

VITZRO BUSWAY SYSTEM



Pioneering an affluent future society with dream,
advancement, and light of creativity

VITZRO

A nighttime photograph of a city skyline featuring several tall skyscrapers. The buildings are illuminated with various lights, and several bright blue laser beams cut across the dark sky. The overall scene conveys a sense of modern technology and urban development.

Human

The challenge and technological innovation of VITZRO actualize creation of value and affluent life of customers.

We take the initiative to create better future through repeated innovation of technology and quality in order to raise the power of high-tech and high-speed era and to focus our competence on maximizing technological development.



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Based on expectation and satisfaction of our customers,

We look forward to the VITZRO Group's history that lasts for 100 years.

By focusing our competence on fulfilling customer satisfaction through challenge and technological innovation, VITZRO Group attempts to actualize value creation of customers and affluent life of mankind.

Started as Kwangmyung Electric Engineering plant in 1955, Today's VITZRO Group was born the firm belief in contributing to national competitiveness by localizing substandard electric power facilities of our country that only relied on overseas imports, as well as with the strong sense of obligation about business management contributing to human society through continuous profit making.

With our half-century history and determination to become the center of the world, we have arranged negotiating tables in global market, such as American, European, and Asian markets, and have solidified our position as a leading company.

In order to become the energy and light of hope that accompanies comfortable daily life of humankind, VITZRO, with the management philosophy of loyalty and creativity, emphasizes the win-win philosophy that goes beyond global competition.

The competitiveness that contributes to the development of mankind and pursuing more than the profit of our enterprise, this macroscopic objective is the management ideology of VITZRO. We will perform the role of an earnest leader and a reputable manager who set the example by practicing management strategy and finding the essence of management.

VITZRO, the leading enterprise of the energy and light that moves the world, and of beautiful road, promises you to devote ourselves to value creation for customers and to contributing to the development of mankind along with our beloved customers and shareholders.

VITZRO GROUP CHAIRMAN *Jang. Tae-su*



1 | ABOUT VITZRO

History of Technology, Opens a new horizon Period of Foundation 1950~1970s.

- 1955 07 | Establishment of Kwangmyung Electricity Engineering plant
- 1968 01 | Buyout of Joongrip Electric Co.

Massive Innovation for Growth and Future Period of Growth 1980 ~ 2000

- 1989 11 | Establishment of Hanbul Automatization Ltd.
- 1991 01 | Change the name of company to Kwangmyung Control Ltd./ Registration of plant and establishment of research institute
- 07 | Registration of trade agency(Class A)
- 1993 08 | Selected as a promising advanced technology company(by Small & Medium Business Corporation)
- 1994 07 | Selected as a technical support demonstration company(by KEPCO(Korea Electric Power Corporation))
- 1995 09 | Acquisition of ISO 9001 Quality Management Certification
- 10 | Technical partnership with Eurotherm, England(Distributed Control: electricity generation, plant)
- 1996 07 | Selected as a Maintenance qualified company by KEPCO(Hydro and thermal power generation facilities)
- 1997 09 | Prime Minister's Award(for national industrial development through railroad project promotion)
- 10 | Department of Trade and Industry Minister's Award(for heavy electric equipment technology development)
- 12 | Acquisition of Information and Communication Business License
- 1998 02 | System Integration Business registration(Korea Software Industry Association)
Korea Federation of Small and Medium Business President's Award
- 1998 05 | Venture business certification(by Small and Medium Business Administration)
/SCADA, DCS, selected as excellent product(by Public Procurement Service),
Selected as a promising electric power venture(by KEPCO)
- 08 | Agent contract with Siemens, Germany(Digital relay)
- 12 | Passed the performance test of unmanned equipment for traffic enforcement
(Road Traffic Safety Authority)



Moving on to the Bigger World Period of Growth 2000-present

2000	07	Technical partnership between VITZRO SYS and Siemens, Germany(Digital relay)
	09	Prime Minister's Award(for national industrial development through the promotion of rail transport)
2001	01	Acquisition of Q-class certification of nuclear energy quality and selected as a qualified supplier of nuclear power generation facilities(by KEPCO)
	05	Acquisition of ISO 14001 Environmental management certification
	12	Registration to the KOSDAQ market
2003	04	Paid-in capital increase participation of Xenex, Canada(1,000,000 shares, 7.7%), Selected as an excellent company for new labor-management culture(Ministry of Labor)
	11	Enterprise of merit for new technology commercialization(Prime Minister)
2004	05	"1 company-1 village" affiliation(Korea Rural Community Corporation)
	12	Awarded for excellent company promoting public procurement of small and medium businesses' products
2005	07	Acquisition of Good Quality (GQ) mark for UV sterilizing device
	12	Acquisition of Korea Excellent Service Quality (SQ) certification
2006	03	Acquisition of Good Quality (GQ) mark for SCADA(Supervisory Control and Data Acquisition System).
	10	Awarded by the chairman of Presidential Commission on Small and Medium Business for Venture.
	12	Awarded by the Prime Minister(for the contribution to the national industry development through construction of railroad traffic control center)
2007	03	Awarded by the Minister of Construction and Transportation(for the contribution to the development of construction and transportation service through vitalizing intelligent transportation system industry)
	10	Awarded by the President(for the contribution to the national industrial development through international electric fair)
2008	05	Addition to VITZRO WETECH Ltd. as an affiliate
	09	[KADAC-21S, KAMAS]] PPS(Public Procurement Service) designated excellent product(SCADA [KADAC-21S, KAMAS])
2009	01	Additional contract of gas turbine project in Iraq(100 million dollars)
	07	Selected as an "Excellent Enterprise for Labor-Management Culture" (Ministry of Labor)
	10	KEPCO President's Award
	11	Selected as an INNO-BIZ enterprise(Small and Medium Business Administration)
2010	08	Energy saving enterprise registration
	10	Prime Minister Award for Venture
	11	Selected as an excellent company for creating jobs(Seoul)
	12	Export Tower Award(10 million dollars, Korea International Trade Association)
2011	04	Additional contract of gas turbine project in Iraq(80 million dollars)
2012	06	Selected as an excellent company for labor-management culture(4 consecutive times)
	10	Selected as an excellent subcontractor by KEPCO
2013	02	PPS designated excellent product(Integrated SCADA)
	03	Performance certification by Small and Medium Business Administration(Multi-function remote terminal unit)
	11	VITZROCNC (M) Sdn. Bhd. was incorporated

2 | STANDARD & SPECIFICATION

■ COMPLIANCE OF STANDARTS	<p>IEC 61439-6 Busbar Trunking System (Busway)</p> <p>IEC 61439 -1&2 Low voltage switchgear and controlgear accembles</p> <p>IEC 60529 Degree of protection</p> <p>IEC 60947-2 Circuit breakers</p> <p>IEC 60331 Resistance to fire</p>
■ RATED CURRENT	<p>Aluminum conductor - 400A to 6000A</p> <p>Copper conductor - 400A to 7500A.</p>
■ RATED OPERATIONAL VOLTAGE	<p>AC 1000V and less</p> <p>DC 1500V and less</p>
■ RATED INSULATION VOLTAGE	<p>AC 1000V and less</p>
■ RATED FREQUENCY	<p>50Hz / 60Hz</p>
■ SYSTEM CONFIGURATION	<p>3P3W/3P3W+PE</p> <p>3P4W/3P4W+PE</p> <p>3P4W(200%N)/3P4W (200% N+PE)</p>
■ CONDUCTORS	<p>Busbars Fabricated from high strength and high conductivity or pure aluminium with a conductivity. Copper conductor or Aluminium conductor of 99.9% purity the conductor have fully rounded edges which make a smooth and easy connection between the busway.</p>
■ ENCLOSURES	<p>Constructed with high strength extruded aluminum alloy profile and fully painted with epoxy compound power coating.</p> <p>Standard color code is RAL7032/7035 and special colors are available upon request.</p>
■ INSULATION MATERIAL	<p>The phase and neutral bars are insulated with Class F epoxy insulation. The epoxy powder is applied by an automated fluidized bed process to ensure uniform thickness.</p>
■ INGRESS OF PROTECTION (IP)	<p>The housing is totally enclosed with its fully insulated conductor to provide dust, water & insect protaction, as according to IEC 60529 standards. Thus the degree of protection shall be min IP54 up to max. 68</p>

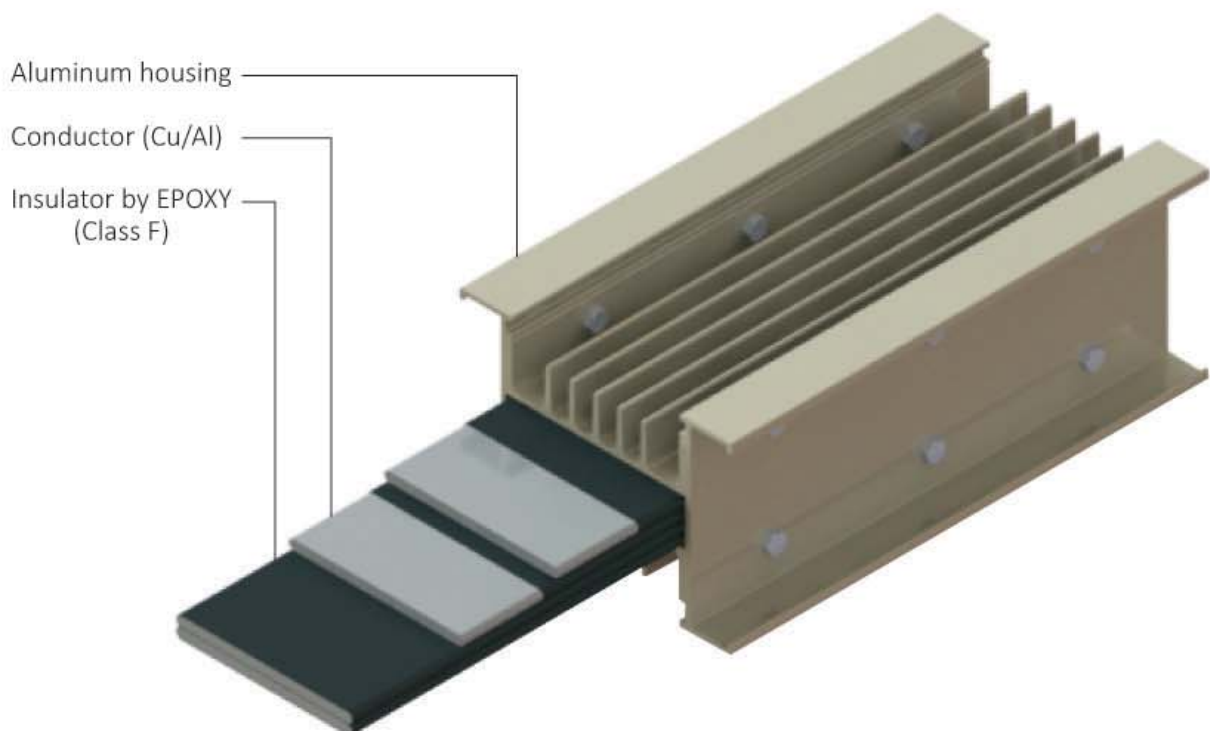
Reliable of Insulation

VITZRO BUSWAY uses very special high thermal conductivity epoxy insulation (Class F). The epoxy powder is applied by an automated fluidized bed process to ensure uniform thickness.

The uniform thickness and smooth surface provided by epoxy ensures that the insulation will have no cavities or voids and also provides excellent edge coverage to the bars.

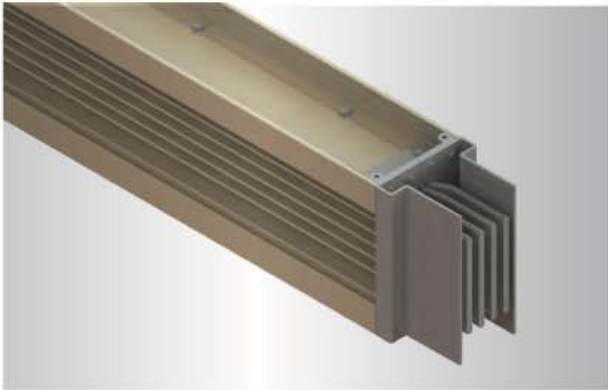
ADVANTAGES OF USING EPOXY INSULATION:

- Design to withstand glitch and spikes in electrical system
- Design to cater for expansion and contraction during peak and off-peak hour
- Good thermal & mechanical chock resistance
- Good moisture & chemical resistance
- Capable of withstanding heat shock
- High thermal conductivity
- High mechanical strength against impact
- High adhesion
- Halogen free



3 | PRODUCT FEATURES

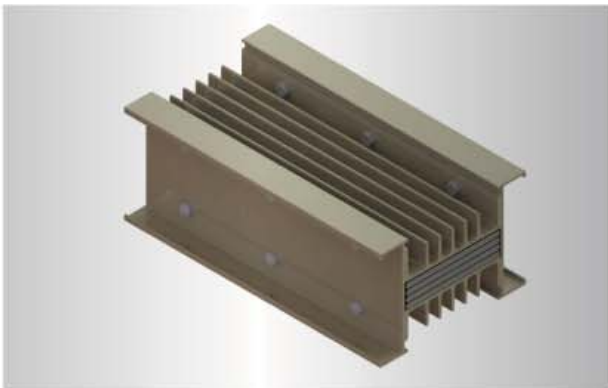
Aluminum Alloy Enclosure



VITZRO BUSWAY is constructed with high strength extruded aluminium profile and designed with additional cooling fins has resulted in the most compact busway system available.

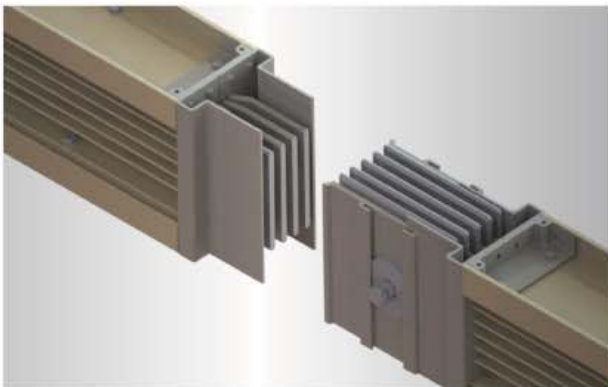
- Compact size & lightweight
- High mechanical strength
- Corrosion resistant
- Superior heat dissipation
- Extremely low impedance ground path
- Superior ground conductivity
- Easy installation & maintenance

Compact Size



The additional cooling fins design allows the use of smaller busbar and offer a low impedance, small line loss, quick heat dissipation. **VITZRO BUSWAY** makes the system lighter and smaller than other conventional busway

Easy of Installation



VITZRO BUSWAY is using special joint kit which has two connecting plates and drastically decreased the contact resistance. Also, simple joint connection work can improve the installation process faster (Lower cost of installation)

Double headed bolts can be used for proper tightening fastening by fastening the outer head until break off by wench (When the indicating disc falls off, the joint is properly tightened automatically) Large sized Belleville spring washers assure even pressure on contact.

Each joint is designed to allow longitudinal busbar expansion or contraction by as much as $\pm 10\text{mm}$

Tap-off Units

Plug in box mechanically interlocked with the busway enclosure to prevent installation or removal while the MCCB is 'ON' position. It is equipped with an operating handle to control the switching mechanism. The plug in box makes positive ground connection to the enclosure before making contact to the phase conductors.

The tap-off units from 600AF to 1200AF are fitted permanently to the connection points of the trunking units and cannot be fitted/removed while the system is live. Installation is only permissible when the system is isolated. The Plug in Box/Tap off Box is rated at IP42 as standard but customers can order IP55 as optional.

Superior Ground Conductivity

VITZRO BUSWAY is made from extruded aluminum which provides a very large grounding capacity because of the fins on the aluminum housing, the effective size of the grounding is typically 2~3 times the size of the active internal ground bar.

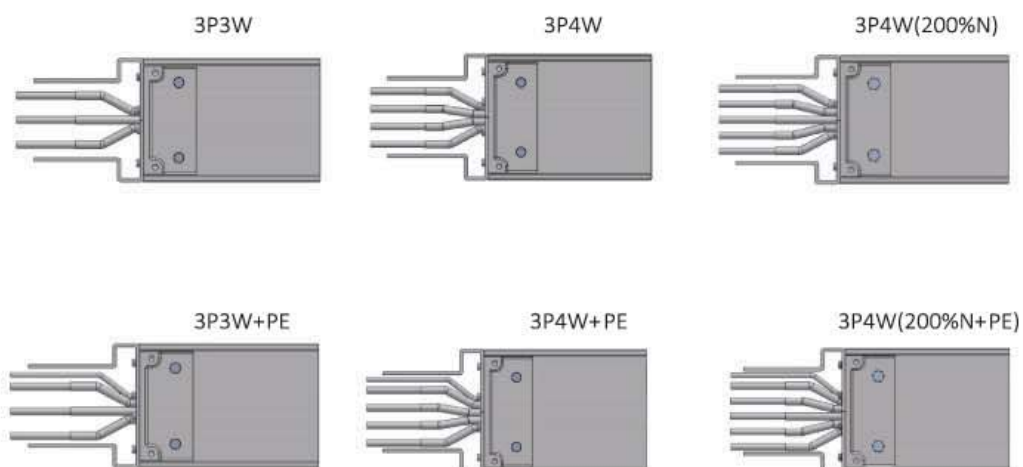
If increasing ground capacity is required, we can provide additional 50% or 100% internal bus bar within the same busway enclosure.

200% Neutral Construction

VITZRO BUSWAY offers a fully rated 200% neutral bus option for busduct systems with non-linear loads. The additional neutral capacity prevents the overheating caused by zero sequence harmonic currents.

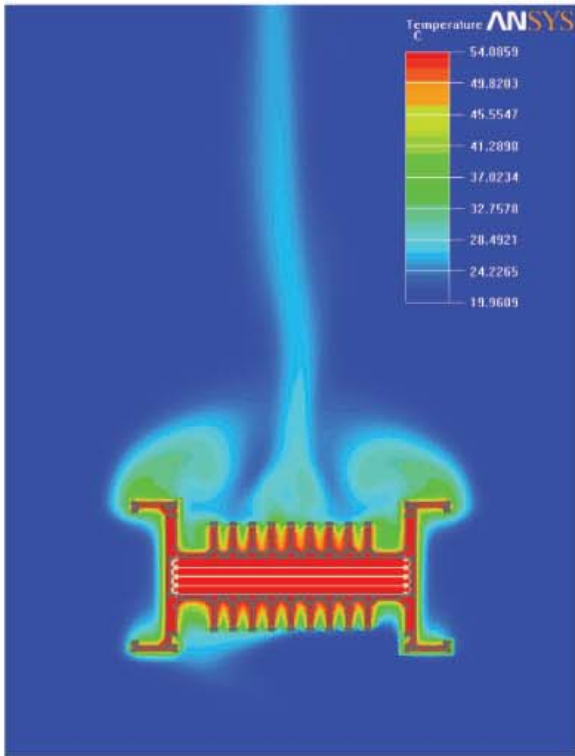
The 200% neutral is manufactured using two 100% neutral conductors fully epoxy coated and combined via the joint kit to achieve the 200% capacity.

■ TYPES OF BUSBAR CONFIGURATIONS

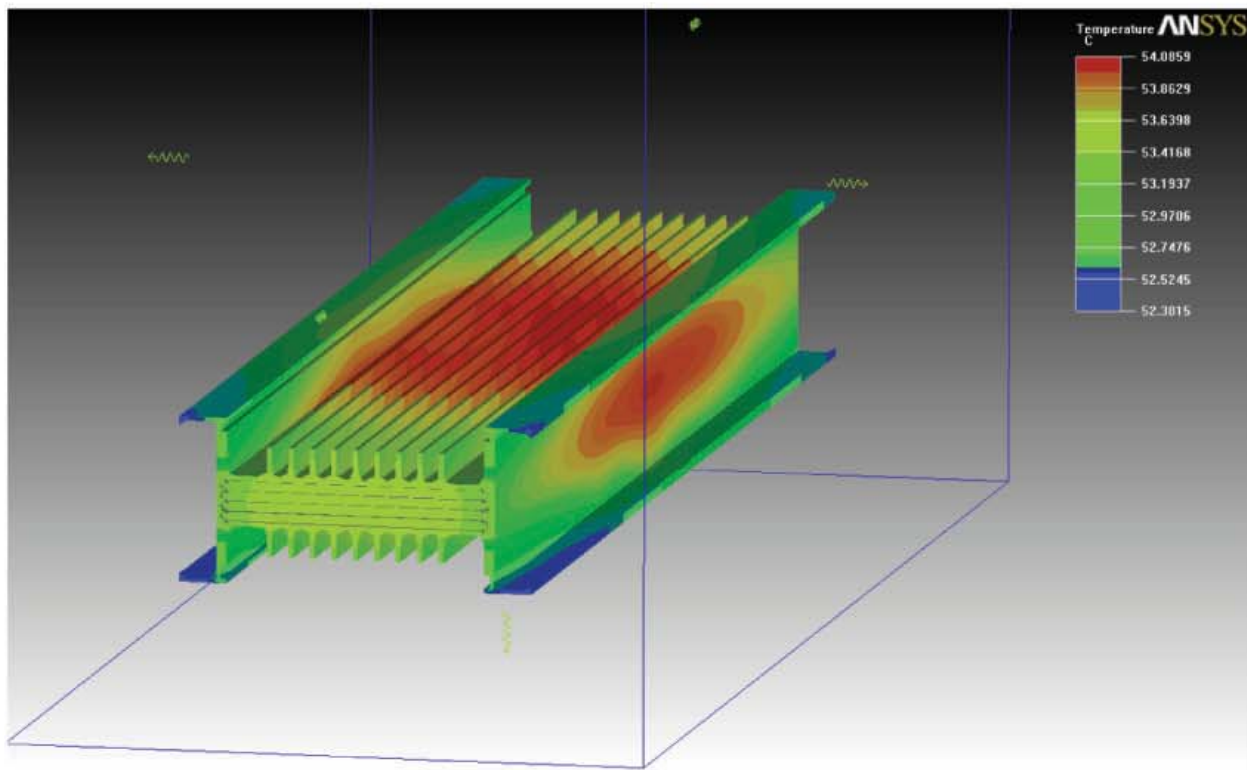


3 | PRODUCT FEATURES

Design Simulations



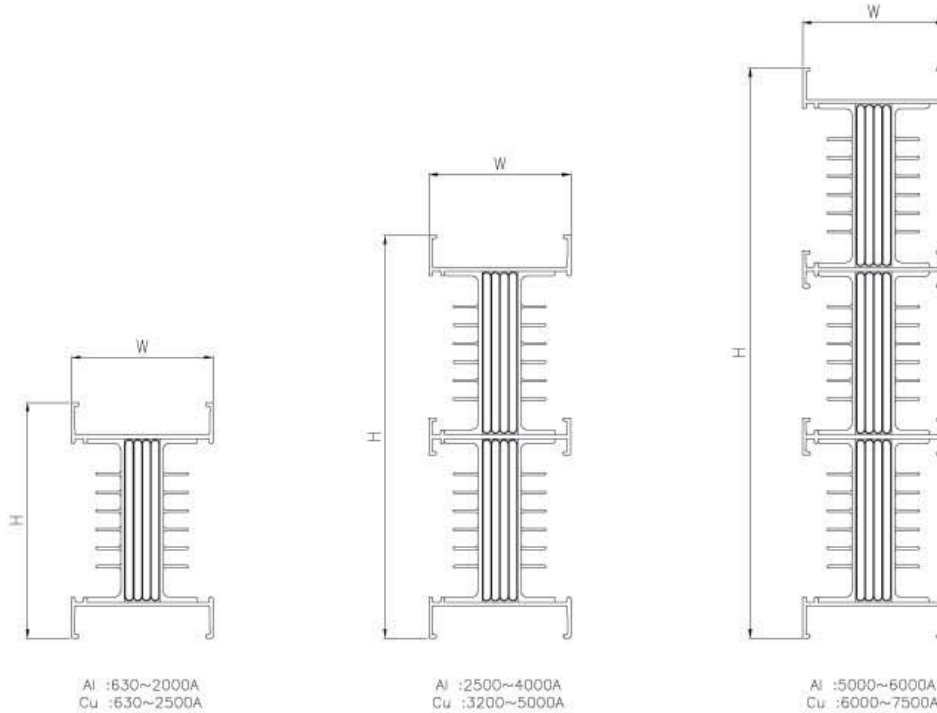
The design of **VITZRO BUSWAY** is carried out under detailed Computer Aided Engineering simulation processes. Dynamic analysis of mechanical, thermal and electrical simulations greatly increases the quality and performance.



4 | PHYSICAL DATA

Dimension & Weight

Feeder, the straight length, maybe installed either horizontally or vertically. The standard length is 3000mm and the minimum length is 400mm.



Copper busbar

Unit:mm

Ampere Rating	Height(H) (mm)	Weight (kg/m)			
		3W	4W	4W (50%PE)	4W (100%PE)
400	86	8.4	9.9	10.7	11.4
630	96	10.2	12.2	13.3	14.2
800	106	12.2	14.7	16.1	17.3
1000	121	15.0	18.4	20.2	21.8
1250	136	17.9	22.1	24.3	26.3
1600	171	24.6	30.7	33.7	36.7
2000	211	32.1	40.4	44.5	48.6
2500	246	38.8	48.9	54.0	59.0
3200	287	47.8	59.8	66.1	72.0
3600	327	55.4	69.5	76.8	83.8
4000	367	62.9	79.2	87.6	95.7
5000	437	76.3	96.3	106.6	116.5
6000	523	93.7	118.1	130.7	142.8
7500	628	113.7	143.7	159.2	174.1

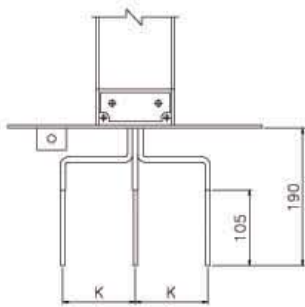
Aluminium busbar

Unit:mm

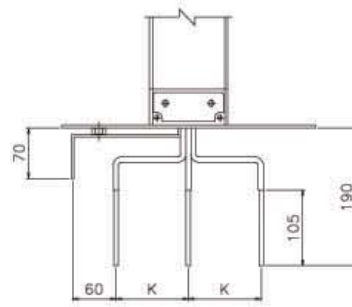
Ampere Rating	Height(H) (mm)	Weight (kg/m)			
		3W	4W	4W (50%PE)	4W (100%PE)
400	96	6.2	6.9	7.3	7.6
630	106	7.1	8.0	8.4	8.8
800	121	8.3	9.4	10.0	10.5
1000	136	9.5	10.8	11.6	12.2
1250	171	12.2	14.1	15.1	16.0
1600	211	15.2	17.8	19.1	20.3
2000	261	19.1	22.5	24.2	25.9
2500	327	26.0	30.4	32.8	34.9
3200	367	29.1	34.1	36.6	39.1
3600	437	34.5	40.6	43.9	46.9
4000	467	36.9	43.5	47.1	50.3
5000	628	51.1	60.2	65.2	69.7
6000	673	54.7	64.5	69.9	74.7

4 | PHYSICAL DATA

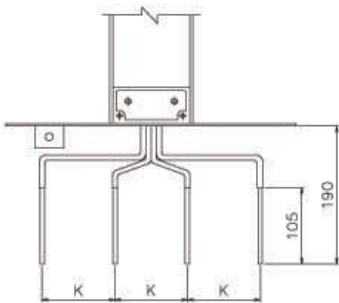
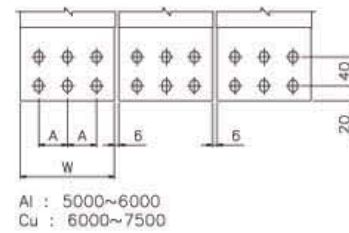
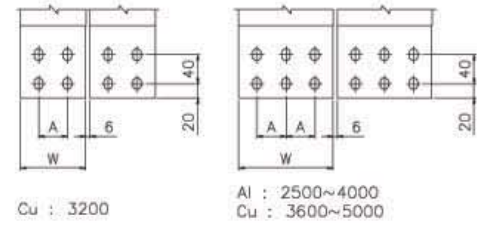
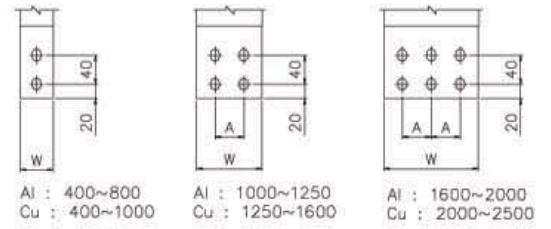
■ Flange End



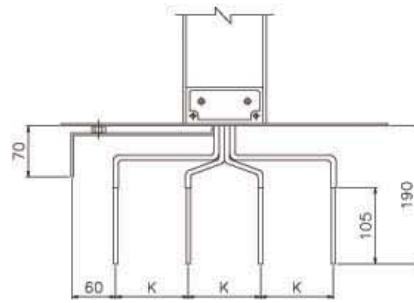
3P3W (Housing Ground)



3P4W (Internal 50%PE)



3P4W (Housing Ground)



3P4W (Internal 50%PE)

■ Copper busbar

Unit:mm

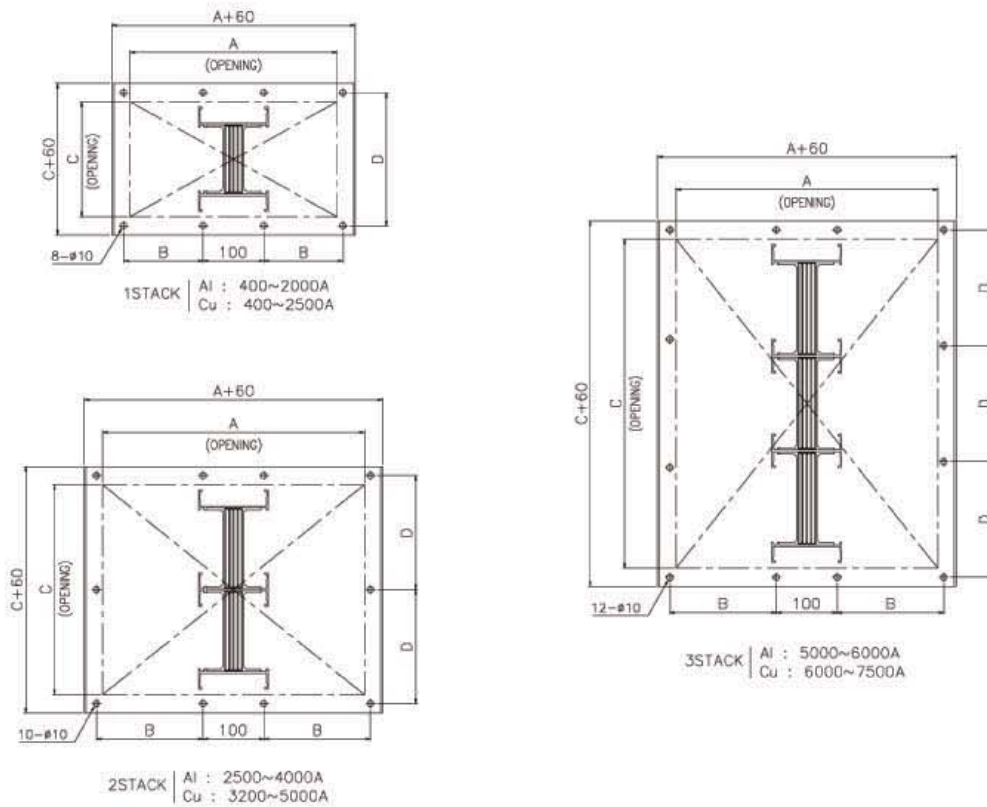
Ampere Rating	t	W	A	K	Hole
400	6	25		100	Ø10X14
630	6	35		100	Ø10X14
800	6	45		100	Ø12X16
1000	6	60		100	Ø12X16
1250	6	75	40	100	Ø12X16
1600	6	110	50	100	Ø12X16
2000	6	150	50	100	Ø12X16
2500	6	185	60	100	Ø12X16
3200	6	110*2	50	120	Ø12X16
3600	6	130*2	45	120	Ø12X16
4000	6	150*2	45	120	Ø12X16
5000	6	185*2	65	120	Ø12X16
6000	6	150*3	65	120	Ø12X16
7500	6	185*3	65	120	Ø12X16

■ Aluminium busbar

Unit:mm

Ampere Rating	t	W	A	K	Hole
400	6	35	-	100	Ø10X14
630	6	45	-	100	Ø10X14
800	6	60	-	100	Ø12X16
1000	6	75	40	100	Ø12X16
1250	6	110	50	100	Ø12X16
1600	6	150	45	100	Ø12X16
2000	6	200	65	100	Ø12X16
2500	6	130*2	45	120	Ø12X16
3200	6	150*2	45	120	Ø12X16
3600	6	185*2	65	120	Ø12X16
4000	6	200*2	65	120	Ø12X16
5000	6	185*3	65	120	Ø12X16
6000	6	200*3	65	120	Ø12X16

■ Mounting Cut-out for Flange End



■ Copper busbar

Unit:mm

Ampere Rating	A			B	C			D
	3W	4W	5W		3W	4W	4W (50%PE)	
400	240	340	440	105	80	130	180	135
630	240	340	440	115	80	130	180	145
800	240	340	440	125	80	130	180	155
1000	240	340	440	140	80	130	180	170
1250	240	340	440	155	80	130	180	185
1600	240	340	440	190	80	130	180	220
2000	240	340	440	230	80	130	180	260
2500	240	340	440	265	80	130	180	295
3200	280	400	520	306	100	160	220	168
3600	280	400	520	346	100	160	220	188
4000	280	400	520	386	100	160	220	208
5000	280	400	520	456	100	160	220	243
6000	280	400	520	543	100	160	220	191
7500	280	400	520	648	100	160	220	226

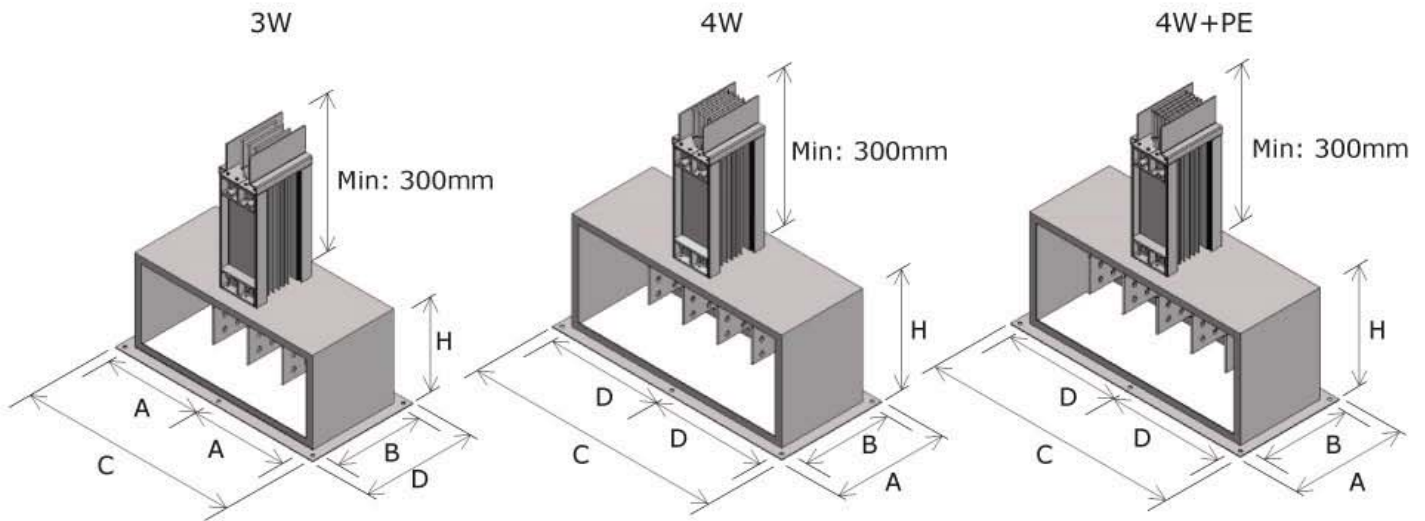
■ Aluminium busbar

Unit:mm

Ampere Rating	A			B	C			D
	3W	4W	5W		3W	4W	4W (50%PE)	
400	240	340	440	115	80	130	180	145
630	240	340	440	125	80	130	180	155
800	240	340	440	140	80	130	180	170
1000	240	340	440	155	80	130	180	185
1250	240	340	440	190	80	130	180	220
1600	240	340	440	230	80	130	180	260
2000	240	340	440	280	80	130	180	310
2500	240	340	440	346	80	130	180	188
3200	280	400	520	386	100	160	220	208
3600	280	400	520	456	100	160	220	243
4000	280	400	520	486	100	160	220	258
5000	280	400	520	648	100	160	220	226
6000	280	400	520	693	100	160	220	241

4 | PHYSICAL DATA

■ Flange End Box



■ Copper busbar

Unit:mm

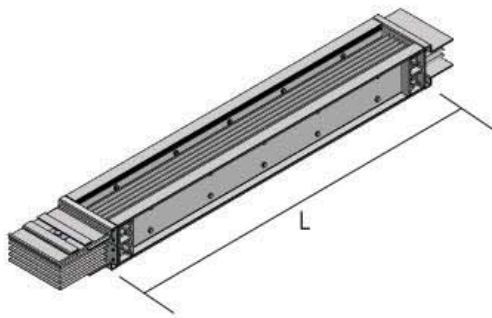
Ampere Rating	A	B	3W		4W		4W (50%PE)	
			C	D	C	D	C	D
400	325	275	480	220	580	270	680	320
630	335	285	480	220	580	270	680	320
800	345	295	480	220	580	270	680	320
1000	360	310	480	220	580	270	680	320
1250	375	325	480	220	580	270	680	320
1600	410	360	480	220	580	270	680	320
2000	450	400	480	220	580	270	680	320
2500	485	435	480	220	580	270	680	320
3200	526	476	520	240	640	300	760	360
3600	566	516	520	240	640	300	760	360
4000	606	556	520	240	640	300	760	360
5000	676	626	520	240	640	300	760	360
6000	732	682	520	240	640	300	760	360
7500	867	817	520	240	640	300	760	360

■ Aluminium busbar

Unit:mm

Ampere Rating	A	B	3W		4W		4W (50%PE)	
			C	D	C	D	C	D
400	335	285	480	220	580	270	680	320
630	345	295	480	220	580	270	680	320
800	360	310	480	220	580	270	680	320
1000	375	325	480	220	580	270	680	320
1250	410	360	480	220	580	270	680	320
1600	450	400	480	220	580	270	680	320
2000	500	450	480	220	580	270	680	320
2500	566	516	480	220	640	300	760	360
3200	606	556	520	240	640	300	760	360
3600	676	626	520	240	640	300	760	360
4000	706	656	520	240	640	300	760	360
5000	867	817	520	240	640	300	760	360
6000	912	862	520	240	640	300	760	360

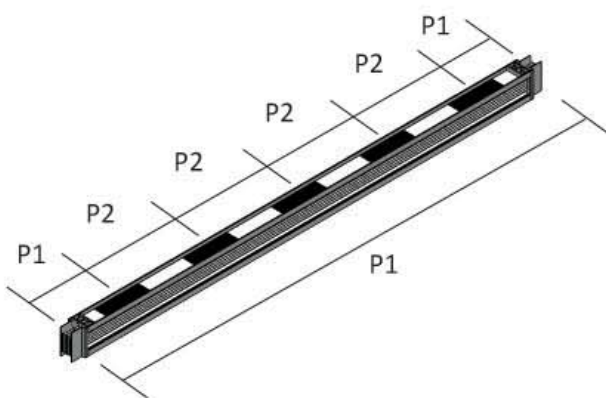
▪ Feeder



Unit: mm

	Ampere Rating	L
Al	400 ~ 6300	3000
Cu	400 ~ 7500	3000

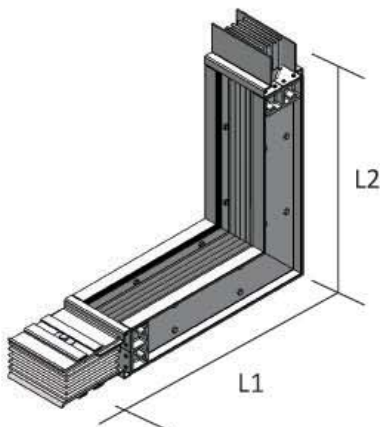
▪ Feeder with Plug-in unit



Unit: mm

	Ampere Rating	P1	P2
Al	400 ~ 6000	500	Min.500
Cu	400 ~ 7500	500	Min.500

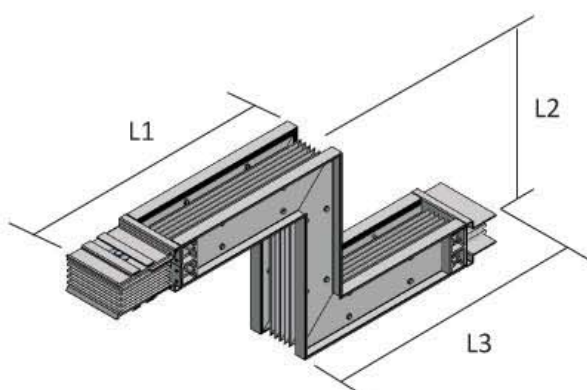
▪ Horizontal Elbow



Unit: mm

	Ampere Rating	L1	L2	L3
Al	400 ~ 2000	500	500	500
	2500 ~ 4000	500	500	500
	5000 ~ 6000	500	500	500
Cu	400 ~ 2500	500	500	500
	3200 ~ 5000	500	500	500
	6000 ~ 7500	500	500	500

▪ Horizontal Offset Elbow

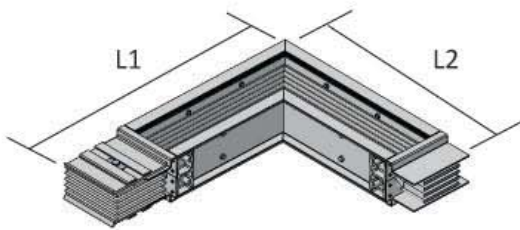


Unit: mm

	Ampere Rating	L1	L2	L3
Al	400 ~ 2000	500	500	200
	2500 ~ 4000	500	500	200
	5000 ~ 6000	500	500	200
Cu	400 ~ 2500	500	500	200
	3200 ~ 5000	500	500	200
	6000 ~ 7500	500	500	200

4 | PHYSICAL DATA

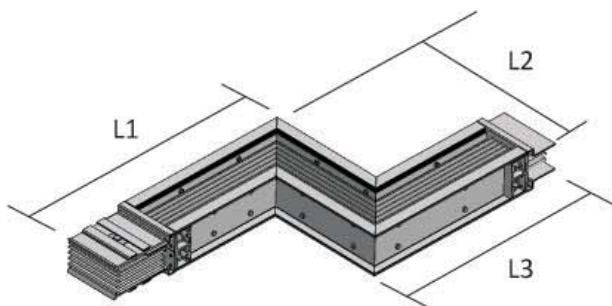
▪ Vertical Elbow



Unit: mm

	Ampere Rating	L1	L2
Al	400 ~ 2000	500	500
	2500 ~ 4000	600	600
	5000 ~ 6000	700	700
Cu	400 ~ 2500	500	500
	3200 ~ 5000	600	600
	6000 ~ 7500	700	700

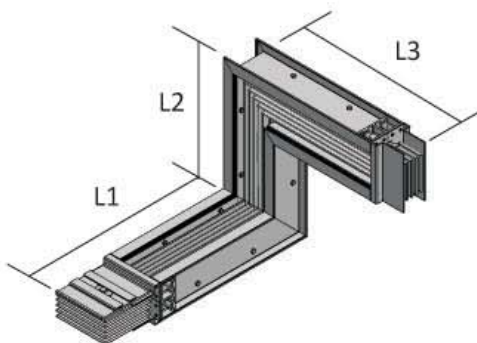
▪ Vertical Offset Elbow



Unit: mm

	Ampere Rating	L1	L2	L3
Al	400 ~ 2000	500	300	500
	2500 ~ 4000	600	400	600
	5000 ~ 6000	700	500	700
Cu	400 ~ 2500	500	300	500
	3200 ~ 5000	600	400	600
	6000 ~ 7500	700	500	700

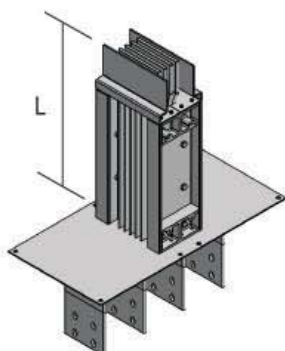
▪ Combination Elbow



Unit: mm

	Ampere Rating	L1	L2	L3
Al	400 ~ 2000	500	500	500
	2500 ~ 4000	600	600	600
	5000 ~ 6000	700	700	700
Cu	400 ~ 2500	500	500	500
	3200 ~ 5000	600	600	600
	6000 ~ 7500	700	700	700

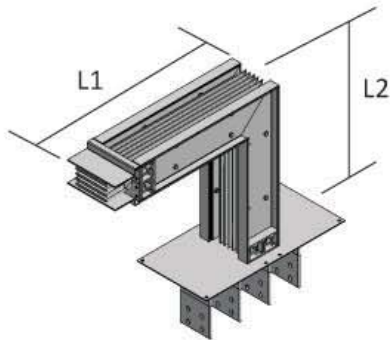
▪ Flange End



Unit: mm

	Ampere Rating	L
Al	400 ~ 6000	500
Cu	400 ~ 7500	500

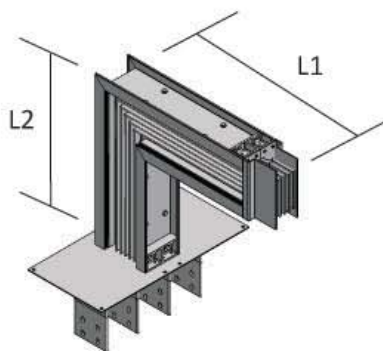
▪ Horizontal Elbow with Flange End



Unit:mm

	Ampere Rating	L1	L2
Al	400 ~ 6000	500	500
Cu	400 ~ 7500	500	500

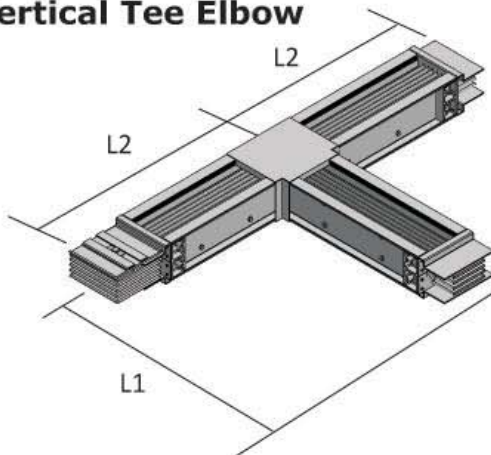
▪ Vertical Elbow with Flange End



Unit:mm

	Ampere Rating	L1	L2
Al	400 ~ 2000	500	300
	2500 ~ 4000	600	400
	5000 ~ 6000	700	500
Cu	400 ~ 2500	500	300
	3200 ~ 5000	600	400
	6000 ~ 7500	700	500

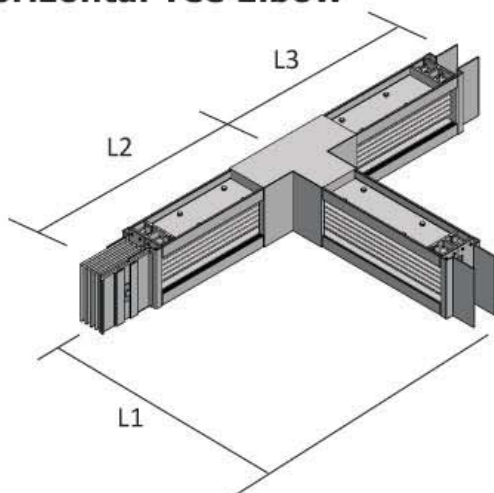
▪ Vertical Tee Elbow



Unit:mm

	Ampere Rating	L1	L2	L3
Al	400 ~ 2000	500	500	500
	2500 ~ 4000	600	600	600
	5000 ~ 6000	700	700	700
Cu	400 ~ 2500	500	500	500
	3200 ~ 5000	600	600	600
	6000 ~ 7500	700	700	700

▪ Horizontal Tee Elbow

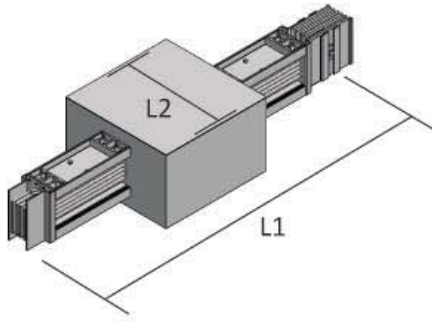


Unit:mm

	Ampere Rating	L1	L2	L3
Al	400 ~ 2000	500	500	500
	2500 ~ 4000	500	500	500
	5000 ~ 6000	500	500	500
Cu	400 ~ 2500	500	500	500
	3200 ~ 5000	500	500	500
	6000 ~ 7500	500	500	500

4 | PHYSICAL DATA

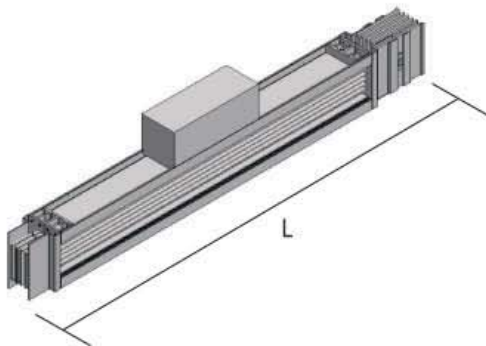
▪ Expansion Joint (if needed)



Unit: mm

	Ampere Rating	L1	L2
Al	400 ~ 6000	1500	400
Cu	400 ~ 7500	1500	400

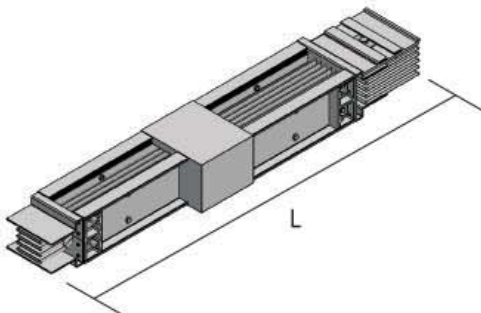
▪ Phase Transposition



Unit: mm

	Ampere Rating	L
Al	400 ~ 6000	1000
Cu	400 ~ 7500	1000

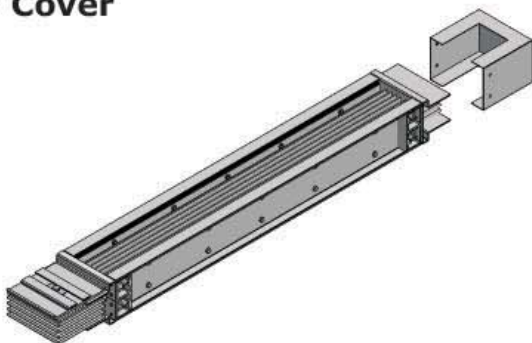
▪ Reducer



Unit: mm

	Ampere Rating	L
Al	400 ~ 6000	1000
Cu	400 ~ 7500	1000

▪ End Cover



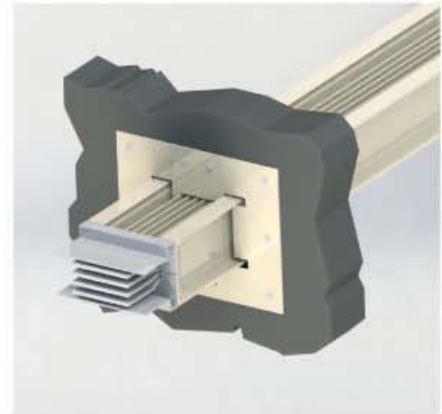
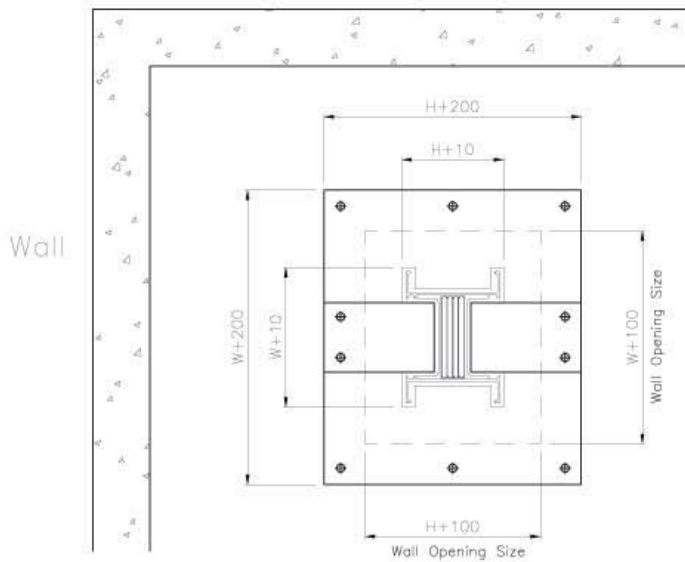
End Covers are used to safely cap off the end of a busway run, typically a rising busbar might be capped off at the top of the run at the end of the final section.

■ Wall Penetrations

When busway passes through a wall or floor, the opening should be at least 50mm larger than the outside dimensions of busway.

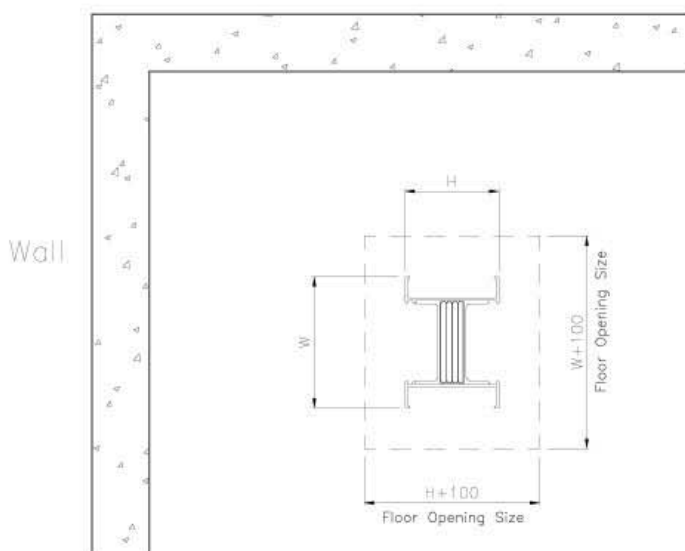
■ Wall Flange

Ceiling



■ Floor Flange

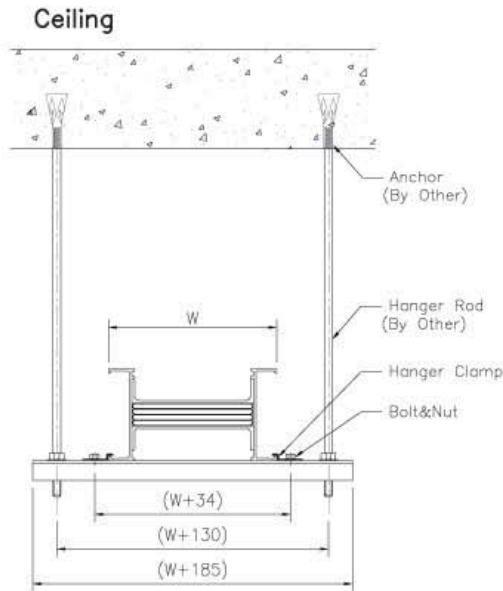
Wall



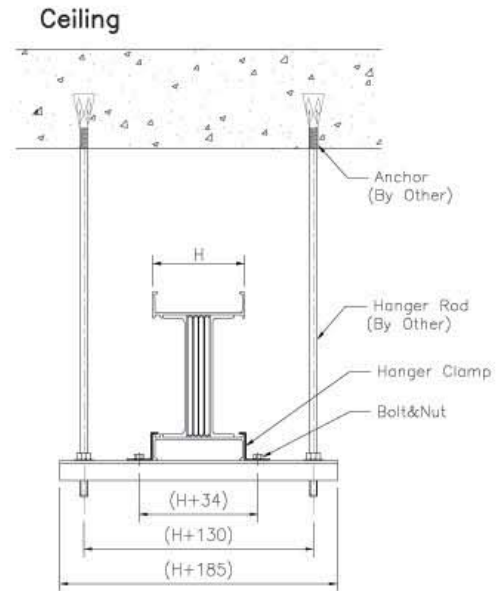
4 | PHYSICAL DATA

▪ Horizontal Hanger

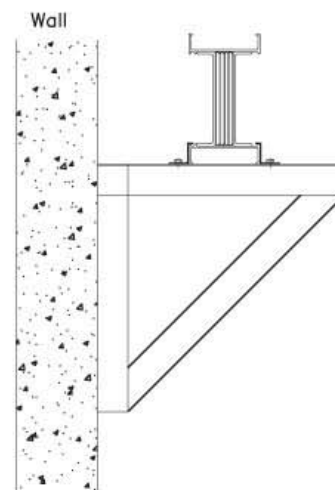
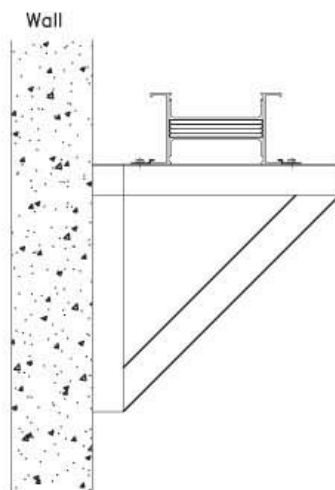
Overhead support is achieved by utilizing a 'trapeze' type hanging system using strut channel and threaded bar. The bar can be secured either in a flatwise or edgewise orientation. The distance between adjacent supports should not exceed 2m.



Flatwise Installation



Edgewise Installation



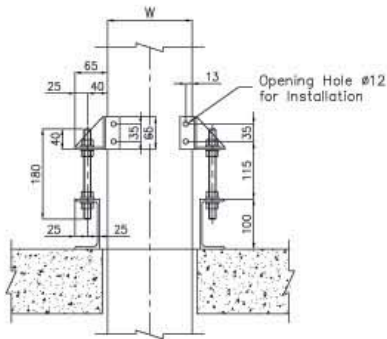
Note:

- Suggest to use stud bolt with 12mm and 2m length.
- Suggest to use 3T x 40 x 40Lmm support channel for 2000A or below busway.
- Suggest to use 6T x 50 x 50Lmm support angle for 2500A or above busway.
- Hanger Support, Angle, Stud Bolt and Anchor Bolt are optional. Clamp & Bolt and Nut set are supplied as standard.

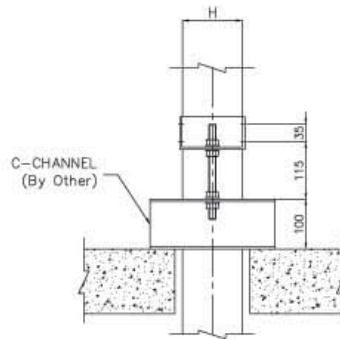
Vertical Hanger

For mounting the busway vertically, vertical spring hanger must be used on every floor. Intermediate hangers are required for floor heights exceeding 4.5m. The rigid hangers are used to support at the center and both ends of a busway run.

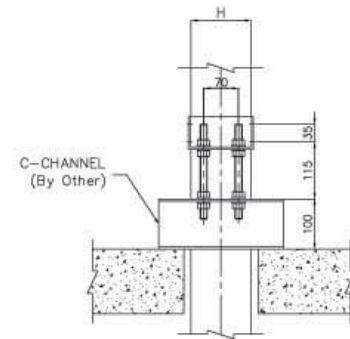
Vertical Rigid Hanger



FRONT VIEW

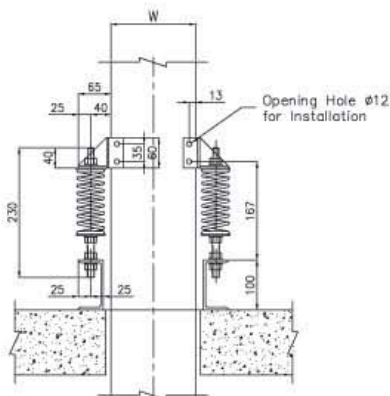


Al:400~1600A
Cu:400~1250A

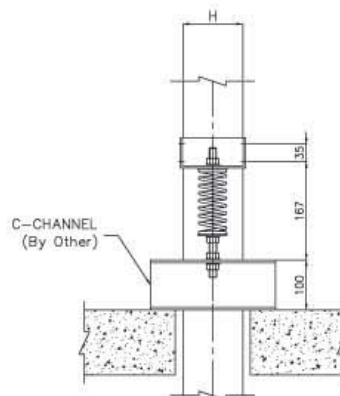


Al:2000~6000A
Cu:1600~7500A

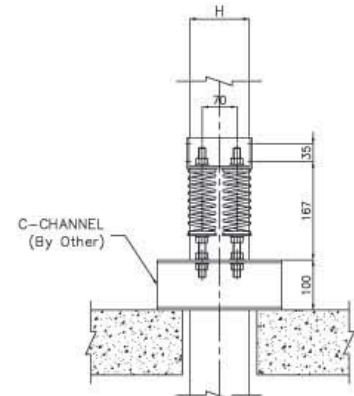
Vertical Spring Hanger



FRONT VIEW



Al:400~1600A
Cu:400~1250A



Al:2000~6000A
Cu:1600~7500A

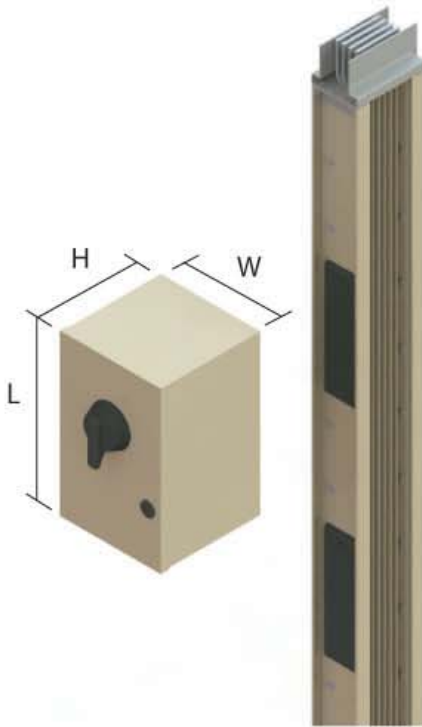


4 | PHYSICAL DATA

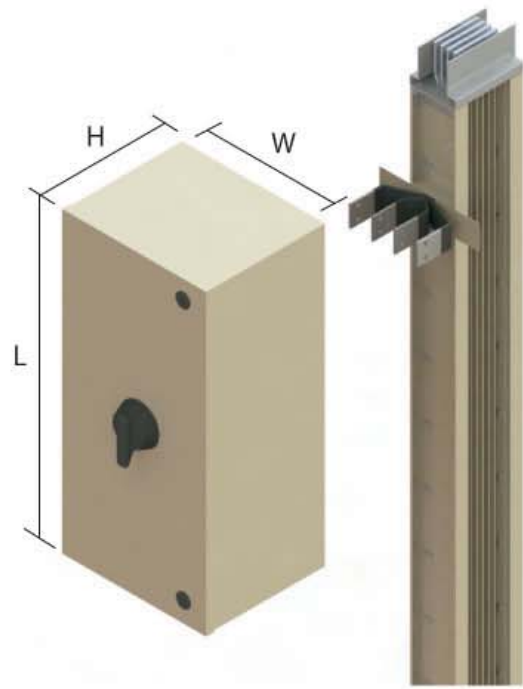
■ Tap-Off Unit

Plug in box mechanically interlocked with the busway enclosure to prevent installation or removal while the MCCB is 'ON' position. It is equipped with an operating handle to control the switching mechanism. The plug in box makes positive ground connection to the enclosure before making contact to the phase conductors.

■ 100AF, 225AF & 400AF Plug-In Box (Plug In Type)



■ 600AF, 800AF, 1000AF & 1200AF Tap-Off Box (Bolt On Type)



■ Plug-In Box

MCCB Rating	L	W	H
100AF	400	240	220
225AF	450	250	220
400AF	550	300	250

Unit:mm

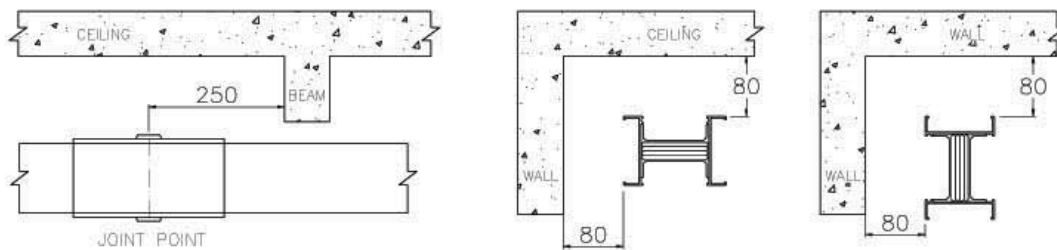
■ Tap-Off Box

MCCB Rating	L	W	H
600AF	900	370	200
800AF	990	370	200
1000AF	1100	400	290
1200AF	1100	400	290

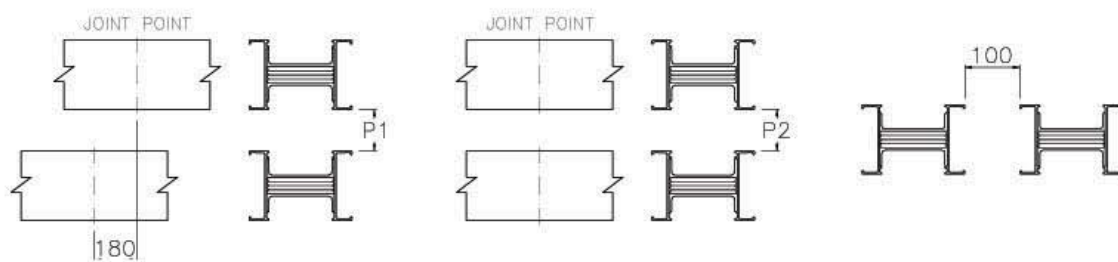
Unit:mm

▪ Design Factors for Busway Layout

Minimum clearance from beam, wall or ceiling



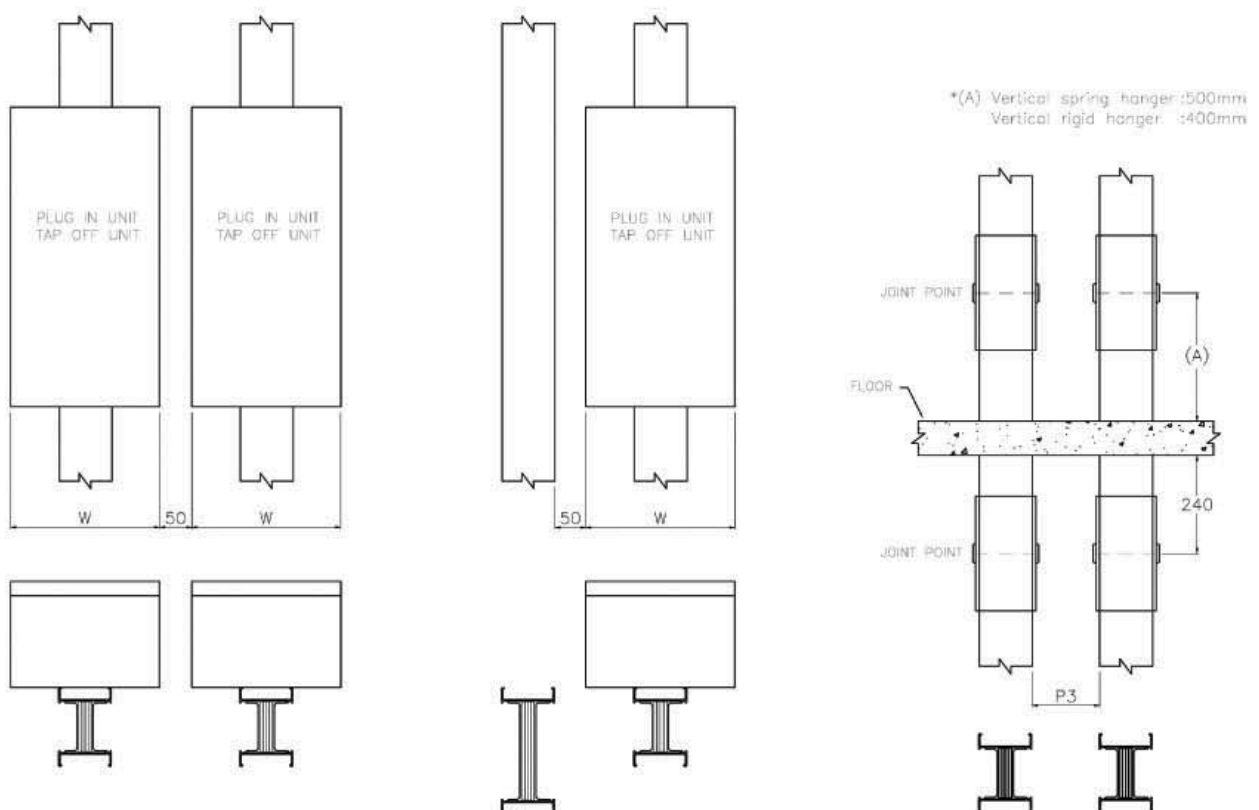
Minimum distance of horizontal Busway



Unit: mm

	3W&3W	3W&4W	4W&4W
P1	220	260	270
P2	260	300	320
P3	190	215	230

Minimum clearance of riser Busway



5 | TECHNICAL DATA

Impedance and Voltage Drop

Aluminum Conductors (Frequency 50Hz)

Ampere Rating	Impedance X 10 ⁻³ Ω/m			Voltage drop per 100m (Line to Line)					
	R	X	Z	0.5	0.6	0.7	0.8	0.9	1
400	17.695	3.611	18.060	8.30	9.36	10.37	11.31	12.12	12.26
600	14.333	2.925	14.628	10.80	11.37	12.60	13.74	14.73	14.89
800	10.769	2.387	11.030	10.33	11.60	12.81	13.92	14.87	14.92
1000	8.698	2.020	8.929	10.56	11.84	13.04	14.15	15.08	15.06
1250	6.006	1.425	6.173	8.81	9.86	10.85	11.76	12.53	12.48
1600	4.527	1.093	4.657	8.90	9.95	10.94	11.85	12.61	12.54
2000	3.490	0.830	3.588	8.54	9.56	10.52	11.40	12.14	12.09
2500	2.570	0.629	2.645	7.92	8.85	9.73	10.54	11.20	11.13
3200	2.263	0.558	2.331	8.95	10.00	10.99	11.89	12.64	12.54
3600	1.858	0.457	1.913	8.26	9.23	10.14	10.98	11.67	11.58
4000	1.745	0.422	1.795	8.58	9.59	10.55	11.43	12.15	12.09
5000	1.238	0.307	1.275	7.66	8.56	9.40	10.17	10.81	10.72
6000	1.163	0.284	1.198	8.60	9.62	10.57	11.44	12.17	12.09

Aluminum Conductors (Frequency 60Hz)

Ampere Rating	Impedance X 10 ⁻³ Ω/m			Voltage drop per 100m (Line to Line)					
	R	X	Z	0.5	0.6	0.7	0.8	0.9	1
400	17.695	4.351	18.222	8.74	9.77	10.73	11.62	12.35	12.26
600	14.333	3.524	14.760	10.62	11.87	13.04	14.11	15.00	14.89
800	10.769	2.876	11.146	10.91	12.14	13.29	14.33	15.17	14.92
1000	8.698	2.433	9.031	11.18	12.41	13.55	14.58	15.40	15.06
1250	6.006	1.717	6.247	9.33	10.34	11.29	12.13	12.79	12.48
1600	4.527	1.317	4.714	9.43	10.45	11.39	12.23	12.88	12.54
2000	3.490	1.000	3.631	9.05	10.03	10.94	11.75	12.39	12.09
2500	2.570	0.758	2.679	8.41	9.30	10.13	10.87	11.44	11.13
3200	2.263	0.672	2.361	9.50	10.51	11.44	12.27	12.91	12.54
3600	1.858	0.551	1.938	8.77	9.70	10.56	11.33	11.92	11.58
4000	1.745	0.509	1.817	9.10	10.07	10.98	11.79	12.42	12.09
5000	1.238	0.369	1.292	8.13	8.99	9.79	10.50	11.04	10.72
6000	1.163	0.342	1.213	9.13	10.10	11.00	11.81	12.43	12.09

Copper Conductors (Frequency 50Hz)

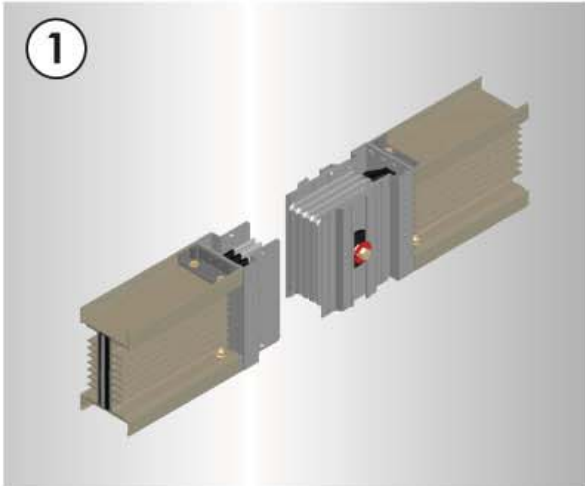
Ampere Rating	Impedance X 10 ⁻³ Ω/m			Voltage drop per 100m (Line to Line)					
	R	X	Z	0.5	0.6	0.7	0.8	0.9	1
400	15.060	5.265	15.954	8.38	9.18	9.91	10.54	10.98	10.43
600	11.474	3.761	12.075	9.35	10.28	11.14	11.88	12.44	11.92
800	8.925	2.925	9.392	9.69	10.66	11.55	12.33	12.90	12.37
1000	6.743	2.348	7.141	9.36	10.26	11.08	11.78	12.28	11.68
1250	5.464	1.966	5.807	9.22	10.08	10.87	11.54	12.00	11.36
1600	3.836	1.425	4.092	8.74	9.54	10.26	10.87	11.29	10.63
2000	2.911	1.079	3.104	8.28	9.04	9.73	10.31	10.70	10.08
2500	2.452	0.901	2.612	8.69	9.49	10.22	10.83	11.26	10.62
3200	1.919	0.729	2.053	8.82	9.61	10.33	10.93	11.33	10.63
3600	1.657	0.629	1.773	8.56	9.34	10.03	10.62	11.01	10.33
4000	1.456	0.551	1.557	8.35	9.11	9.79	10.36	10.74	10.09
5000	1.226	0.459	1.309	8.75	9.55	10.27	10.88	11.29	10.62
6000	0.970	0.371	1.038	8.38	9.13	9.81	10.38	10.75	10.08
7500	0.818	0.308	0.874	8.78	9.58	10.30	10.90	11.31	10.62

Copper Conductors (Frequency 60Hz)

Ampere Rating	Impedance X 10 ⁻³ Ω/m			Voltage drop per 100m (Line to Line)					
	R	X	Z	0.5	0.6	0.7	0.8	0.9	1
400	15.060	6.343	16.341	9.02	9.78	10.44	10.98	11.31	10.43
600	11.474	4.531	12.337	10.04	10.92	11.71	12.37	12.78	11.92
800	8.925	3.524	9.595	10.41	11.33	12.14	12.82	13.26	12.37
1000	6.743	2.829	7.313	10.08	10.93	11.68	12.28	12.65	11.68
1250	5.464	2.369	5.955	9.94	10.75	11.47	12.04	12.37	11.36
1600	3.836	1.717	4.203	9.44	10.18	10.84	11.36	11.64	10.63
2000	2.911	1.300	3.188	8.94	9.65	10.27	10.77	11.04	10.08
2500	2.452	1.085	2.681	9.38	10.13	10.79	11.31	11.60	10.62
3200	1.919	0.878	2.110	9.53	10.28	10.92	11.43	11.69	10.63
3600	1.657	0.758	1.822	9.26	9.98	10.61	11.10	11.36	10.33
4000	1.456	0.664	1.600	9.03	9.73	10.35	10.83	11.08	10.09
5000	1.226	0.553	1.345	9.46	10.20	10.85	11.37	11.64	10.62
6000	0.970	0.447	1.068	9.06	9.76	10.37	10.85	11.10	10.08
7500	0.818	0.371	0.898	9.49	10.23	10.88	11.39	11.66	10.62

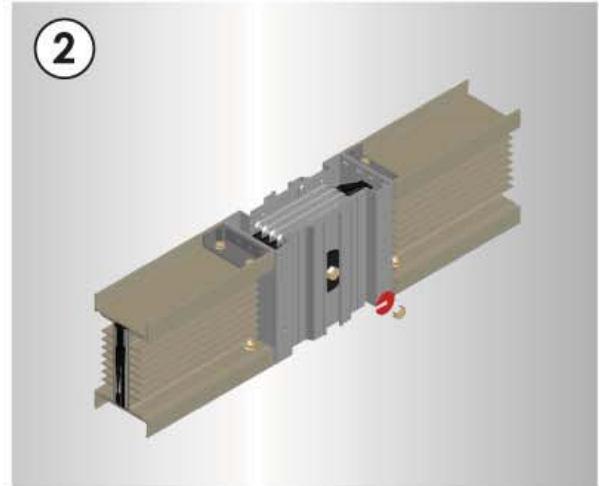
6 | INSTALLATION PROCEDURE

▪ Joint Assembly Instructions



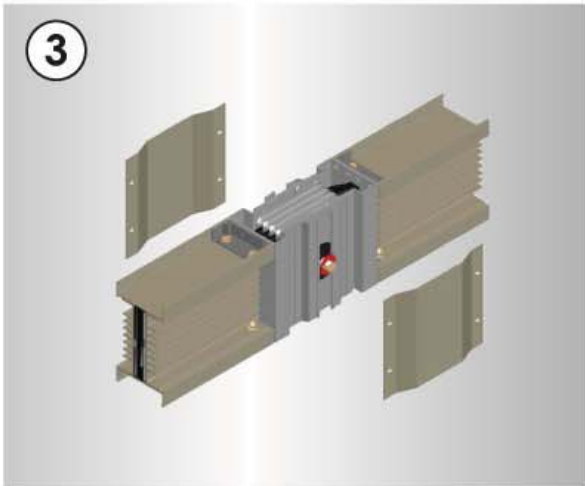
1

- Ensure all contact surfaces are clean and contamination.
- Ensure proper alignment both sides of planes
- Slowly insert the bar ends into the joint kit.



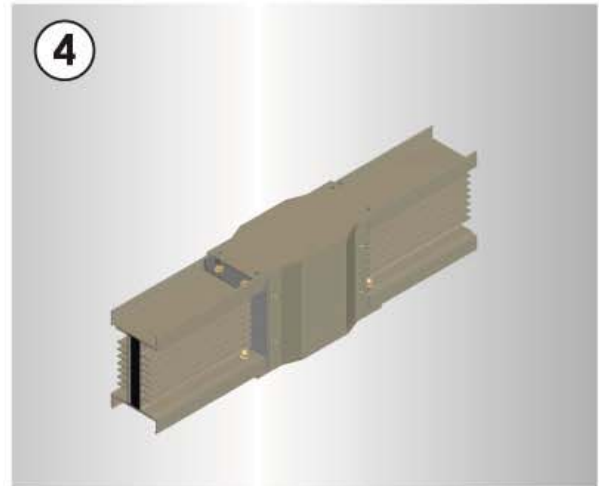
2

Using the torque wrench, tighten the outer bolt head of joint bolt until break off at a predetermined torque value of 70N-m



3

Attach the side cover then upper & lower cover to the body with mounting screws (M6 bolt)

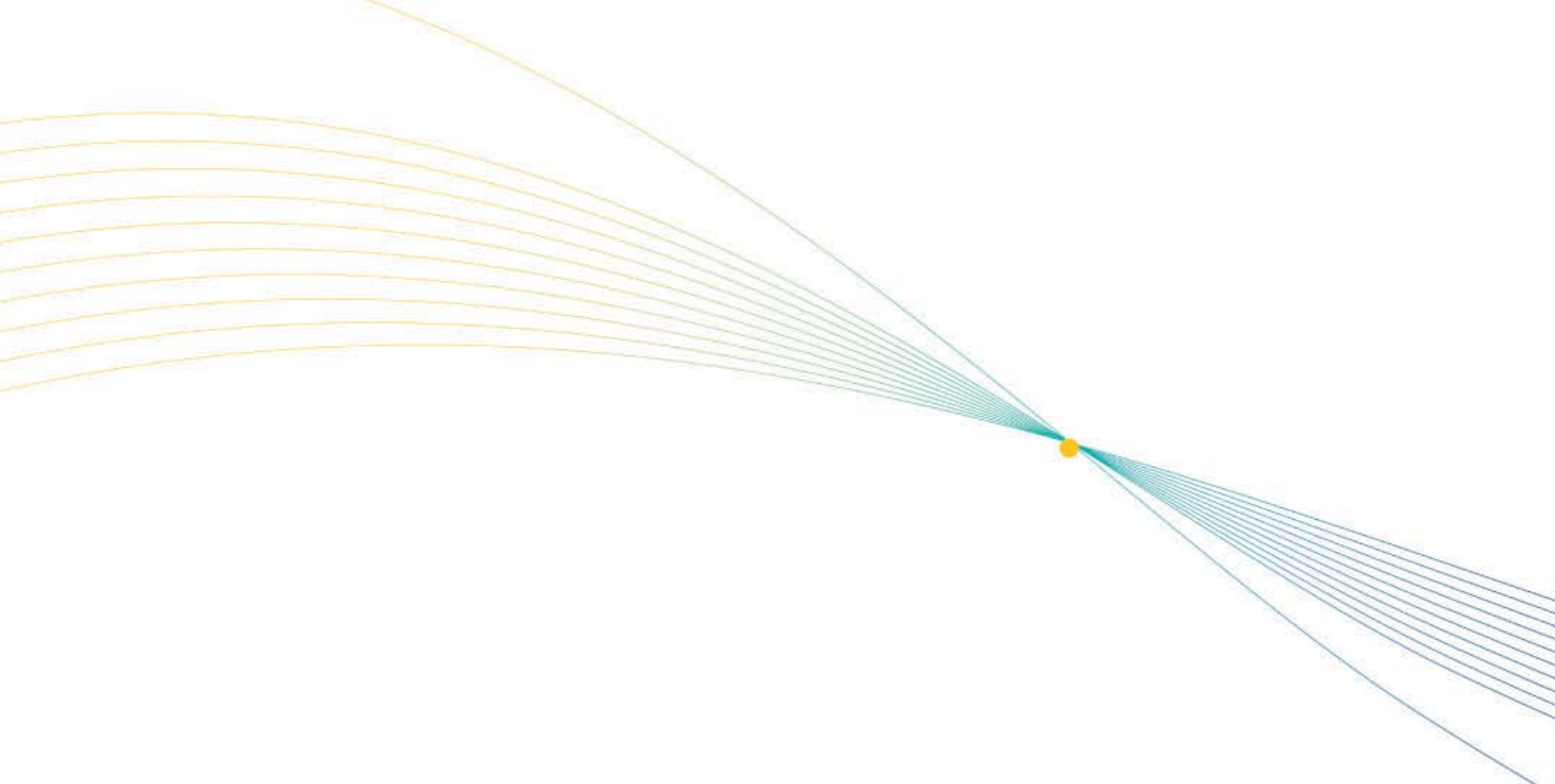


4

Completed busduct joint.



JOINT VIEW



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