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About Anord Mardix

Anord Mardix is a leading provider of power distribution and protection equipment to the global market. We are a vendor of choice to many of the world's leading data center and cloud computing industries.

Our ability to customize and produce on a large scale delivers the most reliable end-to-end power systems to all our customers, from independent providers to hyper-scale leaders.

www.anordmardix.com/resinbar



RESINBAR
CAST RESIN BUSBAR TRUNKING SYSTEM

RESINBAR's range of power distribution busbar has been developed to meet the growing demands of the critical power industry. Each system employs innovative designs which improve performance and reduce costs. Utilising only the best available technologies ensures that our finished product is of the highest quality.

RESINBAR employs more than 50 years of leading-edge experience incorporating all the quality, reliability and innovation for which Anord Mardix is renowned. All RESINBAR products are manufactured within the UK to the latest British Standards (BS EN 61439-6).

Our highly skilled engineering teams and applications engineers can tailor a solution to meet even the most demanding of requirements.

RESINBAR is an arrangement of Copper (CXC) or Aluminium (CXA) busbars which are fully encapsulated within a specialist IP68 rated composite epoxy resin.

The RESINBAR formulated epoxy resin system provides both mechanical strength and electrical insulation to the busbars. Additionally, it provides enhanced environmental, fire and chemical resistance. Making the system suitable for use outside, in arduous environments and as part of a life safety system.

RESINBAR employs the very latest patented technologies in vacuum composite mixing to ensure a highly uniform and homogenous mix which is flame retardant and self extinguishing and offers high levels of resistance to fire, water, humidity and chemicals.

Feeder Busbar

There are many applications which require the ability to move large amounts of power; the most common of which is the feeding of power between transformers and low voltage switchboards and then further sub-distribution.

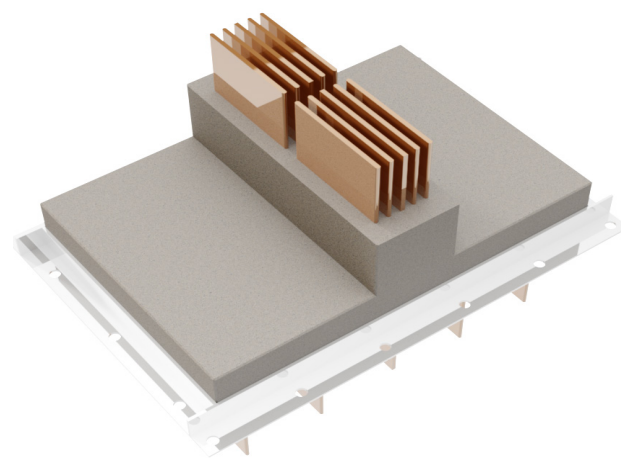
RESINBAR's range provides a high-power feeder busbar solution with busbar ratings ranging from 1000A up to 6300A.

Each rating type can be supplied with between 3 and 6 conductive bars.

Configurations are available for 3-phase, 3-phase and neutral, integral protected earth and optional double rated neutral.

Distribution Busbar

Adding tapping slots along the length of the busbar allows for multiple load centres to be serviced from a single run. Tapping slots must be populated on install.



Testing & Certification

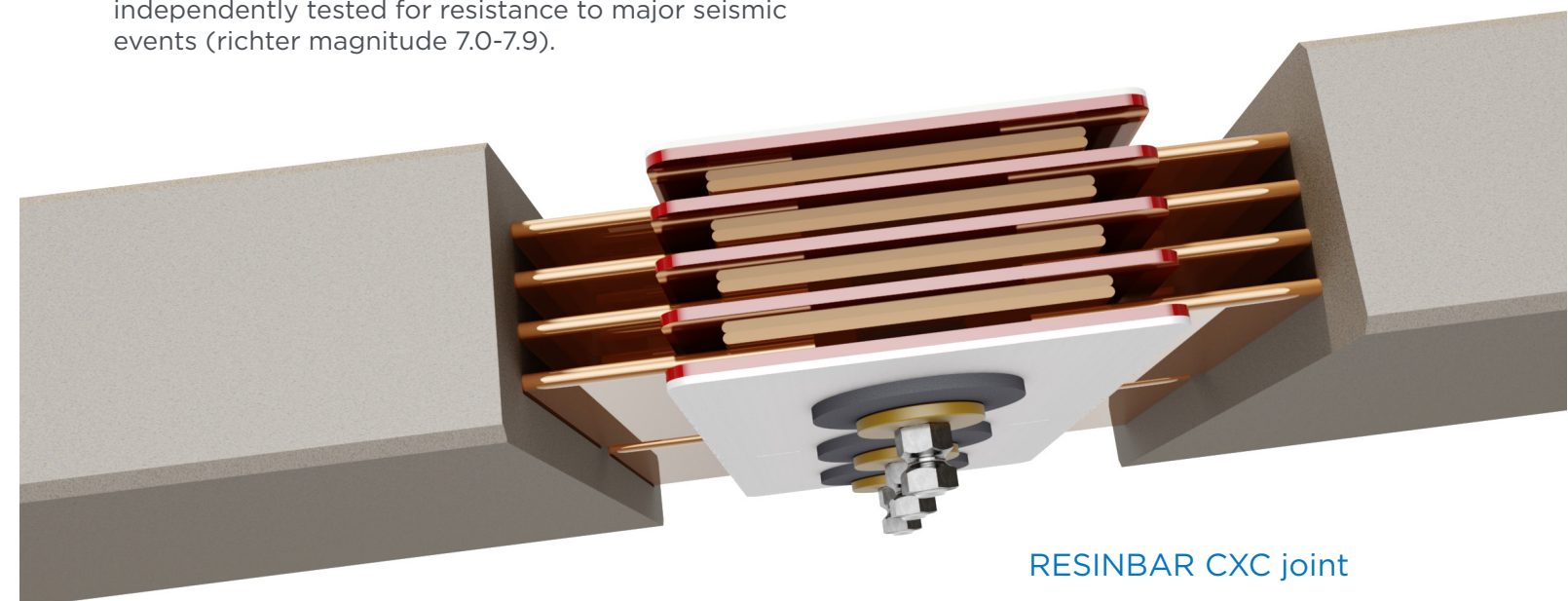
The RESINBAR product has undergone extensive testing which has been independently certified by Intertek to ASTA standards and in accordance with IEC/BS EN 61439.

The system has been independently tested for ingress protection (IP68), impact resistance (IK10), short-circuit withstand, heat-rise, flame propagation (IEC 60332-3-10), fire penetration (ISO 834-1) and fire resistance (BS 8519, BS 8491, IEC 60331-1).

Additionally, the busbar trunking system has been independently tested for resistance to major seismic events (richter magnitude 7.0-7.9).



Intertek



RESINBAR CXC joint

Technical Overview CXC (Copper Conductor)

| Rated Current in [A] | | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3200 | 4000 | 5000 | 6300 |
|-----------------------------|--------|----------------------------------|------|------|------|------|------|------|------|------|------|
| Rated operating voltage | Ue [V] | 1000 | | | | | | | | | |
| Rated insulation voltage | Ui [V] | 1000 | | | | | | | | | |
| Frequency | f [Hz] | 50/60 | | | | | | | | | |
| Degree of protection | IP | 68 | | | | | | | | | |
| Degree of protection | Fire | 3 to 4 Hours dependant on rating | | | | | | | | | |
| Casing material | | Quartz / Epoxy Resin | | | | | | | | | |
| Conductor arrangement | | Straight | | | | | | | | | |
| Conductor profile | | Rect. Full radius corner | | | | | | | | | |
| Conductor material | | CU (99.9) BSEN13601 | | | | | | | | | |
| Conductor surface treatment | | Plain (Tinned optional) | | | | | | | | | |
| Conductor Insulation | | As Casing | | | | | | | | | |

| Dimensions | | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3200 | 4000 | 5000 | 6300 |
|--------------------------------|---------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------|---------------------|---------------------|
| Casing Overall Width (3/4/5/6) | [mm] | 90/90/ 120/140 | 90/90/ 120/140 | 90/90/ 120/140 | 90/90/ 120/140 | 90/90/ 120/140 | 90/90/ 120/140 | 90/90/ 120/140 | 100/100/ 120/140 | 100/100/ 120/140 | 100/100/ 120/140 |
| Casing Overall Height | [mm] | 90 | 120 | 130 | 160 | 180 | 250 | 300 | 380 | 480 | 580 |
| Conductor dimensions | W x D [mm] | 40x6 | 60x6 | 75x6 | 100x6 | 150x6 | 200x6 | 250x6 | 2x150x6 | 2x200x6 | 2x250x6 |
| Conductor CSA | CSA [mm ²] | 232 | 352 | 442 | 592 | 892 | 1072 | 1424 | 1784 | 2384 | 2984 |
| Weight (3 conductors) | p [kg/m] | 20.73 | 28.53 | 32.17 | 40.6 | 50.4 | 59.46 | 82.7 | 111.8 | 143.9 | 176.08 |
| Weight (4 conductors) | p [kg/m] | 22.34 | 30.98 | 35.25 | 44.73 | 56.62 | 66.93 | 92.62 | 124.2 | 160.6 | 196.87 |
| Weight (5 conductors) | p [kg/m] | 29.25 | 40.49 | 45.98 | 58.26 | 73.42 | 86.75 | 120.2 | 151.6 | 196 | 240.41 |
| Weight (6 conductors) | p [kg/m] | 34.4 | 47.65 | 54.16 | 68.66 | 86.7 | 102.5 | 141.9 | 178.9 | 231.4 | 283.94 |

| Fault Rating | | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3200 | 4000 | 5000 | 6300 |
|--|-------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Rated short-time current for three-phase fault (1s) | I _{cw} [kA] _{rms} | 25 | 50 | 50 | 65 | 80 | 80 | 80 | 120 | 120 | 120 |
| Allowable peak current for three-phase fault | I _{pk} [kA] | 52.5 | 105 | 105 | 143 | 176 | 176 | 176 | 264 | 264 | 264 |
| Rated short-time current for single-phase fault (1s) | I _{cw} [kA] _{rms} | 25 | 50 | 50 | 65 | 80 | 80 | 80 | 120 | 120 | 120 |
| Allowable peak current for single-phase fault | I _{pk} [kA] | 52.5 | 105 | 105 | 143 | 176 | 176 | 176 | 264 | 264 | 264 |
| Rated short-time protection current (1s) | I _{cw} [kA] _{rms} | 25 | 50 | 50 | 65 | 80 | 80 | 80 | 120 | 120 | 120 |
| Rated short-time withstand current for protective fault circuit (1s) | I _{cw} [kA] _{rms} | 25 | 50 | 50 | 65 | 80 | 80 | 80 | 120 | 120 | 120 |
| Allowable peak current for protective circuit fault | I _{pk} [kA] | 52.5 | 105 | 105 | 143 | 176 | 176 | 176 | 264 | 264 | 264 |

* Line to Line Volt Drop in Millivolts/Amp/Metre at 50Hz and 35°C Ambient Temperature with the load spread over the busbar trunking system run. For load concentrated at one end double the figures in the table. Figures stated in accordance with BS EN 60439-2.

Technical Overview CXA (Aluminium Conductor)

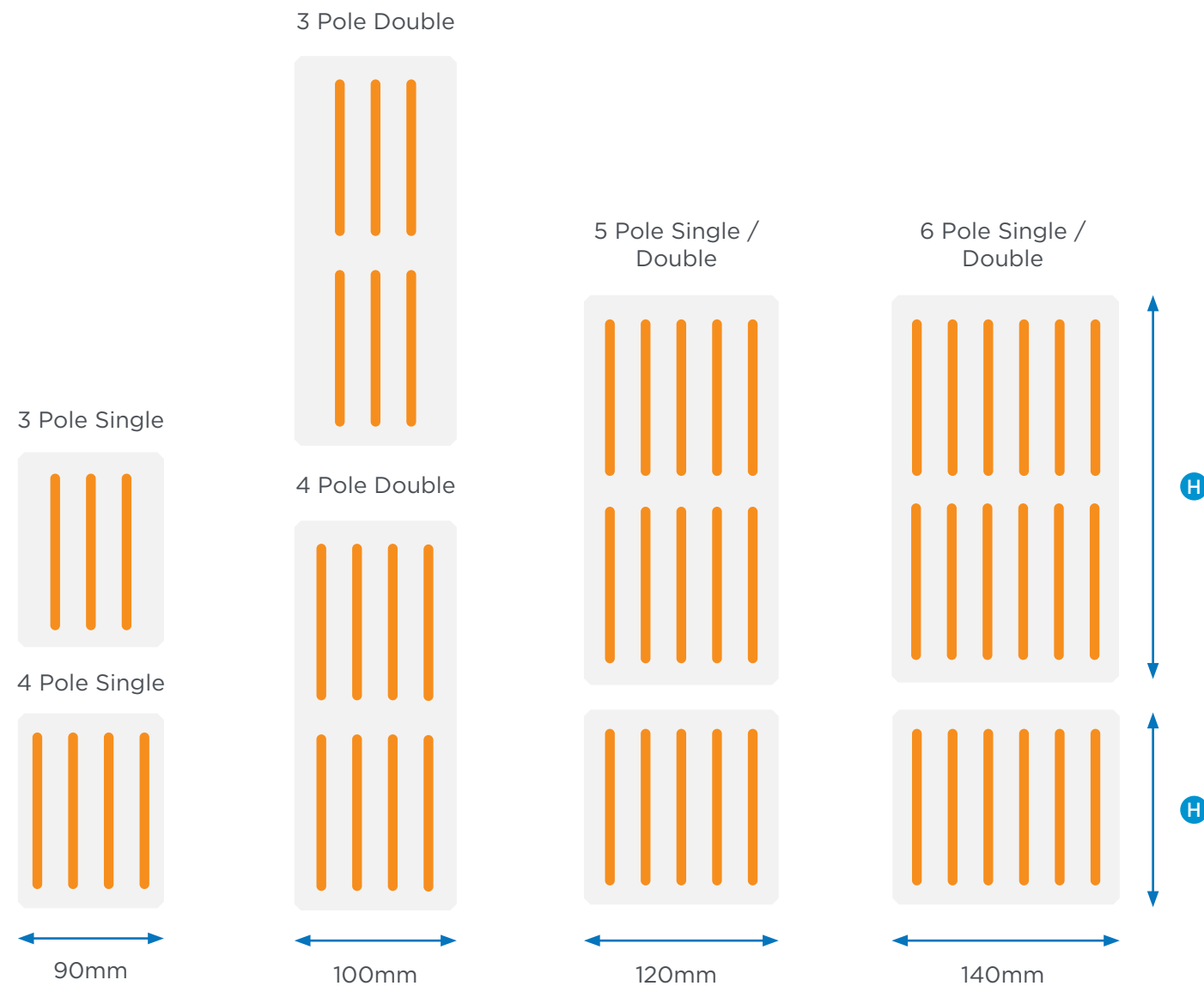
| Rated Current in [A] | | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3200 | 4000 |
|-----------------------------|--------|--------------------------|------|------|------|------|------|------|------|
| Rated operating voltage | Ue [V] | 1000 | | | | | | | |
| Rated insulation voltage | Ui [V] | 1000 | | | | | | | |
| Frequency | f [Hz] | 50/60 | | | | | | | |
| Degree of protection | IP | 68 | | | | | | | |
| Degree of protection | Fire | 6 Hours | | | | | | | |
| Casing material | | Quartz / Epoxy Resin | | | | | | | |
| Conductor arrangement | | Straight | | | | | | | |
| Conductor profile | | Rect. Full radius corner | | | | | | | |
| Conductor material | | Electrical Grade 6101A | | | | | | | |
| Conductor surface treatment | | Plain (Tinned optional) | | | | | | | |
| Conductor Insulation | | As Casing | | | | | | | |

| Dimensions | | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3200 | 4000 |
|--------------------------------|---------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------|---------------------|---------------------|
| Casing Overall Width (3/4/5/6) | [mm] | 90/90/ 120/140 | 90/90/ 120/140 | 90/90/ 120/140 | 90/90/ 120/140 | 90/90/ 120/140 | 100/100/ 120/140 | 100/100/ 120/140 | 100/100/ 120/140 |
| Casing Overall Height | [mm] | 120 | 160 | 170 | 250 | 300 | 370 | 480 | 580 |
| Conductor dimensions | W x D [mm] | 60x6 | 100x6 | 110x6 | 200x6 | 250x6 | 2x145x6 | 2x200x6 | 2x250x6 |
| Conductor CSA | CSA [mm ²] | 352 | 592 | 652 | 1192 | 1492 | 1724 | 2384 | 2984 |
| Weight (3 conductors) | p [kg/m] | 21.9 | 29.45 | 31.34 | 48.33 | 57.77 | 76.09 | 99.01 | 119.86 |
| Weight (4 conductors) | p [kg/m] | 22.14 | 29.86 | 31.79 | 49.15 | 58.8 | 77.28 | 100.7 | 121.92 |
| Weight (5 conductors) | p [kg/m] | 29.44 | 39.67 | 42.23 | 65.26 | 78.06 | 92.97 | 121.1 | 146.75 |
| Weight (6 conductors) | p [kg/m] | 34.39 | 46.35 | 49.35 | 76.28 | 91.24 | 108.7 | 141.6 | 171.51 |

| Fault Rating | | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3200 | 4000 |
|--|---|------|------|------|------|------|------|------|------|
| Rated short-time current for three-phase fault (1s) | I _{cw} [kA] _{rm} | 25 | 40 | 80 | 80 | 80 | 120 | 120 | 120 |
| Allowable peak current for three-phase fault | I _{pk} [kA] | 52.5 | 84 | 176 | 176 | 176 | 264 | 264 | 264 |
| Rated short-time current for single-phase fault (1s) | I _{cw} [kA] _{rm} | 25 | 40 | 80 | 80 | 80 | 120 | 120 | 120 |
| Allowable peak current for single-phase fault | I _{pk} [kA] | 52.5 | 84 | 176 | 176 | 176 | 264 | 264 | 264 |
| Rated short-time protection current (1s) | I _{cw} [kA] _{rm} | 25 | 40 | 80 | 80 | 80 | 120 | 120 | 120 |
| Rated short-time withstand current for protective fault circuit (1s) | I _{cw} [kA] _{rm} s | 25 | 40 | 80 | 80 | 80 | 120 | 120 | 120 |
| Allowable peak current for protective circuit fault | I _{pk} [kA] | 52.5 | 84 | 176 | 176 | 176 | 264 | 264 | 264 |

* Line to Line Volt Drop in Millivolts/Amp/Metre at 50Hz and 35°C Ambient Temperature with the load spread over the busbar trunking system run. For load concentrated at one end double the figures in the table. Figures stated in accordance with BS EN 60439-2.

Busbar Configurations



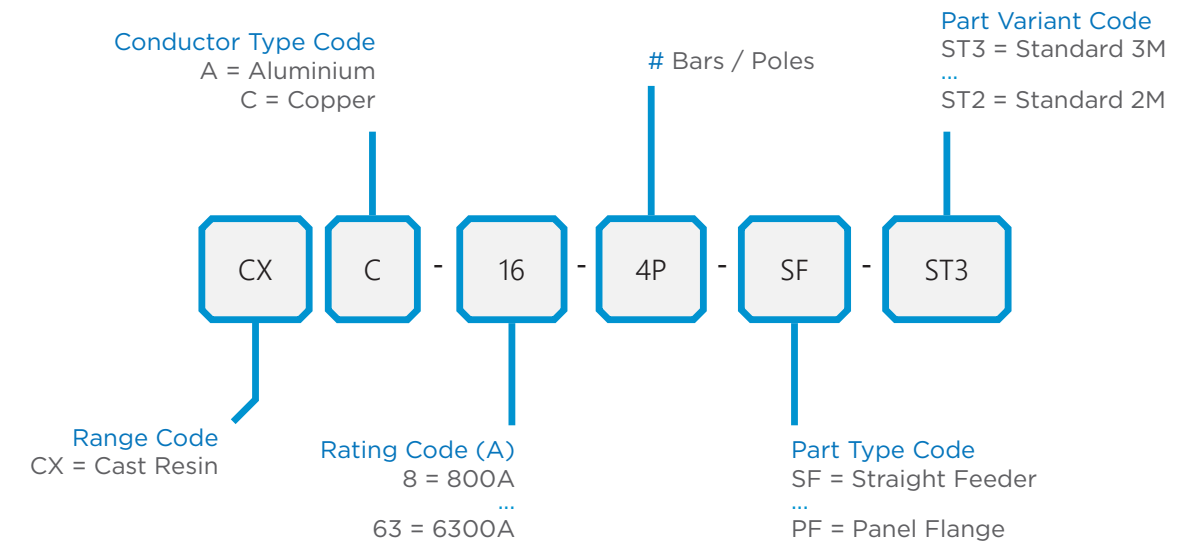
| Phase Configurations | No. Poles | Neutral % | Isolated Earth % |
|----------------------|-----------|-----------|------------------|
| TP | 3 | - | - |
| TP&N | 4 | 100 % | - |
| TP&E | 4 | - | 100 % |
| TP&2N | 5 | 200 % | - |
| TP&N&E | 5 | 100 % | 100 % |
| TP&2N&E | 6 | 200 % | 100 % |

Part Numbering Guide

| | |
|----|--------------------|
| AD | Transition Adaptor |
| CF | Centre Feed |
| CM | Combination |
| CX | Custom |
| EF | End Feed |

| | |
|----|------------------|
| EX | Expansion |
| FB | Fire Barrier |
| JP | Joint Pack |
| LE | Elbow Edgewise |
| LF | Elbow Flatwise |
| NR | Neutral Rotation |
| PF | Panel Flange |

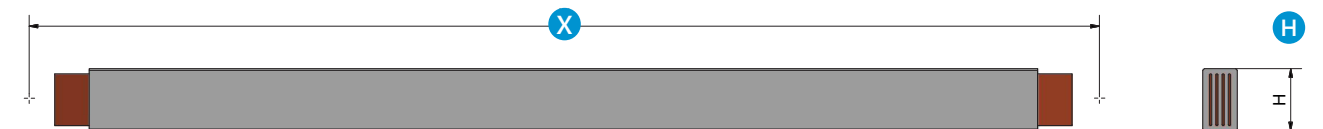
| | |
|----|-----------------------|
| PR | Phase Rotation |
| SD | Straight Distribution |
| SF | Straight Feeder |
| TF | Tee Flatwise |
| TX | Transformer Flange |
| ZE | Offset Edgewise |
| ZF | Offset Flatwise |



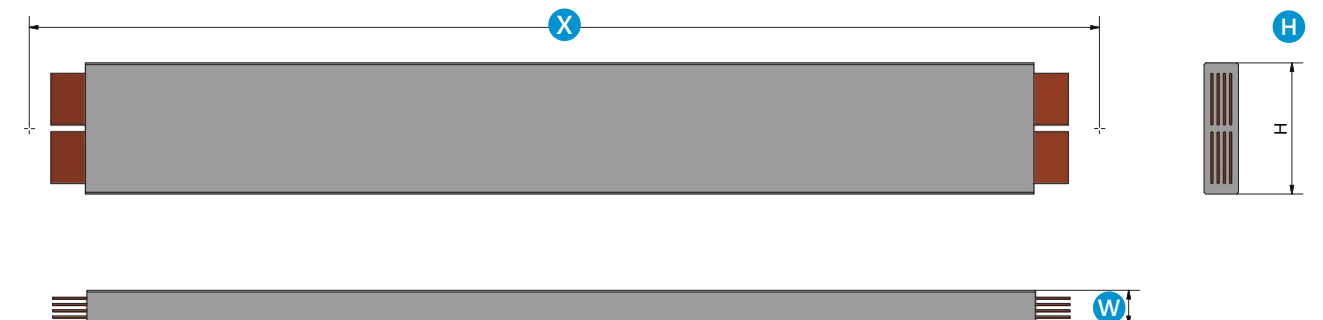
Straight Lengths

Straights are one of the most common parts of any trunking system. Custom lengths can be manufactured to suit each application requirement within the ranges below. Feeder type busbar is used for end to end transmission and distribution type incorporates tapping outlets for connection of tap off units.

> Single Construction - Copper 1000A to 3200A, Aluminium 800A to 2500A



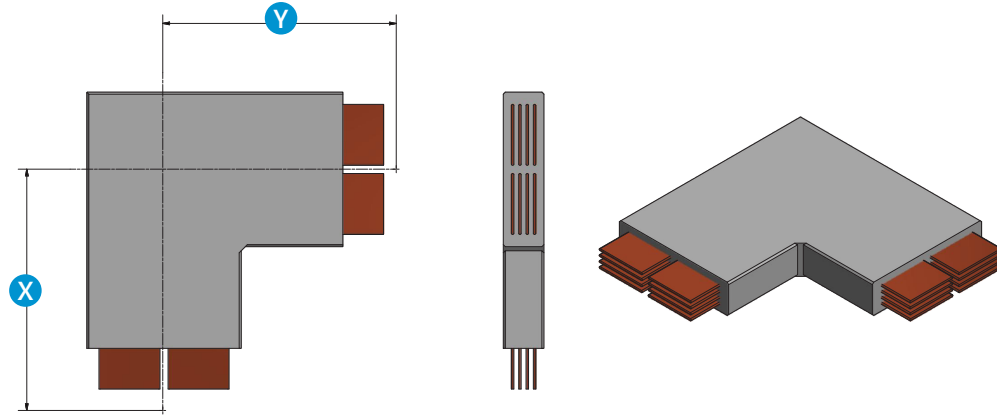
> Double Construction - Copper 4000A to 6300A, Aluminium 3200A to 4000A



Standard lengths = 3m, 2m & 1m. Min. X = 0.5m, Max. X = 3m. W = 90/100/120/140mm

Flatwise Elbows

Flatwise elbows are used to make directional changes to busbar runs usually at 90° to the direction of travel. In addition to providing left and right elbows in standard 90° it is possible to have custom angles manufactured.



Single Construction - Copper 1000A to 3200A, Aluminium 800A to 2500A

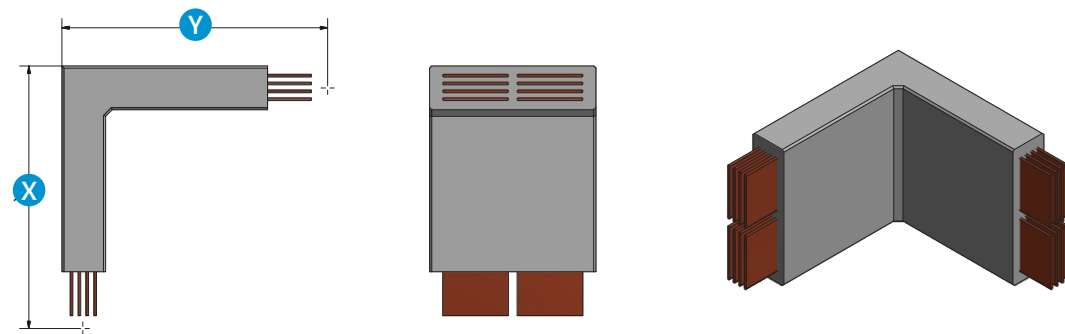
Standard X & Y = 350mm, Min. X & Y = 300mm, Max. X & Y = 1000mm

Double Construction - Copper 4000A to 6300A, Aluminium 3200A to 5000A

Standard X & Y = 550mm, Min. X & Y = 500mm, Max. X & Y = 1000mm

Edgewise Elbows

Edgewise elbows are used to make directional changes to busbar runs usually at 90° to the direction of travel. In addition to providing left and right elbows in standard 90° it is possible to have custom angles manufactured.

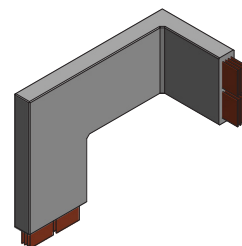


Standard X & Y = 350mm, Min. X & Y = 300mm, Max. X & Y = 1000mm

Combination Elbows

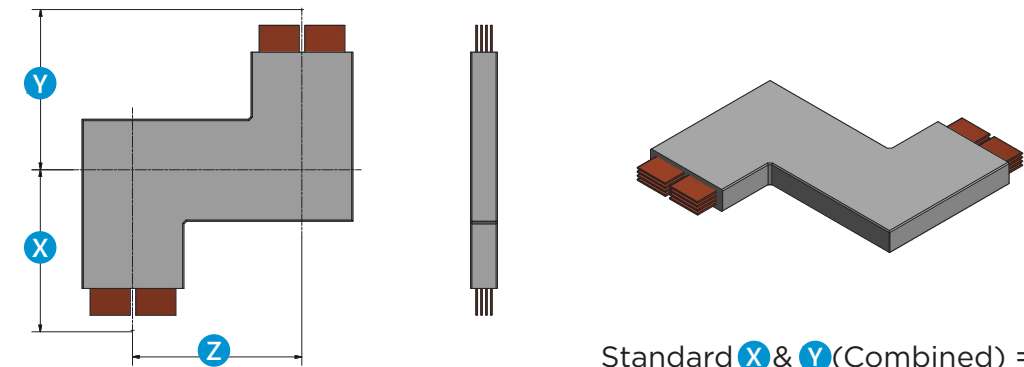
A combination of a flatwise and an edgewise elbow manufactured in one piece are used to make directional changes to busbar runs where two separate elbow units would be too large. All possible combinations of changes in direction are available.

Each leg of the combination piece can vary in length from a minimum of 350mm up to a maximum of 500mm.



Flatwise Offsets

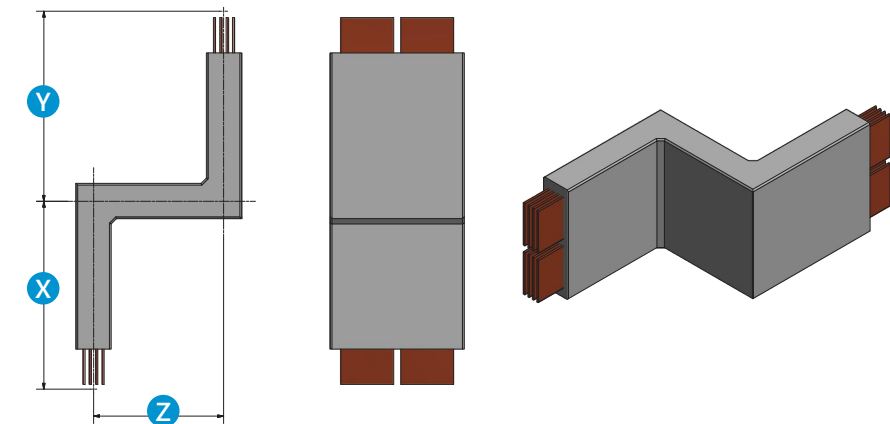
Offsets are commonly used to avoid small obstructions and obstacles that the use of two elbows would make inefficient. The four variants of offset are edgewise left & right and flatwise left & right.



Standard X & Y (Combined) = 1100mm
Min. Z = 150mm, Max. Z = 700mm

Edgewise Offsets

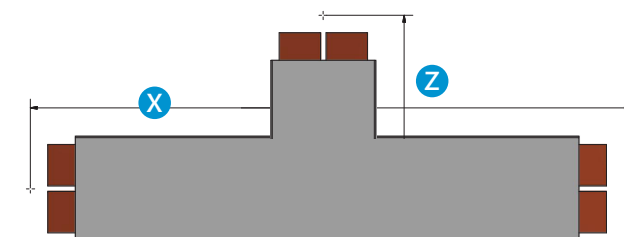
Offsets are commonly used to avoid small obstructions and obstacles that the use of two elbows would make inefficient. The four variants of offset are edgewise left & right and flatwise left & right.



Standard X & Y = 350mm, Min. X & Y = 350mm, Max. X & Y = 500mm
Min. Z = 75mm, Max. Z = 600mm

Flatwise Tees

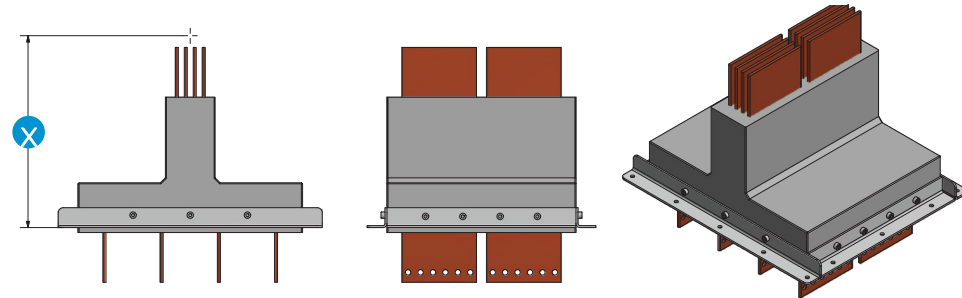
Tee units are used to make branched busbar runs. The tee units create a 90° branch to accommodate multiple end supply points from a single source and can, in certain applications, be a more efficient way of creating a widespread distribution backbone. Tee's are available in compact form in flatwise construction.



Standard X = 1000mm, Min. X = 700mm, Max. X = 1500mm
Standard / Min. Z = 300mm, Max. Z = 750mm

Straight Panel Flanges

Panel flanges are the standard fittings used to make connections to other items of LV equipment such as switchboards and transformers. Each rating of flange has set dimensions for the cutout and fixing points that are supplied on drawings with each unit. Phase rotation from other equipment to a busbar system needs careful coordination and all phase details must be highlighted and approved at design stage.



Standard / Min. X = 315mm, Max. X = 800mm

Flatwise & Edgewise Panel Flanges

Panel flanges are the standard fittings used to make connections to other items of LV equipment such as switchboards and transformers. Panel flanges with integrated 90° change of direction allow for low headroom applications and are available both in flatwise and edgewise formats.

Parallel Flanges

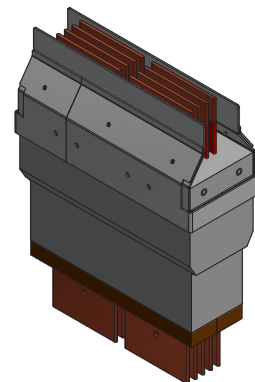
Parallel flanges allow for connection flanges along the length of a straight section of busbar. This type of flange is typically used when connecting to transformers within an enclosure. The flanges can be positioned to match the transition coppers.

CX to HX Transitional Elements (IP68 to IP55 System)

Certain applications allow a combination of busbar trunking systems to be utilised. Typically, this is where the IP68 cast resin element is required for external / hazardous areas but an internal segment of the run can benefit from IP55 busbar's reconfigurable modularity.

Transitioning from cast resin to aluminium trunking case systems can also benefit from exchanging an integral earth busbar / earth cable to utilising the aluminium housing (case earth) of the IP55 system.

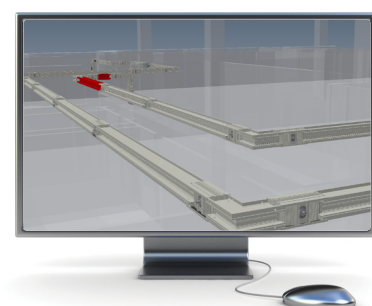
Transitional elements to IBAR's HX range are available as standard however we also offer specialist elements to extend most third party busbar systems.



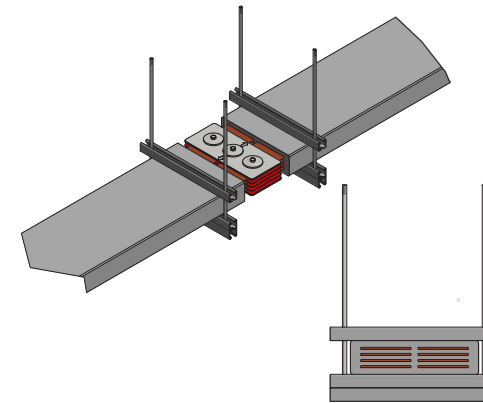
Applications Engineering

Our experienced team of in-house applications engineers are on hand to ensure that using RESINBAR is a hassle free process. Utilising a catalogue of standard and customisable parts, they are able to create bespoke solutions tailored to the most demanding of requirements.

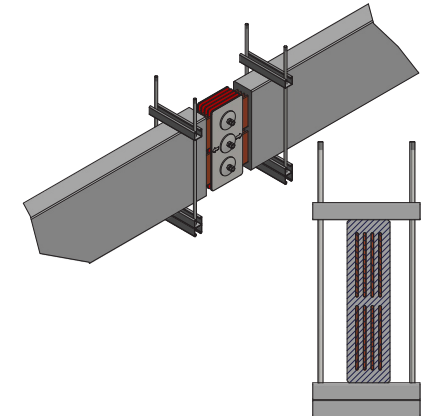
Our teams work closely with other infrastructure and power system providers to coordinate critical elements such as phase orientation.



Flat Installation



Edge Installation



Every RESINBAR element is supplied with an iControl Cloud tag. This enables components to be referenced within a particular busbar run together with arrangement drawings, commissioning reports and lifecycle servicing reports to be uploaded and retained for the life of the asset.

iControl Cloud can be extended to include any other asset, full details are available online at:

www.icontrol-cloud.com

