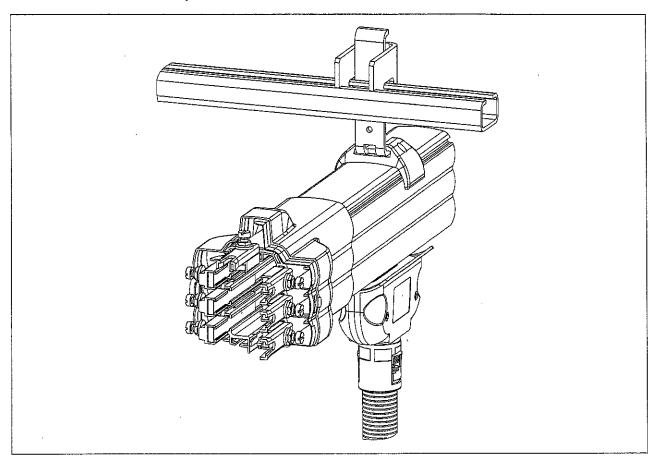
# Technical data

Stemmann-Technik Compact Line SCL





#### Manufacturer

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## 1 General

#### 1.1 Symbol description

The following symbols and recommendations indicate potential safety hazards or causes of damage or provide useful information.



## Warning against dangerous electrical voltage

Contact with live parts can result in immediate death. Protective covers (e.g. covers and enclosures) marked with this sign may only be opened by qualified electricians. Before opening, all relevant operating, control, feed or other voltages must be disconnected.



## Operating hazard for the installation

This symbol in the operating instructions indicates all warnings which, if not complied with, may result in damage to the product.

### 1.2 SCL installation

Max. control cable cross-section

Fuse protection max.

Travel speed max.

Connecting cable length (standard) 5)

Conductor						
Enclosure material				PVC		
Standard length	mm			4000		
Number of conductors				max. 7		
Distance between suspensions max. 2)	mm		10	000 <b>2)</b> / 200	00	,
Voltage U <sub>N</sub>	V AC			24 to 690		
Size 1)		35	60	100	140	200
Permissible current (100% CDF to 35 °C) 1)	Α	68	78	100	140	180
Conductor cross-section	mm²	10	15	25	38	56
Ambient temperature / Enclosure temperature	°C			-30 to +70	<u> </u>	
DIN VDE 0470 T.1/EN 60529 enlcosure	IP-Code		IP 23 / I	P 24 with s	ealing lip	
Curve section minimum radius	mm		≥	800 mm	4)	
Fire protection			UL94 / `	V0; not halo	gen-free	
Current collector trolley						
Number of poles				max. 7		
Rated current I <sub>N</sub> (80 % CDF)	Α	40	) bronze		20 grap	hite
Max. connecting cable cross-section.	mm²		6		4	
		i				

200

1,5

2000

100

100 3)

 $mm^2$ 

mm

Α

m/min

The voltage drop must be checked for installations with large power feed sections and high currents. Refer
to calculation from page 6.

<sup>2)</sup> With single-sided thermal effect.

For straight sections with entry/transfer section.

<sup>4)</sup> Not for 5 and 7-pole type.

<sup>5)</sup> Other cable lengths possible.

# 2 Design and installation notes

#### Please note:

Conductor lines must be operated in accordance with generally accepted engineering principles. Ensure compliance with DIN VDE/EN, SEV, CSA and UL regulations. We make special reference to the DIN VDE regulations, particularly to DIN VDE 0100.

#### Of the many regulations, we refer to the following definitions:

see DIN VDE 0106, Part 200.

#### 2.1 Definitions

#### 2.1.1 Arm's length

Arm's length is the area which a person's hand may reach in all directions from normal locations without any special equipment. Measured from the position where a person is standing, this area ranges up to at least 2,5 m upwards and at least 1,25 m to the side and downwards (see DIN 31 001 Sheet 1).

Wherever large or long objects which are not insulated for the operating voltage are moved, the minimum arm's length must be correspondingly increased.

# 2.1.2 Protection against indirect contact

Protection against direct contact constitutes all measures to protect people from hazards resulting from contact with live parts of electrical equipment. This may be partial or full protection.

Partial protection only provides protection against accidental contact. Protection against accidental contact does not mean any protection against deliberate contact. Enclosure type IP 2X to DIN VDE 0470 Part 1 offers protection against accidental contact. Complete protection starts from IP 5X to DIN VDE 0470 Part 1.

#### Calculating and selecting the conductor cross-section 3

Voltage drop 1, and permissible current 2, must be considered when calculating power supply cross-sections.

- 1. Calculate the cross-section considering the max. permissible voltage drop of 2,5 % for crane runways + 2,5 % for crane bridge.
  - The relevant value is the starting current  $\cdot \cos \phi_{_{\! A}}$  of the largest motor + the rated current  $\cdot \cos \phi_{_{\! N}}$  of the next smaller motor.
  - The currents must be added for motors connected in parallel.

The calculated cross-sections must be halved for power supplies to solo hoists.

- 2. Calculate the cross-section considering the max. permissible current for cables to DIN VDE 100 Part 430/523.
  - The relevant value is the sum of all rated currents of all drives. The currents indicated in diagram 1, section 3.1.2 must not be exceeded.

#### Permissible voltage drop

The voltage drop is determined by current  $I_G$ . Current  $I_G$  results from adding the starting -  $(I_A \cdot \cos \phi_A)$  and rated currents  $(I_N \cdot \cos \phi_N)$ (see table 1 below).

The conductor cross-section may be determined according to the calculation method described in section 3.1.1 or diagram 1, section 3.1.2.

Table 1 indicates the number of consumers to be considered for calculating  $I_{\rm g}$ depending on the number of cranes fed by a conductor line.

Table 1

Number of cranes fed by	Of all cranes taken together (in order of output)						
a conductor line	1st motor	2nd motor	3rd motor	4th motor			
1	A· cos φ <sub>A</sub>	I N · cos φN	-	-			
2	I <sub>A</sub> · cos φ <sub>A</sub>	I N ⋅ cos φN	l N · cos φN	-			
3	I <sub>A</sub> · cos φ <sub>A</sub>	l <sub>A</sub> · cos φ <sub>A</sub>					
4	l A· cos φA	I <sub>A</sub> -cos φ <sub>A</sub>	I <sub>N</sub> · cos φ <sub>N</sub>	-			
5	I <sub>A</sub> · cos φ <sub>A</sub>	I <sub>A</sub> ·cos φ <sub>A</sub>	I M ⋅ cos ΦM	N· cos φ <sub>N</sub>			

For double drive arrangements correspondingly:  $2 \cdot I_A \cdot \cos \phi_A$  or  $2 \cdot I_N \cdot \cos \phi_{N^*}$ 

For double hoist units with delayed starting Exception:

 $I_A \cdot \cos \varphi_A + I_N \cdot \cos \varphi_N$ 

# 3.1 Calculating the conductor cross-section

#### 3.1.1 Calculation method

Abbreviations used in the equations:

Α	==	Conductor cross-section of the SCL.	[mm²]
L	=	cable length	[m]
1	=	starting current ( $I_A \cdot \cos \varphi_A$ ) or rated current ( $I_N \cdot \cos \varphi_N$ )	[A]
		sum of the currents according to table 1	[A]
•	=	frequency in Hertz	[Hz]
χ	=	conductibility (for $\chi_{c_0} = 56$ )	[m²/Ωm]
ΔU	=	permissible voltage drop	[V]
U	=	voltage in volts	[V]

1. Conductor cross-section of the SCL 
$$A = \frac{1,73 \times L \times I_G}{\Delta U \times \chi}$$
 [mm²]

2. Required conductor length 
$$L_1 \ = \frac{\Delta U \times \chi \times A}{1,73 \times I_G} \times \frac{f_2}{f_1} \qquad [m]$$

3. Conversion for starting current 
$$I_A \cdot \cos \varphi_A$$
 or rated current  $I_N \cdot \cos \varphi_N$  
$$I_2 = \frac{U_1 \times I_1}{U_2}$$
 [A] fornon-standard voltage U

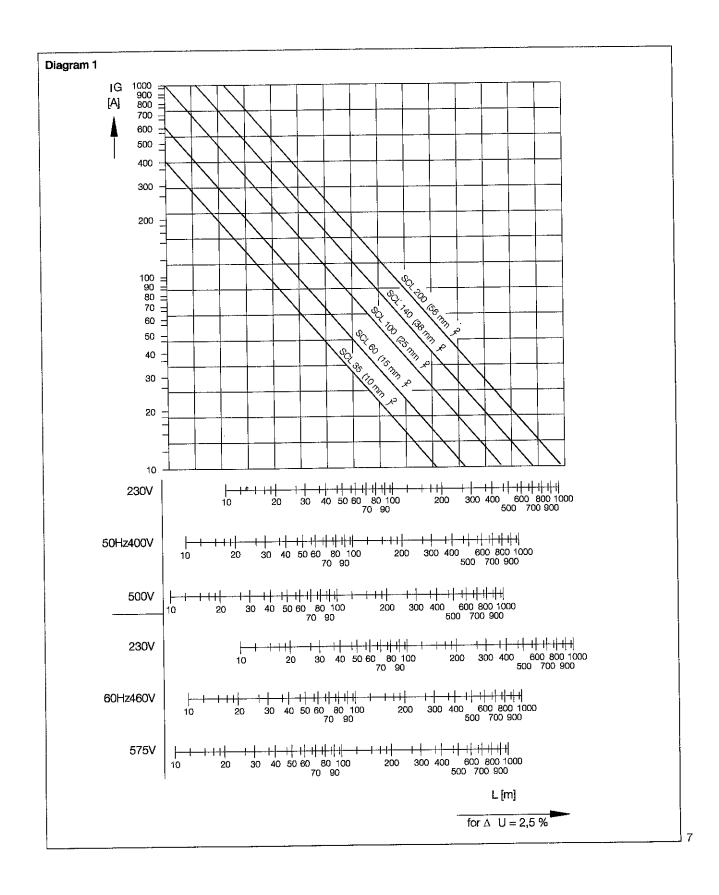
4. Conversion for conductor crosssection 
$$A_2$$
 for non-standard conductor length  $L_2$  
$$A_2 = \frac{L_2 \times A_1}{L_1}$$
 [mm²]

5. Permissible voltage drop 
$$\Delta U = 2.5 \% = 10 \text{ V (for 400 V)}$$
 
$$\Delta U = \frac{U \times 2.5 \%}{100 \%}$$
 [V]

6. Conversion from 400 V, 50 Hz to a new voltage and frequency 
$$I_{new} = I_{old} \times \frac{400 \text{ V}}{U_{new}} \times \frac{f_{new}}{50 \text{ Hz}}$$
 [A]

# Calculating the conductor cross-section for the permissible voltage drop.

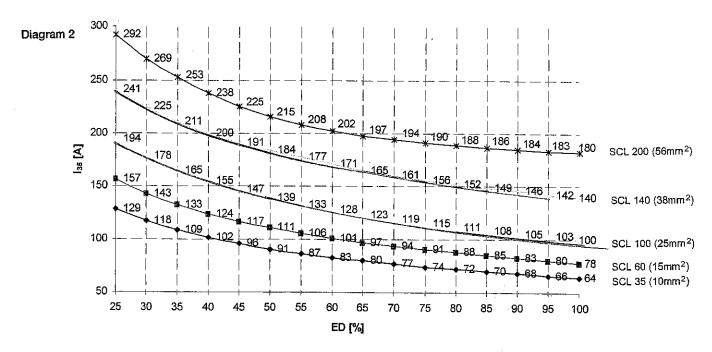
The SCL conductor line cross-section and/or voltage drop may be reduced by the position and quantity of power feeds.



# 3.1.3 SCL maximum permissible current I<sub>35</sub> [A] for an ambient temperature of 35°C

Check the maximum permissible current for the conductor cross-section as a function of the cyclic duration factor (CDF) at an ambient temperature of 35  $^{\circ}$ C. For other ambient temperatures, the current (I\_j) must be calculated with the conversion factor (f\_j) according to the table below.

The same or the next largest conductor cross-section must be selected.



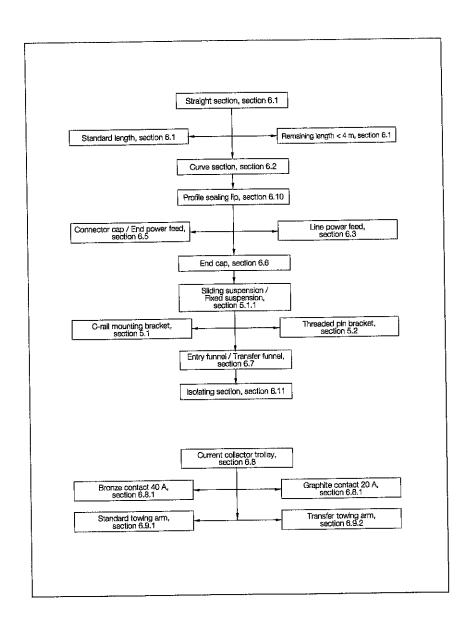
Calculating the maximum permissible current  $I_{_{\rm B}}[A]$  for other ambient temperatures

Ambient temperature	₁9 [°C]	20	25	30	35	40	45	50	55	60	65
Conversion factor	fu	1,20	1,14	1,07	1,00	0,92	0,84	0,74	0,64	0,51	0,35

Maximum permissible current

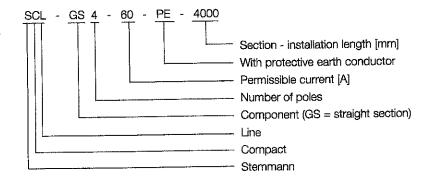
 $I_0 = I_{36} \cdot f_{u}$ 

#### 3.2 SCL basic structure

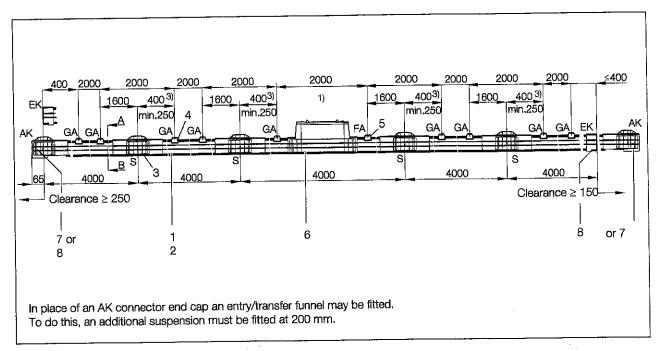


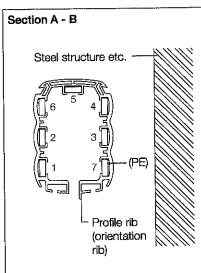
#### Model code:

(Example for ordering a straight section)



# 4 General layout





item	Designation		Dimensions
1	SCL straight sectio	GS	4000 mm
.2	SCL curve section	BS	R ≥ 800 mm 4)
3	Joint connector	S	
4	Sliding suspension	GA	
5	Fixed suspension	FA	
6	Line power feed	ES	4000 mm
	Connector end cap as end power feed	- 817	
7	Connector end cap as track end cap	- AK	
8	End cap	EK	
	Current collector trolley 2)		
	Towing arm 2)		
	Towing arn for transfer sections 2)		
	Entry / transfer funnel 2)		

#### Please note

In place of an AK connector end cap,

- · a track extension,
- an entry section,
- or a transfer section may be fitted.

track can be extended.

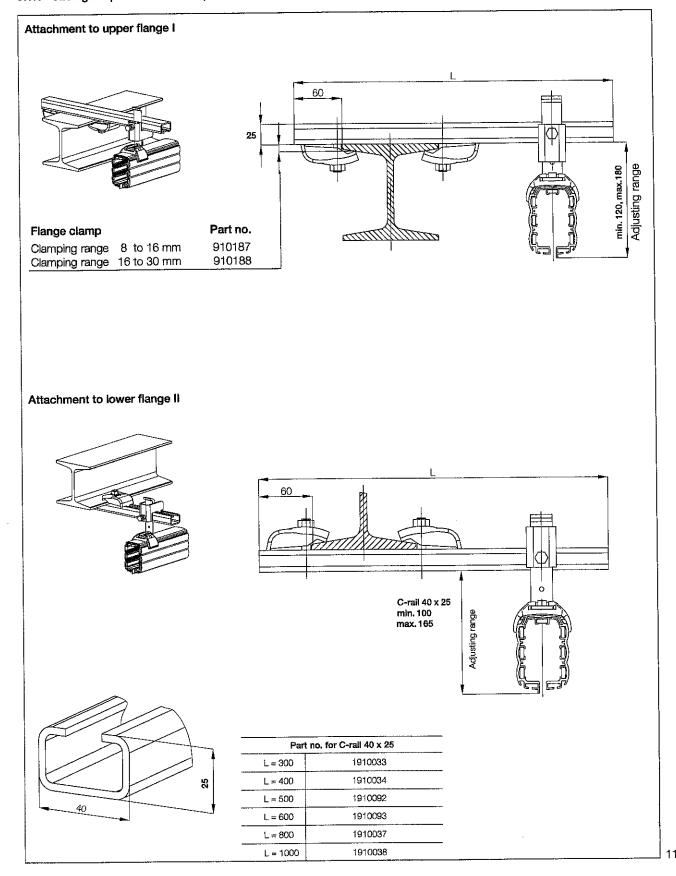
#### SCL installations

- with a line power feed are supplied with an end cap item (8) at both ends.
   A track cannot be extended when an end cap is fitted. An installation with an end cap is exactly 74 mm shorter than the rated length.
   On request also available with connector end cap as track end cap so that the
- with an end power feed are supplied with a connector end cap (7) at both ends. An installation with a connector end cap is exactly 130 mm longer than the rated length. Allow for clearance to connect the end power feed (approx. 250 mm).
- When large cable cross-sections (from size PG42) are used with a SCL section with a line power feed, a third additional sliding suspension must be fitted close to the power feed enclosure.
- Not shown
- 3) The 400 mm dimension must not be exceeded.
- 4) Not for 5 and 7-pole type.

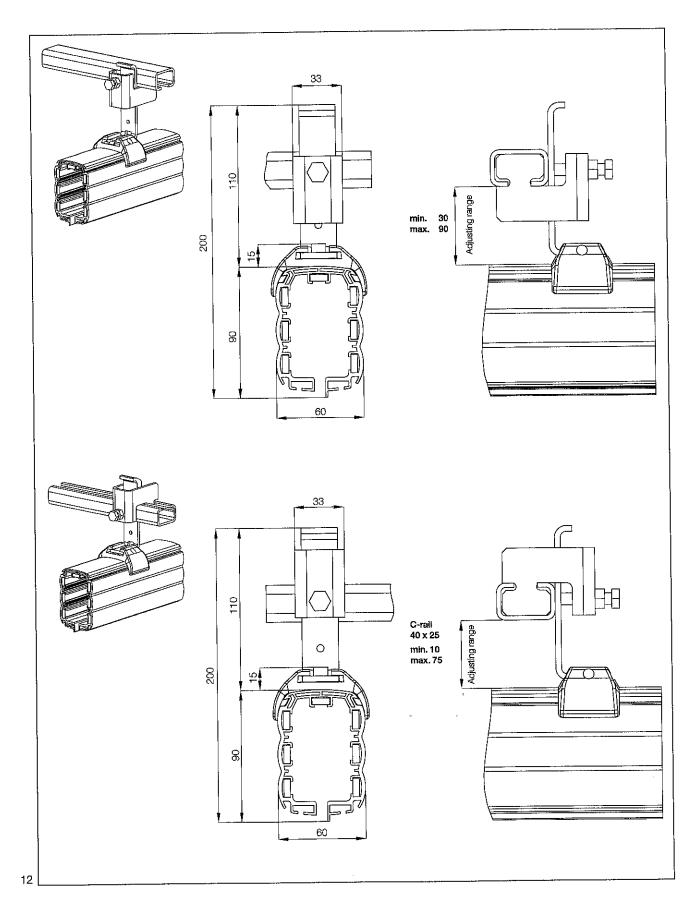
# 5 Suspension arrangements

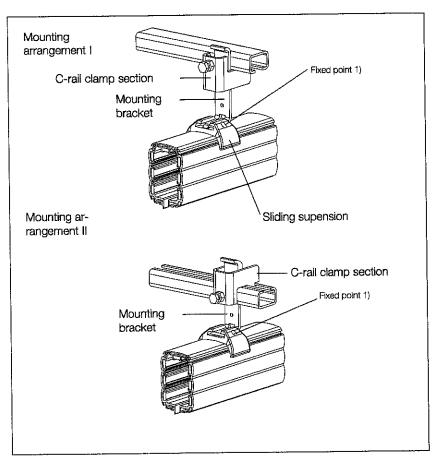
# 5.1 SCL suspension with C-rail bracket

## 5.1.1 Sliding suspension/fixed suspension



## 5.1.2 Mounting and operating dimensions





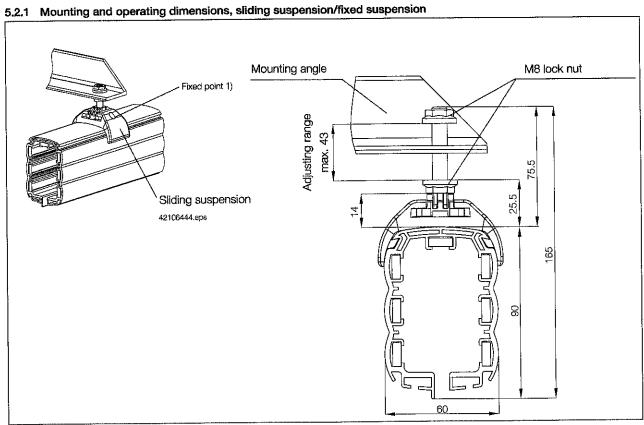
Component set for sliding suspension with C-rail bracket	Bestell-Nr.
1 off C-rail clamp section	
1 off mounting bracket	7910236
1 off sliding suspension	

The following information is required for ordering C-rails and flange clamps to fit SCL to I-beams:

- C-rail type and length (see table on page 12).
- Flange clamps for I-beams (see below).

Girder width	Clamping range	Part no.
I 160 - I 400	8 - 16 mm	910187
1 425 - I 600	16 - 30 mm	910188

# 5.2 SCL suspension with M8 threaded pin



Component set for sliding suspension with M8 threaded pin	Part no.
1 off threaded pin fitting	
1 off countersunk screw M8 x 70	7910237
2 off lock nut M8	
1 off sliding suspension	

## 5.3 Further fitting information

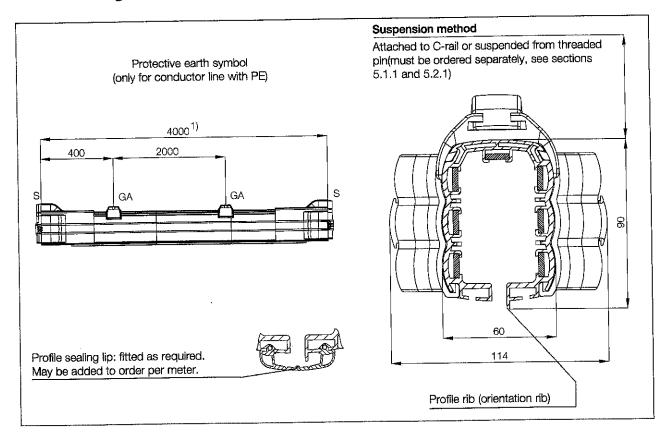
- Straight sections feature plastic sliding suspensions for connection to C-rail or threaded pin fittings..
- Line power feeds feature an additional sliding suspension.
- For C-rail fittings:
  - The mounting brackets are clipped into the sliding suspensions.
  - The C-rail clamp section is fitted according to mounting arrangement I or II (see section 5.1.2).
- For threaded pin fittings:
  - The threaded pin fitting with countersunk screw is clipped into the sliding suspensions.
- The max, distance between SCL sliding suspensions is 2000 mm for straight sections (see chapter 4).
- Sliding suspensions must be fitted every 500 mm (along the curve) for curved
- The centre of every SCL installation must be secured by a fixed suspension. To do this, screw the enclosed 3,5 x 9,5 self-tapping screw into the sliding suspension.

For SCL installations with entry/transfer sections, the funnels must be arrested.

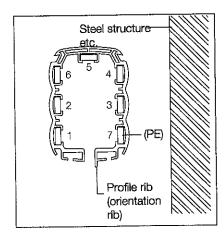
<sup>1)</sup> Only for fixed suspension. The fixed suspension is a sliding suspension which is fixed on the profile section by means of a self-tapping screw. Self-tapping screw 3,5 x 9,5 to DIN 7981.

# 6 Technical data

# 6.1 SCL straight section 4, 5, 6 und 7 poles



- S = Joint connectors are pre-assembled on the conductor enclosures.
- GA = Sliding suspensions: are fitted to the conductor enclosures and have to be positioned during assembly.
  - Additional sliding suspensions may be fitted.
  - Specify suspension method and order separately.
  - Suspension diagram with dimensions see chapter 4.



#### Note

Unless the installation is designed otherwise, it must be ensured that all SCL straight and curve sections are fitted in such a way that the protective earth conductor (PE) and the profile rib of the enclosure face towards the steelwork, etc.

When all SCL straight and curve sections have been fitted, one sliding suspension must be fixed with a SCL straight section in the middle of the track (fixed point) to prevent the SCL installation moving to the side.

## Fixed point or fixed suspension:

Screw the enclosed 3,5  $\times$  9,5 self-tapping screw through the sliding suspension and into the SCL enclosure.



Use only the enclosed 3,5  $\times$  9,5 self-tapping screws to DIN7981 as there is a risk of accidental contact with live parts if longer screws are used.

Standard length 4000 mm. Indicate reduced length in order text for part no. Minimum reduced length 500 mm.

			Size		
	35	60	100	140	200
-		Permissible o	ırrent (A) at 100 % CDF uş	to 35 °C 2)	
Number of poles	64	78	100	140	160
-		L1 - L	3 conductor cross-section	mm²	
	10	15	25	38	56
4	7910187	7910191	7910195	7910199	7910203
Phase L1 - L3 PE conductor Control cable	3 x 10 mm <sup>2</sup> 1 x 10 mm <sup>2</sup>	3 x 15 mm² 1 x 15 mm²	3 x 25 mm² 1 x 25 mm² -	3 x 38 mm² 1 x 25 mm²	3 x 56 mm² 1 x 38 mm²
5	7910188	7910192	7910196	7910200	7910204
Phase L1 - L3 PE conductor Control cable	3 x 10 mm <sup>2</sup> 1 x 10 mm <sup>2</sup> 1 x 10 mm <sup>2</sup>	3 x 15 mm² 1 x 15 mm² 1 x 10 mm²	3 x 25 mm² 1 x 25 mm² 1 x 10 mm²	3 x 38 mm² 1 x 25 mm² 1 x 10 mm²	3 x 56 mm² 1 x 38 mm² 1 x 10 mm²
6	7910189	7910193	7910197	7910201	7910205
Phase L1 - L3 PE conductor Control cable	3 x 10 mm <sup>2</sup> 1 x 10 mm <sup>2</sup> 2 x 10 mm <sup>2</sup>	3 x 15 mm² 1 x 15 mm² 2 x 10 mm²	3 x 25 mm² 1 x 25 mm² 2 x 10 mm²	3 x 38 mm² 1 x 25 mm² 2 x 10 mm²	3 x 56 mm² 1 x 38 mm² 2 x 10 mm²
7	7910190	7910194	7910198	7910202	7910206
Phase L1 - L3 PE conductor Control cable	3 x 10 mm² 1 x 10 mm² 3 x 10 mm²	3 x 15 mm² 1 x 15 mm² 3 x 10 mm²	3 x 25 mm² 1 x 25 mm² 3 x 10 mm²	3 x 38 mm² 1 x 25 mm² 3 x 10 mm²	3 x 56 mm² 1 x 38 mm² 3 x 10 mm²



For straight sections not fitted with a protective earth conductor (PE), this must be indicated in the order section and specified as a part no. with "no PE".

The following information is required for ordering a straight section (see model code order text):

- Conductor line type, component SCL-GS
- Number of poles (4, 5, 6, or 7 conductors)
- Permissible current (35, 60, 100, 140, 200 A)
- protective earth conductor PE (with or without)
- Section and installation length in mm 1)

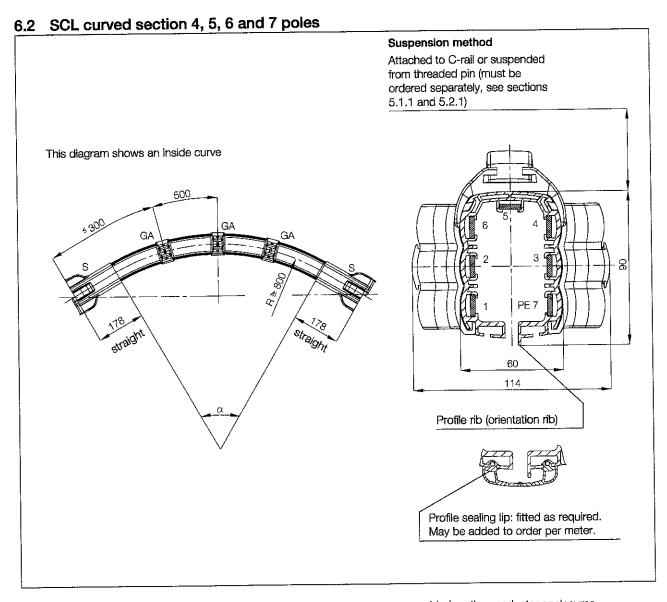
- 1) Standard length 4000 mm. Indicate reduced length in order text for part no. Minimum reduced
  - For complete conductor line installations, the entire conductor line length including the power feed(s) must be specified in the order text.
- 2) The permissible current for the conductors must be checked. Calculation or tables see chapter 3.

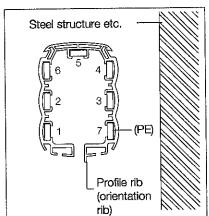
Model code

Order text, e.g.:

SCL-GS-6-100-PE-4000

SCL-GS-7-60-3500 (no PE, 3500 mm long)





- S = Joint connectors are pre-assembled on the conductor enclosures.
- GA = Sliding suspensions: are fitted to the conductor enclosures and have to be positioned during assembly.
  - Suspensions spaced at a distance of 500 mm along the curve.
  - Specify suspensions and order separately.
  - Suspension diagram with dimensions see chapter 4.

#### Note

Unless the installation is designed otherwise, it must be ensured that all SCL straight and curve sections are fitted in such a way that the protective earth conductor (PE) and the profile rib of the enclosure face towards the steelwork, etc.

The straight end sections with 178 mm are fixed values.



For curved sections **not fitted with a protective earth conductor (PE)**, this must be indicated in the order section and specified as a part no. with **"no PE"**.

The following information is required for ordering a curved section (see model code order text):

- $\Rightarrow$  Conductor line type, component SCL-BS
- ⇒ Number of poles (4, 5, 6, or 7 conductors)
- ⇒ Permissible current (35, 60, 100, 140, 200 A) 1)
- $\Rightarrow$  protective earth conductor **PE** (with or without)
- ⇒ Radius (mm)
- $\Rightarrow$  Angle  $\alpha$  (degrees)
- ⇒ Curve I or curve A 2)

The permissible current for the conductors must be checked.
 Calculation or tables see chapter 3.

2) Definition of curve type I and curve type A:

On curve I the protective earth conductor and the profile rib are on the inside of the curved section.

On curve A the protective earth conductor and the profile rib are on the outside of the curved section.

On curved sections which do not feature a protective earth conductor, the profile rib is only for orientation.

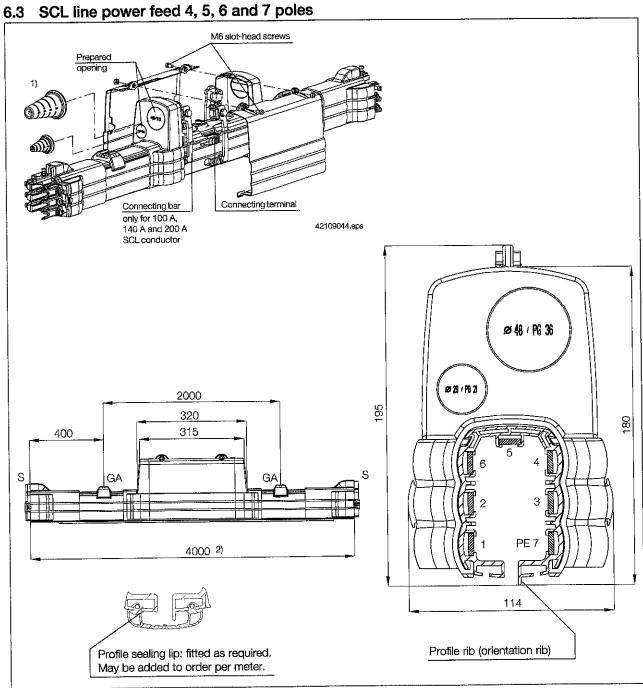
The view refers to the centre of the radius.

Model code

Order text, e.g.:

SCL-BS 5-100- PE- R = 1500,  $\alpha$  = 45, curve A 3)

3) Profile sealing lip may be added to order per meter. Please specify in the order.



- S = Joint connectors are pre-assembled on the conductor enclosures.
- GA = Sliding suspensions: are fitted to the conductor enclosures and have to be positioned during assembly.

Line power feeds feature an additional sliding suspension.

- Additional sliding suspensions may be fitted.
- Specify suspension method and order separately, see chapter 5.
- Suspension diagram with dimensions see chapter 4.
- 1) Cut off the rubber sleeves to the required cable diameters.
  - dia. 48 PG 42 only with rubber sleeve max. 43 mm cable diameter, PG 36 for PG screw fitting. dia. 29 PG 21 with rubber sleeve max. 24 mm cable diameter,
- The rubber sleeves are supplied loose inside the line power feed enclosure. 2) Standard length 4000 mm. Indicate reduced length in order text for part no. Minimum reduced length 1000

i Huitibei labie					
			Size		
	35	60	100	140	200
		Permissble cu	ırrent (A) at 100 % CDF uş	to 35 °C 1)	
Number of poles	64	78	100	140	160
		L1 - L	3 conductor cross-section	n mm²	
,	10	15	25	38	56
4	7910207	7910211	7910215	7910219	7910223
L1 - L3 + PE Control cable	4 x 1,5 - 16 mm²	4 x 1,5 - 16 mm²	4 x 25 - 70 mm² -	4 x 25 - 70 mm² -	4 x 25 - 70 mm² -
5	77910208	7910212	7910216	7910220	7910224
L1 - L3 + PE Control cable	4 x 1,5 - 16 mm <sup>2</sup> 1 x 1,5 - 16 mm <sup>2</sup>	4 x 1,5 - 16 mm <sup>2</sup> 1 x 1,5 - 16 mm <sup>2</sup>	4 x 25 - 70 mm² 1 x 1,5 - 16 mm²	4 x 25 - 70 mm² 1 x 1,5 - 16 mm²	4 x 25 - 70 mm² 1 x 1,5 - 16 mm²
6	7910209	7910213	7910217	7910221	7910225
L1 - L3 + PE Control cable	4 x 1,5 - 16 mm <sup>2</sup> 2 x 1,5 - 16 mm <sup>2</sup>	4 x 1,5 - 16 mm² 2 x 1,5 - 16 mm²	4 x 25 - 70 mm² 2 x 1,5 - 16 mm²	4 x 25 ~ 70 mm² 2 x 1,5 - 16 mm²	4 x 25 - 70 mm² 2 x 1,5 - 16 mm²
7	7910210	7910214	7910218	7910222	7910226
L1 - L3 + PE Control cable	7 x 1,5 - 16 mm <sup>2</sup> 3 x 1,5 - 16 mm <sup>2</sup>	7 x 1,5 - 16 mm² 3 x 1,5 - 16 mm²	4 x 25 - 70 mm² 3 x 1,5 - 16 mm²	4 x 25 - 70 mm² 3 x 1,5 - 16 mm²	4 x 25 - 70 mm² 3 x 1,5 - 16 mm²



For line power feeds **not fitted with a protective earth conductor (PE)**, this must be indicated in the order section and specified as a part no. with **"no PE"**.

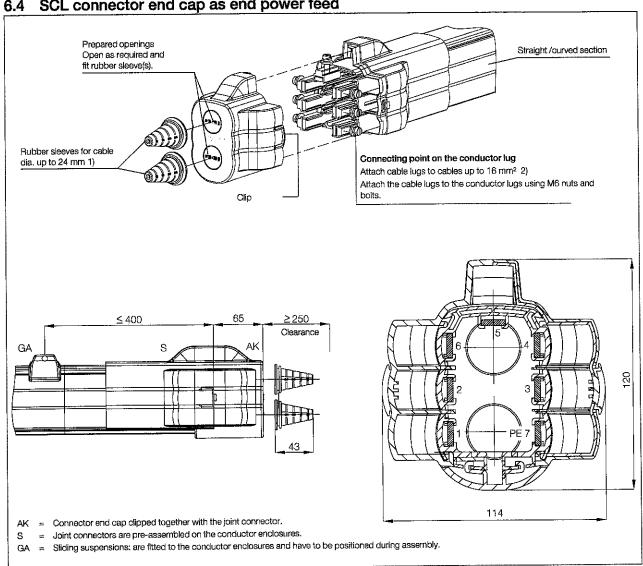
The following information is required for ordering a line power feed (see model code order text):

- ⇒ Conductor line type, component SCL-ES
- ⇒ Power feed, number of poles (4, 5, 6, or 7 conductors)
- ⇒ Permissible current (35, 60, 100, 140, 200 A)
- ⇒ protective earth conductor PE (with or without)

Model code
Order text, e.g.:
Line power feed
or
SCL-ES-4-140-PE
SCL-ES-7-60 (no PE)

The permissible current for the conductors must be checked.
Calculation see tables in chapter 3.





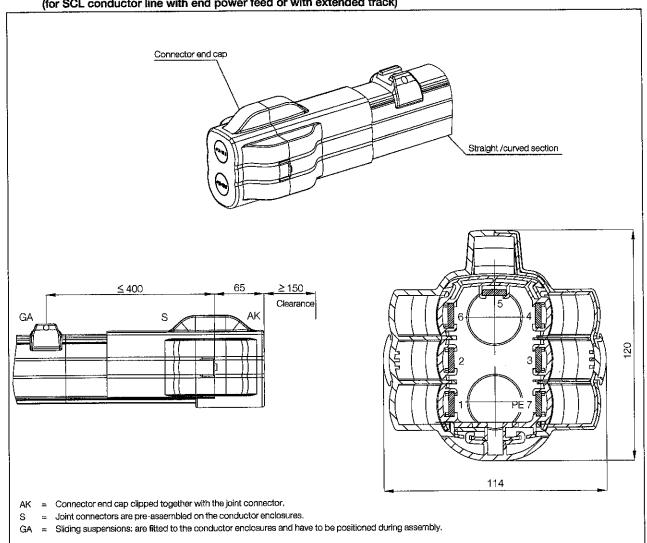
The following information is required for ordering or selecting a connector end cap as a power feed (see model code order text):

- Conductor line type, SCL
- AK connector end cap
- Connection cross-section  $\leq$  16 mm<sup>2</sup> (I<sub>N</sub>  $\leq$  60 A)
- 1) Not included in the scope of supply. Cut off the rubber sleeves to the required cable diameters.
- 2) Cable lugs are not included in the scope of supply.

# Model code Order text, e.g.: SCL connector end cap as end power feed SCL-AK-16 PG 21 Rubber sleeve

## 6.5 SCL connector end cap as track end cap

(for SCL conductor line with end power feed or with extended track)

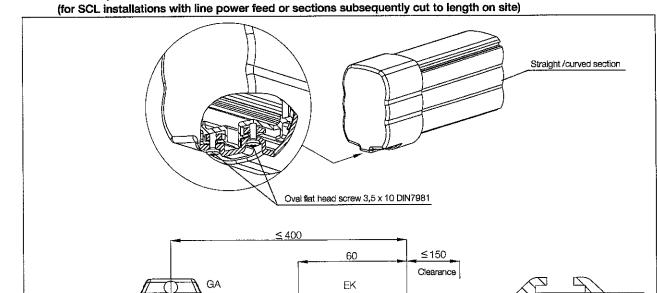


The following information is required for ordering or selecting a connector end cap as track end cap (see model code order text):

- Conductor line type, SCL.
- ⇒ AK connector end cap

Model code Order text, e.g.: SCL connector end cap as track end cap SCL-AK

## 6.6 End cap





EK = End cap screwed together with the conductor enclosure.

Use only the enclosed  $3.5 \times 10$  oval flat head screws to DIN7981 as there is a risk of accidental contact with live parts if longer screws are used.

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The following information is required for ordering or selecting an end cap (see model code order text):

- ⇒ Conductor line type, SCL
- ⇒ **EK** end cap

= Sliding suspensions: are fitted to the conductor enclosures and have to be positioned during assembly.

Model code
Order text, e.g.:
End cap SCL-EK

Entry/transfer section Suspension method Attached to C-rail or suspended from threaded pin(must be ordered separately, see sections 5.1.1 and 5.2.1) View "X" View "X" Orientation rib Funnel right-hand Orientation rib Funnel left-hand 500 200 112 ٥ Dead funnel area Dimension mm Conductor line Profile rib (orientation rib) 243 3 4 352 5 6 243 7 Profile sealing lip: fitted as required. May be added to order per meter.

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PΕ

#### For transfers left-hand and right-hand funnels are required.

Entry/transfer speed 100 m/min.

Min. distance between transfer funnels 10 mm.

Max, lateral misalignment between the funnels  $\pm$  10 mm.

Max. vertical misalignment between the funnels  $\pm$  8 mm.

S = Joint connectors are pre-assembled on the conductor enclosures.

F = Fixed suspension slides on funnel enclosure to be positioned and secured with self-tapping screw during assembly.



Use only the enclosed  $3.5 \times 9.5$  self-tapping screws to DIN7981 as there is a risk of accidental contact with live parts if longer screws are used.

#### Part number table

Number of poles	Туре	Conductor line assignment	Part no.
	right-hand	4 0 7 (DE)	7910227
4	left-hand	1-3,7 (PE)	7910228
_	right-hand	107/005	7910229
5	left-hand	1-3,7 (PE) 5	7910230
	right-hand	1 2 7 (DD 4 6	7910231
6	left-hand	1-3,7 (PE) 4,6	7910232
-	right-hand	107/00 46	7910233
′ –	left-hand	1-3,7 (PE) 4-6	7910234



For transfer sections not fitted with a protective earth conductor (PE), this must be indicated in the order section and specified as a part no, with "no PE".

#### Note



The current collector trolley must be prepared for SCL with entry/transfer setions or profile sealing lip.

Open the terminal box on the current collector trolley and separate the upper terminal box enclosure half on the prepared openings (prepared openings see figure in section 6.8).

The following information is required for ordering or selecting transfer sections (see model code order text):

- ⇒ Conductor line type, SCL
- ⇒ ÜTR Transfer section
- $\Rightarrow$  Type (L = left-hand or  $\mathbf{R}$  = right-hand)
- ⇒ Number of poles (4,5, 6, or 7 conductors)
- ⇒ protective earth conductor PE (with or without)

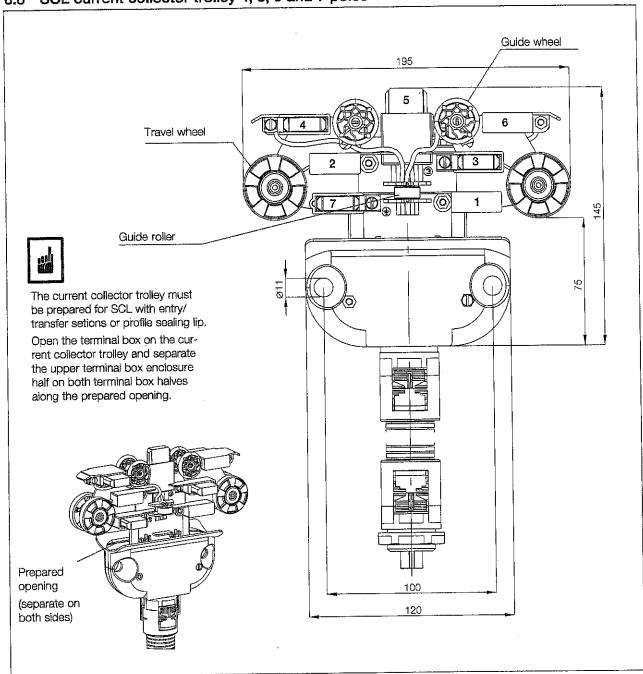
Model code

Order text, e.g.:

Transfer section (funnel right-hand) or (funnel left-hand)

SCL-ÜTR-4-PE SCL-ÜTL-7 (no PE)

# 6.8 SCL current collector trolley 4, 5, 6 and 7 poles



- Bronze sliding contact material, connecting conductor cross-sections
   L1 L3 + PE max. 6,0 mm².

  Control conductor connecting cable cross-section 2,5 mm².

  Other cross-sections on request.
- Other cross-sections on request.

  2) Graphite sliding contact material, connecting conductor cross-sections L1 L3 + PE max. 4,0 mm².

  Control conductor connecting cable cross-section 2,5 mm².

  Other cross-sections on request.

  Refer to current collector technical data table in

section 6.8.1 for operating criteria.

Designation	Poles	Rated current 80 % CDF	Metric cable union/ corrugated tube	Connecting cable conductors
SCL SAW-4-40 1)	4	40 A		4 x 6 mm²
SCL SAW-4-20 2)	4	20 A		4 x 4 m m²
SCL SAW-5-40 1)	5	40 A	-	4 x 6 + 1 x 2,5 m m²
SCL SAW-5-20 2)	5	20 A	1	4 x 4 + 1 x 2,5 m m <sup>2</sup>
SCL SAW-6-40 1)	6	40 A	M 25 / NW 17	4 x 6 + 2 x 2,5 mm²
SCLSAW-6-20 2)	6	20 A	-	4 x 4 + 2 x 2,5 m m <sup>2</sup>
SCL-SAW-7-40 1)	7	40 A		4 x 6 + 3 x 2,5 m m <sup>2</sup>
SCL SAW-7-20 2)	7	20 A		4 x 4 + 3 x 2,5 mm²

# 6.8.1 Current collector technical data

Sliding contact material		Bronze	Graphite 1)	
Permissible voltage		24 to 690 V ≈		
	with 80 % CDF	40 A	20 A	
Continuous current 2)	with 60 % CDF	45 A	20 A	
	with 40 % CDF	50 A	25 A	
Connecting cable 3)	L1 - L3 + PE	6 mm² x 2000 mm	4 mm² x 2000 mm	
	Control cable	1,5 mm², max. 8 A, 80 % CDF		
	Straight section	max. 20	00 m/min	
Travel speed	Curve section	max. 80 m/min. on application		
	Transfers			
Curve-negotiating for R		≥ 80	0 mm	



If control or low-voltage signals are transferred, it is recommendable to use at least 2 current collector trolleys.

The following information is required for ordering a current collector trolley (see model code order text):

- ⇒ Conductor line type, SCL
- $\Rightarrow$  Current collector trolley
- ⇒ Number of poles (4,5, 6, or 7 sliding contacts)
- ⇒ Permissible current (20 or 40 A)
- $\Rightarrow$  Protective earth conductor  $\mbox{\bf PE}$  (with or without)
- ⇒ Connecting cable length (mm)



For current collector trolleys not fitted with a protective earth conductor (PE), this must be indicated in the order section and specified as a part no. with "no PE".

The standard connecting cable length is 2000 mm. Other lengths are possible.

- Current collector trolleys with graphite sliding contacts must be used in SCL installations operated close to the sea, outdoors and in chemical environments. Use a higher number of current collector trolleys to ensure contact reliability.
- 2) If 2 current collector trolleys are connected in parallel, twice the rated current can be expected to occur. If 3 current collector trolleys are connected in parallel, the rated current will be increased by a factor of 3 - 10%.
- Single conductors in the corrugated tube. Maximum cable length 2000 mm Other lengths on request.
   Minimum length: 500 mm / maximum length: 10000 mm.

Model code

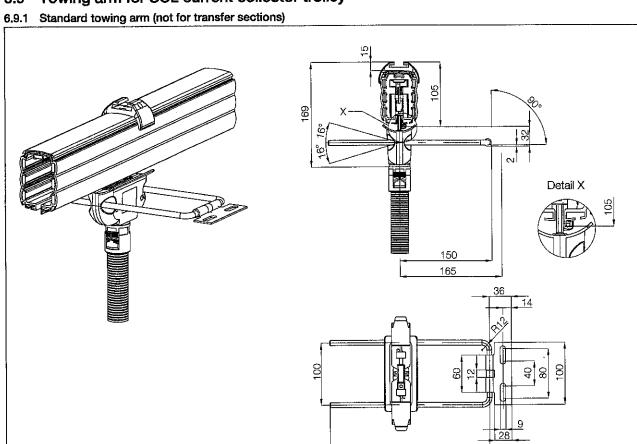
Order text, e.g.:

SCL-SAW-4-40-PE

or

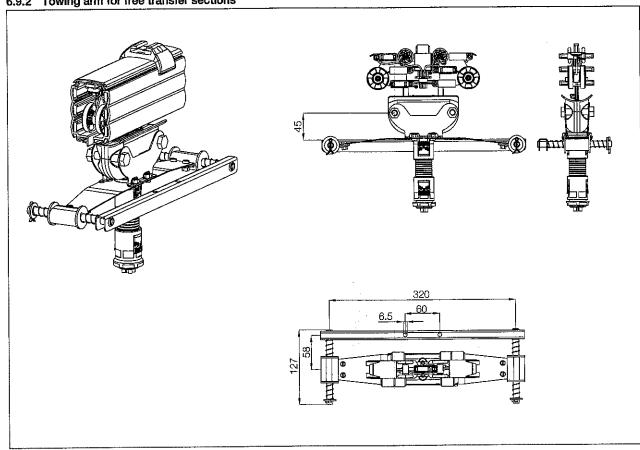
SCL-SAW-7-20-3500 (no PE, 3500 mm connecting cable)

# 6.9 Towing arm for SCL current collector trolley



Model code
Order text, e.g.:
Towing arm
SCL-MIT

# 6.9.2 Towing arm for free transfer sections



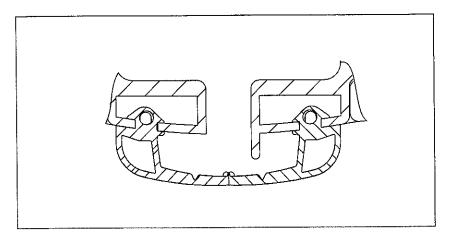
Model code

Order text, e.g.:

Towing arm for transfer section

SCL-MITÜ

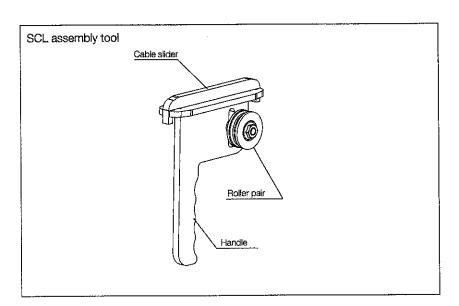
#### 6.10 Profile sealing lip



# 6.10.1 Assembly tool for fitting the profile sealing lip



Disconnect the SCL installation from the power supply before fitting the profile sealing lip.



The profile sealing lip is supplied on rolls in lengths measuring 40 m.

Profile sealing lip sections have to be bonded together using cyanoacrylate glue (super glue)<sup>2)</sup> for longer SCL tracks. Ensure the bonding surfaces are clean and fit together.

#### Profile sealing lip length = 2 x SCL installation length



The profile sealing lips are individually pushed into both sides of the SCL conductor enclosure (see also assembly instructions 214 399 44, section 3.11.1).

If profile sealing lips are used with the SCL, the teminal box enclosure halves on the current collector trolley must be prepared. (see note in section 6.8).

Model code

Order text, e.g.:

SCL - profile sealing lip

910065 1)

SCL assembly tool for profile sealing lip Cyacrylat glue (super glue), 20 gr.

7910182 910082 2)

- Profile sealing lip may be added to order per meter. Please specify in the order.
- 2) Order, if required.

## 6.11 Isolating section



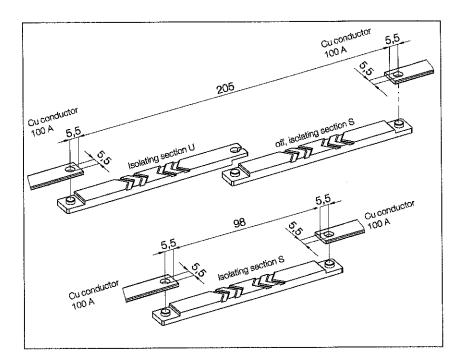
For control purposes, the SCL conductor line can be interrupted by means of isolating sections on straigth sections or line feeds.

The isolating sections can only be combined with 100 A copper conductors.

The isolating section can be fitted in the factory or on site.

If the isolating sections are fitted in the factory, the following detailed information is required:

- postition of the isolating section/sections in the installation
- conductor no.
- length of each isolating section



Model code
Order text, e.g.:

Isolating section U 910059
Isolating section S 910061

# 7 Component parts

# 7.1 Straight sections and accessories

# 7.1.1 Component set for sliding suspension with C-rail bracket

Designation	Part no.
Sliding suspension	
Mounting bracket	910034
C-rail clamping section	

# 7.1.2 Component set for sliding suspension with M8 threaded pin

Designation	Part no.
Sliding suspension	
Threaded pin fitting	7910237
Lock nutM8 (2 off)	1910231
Countersunk screw M8 x 70	

# 7.1.3 Component set for conductor connector

Designation	Quantity	Part no.
Conductor connector U section	1	
Conductor connector lug	2	
Round head screw M6 x 20	2	7040404
Lock nut M6	2	7910181
Clamp section 1)	2	
Round head screw M6 x 22	2	

### 7.1.4 Isolating sections

Designation	Part no.
Isolating section U 2)	910059
Isolating section S 2)	910091

<sup>1)</sup> Clamp section not required for 100 A, 140 A and 200 A conductors.

<sup>2)</sup> off, isolating section S = 97 mm isolating distance off, isolating section S + off, isolating section U = 205 mm isolating distance The isolating distance can be extended by adding further isolating sections (isolating section U) (see assembly instructions 214 399 44, section 4.12).

# 7.2 Current collector and current collector trolley

The parts listed below are subject to a greater or lesser amount of wear while a current collector trolley is in operation.

Wear depends on various factors and is not determined by the current collector trolley operating period alone.

Preventive maintenance is therefore required.



Worn current collector trolleys or other components must be replaced immediately.

#### 7.2.1 Sliding contact set

Sliding contact sets DCL - SAW - 4 + 5 / 6 + 7 - 40 A, bronze	
Designation	Part no.
liding contact set 4-pole 40 A (for 4 + 5-pole)	7910298
Sliding contact set 7-pole 40 A (for 6 + 7-pole )	7910299
Sliding contact sets	
DCL - SAW - 4 + 5 / 6 + 7 - 20 A, graphite	
	Part no.
DCL - SAW - 4 + 5 / 6 + 7 - 20 A, graphite	<b>Part no.</b> 7910300
DCL - SAW - 4 + 5 / 6 + 7 - 20 A, graphite  Designation	

# 8 Resistance to acids, chemicals and fuels

### 8.1 Acids

Medium			Remark
Acid	Conc.		
Chromic acid	40 %	0	Avoid direct contact.
Chromic-sulfuric acid	20 %	Ф	Avoid direct contact.
Nitric acid	10 %	+	
Sulfuric acid	10%	+	
Ethanoic acid	5 %	+	Increased wear of sliding contacts
Carbonic acid	10 %	+	Increased wear or silding contacts
Oleic acid		+	
D-tartaric acid	10 %	+	
Formic acid	20 %	+	
Arsenic acid	20 %	+	
Boric acid	10 %	+	
Hydrofluoric acid		+	Max, temperature + 30°C
Lactic acid	10 %	+	from +30°C to +60°C
Phosphoric acid	50 %	+	Increased wear of current collectors
Oxalic acid	10 %	+	
Hydrochloric acid	20 %	0	
Citric acid	10 %	+	

## 8.2 Fuels, oil, grease etc.

Medium			Remark
Petroleum spirit		0	
Regular petrol		0	
Supergrade petrol		0	Avoid direct contact
Kerosine		€	Avoid direct contact
White petroleum spirit		⊕	
Diesel oil		0	
Benzole		-	
Oil, grease (free from aromatics)		+	
Drilling oil		•	Avoid direct contact
ATE brake oil		<b>⊕</b>	
Foodstuffs		+	
Camustas	distance < 5km	+	Use double current collectors
Seawater	distance > 5km	+	Dae dodnie caireit collectois

## 8.3 Chemicals

Applies to all chemicals: Conductors (Cu) subject to increased oxidation (corrosion) Resistance information only valid for room temperature (20 °C).

- + resistant
- ⊕ resitant to a limited extent
- not resistant

Medium			Remark
Alkaline solutions	< 1 %	+	
	> 1 %	⊕/-	Minimum distance 5 m
Ammonía water		-	
Alcohol		+	
	alipphatic	-	
Hydrocarbons	aromatic	-	
Chloric solvents		-	
Ester		-	
Ketone		-	
Trichlorethylene		-	
Alcaline solvents			Cannot be answered in a general way
Ethyl acetate		⊕	
Butanol			_
Butyl acetate			
Methanol			
Tuluol			]
Xylene		*	
Carbon tetrachloride		<del>0</del>	
Acetone			
Bleaching lye		€	

#### 1 page(s) Page 1 **Enquiry** Project no. Stemmann Compact Line SCL - \_\_\_\_ PE - PVC Stemmann-Compact-Line 0 Stemmann / Deutschland Selected/dimensioned by 0 Customer \_\_\_\_ Number of poles \_\_\_\_\_ A (rated current) Type Length \_\_\_\_ m Rated voltage/frequency \_\_ Hz \_\_\_ V Control voltage 0 Protective earth conductor PE 0 Yes No number of SCL tracks Complete SCL track О Yes Spare parts→ see remark 0 No 0 0 curved straight Track layout according to enclosed drawing \_\_\_ number of Electrical power feed point 0 Line power feed End power feed \_\_ number of 0 number of \_\_\_\_ mm cable length Current collector trolley Bronze sliding contacts 0 0 Graphite sliding contacts Including standard towing arm (not for transfer sections) 0 M 8 threaded pin 0 C-rail Suspension method 0 Yes, the following: 0 No Accessories Remarks: Address and reference of the customer

#### 1 page(s) Page 1 Order Project no. Stemmann Compact Line SCL - \_\_\_\_ PE - PVC 0 Stemmann-Compact-Line 0 Stemmann / Deutschland Selected/dimensioned by Customer \_\_\_\_\_ A (rated current) \_ Number of poles Type Length \_\_ m Rated voltage/frequency \_\_\_\_ Hz \_\_\_\_ V Control voltage O No Yes Protective earth conductor PE number of SCL tracks 0 Yes Complete SCL track Spare parts→ see remark No 0 curved 0 Track layout straight according to enclosed drawing Electrical power feed point 0 Centre power feed section \_\_ number of End power feed \_\_\_ number of O \_\_ mm cable length number of Current collector trolley Bronze sliding contacts О Graphite sliding contacts 0 Including standard towing arm (not for transfer sections) 0 M 8 threaded pin 0 C-rail 0 Suspension method Yes, the following: 0 No 0 Accessories Remarks: Address and reference of the customer