RESINBAR

CAST RESIN BUSBAR TRUNKING SYSTEM

Contact

Anord Mardix IBAR (EMEA) Ltd
Castle Mills, Aynam Road
Kendal, Cumbria, LA9 7DE
UK

Email: emea.sales@anordmardix.com
Call: +44 (0) 1539 720161

www.linkedin.com/company/anordmardix

www.twitter.com/anordmardix

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. We produce the most comprehensive product range in the market - from power, control, and monitoring solutions to our unique service capability. 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

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ISO 9001 ISO 14001
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ISO 50001

ANORD MARDIX

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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 resitance 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.

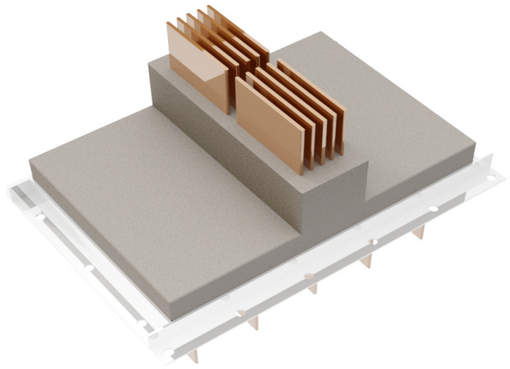
RESINBAR's range provides a high-power feeder busbar solution with busbar ratings ranging from 1000A up to 6300A.

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.



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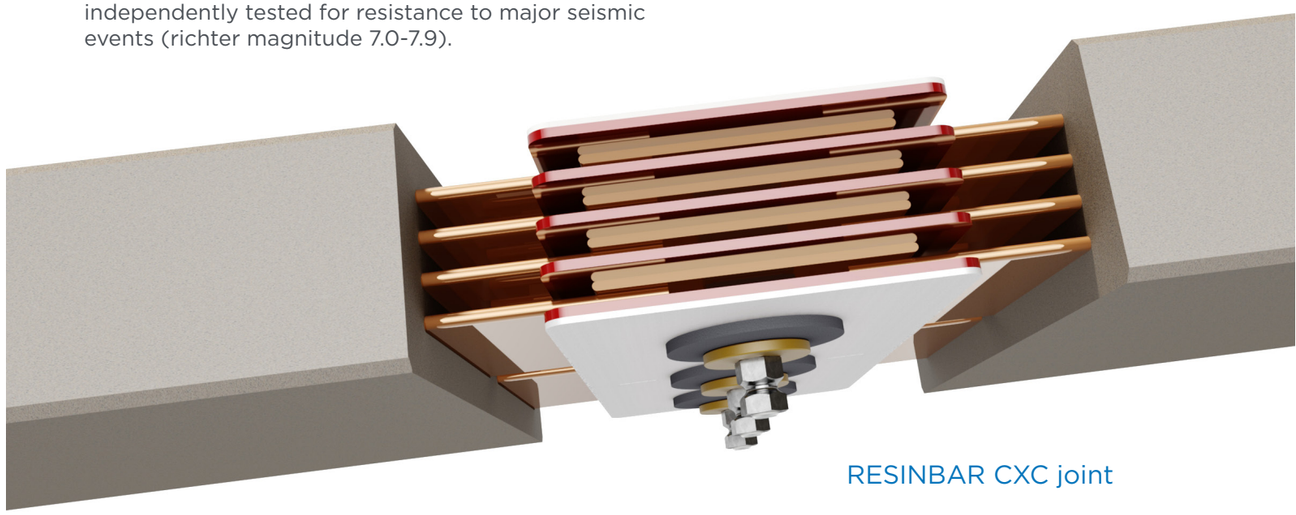
Testing & Certification

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 independantly 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 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).



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 [mm2]	232	352	442	592	892	1192	1424	1784	2384	2984
Weight (3 conductors)	p [kg/m]	20.73	28.53	32.17	40.6	50.4	59.46	82.7	111.78	143.93	176.08
Weight (4 conductors)	p [kg/m]	22.34	30.98	35.25	44.73	56.62	66.93	92.62	124.22	160.55	196.87
Weight (5 conductors)	p [kg/m]	29.25	40.49	45.98	58.26	73.42	86.75	120.19	151.55	195.98	240.41
Weight (6 conductors)	p [kg/m]	34.4	47.65	54.16	68.66	86.7	102.46	141.87	178.88	231.41	283.94

Fault Rating		800	1000	1250	1600	2000	2500	3200	4000	5000	6300
Rated short-time current for three-phase fault (1s)	Icw [kA]rms	25	50	50	70	80	80	80	120	120	120
Allowable peak current for three-phase fault	Ipk [kA]	55	110	110	154	176	176	176	264	264	264
Rated short-time current for single-phase fault (1s)	Icw [kA]rms	25	50	50	70	80	80	80	120	120	120
Allowable peak current for single-phase fault	Ipk [kA]	55	110	110	154	176	176	176	264	264	264
Rated short-time protection current (1s)	Icw [kA]rms	25	50	50	70	80	80	80	120	120	120
Rated short-time withstand current for protective fault circuit (1s)	Icw [kA]rms	25	50	50	70	80	80	80	120	120	120
Allowable peak current for protective circuit fault'	Ipk [kA]	55	110	110	154	176	176	176	264	264	264

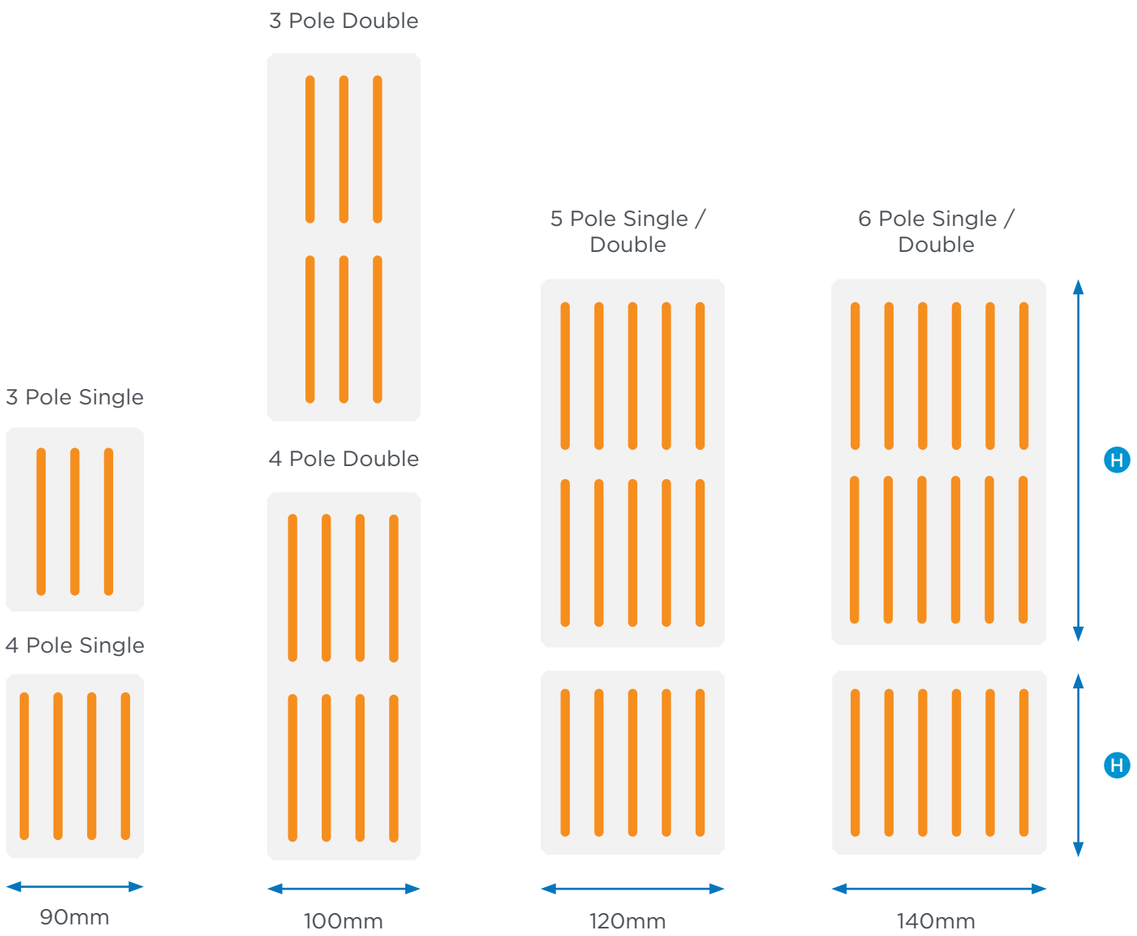
Technical Overview CXA (Aluminium Conductor)

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 [mm2]	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	100.66	121.92
Weight (5 conductors)	p [kg/m]	29.44	39.67	42.23	65.26	78.06	92.97	121.12	146.75
Weight (6 conductors)	p [kg/m]	34.39	46.35	49.35	76.28	91.24	108.67	141.58	171.51

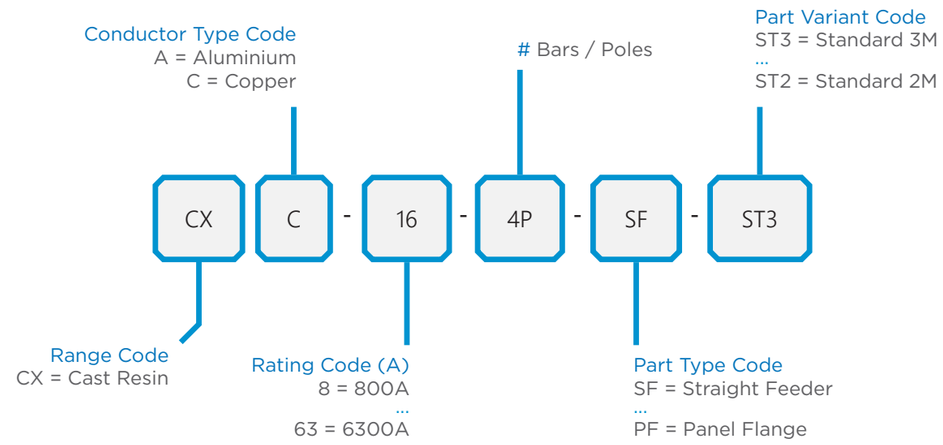
Fault Rating		800	1000	1250	1600	2000	2500	3200	4000
Rated short-time current for three-phase fault (1s)	Icw [kA]rms	25	40	40	50	65	80	120	120
Allowable peak current for three-phase fault	Ipk [kA]	55	88	88	110	143	176	264	264
Rated short-time current for single-phase fault (1s)	Icw [kA]rms	25	40	40	50	65	80	120	120
Allowable peak current for single-phase fault	Ipk [kA]	55	88	88	110	143	176	264	264
Rated short-time protection current (1s)	Icw [kA]rms	25	40	40	50	65	80	120	120
Rated short-time withstand current for protective fault circuit (1s)	Icw [kA]rms	25	40	40	50	65	80	120	120
Allowable peak current for protective circuit fault'	Ipk [kA]	55	88	88	110	143	176	264	264

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 %

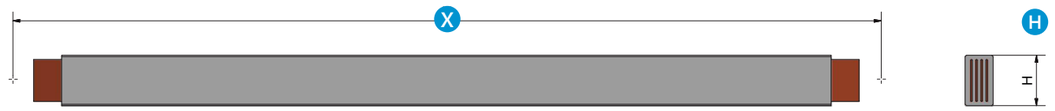
Part Numbering Guide					
		EX	Expansion	PR	Phase Rotation
		FB	Fire Barrier	SD	Straight Distibution
AD	Transition Adaptor	JP	Joint Pack	SF	Straight Feeder
CF	Centre Feed	LE	Elbow Edgewise	TF	Tee Flatwise
CM	Combination	LF	Elbow Flatwise	TX	Transformer Flange
CX	Custom	NR	Neutral Rotation	ZE	Offset Edgewise
EF	End Feed	PF	Panel Flange	ZF	Offset Flatwise



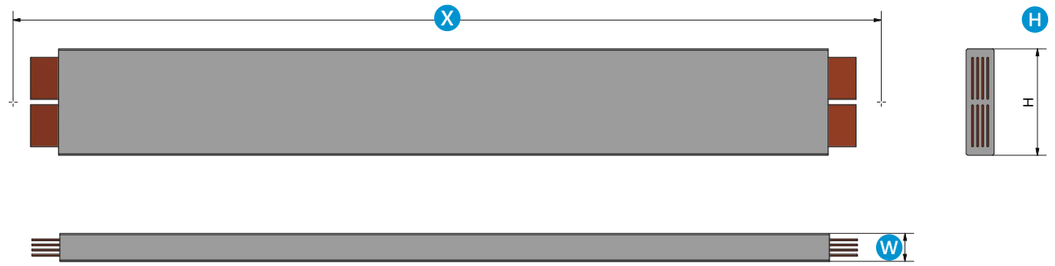
Straight Lengths

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



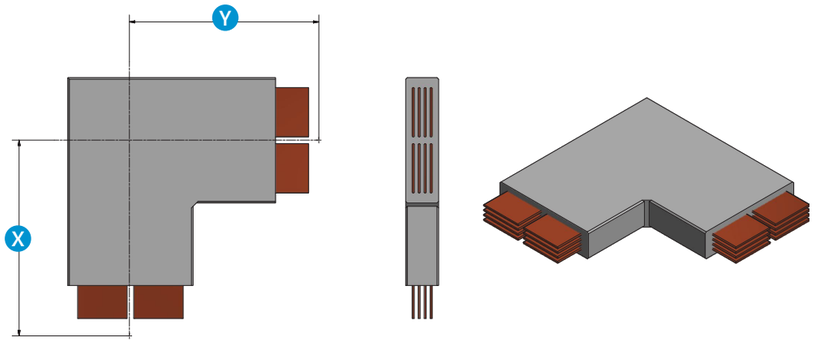
> Double Construction - Copper 4000A to 6300A, Aluminium 3200A to 4000A



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

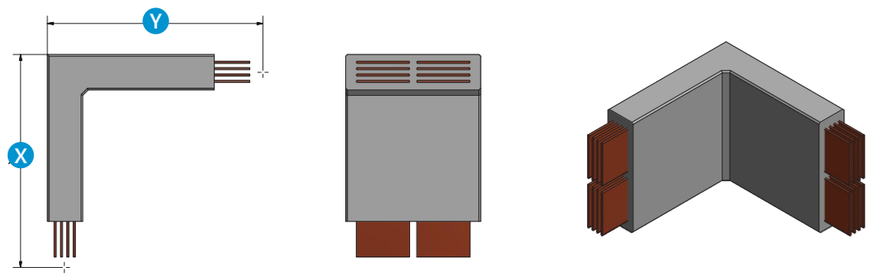
Standard X & Y = 350mm, Min. X & Y = 300mm, Max. X & Y = 1000mm

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.

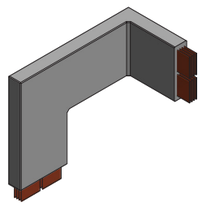


Standard X & Y = 350mm, Min. X & Y = 300mm, Max. X & Y = 1000mm

Combination Elbows

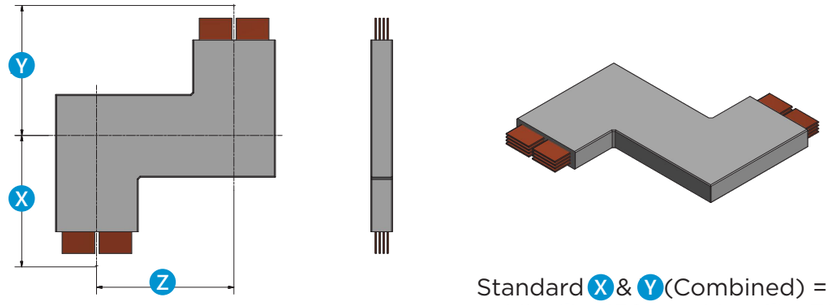
A combination of a flatwise and an edgewise elbow manufactured in one piece are used to make directional changes to busbar runs where two separate elbow units would be too large. All possible combinations of changes in direction are available.

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



Flatwise Offsets

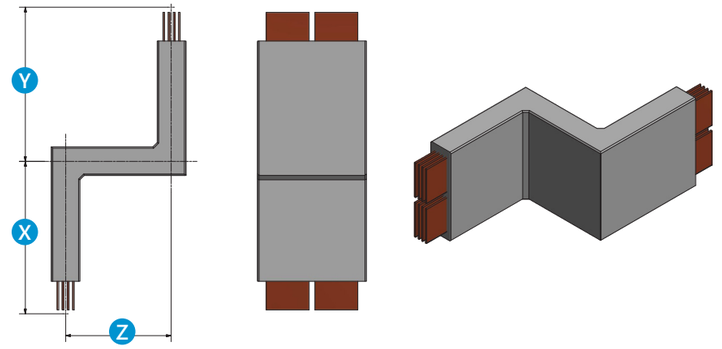
Offsets are commonly used to avoid small obstructions and obstacles that the use of two elbows would make inefficient. The four variants of offset are edgewise left & right and flatwise left & right.



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

Edgewise Offsets

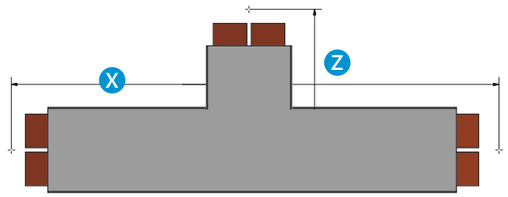
Offsets are commonly used to avoid small obstructions and obstacles that the use of two elbows would make inefficient. The four variants of offset are edgewise left & right and flatwise left & right.



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

Flatwise Tees

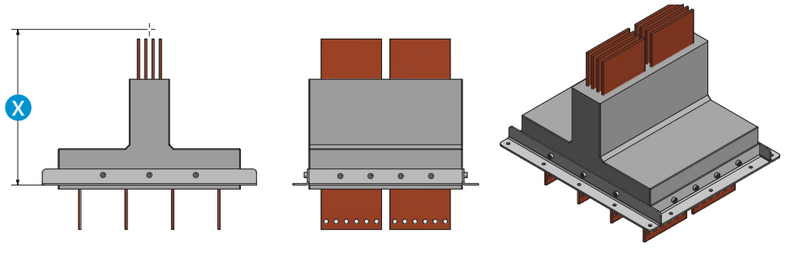
Tee units are used to make branched busbar runs. The tee units create a 90° branch to accomodate multiple end supply points from a single source and can, in certain applications, be a more efficient way of creating a widespread distribution backbone. Tee's are available in compact form in flatwise construction.



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

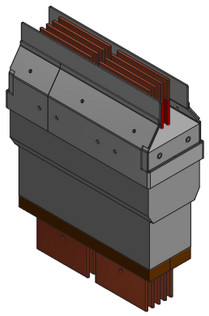
Panel flanges are the standard fittings used to make connections to other items of LV equipment such as switchboards and transformers. Panel flanges with integrated 90° change of direction allow for low headroom applications and are available both in flatwise and edgewise formats.

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.

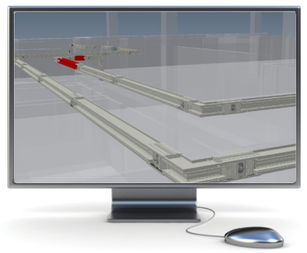


Transitioning from cast resin to aluminiun trunking case systems can also benefit from exchanging an integral earth busbar / earth cable to utilising the aluminium housing (case earth) of the IP55 system.

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.

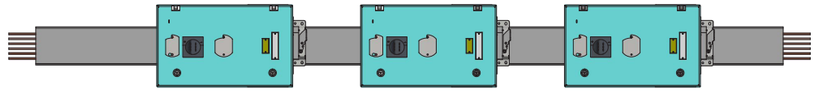


Our teams work closely with other infrastructure and power system providers to coordinate critical elements such as phase orientation.

Distribution Lengths

RESINBAR can be specified with tap-off locations along it's length. Distribution lengths are supplied with IP68 rated covers. The addition of a tap-off requires full isolation of the busbar system.

Shown fitted with IP55 Tap-off Boxes



Tap-offs are available in IP55 or IP68 formats, manufactured with powder coated mild steel or stainless steel enclosures which offer greater levels of resistance in harsh environments.

RESINBAR tap-offs are available with fixed or plug-in type MCCB's with a range of output circuit current ratings ranging from 100A up to 1600A.

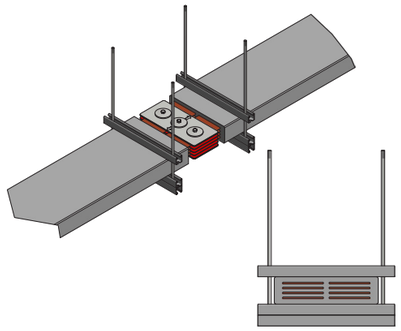
Depending on the requirements for rating and protection, a standard 3m length of RESINBAR can feature up to 5no distribution tapping outlets. Typically, distribution lengths must be a minimum of 1500mm in length, which can be offered with up to 2no outlets.

Shown with IP68 tap-off slot covers removed

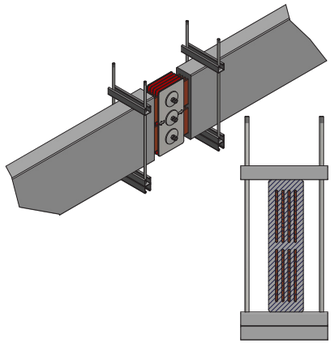
Support Hardware and Hangers

Correct mounting of the busbar trunking run is a critical element of ensuring a trouble free system. The RESINBAR CX system is typically installed utilising the Unistrut system. Vertical riser installations make use of proprietary spring brackets used to distribute load evenly across the building structure and isolate the bar from excessive vibration or building movement.

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