GLOBAL SPECIALIST
FOR POWER BUSBARS

Registered Office:

C&S Electric Limited
210, 211 & 212, Second Floor, 'Salcon Aurum' Building,
Plot No. 4, Jasola District Centre, New Delhi- 110025
Email: info@cselectric.co.in
Tel.: +91 11 6922 5600

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
Uttarakhand - 249403, India

Regional Office:

Northern Region / Export
210, 211 & 212, Second Floor,
'Salcon Aurum' Building, Plot No. 4,
Jasola District Centre,
New Delhi- 110025
Email: info@cselectric.co.in
Tel.: +91 11 6922 5600
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
email: powerbusbars@cselectric.co.in

Eastern Region
24,Park Street,2nd Floor,
Park Center, Kolkata -700 016,
West Bengal, India
Tel: +91-33-3921210
email: powerbusbars@cselectric.co.in

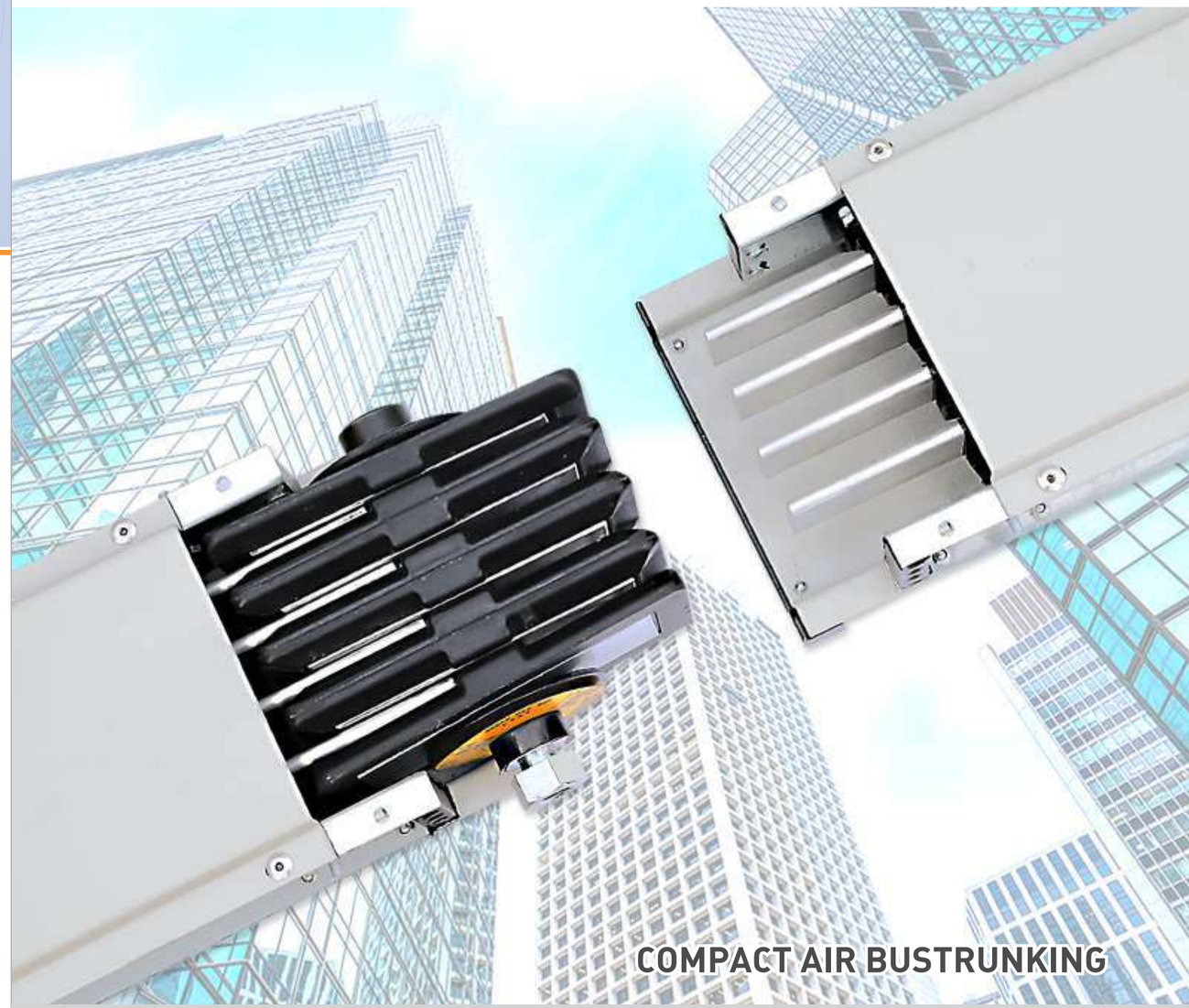
Western Region
A-301/302, 3rd Floor, Nav Bharat Estate
Zakaria Bunder Rd., Sewri (W)
Mumbai - 400015, Maharashtra, India
Tel: +91-22-24114727 - 28
email: powerbusbars@cselectric.co.in

CA/JUL/2023

www.cselectric.co.in

We touch your electricity everyday!

GLOBAL SPECIALIST FOR POWER BUSBARS



metabar

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

Certificate of Registration

This is to certify that The Quality Management Systems of

C&S ELECTRIC LIMITED

at

PLOT NO. 1C, SECTOR 8C, INTEGRATED INDUSTRIAL ESTATE (IIE), RANIPUR, HARIDWAR - 249 403 (UTTARAKHAND) (INDIA)

Has been found to conform to the Quality Management System Standard

ISO 9001:2015

This certificate is valid for the following Product or Service ranges:

DESIGN AND MANUFACTURING OF BUSDUCTS, BUSTRUNKING, GENERATOR AUXILIARY COMPARTMENT / CONTAINERS, PTSP CUBICLES, MV FRAME EQUIPMENT, NEUTRAL GROUNDING CUBICLES, NEUTRAL POINT / GENERATOR OUTPUT CUBICLES & PACKAGE SUBSTATION

Certificate of Registration

This is to certify that The Management Systems of

C&S ELECTRIC LIMITED

at

ILO & SITE - 1: B-1, SITE - IV, SURAJPUR INDUSTRIAL AREA, KASNA ROAD, GREATER NOIDA, GAUTHAM BUDHA NAGAR – 201 306 (U.P.) (INDIA)

&

SITE - 2: PLOT NO.1A &1C, SECTOR - 8C, INTEGRATED INDUSTRIAL ESTATE (SIDCUL), RANIPUR, HARIDWAR – 249 403 (UTTARAKHAND) (INDIA)

Has been found to conform to the Environmental Management System Standard

ISO 14001:2015

This certificate is valid for the following Product or Service ranges:

DESIGN, MANUFACTURING, TESTING, ERECTION & COMMISSIONING OF BUS DUCT AND BUS TRUNKING SYSTEMS WITH ACCESSORIES & PACKAGE SUB-STATIONS

9001 : 2015

Registered

CCPL

Registration Certificate

This is to certify that The Quality Management Systems of

C&S ELECTRIC LTD.

Carried out at following site:

SITE - 1: PLOT 1A, SECTOR 8C, INTEGRATED INDUSTRIAL ESTATE, RANIPUR, HARIDWAR- 249 403 (UTTARAKHAND) (INDIA)

&

SITE - 2: # B1, SITE IV, SURAJPUR INDUSTRIAL AREA, KASNA ROAD, GREATER NOIDA, UTTAR PRADESH - 201 310 (INDIA)

for their

QUALITY MANAGEMENT SYSTEM

ISO 9001:2015

Scope of Activities covered by this Certificate:

DESIGN, MANUFACTURING, TESTING, ERECTION & COMMISSIONING OF BUS TRUNKING AND BUS DUCT SYSTEMS WITH ACCESSORIES

CERTIFICATE

This is to Certify that the Occupational Health & Safety Management System of

C&S ELECTRIC. LTD.

PLOT NO.1A &1C, SECTOR - 8C, INTEGRATED INDUSTRIAL ESTATE (SIDCUL), RANIPUR, HARIDWAR-249403 (UTTARAKHAND) (INDIA)

has been independently assessed and is compliant with the requirements of

ISO 45001:2018

This Certificate is applicable to the following product or service ranges:

DESIGN, MANUFACTURING, TESTING, ERECTION & COMMISSIONING OF BUS DUCT AND BUS TRUNKING SYSTEMS WITH ACCESSORIES

Certificate No.: IN905482C-1

Date of initial registration 10 November 2020

14001:2015 9001:2015 45001:2018

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	Copper 630A-1000A
Rated Operational Voltage (Ue)	1000V	1000V
Enclosure Material	Aluminium	Aluminium
Degree of Protection	IP:4X	IP54
Plug In Box	Upto 63A	Upto 125A

Series-A Series-B

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 cantiliver 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 Testing Facilities at BD Plant


Dedicated team of engineers for development & value engineering


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

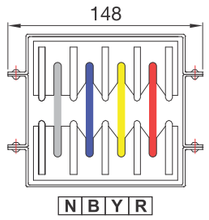
Compact Air Insulated

Applications

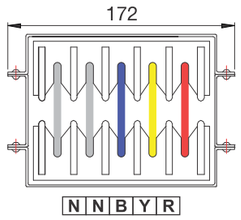
Technical Specification of Compact Air Bus Trunking

Compliance of Standard	IEC: 61439-1 & 6
Busbar Arrangement	Compact Air Bus Trunking
Busbar Ratings	Copper 125 ~ 1250A Aluminium 200 ~ 800A
	3 Phase+100% Neutral+Integral Earth 3 Phase+200% Neutral+Integral Earth 3 Phase+100%Neutral+Isolated Earth+Integral Earth
Rated Operational Voltage (Ue)	1000 Volt, AC
Rated Insulation Voltage (Ui)	1000 Volt, AC
Rated Dielectric Voltage	2.5 KV r.m.s
Rated Impulse Withstand Voltage (Uimp)	12 kV (1.2/50 s)
Rated Frequency	50 Hz / 60 Hz$_{\mu}$
Enclosure Material	1.6 mm G.I
Surface Coating on Enclosure	Powder coated (RAL-7032)
Busbar Material (Phase/Neutral)	Copper (full round edge), 99.9% pure ETP grade Aluminium (full round edge), High strength & High conductivity
Busbar Material (Integral Earth)	1.5mm G.I
Busbar Material (External Earth)	Copper / Aluminium (optional)
Busbar Insulator	Glass Filled Polyester (Class -F)
Degree of Protection	IP 54
Fire Rating	120 Min.
Seismic compliance (IS:1893/IEEE693)	Zone-5
Plug -in-Box	32~400A

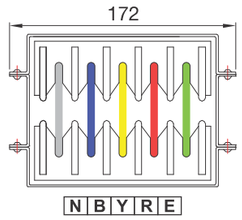
Technical parameters of Compact Air Bustrunking-CBC



3 Phase+100% Neutral
+Integral Earth



3 Phase+200% Neutral
+Integral Earth



3 Phase+100% Neutral
+100% Isolated Earth+Integral Earth

Voltage Drop Calculation Formulae

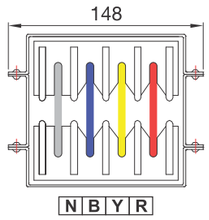
$\Delta V = k \times \sqrt{3} \times (R_t \cos \Phi + X \sin \Phi) \times I_B \times L$

Where

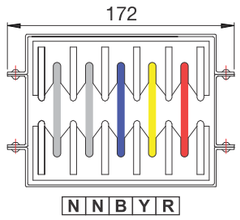
- ΔV is the composite voltage drop of the system (V);
- R_t & X are the mean resistance and reactance value of the system (mΩ/mtr)
- I_B is the actual load current of the circuit being considered (A);
- L is the length of the system being considered (M);
- Cos Ø is the load power factor being considered;
- k is the load distribution factor:
  k=1, if full load is concentrated at the end of the busbar trunking run;
  k=(n+1)/2n, if the load is uniformly spread between n branches.

Rated Current (In)	Amps	125	315	400		500	630	800	1000	1250
Product Code		**CBC 125**	**CBC 315**	**CBC 400**		**CBC 500**	**CBC 630**	**CBC 800**	**CBC 1000**	**CBC 1250**
Busbar size per phase (No. of busbars)	mm	Dia 6.0	6x20(1)	6x30(1)		6x40(1)	6x50(1)	6x70(1)	6x90(1)	6x50(2)
Overall Height (H)	mm	60	85	85		85	95	115	135	190
Rated Three Phase RMS Short Time Current for 1 Second (Icw)	kA	5	20	30		35	50	50	50	50
Rated Three phase Peak short time current (Ipk)	kA	7.5	40	63		73.5	105	105	105	105
Rated Single Phase RMS Short Time Current for 1 Second (Icw)	kA	3	12	18		21	30	30	30	30
Rated Single phase Peak short time current (Ipk)	kA	4.5	24	36		44.1	63	63	63	63
Approximate Weight of Bustrunking										
3 Phase + 100% Neutral + Integral Earth	Kg/m	7.1	12.4	14.7		17.1	19.7	25	30.3	35.4
3 Phase + 200% Neutral + Integral Earth	Kg/m	8	14.2	17.1		20.1	23.3	29.8	36.2	42
3 Phase+100% Neutral+100% Isolated Earth+Integral Earth	Kg/m	8	14.2	17.1		20.1	23.3	29.8	36.2	42
Electrical Characteristics for 50 Hz										
AC Resistance at 20ºC (R_{20})	miliohms/mtr.	0.6346	0.1481	0.0987		0.074	0.0592	0.0429	0.0339	0.0296
A.C. Resistance at thermal conditions (R_t)	miliohms/mtr.	0.8092	0.1888	0.1259		0.0944	0.0755	0.0548	0.0432	0.0378
Reactance (X)	miliohms/mtr.	0.1786	0.125	0.1056		0.0792	0.0667	0.0524	0.0444	0.0342
Impedance at thermal conditions (Z)	miliohms/mtr.	0.8287	0.2264	0.1643		0.1232	0.1007	0.0758	0.062	0.0509
Composite Voltage drop at Full Load concentrated at the end of bustrunking run (V)	mV/mtr./A at0.7 P.F.	1.202	0.3835	0.2832		0.2124	0.174	0.1312	0.1074	0.088
	mV/mtr./A at0.8 P.F.	1.3069	0.3915	0.2841		0.2131	0.1739	0.1303	0.1061	0.0878
	mV/mtr./A at0.9 P.F.	1.3964	0.3887	0.2759		0.207	0.1681	0.1249	0.1009	0.0847
	mV/mtr./A at1.0 P.F.	1.4016	0.327	0.218		0.1635	0.1308	0.0948	0.0749	0.0654
Electrical Characteristics for 60 Hz										
AC Resistance at 20ºC (R20)	miliohms/mtr.	0.6348	0.1483	0.0989		0.0742	0.0594	0.0431	0.0341	0.0298
A.C. Resistance at thermal conditions (R')	miliohms/mtr.	0.8219	0.192	0.1281		0.0961	0.0769	0.0558	0.0441	0.0386
Reactance (X)	miliohms/mtr.	0.2143	0.15	0.1267		0.095	0.08	0.0629	0.0533	0.041
Impedance at thermal conditions (Z)	miliohms/mtr.	0.8494	0.2436	0.1801		0.1351	0.111	0.0841	0.0692	0.0563
Composite Voltage drop at full Load concentrated at the end of bustrunking run (V)	mV/mtr./A at0.7 P.F.	1.2616	0.4183	0.3119		0.234	0.1922	0.1454	0.1195	0.0975
	mV/mtr./A at0.8 P.F.	1.3616	0.4219	0.3091		0.2319	0.1897	0.1427	0.1166	0.0961
	mV/mtr./A at0.9 P.F.	1.4432	0.4125	0.2953		0.2215	0.1803	0.1345	0.1091	0.0911
	mV/mtr./A at1.0 P.F.	1.4236	0.3325	0.2218		0.1664	0.1332	0.0967	0.0764	0.0668

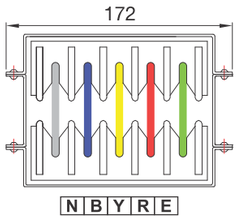
Technical parameters of Compact Air Bustrunking-CBA



3 Phase+100% Neutral
+Integral Earth



3 Phase+200% Neutral
+Integral Earth



3 Phase+100% Neutral
+100% Isolated Earth+Integral Earth

Voltage Drop Calculation Formulae

$\Delta V = k \times \sqrt{3} \times (R_t \cos \Ø + X \sin \Ø) \times I_B \times L$

Where

ΔV is the composite voltage drop of the system (V);

R_t & X are the mean resistance and reactance value of the system (mΩ/mtr)

I_B is the actual load current of the circuit being considered (A);

L is the length of the system being considered (M);

Cos Ø is the load power factor being considered;

k is the load distribution factor:

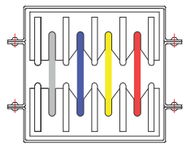
k=1, if full load is concentrated at the end of the busbar trunking run;
k=(n+1)/2n, if the load is uniformly spread between n branches.

Rated Current (In)	Amps	200	250		315	400	500	630	800
Product Code		**CBA 200**	**CBA 250**		**CBA 315**	**CBA 400**	**CBA 500**	**CBA 630**	**CBA 800**
Busbar size per phase (No. of busbars)	mm	6x20(1)	6x30(1)		6x40(1)	6x50(1)	6x70(1)	6x90(1)	6x50(2)
Overall Height (H)	mm	85	85		85	95	115	135	190
Rated Three Phase RMS Short Time Current for 1 Second (Icw)	kA	10	15		25	30	35	50	50
Rated Three phase Peak short time current (Ipk)	kA	17	30		52.5	63	73.5	105	105
Rated Single Phase RMS Short Time Current for 1 Second (Icw)	kA	6	9		15	18	21	30	30
Rated Single phase Peak short time current (Ipk)	kA	10.2	15.3		30	36	44.1	63	63
Approximate Weight of Bustrunking									
3 Phase + 100% Neutral + Integral Earth	Kg/m	9.1	9.8		10.5	11.5	13.5	15.5	19.1
3 Phase + 200% Neutral + Integral Earth	Kg/m	10.1	11		11.9	13.1	15.4	17.8	21.5
3 Phase+100% Neutral+100% Isolated Earth+Integral Earth	Kg/m	10.1	11		11.9	13.1	15.4	17.8	21.5
Electrical Characteristics for 50 Hz									
AC Resistance at 20°C (R_{20})	Miliohms/mtr.	0.2611	0.1741		0.1305	0.1044	0.0757	0.0598	0.0522
A.C. Resistance at thermal conditions (R_t)	Miliohms/mtr.	0.3335	0.2223		0.1667	0.1334	0.0967	0.0763	0.0667
Reactance (X)	Miliohms/mtr.	0.125	0.1056		0.0792	0.0667	0.0524	0.0444	0.0342
Impedance at thermal conditions (Z)	Miliohms/mtr.	0.3561	0.2461		0.1846	0.1491	0.11	0.0883	0.0749
Composite Voltage drop at Full Load concentrated at the end of bustrunking run (V)	MV/mtr./A at0.7 P.F.	0.5589	0.4001		0.3001	0.2442	0.182	0.1475	0.1231
	MV/mtr./A at0.8 P.F.	0.592	0.4177		0.3133	0.2541	0.1884	0.1519	0.1279
	MV/mtr./A at0.9 P.F.	0.6142	0.4263		0.3197	0.2583	0.1903	0.1525	0.1298
	MV/mtr./A at1.0 P.F.	0.5775	0.385		0.2888	0.231	0.1675	0.1322	0.1155
Electrical Characteristics for 60 Hz									
AC Resistance at 20°C (R20)	Miliohms/mtr.	0.2614	0.1744		0.1309	0.1047	0.076	0.0601	0.0525
A.C. Resistance at thermal conditions (R^t)	Miliohms/mtr.	0.339	0.2262		0.1697	0.1359	0.0986	0.0779	0.0681
Reactance (X)	Miliohms/mtr.	0.15	0.1267		0.095	0.08	0.0629	0.0533	0.041
Impedance at thermal conditions (Z)	Miliohms/mtr.	0.3707	0.2592		0.1945	0.1577	0.1169	0.0944	0.0795
Composite Voltage drop at full Load concentrated at the end of bustrunking run (V)	MV/mtr./A at0.7 P.F.	0.5966	0.4309		0.3233	0.2637	0.1973	0.1604	0.1333
	MV/mtr./A at0.8 P.F.	0.6257	0.445		0.3339	0.2714	0.202	0.1634	0.137
	MV/mtr./A at0.9 P.F.	0.6418	0.4482		0.3363	0.2722	0.2012	0.1618	0.1372
	MV/mtr./A at1.0 P.F.	0.5872	0.3917		0.294	0.2353	0.1708	0.135	0.118

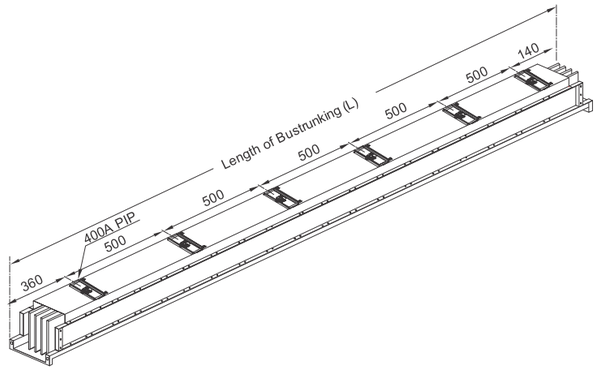
Straight Length with PIP

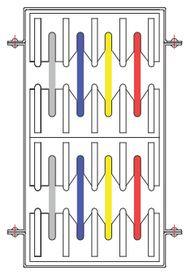
- For tapping Power from Main Line through Plug-in-Boxes. Horizontal Distribution / Vertical Distribution (Rising mains)
- Plug-in Points (PIP upto 400A) are available at every 250 mm on alternate side (at every 500mm on either side)
  * In case of Rising Mains PIP shall be provided on front side only.

Standard Length: 3000mm
Maximum Length: 3000mm
Minimum Length: 750mm

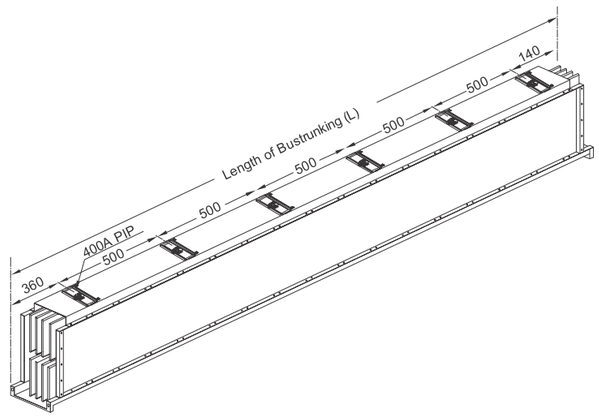


Copper 125~1000A
Aluminium 200~630A



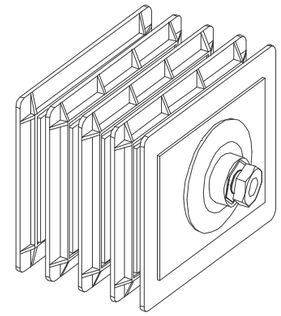


Copper - 1250A
Aluminium - 800A

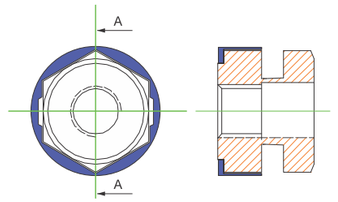


Uniblock Joint

- Joint can be fitted / removed in installed condition without removal of section.
- 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 bolt head side*)
- Shear off nut * ensure tightness of joint at desired torque and eliminates 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.



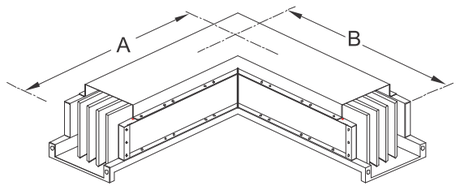
* Not applicable for CBC125 which has individual busbar connections.



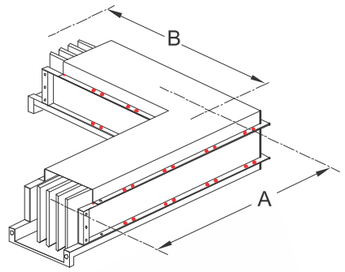
Shear off nut

Edge Elbow

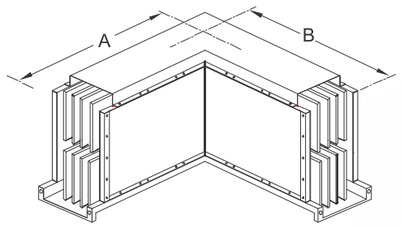
Current Rating	Standard Dimn. A x B (mm)	Minimum Dimn. A x B (mm)	Maximum Dimn. A x B (mm)
Copper - 125~1250A	500 x 500	300 x 300	750 x 750
Aluminium - 200~800A	500 x 500	300 x 300	750 x 750



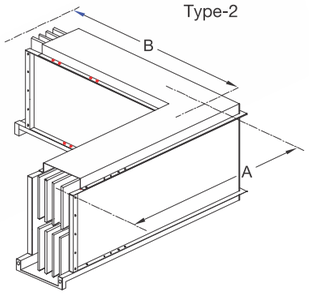
Type-1



Type-2



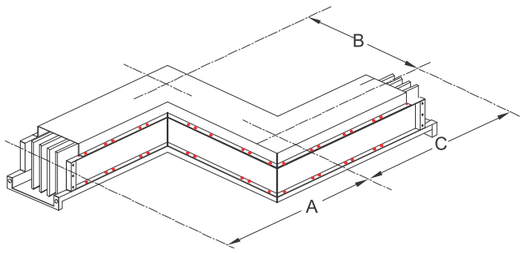
Type-1



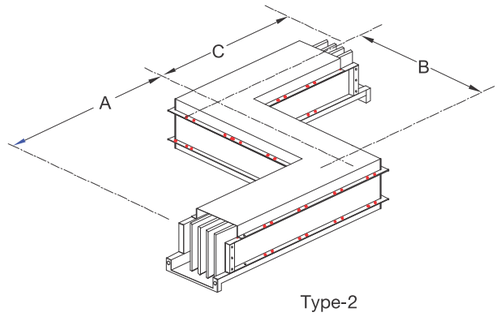
Type-2

Offset Edge Elbow

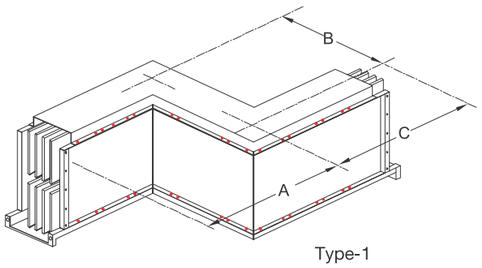
Current Rating	Standard Dimn. AxBXC (mm)	Minimum Dimn. AxBxC (mm)	Maximum Dimn. AxBxC (mm)
Copper - 125~1250A	500 x 500 x 500	300 x 300 x 300	450 x 600 x 450
Aluminium - 200~800A	500 x 500 x 500	300 x 300 x 300	450 x 600 x 450



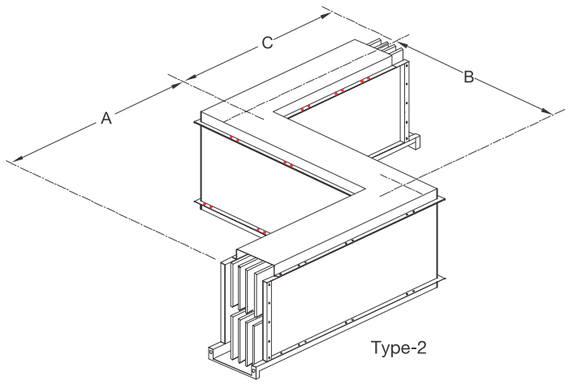
Type-1



Type-2



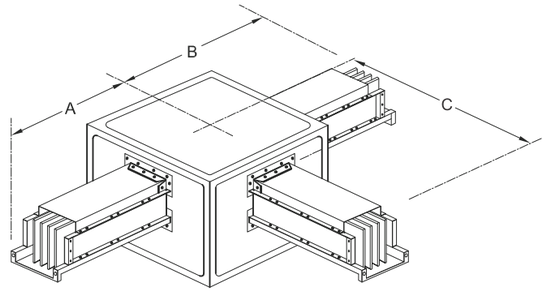
Type-1

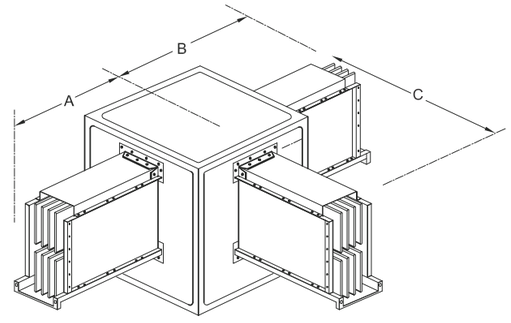


Type-2

Edge Tee

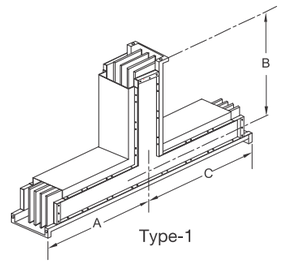
Current Rating	Standard Dimn. AxBXC (mm)	Minimum Dimn. AxBxC (mm)	Maximum Dimn. AxBxC (mm)
Copper - 125~1250A	500 x 500 x 500	500 x 500 x 500	750 x 750 x 750
Aluminium - 200~800A	500 x 500 x 500	500 x 500 x 500	750 x 750 x 750



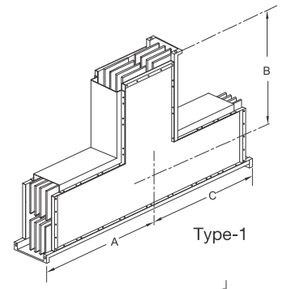


Flat Tee

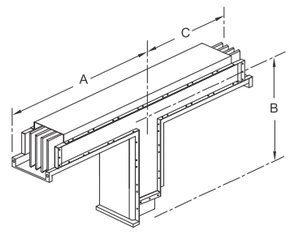
Current Rating	Standard Dimn. AxBxC (mm)	Minimum Dimn. AxBxC (mm)	Maximum Dimn. AxBxC (mm)
Copper - 125~1250A	500 x 500 x 500	500 x 500 x 500	500 x 500 x 500
Aluminium - 200~800A	500 x 500 x 500	500 x 500 x 500	500 x 500 x 500



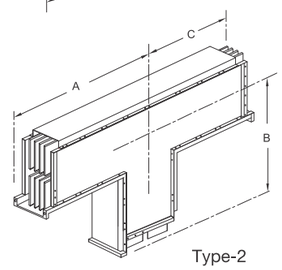
Type-1



Type-1



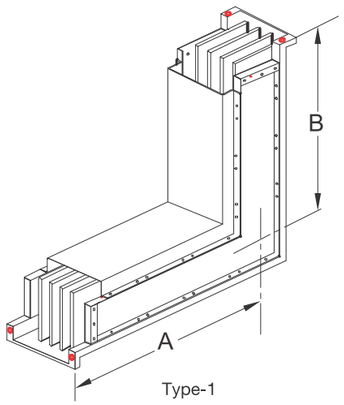
Type-2



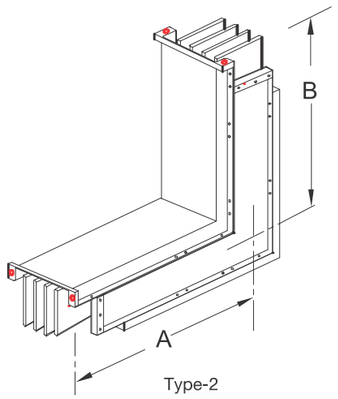
Type-2

Flat Elbow

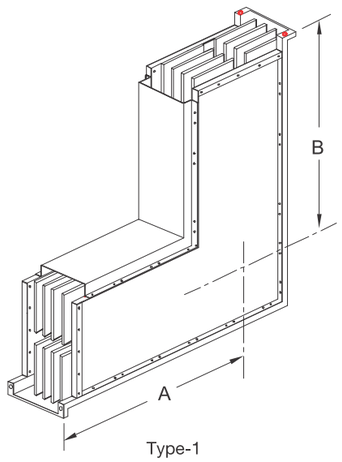
Current Rating	Standard Dimn. A x B (mm)	Minimum Dimn. A x B (mm)	Maximum Dimn. A x B (mm)
Copper - 125~1250A	500 x 500	300 x 300	750 x 750
Aluminium - 200~800A	500 x 500	300 x 300	750 x 750



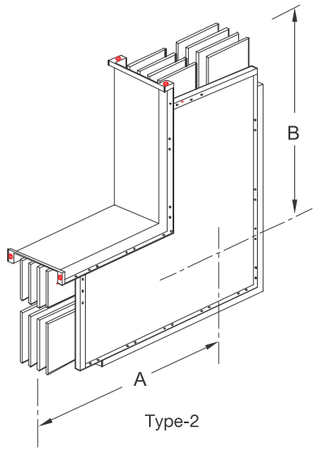
Type-1



Type-2



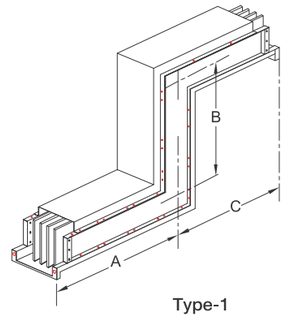
Type-1



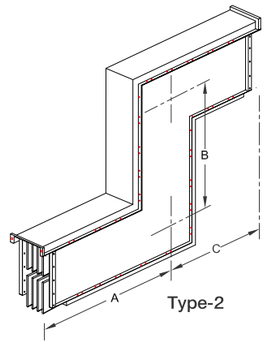
Type-2

Offset Flat Elbow

Current Rating	Standard Dimn. AxBxC (mm)	Minimum Dimn. AxBxC (mm)	Maximum Dimn. AxBxC (mm)
Copper - 125~1250A	500 x 500 x 500	300 x 300 x 300	450 x 600 x 450
Aluminium - 200~800A	500 x 500 x 500	300 x 300 x 300	450 x 600 x 450



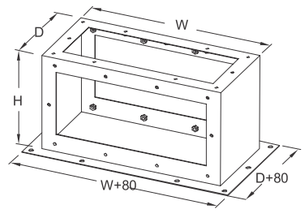
Type-1



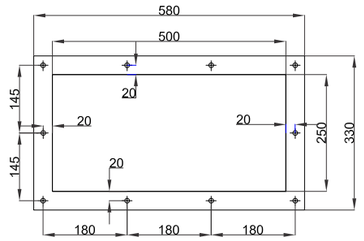
Type-2

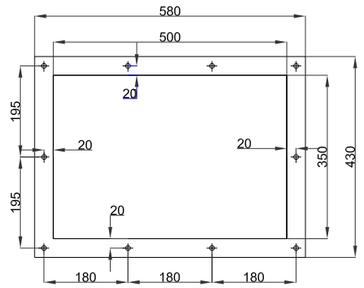
Flanged End Box

Current Rating	Standard Dimensions		
	W	D	H
Copper - 125~1000A	500	250	250
Aluminium - 200~630A			
Copper - 1250	500	350	250
Aluminium - 800			



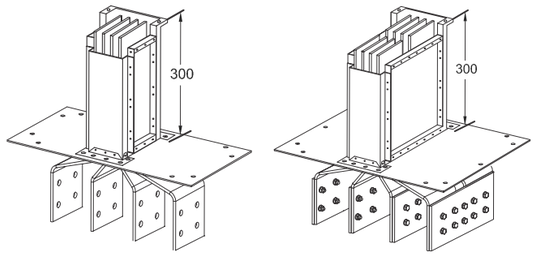
Flanged End Box Drilling Details





Flanged End

- Flanged End are required to connect Bustrunking run with panel or transformer directly of through Flanged End Box.



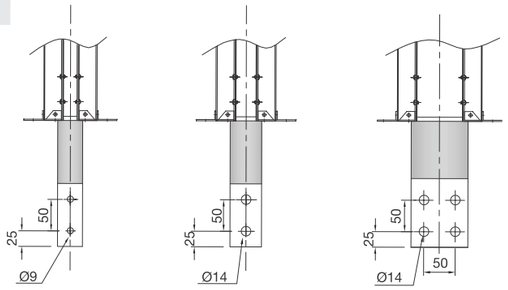
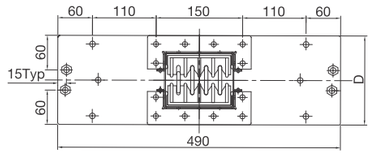


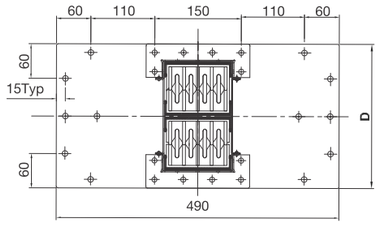
Figure -1 Busbar Width 20~30mm

Figure -2 Busbar Width 40~70mm

Figure -3 Busbar Width 90mm



Section X-X'



Section X-X'

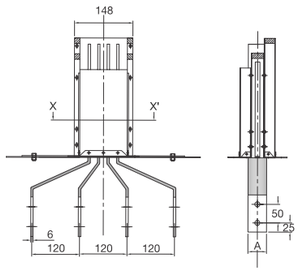


Figure - 4

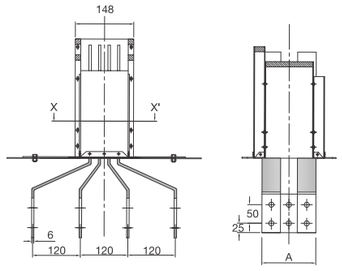


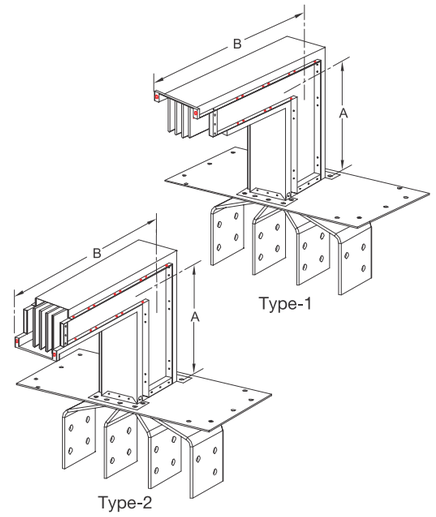
Figure - 5

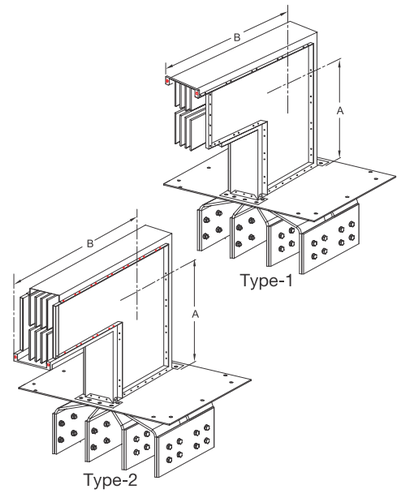
Flanged End cut out & Drilling

Busbar size (No. Of Busbar)	Copper		Aluminium		Dimensions		Busbar Hole Details	Terminal Details
	Rating	Code	Rating	Code	D	A		
	125	CBC 125	-	-	120	-	-	Figure 4
20 x 6 (1)	315	CBC 315	200	CBA 200	145	20	Figure-1	
30 x 6 (1)	400	CBC 400	250	CBA 250	145	30	Figure-2	
40 x 6 (1)	500	CBC 500	315	CBA 315	145	40	Figure-2	
50 x 6 (1)	630	CBC 630	400	CBA 400	155	50	Figure-2	
70 x 6 (1)	800	CBC 800	500	CBA 500	175	70	Figure-2	
90 x 6 (1)	1000	CBC 1000	630	CBA 630	195	90	Figure-3	
50 x 6 (2)	1250	CBC 1250	800	CBA 800	250	145	Figure-2	Figure 5

Flanged End with Flat Elbow

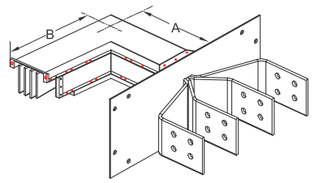
Current Rating	Standard Dimn. AxB (mm)	Minimum Dimn. AxB (mm)	Maximum Dimn. AxB (mm)
Copper - 125~1250A	500 x 500	300 x 300	600 x 600
Aluminium - 200~800A	500 x 500	300 x 300	600 x 600



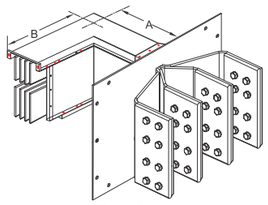


Flanged End with Edge Elbow

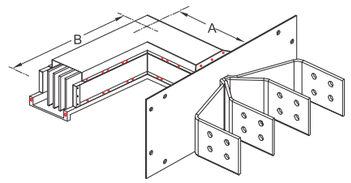
Current Rating	Standard Dimn. AxB (mm)	Minimum Dimn. AxB (mm)	Maximum Dimn. AxB (mm)
Copper - 125~1250A	500 x 500	175 x 300	600 x 600
Aluminium - 200~800A	500 x 500	175 x 300	600 x 600



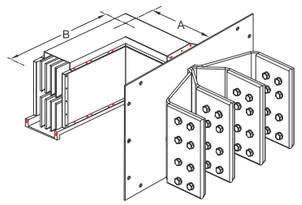
Type-1



Type-1



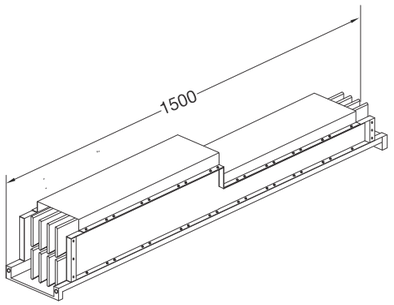
Type-2



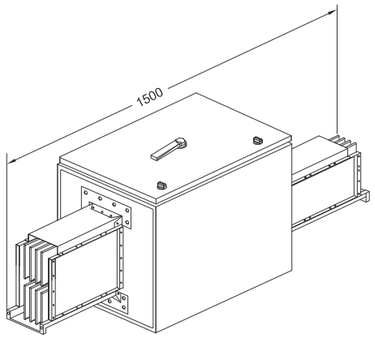
Type-2

Reducer

- These are required to connect two dissimilar rating of bustrunking. Reducer may be designed with switching or isolating device.



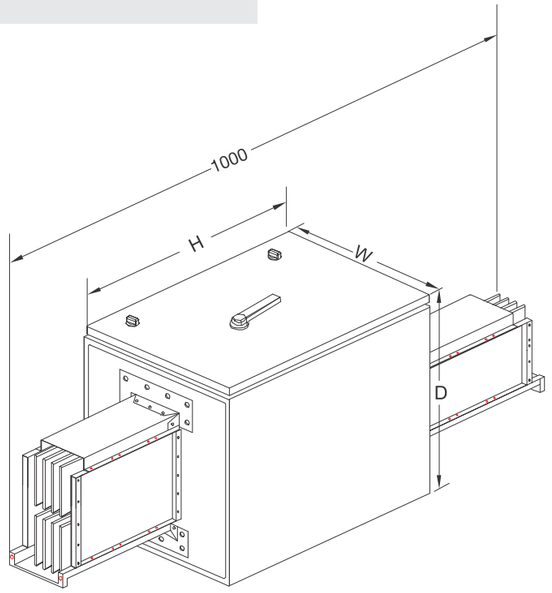
Reducer (Direct)



Reducer (Switchgear)

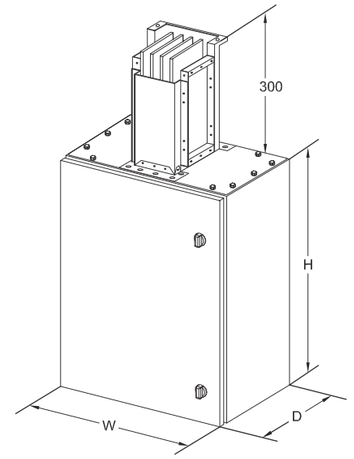
Sectional Isolator

- These are required to isolate the bustrunking run in between, for various reasons. Section Isolator Unit can be fitted with load Break Switches / SFU's / MCCB's.

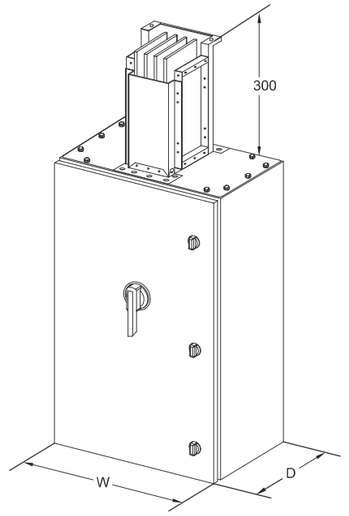


End Feed

- To charge bustrunking through cables from one end of bustrunking.
- End feed is available with sufficient space for direct connection through lugs and bolts. MCCB, SFU, Isolators, fuse holders etc. can be fitted in End Feed as per requirement.
- 300 mm length of bustrunking is integrally fitted (measured with bustrunking) along with End Feed as standard practice so that joint between End Feed and bustrunking is exactly same as joint of two normal bustrunking lengths.
- Undrilled cable gland plate is provided at bottom for multiple cable entry.



End Feed (Direct)



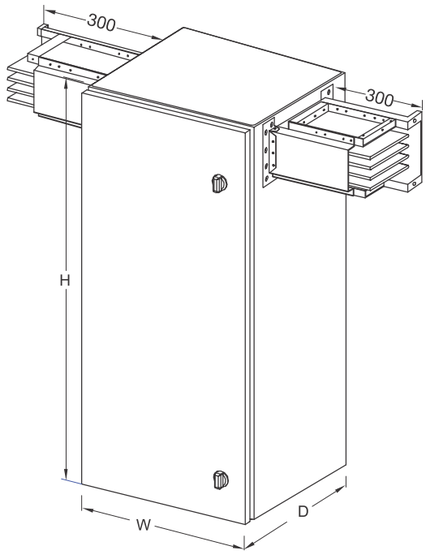
End Feed (Switchgear)

Code	Dimensions		
	H	W	D
CBC125 to CBC400	400	400	250
CBA200 to CBA400			
CBC500 to CBC1000	600	400	250
CBA500 to CBA630			
CBC1250 & CBA800	600	500	370

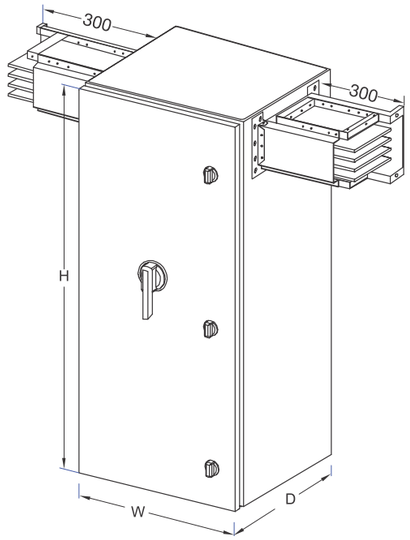
Code	Dimensions		
	H	W	D
CBC125	800	400	250
CBA200 to CBA250			
CBC315 to CBC630	800	400	250
CBA315 to CBA630			
CBC800	800	500	370
CBC1250	1000	500	370
CBA800			

Center Feed Unit

- Center Feed is required to charge bustrunking through cables at any position between two section of bustrunking
- Center feed Unit is available with sufficient space for direct connection through lugs and bolts. MCCB,SFU, Isolators, fuse holders etc. can be fitted in Center Feed as per requirement.
- Undrilled cable gland plate is provided at bottom for multiple cable entry.
- 300+300mm of bustrunking is inbuilt in centre feed for any easy connection to bustrunking sections both sides.



Feed Unit (Direct)



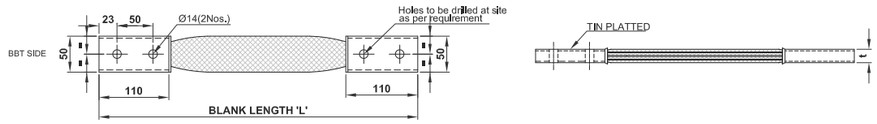
Center Feed Unit (Switchgear)

Code	Dimensions		
	H	W	D
CBC125 to CBC400	600	400	250
CBA200 to CBA400			
CBC500 to CBC1000	800	400	250
CBA500 to CBA630			
CBC1250 & CBA800	800	500	370

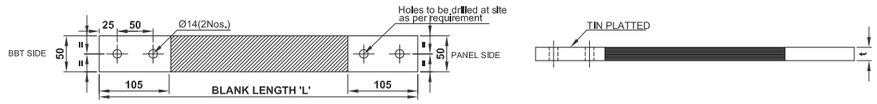
Code	Dimensions		
	H	W	D
CBC125 to CBC400	800	400	250
CBA200 to CBA400			
CBC500 to CBC1000	800	400	250
CBA500 to CBA630			
CBC1250	1000	500	370
CBA800			

Copper Flexible

- Braided / Laminated Copper Flexible need to be used to connect flanged end busbar with busbars of panel / Transformer / Generators.



BRAIDED COPPER FLEXIBLE



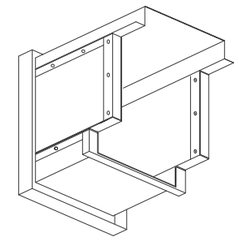
LAMINATED COPPER FLEXIBLE

* Thickness (t) & No of flexible as per Rating

Element Name	Minimum (mm)	Standard (mm)	Maximum (mm)
Blank Length L	320	370	420

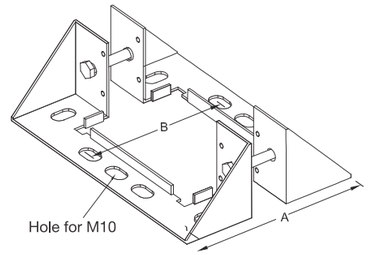
End Cover

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



Vertical Bracket

- It is required to support vertical bustrunking (Rising Main) through angle I channel support fitted on the wall.



Horizontal Bracket

- It is required to support horizontal bustrunking (Horizontal Distribution) through angle I channel support fitted on the wall or ceiling.

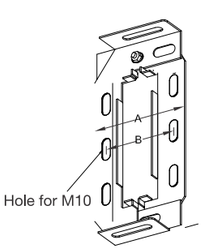


Figure -1

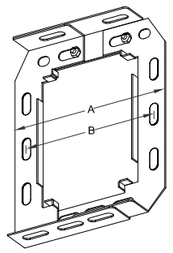
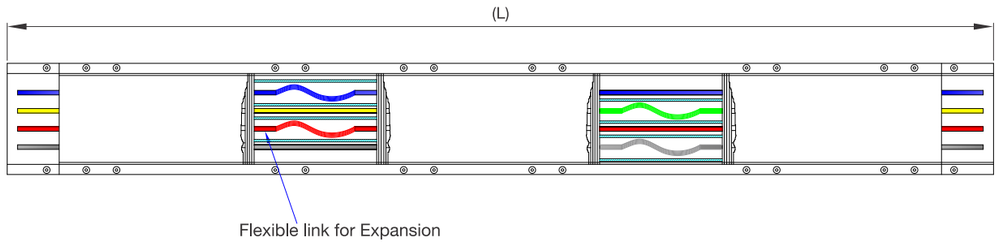


Figure -2

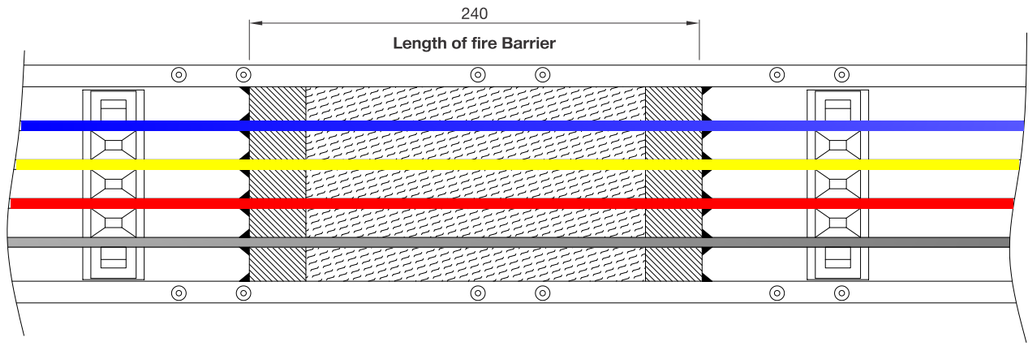
Expansion joint

- Expansion joint is provision provided in standard bustrunking section against specific requirement.
- Recommended to be used after continuous run of 50 mtrs.
- Standard Dimension (L) - 1500mm



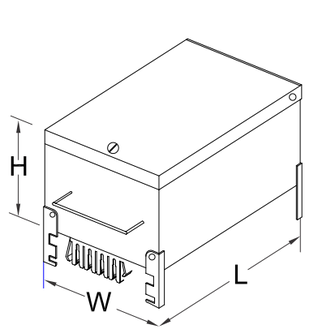
Fire Barrier

- Fire Barrier is provision provided in standard bustrunking section against specific requirement.
- Recommended to be used at each floor and wall crossing.
- Standard Dimension (L) - 1500mm

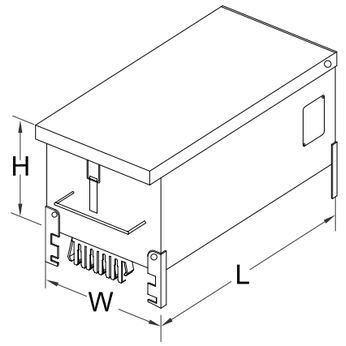


Plug-in-Box

- Plug in box enclosure is made from G. I with side hinged door.
- Plug in contacts are made out of Silver plated copper with spring steel backup pressure clips for ensuring uniform pressure and low contact resistance .
- For cables entry, provision of gland plates are provided on both sides and bottom of Plug in Box.
- Earth contact of Plug-in boxes makes first & breaks last.
- Plug in box can suitable for MCCB/SFU's with rotary handle and door interlocking.
- Plug in boxes are available with Interlocking with bustrunking to ensure "plug-in" and "Plug-Out" possible only in "Off'' Condition.
- Silver Plated contacts are properly shrouded isolated.
- Plug in box up to 400 A are compatible to all ratings of Bustrunking with 400 A Plug-in-points
- Plug in boxes can only be fitted on to the Bustrunking with corrected polarity.



PIB X - S

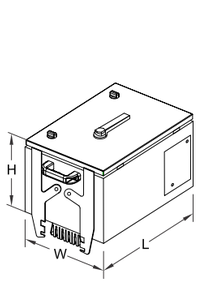


PIB X - A

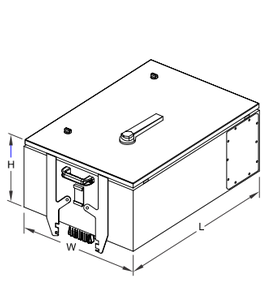
PARAMTER	PIB X 'S' (4B)	PIB X 'S' (5B)	PIB X 'A' (4B)	PIB X 'A' (5B)
	Without Isolator		With Isolator	
With MCB / FUSES Provision	32A-63A		32A-125A	
With Socket-1 No. Provision	32A		63A	
With MCB+Socket-1 No. Provision	NA		32A-63A	
With MCCB without R/H Provision	NA		32A-125A	
With MCCB+R/H Provision	NA		NA	
With SFU Provision	NA		NA	
FINAL BOX SIZE (LXWXH)	430x250x200	280x204x100	410x180x124	410x204x124
Recommended Cable Size (Aluminium)	25 Sq.mm	25 Sq.mm	70 Sq.mm	70 Sq.mm

Plug-in-Box

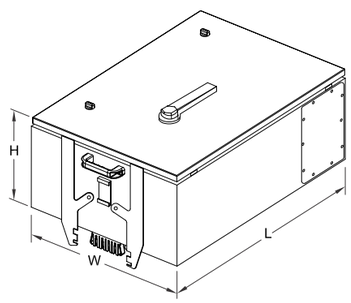
- Plug in box enclosure is made from G. I with side hinged door.
- Plug in contacts are made out of Silver plated copper with spring steel backup pressure clips for ensuring uniform pressure and low contact resistance .
- For cables entry, provision of gland plates are provided on both sides and bottom of Plug in Box.
- Earth contact of Plug-in boxes makes first & breaks last.
- Plug in box can suitable for MCCB/SFU's with rotary handle and door interlocking.
- Plug in boxes are available with Interlocking with bustrunking to ensure "plug-in" and "Plug-Out" possible only in "Off" Condition.
- Silver Plated contacts are properly shrouded isolated.
- Plug in box up to 400 A are compatible to all ratings of Bustrunking with 400 A Plug-in-points
- Plug in boxes can only be fitted on to the Bustrunking with corrected polarity.



PIB X-N



PIB X-B



PIB X-C

PARAMTER	PIB X 'N' (4B)	PIB X 'N' (5B)	PIB X 'B' (4B)	PIB X 'B' (5B)	PIB X 'C' (4B)	PIB X 'C' (5B)
	Without Isolator		Without Isolator		Without Isolator	
With MCB / FUSES Provision	NA		NA		NA	
With Socket-1 No. Provision	NA		NA		NA	
With MCB+Socket-1 No. Provision	NA		NA		NA	
With MCCB without R/H Provision	NA		160A-250A		315A-400A	
With MCCB+R/H Provision	32A-125A		160A-250A		315A-400A	
With SFU Provision	32A-125A		160A-250A		315A-400A	
FINAL BOX SIZE (LXWXH)	430x250x200		500x300x250		600x400x250	
Recommended Cable Size (Aluminium)	70 Sq.mm	70 Sq.mm	150 Sq.mm	150 Sq.mm	2x150 Sq.mm	2x150 Sq.mm

Busway Route Planner

Customer : _____ Date : _____

Information required for quotation. Please, photocopy this form and attach to your inquiry.

In A	Un V	Freq. Hz	Temp. t_0 °C	t_{max} °C	Project : Job no. :

Conductors Cu ☐ Al ☐	3P ☐	N ☐	PE ☐	+ - ☐	Line no.	Length total m	Outdoor m	ΔU %	Tap off's In no.

Reference List - Domestic

CUSTOMER	PROJECT	CITY
Kapoor Electricals Pvt. Ltd.	ASSAM Project	ASSAM
HEC Infra Projects Pvt Ltd.Ahmedabad	Brakes India Ltd. Jhagadia.	AHMEDABAD
Palican Associates	Toyota Kirlosker	BANGALORE
Micron Electricals	HP	BANGALORE
Krishn Electricals	Nextteer Automotive	BANGALORE
Micron Electricals	Alstom Transport India Ltd	BANGALORE
Micron Electricals	HP GR Tech Park	BANGALORE
Krishn Electricals, Bangalore	Kriloskar Toyota	BANGALORE
Pragathi Controls, Bangalore	Manipal Health Corporation, Bangalore	BANGALORE
Sterling & Wilson Ltd, Patna	IIT, Patna	BIHAR
Sterling & Wilson Ltd, Patna	IIT, Patna	BIHAR
Spark On Rivulet, Pune	Virgo-Chennai	CHENNAI
Sterling Wilson Pvt. Ltd	Perlos Expansion- Chennai	CHENNAI
Micron Electrical	M/s Satyam,Chennai	CHENNAI
ETA Engg.Pvt Ltd	unipres India P Ltd Chennai	CHENNAI
Sterling & Wilson	M/s., WABCO TVS ,Chennai	CHENNAI
Infosys Limited	Infosys-SDB9-Chennai	CHENNAI
Cosmos Enterprises, Chennai	SAC Engineering Components Pvt Ltd, Gummidipoondi	CHENNAI
Sterling & Wilson, Chennai	Renault Nissan Line 2,Oragadam,T.N	CHENNAI
E Power Engineering, Chennai	Renault Nissan	CHENNAI
Kamladityya Construction Pvt. Ltd.Dwarka, New Delhi	NDMC Staff Quater,New Delhi	DELHI
Suprabhat Associates Pvt. Ltd., Delhi	Project at Khetri, Rajasthan	DELHI
Ahluwalia Contracts India limited Delhi	Hero moto Corp Neemrana Alwar	DELHI
Consortium of Sudhir Power Projects Ltd. & Cobra Instalaciones y Servicios S.A Spain,New Delhi	DMRC CE-09 LOT-3, New Delhi	DELHI
Ramesh Electric Works, New Delhi	Sarita Vihar Under Pass, New Delhi	DELHI
Sudhir Power Projects Limited,Gurgaon	RCF,Raebarelly	HARYANA
NKG INFRASTRUCTURE LIMITED,Faridabad	ESIC Hospital Faridabad	HARYANA
Triple A Engineering Pvt. Ltd., Gurgaon,	Vatika India Next, Gurgaon, Haryana	HARYANA
Triple A Engineering Pvt. Ltd.Gurgaon,	Vatika Sovereign, Gurgaon	HARYANA
Triple A Engineering Pvt. Ltd.Gurgaon,	Vatika Seven Lamps, Gurgaon	HARYANA
Jayabheri Properties Pvt. Ltd.	Jayabheri Oven County, Hyderabad	HYDERABAD
Sterling Electro Enterprise P Ltd	Mahindra Vehicles Mfg Ltd J Block	HYDERABAD
Aster Electricals Engineering	Tempus Power,	HYDERABAD
Arjun Electricals	Rainbow Vistas	HYDERABAD
Sterling & wilson	lighton mobile (Perlos)	HYDERABAD
Stelcit Power Systems	ESIC Hyderabad	HYDERABAD
Aparna Constructions and Estate Pvt Ltd,	Aparna Hill Park	HYDERABAD
Cyber City Builders and developers Pvt Ltd	Cyber City Towers	HYDERABAD
Square A Enterprises, Hyderabad	NTPC, Pochampadu	HYDERABAD
Micron Electricals, Hyderabad	Devabhumi Relators Pvt Ltd, Hyderabad	HYDERABAD
Aay Kay Electrical Enterprises, Hyderabad	My Home ABHRA, Hyderabad	HYDERABAD
M/s The Power and control,Kolkata	IISER,Haringhata (Part-II)	KOLKATA
Sterling & Wilson Ltd, Kolkata	Mani Casadona, Rajarhat	KOLKATA
J.K Electric Engineering Works, Kolkata	IISER Haringhata, Kalyani	KOLKATA
Sterling & Wilson Ltd, Kolkata	TCS Rajarhat, Kolkata	KOLKATA
Unity Infraprojects Limited	DCSEM-Anushakti Nagar	MUMBAI
Cimechel Engineers & Consultants,, Mumbai	DCSEM-Anushakti Nagar	MUMBAI
SWE Engineering Works Pvt Ltd L-333 Saritavihar	Amarpali Hotel noida	NOIDA
New Holland Fiat (India) Pvt Ltd,Nida	New Holland Fiat (India) Pvt Ltd,Nida	NOIDA
Geetu Engineering Constructions pvt Ltd,Noida	Geetu Engineering Constructions pvt Ltd,Noida	NOIDA
SUBROS LIMITED NOIDA	NOIDA	NOIDA
Sterling & Wilson Limited,NOIDA, UP	New Holland Fiat India Pvt. Ltd., UP	NOIDA

Reference List - Domestic

CUSTOMER	PROJECT	CITY
Orissa Industrial Infrastructure development Corpo-ration, Bhuwaneswar	IDCO Towers Bhuwaneswar	ORISSA
Amber Electrotech Ltd ,New Delhi	AIIMS Bhubaneswar	ORISSA
SPARK ON RIVULET	Pee Vee Textiles Ltd Pune	PUNE
Mahindra Heavy Engineering Pune	Mahindra Heavy Engineering Pune	PUNE
BCC Developers & Promoters Pvt. Ltd.Ludhiana	Rass Contractors & Engg., Ludhiana	PUNJAB
Amtek Auto Ltd,	Amtek Piston Division Chopanki,Rajasthan	RAJASTHAN
Shree Electricals &Engineers	ICICI Jaipur	RAJASTHAN
J.K. Electric Contractor, Rajasthan	New Rajasthan High Court	RAJASTHAN
Triple A Engineering Pvt. Ltd. Jaipur, Rajasthan	Varika Infotech City, Jaipur-31	RAJASTHAN
Happy electricals New delhi	AIIMS Rishikesh	RISHIKESH
Amber Electrotech Ltd ,New Delhi	AIIMS Rishikesh	RISHIKESH
Hitech Errectors Pvt ,New Delhi	New Rail Coach Factory Rae Barily,U.P	UP
Sterling and Wilson Ltd	Rail Coach factory.Rae Barelly	UP
AFSA Traders	Nagpur	UP
Kamladityya Construction Pvt. Ltd-Bokaro	Ismu academic block-Dhanbad	UP

Reference List - Overseas

CUSTOMER	PROJECT	COUNTRY
Doha Technical services	B+G+7 Al. Mahmoud	Qatar
Orient Star international Doha Qatar	Stock order	Qatar
Al. mufta Doha	Stock order	Qatar
Tech Hard Building Material L.L.C Dubai UAE	Magore project	UAE
Tech Hard Building Material L.L.C Dubai UAE	Mindu Project	UAE
JSC SOEMI Russia	JSC SOEMI Russia	Russia
Central Electricals International Ltd.	BIMA Towers	UAE
Central Electricals International Ltd.	Fidha Tower kenya	UAE
JSC SOEMI Russia	JSC SOEMI Russia	Russia
Patronics Services (U) Ltd., Uganda	Self	South Africa
ELTA Russia	self	Russia
Speciallised Power systems Ltd.	NA	UAE
JSC SOEMI Russia	JSC SOEMI Russia	Russia
Switchgear & Controls Ltd Kenya	Switchgear & Controls Ltd Kenya	Kenya
Doha Techanical Services	B+G+7	Qatar
Orient Star	Stock order	UAE
JSC SOEMI Russia	JSC SOEMI Russia	Russia
Doha technical services	B+G+ 7 Residential Building	Qatar
JSC SOEMI Russia	JSC SOEMI Russia	Russia
Soemi Russia	Soemi Russia	Russia
Speciallised Power systems Ltd.	Speciallised Power systems Ltd.	UAE
SOEMI - Russia	SOEMI - Russia	Russia
MEI Mumbai	Uganda	South Africa
Soemi Russia	Self	Russia
MEI Mumbai	Uganda	South Africa
Central electrical	KSMS Kenya	Kenya
Central electrical	MOE Busbar	Kenya
JSC Automatikos Sisemos	Lithunia	Russia
Central Electrical International Limited	NSSF Busbar	Kenya
TD Soemi Ltd	Soemi Russia	Russia
DOHA TECHNICAL SERVICES DOHA	B+G+& Al Mansoura	Qatar
DOHA TECHNICAL SERVICES DOHA	Modification of Existing Project	Qatar
Qatar Switchgear	Jaidah Tower	Qatar
DOHA TECHNICAL SERVICES DOHA	Abllan Aquaf	Qatar
Qatar Switchgear	Stock Order	Qatar
Qatar Switchgear	qatar development bank	Qatar
DTS doha	DTS Self Doha	Qatar
DTS doha	DTS Self Doha	Qatar
DTS Doha	B+G+6 Residential Building at Al Mansoura Doha	Qatar
DTS Doha	DTS Stock Order	Qatar
Mohammed Hussain Al-Muftah Est Doha	Mohammed Hussain Al-Muftah Est Doha Stck Order	UAE
Doha Technical Services, Doha- QATAR	Private Project Residential Building- Doha	Qatar
Mohammed Hussain Al-Muftah Est Doha- QATAR	Doha Tower - Doha	Qatar
Doha Technical Services, Doha- QATAR	B+G+7 Residential building - Al Sadd - Doha	Qatar
Orient Star International -Doha	Stock Order- Doha, Qatar	Qatar
ROCHE Engineering Pvt .Ltd,Sri Lanka	Jinasena Engineering School,Sri Lanka	Sri Lanka
Busbar Installations Pty. Ltd- Southdale	Craigcor Project - South Africa	South Africa
TD Soemi Ltd. - Russia	TD Soemi - Russia	Russia
TD Soemi Ltd,Russia	TD Soemi, Russia	Russia
Etacom NL	Amstredam	Australia
A.G.P Representaciones, Colombia	Colombia	Sri Lanka
Digi Drive Pvt Ltd,Faridabad	Tender,Tanzaniya-Thgough Digi Drive	South Africa
Central Electricals International Ltd- KENYA	Kenya Polytechnic University & ICPAK	Kenya
MunHean Singapore PTE Ltd.SINGAPORE	Thanlynin star - additional PIB	Phillipines
MunHean Singapore PTE Ltd.SINGAPORE	E Block 3, Additional req	Phillipines
MunHean Singapore PTE Ltd.SINGAPORE	E Block 3, Additional PIB req.	Phillipines
MunHean Singapore PTE Ltd.SINGAPORE	Royal Sin Min - MYANMAR	Myanmar
SL Switchgear Limited,NAIROBI, KENYA	NYERI HOSPITAL KENYA	Kenya
MEI Industrial Corporation - Mumbai	Fourth Nigong Avenue & Holy Basillica Ph-2	Kenya

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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