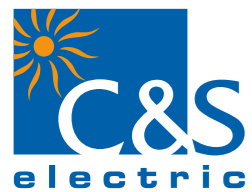


GLOBAL SPECIALIST FOR POWER BUSBARS



● C&S Installations



GLOBAL SPECIALIST
FOR POWER BUSBARS

Registered Office:

C&S Electric Limited

210, 211 & 212, Second Floor, 'Salcon Aurum' Building,
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Email: info@cselectric.co.in
Tel.: +91 11 6922 5600

Works:

Plant -I

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Integrated Industrial Estate
(SIDCUL), Ranipur, Haridwar
Uttarakhand - 249403, India

Plant -II

Plot No. 1C, Sector 8C,
Integrated Industrial Estate
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Uttarakhand - 249403, India

Regional Office:

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24, Park Street, 2nd Floor,
Park Center, Kolkata -700 016,
West Bengal, India
Tel.: +91-33-3921210
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Western Region

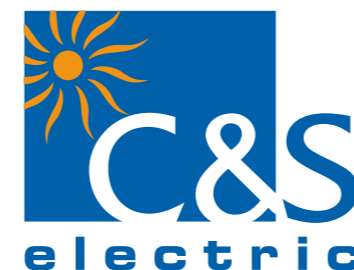
A-301/302, 3rd Floor, Nav Bharat Estate
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TB-B/SEP/2023



(SERIES-B)

TRACK BUSWAY
MODULAR TAP-OFF UNITS WITH
PLUG & PLAY TECHNOLOGY



metabar

www.cselectric.co.in



We touch your electricity everyday!

Introduction

Power Busbar division of C&S Electric Ltd. has evolved by continuously addressing the market needs over past 40 year. With its Low Voltage & Medium Voltage solutions ranging from 25A to 30,000A and its market reach resulting 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.



Metabar - Bus Trunking Mfg. Unit at Haridwar - India



Isobar - Bus Dust Mfg. Unit at Haridwar - India



C&S Manufacturing Campus at Haridwar, India

Quality Assurance



metabar Range offers Low Voltage Power busbar solutions from 25A to 7000A covering Sandwich Bustrunking, Air Insulated Bustrunking Lighting Trunking & Track Busway.

Salient Features:

- Low impedance and compact size.
- Safety features in terms of compliance resistance to fire propagation and fire penetration, seismic integrity, Interlocks in Plug in boxes.
- Flexibility in distribution, ease of Installation, upgradeability, reusability & aesthetics which makes it easy for users while making a choice.

Sandwich Bustrunking (SB)

Compliance of standard	IEC61439 (1&6)
Conductor Material & Ratings	Copper 630A-7000A, Aluminium 400A-5000A
Rated Operational Voltage (Ue)	1000V
Rated Impulse Withstand Voltage (Uimp)	12kV (1.2/50 μSec)
Enclosure Material	G.I.
Degree of Protection	IP54/ IP55*
Plug In Box	32A-630A

*IP:66 available on request



Compact Air Bustrunking (CB)

Compliance of standard	IEC61439 (1&6)
Conductor Material & Ratings	Copper 125A-1250A, Aluminium 200A-800A
Rated Operational Voltage (Ue)	1000V
Rated Impulse Withstand Voltage (Uimp)	12kV (1.2/50 μSec)
Enclosure Material	G.I.
Degree of Protection	IP54
Plug In Box	32A-400A



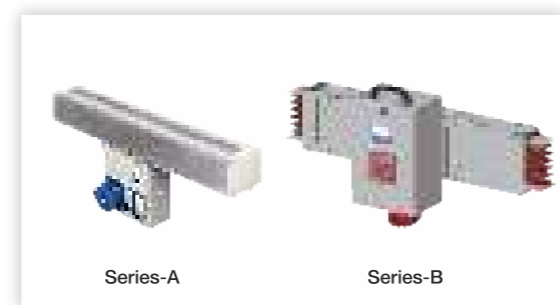
Lighting Trunking (LB)

Compliance of standard	IEC61439 (1&6)
Conductor Material & Ratings	Copper 25A, 40A
Rated Operational Voltage (Ue)	500V
Enclosure Material	G.I.
Degree of Protection	IP54/ Ip55
Plug In Box	Upto 16A



Track Busway (MBC)- Series A & B

	Series-A	Series-B
Compliance of standard	IEC61439 (1&6)	IEC61439 (1&6)
Conductor Material & Ratings	Copper 250A-400A	250A, 400A, 630A, 800A & 1000A
Rated Operational Voltage (Ue)	1000V	1000V
Enclosure Material	Aluminium	Aluminium
Degree of Protection	IP:4X	IP54
Plug In Box	Upto 63A	Upto 125A



isobar Range offers Medium Voltage and Low Voltage duct solutions with Isolated Phase duct (IPB), Segregated phase duct (SPB) and Non Segregated phase duct (NSPB) ranging from 415V, 630A to 38KV, 30000 A .

C&S is a leading supplier for isolated phase ducts designing, manufacturing, erecting & commissioning upto 1000MW power generating stations worldwide.

Salient Features:

- Excellent shielding under short circuit conditions by virtue of non-magnetic metal barriers between phases.
- Minimizes phase to phase faults.
- IPB Conductor & Insulator design eliminates Corona discharge, minimizes skin effects factor& eliminates the effect of cantilever forces, uniform heat dissipation respectively.
- Conformity to International standards

Isolated Phase Busduct (IPB) – MV

Compliance of standard	IEC62271 (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 (1.2/50 μSec)
Degree of Protection	IP 55 / IP 65

*Copper Conductor available on request



Segregated Phase Busduct (SPB)** –MV

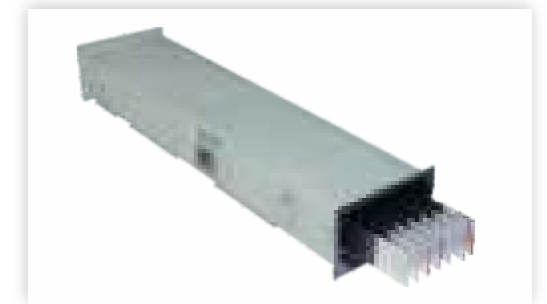
Compliance of standard	IEC62271 (1 & 200) / IS 8084 / IEEE C37.23
Rated Continuous Current	630A-5000A
Conductor	Aluminium / Copper
Rated Operational Voltage (Ue)	3.3kV - 33kV
Enclosure Material	Aluminum Alloy
Rated Impulse Withstand Voltage (Uimp)	40kV - 170kV (1.2/50 μSec)
Degree of Protection	IP 55 / IP 65

**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 (1.2/50 μSec)
Degree of Protection	IP 55 / IP 65



R&D and Testing Facilities



State-of-the-art modeling tools & equipment



Research Center



Impulse Test Facility up to 200KV



Dedicated team of engineers for development & value engineering

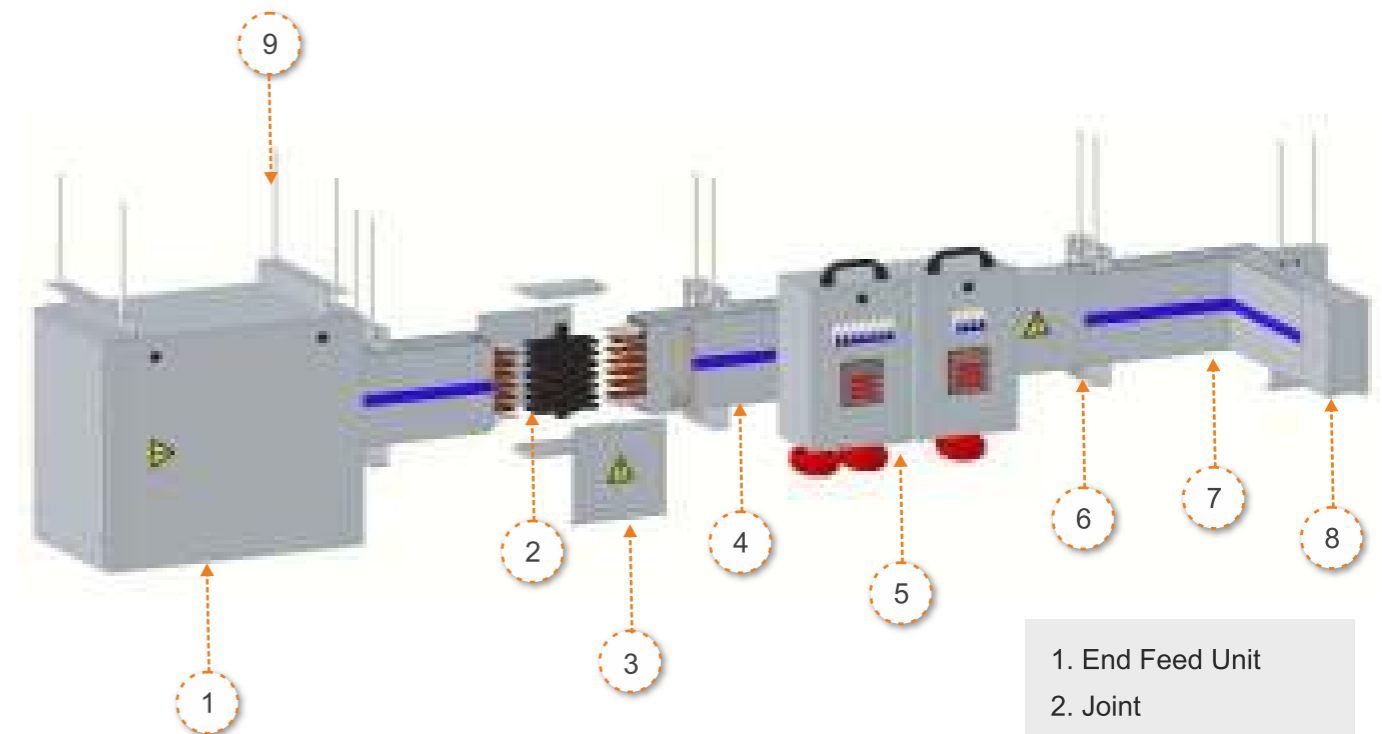


Temperature test facility up to 30000A

Product Highlights

- C&S Track Busway is designed primarily for overhead distribution of electrical power to designated work areas & equipments in all kind of critical applications:
 - Data Centers
 - Laboratories
 - Institutions
- Track Busway has unique feature to facilitate power tapping at every 250 mm interval.
- Track Busway is versatile, low weight & rigid product.
- Fast and economical solution for feeding power to electrical loads.
- Track Busway has variety of plug-in-box.

Product Layout



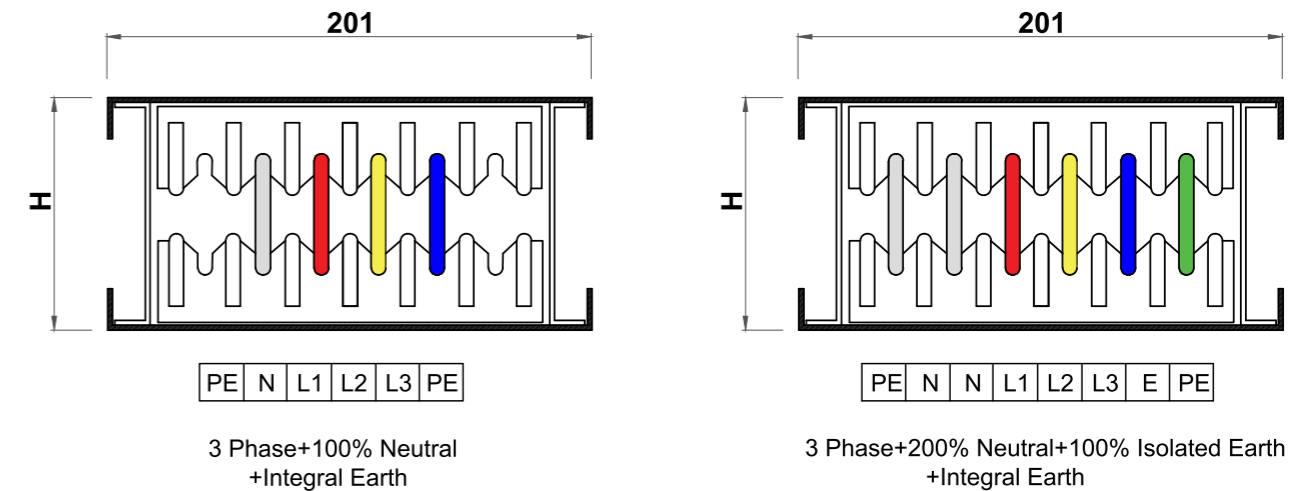
1. End Feed Unit
2. Joint
3. Joint Cover
4. Straight Length
5. Plug in Box
6. Mounting Bracket
7. Elbow
8. End Cover
9. Tie Rod

Note:- Tie rods are not in C&S scope of supply

Technical Specification

1	Compliance of Standard	IEC 61439 (1&6)
2	Busbar Ratings	250A, 400A, 630A, 800A & 1000A
3	Busbar Configuration	4B-3 Phase+100% Neutral+Integral Earth
		6B- 3 Phase+200% Neutral+100% Isolated Earth +Integral Earth
4	Busbar Material (Phase/Neutral)	Copper tin plated (ETP Grade), 99.9% Pure
5	Busbar Material (Internal Earth)	Copper tin plated (ETP Grade), 99.9% Pure
6	Housing Integral Earth	Aluminium
7	Busbar Insulation	Glass Filled Polyester (Class-F)
8	Rated Frequency	50 Hz / 60 Hz
9	Rated Operational Voltage	1000 Volt, AC
10	Rated Insulation Voltage	1000 Volt, AC
11	Rated Impulse Withstand Voltage	12 KV (1.2/50 uSec)
12	Joint	Uniblock Joint
13	Enclosure Material	Aluminium (2.0 mm)
14	Enclosure Surface Coating	Powder Coated (RAL- 7032)
15	Plug in Box Ratings	16 A ~ 125 A (With MCB Switchgear)
16	Seismic Compliance	-
17	Degree of Protection	IP 54
18	External Mechanical Impacts	IK10

Technical Parameters of Copper Track Busway (MBC)

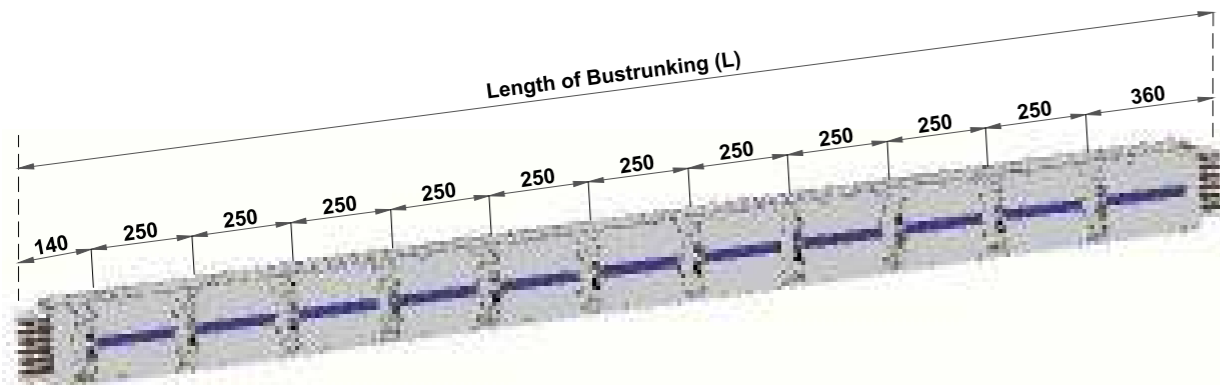


Rated Current (In)	Ampere	250	400	630	800	1000
Product Code	--	MBC015N1	MBC030N1	MBC050N1	MBC070N1	MBC090N1
Busbar size per phase (No. of busbars)	mm	6x15(1)	6x30(1)	6x50(1)	6x70(1)	6x90(1)
Overall Height (H)	mm	75	75	95	115	135
Rated Three Phase RMS Short Time Current for 1 Sec (Icw)	KA	15	25	45	50	50
Rated Three Phase Peak Short Time Current (Ipk)	KA	30	52.5	94.5	105	105
Rated Single Phase RMS Short Time Current for 1 Sec (Icw)	KA	9	15	27	30	30
Rated Three Phase Peak Short Time Current (Ipk)	KA	15.3	30	56.7	63	63
Approximate Weight of Bustrunking						
3 Phase + 100% Neutral + Integral Earth	Kg/m	-	-	16.9	23.6	30.4
3 Phase + 200% Neutral + 100% Isolated Earth + Integral Earth	Kg/m	-	-	22.2	31.1	40.0
Electrical Characteristics for 50 HZ						
Resistance at a conductor temperature of 20°C	milliohm/mtr	After Test	0.0987	0.0592	0.0429	0.0339
Average resistance at In, thermal balance Rt	milliohm/mtr	After Test	0.1259	0.0755	0.0548	0.0432
Reactance (X)	milliohm/mtr	After Test	0.1056	0.0667	0.0524	0.0444
Impedances at thermal condition (Z)	milliohm/mtr	After Test	0.1643	0.1007	0.0758	0.0620
3 Phase Rated Power Loss	W/m	After Test	60.41	89.90	105.03	129.68
1 Phase Rated Power Loss	W/m	After Test	20.14	29.96	35.01	43.23
Voltage drop at 0.7 pf	mV/mtr/A	After Test	0.2832	0.1740	0.1312	0.1074
Voltage drop at 0.8 pf	mV/mtr/A	After Test	0.2841	0.1739	0.1303	0.1061
Voltage drop at 0.9 pf	mV/mtr/A	After Test	0.2759	0.1681	0.1249	0.1009
Voltage drop at 1.0 pf	mV/mtr/A	After Test	0.2180	0.1308	0.0948	0.0749

Straight Length

- Straight length constitutes the major element portion for a bustrunking route.
- Track Busway straight length consist of Tin plated Copper Busbars fitted inside Aluminium housing with proper insulation.
- Joint kit is used to join two section of Track Busway for perfect mechanical & electrical connection.
- Straight length of Track Busway are available in standard length (L) of 3 meters. (1 meter length is also available to complete the run).

Rating: 250A, 400A, 630A, 800A & 1000A

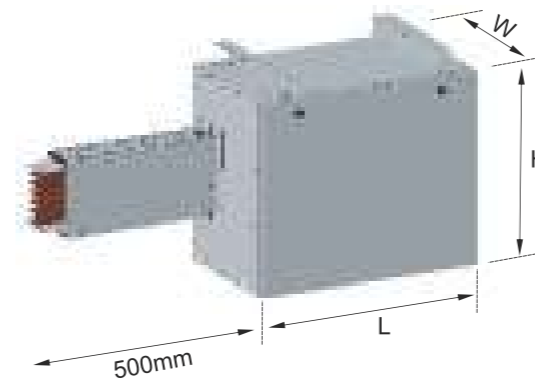


Element	Minimum (mm)	Standard (mm)	Maximum (mm)
Straight Length	1000	3000	3000

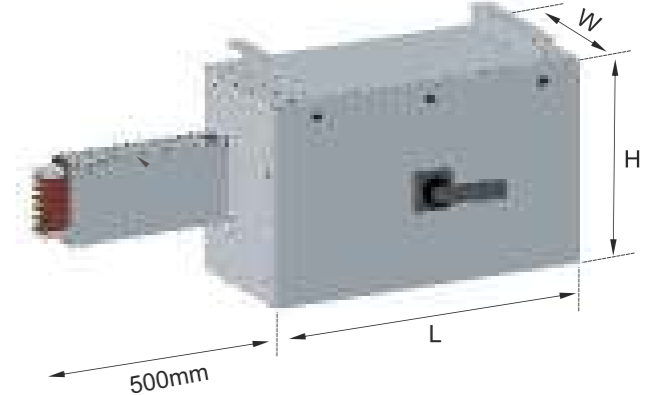
End Feed Box

- Facilitates feeding the Bustrunking through cables from one end of the run.
- End feed unit is available with sufficient space for direct connection and with MCCB as per the requirement of the customer.
- Flange with height of 500 mm is supplied as an integral part of the end feed unit.
- Undrilled cable gland plate is provided at bottom for cable entry.
- Aluminium gland plate for single core cables.

End Feed Unit (Direct)



End Feed Unit (Switchgear)

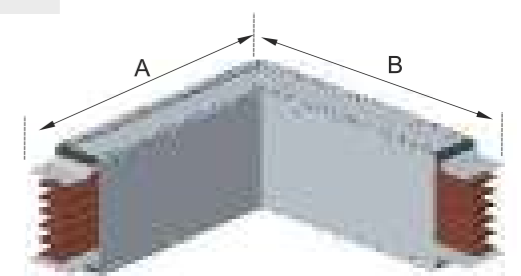


Element Name	Length (mm)	Width (mm)	Height (mm)
End Feed Unit (Direct)	600	500	370
End Feed Unit (Switchgear)	800	500	370

Elbow

- Facilitates an edge wise orientation change of the Bustrunking run.

Current Rating	Minimum AxB (mm)	Standard AxB (mm)	Maximum AxB (mm)
Copper 630-1000A	500x500	500x500	500x500



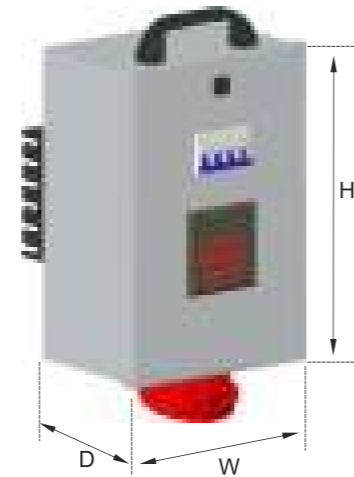
Plug In Box

- Plug in box enclosure is made from G.I.
- Plug in box are designed to tap power at every 250 mm interval.
- As standard practice, plugin boxes are supplied with MCB & Industrial socket (Energy meter/MFM meter can be provided on request).
- Earth contact makes first & breaks last during plugin & plug out operation.
- Plugin box automatically ensures matching of polarity with Track Busway.
- Plugin contacts are made out of Silver plated copper with spring steel backup pressure clips for ensuring uniform pressure and low contact resistance.
- Facilitates to draw power through PIPs of Bustrunking system.

Option-1

Plugin box with 1 Nos. Single/Three phase MCB, Industrial socket and 1 Multi function meter with built-in CT'S

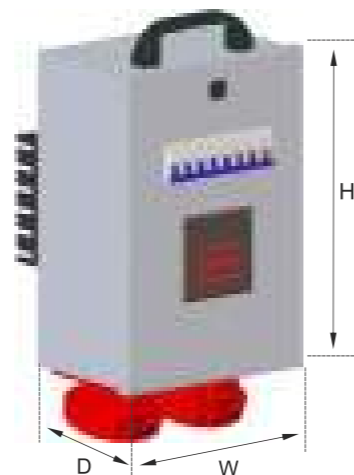
Element Name	W (mm)	D (mm)	H (mm)
Plugin Box 16A to 125A	230	160	350



Option-2

Plugin box with 2 Nos. Single phase or 1 No. Three Phase & 1 No. Single Phase Industrial socket, 1 Multi function meter with built-in CT'S & MCB

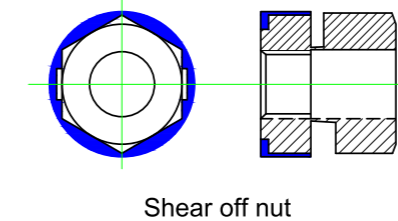
Element Name	W (mm)	D (mm)	H (mm)
Plugin Box 16A to 125A	230	160	350



Accessories

Uniblock Joint

- Facilitates joining of two elements of bustrunking route.
- Heavy duty disc spring used on both sides for uniform distribution of pressure.
- Joint can be tightened easily with help of spanner on nut side only. (Spanner not required on both head side)
- Shear off nut ensure tightness of joint at desired torque and eliminated the need of torque wrench during installation.
- Tamper proof cap over shear off nut prevents opening of nut after achieving desired torque. Nut can only be opened after breaking the cap.
- Uniblock joint can be inserted and removed in installed condition without removing any element of the Bustrunking run.



End Cover

- It is used to closed the end of bustrunking run.
- It can be removed easily for extension of bustrunking.



Mounting Bracket

- Mounting Bracket are used at approximate interval of 1.5 mtr. to suspend the Track Busway firmly from ceiling through the tie rods (2 Nos.).



Applications



Data Centers



Institutions



Laboratories

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