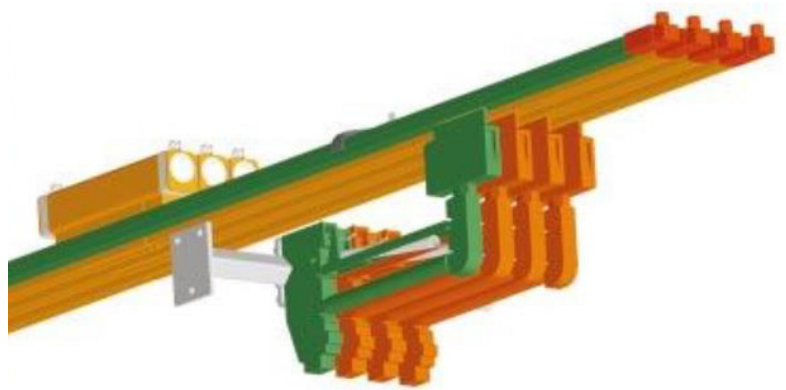


SAFELEC 2

Insulated Conductor Rails



CONDUCTIX
wampfler

Index

Product Feature	3
Typical Application	3
Technical Data	4
System Layout	5
Selection of Conductors	5
Galvanized Steel – Conductor Rail	6
Expansion Joint	6
Copper - Conductor Rail	7
Expansion Joint	7
Aluminum / Stainless Steel - Conductor Rail	8
Expansion Joint	8
Joints	9
Joint Compound	9
End Powerfeed	10
Joint Powerfeed	10
Hanger	11
Anchor Clamps	11
End Cap	12
Pickup Guides	12
Collector	13
Collector Shoe + Holder	13
Collector Bracket	14
System Dimension	15
Enquiry Form	18

SL2 Conductor Rail System

Product Feature

Conductix Wampfler supplies electrical power feed systems for moving machinery. The SAFELEC 2 system is easy to install and maintain, and ensures a high level of reliability. It has been designed to meet the safety standards demanded in industry.

Advantages:

- Able to feed several moving machines from the same conductor system
- Suitable for high amperage
- Feed points can be placed at any location
- Compactness
- Long system length possible
- Suitable for both indoor and outdoor use

Features:

- Easy installation, reduced and simple maintenance
- Protection degree IP2, finger safe
- Insulating covers shaped to shed water and dust
- Standard PVC cover for normal temperatures
- Medium heat cover available for high ambient temperatures
- Expansion sections not required for runs less than 150 m
- Max travel speed: 200 m/min

Range of application:

Cranes and gantries in workshops, iron and steel industry, railways, leisure industry, mines, etc.

Typical Application



Conveyor System

Roller Coaster



Multipole Feed System



Bridge Construction Crane



Water
Treatment
Works



SL2 Conductor Rail System

Technical Data

Conductor Rail	Galvanized Steel		Copper			Aluminum / Stainless Steel		
Nominal Current at +25°C	100A	125A	160A	250A	400A	200A	315A	400A
Cross Sectional Area (mm ²)	63 mm ²	93 mm ²	50 mm ²	63 mm ²	93 mm ²	104 mm ²	120 mm ²	156 mm ²
Nominal Voltage AC/DC	1000V / 1000V							
Resistance at 20°C (DC Ω/m)	0.002867	0.001933	0.000342	0.000274	0.000184	0.000301	0.000261	0.000199
Impedance at 20°C (AC Ω/m)	0.002891	0.001968	0.000364	0.0003	0.000221	0.000325	0.000288	0.000234
Maximum allowable ambient temperature for 100% duty cycle	25°C							
Rail Length	4.5m							
Support Pitch								
Horizontal	1.5m							
Lateral	1.125m							
Min. Pitch Centers	43mm							
Max. System Length W/O Expansion Joint	150m							
Min. Bending Radius for Horizontal	1.5m							

Insulating Covers	Standard	Medium Heat
Material	PVC	PC
Colour (Phase /Earth)	Orange / Green	Red / Red
Dielectric Strength	180kV / cm	240 kV/ cm
Surface Resistivity	> 10 ¹¹ Ω	> 10 ¹⁴ Ω
Volume Resistivity	> 10 ¹⁵ Ω/cm	> 10 ¹⁶ Ω/cm
Softening Temperature	+ 80°C	+120°C
Flame Test	Self extinguishing	Self extinguishing
Max. Allowable Ambient Temperature	-15 to +55°C	-30 to +85°C

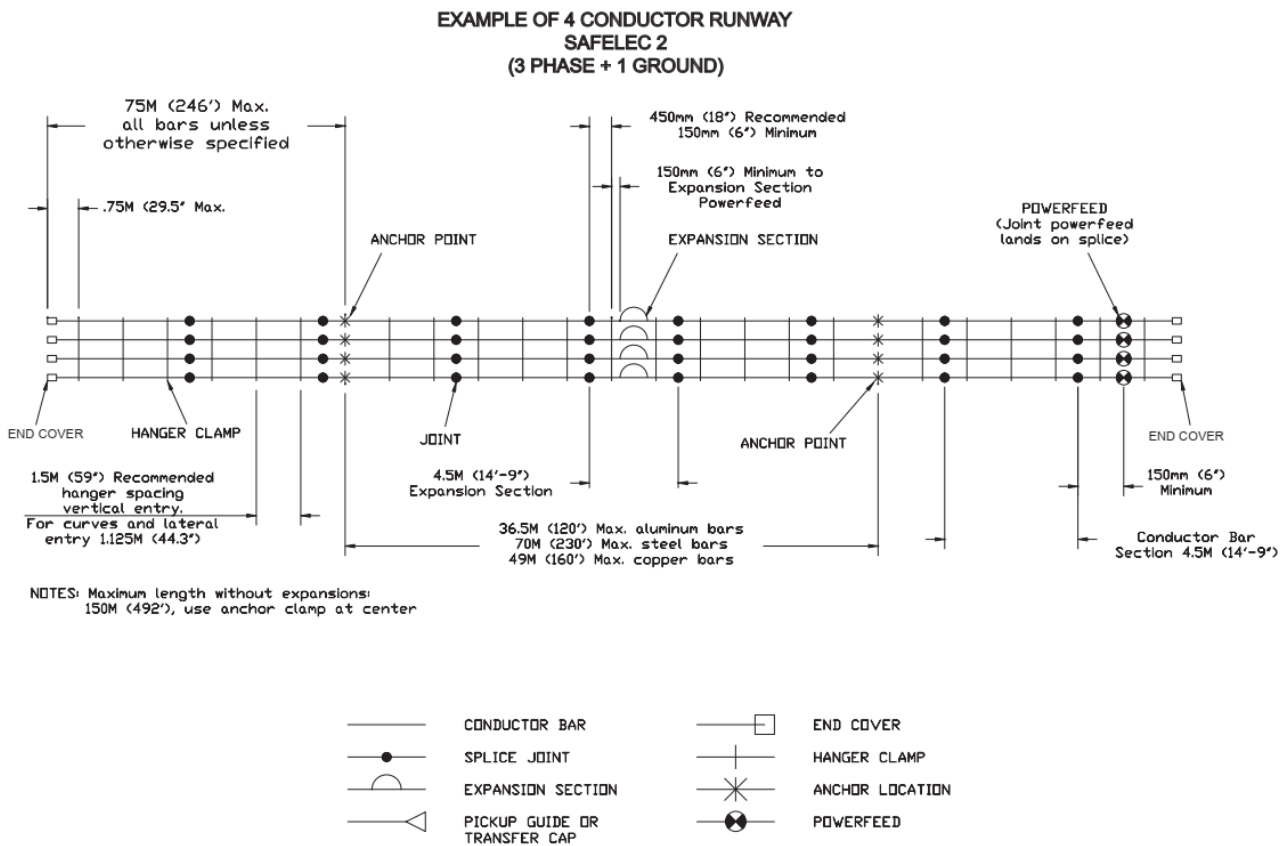
Factor "K"						
	Duty Ta	100%	80%	60%	40%	20%
Standard Cover	25°C	1.000	1.118	1.291	1.581	2.236
	35°C	0.905	1.011	1.168	1.430	2.023
	45°C	0.798	0.892	1.030	1.261	1.784
	55°C	0.674	0.754	0.870	1.066	1.508
Medium Heat Cover	65°C	0.775	0.866	1.000	1.225	1.732
	75°C	0.707	0.791	0.913	1.118	1.581
	85°C	0.632	0.707	0.816	1.000	1.414

The rating of the conductor (maximum allowable current) depending on the duty factor of the cranes and the max ambient temperature.

Ta can be established using the following formula : $I_{allowable} = \text{nominal current} * K$

SL2 Conductor Rail System

System Layout



Selection of Conductors

An accurate choice of conductors can only be made when the following are known:

- The type of current: single or 3 Phase AC; DC
- The maximum current and duty cycle
- The allowable volt drop for the machine being supplied
- The ambient temperature and environment (dust, coastal, humid, acidic)

Volt drop calculation ΔU :

3-Phase AC $\Delta U = \sqrt{3} \times I \times D \times Z$

Single Phase AC $\Delta U = 2 \times I \times D \times Z$

Continuous current DC $\Delta U = 2 \times I \times D \times R$

$$\Delta U\% = (\Delta U \times 100) / U_n$$

Where :

ΔU : volt drop in Volt

$\Delta U\%$: volt drop in % of the nominal voltage

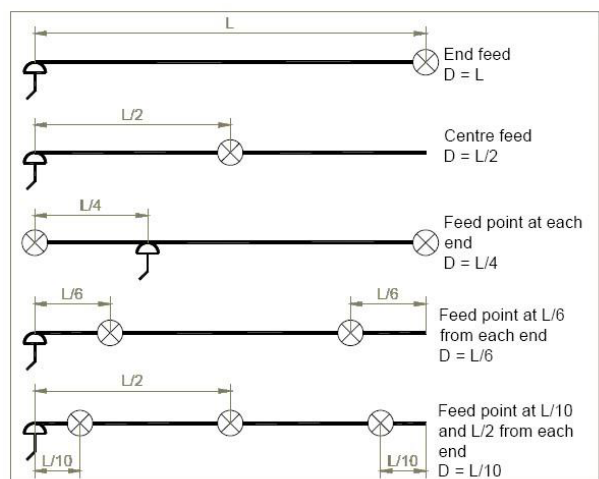
U_n : voltage in Volt

I : maximum current in Amps

D : see diagram on the right

R : resistance in Ohm per meter

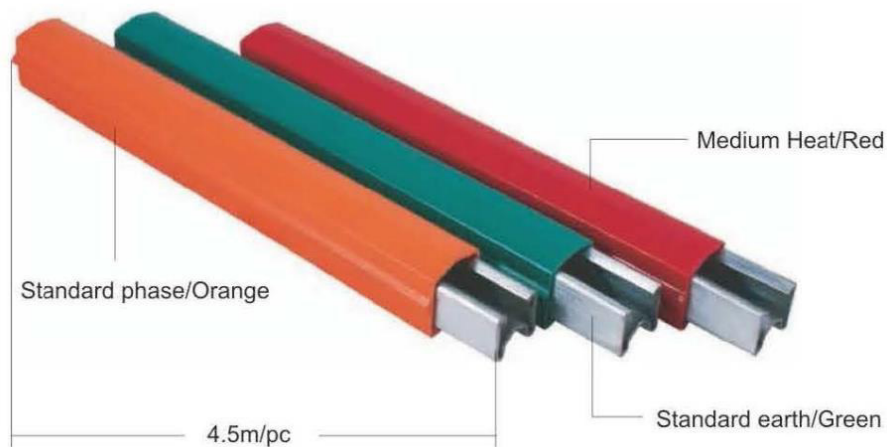
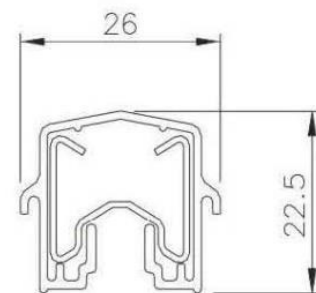
Z : impedance in Ohm per meter



SL2 Conductor Rail System

Galvanized Steel – Conductor Rail

CURRENT RATING	100A	125A
Standard Phase Cover (orange)	001010011	001010014
Standard Earth Cover (green)	001010012	001010015
Medium Heat Cover (red)	001010013	001010016
Weight (kg)	2.76	3.76



Expansion Joint

CURRENT RATING	100A	125A
Standard Phase Cover (orange)	001020034	001020037
Standard Earth Cover (green)	001020035	001020038
Medium Heat Cover (red)	001020036	001020039
Weight (kg)	3.32	4.20

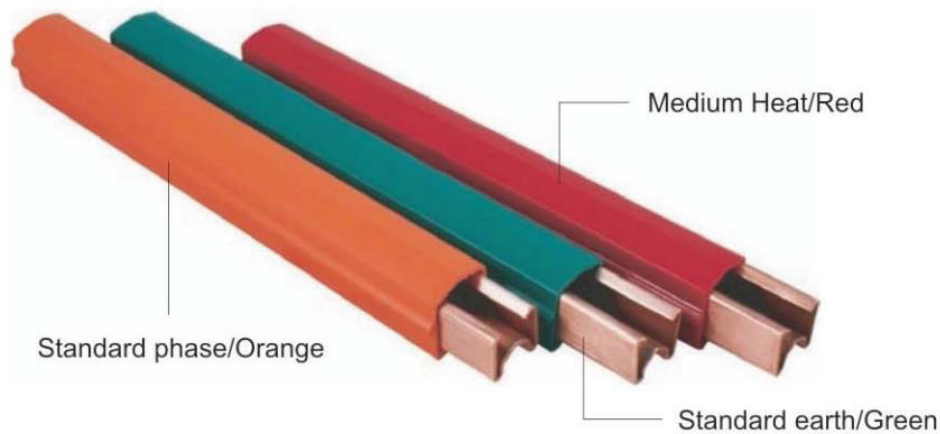
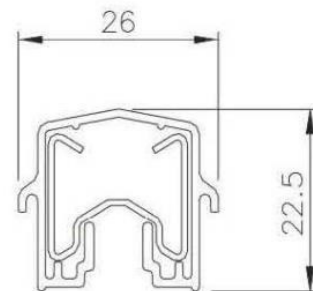
Expansion sections are required on all systems over 150m long.
The maximum gap of the expansion section is 50mm.
The expansion section is 4.5m long and is installed in place of one length of conductor rail.



SL2 Conductor Rail System

Copper - Conductor Rail

CURRENT RATING	160A	250A	400A
Standard Phase Cover (orange)	001010017	001010020	001010023
Standard Earth Cover (green)	001010018	001010021	001010024
Medium Heat Cover (red)	001010019	001010022	001010025
Weight (kg)	2.76	3.04	4.40



Expansion Joint

CURRENT RATING	160A	250A	400A
Standard Phase Cover (orange)	001020040	001020043	001020046
Standard Earth Cover (green)	001020041	001020044	001020047
Medium Heat Cover (red)	001020042	001020045	001020048
Weight (kg)	3.28	3.86	4.74

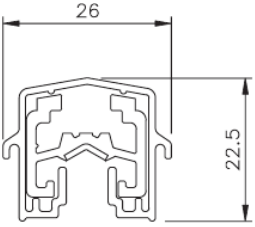
Expansion sections are required on all systems over 150m long.
The maximum gap of the expansion section is 50mm.
The expansion section is 4.5m long and is installed in place of one length of conductor rail.



SL2 Conductor Rail System

Aluminum / Stainless Steel - Conductor Rail

CURRENT RATING	200A	315A	400A
Standard Phase Cover (orange)	001010026	001010029	001010032
Standard Earth Cover (green)	001010027	001010030	001010033
Medium Heat Cover (red)	001010028	001010031	001010034
Weight (kg)	2.12	2.18	2.50



Expansion Joint

CURRENT RATING	200A	315A	400A
Standard Phase Cover (orange)	001020049	001020052	001020057
Standard Earth Cover (green)	001020050	001020053	001020058
Medium Heat Cover (red)	001020051	001020054	001020059
Weight (kg)	3.23	3.43	3.80

Expansion sections are required on all systems over 150m long.
The maximum gap of the expansion section is 50mm.
The expansion section is 4.5m long and is installed in place of one length of conductor rail.



SL2 Conductor Rail System

Joints

Joint	Code	Weight (kg)
Steel	001030014	0.049
Copper	001030033	0.044
Aluminum	001030034	0.032

Joint Cover	Code	Weight (kg)
Standard Phase Cover / Orange	001030006	0.027
Standard Earth Cover / Green	001030007	
Medium Heat Cover / Red	001030008	



Aluminium Joint
001030034



Steel Joint
001030014



Copper Joint
001030033



Standard phase cover/Orange
001030006

Joint Compound

Code	Weight (kg)
507010006	0.250

SL2 Conductor Rail System

End Powerfeed

Code	Weight (kg)
001030039	0.037

End powerfeed installed in place of an end cover.
Max cable size 16mm².
End Powerfeed fit up to 100A conductor rail.



Joint Powerfeed

Current Rating	Up to 250A	Up to 400A
Standard Phase / Orange	001030038	001030041
Medium Heat / Red	001030042	001030043
Weight (kg)	0.25	0.30

Joint powerfeed is installed in the place of a joint, and it requires a joint to complete a powerfeed.

Ref. maximum cable connection size:
250A-95mm²; 400A-150mm²



Standard Phase
001030038

SL2 Conductor Rail System

Hanger

Type	Code	Weight (kg)
Black Single Pole	001040005	0.03
Black Three Pole	001040010	0.05
Black Four Pole	001040004	0.057
Black Four Pole with Double Screws	001040007	0.084
Red Single Pole	001040006	0.03
Red Three Pole	001040011	0.05
Red Four Pole	001040008	0.057

Support pitch:
Horizontal arrangement 1.5m
Lateral arrangement 1.125m



Single pole
001040005



Three pole
001040010



Four pole
001040004

Anchor Clamps

Type	Code	Weight (kg)
Standard	001050001	0.06

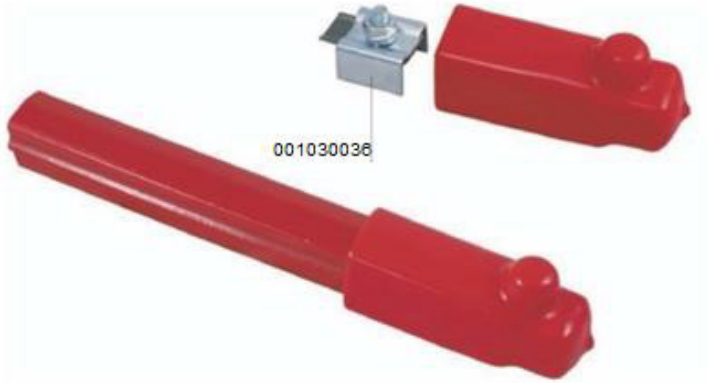
Anchor Clamps are usually installed between two expansion sections.



SL2 Conductor Rail System

End Cap

Type	Code	Weight (kg)
Steel / Copper Rail	001030036	0.04
Aluminum Rail	001030037	0.02
Transfer Cap	001080014	0.10



Pickup Guides

Type	Code	Weight (kg)
Single Pole	001080012	1.27
Double Pole	001080016	1.72
Three Pole	001080015	2.16
Four Pole	001080013	2.54

Pickup guide: must use with collectors specially designed for pickup guide (Pickup Guide Version Collector)

Not recommended for lateral mounting



SL2 Conductor Rail System

Collector

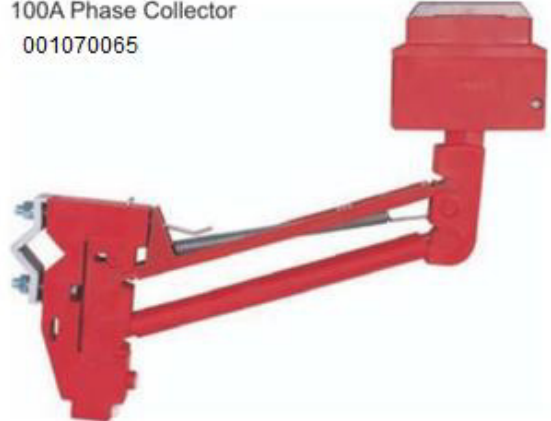
Current Rating	50A	100A
Phase	001070069	001070065
Earth	001070070	001070067
Phase (Pickup Guide Version)	-	001070064
Earth (Pickup Guide Version)	-	001070083

Collectors are supplied without cables.
Standard cable terminal clamps are included.
Pickup guide version collectors are specially designed for working with pickup guide.

50A Phase Collector
001070069



100A Phase Collector
001070065



Collector Shoe + Holder

Current Rating	50A / 100A Phase - Red	50A / 100A Earth - Green
Code	001070066	001070068
Weight (kg)	0.06	



SL2 Conductor Rail System

Collector Bracket

Type	13mm Square	Weight (kg)	25mm Square	Weight (kg)
Single	001070003	0.36	310991	0.88
Double	001070009	0.74	310992	1.84

13mm Square, 200mm long for using with 50A collector

25mm Square, 400mm long for using with 100A collector



001070003



001070009

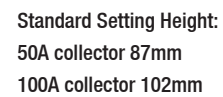


001070012



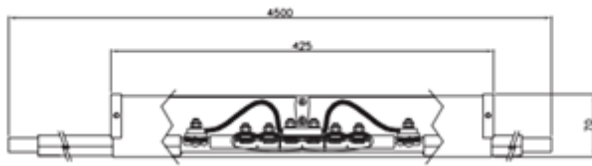
001070013

System Dimension

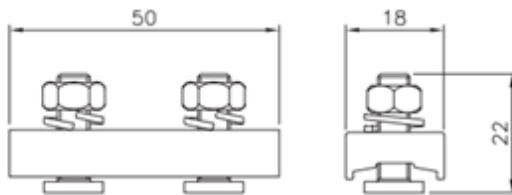


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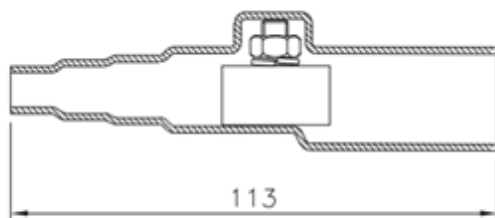
SL2 Conductor Rail System



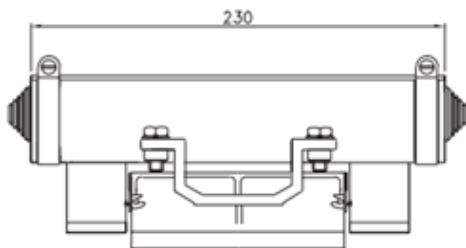
EXPANSION SECTION - Standard Phase Cover



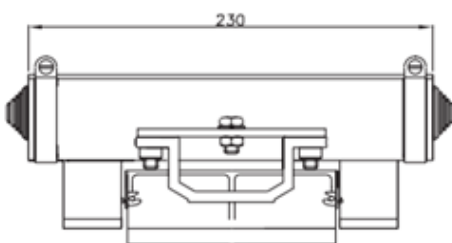
ALUMINIUM JOINT
001030034



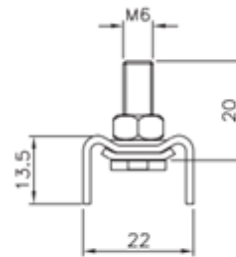
END POWERFEED
001030039



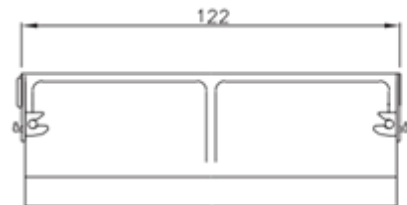
250A JOINT POWERFEED
001030038



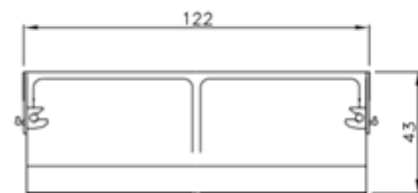
400A JOINT POWERFEED
001030041



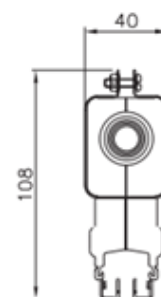
STEEL JOINT
001030014



STANDARD PHASE COVER
001030006



60A JOINT POWERFEED
001030031

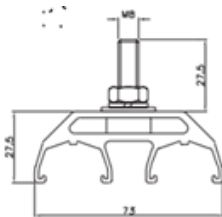


250A JOINT POWERFEED

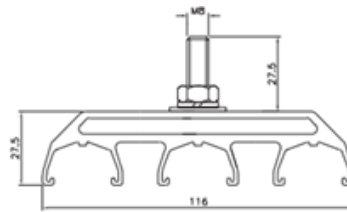


SINGLE POLE HANGER CLAMP
Standard Mount
001040005

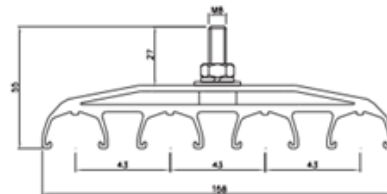
SL2 Conductor Rail System



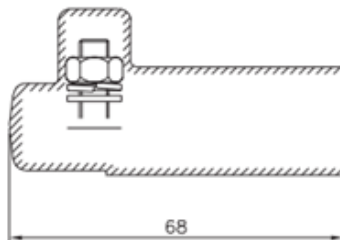
**TWO POLE
HANGER CLAMP
Standard Mount**
001040028



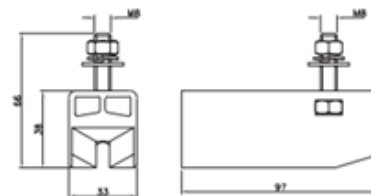
**THREE POLE
HANGER CLAMP
Standard Mount**
001040010



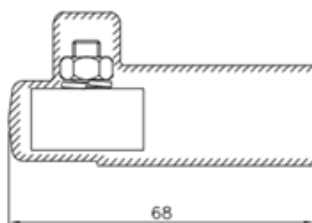
**FOUR POLE
HANGER CLAMP
Standard Mount**
001040004



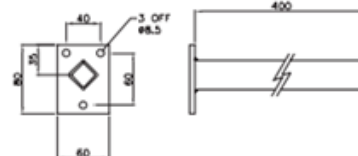
**END CAP
for Aluminium Bar**
001030037



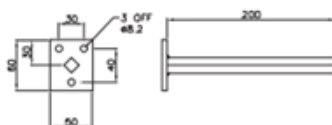
TRANSFER END CAP
001080014



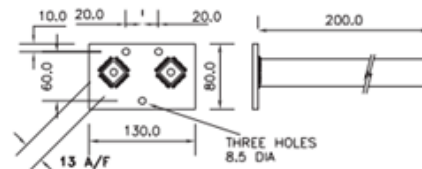
**END CAP
for Steel / Copper Bar**
001030036



**SINGLE COLLECTOR BRACKET
25mm square**
001070012



**SINGLE COLLECTOR BRACKET
13mm square**
001070003



**DOUBLE COLLECTOR BRACKET
13mm square**
001070009

SL2 Conductor Rail System

Enquiry Form

Company name: Address: Project: Date:	CONTACT: POSITION: Tel.: Fax: E mail:
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- Electrical Data

- Voltage: AC - DC V Frequency: Hz
- Number of conductors: Phase Earth
- Position of powerfeed: center / end / other : qty

At: m
 m } from one end
 m }

- Number of machines: Type: crane / gantry / other:

- Electrical Loads

MOTORS	MACHINE N° 1			MACHINE N° 2			MACHINE N° 3			MACHINE N° 4		
	Current (Amps)		Duty %	Current (Amps)		Duty %	Current (Amps)		Duty %	Current (Amps)		Duty %
	R	S		R	S		R	S		R	S	
Hoist												
Cross Travel												
Long Travel												
Auxiliary												
Others												

R: running current **S:** starting current

- Type of motors: squirrel cage / slip rings / other inverter drive: Yes / No
 Allowable volt drop:%
- System Data
- Length: meters
- Location: indoor- outdoor
 Humidity (.....%) – Excessive dust – Saline conditions – others:
- Industry:
- Ambient temperature :°C min /°C max
- Max travel speed:meters / min
- Isolation sections: Yes / No Number: Position: enclose a sketch

Other information

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www.conductix.com

Conductix-Wampfler

has just one critical mission:

To provide you with energy and data transmission systems that will keep your operations up and running 24/7/365.

To contact your nearest sales office, please refer to:

[www.conductix.com/
contact-search](http://www.conductix.com/contact-search)

