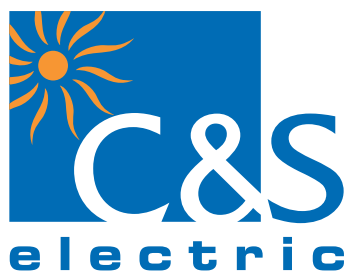


GLOBAL SPECIALIST FOR POWER BUSBARS



LIGHTING TRUNKING



metabar

We touch your electricity everyday!

C&S Electric Ltd. is a leading manufacturer of electrical and electronic equipment in India. It is India's largest exporter of industrial switchgear & power busbar products. C&S Electric products are used in applications ranging from power generation, transmission and distribution, protection and final consumption.

C&S Electric has the following product verticals:

- **Switchgear - LV & MV**
- **Power Busbars - LV & MV**
- **Packaged Sub Stations (PSS)**
- **Protection & Measurement Devices**
- **Lighting**
- **Diesel Generator**

MARKET LEADER

C&S is amongst the top 4 players in the switchgear business segment and a market leader in the busbar business with more than 50% share in Indian market.

18 MANUFACTURING PLANTS

C&S Electric have 18 state-of-the-art manufacturing facilities equipped with latest tools and systems to ensure highest level of quality and services.

A dedicated network of channel partners, ensuring access to the farthest corners of India, with an obsession for customer services. In addition C&S products are available in 51000+ retail counters nationally.

600+ STOCKISTS

C&S has 6 international sales offices at London, The Netherlands, Dubai, Germany, Middle East & USA. C&S exports the entire range of products across all 7 continents, thus reaffirming its position as India's largest exporter of industrial electrical products. Our new subsidiary C&S Electric UK Limited will enhance our coverage and customer service for the international market.

EXPORTS TO OVER 85 COUNTRIES

5900+ EMPLOYEES

5900+ Employees including over 600 engineers, dedicated sales team of 350 people & millions of satisfied customers.

2% OF REVENUE INVESTED IN R&D

Over 20,000 sqft. space dedicated to R&D, 70 R&D engineers, state of the art testing & design facilities ...& most of the all a passion for innovation & excellence.

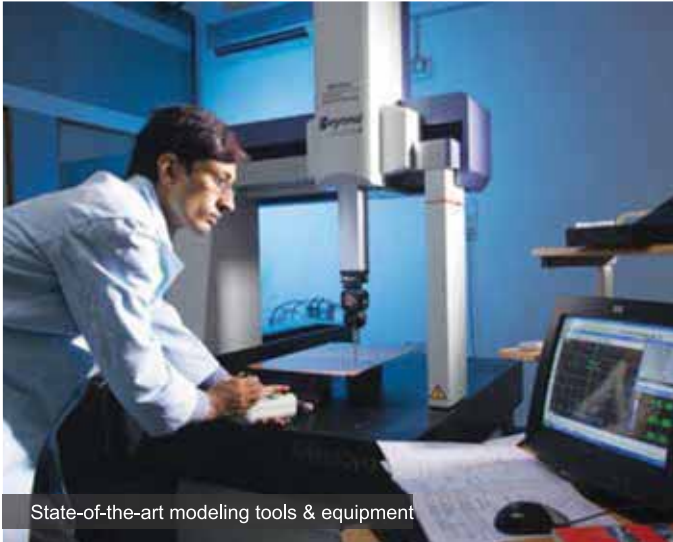
Power Busbar division of C&S Electric Ltd has evolved by continuously addressing the market needs over past 40 year. With the acquisition of Eta-com, Belgium having specialization in cast resin insulated Busway, the merger between the two companies resulted in making C&S as “Global Power Busbar specialist.”

C&S Power Busbars products comply with relevant national & International standards and proven with the Installation references available throughout the continents finding its applications in Power generating stations, Process & manufacturing industries, Commercial & residential Buildings, Infrastructure establishment - Airports, Metros, Railways, Hospitals, Tunnels, Ports, Shopping centers, Exhibition centers, Warehouses IT Parks, Data centers solutions, Solar farms, Oil & Gas and Chemical Industry.

C&S Power Busbar Division with combination of supreme range, vast experience in R&D, engineering, state of art manufacturing plants, in-house testing facilities and strong project management is aimed to provide one stop solutions to user.



R&D and Testing Facilities



State-of-the-art modeling tools & equipment



Research Center



Impulse Testing Facilities at BD Plant

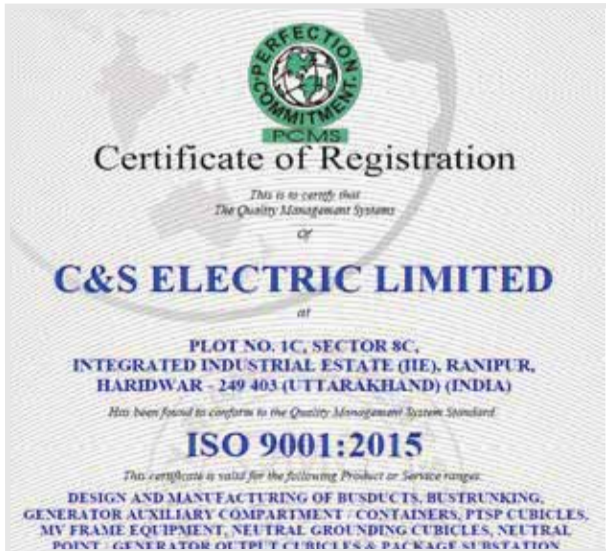


Dedicated team of engineers for development & value engineering



India's only 30,000A power busbar test center

Quality Assurance



14001:2015



9001:2015



18001:2017

metabar Range offers Low Voltage Busbar Trunking System – Lighting Trunking, Compact Air Bustrunking, Track Busway & Sandwich Bustrunking ranging from 25A to 6300A.

Metabar bustrunking is a low impedance, compact size, safe and reliable power distribution system with flexibility in distribution, ease of Installation, reusability & better aesthetics – makes a preferred choice for user.

Metabar bustrunking offers highest safety features - short circuit withstand capacity, resistance to flame propagation, fire penetration, circuit Integrity during fire, seismic resistance & corrosion resistance etc.

Sandwich Bustrunking (SB)-LV

Compliance of standard	IEC 61439 (1&6)
Conductor Material & Ratings	Copper 630A - 6300A Aluminium 400A - 5000A
Rated Operational Voltage (Ue)	1000V
Rated Impulse Withstand Voltage (Uimp)	12kV (1.2/50µs)
Enclosure Material	G.I.
Degree Of Protection	IP54 / IP55*
Plug In Box	32A-630A

*IP65 & IP66 available on request



Compact Air Bustrunking (CB)-LV

Compliance of standard	IEC 61439 (1&6)
Conductor Material & Ratings	Copper 125A - 1250A Aluminium 200A - 800A
Rated Operational Voltage (Ue)	1000V
Rated Impulse Withstand Voltage (Uimp)	12kV (1.2/50µs)
Enclosure Material	G.I.
Degree Of Protection	IP54
Plug In Box	32A-400A



Lighting Trunking (LB)-LV

Compliance of standard	IEC 61439 (1&6)
Conductor Material & Ratings	Copper 25A, 40A
Rated Operational Voltage (Ue)	500V
Enclosure Material	Aluminium
Degree Of Protection	IP54 / IP55
Plug In Box	Upto 16A



Track Busway (MB)-LV

Compliance of standard	IEC 61439 (1&6)
Conductor Material & Ratings	Copper 250A - 400A
Rated Operational Voltage (Ue)	690V
Enclosure Material	Aluminium
Degree Of Protection	IP42
Plug In Box	Upto 63A



betobar Range offers - Low Voltage and Medium Voltage cast resin Insulated Busway system ranging from 1000V to 17.5KV and 630A to 6300A.

Betobar-Cast Resin bustrunking consists of copper or aluminum busbars casted in homogeneous Insulating compound BIM, made of Epoxy resin mixed with special fillers under vacuum. This insulating compound has class "F" insulation with high mechanical and electrical strength, excellent resistance to atmospheric pollution & chemicals, resistance to fungi, Insects and rodents. Bustrunking section Joints are also casted with B.I.M at site, resulting in homogeneous insulation over the full run of bustrunking.

Betobar-Cast Resin bustrunking with low impedance, compact size, better aesthetics offers - highest degree of Ingress protection (IP68), high short circuit withstand capacity, resistance to flame propagation, resistance to fire penetration, circuit Integrity during fire, seismic resistance & UV resistance etc.

Betobar- Cast Resin bustrunking is highly safe and most reliable power distribution system for critical applications such as - Oil & Gas industry, explosive areas, humid and coastal area, chemical & dusty atmosphere and outdoor installations.

Cast Resin Insulated Busway (LA)-LV

Compliance of standard	IEC 61439 (1&6)
Conductor Material & Ratings	Copper 800A - 6300A Aluminium 630A - 5000A
Rated Operational Voltage (Ue)	1000V
Rated Impulse Withstand Voltage (Uimp)	12kV (1.2/50µs)
Degree of Protection	IP68
Mechanical Resistance	IK10



Cast Resin Insulated Busway (SH)-MV

Compliance of standard	IEC 62271 (1&201)
Conductor Material & Ratings	Copper 1300A - 1850A Aluminium 1350A - 1500A
Rated Operational Voltage (Ue)	3.6 kV - 7.2kV
Rated Impulse Withstand Voltage (Uimp)	12kV (1.2/50µs)
Degree of Protection	IP66 / IP67
Mechanical Resistance	IK10



Cast Resin Insulated Busway (PH)-MV

Compliance of standard	IEC 62271 (1&201)
Conductor Material & Ratings	Copper 1750A - 6100A Aluminium 1350A - 5000A
Rated Operational Voltage (Ue)	3.6 kV - 17.5kV
Rated Impulse Withstand Voltage (Uimp)	12kV (1.2/50µs)
Degree Of Protection	IP66 / IP67
Mechanical resistance	IK10



isobar Range offers - Isolated Phase busduct (IPB), segregated phase busduct (SPB) and Non-Segregated phase busduct (NSPB) ranging from 415V, 630A to 38KV, 30000A.

C&S is one of the global leaders in design, manufacturing, erection & commissioning of all variants of busducts for power generation and distribution upto 1000MW.

C&S has supplied more than 500 sets of isolated phase busducts with generating capacities of more than 150GW ranging from 80MW to 800MW.

Isobar busducts have been successfully type tested from renowned laboratories – KEMA-Netherlands / Czech Republic, EDF-France, CPRI-India.

Isolated Phase Busduct (IPB)-MV

Compliance of standard	IEC 62271 (1 & 200) / IS 8084 IEEE C37.23
Rated Continuous Current	100A-30,000A
Conductor	Aluminium*
Rated Operational Voltage (Ue)	11kV – 38kV
Enclosure Material	Aluminum Alloy
Rated Impulse Withstand Voltage (Uimp)	75kV - 170kV (1.2/50µs)
Degree of Protection	IP55 / IP65

*Copper Conductor available on request



Segregated Phase Busduct (SPB)**-MV

Compliance of standard	IEC 62271 (1 & 200) / IS 8084 / IEEE C37.23
Rated Continuous Current	630A - 5000A
Conductor	Aluminium / Copper
Rated Operational Voltage (Ue)	3.3kV - 33kV
Enclosure Material	Aluminum Alloy
Rated Impulse Withstand Voltage (Uimp)	40kV - 170kV (1.2/50µs)
Degree of Protection	IP55 / IP65

**Non-Segregated Phase Busduct (NSPB) - MV design available on request



Non Segregated Phase Busduct (NSPB)-LV

Compliance of standard	IEC 61439 (1&6) / IS 8623 (1&2)
Rated Continuous Current	630A - 6500A
Conductor	Aluminium / Copper
Rated Operational Voltage (Ue)	415V
Enclosure Material	Aluminum Alloy
Rated Impulse Withstand Voltage (Uimp)	12kV (1.2/50µs)
Degree of Protection	IP55 / IP65

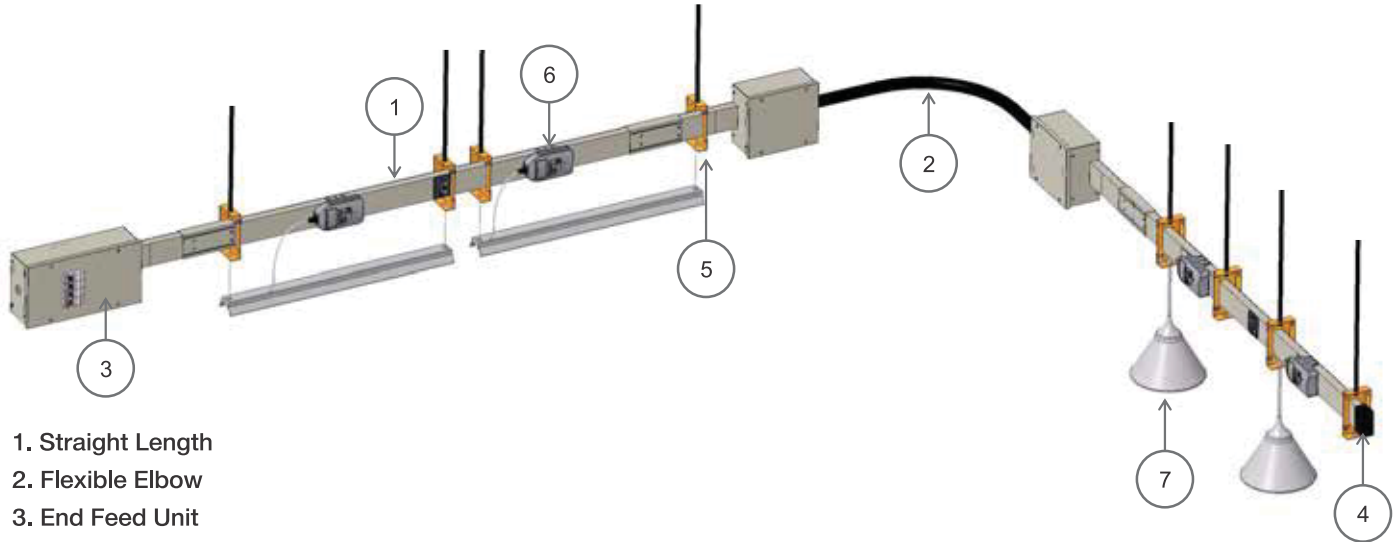


LIGHTING TRUNKING

LB Series



Typical Layout Arrangement



1. Straight Length
2. Flexible Elbow
3. End Feed Unit
4. End Cover
5. Universal Bracket
6. Plug in Box
7. Luminaire

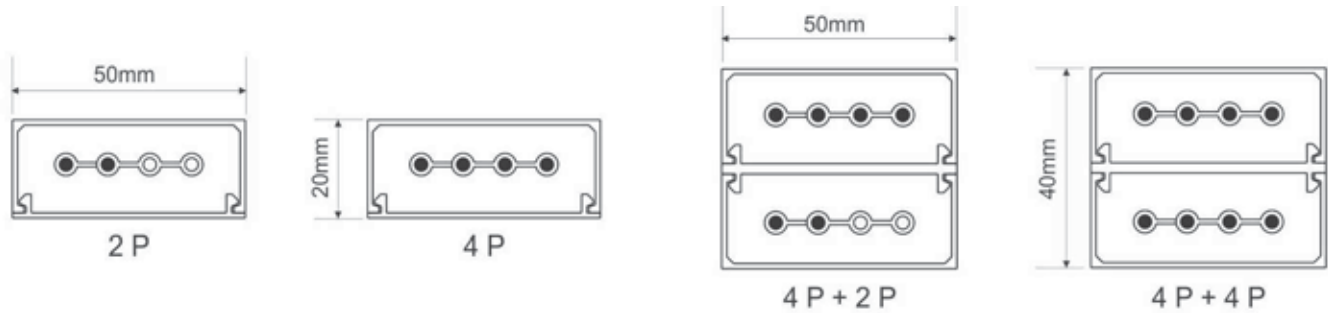
Product Highlights:

- ◆ LB Lighting trunking is used in all kinds of applications:
 - Lighting
 - Sensors
 - Dimmers
 - Emergency signalling / alarms
 - Power socket circuits
- ◆ Low weight & rigid aluminium housing
- ◆ High temperature resistance, flame retardant insulation
- ◆ Standard design of straight length with Plug in Point & accessories make it easy for route design and product selection
- ◆ Common Plug in Box with detachable phase jaws
- ◆ Universal bracket suitability for lighting trunking & luminaire mounting in multiple orientation as per site requirement
- ◆ Quick & easy installation and mounting of luminaires

Technical Specification

Compliance of Standard	IEC 61439 (1&6)
Busbar Ratings	25A ~ 40A
Busbar Configuration	2P→1 Phase + 100% Neutral + Integral Earth
	4P→3 Phase + 100% Neutral + Integral Earth
	4P+2P→(3 Phase + 100% Neutral) + (1 Phase + 100% Neutral) + Integral Earth
	4P+4P→(3 Phase + 100% Neutral) + (3 Phase + 100% Neutral) + Integral Earth
Rated Frequency	50 Hz / 60 Hz
Rated Operational Voltage	500V
Rated Insulation Voltage	690V
Degree of Protection	IP55
Busbar Material (Phase/ Neutral)	Copper, ETP Grade (Tin Plated)
Integral Earth	Aluminium Housing
Enclosure Material	Aluminium (1.0 mm thick)
Enclosure Surface Coating	Powder Coated (RAL - 7032)
Joints	Push Fit Joints
Joint Contacts	Silver Plated Copper Contact with Pressure Clip
Plug in Box Ratings	6 A ~ 16 A (With / Without Fuse)

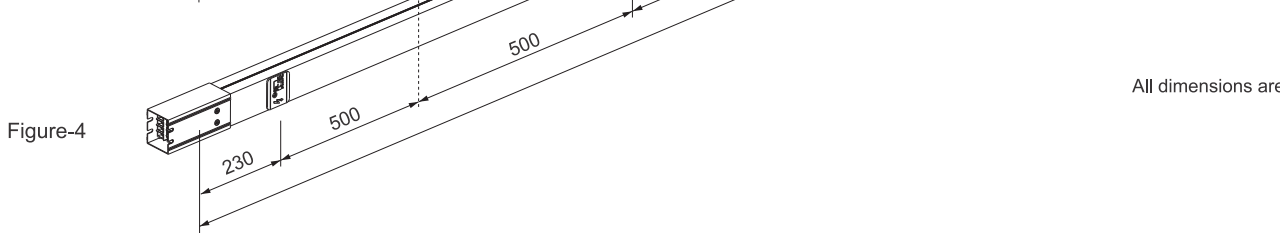
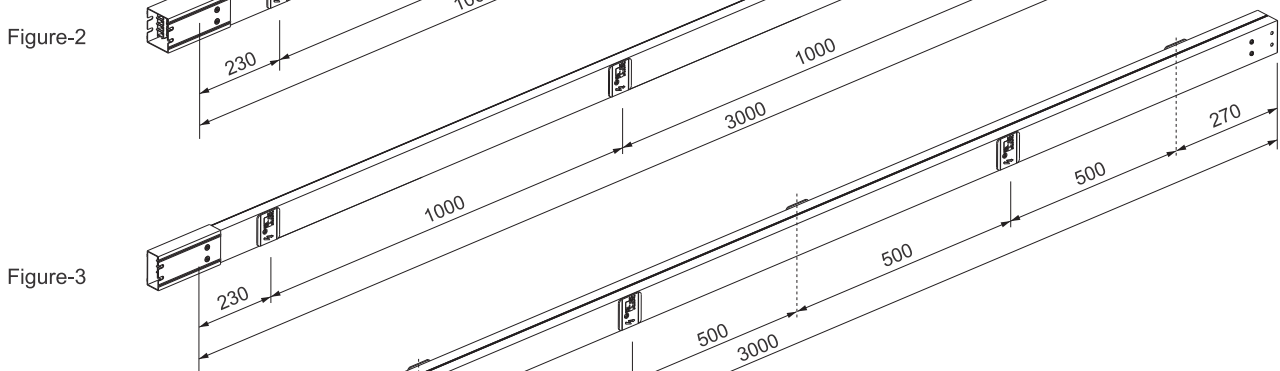
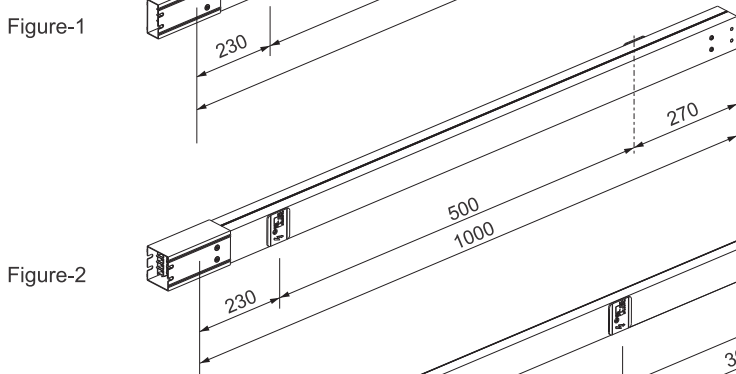
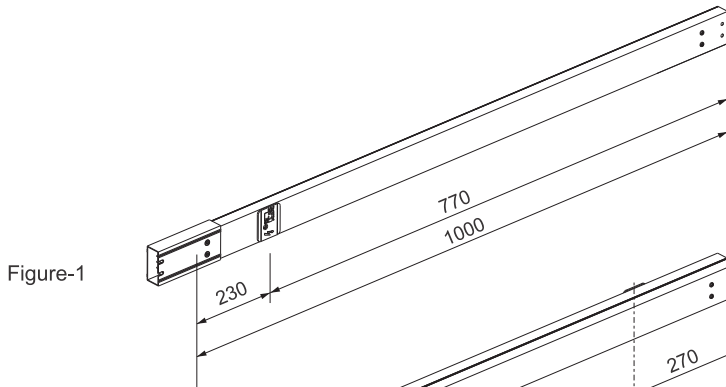
Technical Data



Rated Current	I	A	25	40
Product Code	-	-	LBC25	LBC40
Busbar Cross-Section	-	Sq mm	2.5	6.0
Ambient Temperature	T	°C	-5 to 55	-5 to 55
Approximate Weight of Bustrunking				
2 Pole	-	Kg/mtr.	0.6	0.7
4 Pole	-	Kg/mtr.	0.7	0.8
4 Pole + 2 Pole	-	Kg/mtr.	1.2	1.4
4 Pole + 4 Pole	-	Kg/mtr.	1.4	1.6
Short Circuit Capacity				
Rated 3 Phase RMS Short Time Current	I _{cw} (0.1s)	kA	2.0	3.3
Rated 3 Phase Peak Short Time Current	I _{pk}	kA	3.0	5.0
Rated 1 Phase RMS Short Time Current	I _{cw} (0.1s)	kA	1.2	2.0
Rated 1 Phase Peak Short Time Current	I _{pk}	kA	1.8	3.0
Electrical Characteristics for 50 Hz				
AC Resistance at 20 °C	R ₂₀	mΩ/mtr.	7.11	2.96
Reactance for 50 Hz	X	mΩ/mtr.	1.28	0.67
Impedance for 50 Hz	Z	mΩ/mtr.	7.22	3.04
Voltage Drop with distributed load for 50 Hz	ΔU	mV/mtr./A at 0.7 P.F.	10.17	4.40
	ΔU	mV/mtr./A at 0.8 P.F.	11.18	4.80
	ΔU	mV/mtr./A at 0.9 P.F.	12.06	5.13
	ΔU	mV/mtr./A at 1.0 P.F.	12.31	5.13
Electrical Characteristics for 60 Hz				
AC Resistance at 60 Hz for 20 °C	R ₂₀	mΩ/mtr.	7.11	2.96
Reactance for 60 Hz	X	mΩ/mtr.	1.54	0.80
Impedance for 60 Hz	Z	mΩ/mtr.	7.27	3.07
Voltage Drop with distributed load for 60 Hz	ΔU	mV/mtr./A at 0.7 P.F.	10.48	4.56
	ΔU	mV/mtr./A at 0.8 P.F.	11.45	4.94
	ΔU	mV/mtr./A at 0.9 P.F.	12.25	5.23
	ΔU	mV/mtr./A at 1.0 P.F.	12.31	5.13

Straight Length

- Straight lengths of Lighting trunking are available in standard length of 3 meters (1 meter section are also available to complete the run)
- Plug in points are provided with screwed cover at every 1 meter
- Push fit joints are made through silver plated copper contacts with pressure clip

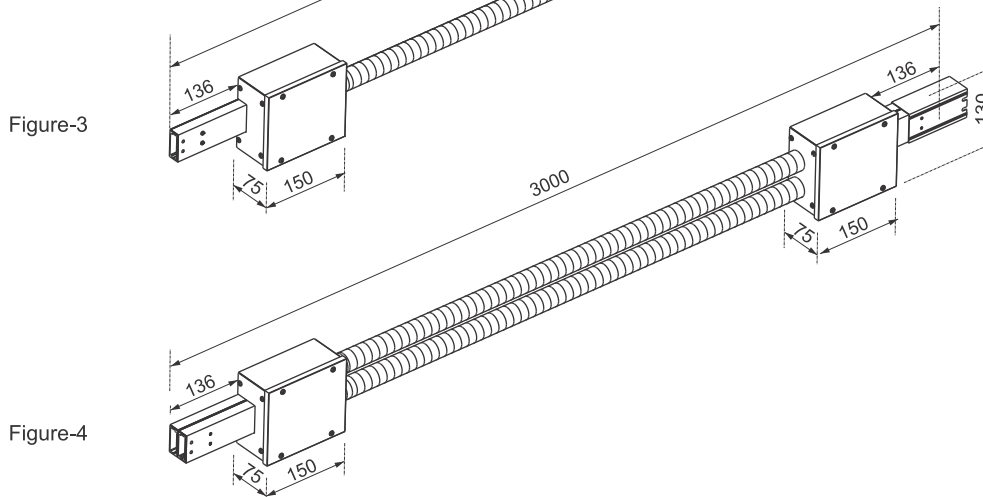
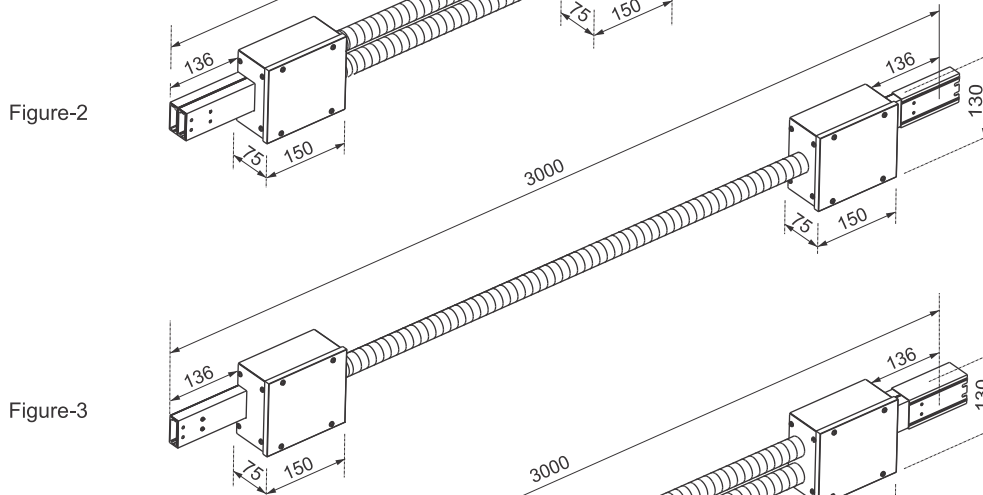
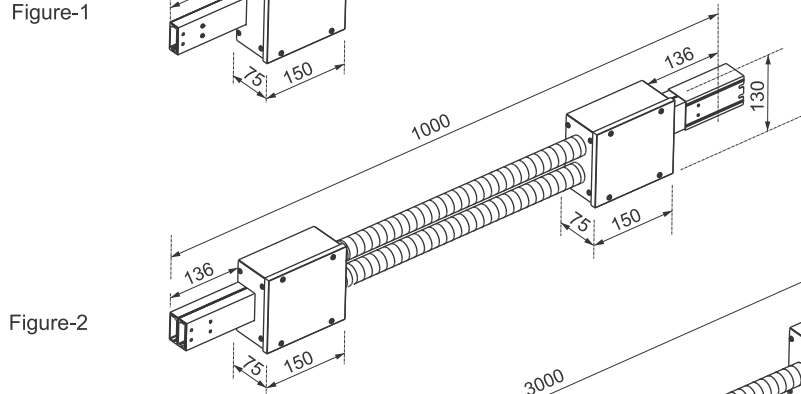
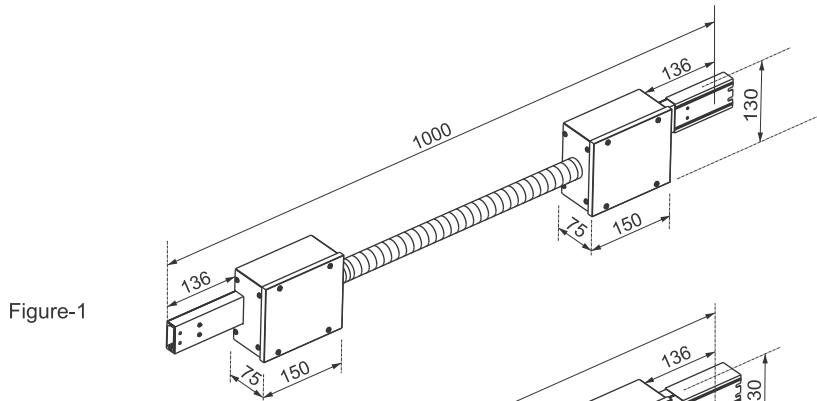


All dimensions are in mm

S. No.	Description	Figure
1	Straight Length 1 meter with 1 PIP, 25/40A, 2/4 Pole	Figure 1
2	Straight Length 1 meter with 1+1 PIP, 25/40A, 4+2/4+4 Pole	Figure 2
3	Straight Length 3 meter with 3 PIP, 25A, 2 Pole	Figure 3
4	Straight Length 3 meter with 3 PIP, 25A, 4 Pole	Figure 3
5	Straight Length 3 meter with 3+3 PIP, 25A, 4+2 Pole	Figure 4
6	Straight Length 3 meter with 3+3 PIP, 25A, 4+4 Pole	Figure 4
7	Straight Length 3 meter with 3 PIP, 40A, 2 Pole	Figure 3
8	Straight Length 3 meter with 3 PIP, 40A, 4 Pole	Figure 3
9	Straight Length 3 meter with 3+3 PIP, 40A, 4+2 Pole	Figure 4
10	Straight Length 3 meter with 3+3 PIP, 40A, 4+4 Pole	Figure 4

Flexible Elbow

- Flexible Elbow is used to change or move the Lighting trunking run in any direction
- Flexible Elbow is available in standard length of 1 meter (for special application flexible elbow is available in 3 meter length also)



All dimensions are in mm

S. No.	Description	Figure
1	Flexible Elbow 1 meter, 25/40A, 2/4 Pole	Figure 1
2	Flexible Elbow 1 meter, 25/40A, 4+2/4+4 Pole	Figure 2
3	Flexible Elbow 3 meter, 25/40A, 2/4 Pole	Figure 3
4	Flexible Elbow 3 meter, 25/40A, 4+2/4+4 Pole	Figure 4

End Feed Unit

- End Feed Unit is used to power the Lighting trunking run from an end
- End Feed Unit is supplied with terminals suitable for connecting up to 16 sqmm copper cable
- End Feed Unit is available in 2 versions: Direct / with MCB provision

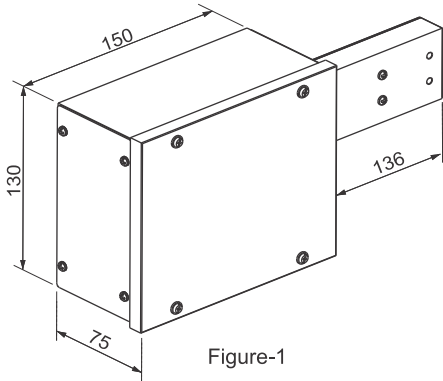


Figure-1

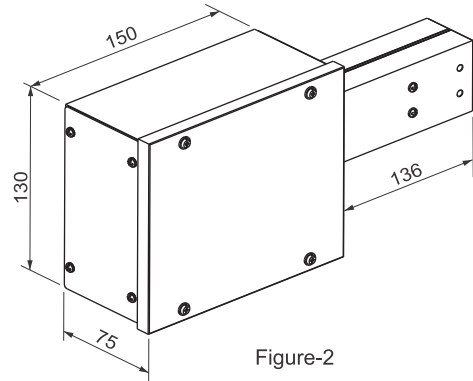


Figure-2

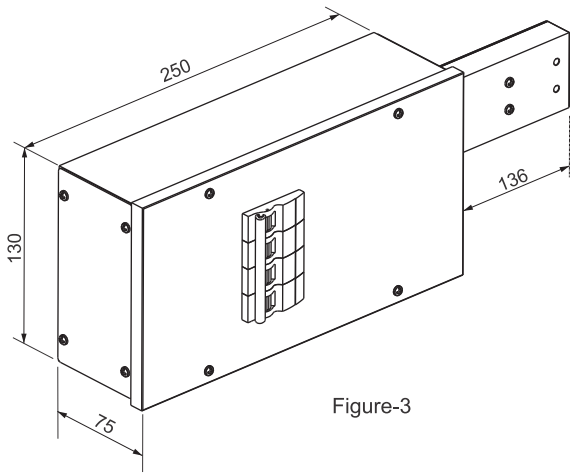


Figure-3

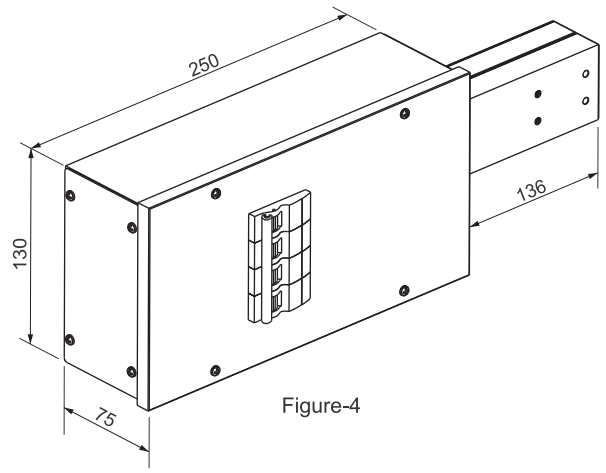


Figure-4

All dimensions are in mm

S. No.	Description	Figure
1	End Feed Unit (Direct), 25/40A, 2/4 Pole	Figure 1
2	End Feed Unit (Direct), 25/40A, 4+2/4+4 Pole	Figure 2
3	End Feed Unit (with MCB Provision), 25/40A, 2/4 Pole	Figure 3
4	End Feed Unit (with MCB Provision), 25/40A, 4+2/4+4 Pole	Figure 4

Center Feed Unit

- Center Feed Unit is used to power the Lighting trunking run from an intermediate point
- Center Feed Unit reduces the voltage drop of the run
- Center Feed Unit is available in 2 versions: Direct / with MCB provision

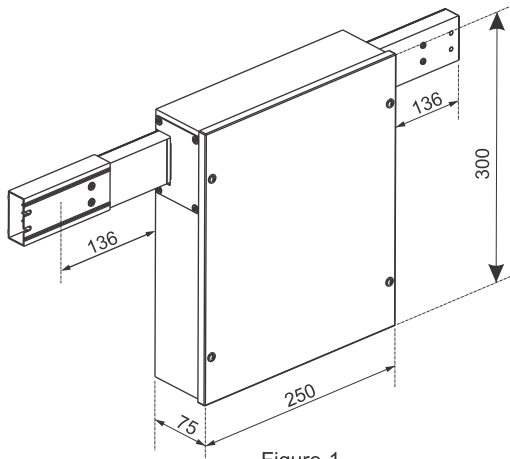


Figure-1

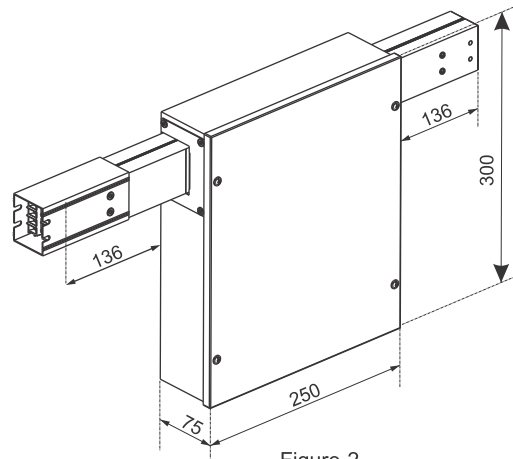


Figure-2

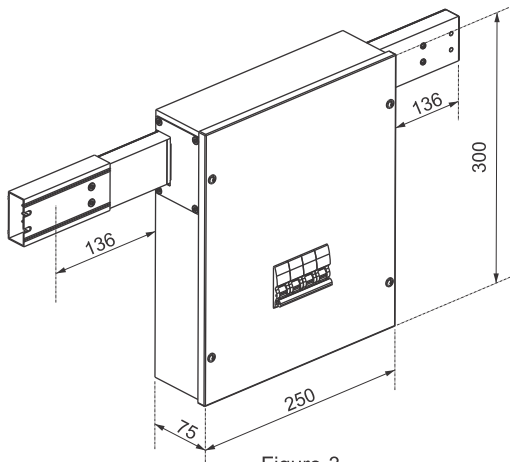


Figure-3

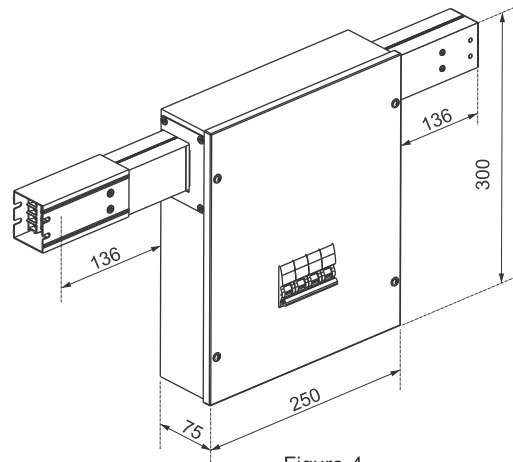


Figure-4

All dimensions are in mm

S. No.	Description	Figure
1	Center Feed Unit (Direct), 25/40A, 2/4 Pole	Figure 1
2	Center Feed Unit (Direct), 25/40A, 4+2/4+4 Pole	Figure 2
3	Center Feed Unit (with MCB Provision), 25/40A, 2/4 Pole	Figure 3
4	Center Feed Unit (with MCB Provision), 25/40A, 4+2/4+4 Pole	Figure 4

End Cover

- End Cover is used to close and protect the open end of Lighting trunking run.
- End Cover type 1R/2R is used for run powered by End Feed Unit
- End Cover type 1R/2R and 1L/2L, both are used together for runs powered by Center Feed Unit

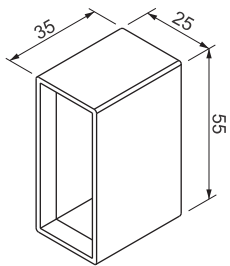


Figure-1

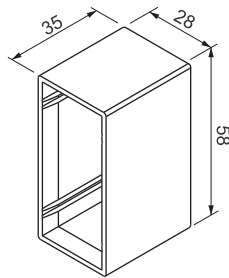


Figure-2

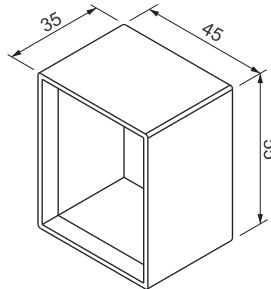


Figure-3

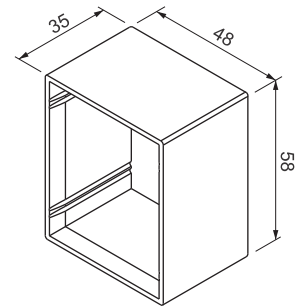


Figure-4

All dimensions are in mm

S. No.	Description	Figure
1	End Cover (1R) 25A/40A, 2/4 Pole	Figure1
2	End Cover (2R) 25A/40A, 4+2/4+4 Pole	Figure3
3	End Cover (1L) 25A/40A, 2/4 Pole	Figure2
4	End Cover (2L) 25A/40A, 4+2/4+4 Pole	Figure4

Universal Bracket

- Universal Bracket is made out of powder coated G.I. sheet
- Lighting trunking system need to be supported through universal bracket at every 1.5/2 meter
- Luminaries can also be installed on universal bracket along with Lighting trunking
- Universal Bracket can be used for hanging Lighting trunking from wall or ceiling directly or through threaded rod

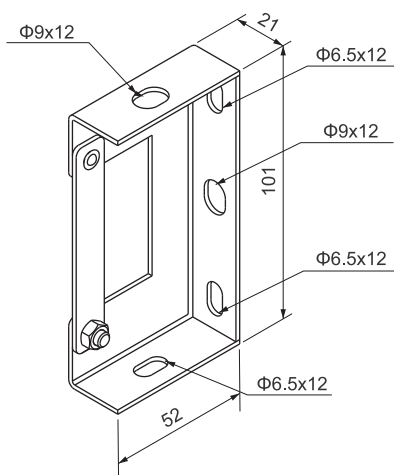


Figure-1

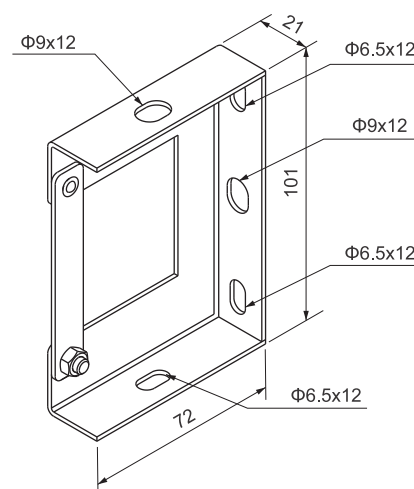


Figure-2

All dimensions are in mm

S. No.	Description	Figure
1	Universal Bracket 25A/40A, 2/4 Pole	Figure1
2	Universal Bracket 25A/40A, 4+2/4+4 Pole	Figure2

Plug in Box

- Plug in Box allows to tap power through the plug in points provided on Lighting trunking
- Plug in Box is available with fuse and without fuse up to 16A
- Plug in Box automatically ensures matching of polarity with Lighting trunking
- Plug in Box earth contact makes first and breaks last during plug-in and plug-out
- Plug in contacts are made through spring loaded dual copper clips
- 2P Plug in Box with detachable phase contacts, facilitates change/ selection of phases for load balancing

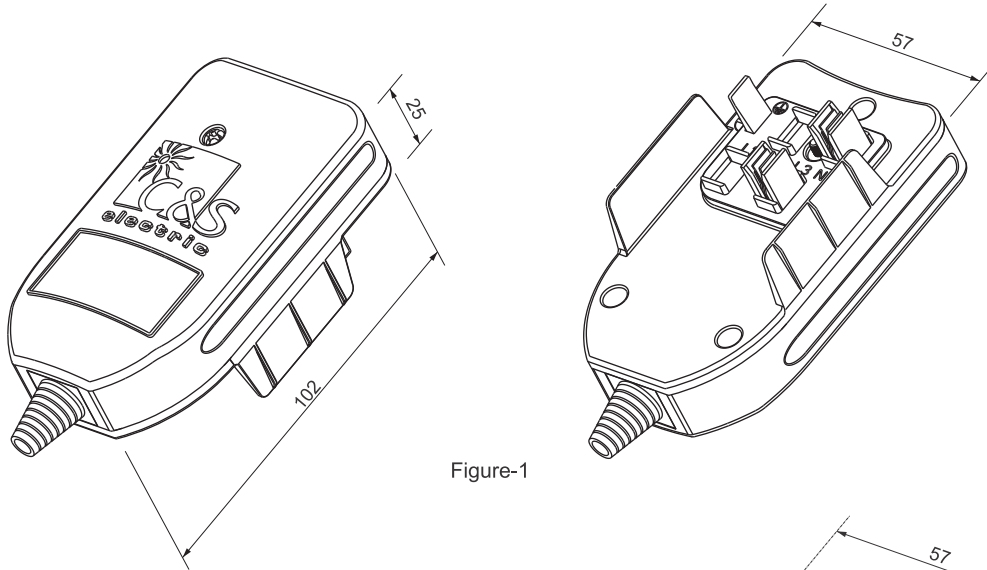


Figure-1

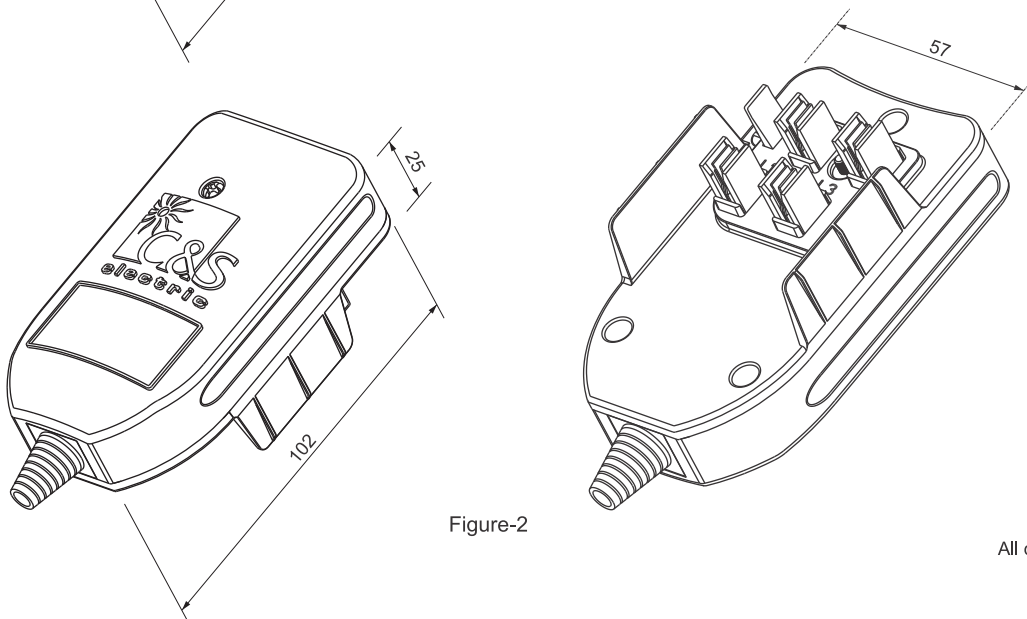


Figure-2

All dimensions are in mm

S. No.	Description	Figure
1	Plug in Box (Direct), 16A, 2 Pole	Figure1
2	Plug in Box (Direct), 16A, 4 Pole	Figure2
3	Plug in Box (with fuse), 6A, 2 Pole	Figure1
4	Plug in Box (with fuse), 6A, 4 Pole	Figure2
5	Plug in Box (with fuse), 16A, 2 Pole	Figure1
6	Plug in Box (with fuse), 16A, 4 Pole	Figure2

C&S Power Busbars

One stop solution for all your Power Busbar needs



C&S Power busbar division offers wide range of Power Busbars under one roof. Our skilled team help users to select, specify, design, order, Install and commission the products.

We are committed to provide you reliable and cost efficient Power Busbar solutions globally and partner you throughout the project cycle with our in-house services.

Pre-Sales:

- Product selection
- Technical compliances
- Bill of Quantity generation
- Offer Management

Post Order:

- Site Measurement
- Routing drawing preparation
- Bill of Quantity generation as per approved Drawings

After Sales (On-site service on request):

- Installation
- Commissioning
- Supervision
- Pre-commissioning audits
- Annual Maintenance



● C&S Etacom Installations

This map is only for pictorial representation and is not to be scaled



GLOBAL SPECIALIST FOR POWER BUSBARS



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Fax: +91 11 2684 7342

Domestic

Regional Office:

Northern Region / Export

222, Okhla Industrial Estate, Phase-III
New Delhi-110 020, India
Tel.: +91 11 3384 9000-09
Fax: +91 11 2684 7342
email : powerbusbars@cselectric.co.in

Southern Region

#N607, North Block, Rear Wing,
Manipal Center, 47, Dickenson Road,
Bengaluru -560 042, Karnataka, India
Tel.: +91-80-30570359, 340
Fax: +91-80- 25584839
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Eastern Region

#24, Park Street, Development House,
4th Floor, Kolkata -700016
West Bengal, India
Tel.: +91-033-40011417
Fax: +91-033-22275849/40011417
email: powerbusbars@cselectric.co.in

Western Region

A-301/302, 3rd Floor, Nav Bharat Estate
Zakaria Bunder Rd., Sewri (W)
Mumbai - 400015, Maharashtra, India
Tel: +91-22-24114727 - 28
Fax: +91-22-241137858, 24114704
email: powerbusbars@cselectric.co.in

Works:

Plant -I

Plot No. 1A, Sector 8C,
Integrated Industrial Estate
(SIDCUL), Ranipur, Haridwar
Uttarakhand - 249403, India

Plant -II

Plot No. 1C, Sector 8C,
Integrated Industrial Estate
(SIDCUL), Ranipur, Haridwar
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Overseas

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