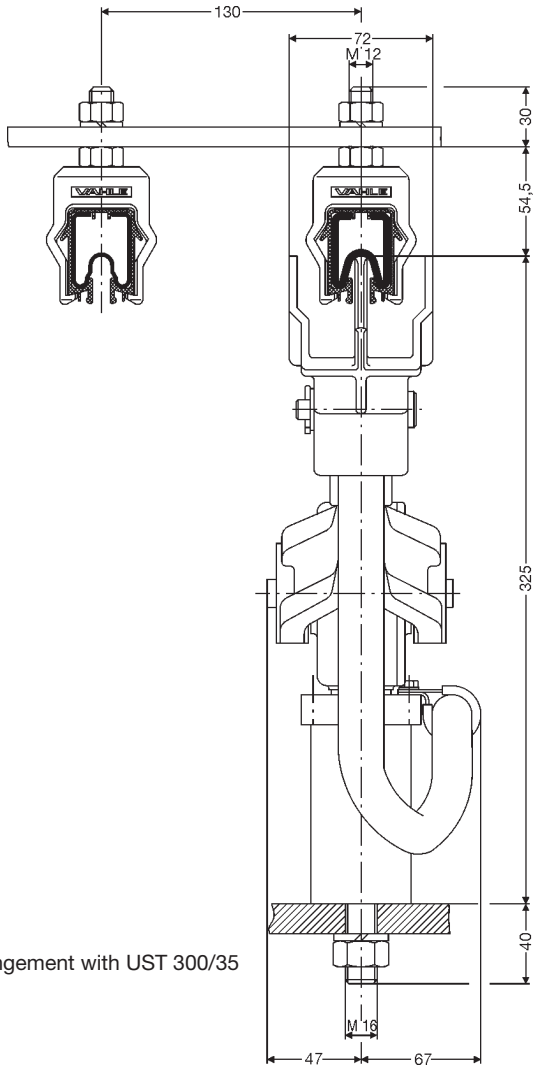
Part.-No.	Description		weight kg	Cat.-No.
15	Connecting cable RKA 50 mm², 2,7 m long for UST 200/35, UDST 400/35,, USTR 200/35 and UDSTR 400/35	phase PH	2,220	175 084
16	Connecting cable RKA 50 mm², 2,7 m long for UST 200/35, UDST 400/35, USTR 200/35 and UDSTR 400/35	ground PE		175 085
17	Connecting cable RKA 95 mm², 3 m long for UST 300/35, UDST 600/35, USTR 300/35 and UDSTR 600/35	phase PH	3,750	175 149
18	Connecting cable RKA 95 mm², 3 m long for UST 300/35, UDST 600/35, USTR 300/35 and UDSTR 600/35	ground PE		175 150
19	Tension spring ZF 7 for UST 200/35, UDST 400/35, USTR 200/35 and UDSTR 400/35		0,030	160 719
20	Lateral tension spring ZF 6 for USTR 200/35 and UDSTR 400/35		0,023	170 167
21	Tension spring for USTR 300/35 and UDSTR 600/35		0,030	175 558
22	Cable attachment clamp		0,150	175 107
23	Lever compl. for UST 300/35, UDST 600/35, USTR 300/35 and UDSTR 600/35		0,750	175 093
24	Spring box compl. for UST 300/35 and UDST 600/35		2,250	175 094
25	Base plate compl. for UST 300/35	phase PH	3,470	175 095
26	Base plate compl. for UST 300/35	ground PE		175 096
27	Base plate compl. for UDST 600/35	phase PH	3,490	175 097
28	Base plate compl. for UDST 600/35	ground PE		175 098
29	Terminal bolt M 12 x 25 K4		0,054	175 401



ARRANGEMENT AND EXAMPLE FOR ORDERING U 35



Arrangement with UDST 400/35



Arrangement with UST 300/35

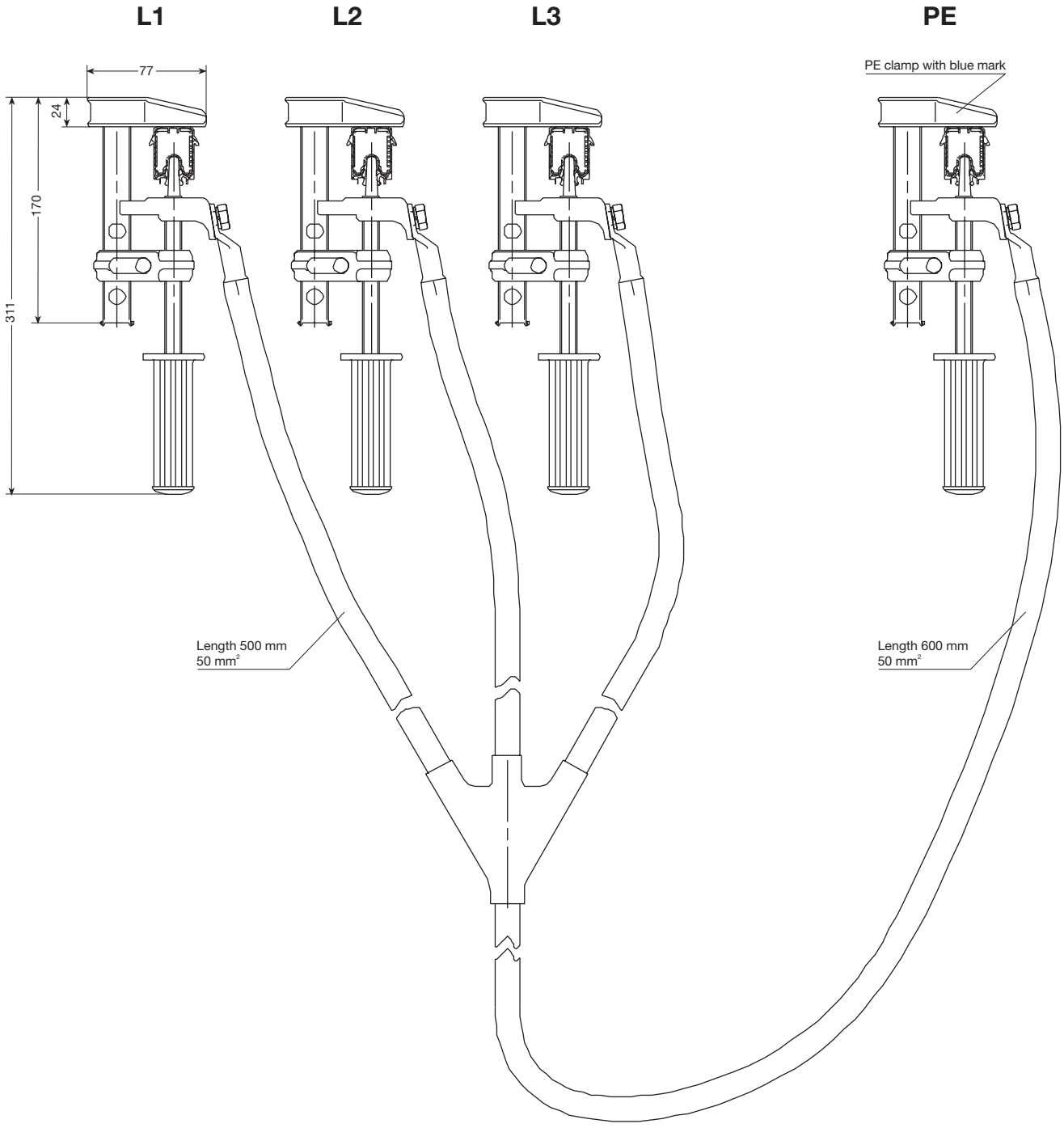
250 m power supply system 720 A, 3-pole + ground

Qty	Description		Type	Cat.-No.
117	VAHLE unipole insulated conductors, 6.25 m long	phase PH	**U 35/300 C-6**	175 216
3	VAHLE unipole insulated conductors, 4 m long cut to 3.75 m	phase PH	**U 35/300 C-2**	175 214
39	VAHLE unipole insulated conductors, 6.25 m long	ground PE	**U 35/200 C-6**(1)	175 266
1	VAHLE unipole insulated conductor, 4 m long cut to 3.75 m	ground PE	**U 35/200 C-2**(1)	175 264
3	Expansion sections, 2.5 m long	phase PH	**UDV 35/200-400 C K4**	175 527
1	Expansion sections, 2.5 m long	ground PE	**UDV 35/200-400 C K4**	175 528
156	Bolted joint splices		**UV 35/200-300**	175 012
8	Feed terminals		**UE 35/200-400**	175 040
16	Locating clamps		**USK 35 K 4**	175 039
8	End caps		**UK 35-L**	175 060
404	Insulated hangers		**UA 35**	175 137
6	Double collectors	phase PH	**UDST 400/35**	175 072
1	Double collector	ground PE	**UDST 400/35**	175 073
2	Collector brackets		**UM 24**	175 076
1	Contact grease			120 017

(1) Capacity reduces per VDE 0100, part 540

Earthing spider system, 4-pole for insulated conductors – VDE 0105 Part 100 (EN 50110-1)

Serves for earthing and short-circuiting the phase conductors with the ground conductor in the case of maintenance work.
The system consists of terminal clamps for the conductors and copper wire ropes.
Earthing spider system cannot be used together with compact conductor arragement.



Type	for conductor type	Copper section of wire rope	Cat.-No.
EUK	U 25 und U 35	50 mm²	130 035

QESTIONNAIRE FOR INSULATED CONDUCTOR SYSTEMS

Fa. _____ Date: _____

_____

Tel: _____ Fax: _____

Internet: _____ E-Mail: _____

1. No. of conductor systems: _____
2. Type of crane/machinery to be electrified: _____
3. Operating voltage:_____Volts, Phases:_____,Frequency:_____Hz
   Three phase voltage: ☐ AC voltage: ☐ DC voltage:☐
4. Length of conductor systems: _____
5. Number of conductors:_____ (power lines: _____ control lines:_____ neutral (ground):_____)
6. Arrangement of conductors:
   - ☐ Conductor rails suspending / Collectors standing
   - ☐ Conductor rails resp. current collectors lateral
   - ☐ Others: _____
7. Number of cranes or machines electrified from the one system: _____
8. Indoor: ☐ Outdoor: ☐
9. Special site conditions (humidity, dust, chemical effects etc.):
   _____
10. Temperature conditions: _____ °C min. _____ °C max.
11. Expansion gaps of building: _____ pieces in max distance: _____ mm
12. Number and position of feeder points: _____
13. Number and position of isolating sections (e.g. for maintenance areas):_____
14. Mounting position envisaged: _____
    (prints and sketches should be submitted whenever obtainable)
15. Travelling speed of machinery: _____
16. Ampere load of each crane/machine: _____
    (Use table on page 50).
17. Max. voltage drop from feeder point to current collectors 3% ☐ or _____ % ☐ of voltage rating

Other important data: _____

Please submit prints or sketches for curved tracks, discontinuous.

Please copy and fill in the questionnaire.

QUESTIONNAIRE FOR INSULATED CONDUCTOR SYSTEMS

To our nearest local agency:

Date:

Motordata	Crane 1						Crane 2					
	Power kW	Nominal current A	Nominal current $\cos\varphi_N$	Nominal current % ED	Starting current A	Starting current $\cos\varphi_A$	Power kW	Nominal current A	Nominal current $\cos\varphi_N$	Nominal current % ED	Starting current A	Starting current $\cos\varphi_A$
Hoist motor												
Auxiliary hoist												
Long travel												
Cross travel												

Motordata	Crane 3						Crane 4					
	Power kW	Nominal current A	Nominal current $\cos\varphi_N$	Nominal current % ED	Starting current A	Starting current $\cos\varphi_A$	Power kW	Nominal current A	Nominal current $\cos\varphi_N$	Nominal current % ED	Starting current A	Starting current $\cos\varphi_A$
Hoist motor												
Auxiliary hoist												
Long travel												
Cross travel												

Mark motors * which can operate simultaneously.
Mark motors Δ which can start simultaneously.

Further remarks: e.g.

Signature: _____

Notices:

Notices:

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OHSAS 18001 (Reg. no. 003140 QM OH)

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