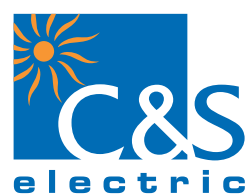




● C&S Installations

## GLOBAL SPECIALIST FOR POWER BUSBARS



## GLOBAL SPECIALIST FOR POWER BUSBARS

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**Plant -II**

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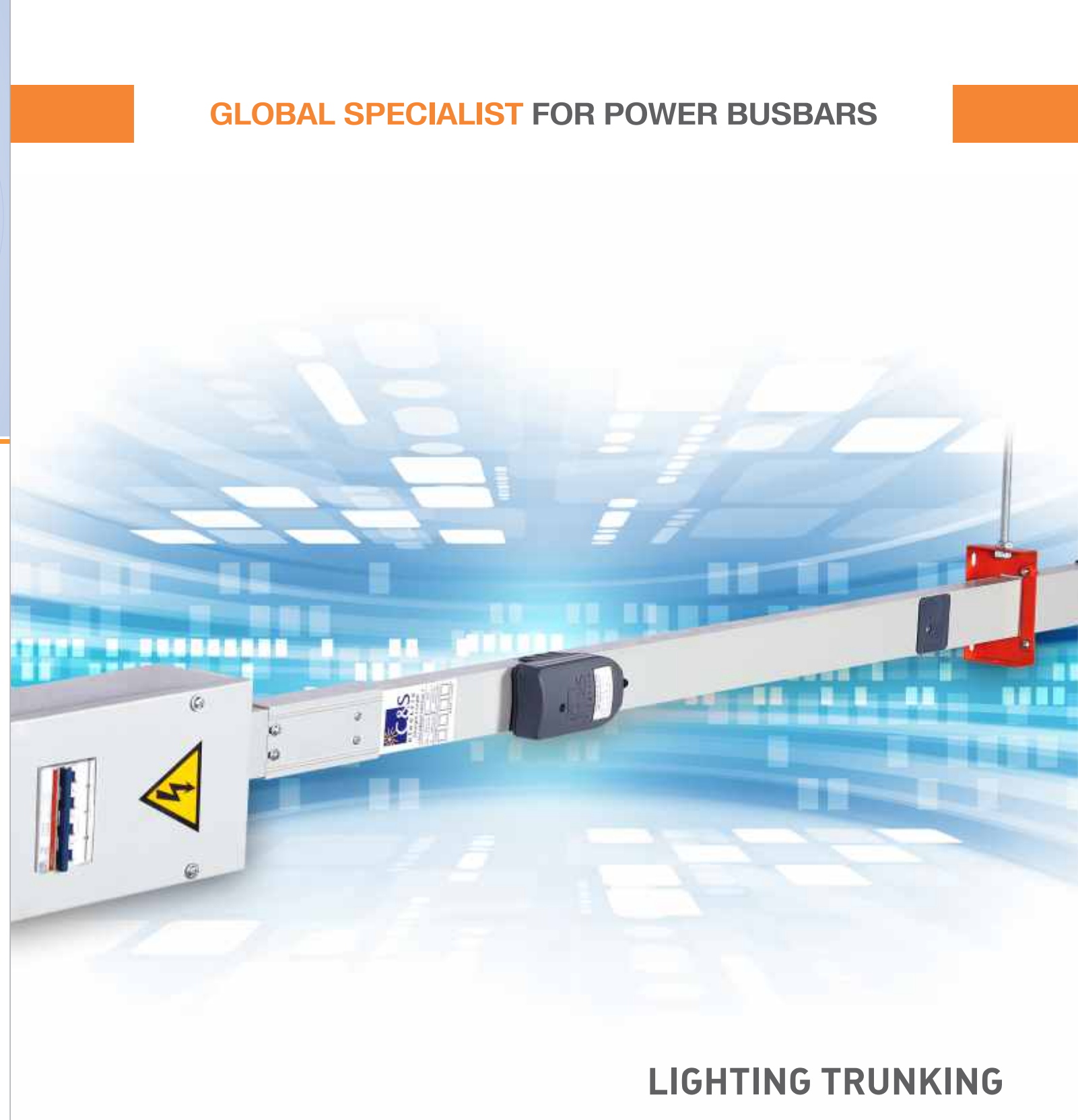
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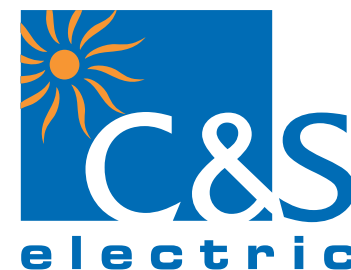
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LE/JAN/2021



## LIGHTING TRUNKING



metabar





## 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.



Greater Noida - India



Hardwar, India

## Quality Assurance





**metabar** Range offers Low Voltage Power busbar solutions covering Sandwich Bustrunking, Air Insulated Bustrunking Lighting Trunking & Track Busway ranging from 25A to 6300A.

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) -LV**

Compliance of standard	IEC61439 (1&6)
Conductor Material & Ratings	Copper 630A-6300A, 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

\*IP65 available on request



**Compact Air Bustrunking (CB) - LV**

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) - LV**

Compliance of standard	IEC61439 (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	IEC61439 (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



**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

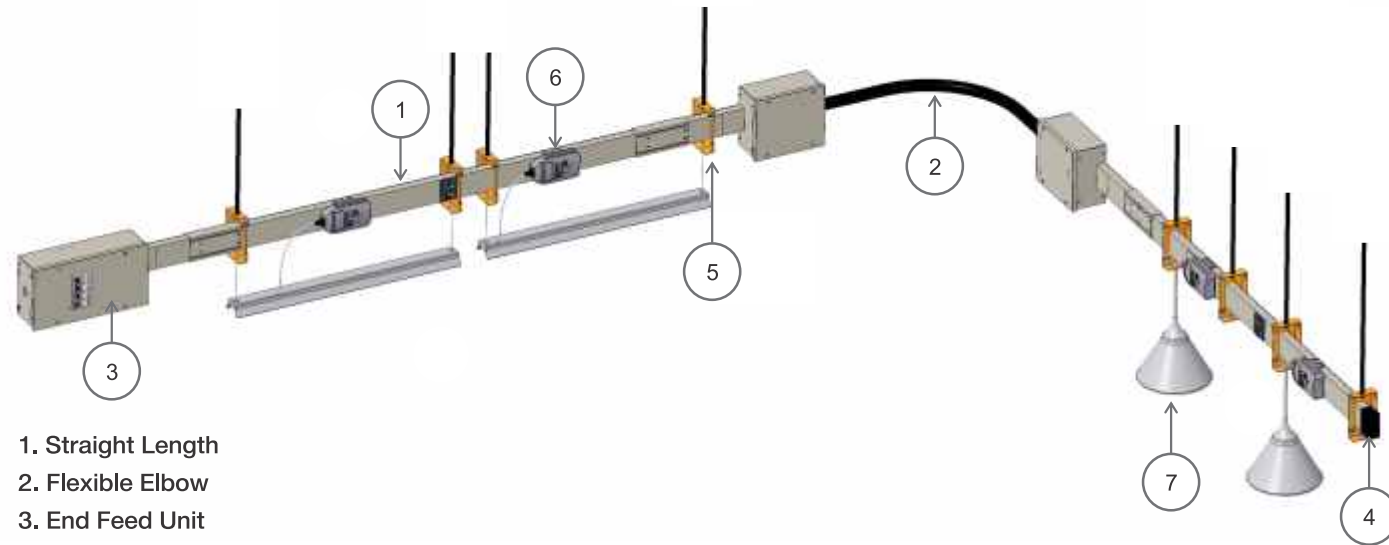
## LIGHTING TRUNKING

*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

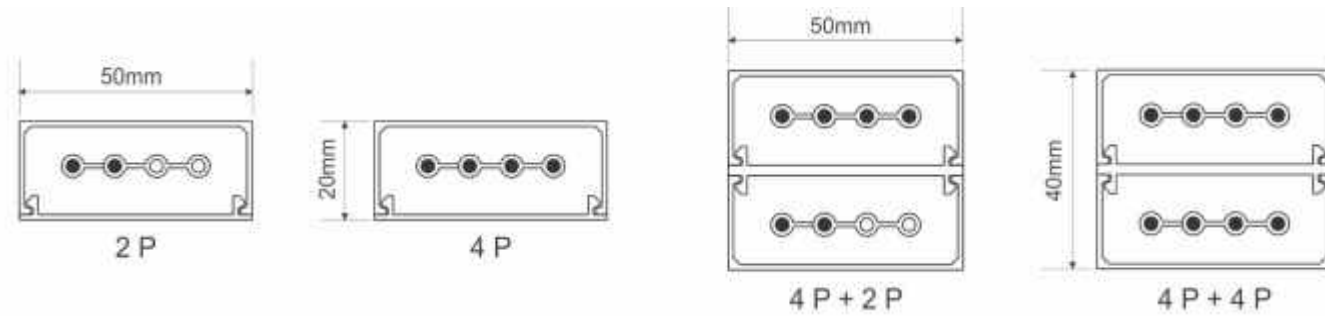
## Technical Specification

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)

### 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

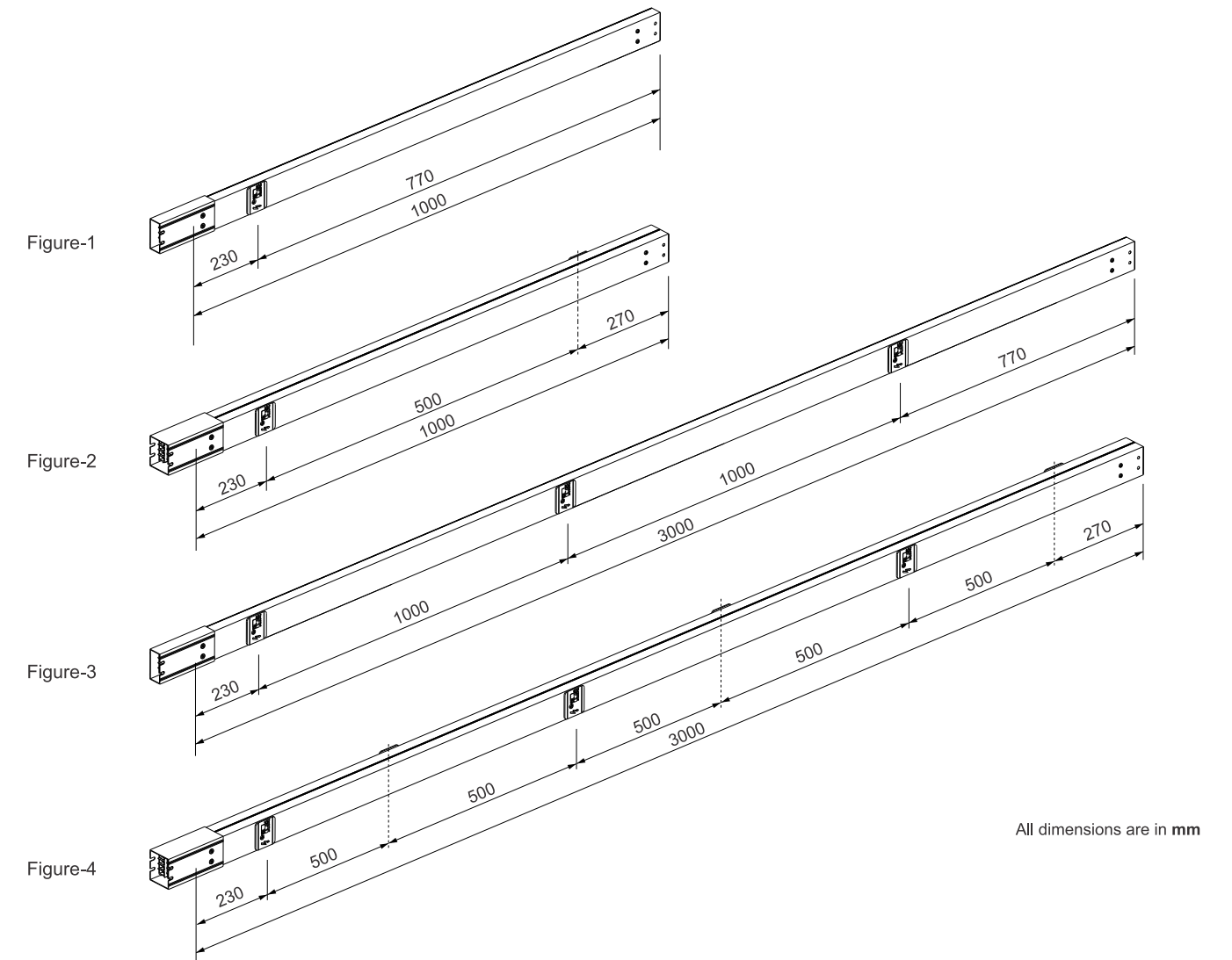
## Technical Data



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 <sub>cw</sub> (0.1s)	kA	2.0	3.3
Rated 3 Phase Peak Short Time Current	I <sub>pk</sub>	kA	3.0	5.0
Rated 1 Phase RMS Short Time Current	I <sub>cw</sub> (0.1s)	kA	1.2	2.0
Rated 1 Phase Peak Short Time Current	I <sub>pk</sub>	kA	1.8	3.0
Electrical Characteristics for 50 Hz				
AC Resistance at 20 °C	R <sub>20</sub>	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 <sub>20</sub>	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

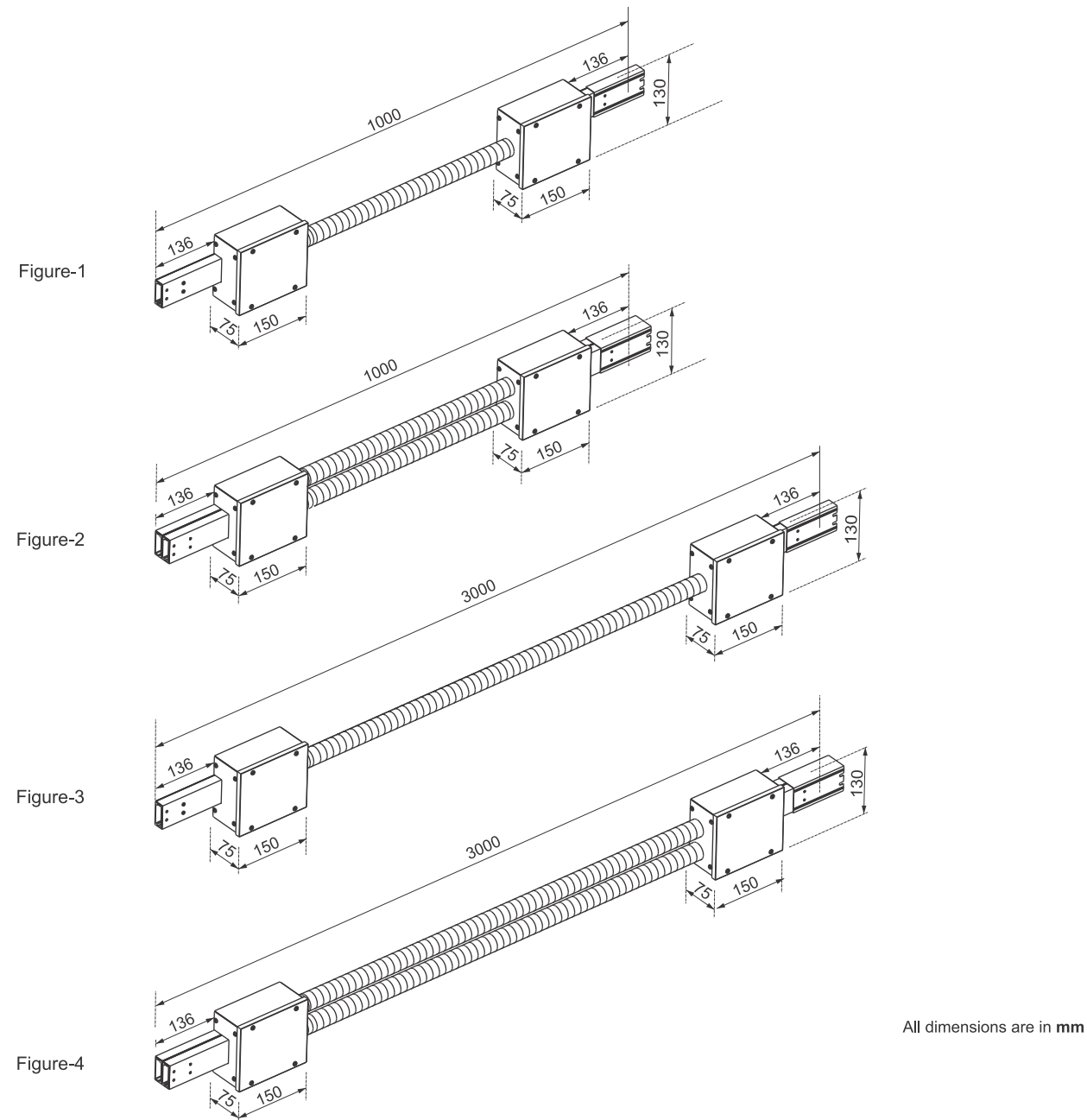


All dimensions are in mm

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

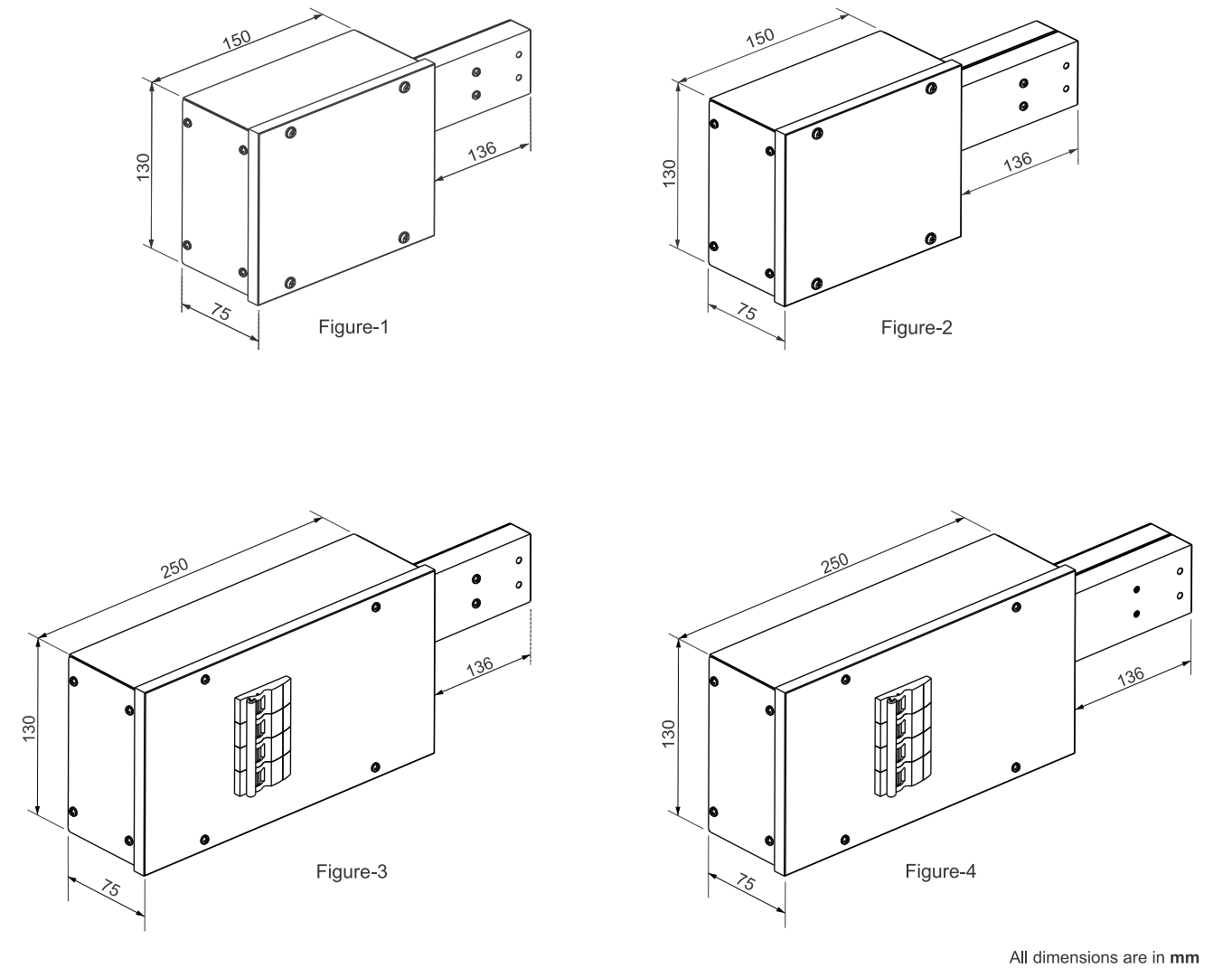
- Flexible Elbow is used to change or move the Lighting trunking run in any direction
- Flexible Elbow is available in standard length of 1 meter (for special application flexible elbow is available in 3 meter length also)



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

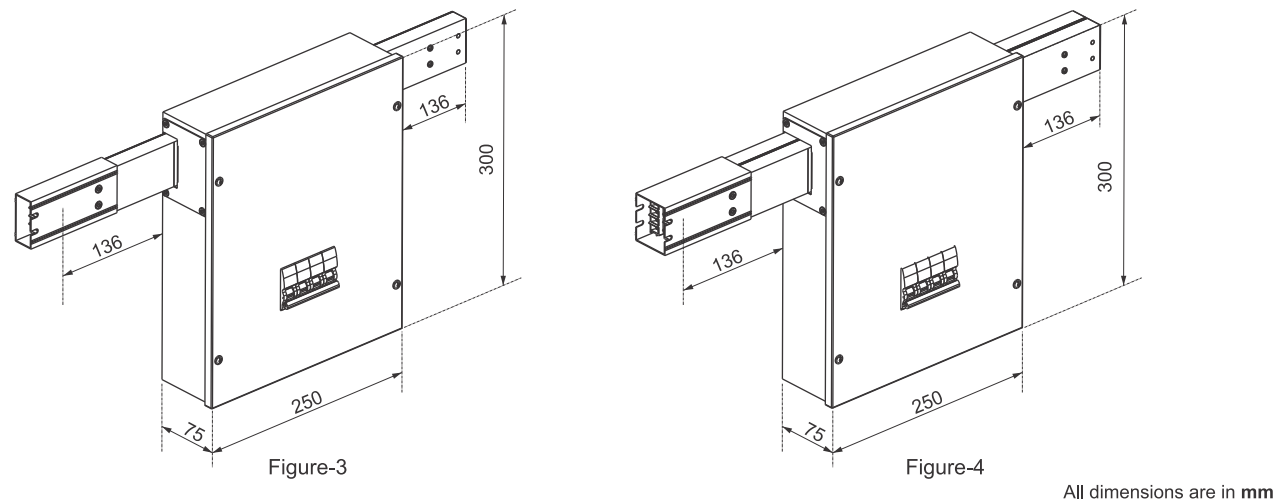
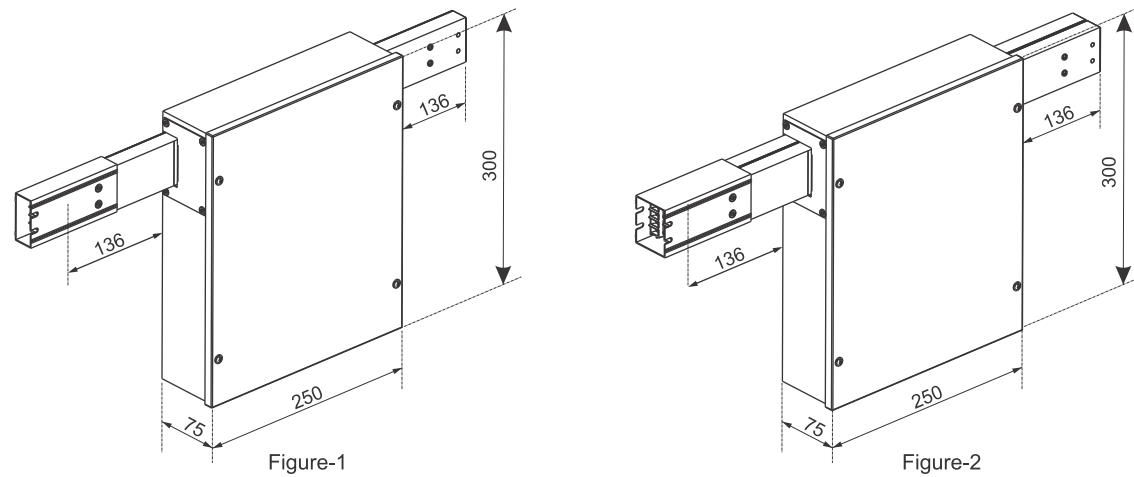
- End Feed Unit is used to power the Lighting trunking run from an end
- End Feed Unit is supplied with terminals suitable for connecting up to 16 sqmm copper cable
- End Feed Unit is available in 2 versions: Direct / with MCB provision



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

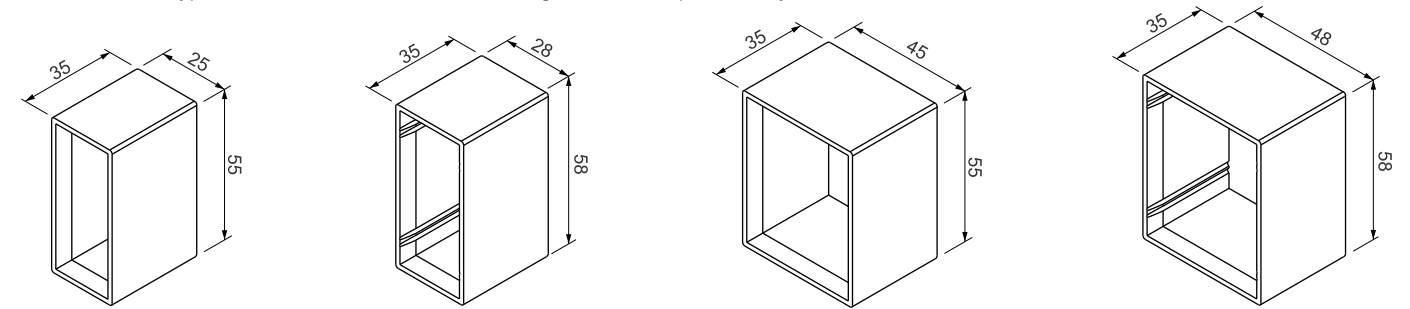
- Center Feed Unit is used to power the Lighting trunking run from an intermediate point
- Center Feed Unit reduces the voltage drop of the run
- Center Feed Unit is available in 2 versions: Direct / with MCB provision



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

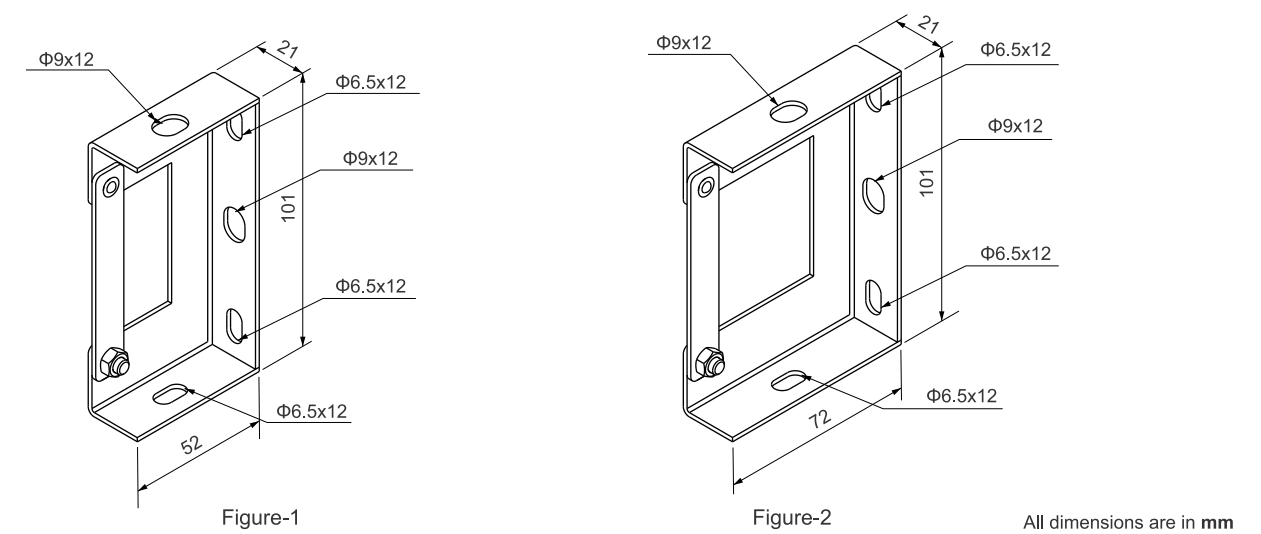
- End Cover is used to close and protect the open end of Lighting trunking run.
- End Cover type 1R/2R is used for run powered by End Feed Unit
- End Cover type 1R/2R and 1L/2L, both are used together for runs powered by Center Feed Unit



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



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





