

CAST RESIN BAR

IP68 BUSBAR SYSTEM



E+I ENGINEERING GROUP

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INTRODUCTION

Powerbar is a patented range of busbar trunking that is utilised within building and industrial applications to deliver power to electrical loads.

It is an alternative to traditional cabling and provides numerous advantages to the installer and client including savings on space, time and cost. There are also electrical savings due to reduced losses, reduced voltage drop and flexibility to reposition load centres using tap-off points.

Powerbar Overview

The Powerbar range of products is built with patented processes that make it the most reliable product of its type, providing peace of mind for your installation. This, together with unrivalled product support, means that the Powerbar range of products will provide the optimum solution to your distribution requirements.

Powerbar services the UK and European markets from our manufacturing plant in Donegal, Ireland and the Middle East from our plant in Ras Al Khaimah, U.A.E. We pride ourselves on meeting our client's deadlines and ensuring a quick turnaround on final make-up pieces.

From concept to commissioning we provide complete in-house engineering.

- Site surveys
- 3D - CAD Drawings
- Project Management
- Thermal Imaging

Our highly skilled team are experts at providing the client with exactly what they require and are experienced in producing bespoke parts to meet the client's unique demands.

Cast Resin

Powerbar's Cast Resin (CRB) range is a 1000 Volt, maintenance free, IP68 rated busbar system for outdoor, hazardous or life safety applications.

The conductor is available in aluminium or copper and is totally encapsulated in a fire retardant, self extinguishing and homogenous polymer concrete guaranteeing high resistance to fire, water, moisture, mechanical loads, chemicals and extreme temperature conditions (-40°C to 60°C).

The range is available from 800A to 6300A available with multiple configurations to suit project requirements, including neutral, double neutral, and earth.

STANDARDS

Standards

The Cast Resin Bar range is fully ASTA Tested Certified. It is manufactured in a **Certified Management System** environment where Quality ISO 9001, Safety OHSAS 18001 and Environmental ISO 14001 standards are applied to all aspects of the **manufacturing** and **installation** processes. It is manufactured in accordance with IEC61439-1 and IEC61439-6.

Type Tests

- 10.2 Verification of **Strength of materials and parts**
- 10.3 Verification of **Degree of protection of enclosures**
- 10.4 Verification of **Clearance and Creepage distances**
- 10.5 Verification of **Protection against electric shock and integrity of protective circuits.**
- 10.9 Verification of **Dielectric properties**
- 10.10 Verification of **Temperature rise limits**
- 10.11 Verification of **Short-circuit withstand strength**

ASTA Certificates

Powerbar completed extensive testing at ASTA and KEMA accredited laboratories to ensure the product we supply meets the international requirements.

UL Classified

Powerbar completed extensive testing at UL accredited laboratories to ensure the product we supply meets UL requirements.

Ingress Protection

The product has been rated at IP68 in accordance with IEC 60529.

Impact Resistance Test

The product has been rated at IK10 in accordance with IEC 62262.

Seismic Compliance

The product has a Qualification Level – High in accordance to IEEE Standard 693-2005.

Fire Resistance

The product has been rated at F 180 in accordance with IEC 60331-1 and meets ISO 834 standards.

Damp Heat

The product is in accordance with IEC60068-2-78 (Damp Heat Steady State) and IEC 60068-2-3 (Damp Heat Cyclic).

Explosive Atmosphere (ATEX)

The product has the following ATEX markings in accordance with IEC60079-0:2009 and IEC60079-18:2009:

Ex m II CT5 Gb

All certificates available on request



OHSAS 18001:2007
OHS 533652



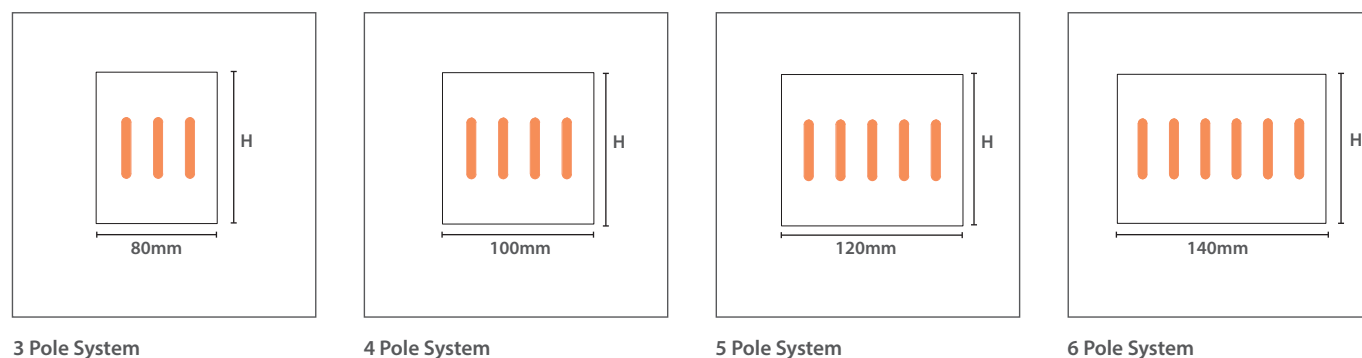
ISO 9001:2008
FM 12680



ISO 14001:2004
No: EMS 566536

BUSBAR DIMENSIONS

Busbar Widths



Configuration	Phases	Neutral	Earth
TP	100%	0%	0%
TP/N	100%	100%	0%
TP/E	100%	0%	100% or 50%
TP/NE	100%	100%	100% or 50%
TP/DN	100%	200%	0%

Note: If no earth bar is specified, earthing is to be provided by installation contractor.

Busbar Heights

Key: SS - Single Stack DS - Double Stack

Copper Rating (A)	Construction Type	Busbar Height (H) (mm)
800	SS	100
1000	SS	130
1250	SS	105
1400	SS	120
1600	SS	145
2000	SS	175
2500	SS	210
3200	DS	310
4000	DS	360
5000	DS	460
6300	DS	560

Aluminium Rating (A)	Construction Type	Busbar Height (H) (mm)
1000	SS	110
1250	SS	130
1400	SS	150
1600	SS	180
2000	SS	230
2500	DS	300
3200	DS	380
4000	DS	540
5000	DS	620

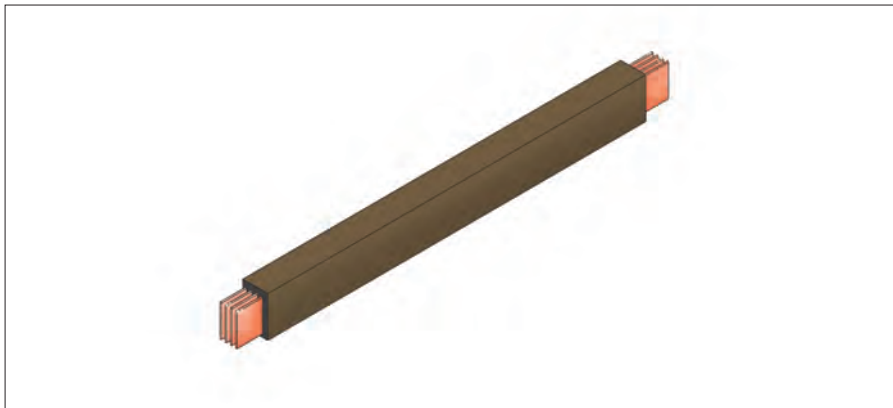
CHEMICAL RESISTANCE

Key:

- 1 - Cast Resin is resistant to chemical
- 2 - Chemical evaporated quickly from Cast Resin
- 3 - Cast Resin is affected by chemical

Chemicals	Directly After Contact	After 24 hours	More Than 48 hours
Boric Acid	1	1	1
Hydrochloric Acid 10%	1	3	3
Sulfuric Acid 10%	1	1	1
Citric Acid	1	3	3
Lactic Acid 5%	1	3	3
Formic Acid 10%	3	3	3
Nitric Acid 10%	1	3	3
Acetic Acid 10%	3	3	3
Ethanol	1	1	1
Acetone	1	2	2
Calcium Chloride	1	1	1
Fuel (Diesel)	1	1	1
Ester	1	3	3
Ether	1	2	2
Formalin 37%	3	3	3
Glycerol	1	3	3
Ammonia 10%	1	1	1
Ammonia 30%	1	3	3
Sodium Hydroxide 10%	1	1	1
Sodium Hydroxide 50%	1	3	3
Lubricant	1	1	1
Engine Oil	1	1	1
Pentane	1	1	1
Toluene	1	3	3
Chlorinated Hydrocarbons	3	3	3
Javel Water	1	1	1

STRAIGHT LENGTHS



Feeder Length

Feeder lengths can be supplied at any length between a minimum of 500mm and a maximum of 4000mm.

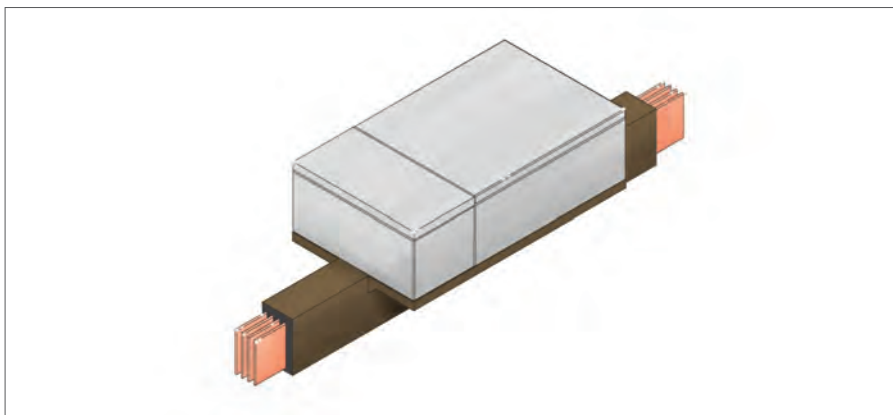
Feeder lengths account for the bulk of a busbar run.

SS Length

Min = 500mm - Max = 4000mm

DS Length

Min = 500mm - Max = 4000mm



Distribution Length

Distribution lengths are like feeder lengths but with tap off slots. Tap off slots allow tap off units to be plugged into the busbar run.

Key Features of tap-off box:

- High impact strength
- Resistance to adverse climate condition
- Resistant to UV Radiation
- Flame retardant
- Frame sizes:
 - 250A plug-in frame (MCCB Trip unit 32A-250A)
 - 630A plug-in frame (MCCB Trip unit 315A-630A)
 - 800A plug-in frame (MCCB Trip unit 800A)
 - 1600A plug-in frame (ACB Trip unit 1000A-1600A)
- IP68
- Side or bottom IP68 cable entry.

Key features of plug-in type MCCB (Internal):

- Unambiguous remote signalling of the circuit breaker positions, On/Off/Tripped, wired with auxiliary contacts
- Option to lock plug-in device with padlocks to prevent insertion of the circuit breaker
- Visible conductive disconnection of the main circuit
- Easy to exchange the circuit breaker in case of failure, simply plug-in/plugin-out the MCCB

Minimum Busbar Length (mm)

1500mm up to 2 tap off points

Maximum Busbar Length (mm)

4000mm up to 6 tap off points

There are two types of tap off unit enclosures available:

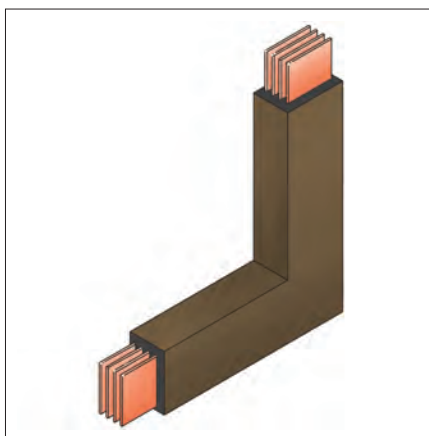
Option A:

Glass reinforced polyester enclosure for standard IP68.

Option B:

Stainless steel housing for IP68, flame retardant & extreme environmental conditions.

ELBOWS



Flatwise Elbows

Flatwise elbows are typically used to make 90° changes in the direction of the busbar system. There are two kinds, flatwise up and flatwise down. These can be used to turn the busbar route up or down if it is running on its edge, or to turn the busbar left and right if it is running on its flat.

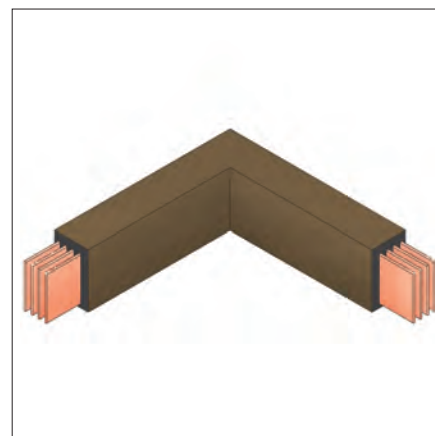
SS Length

Min = 300mm - Max = 1000mm

DS Length

Min = 500mm - Max = 1000mm

Total Max Length = 2000mm



Edgewise Elbows

Edgewise elbows are typically used to make 90° changes in the direction of the busbar system. There are two kinds, edgewise right and edgewise left. These can be used to turn the busbar route up or down if it is running on its flat, or to turn the busbar left and right if it is running on its edge.

SS Length

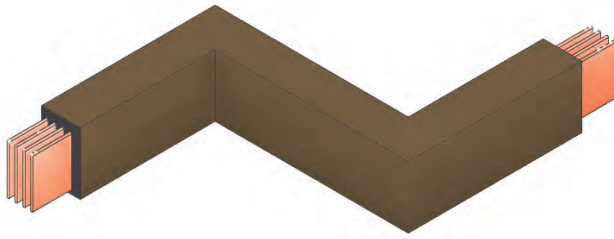
Min = 300mm - Max = 1000mm

DS Length

Min = 300mm - Max = 1000mm

Total Max Length = 2000mm

OFFSETS & COMBINATION ELBOWS



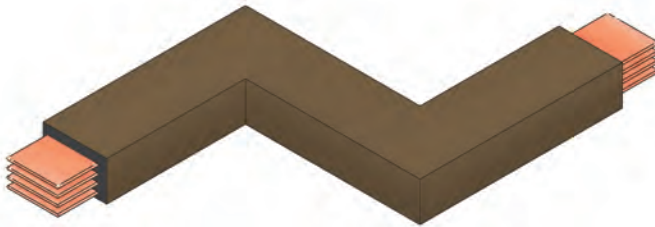
Edgewise Offset

Offset Sections (Flat & Edge)

An offset is used to avoid obstacles such as pipes or steel columns and to conform to the structure of the building. It is basically two elbows fabricated into one single piece. There are four types of offset sections; flatwise offset up and down, and edgewise offset left and right.

Length per leg

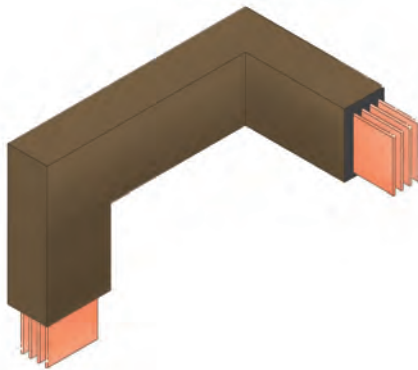
Min = 350mm - Max = 500mm
Max Offset = 600mm



Flatwise Offset

Combination Possibilities

Flatwise Offset Up
Flatwise Offset Down
Edgewise Offset Right
Edgewise Offset Left



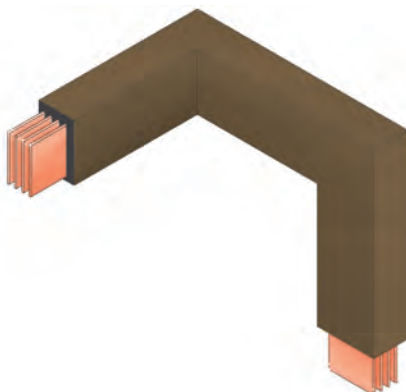
Edgewise Flatwise Offset

Combination Elbows

Combination elbows are used to conform to the building structure and to utilise a small amount of space to change direction by combining both flatwise and edgewise elbows.

Length per leg

Min = 350mm - Max = 500mm



Flatwise Edgewise Offset

Combination Possibilities

Edgewise Right/Flatwise Up
Edgewise Right/Flatwise Down
Edgewise Left/Flatwise Up
Edgewise Left/Flatwise Down
Flatwise Up/Edgewise Left
Flatwise Up/Edgewise Right
Flatwise Down/Edgewise Left
Flatwise Down/Edgewise Right

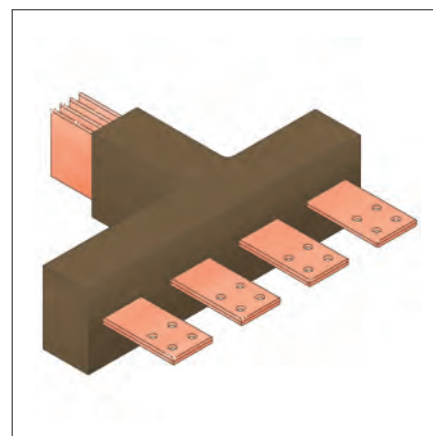
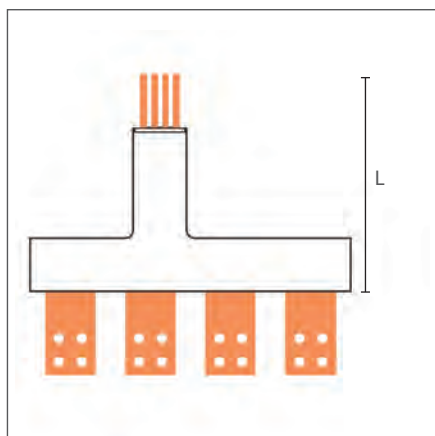
FLANGES

Flange Connections

Flange connections provide a direct connection to low voltage switchgear, transformer enclosures, and other electrical equipment.

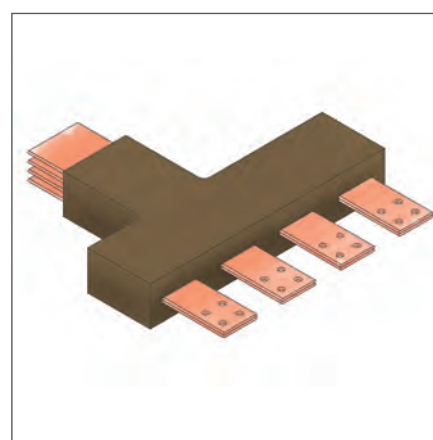
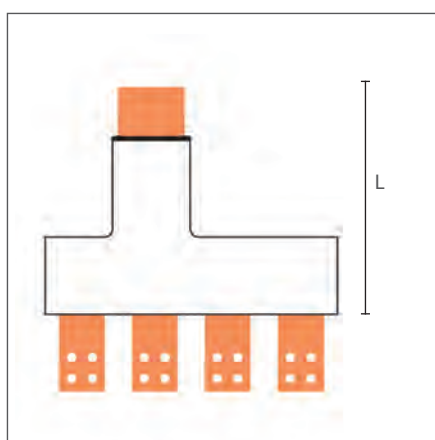
Panel Flange T2

L - Min = 500mm - Max = 1000mm



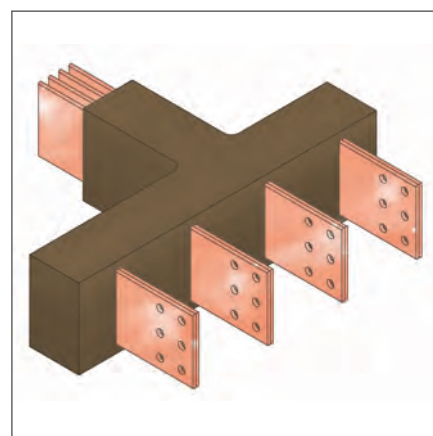
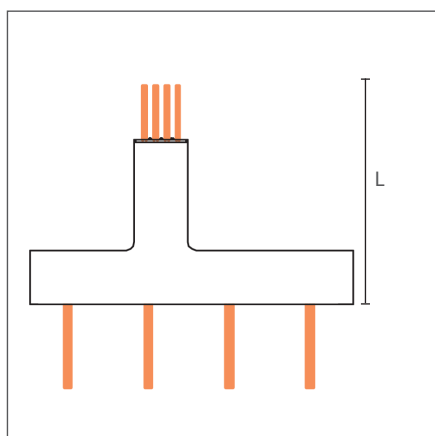
Panel Flange T3

L - Min = 500mm - Max = 1000mm



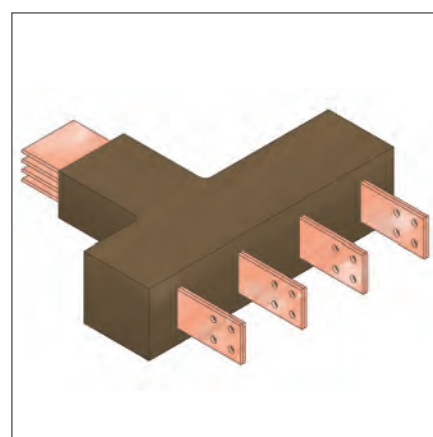
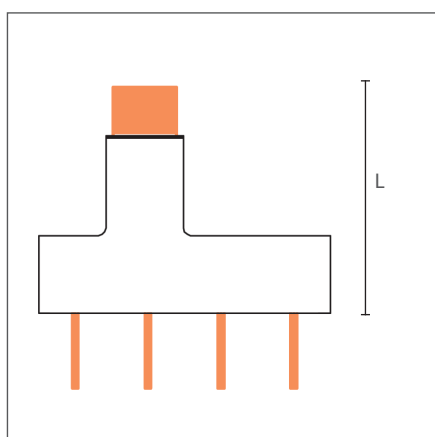
Panel Flange T4

L - Min = 500mm - Max = 1000mm

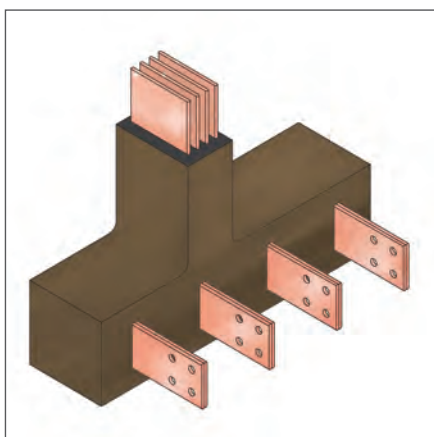


Panel Flange T5

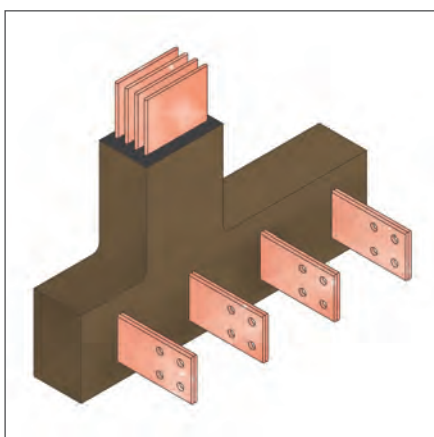
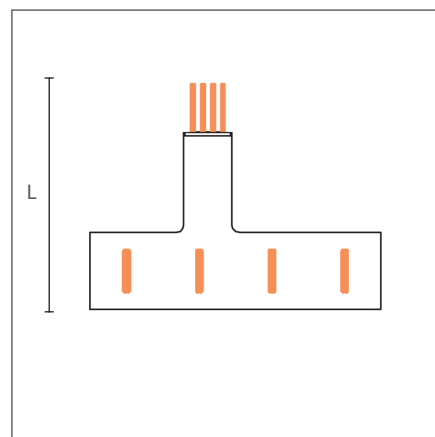
L - Min = 500mm - Max = 1000mm



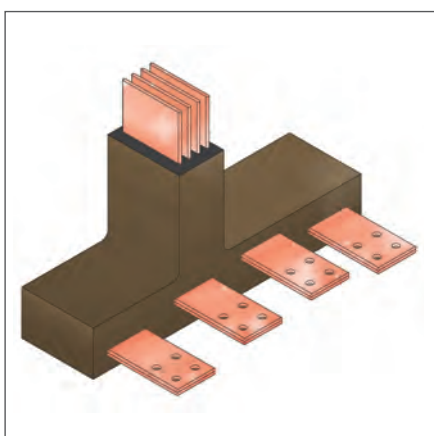
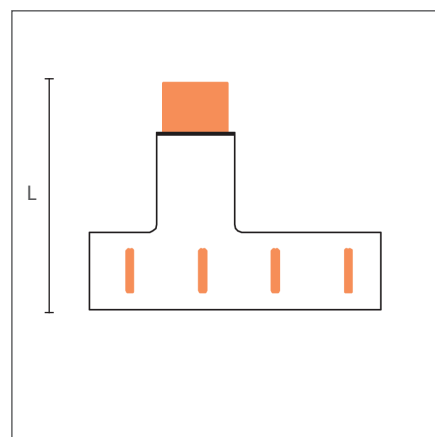
FLANGES



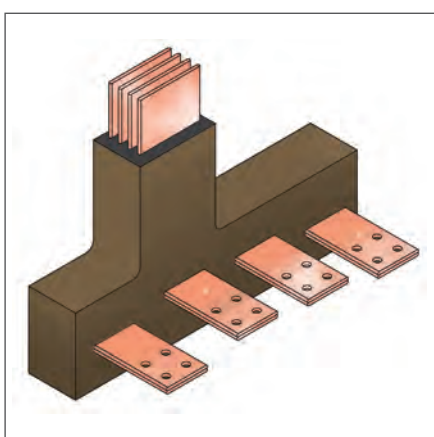
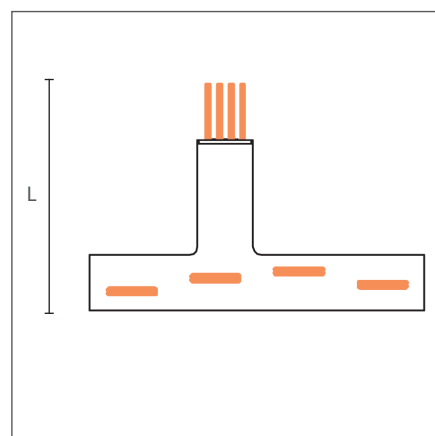
Panel Flange T6
L - Min = 500mm - Max = 1000mm



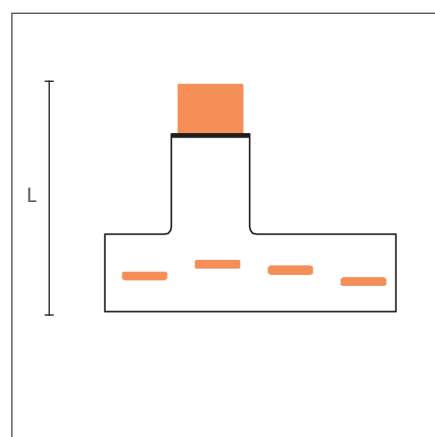
Panel Flange T7
L - Min = 500mm - Max = 1000mm



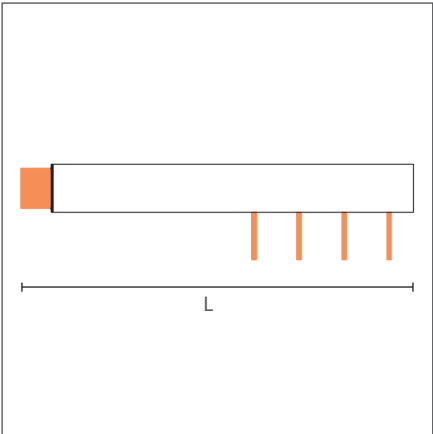
Panel Flange T8
L - Min = 300mm - Max = 1000mm



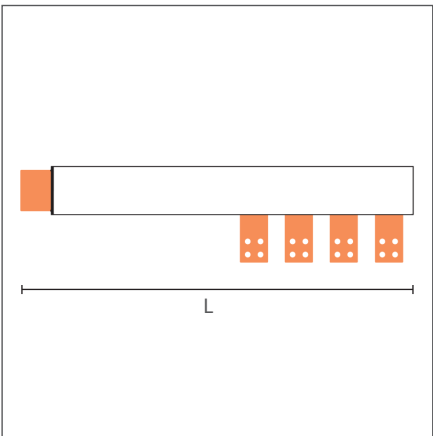
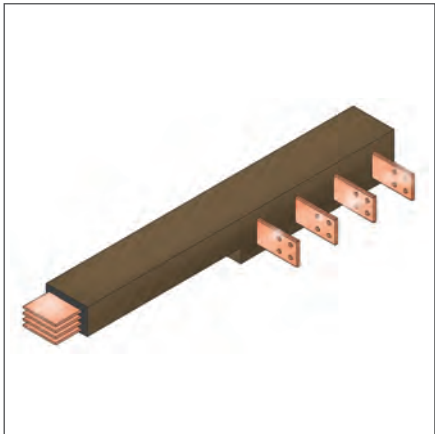
Panel Flange T9
L - Min = 300mm - Max = 1000mm



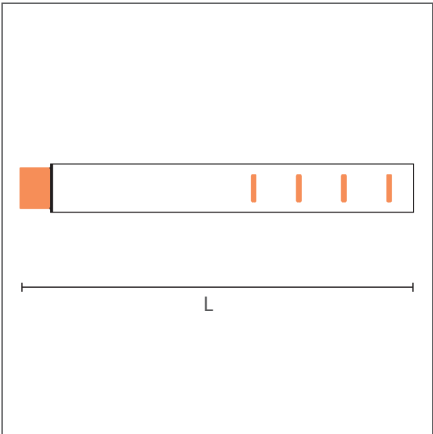
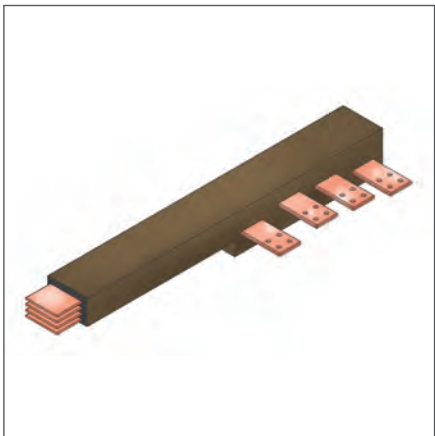
FLANGES



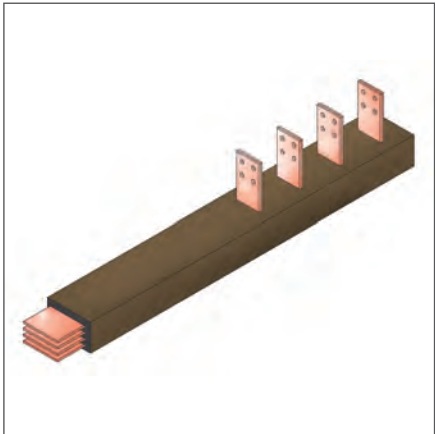
Panel Flange T10
L - Min = 500mm - Max = 1000mm



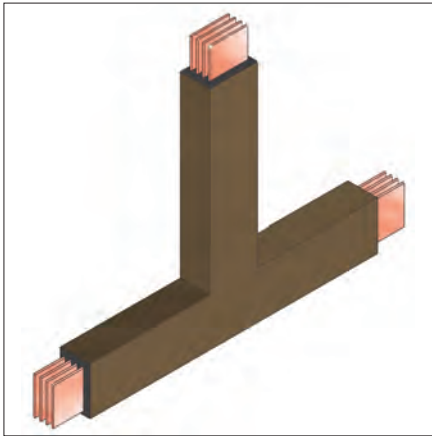
Panel Flange T11
L - Min = 500mm - Max = 1000mm



Panel Flange T12
L - Min = 300mm - Max = 1000mm



SPECIALS



Flatwise Tee

Flatwise tee's are used to split one busbar run into two runs going in different directions. This can be very useful in utilising a small amount of space and supplying two different parts of a building with power. They are a combination of a feeder length and a flatwise elbow.

SS Length per Leg

A Min = 300mm - Max = 1500mm

B Min = 300mm - Max = 1000mm

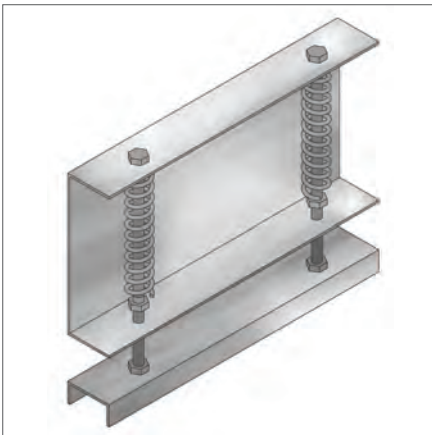
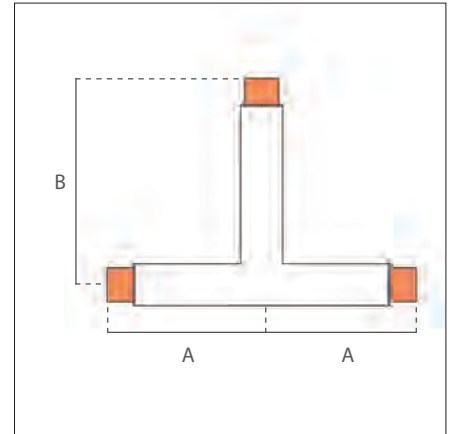
Total Max = 2000mm

DS Length per Leg

A Min = 500mm - Max = 1500mm

B Min = 500mm - Max = 1500mm

Total Max = 2000mm



Spring Hanger

Spring hangers are used to support vertical busbar runs on each floor and they also compensate for building movement and thermal expansion.

The standard spring bracket is designed to suit our single stack busbar system, for multistack arrangements please contact our engineering team for details.

Special Sections

We manufacture a variety of more specialised units and components to meet unique system requirements. These range from end feed units, centre feed units, expansions units, edgewise tee's, flatwise crosses, step up/step down reducers, phase rotation units, in-line disconnect cubicles, in-line tap off units and custom built busbar connection units.

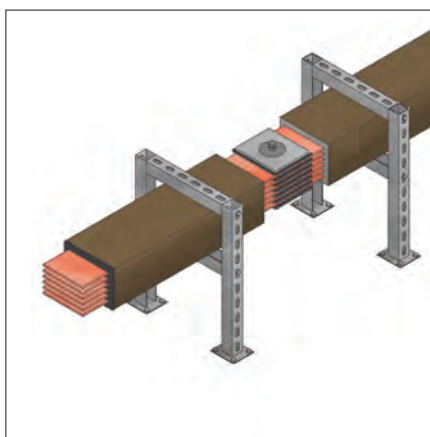
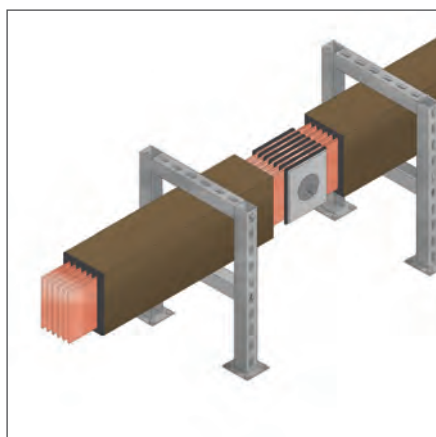
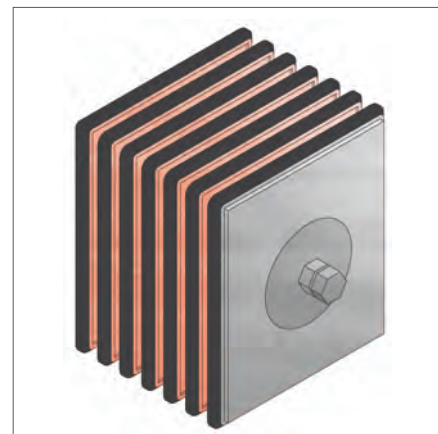
Powerbar can produce a wide range of special sections of busbar to suit a wide variety of applications and unusual issues that may arise.

Please contact Powerbar regarding any special requirements as we take pride in our ability to produce bespoke parts to meet our clients needs.

Joint Pack

The Powerbar joint pack is a compression joint design, which utilises a specially designed Belleville washer to distribute the pressure evenly over the joint pack.

Joint packs are used to connect all the components in a busbar system together, from feeder lengths to flatwise tee's.



Edge Installation cross-section

Edge Installation

This is the preferred method of installation for the smaller rated busbar system. It is also the main method used to install distribution busbar in building risers as it ensures tap off units can be connected easily.

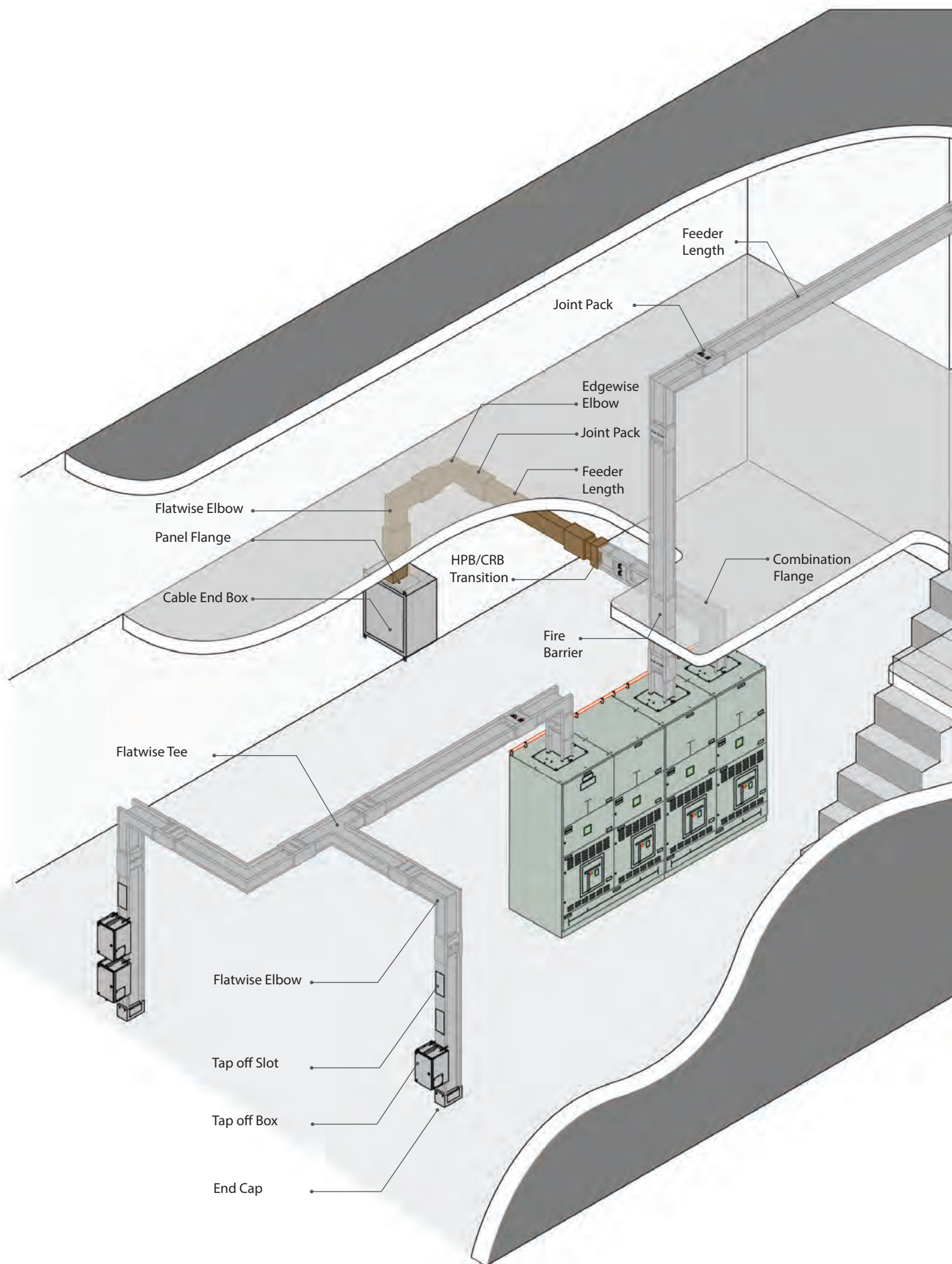
Flat Installation

This is the preferred method of installation for the higher rated, multistack busbar systems. When coordinated throughout the building on its flat any busbar rating only has a height of 140mm.

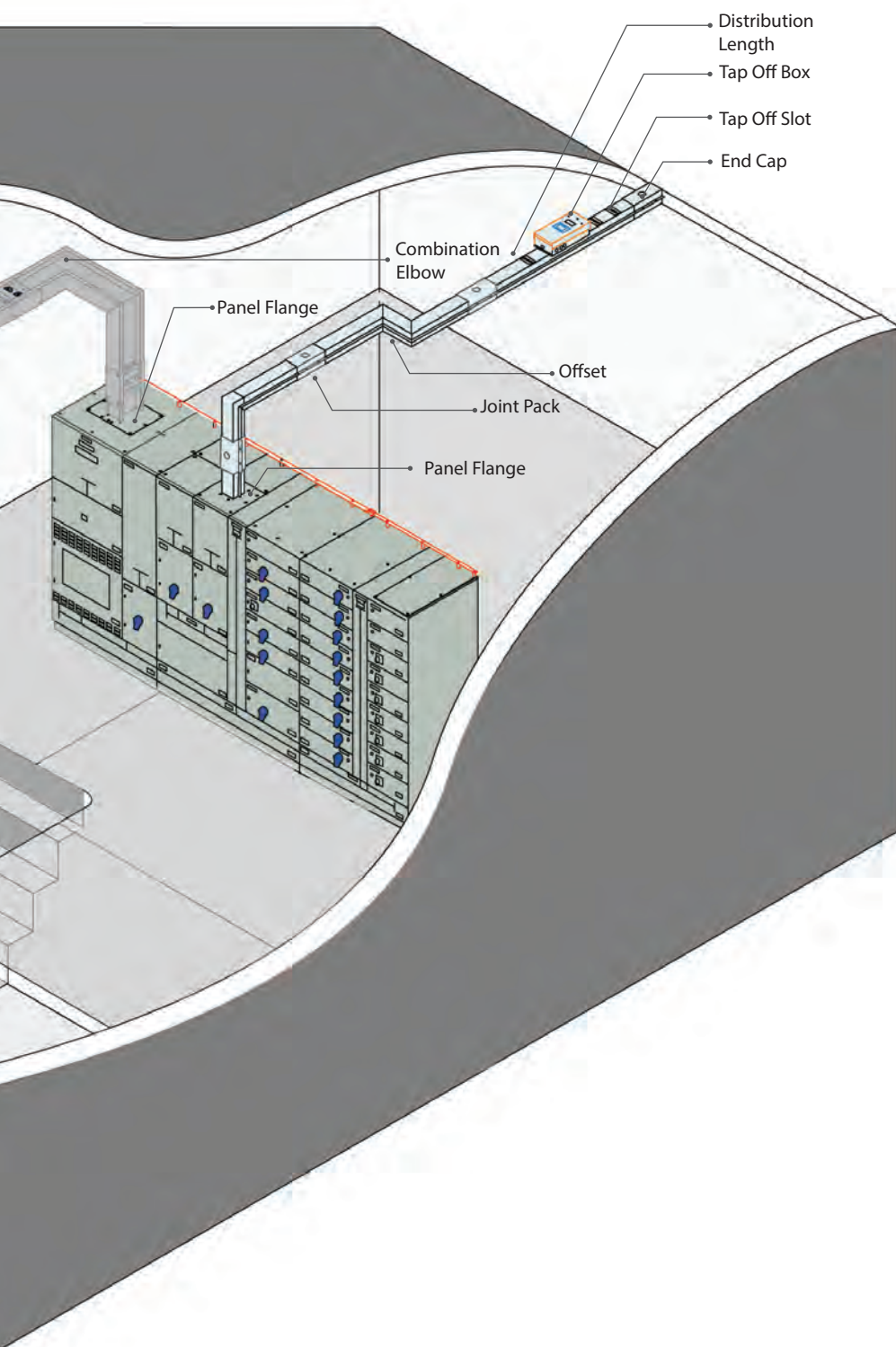
Note

Powerbar's Cast Resin Bar product can be directly connected to our High Powerbar product through a special jointing system. This feature is useful in systems where only a small section of the bar will be exposed to extreme conditions and require an IP68 rating.

TYPICAL INSTALLATION



TYPICAL INSTALLATION



E&I Engineering provide high voltage and low voltage switchgear and Powerbar provides a range of busbar trunking for power distribution. Together we can provide complete power solutions for your project.




We have three ranges of Powerbar:

MPB - Medium Powerbar. Our air insulated range available with both copper and aluminium conductors. This range covers 160-800 Amps

HPB - High Powerbar. Our sandwich construction range available with both copper and aluminium conductors. This range covers 800-6600 Amps.

CRB - Cast Resin Bar. Our IP68 rated polymer concrete product for use in extreme conditions. This range is available with both copper and aluminium conductors. This range covers 800-6300 Amps.

Key.

	MPB
	HPB
	Cast Resin

TECHNICAL DATA (COPPER)

Technical Data - Copper					
Rated Current (A)	800	1000	1250	1400	1600
Rated Operational Voltage (V)	1000	1000	1000	1000	1000
Rated Insulation Voltage (V)	1000	1000	1000	1000	1000
Short Circuit					
1 Second (kA rms)	40	40	50	50	65
Peak Value (kA)	88	84	105	105	143
Phase Conductor					
Cross Sectional Area (mm ²)	240	328	450	540	690
Neutral Conductor					
Cross Sectional Area (mm ²)	240	328	450	540	690
Isolated Earth Conductor					
100% Earth Cross Sectional Area (mm ²)	240	328	450	540	690
50% Earth Cross Sectional Area (mm ²)	120	210	225	270	345
Overall Dimensions					
Height x Width of 4 Bar System (mm)	100 x 100	130 x 100	105 x 100	120 x 100	145 x 100
Weight					
Weight of 4 Bar System (kg/m)	30.9	42.9	37.5	43.6	53.6
Resistance					
Resistance (mΩ/m) at 20°C	0.048	0.052	0.040	0.033	0.026
Resistance (mΩ/m) at 80°C	0.060	0.064	0.050	0.041	0.032
Reactance					
Reactance (mΩ/m) at 50Hz	0.051	0.047	0.045	0.040	0.033
Impedance					
Impedance (mΩ/m) at 80°C	0.079	0.080	0.067	0.057	0.046
Voltage Drop at Full Load 50Hz					
Power Factor = 0.7 (V/m) at 80°C	0.155	0.136	0.145	0.138	0.127
Power Factor = 0.8 (V/m) at 80°C	0.156	0.138	0.145	0.137	0.125
Power Factor = 0.9 (V/m) at 80°C	0.153	0.136	0.139	0.131	0.119
Power Factor = 1.0 (V/m) at 80°C	0.124	0.111	0.107	0.100	0.089
Voltage Drop Full Load 60Hz					
Power Factor = 0.7 (V/m) at 80°C	0.168	0.148	0.158	0.152	0.140
Power Factor = 0.8 (V/m) at 80°C	0.168	0.148	0.157	0.149	0.136
Power Factor = 0.9 (V/m) at 80°C	0.162	0.143	0.148	0.140	0.128
Power Factor = 1.0 (V/m) at 80°C	0.125	0.112	0.108	0.100	0.089

TECHNICAL DATA (COPPER)

Technical Data - Copper						
Rated Current (A)	2000	2500	3200	4000	5000	6300
Rated Operational Voltage (V)	1000	1000	1000	1000	1000	1000
Rated Insulation Voltage (V)	1000	1000	1000	1000	1000	1000
Short Circuit						
1 Second (kA rms)	65	65	100	100	100	120
Peak Value (kA)	143	143	220	220	220	280
Phase Conductor						
Cross Sectional Area (mm ²)	870	1080	1500	1800	2400	3000
Neutral Conductor						
Cross Sectional Area (mm ²)	870	1080	1500	1800	2400	3000
Isolated Earth Conductor						
100% Earth Cross Sectional Area (mm ²)	870	1080	1500	1800	2400	3000
50% Earth Cross Sectional Area (mm ²)	435	540	750	900	1200	1500
Overall Dimensions						
Height x Width of 4 Bar System (mm)	175 x 100	210 x 100	310 x 100	360 x 100	460 x 100	560 x 100
Weight						
Weight of 4 Bar System (kg/m)	65.7	79.7	115.3	135.4	175.6	215.8
Resistance						
Resistance (mΩ/m) at 20°C	0.020	0.016	0.012	0.010	0.007	0.006
Resistance (mΩ/m) at 80°C	0.025	0.020	0.015	0.012	0.009	0.007
Reactance						
Reactance (mΩ/m) at 50Hz	0.027	0.021	0.016	0.014	0.011	0.009
Impedance						
Impedance (mΩ/m) at 80°C	0.037	0.029	0.022	0.018	0.014	0.011
Voltage Drop at Full Load 50Hz						
Power Factor = 0.7 (V/m) at 80°C	0.128	0.126	0.120	0.127	0.122	0.125
Power Factor = 0.8 (V/m) at 80°C	0.126	0.125	0.118	0.125	0.119	0.121
Power Factor = 0.9 (V/m) at 80°C	0.120	0.119	0.112	0.117	0.110	0.113
Power Factor = 1.0 (V/m) at 80°C	0.088	0.088	0.081	0.084	0.078	0.079
Voltage Drop Full Load 60Hz						
Power Factor = 0.7 (V/m) at 80°C	0.142	0.140	0.133	0.141	0.136	0.139
Power Factor = 0.8 (V/m) at 80°C	0.138	0.136	0.129	0.137	0.131	0.134
Power Factor = 0.9 (V/m) at 80°C	0.128	0.127	0.120	0.126	0.120	0.122
Power Factor = 1.0 (V/m) at 80°C	0.088	0.088	0.081	0.084	0.079	0.079

TECHNICAL DATA (ALUMINIUM)

Technical Data - Aluminium					
Rated Current (A)	1000	1250	1400	1600	2000
Rated Operational Voltage (V)	1000	1250	1400	1600	2000
Rated Insulation Voltage (V)	1000	1000	1000	1000	1000
Short Circuit					
1 Second (kA rms)	25	36	36	50	50
Peak Value (kA)	52	78	78	105	105
Phase Conductor					
Cross Sectional Area (mm ²)	480	600	720	900	1200
Neutral Conductor					
Cross Sectional Area (mm ²)	480	600	720	900	1200
Isolated Earth Conductor					
100% Earth Cross Sectional Area (mm ²)	480	600	720	900	1200
50% Earth Cross Sectional Area (mm ²)	240	300	360	450	600
Overall Dimensions					
Height x Width of 4 Bar System (mm)	110 x 100	130 x 100	150 x 100	180 x 100	230 x 100
Weight					
Weight of 4 Bar System (kg/m)	27.6	32.6	37.7	45.2	57.8
Resistance					
Resistance (mΩ/m) at 20°C	0.066	0.053	0.025	0.020	0.015
Resistance (mΩ/m) at 80°C	0.082	0.065	0.054	0.043	0.032
Reactance					
Reactance (mΩ/m) at 50Hz	0.044	0.037	0.032	0.026	0.021
Impedance					
Impedance (mΩ/m) at 80°C	0.093	0.075	0.063	0.051	0.03
Voltage Drop at Full Load 50Hz					
Power Factor = 0.7 (V/m) at 80°C	0.153	0.156	0.148	0.136	0.130
Power Factor = 0.8 (V/m) at 80°C	0.158	0.161	0.152	0.14	0.134
Power Factor = 0.9 (V/m) at 80°C	0.162	0.162	0.152	0.14	0.133
Power Factor = 1.0 (V/m) at 80°C	0.141	0.141	0.132	0.12	0.112
Voltage Drop Full Load 60Hz					
Power Factor = 0.7 (V/m) at 80°C	0.164	0.167	0.159	0.147	0.141
Power Factor = 0.8 (V/m) at 80°C	0.168	0.171	0.161	0.149	0.143
Power Factor = 0.9 (V/m) at 80°C	0.167	0.169	0.159	0.147	0.140
Power Factor = 1.0 (V/m) at 80°C	0.142	0.142	0.132	0.121	0.113

TECHNICAL DATA (ALUMINIUM)

Technical Data - Aluminium				
Rated Current (A)	2500	3200	4000	5000
Rated Operational Voltage (V)	2500	3200	4000	5000
Rated Insulation Voltage (V)	1000	1000	1000	1000
Short Circuit				
1 Second (kA rms)	80	80	100	100
Peak Value (kA)	176	176	221	221
Phase Conductor				
Cross Sectional Area (mm ²)	1440	1920	2880	3360
Neutral Conductor				
Cross Sectional Area (mm ²)	1440	1920	2880	3360
Isolated Earth Conductor				
100% Earth Cross Sectional Area (mm ²)	1440	1920	2880	3360
50% Earth Cross Sectional Area (mm ²)	720	960	1440	1680
Overall Dimensions				
Height x Width of 4 Bar System (mm)	300 x 100	380 x 100	540 x 100	620 x 100
Weight				
Weight of 4 Bar System (kg/m)	75.3	95.5	135.8	156.0
Resistance				
Resistance (mΩ/m) at 20°C	0.013	0.01	0.006	0.005
Resistance (mΩ/m) at 80°C	0.027	0.021	0.014	0.012
Reactance				
Reactance (mΩ/m) at 50Hz	0.017	0.013	0.009	0.008
Impedance				
Impedance (mΩ/m) at 80°C	0.032	0.025	0.017	0.014
Voltage Drop at Full Load 50Hz				
Power Factor = 0.7 (V/m) at 80°C	0.135	0.132	0.113	0.121
Power Factor = 0.8 (V/m) at 80°C	0.138	0.136	0.115	0.123
Power Factor = 0.9 (V/m) at 80°C	0.138	0.135	0.113	0.122
Power Factor = 1.0 (V/m) at 80°C	0.117	0.113	0.095	0.101
Voltage Drop Full Load 60Hz				
Power Factor = 0.7 (V/m) at 80°C	0.145	0.143	0.122	0.131
Power Factor = 0.8 (V/m) at 80°C	0.147	0.145	0.122	0.132
Power Factor = 0.9 (V/m) at 80°C	0.144	0.141	0.119	0.128
Power Factor = 1.0 (V/m) at 80°C	0.118	0.114	0.095	0.101

QUICK REFERENCE GUIDE

Critical Dimensions

Busbar passing through a wall, ceiling or floor:

- From the centre-line of a joint to the wall, ceiling or floor allow a minimum of 190mm.
- Joints cannot be positioned inside a wall, ceiling or floor – joints must be accessible for maintenance.

Busbar Clearances:

- From the top of the busbar to a wall, ceiling, floor or another busbar allow a minimum of 200mm. This is to allow for joint pouring.

Tap off Clearances:

- Ensure adequate space is given to allow the tap off unit to be operated both easily and safely.

Feeder Busbar Length:

- Minimum length - 500mm
- Maximum length - 4000mm

Distribution Busbar Length:

- Minimum length - 500mm
- Maximum length - 4000mm

Flatwise Elbow Section:

- Minimum leg length – 300mm for Single Stack
500mm for Double Stack
- Maximum leg length – 1000mm
- Total maximum length – 2000mm

Edgewise Elbow Section:

- Minimum leg length – 300mm
- Maximum leg length – 1000mm
- Total maximum length – 2000mm

Critical Details

- Busbar drawing must have all relevant dimensions.
- Centre-line dimensions are expected, please highlight any dimensions that are not centre-line dimensions.
- Walls and floors must be located, shown and dimensioned.
- The front of all switchboards must be given and the phasing for any existing boards provided.
- Transformer connections require full details.
- When using rising busbar please note the phase orientation of the distribution sections.
- Horizontal distribution busbar positioned on its 'flat' must always be oriented with the Neutral phase to the top.

Operating Conditions:

- Ambient Temp : -40°C to +60°C
- Relative Humidity: 100% or below
- Product designed for both indoor and outdoor use

OTHER BROCHURES

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These brochures can also be accessed through our website.



Product Overview



HPB Copper



HPB Aluminium



HPB IEC Copper



HPB ADDC Copper



MPB Busbar System



Cast Resin Bar



Tap Off Units

From our partners at **E&I Engineering**



Switchgear



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