

ENCLOSED CONDUCTOR SYSTEMS

LSV and LSVG



ALUMINIUM ENCLOSED CONDUCTOR SYSTEMS

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Type LSV



Type LSV with Plastic shielding "FP"



Type LSVG



Type LSVG with sealing strip "D"

Technical Data

Max. continuous current: 300 A (with 80% duty cycle)
 Nominal voltage: 690 V
 Collector rating: 40 A up to 80 A
 min. Bending Radius: LSV 750 mm/ LSVG 1500 mm

Impedance:	16	25	35	50	70	mm ² copper
	1.17	0.72	0.53	0.38	0.28	Ohm/1000 m

Temperature Resistance:

Powerail -40 °C up to + 100 °C (120 °C)⁽¹⁾
 Sealing strip "D" up to + 80 °C
 Plastic shielding "FP" up to + 55 °C
 Collector -40 °C/+ 70 °C (120 °C)⁽¹⁾

Resistance:	16	25	35	50	70	mm ² copper
	1.16	0.71	0.51	0.36	0.26	Ohm/1000 m

Consider the voltage drop calculation to maintain the limits established by the motor manufacturers:

Formulas:

AC:

$$\Delta U = \sqrt{3} \times I \times l \times Z$$

DC:

$$\Delta U_1 = 2l \times I \times R$$

$$\Delta U_2 = \frac{\Delta U_1 \cdot 100}{V}$$

Effective length:

- $l = L$ power feed located at the end of the system
- $l = L/2$ power feed located at the mid-point of the system
- $l = L/4$ power feed located at both ends of the system
- $l = L/6$ power feed located at L/6 from each end of the system

ΔU_1 = Voltage drop [V]

ΔU_2 = Voltage drop in %

I = Ampere load [A]

V = System Voltage

l = Power feed length [m]

L = System length [m]

Z = Impedance in Ohm/1000 m

R = Resistance in Ohm/1000 m

The total ampere load is determined from the nominal rated current of all motors working simultaneously on the same feed section of your electrification system.

The number of feed points should be increased in case the drop is exceeding the limitations – or it may be necessary to provide booster cables.



General

The Vahle Aluminium enclosed powerails LSV and LSVG are compact and safe prefabricated Electrification Systems.

These systems are ideal for **indoor and outdoor** use, for all types of installations requiring a moving or movable source of electrical power: cranes, monorails, hoists, electric power tools, machine tools, storage and retrieval systems and many other mobile machinery applications. LSV and LSVG are especially well suited for higher ambient temperatures.

The principal advantages of these systems are maximum electrical and personnel safety, compactness, dependability and minimal maintenance expense. They fully meet all safety requirements; VDE 0470 part 1; Protection IP 23, with sealing strip IP 24 per EN 60529 applies.

In special cases the plastic shielding FP provides additional safety. For the collectors applies protection against contact only if the brushes are complete in the conductor rail.

Conductor rails in the hand area in which the collectors leave the powerail under normal service conditions, must have a protection against contact on site e.g. through barriers or disconnection. This is only necessary at voltages above 25 V AC or 60 V DC. Different cross section combinations, as shown on page 4 are possible. Please consider VDE 0100 part 430 in case of using a N-pole.

The aluminium enclosed LSV 4-pole and the PVC enclosed KSL 4-pole (see cat. 4a) can be combined by means of a transfer piece.

Housing

The system consists of two prefabricated, standardized aluminium profiles which are bolted together. The polarizing long and short lip profiles prevent accidental reversal and avoid phase reversing of collectors (see pages 5 & 6). The lateral arrangement of insulators and copper conductors allows 4-7 conductors in the LSV and 6-11 conductors in the LSVG housing.

The 5, 7, 9 and 11-pole systems use an uninsulated ground conductor (see page 5).

Curved track sections to contour to almost any job requirement can be furnished to order.

We do recommend the anodized version for installations in coastal areas, river valleys or other humid and aggressive environments. Heating systems for icing conditions are available.

All LSV and LSVG housings can be equipped with a Neoprene sealing strip or a Plastic shielding as shown on page 6 of this catalog.

Standard duct sections are 1, 2, 3 or 4 m long; other sections to coincide with your runway requirements are available.

End caps close the open powerail ends.

Couplings

The 60, 100 and 140 Amp. systems use side fish plates for joining adjacent sections;

The 200 and 300 Amp. systems exclusively use bolted joints (see mounting information).

Feed Sets

End feeds or line feeds are available.

End feed boxes 4-11-pole are designed for max. 60 Amperes; line feed boxes rate from 60 to 300 Amperes. Space-saving line feeds with 2 m connection cables are available.

The factory assembled 1 m feed-in tracks integrate in your system length.

Brackets & Hangers

We do recommend to use our standard supporting brackets, page 8 for monorail and hoist applications.

Standard support spacing is 2 m. Up to 3 m support spacing is possible when using joint covers for connecting the duct sections. Use one fix point hanger; all others are sliding hangers (see installation instructions).

Expansion Joint Sections

These expansion joints can compensate for expansion and contraction difference between aluminium housing and copper conductors. They do not interrupt electric current flow.

Telescope & Anti-condensation sections

The telescope devices serve for length-compensation in high temperature fluctuations, for runs exceeding 200 m. For combined indoor/outdoor applications use the anti-condensation section. A separate feeding on both sides of these units is required.

Contact Sections, Turntables, Switches

Powerails for working areas and transfer applications see page 12.

Sectionalizing

Conductor dead sections are electrical interrupts of the conductor. Under normal operating conditions a cross over with collectors to switch the voltage off or on is only allowed with low power ratings (control current).

Available as air gap version (5 mm), where the collector carbon bridges the gap, e.g. for mains.

Also available as insulating piece version (30 mm). In this case the insulating piece is longer than the carbon and each powerail section can be separated electrically, e.g. for control.

Collectors

The collectors are made of impact resistant pvc.

The power will be transferred through spring supported brushes. The connection takes place through connecting cables or connection boxes. The mechanical connection to the consumer are provided by towing arms.

With following system requirements double collectors have to be used:

- Transfers with switches and turntables
- low voltages, frequency controlled drives
- Transmission of data- and/or emergency stop signals
- high electrical loads

The length of the connecting cable should not exceed 3 m, if the fuse is not laid out for this rating. See DIN VDE 0100, part 430 and DIN EN 60204-32.

(Note: A.m. appears often in systems with more than one collector.) The provided connecting cables are sufficient for the quoted nominal current. For the different layout systems have the reduction factor according to DIN VDE 0298-4 be considered.

Safety notice

Please ensure that the arrangement of the collectors (conductor rail) and collector arms made by the customer is according to the safety distance of min. 0,5 m to prevent the danger of crushing.

Note:

In case of use in galvanising plants, pickle shops, aggressive environments, installations in firedamp areas or underneath a drainage area and if low voltage is required we recommend to send us your enquiry with full details (see questionnaire on page 29/30).

For the preparation of quotes and orders we require drawings if the conductor has curves, dead sections, turntables or switches.



TYPES, ENGINEERING DATA AND CATALOG NUMBERS

LSV

Type	HS w PE SS w/o PE	No. of Poles	Ampacity at 80 % ED L1, L2, L3 A	No. of conductors x copper section mm ²			
				L1, L2, L3	⊕ ⁽²⁾	N	Control-Line
LSV 4/ 60 HS		4	60	3 x 16	1 x 16	–	–
LSV 4/ 60 SS	Control line	4	60	–	–	–	4 x 16
LSV 4/100 HS		4	100	3 x 25	1 x 16	–	–
LSV 4/140 HS		4	140	3 x 35	1 x 16	–	–
LSV 4/200 HS ⁽¹⁾		4	200	3 x 50	1 x 25	–	–
LSV 4/300 HS ⁽¹⁾		4	300	3 x 70	1 x 50	–	–
LSV 5/ 60 HS		5	60	3 x 16	1 x 16	1 x 16	–
LSV 5/100 HS		5	100	3 x 25	1 x 16	1 x 25	–
LSV 5/140 HS		5	140	3 x 35	1 x 16	1 x 35	–
LSV 5/200 HS ⁽¹⁾		5	200	3 x 50	1 x 16	1 x 50	–
LSV 5/300 HS ⁽¹⁾		5	300	3 x 70	1 x 16	1 x 70	–
LSV 6/ 60 HS		6	60	3 x 16	1 x 16	–	2 x 16
LSV 6/ 60 SS	Control line	6	60	–	–	–	6 x 16
LSV 6/100 HS		6	100	3 x 25	1 x 16	–	2 x 16
LSV 6/140 HS		6	140	3 x 35	1 x 16	–	2 x 16
LSV 6/200 HS ⁽¹⁾		6	200	3 x 50	1 x 25	–	2 x 16
LSV 7/ 60 HS		7	60	3 x 16	1 x 16	1 x 16	2 x 16
LSV 7/100 HS		7	100	3 x 25	1 x 16	1 x 25	2 x 16
LSV 7/140 HS		7	140	3 x 35	1 x 16	1 x 35	2 x 16
LSV 7/200 HS ⁽¹⁾		7	200	3 x 50	1 x 16	1 x 50	2 x 16

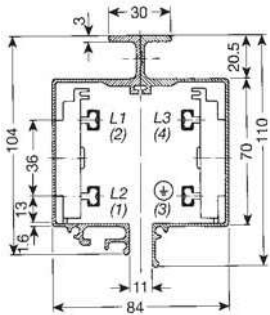
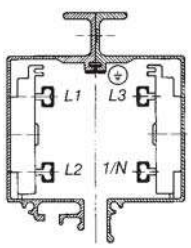
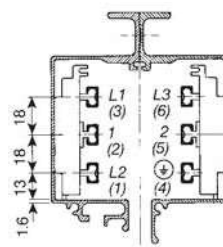
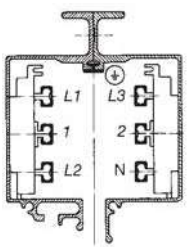
LSVG

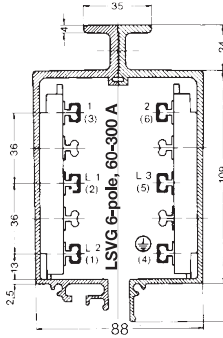
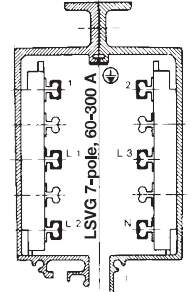
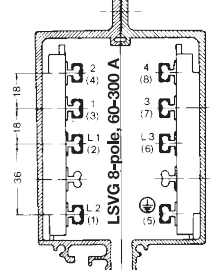
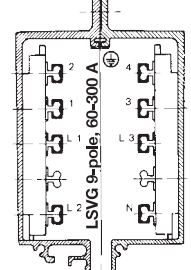
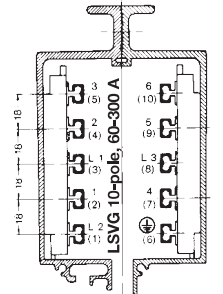
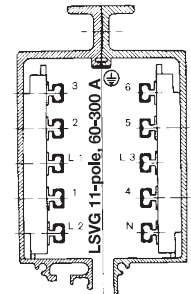
LSVG 6/ 60 HS		6	60	3 x 16	1 x 16	–	2 x 16
LSVG 6/ 60 SS	Control line	6	60	–	–	–	6 x 16
LSVG 6/100 HS		6	100	3 x 25	1 x 16	–	2 x 16
LSVG 6/140 HS		6	140	3 x 35	1 x 16	–	2 x 16
LSVG 6/200 HS ⁽¹⁾		6	200	3 x 50	1 x 25	–	2 x 16
LSVG 6/300 HS ⁽¹⁾		6	300	3 x 70	1 x 50	–	2 x 20
LSVG 7/ 60 HS		7	60	3 x 16	1 x 16	1 x 16	2 x 16
LSVG 7/100 HS		7	100	3 x 25	1 x 16	1 x 25	2 x 16
LSVG 7/140 HS		7	140	3 x 35	1 x 16	1 x 35	2 x 16
LSVG 7/200 HS ⁽¹⁾		7	200	3 x 50	1 x 16	1 x 50	2 x 16
LSVG 7/300 HS ⁽¹⁾		7	300	3 x 70	1 x 16	1 x 70	2 x 20
LSVG 8/ 60 HS		8	60	3 x 16	1 x 16	–	4 x 16
LSVG 8/ 60 SS	Control line	8	60	–	–	–	8 x 16
LSVG 8/100 HS		8	100	3 x 25	1 x 16	–	4 x 16
LSVG 8/140 HS		8	140	3 x 35	1 x 16	–	4 x 16
LSVG 8/200 HS ⁽¹⁾		8	200	3 x 50	1 x 25	–	4 x 16
LSVG 9/ 60 HS		9	60	3 x 16	1 x 16	1 x 16	4 x 16
LSVG 9/100 HS		9	100	3 x 25	1 x 16	1 x 25	4 x 16
LSVG 9/140 HS		9	140	3 x 35	1 x 16	1 x 35	4 x 16
LSVG 9/200 HS ⁽¹⁾		9	200	3 x 50	1 x 16	1 x 50	4 x 16
LSVG 10/ 60 HS		10	60	3 x 16	1 x 16	–	6 x 16
LSVG 10/ 60 SS	Control line	10	60	–	–	–	10 x 16
LSVG 10/100 HS		10	100	3 x 25	1 x 16	–	6 x 16
LSVG 10/140 HS		10	140	3 x 35	1 x 16	–	6 x 16
LSVG 10/200 HS ⁽¹⁾		10	200	3 x 50	1 x 25	–	6 x 16
LSVG 11/ 60 HS		11	60	3 x 16	1 x 16	1 x 16	6 x 16
LSVG 11/100 HS		11	100	3 x 25	1 x 16	1 x 25	6 x 16
LSVG 11/140 HS		11	140	3 x 35	1 x 16	1 x 35	6 x 16
LSVG 11/200 HS ⁽¹⁾		11	200	3 x 50	1 x 16	1 x 50	6 x 16

4

⁽¹⁾ With bolted joints only other types can be delivered with bolted joints without surcharge (on request).

⁽²⁾ The ground conductor ⊕ = PE is always connected to the powerail housing and marked accordingly. The ground bar is uninsulated in the case of 5-, 7-, 9- and 11-pole systems. Mounting configurations see pages 8, 11, 23, 28.

Nominal Voltage V	Leakage Path mm	Weight kg/m	Order- No.	Configurations
690	45	3,000	190 00 •	 LSV 4-pole, 60-300 A  LSV 5-pole, 60-300 A  LSV 6-pole, 60-200 A  LSV 7-pole, 60-200 A
690	45	3,000	190 10 •	
690	45	3,400	190 04 •	
690	45	3,700	190 08 •	
690	45	4,300	190 61 •	
690	35	5,000	190 60 •	
690	45	3,150	190 01 •	
690	45	3,550	190 03 •	
690	45	3,850	190 05 •	
690	45	4,450	190 62 •	
690	35	5,150	190 63 •	
690	45	3,300	190 02 •	
690	45	3,300	190 11 •	
690	45	3,700	190 06 •	
690	45	4,000	190 64 •	
690	45	4,480	195 52 •	
690	45	3,450	190 07 •	
690	45	3,850	190 09 •	
690	45	4,250	190 65 •	
690	45	4,730	195 60 •	

690	45	5,150	180 00 •	 LSV 8-pole, 60-300 A  LSV 7-pole, 60-300 A  LSV 8-pole, 60-300 A  LSV 9-pole, 60-300 A  LSV 10-pole, 60-300 A  LSV 11-pole, 60-300 A
690	45	5,150	180 22 •	
690	45	5,450	180 01 •	
690	45	5,750	180 02 •	
690	45	6,300	180 03 •	
690	35	7,250	180 04 •	
690	45	5,300	180 05 •	
690	45	5,700	180 06 •	
690	45	6,100	180 07 •	
690	45	6,700	180 08 •	
690	35	7,400	180 09 •	
690	45	5,450	180 10 •	
690	45	5,450	180 23 •	
690	45	5,750	180 11 •	
690	45	6,050	180 12 •	
690	45	6,530	184 58 •	
690	45	5,600	180 13 •	
690	45	6,000	180 14 •	
690	45	6,400	180 15 •	
690	45	6,940	184 59 •	
690	45	5,750	180 16 •	
690	45	5,750	180 24 •	
690	45	6,050	180 17 •	
690	45	6,350	180 18 •	
690	45	6,830	184 60 •	
690	45	5,900	180 19 •	
690	45	6,300	180 20 •	
690	45	6,700	180 21 •	
690	45	7,240	184 61 •	

• Add last number (1, 2, 3, 4 m length suffix) in accordance to bars required.

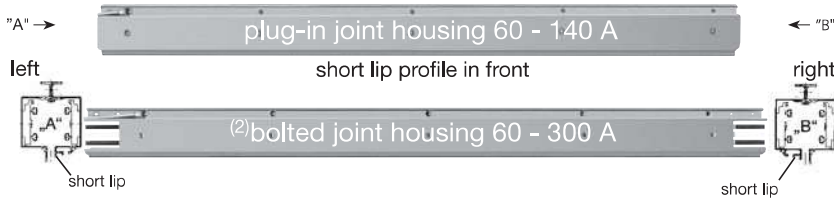
Numbers in parenthesis are used for control circuit applications.



STANDARD SECTION MAX. 4 M

CURVED SECTION

LSV

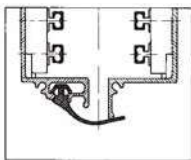


Extra finish of LSV; surcharge Order- No.

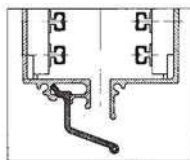
Type	Index E	Index I	
	anodized housing Order- No.	copper conductors with stainless steel cap Order- No. 60 A	Order- No. 200 A
LSV 4-pole	190 660	194 754	194 755
LSV 5-pole	190 670	194 756	194 757
LSV 6-pole	190 660	194 758	-
LSV 7-pole	190 670	194 760	-

Supplements for LSV:

Illustration see page 2	Type	Weight kg/m	Order- No.
Neoprene sealing strip	D	0,225	254 751
Fastener for sealing strip (pair)			258 432
Coupling for sealing strip for length exceeding 50 m			258 300
Mounting trolley for sealing strip			258 345
Plastic shielding ⁽¹⁾ incl. locking pin for plastic shielding	FP	0,260	196 574



Neoprene sealing strip



Plastic shielding

Custom built



min. horizontal radius: 750 mm

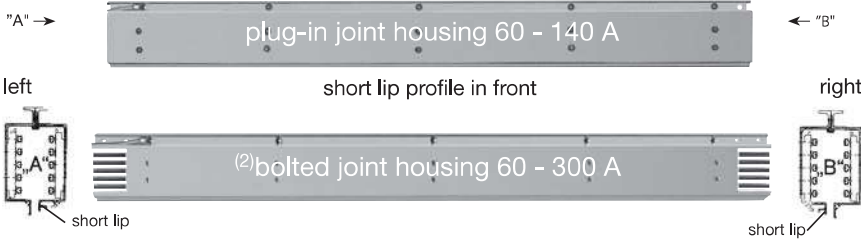
Consult factory for vertical bends

Support spacing 750 up to max. 2000 mm, depending on the radius max. L = 3200 mm, max. $\alpha = 120^\circ$

surcharge	Order- No.
horizontal curve L max. 1.8 m	194 420
horizontal curve L from 1.8 m to max. 3.2 m	195 285

Long lip side of powerail should always be mounted towards the track (see page 28). Notify exceptions for replacements and/or extensions and determine correct curves.

LSVG

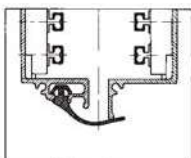


Extra finish of LSVG; surcharge Order- No.

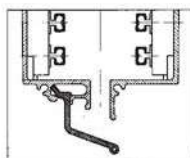
Type	Index E	Index I	
	anodized housing Order- No.	copper conductors with stainless steel cap Order- No. 60 A	Order- No. 200 A
LSVG 6-pole	180 250	183 871	183 872
LSVG 7-pole	180 260	183 873	183 874
LSVG 8-pole	180 250	183 875	-
LSVG 9-pole	180 260	183 877	-
LSVG 10-pole	180 250	183 879	-
LSVG 11-pole	180 260	183 881	-

Supplements for LSVG:

Illustration see page 2	Type	Weight kg/m	Order- No.
Neoprene sealing strip	D	0,225	254 751
Fastener for sealing strip (pair)			258 432
Coupling for sealing strip for length exceeding 50 m			258 300
Mounting trolley for sealing strip			184 033
Plastic shielding ⁽¹⁾ incl. locking pin for plastic shielding	FP	0,260	196 574



Neoprene sealing strip



Plastic shielding

Custom built



min. horizontal radius: 1500 mm

Consult factory for vertical bends

Support spacing 750 up to max. 2000 mm, depending on the radius max. L = 3200 mm, max. $\alpha = 120^\circ$

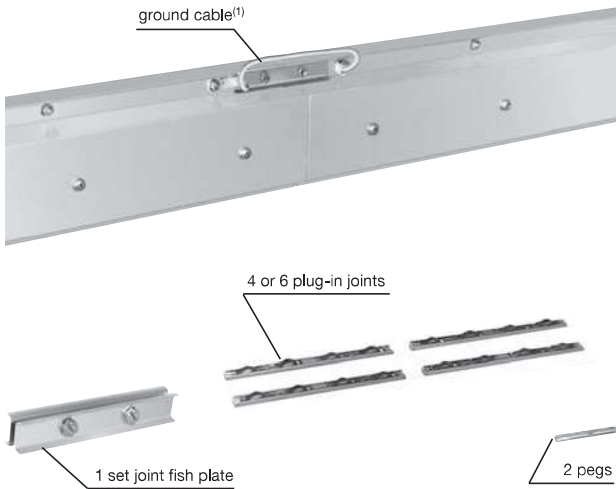
surcharge	Order- No.
horizontal curve L max. 1.8 m	183 810
horizontal curve L from 1.8 m to max. 3.2 m	184 170

Long lip side of powerail should always be mounted towards the track (see page 28). Notify exceptions for replacements and/or extensions and determine correct curves.

⁽¹⁾ Plastic shielding FP not for curves.

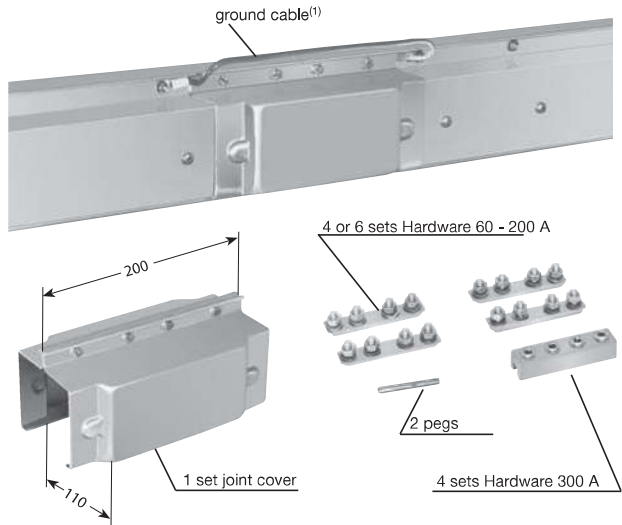
⁽²⁾ All other types are to be delivered with bolted joints w/o surcharge.

Plug-in joints 60-140 A



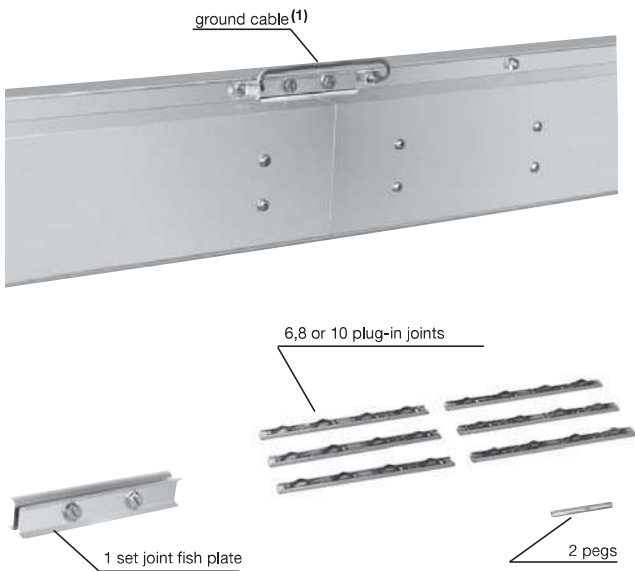
Type		Weight kg	Order- No.
VBL 4/5	for 4- and 5-pole	0,110	195 244
VBL 6/7	for 6- and 7-pole	0,140	195 246

Bolted joints 60-300 A



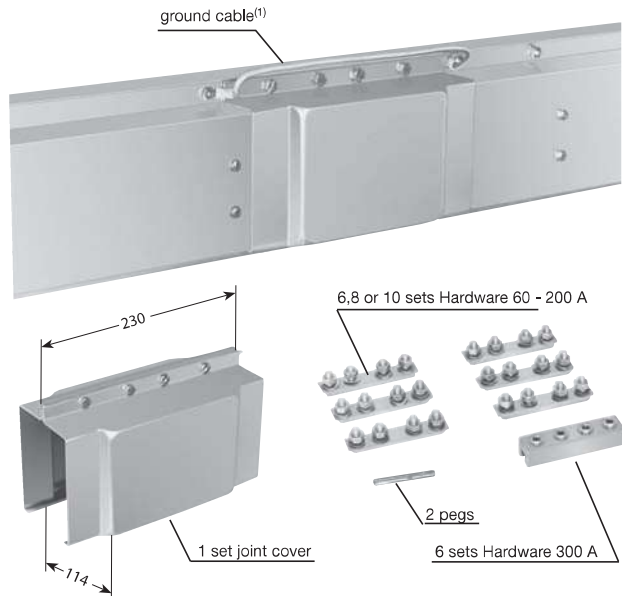
Type		Weight kg	Order- No.	Order- No. anodized
VBL 4/5	for 4- and 5-pole	0,450	195 248	-
VBL/E 4/5	60-200 Amp.	0,450	-	195 255
VBL 6/7	for 6- and 7-pole	0,505	195 250	-
VBL/E 6/7	60-200 Amp.	0,505	-	195 259
VBLSG 4/5	for 4- and 5-pole	0,605	195 252	-
VBLSG/E 4/5	300 Amp.	0,605	-	195 256

Plug-in joints 60-140 A



Type		Weight kg	Order- No.
VLG 6/7	for 6- and 7-pole	0,135	184 107
VLG 8/9	for 8- and 9-pole	0,165	184 109
VLG 10/11	for 10- and 11-pole	0,195	184 111

Bolted joints 60-300 A



Type		Weight kg	Order- No.	Order- No. anodized
VLGS 6/7	for 6- and 7-pole	0,665	184 113	-
VLGS/E 6/7	60-200 Amp.	0,665	-	184 121
VLGS 8/9	for 8- and 9-pole	0,720	184 115	-
VLGS/E 8/9	60-200 Amp.	0,720	-	184 125
VLGS 10/11	for 10- and 11-pole	0,770	184 117	-
VLGS/E 10/11	60-200 Amp.	0,770	-	184 127
VLGSG 6/7	for 6- and 7-pole	0,890	184 119	-
VLGSG/E 6/7	300 Amp.	0,890	-	184 122

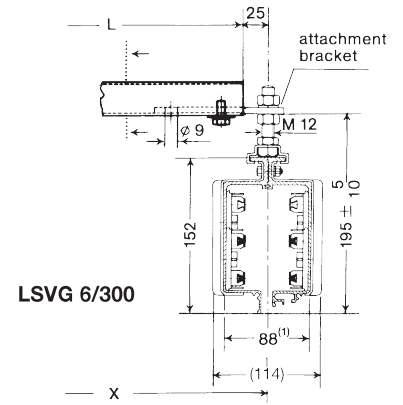
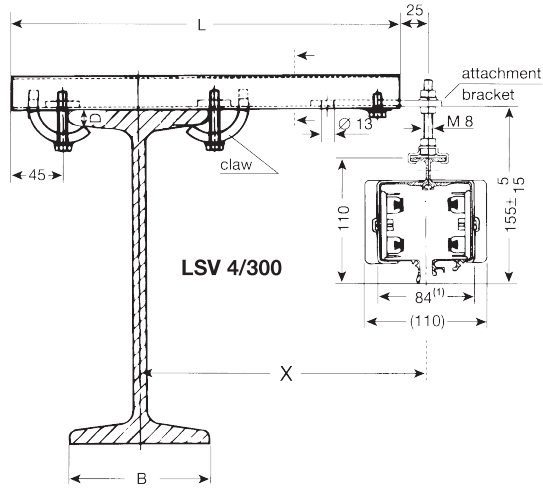
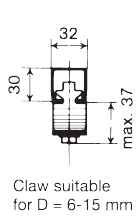
(1) Yellow/green ground cable factory pre-assembled.
 (2) No joints required for uninsulated top conductors 5, 7, 9 and 11. Equal for power line and control line.



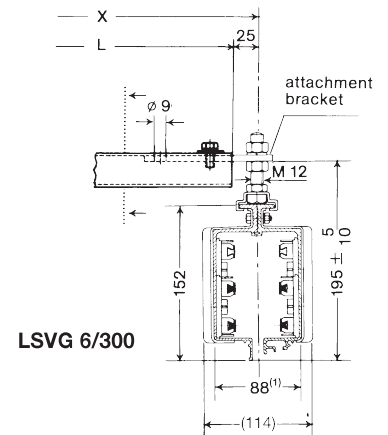
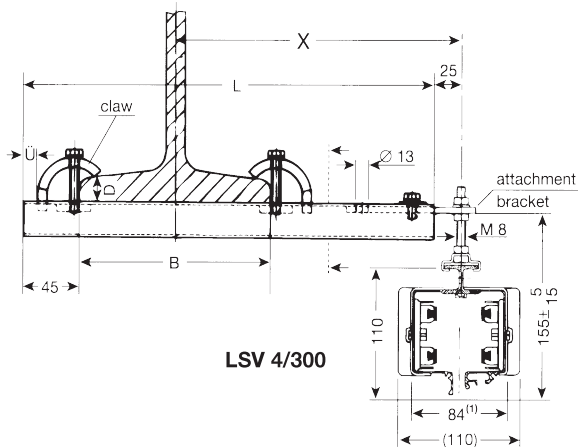
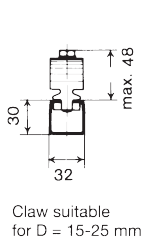
BRACKETS

These brackets are easily bolted to any type of standard I-beam.

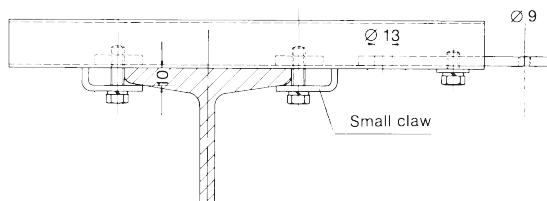
View without I-beam



View without I-beam



EHKL small claw version



Attention:
Make sure that hoist wheels have enough clearance.
Use small claw if necessary!

□-rail of EHKL is identical to type S 1, Order- No.

Select next larger size bracket when your I-beam dimension B is more than 170 mm and up to 300 mm.

	Type	X mm	L mm	B max. mm	Weight kg	Order- No. for std. brackets	Order- No. with small claw	
LSV	LSVG	EHK 250	250	350	170	1,070	251 600	251 720
		EHK 300	300	400	170	1,150	251 610	251 730
		EHK 400	400	500	170	1,300	251 620	251 740
		EHK 500	500	600	170	1,450	251 630	251 750
	EHK	EHK 600	600	700	170	1,600	251 640	251 760
		EHK 700	700	800	170	1,750	251 650	251 770
		EHK 750	750	850	170	1,820	251 660	251 780
		EHK 800	800	900	170	1,900	251 670	251 790

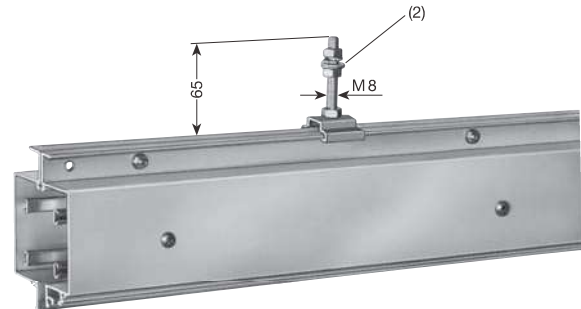
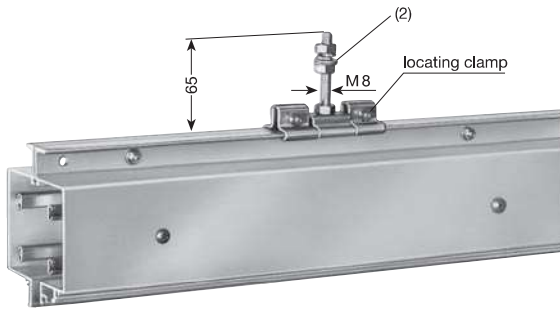
⁽¹⁾ max. width 84 mm resp. 88 mm for plug-in joints w/o joint plates.
Dim. in parenthesis refer to bolted joints with joint plates (see illustration).

FIXPOINT HANGER⁽¹⁾

SLIDING HANGER⁽¹⁾



LSV



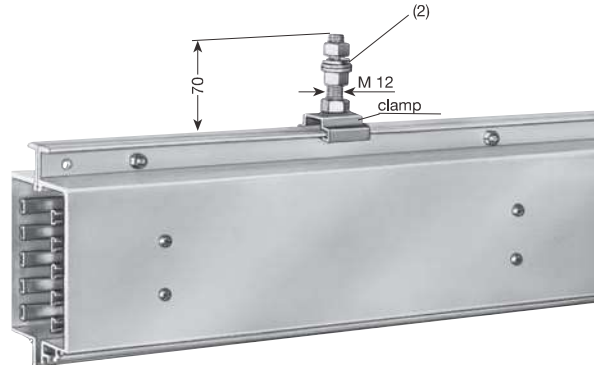
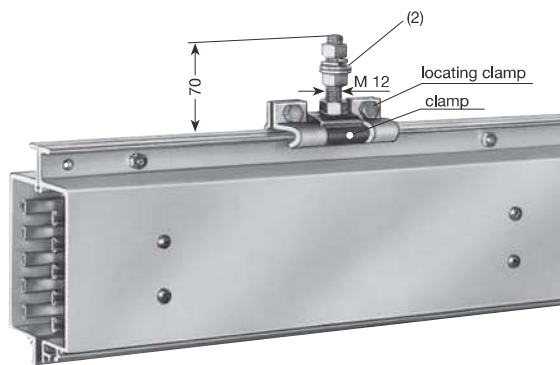
Type	Weight kg	Order- No.
FAL	0,150	190 120

Type	Weight kg	Order- No.
GAL	0,080	190 130

All steel parts made of stainless steel.

All steel parts made of stainless steel.

LSVG



Type	Weight kg	Order- No.
SAFG	0,410	180 310

Type	Weight kg	Order- No.
SAS	0,175	200 160

Steel parts galvanized, clamp made of stainless steel.

Steel parts galvanized, clamp made of stainless steel.

⁽¹⁾ Illustrations show hangers mounted to power rail.
⁽²⁾ Flat washers only to be used in slotted holes.



END CAP⁽¹⁾

END FEED⁽²⁾

c/w 1 m powerail

LSV



Plastic cap with plug-in joints

Type	Weight kg	Order- No.
EKL	0,080	190 220



Aluminium cap with bolted joints

Type	Weight kg	Order- No.
EKLS	0,300	195 149
EKLS/E	0,300	195 303

L = LH version, R = RH version
(see page 6)



Cable glands (cable Ø see table page 28):
4 & 5-pole 1 x M 32
6 & 7-pole 1 x M 32
and 1 x M 255

Type ⁽³⁾	Order- No.	Type ⁽³⁾	A	Weight kg	Order- No.
Power line HS with PE		Power line HS with PE			
KEL 4/60 L	192 150	KEL 4/60 R	60	3.35	190 140
KEL 5/60 L	192 160	KEL 5/60 R	60	3.55	190 150
KEL 6/60 L	192 170	KEL 6/60 R	60	3.75	190 160
KEL 7/60 L	192 180	KEL 7/60 R	60	3.95	190 170
Control line SS without PE		Control line SS without PE			
KEL 4/60 L	190 240	KEL 4/60 R	60	3.35	190 250
KEL 6/60 L	190 260	KEL 6/60 R	60	3.75	190 390

LSVG



Plastic cap with plug-in joints

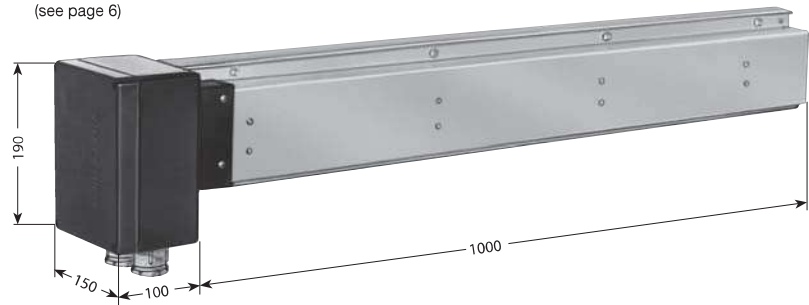
Type	Weight kg	Order- No.
EKLG	0,120	180 320



Aluminium cap with bolted joints

Type	Weight kg	Order- No.
EKLS	0,300	195 149
EKLS/E	0,300	195 303

L = LH version ⁽¹⁾, R = RH version
(see page 6)



Cable glands (cable Ø see table page 28):
all types 1 x M 32
and 1 x M 25

Type ⁽³⁾	Order- No.	Type ⁽³⁾	A	Weight kg	Order- No.
Power line HS with PE		Power line HS with PE			
KELG 6/60 L	180 330	KELG 6/60 R	60	6.05	180 340
KELG 7/60 L	180 350	KELG 7/60 R	60	6.25	180 360
KELG 8/60 L	180 370	KELG 8/60 R	60	6.40	180 380
KELG 9/60 L	180 430	KELG 9/60 R	60	6.60	180 440
KELG 10/60 L	180 450	KELG 10/60 R	60	6.80	180 460
KELG 11/60 L	180 470	KELG 11/60 R	60	7.00	180 480
Control line SS without PE		Control line SS without PE			
KELG 6/60 L	180 390	KELG 6/60 R	60	6.05	180 400
KELG 8/60 L	180 410	KELG 8/60 R	60	6.40	180 420
KELG 10/60 L	180 490	KELG 10/60 R	60	6.80	180 500

⁽¹⁾ Illustration shows end cap with standard section.

⁽²⁾ Above sections come ready assembled on 1m section and are part of the system length (see examples for ordering pages 26 and 27).

⁽³⁾ Suffix types e.g. KEL 4/60 L w/ PE → KEL 4/60 L HS Order- No. 192 150.

LINE FEED⁽¹⁾

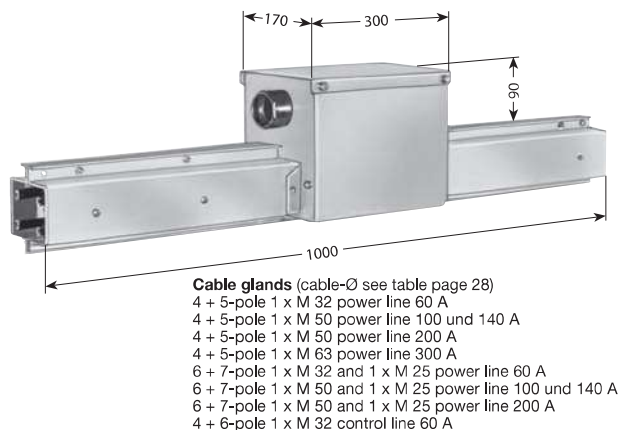
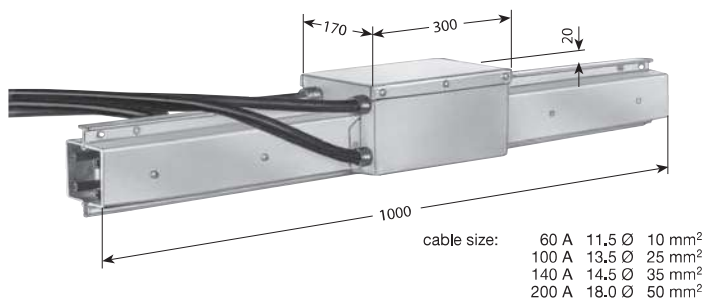
c/w 2 m feed-in cable and 1 m powerail

LINE FEED⁽¹⁾

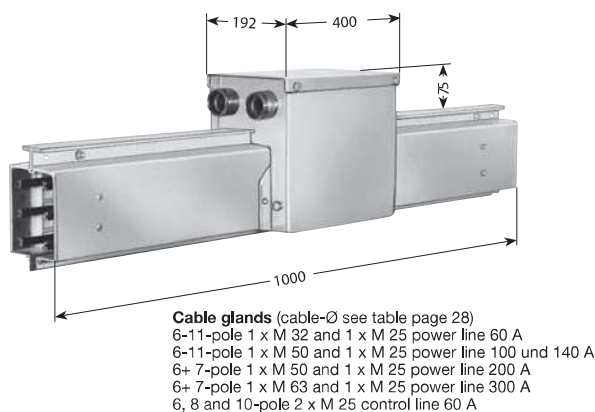
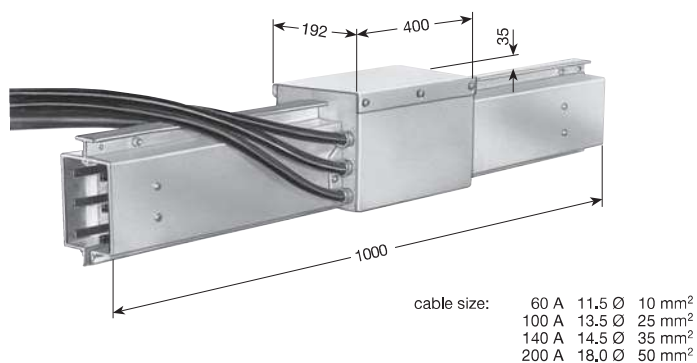
c/w terminal box and 1 m powerail



LSV



Type ⁽²⁾	A	Weight kg	Order-No.	Type ⁽²⁾	A	Weight kg	Order-No.	Type ⁽²⁾	A	Weight kg	Order-No.	Type ⁽²⁾	A	Weight kg	Order-No.
Power line HS with PE				Power line HS with PE				Power line HS with PE				Power line HS with PE			
LAL 4/ 60	60	5,65	195 060	LAL 6/ 60	60	6,65	195 067	NKL 4/ 60	60	4,40	195 074	NKL 6/ 60	60	4,80	195 085
LAL 4/100	100	6,55	195 061	LAL 6/100	100	7,80	195 068	NKL 4/100	100	4,80	195 075	NKL 6/100	100	5,20	195 086
LAL 4/140	140	7,40	195 062	LAL 6/140	140	8,45	195 069	NKL 4/140	140	5,10	195 076	NKL 6/140	140	5,50	195 087
LAL 4/200	200	8,00	195 637	LAL 6/200	200	8,95	195 639	NKL 4/200	200	5,80	195 077	NKL 6/200	200	6,00	195 567
LAL 4/300	300	8,75	196 460					NKL 4/300	300	6,50	195 078	NKL 7/ 60	60	5,00	195 089
LAL 5/ 60	60	6,10	195 064	LAL 7/ 60	60	7,15	195 071	NKL 5/ 60	60	4,60	195 080	NKL 7/100	100	5,40	195 090
LAL 5/100	100	7,00	195 065	LAL 7/100	100	9,00	195 072	NKL 5/100	100	5,00	195 081	NKL 7/140	140	5,70	195 091
LAL 5/140	140	8,25	195 066	LAL 7/140	140	9,25	195 073	NKL 5/140	140	5,30	195 082	NKL 7/200	200	6,30	195 568
LAL 5/200	200	8,85	195 638	LAL 7/200	200	9,80	195 640	NKL 5/200	200	6,00	195 083				
LAL 5/300	300	9,75	196 682					NKL 5/300	300	6,70	195 084				
Control line SS without PE												Control line SS without PE			
LAL 4/ 60	60	5,65	195 063									NKL 4/ 60	60	4,40	195 079
LAL 6/ 60	60	6,65	195 070									NKL 6/ 60	60	4,80	195 088



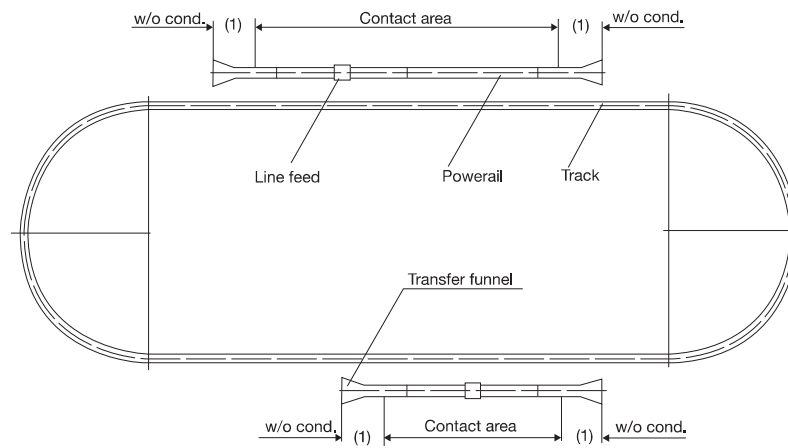
Type ⁽²⁾	A	Weight kg	Order-No.	Type ⁽²⁾	A	Weight kg	Order-No.	Type ⁽²⁾	A	Weight kg	Order-No.	Type ⁽²⁾	A	Weight kg	Order-No.
Power line HS with PE				Power line HS with PE				Power line HS with PE				Power line HS with PE			
LALG 6/ 60	60	8,60	183 949	LALG 9/ 60	60	10,15	183 960	NKLG 6/ 60	60	6,75	184 983	NKLG 9/ 60	60	7,35	185 049
LALG 6/100	100	9,40	183 950	LALG 9/100	100	11,05	183 961	NKLG 6/100	100	7,05	184 985	NKLG 9/100	100	7,65	185 051
LALG 6/140	140	10,30	183 951	LALG 9/140	140	12,15	183 962	NKLG 6/140	140	7,35	185 029	NKLG 9/140	140	7,95	185 053
LALG 6/200	200	10,80	184 661	LALG 9/200	200	12,70	184 664	NKLG 6/200	200	7,90	185 031	NKLG 9/200	200	8,50	185 055
LALG 6/300	300	11,95	185 713					NKLG 6/300	300	8,85	185 079	NKLG 10/ 60	60	7,55	185 057
LALG 7/ 60	60	9,10	183 953	LALG 10/ 60	60	10,65	183 963	NKLG 7/ 60	60	6,95	185 033	NKLG 10/100	100	7,85	185 059
LALG 7/100	100	10,10	183 954	LALG 10/100	100	11,45	183 964	NKLG 7/100	100	7,25	185 035	NKLG 10/140	140	8,15	185 061
LALG 7/140	140	11,10	183 955	LALG 10/140	140	12,30	183 965	NKLG 7/140	140	7,55	185 037	NKLG 10/200	200	8,65	185 063
LALG 7/200	200	11,65	184 662	LALG 10/200	200	12,80	184 665	NKLG 7/200	200	8,10	185 039	NKLG 11/ 60	60	7,75	185 065
LALG 7/300	300	12,85	185 714					NKLG 7/300	300	9,05	185 081	NKLG 11/100	100	8,05	185 067
LALG 8/ 60	60	9,60	183 956	LALG 11/ 60	60	11,15	183 967	NKLG 8/ 60	60	7,15	185 041	NKLG 11/140	140	8,35	185 069
LALG 8/100	100	10,45	183 957	LALG 11/100	100	12,10	183 968	NKLG 8/100	100	7,45	185 043	NKLG 11/200	200	8,90	185 071
LALG 8/140	140	11,30	183 958	LALG 11/140	140	13,15	183 969	NKLG 8/140	140	7,75	185 045				
LALG 8/200	200	11,80	184 663	LALG 11/200	200	13,70	184 666	NKLG 8/200	200	8,25	185 047				
Control line SS without PE												Control line SS without PE			
LALG 6/60	60	8,60	183 952									NKLG 6/ 60	60	6,75	185 073
LALG 8/60	60	9,60	183 959									NKLG 8/ 60	60	7,15	185 075
LALG 10/60	60	10,65	183 966									NKLG 10/ 60	60	7,55	185 077

LSVG

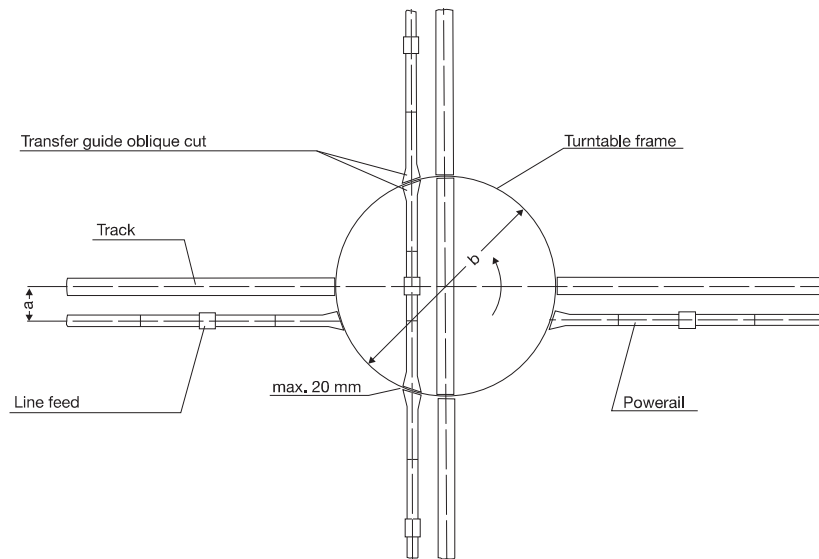
(1) Above sections come ready assembled on 1 m powerail section and are a part of the system length (see examples for ordering on pages 26 and 27).

(2) Suffix types e.g. LAL 4/60 w/ PE → LAL 4/60 HS Order-No. 195 060.

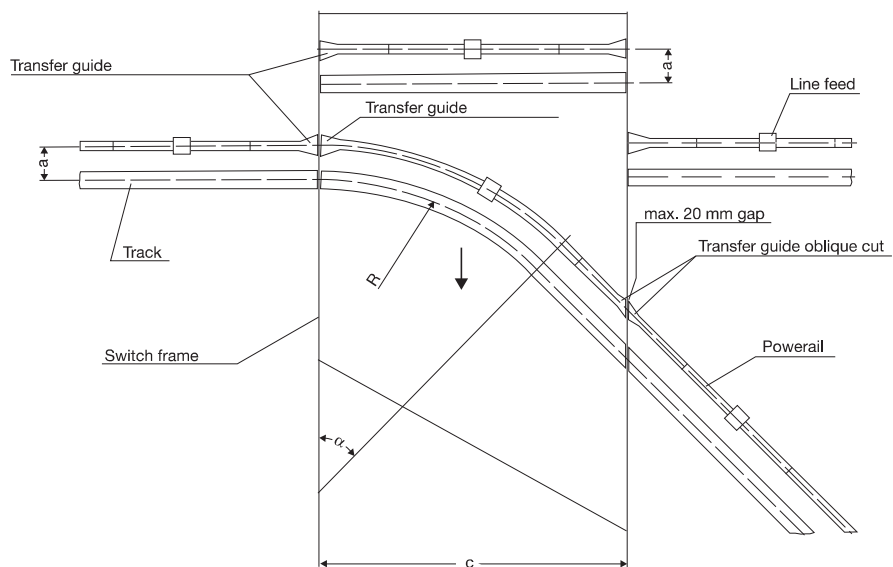
Contact section⁽¹⁾



Turntable



Sliding switch



Please submit drawings of transfer applications. Specify dimensions a, b, c, R and angle α (α max. 50°)