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Busduct System

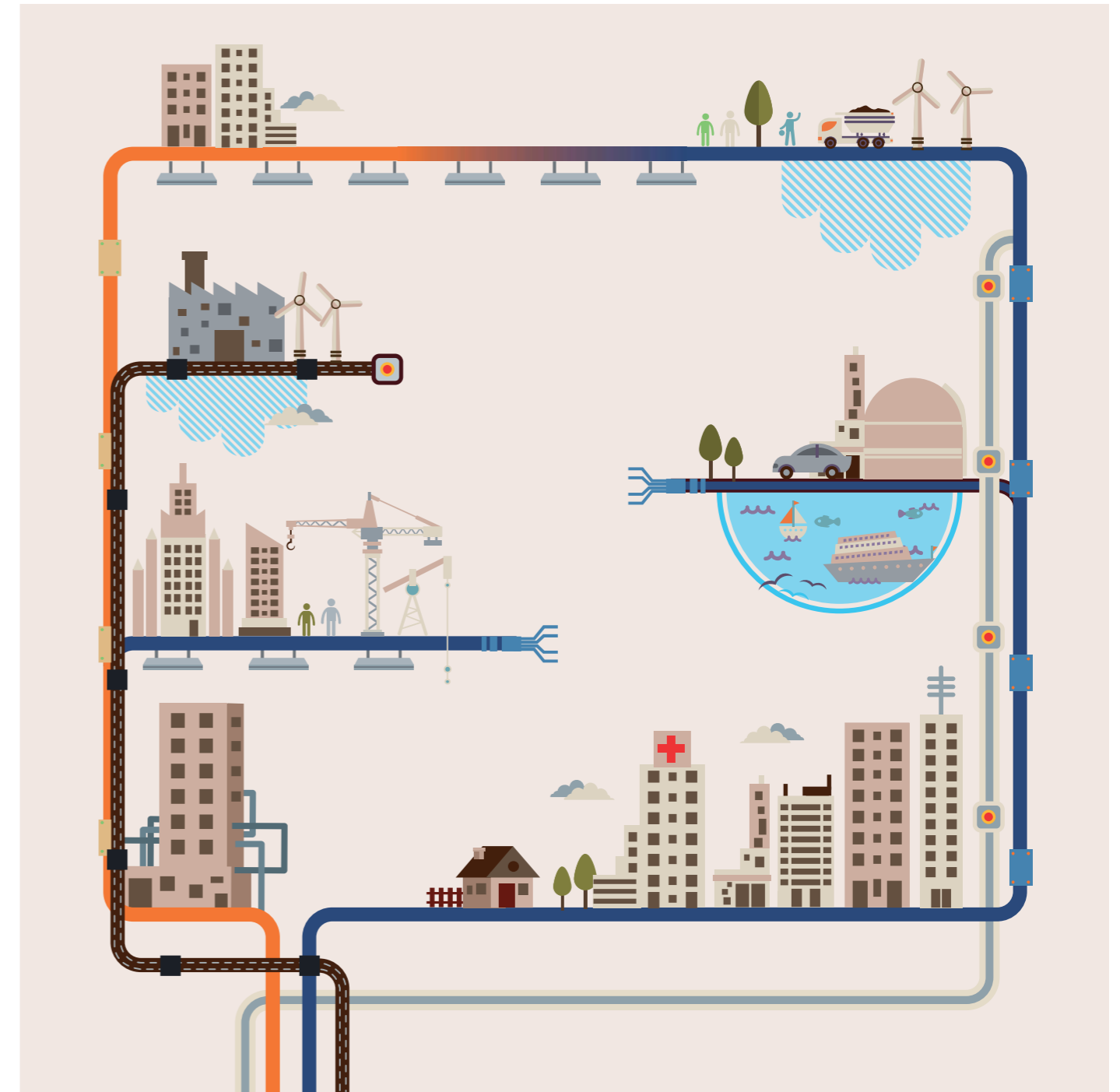
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BUSDUCT EX-WAY(UL)

Total Busduct Solution for Reliable and Efficient Energy Distribution





THE WORLD BEST CABLE SOLUTION LEADER

LS Cable & System supplies various cables and materials used for power grids and communication networks around the world across all industries providing its top class technology and excellent quality. The company has also developed state of the art products, such as superconductors, HVDC and submarine cables that will lead the future energy industry.

LS spun off from LG in 2003 as a group specializing in electronics, electrical systems, energy and materials.



LS Cable & System

Transmission Cable
Distribution Cable
Submarine Cable
Telecommunication Cable
Industrial Cable
Industrial Material

LSELECTRIC

Electric &
Automatic Equipments

LS-Nikko Copper

Copper Refinement

LS Mitron

Mechanical &
Electronic Parts

yesco
LNG

E1
LPG

GBON
Power &
Communication
Cables



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LS Cable & System Busduct System Solution



Building
The LS C&S Busduct system is easy to install, and ensures large capacity of energy transmission while providing space efficiency which makes the bus duct system ideal for high-rise buildings, office buildings, data centers and apartment complexes.



Plant
The full lineup Consists of NSPB, CAST RESIN and SIB that can cover up to 27kv, and the lineup thus enables us to provide our clients customized designs. The system is suitable for electrical rooms and power lines, and it features a real time monitoring system using the temperature and power monitoring system.



Data Center
The flexibility and expandability as well as easy maintenance property of the busduct system provides the best alternative to improve the existing problems of the conventional power cable system of data centers, which requires constant extension, reinstallation and capacity modification of loads.



Apartment Buildings
Although the demands for more electricity for families are growing, the space for EPS area has reduced. Due to the change, the need for busducts and multi boxes have increased.



Hospital
The stability of the power supply in the hospitals is perhaps the most vital element, because its failure could threaten the safety of patients. The Busduct system distributes larger capacity of electric power, and provides stability of the loads which make it an ideal choice to satisfy the requirements of systematization of hospital complexes and larger hospital equipment



Airport
In order to secure the stable power supply of the airport, the busduct system provides the best customized solutions by installing high voltage busducts at the transmission, transformation and power distribution lines, and by installing low voltage busducts at the cargo, the control tower and general commercial buildings.

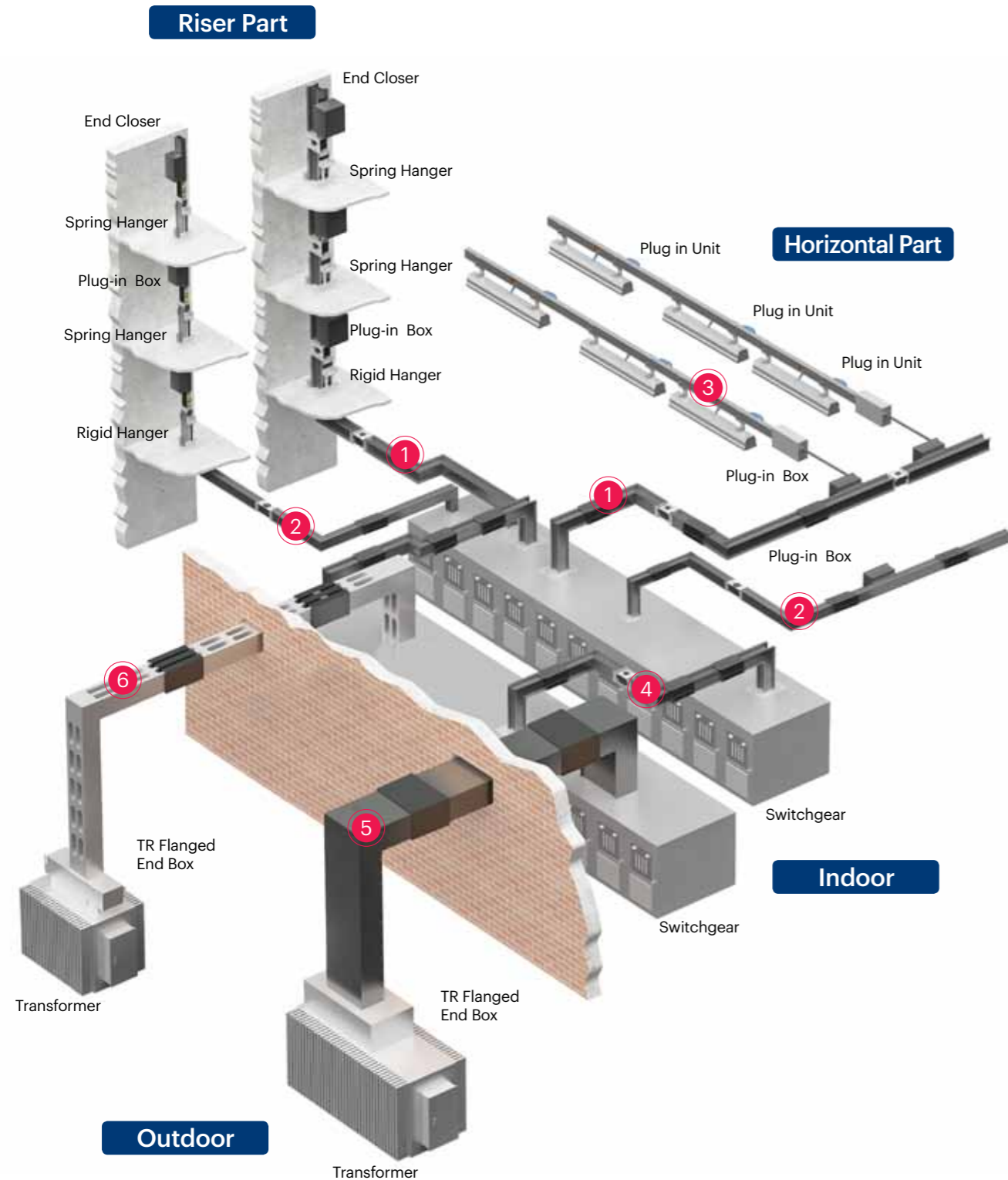


Stadium
The needs for a busducts system has been growing for its benefit such as large capacity of power transmission, providing a stable power supply for various loads and an eco friendly property as well as economical quality.



Marine & Wind
The compact and light weight design of the busduct satisfies the demands of the clients, and comes with an outstanding quack resistance property. The busduct provides stability to the operation of the facilities through a real-time monitoring system using a temperature and power monitoring system. As the needs for renewable energy grows, the demand for our busduct has been increasing steadily.

LS Cable & System Busduct Product Line-up



The LS Cable & System Busducts are available in a wide range of products from low current capacity LT-way (25A-63A) to large current capacity (630A-6300A), and the products enable the supply of proper capacity of power for factories and the distribution system. Our products such as the air insulated bus conducts with enhanced safety property and the cast resin busducts with resistance for high temperature, humidity and dusty environment will satisfy various application needs and provide a customized engineering service.

1		<p>Ex-way(UL)/UL857 Sandwich Type (PET Film, Epoxy Coating, MICA)/AL Extrusion Housing/Standard IP54/Joint Kit</p> <ul style="list-style-type: none"> - Designed for low voltage products below AC 1000V, and between 630A to 6300A. - The most widely used conventional model.
2		<p>Mini-way Air Insulated Type/AL Extrusion Housing/Standard IP54/Joint Kit</p> <ul style="list-style-type: none"> - Designed for low voltage products below AC 1000V, and between 160A and 800A. - Ideal for small distribution system with multi distribution loads (Vertical areas of buildings, data centers, assemble factories) - The most widely used conventional model.
3		<p>LT-way Flat Wire Type/Copper Conductor with PVC Extruded Insulation/AL Extrusion Housing/Various Plug Types/Joint Brush (It can be installed with a live wire.)</p> <ul style="list-style-type: none"> - Designed for low voltage products below AC 690V, and between 25A and 63A - Suitable for Light bulbs, FFU and distribution for small equipments
4		<p>MS / Wind-way Air Insulated Type/Compact NSPB Type/One-Bolting Type Designed for low voltage products below AC 1000V, and between 1000A and 5000A</p> <ul style="list-style-type: none"> - A Hybrid incorporating NSPB and sandwich type - Ideal for ships, wind towers and chemical plants where stability is required.
5		<p>NSPB-LV / MV Air Insulated Type/Insulated conductors separated by phase/AL, STS and Steel Housing (optional)/Indoor Type/Outdoor Type</p> <ul style="list-style-type: none"> - NSPB-LV : Designed for low voltage products below AC 1000V, and below 4000A - NSPB-MV: Designed for high voltage products below AC 27kV, and below 4000A - Suitable for plants where high stability is required.
6		<p>CR-LV / MV</p> <ul style="list-style-type: none"> - Cast Resin Type/IP 68/Epoxy Molding between Conductors - CR-LV: Designed for low voltage products below AC 1000V, and between 630A and 7500A. - CR-MV: Designed for high voltage products below AC 27KV, and below 5000A. - The most safe bus duct suitable for plants where high stability is required.
7		<p>CR-LV-II</p> <ul style="list-style-type: none"> - Cast Resin Type/IP 68/Epoxy Molding between Conductors and Housing - AL Housing(Steel and SUS as optional)/Indoor/Outdoor - Designed for low voltage products below AC 1000V, and between 630A and 6300A. - Suitable for area with high humidity or rapidly changing temperature - Easily jointed with Sandwich type Busduct

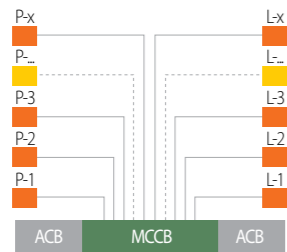
Why Busduct?

Easy Distribution of Loads

When supplying power using cables, each load has to be connected individually to cables which waste space, and an additional distribution panel is also required.

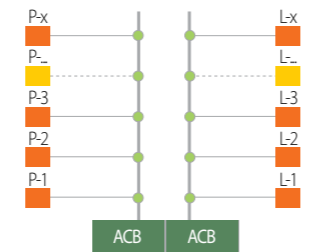
On the other hand, busducts are separated from a single line at a plug box which simplifies the electric power system. A MCCB can be installed at the plug box to effectively shut off fault current.

Cable Wiring System



- One -to-one correspondence of power supply and loads
- Additional lines are needed in case of a load change

Busduct Wiring System



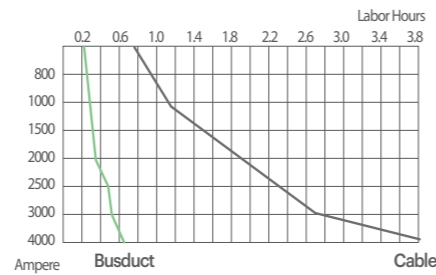
- One -to-many correspondence of power supply for specific power supply
- Additional lines are not necessary in case of a load change

ACB : Air Circuit Breaker, MCCB : Molded Case Circuit Breaker

Easy Installation

Pulling and cable tray installation for cables can be difficult, and requires a longer construction period, therefore increases the cost.

On the other hand, the busducts use a simple installation method to connect specific length of products, which requires a shorter installation period, and is economically friendly.



Compact

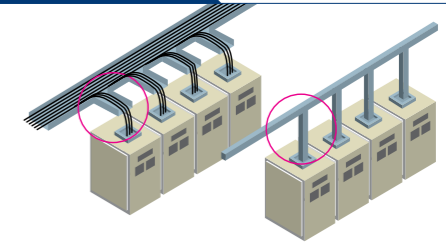
The compact design of the busduct system provides high space efficiency at up to 50% compared to the cables.

While cables require larger space to install multi lines as well as additional space for coiling areas, the busducts use proper fittings to maximize space efficiency.



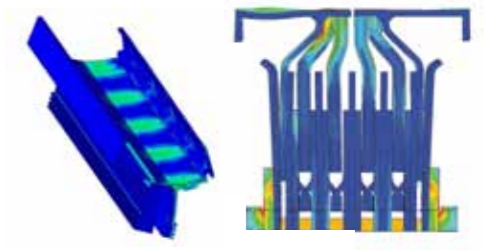
Adaptability to various installation environment with convenience

The busduct system is a power distribution system and can be applied to various complex routes. The busduct system comes with various fittings such as elbow, off-set and tee, and can transmit high capacity currents without electrical and mechanical loss.



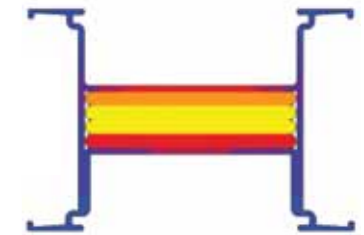
Excellent short circuit strength

The busduct system has a high tolerance for short circuit. Its stability and reliability make it perfect for a high capacity energy transmission system.



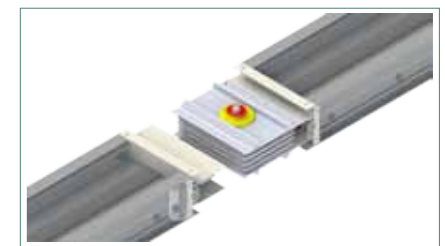
High current density

Cables are connected directly to electric loads using racks. Its maximum allowable current ampacity limit is 1000A, and requires additional lines for a higher current. Each line of the busduct system can transmit up to 6000A, and provides high current density.



Easy maintenance

The design of the busduct system makes it easy to detect abnormalities during installations, and ensures easy maintenance. When humidity or dust causes a malfunction on the system, the easy-to-maintain design allows replacing only the damaged part.



Outstanding features of EMC and EMI

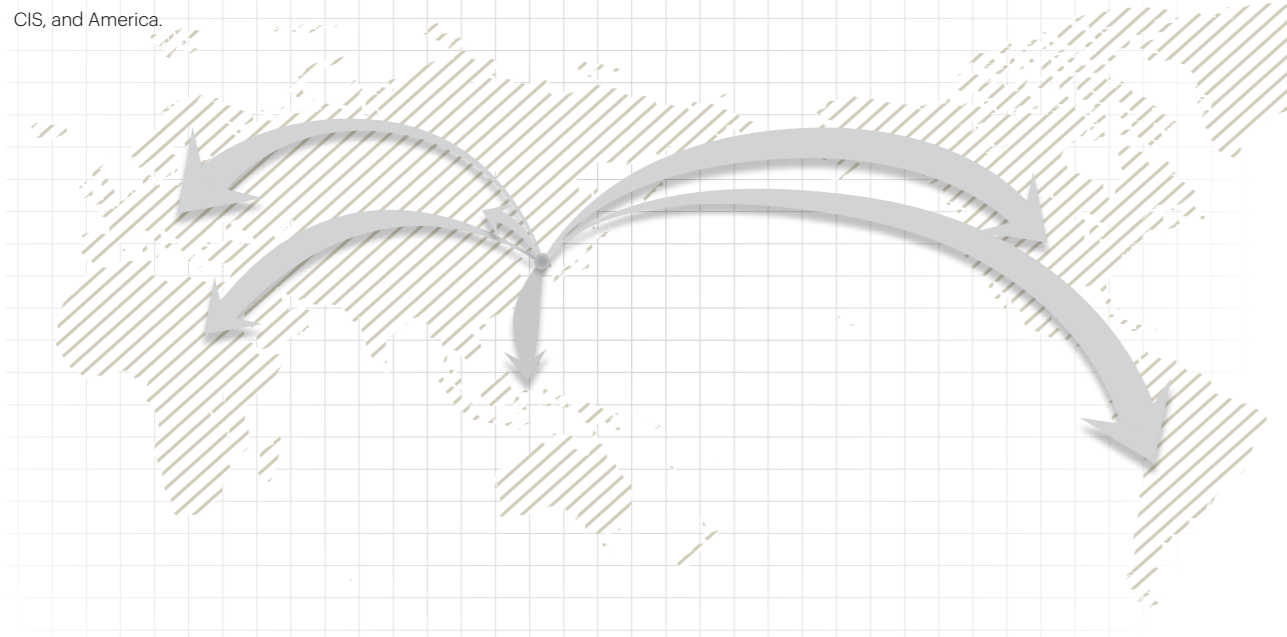
Unlike cables, the busduct system does not require a shield, instead Busduct, the housing itself performs as a shield which enhances the features of EMC and EMI.



Why LS Cable & System Busduct?

Global Top Tier

LS Cable & System has been a long-time leading Busduct provider in Korea. With extensive experience and product line competitiveness, the company provides total solutions for each application to satisfy the needs of its clients. Using its expertise in the electronic markets of large LCD monitors and semiconductors in Korea, the company has obtained PJT sales records in 50 countries worldwide in Asia, the Middle East, CIS, and America.



Full Line-up

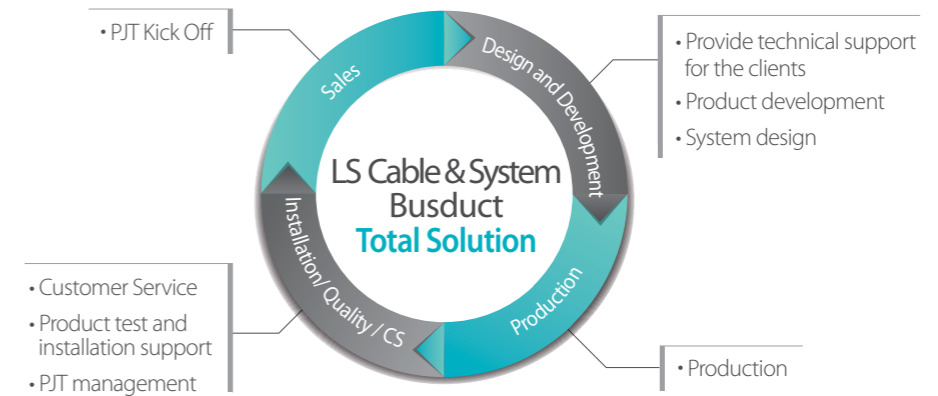
LS Cable & System is the only global company that provides a full line-up of busducts, from low to high voltage and from low to high capacity, to satisfy every need of its clients and provide an optimized solution for each PJT.



Total Solution

- Once PJT launches, our engineer will participate to guide the clients from the initial period in order to produce the best system for our clients, and to respond quickly when the system is changed.
- Our engineers from each department provide full support in design, production, installation and testing at in-bound to satisfy our clients.
- We operate the CS Team, a task force for the busduct system, to make sure efficient after-sale service and maintenance service.

Process



Technical Excellence

Unparalleled Reliability

- Provides standardized design, and owns numerous certifications such as UL Certification, Quack Proof Certification, and Impact Resistance Certification
- The CS team, a task force for the busduct system, provides efficient after-sale service
- Safe use in hazardous zones
- Manage the system using a unique temperature monitor sensor
- Semi-permanent service life
- Used qualified insulation such as epoxy and PET film for efficient insulation

Eco Friendly

- Fully recyclable
- Halogen free
- Does not contain RoHS 6 hazardous substance
- No toxicity in fire & Fire-Retardant
- Non Explosive

Total Engineering Technology

- Provide the optimal design by experienced engineers
- Design following analysis and inspection of CAE
- Unique and exclusive design program for the busduct system
- Design based on structure stability inspection
- The excellent heat -radiating property of the aluminum housing, which ensures large capacity of power transmission
- Low Weight & Low cost
- Easy installation
- Deployable where access is difficult
- Automated epoxy insulation facility
- Unique joint kit connections
- Reduce electromagnetic
- BPMS (Busduct Power Monitoring system)
- BTMS (Busduct Temperature Monitoring system)

Why LS Cable & System Busduct?

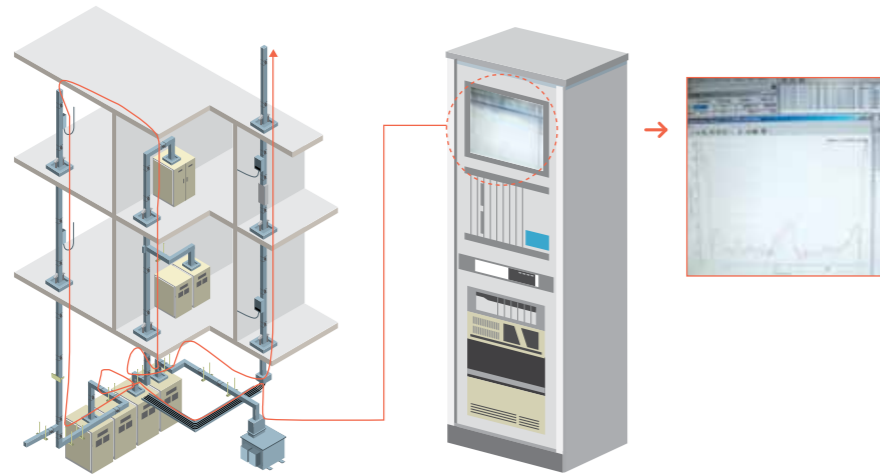
The Busduct Temperature Monitoring System

BTMS : Busduct Temperature Monitoring System

The busduct is a large capacity power distribution system. The insulation of the duct has to stay stable when the Joule lines occur during a power supply of the conductor. The rated current will be set by the insulation type and the temperature rises.

These properties of the busduct make it possible to monitor and manage abnormalities of the system by checking the temperature of specific areas of the system.

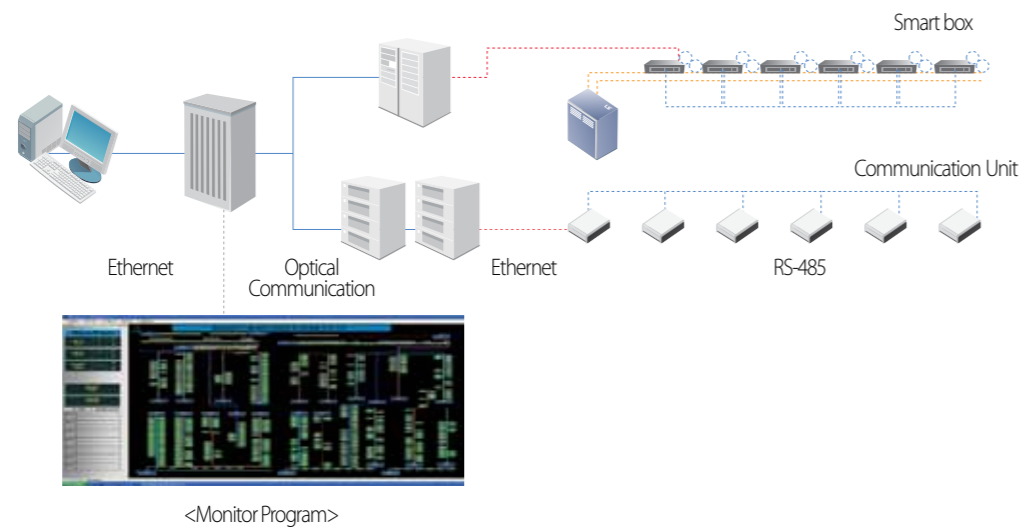
The temperature monitoring system uses various temperature sensors such as optical fiber cable, IC electric chips and thermo-graphic cameras. Specific areas like the entire system line, joints, plug-in boxes and cable connection can be monitored at the central monitor room using various methods on request.



The Busduct Power Monitoring System

BPMS : Busduct Power Monitoring System

The ongoing trends of the busduct system are more than a simple power supplying system. The growing trend is; 1) the stability of the power system, 2) unmanned system, 3) cost cutting, and 4) green and smart grid. While the SCADA system monitors and controls the power of the main system, the BMS monitors low loads of the sub system. The frequency of the recent electrical accidents is higher at the sub system than at the main system. Therefore, the preference for the BMS system has been increasing.



Ex-way (UL)

- Overview
- Application
- General Data
- General Specifications
- Joint Connection
- Grounding and Harmonics
- Plating/Painting
- IP Code (Degree of Protection)
- Feeder
- Flanged End
- Fittings
- Hanger
- Plug-In Unit
- Etc
- Technical Data
- Joint Connection
- Certification & Specification

Overview

The Ex-way(UL)

The LS C&S Ex-way(UL) Busducts are designed to carry voltage range below AC 600V, and to carry the current range of 630A to 6000A. Joint kit connections provide more space to connect which reduce the contact resistance to its minimum while connecting products. The LS C&S Ex-way(UL) Busduct comes with a standard IP54rating; however, it can be upgraded to an indoor or outdoor IP65 rating on request. Ex-way(UL) Busducts use epoxy powder for insulation.

Compact Size

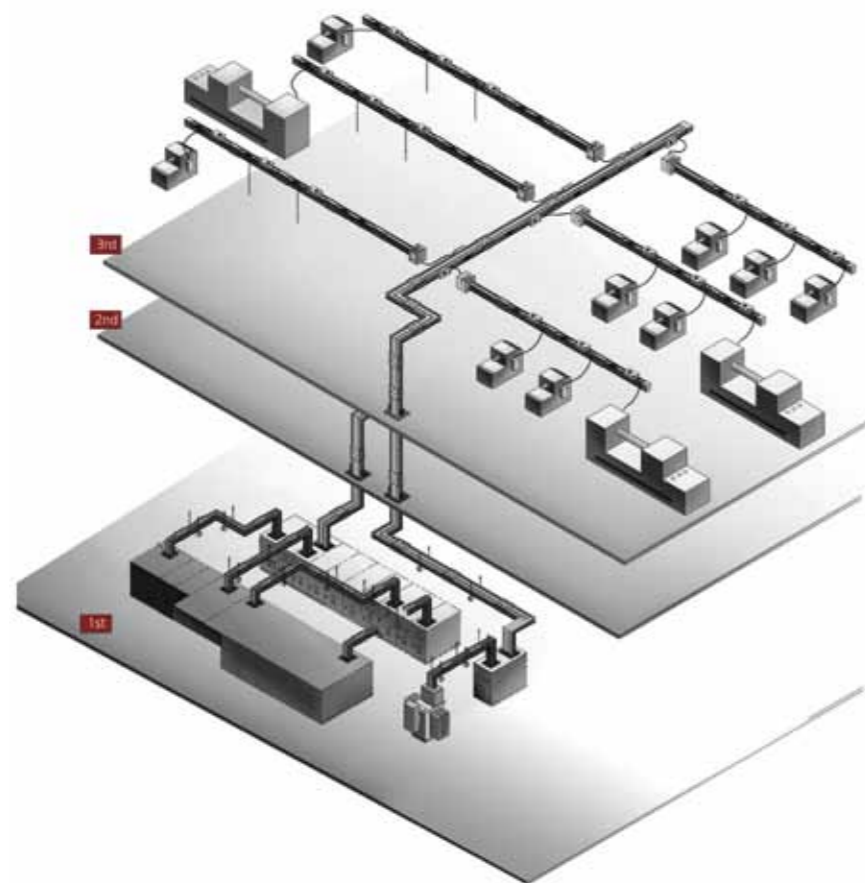
The LS C&S Ex-way(UL) Busduct uses an effective heat radiating housing profile which allows the size of the conductors to be smaller than the existing Busduct models. The light weight of the Busduct also allows easier installation and requires less space.

Economical and Easy Installation

The LS C&S Ex-way(UL) Busduct uses aluminum housing and joint kit connections which enable easy installation with less time and low cost.

Easy Distribution of Loads

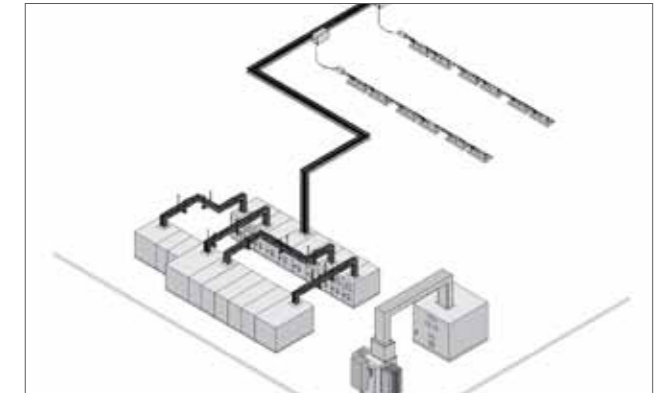
The LS C&S Ex-way(UL) Busduct can directly distribute the loads at the plug-in box using a single line, and thus simplifies the power supply system. The MCCB can be installed in the plug-in box on request to effectively shut off the fault current.



Application

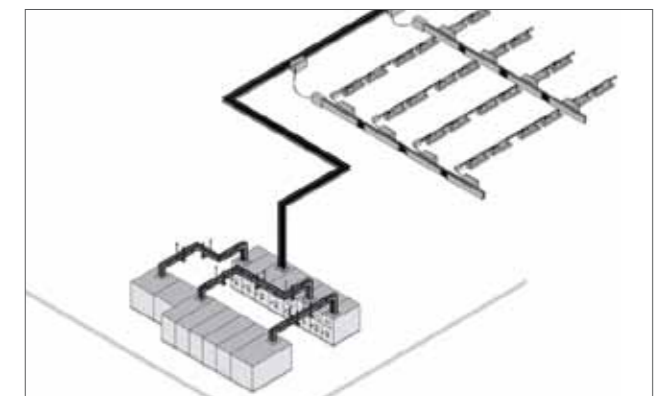
Electrical Rooms

- The busduct can be installed both horizontally and vertically at the electrical room.
- The maximized safety features are seismic-proof and explosion-proof.
- Provides excellent space efficiency and easy installation compared to cables.



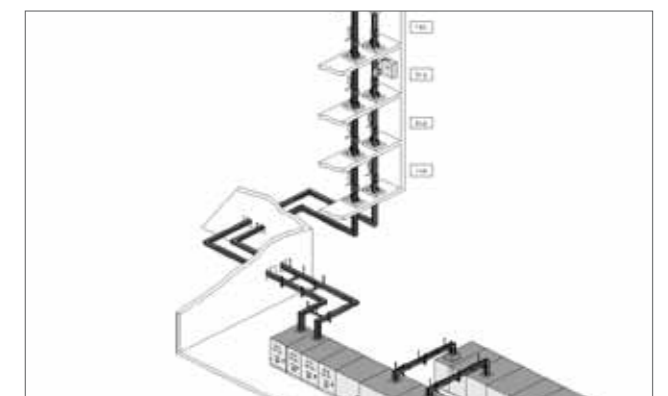
Factory / Plant etc.

- The busducts can be applied to a vast range of industries such as semiconductor, display and petrochemical plants.
- The temperature and the power supply monitoring system allows easy maintenance.
- The busducts provides high space efficiency, and allows a significantly reduced installation period.

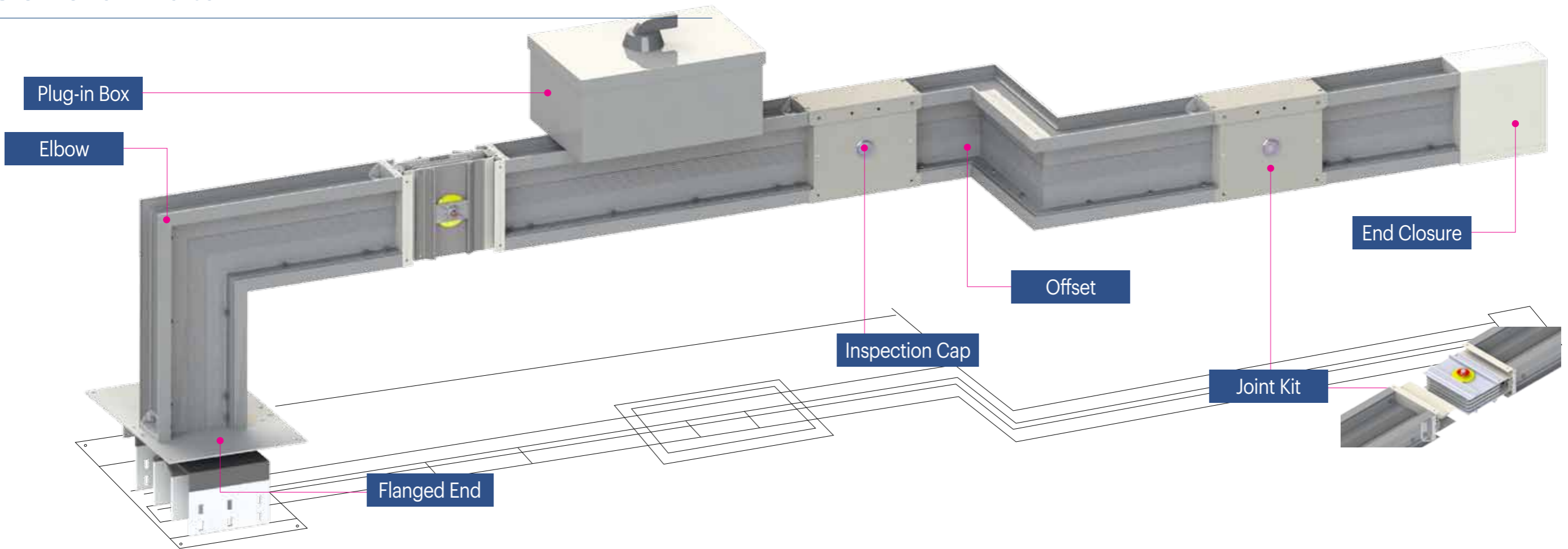


Commercial / Housing Building etc.

- Provides excellent space efficiency.
- The busducts can be applied to high-rise buildings, office buildings, and data centers.
- Multi-box can be applied on request.



General Data



High Current Density



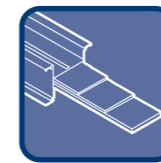
The busduct has a compact design compared to the existing models by using an effective heat-radiating housing profile and can carry from 630A up to 6000A with reduced loss of electric power. It is an ideal power distribution system that provides high efficiency, stability, economy-friendliness and convenience. The design of the conductor allows flexibility to extend and relocate depending on the environment.

Eco - Friendly



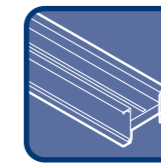
The LS C&S Busducts acquired RoHS certification, and only uses components without hazardous substances such as lead, cadmium, mercury, chrome, PBBs and PBDEs.

Conductors



The Ex-way(UL) uses either copper conductors with conductivity over 98% and purity over 99.9%, or aluminum conductor with conductivity over 61% and purity over 99.6%

Housing



The Ex-way(UL) uses an effective heat-radiating aluminum housing profile which produces an excellent mechanical strength and heat radiation. The aluminum housing can be used as a protective conductor(PE) due to its high level conductivity and cross sectional areas. An optional optical fiber temperature sensor can be installed at the housing.

Low Voltage Drop and High Short Circuit Strength



Thanks to the optimum design, power can be transmitted with the greatest possible efficiency, and the resultant voltage drop is low due to extremely low impedance. In addition, the LS C&S Busducts is designed to have high short circuit strength. Reinforced type is available. contact our engineering staff

Standard



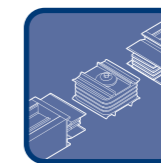
- ANSI/UL857
- NEMA BU 1.1 Busways
- IEC 61439-6
Busbar Trunking Systems
- BS EN 61439 Busways
- AS / NZS 3439.2

Insulation Properties



An insulator of thermal class rating Class B(130°C) is applied to the Ex-way(UL). FRP (Fiber Reinforced Plastic) with high dielectric property is used as insulation at the connection which performs as insulation between phases and housing.

Connection



- Kit : DH (dual head) bolts and Visible-label (Redtag)
- Check for installation using the contact To exert a uniform force on the entire connection can Disc Spring A structure.
(Assembly Torque 800-1000kgf.cm / 694-868lb.in / 78-98N.m)

Permissible Operating Temperature



The cross sectional areas of the conductor and housing profile are designed to meet the standard permissible operating temperature of UL857. Therefore the temperature rise limit at any point is within 55K or less of the ambient temperature.

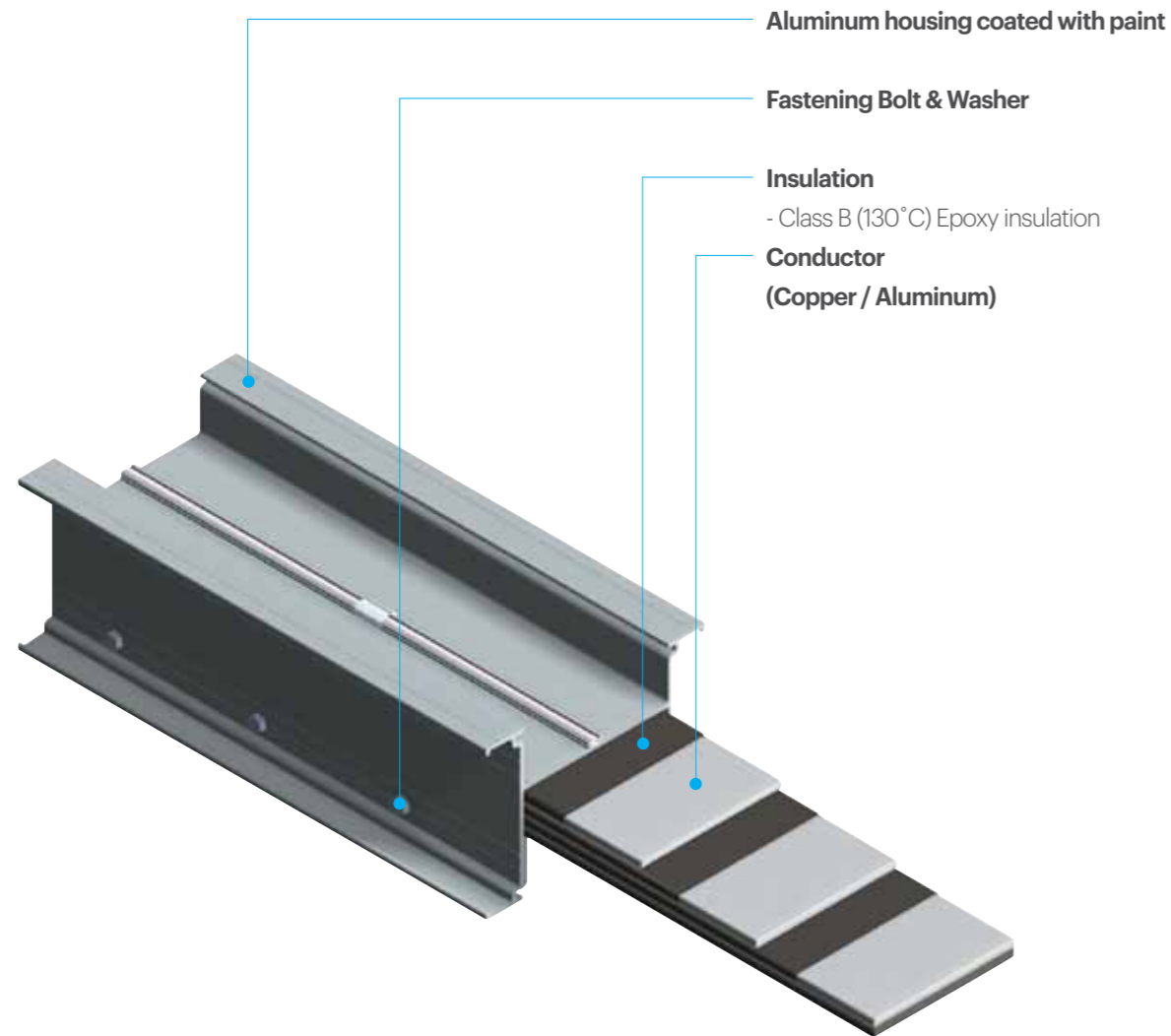
Service Condition



- Ambient Temperature : -15°C - 55°C
- Relative Humidity : 95% or below
(When the service condition of the environment does not meet the requirements listed above, please contact our design team.)

General Specifications

Ex-way(UL) Busduct uses insulation with a thermal class rating over 130°C for each phase. A sandwich type design is applied to the Busduct to protect the aluminum housing, and it can be used at the voltage range of AC 600V or less, and the current range between 630A to 6000A. It is designed to use a joint kit connection and general IP54 rating.



Joint Connection

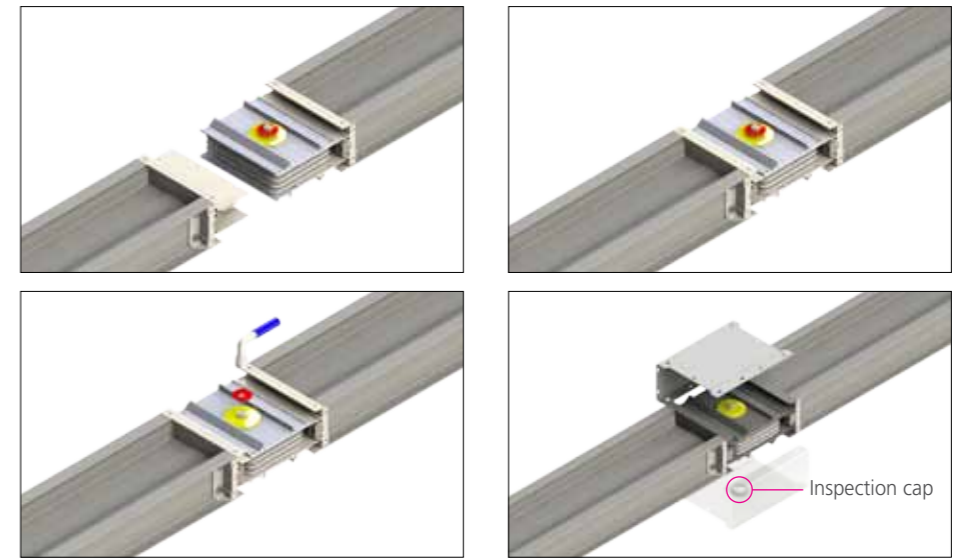
Feature

Both joint plates of the joint kit and the conductors are tin plated. (A silver plated option is available.) It prevents the joint plate from discoloration and corrosion. In order to ensure easy maintenance and reliability, double-headed bolts and visible labels are used to check the application, and a disc spring allows even connection of the contact surface.

Double Headed Bolts

Double-headed bolts are used to ensure a proper torque level when installing the joint kit. If a torque wrench applies a pressure of 800-1000kgf.cm / 694-868lb.in / 78-98N.m to the outer bolt head, the head of the outer bolt and the tag attached to it will be sheared off automatically. Thus, it allows visual inspection for the proper application of the bolts at the connection. The remaining bolt head can be re-used when tightened to 800kgf.cm/694lb.in using a torque wrench. After installing joint cover, red line at the end of double headed bolt should be seen through the inspection cap.

Joint Kit



Number of Double headed bolts

Number of D.H bolts		1	2	4	6
Ampere (A)	AL	630, 800, 1000, 1250	1600, 2000, 2500	3200, 3600, 4000	5000, 6000
	CU	630, 800, 1000, 1250, 1600, 2000	2500, 3200, 3600, 4000	5000	6000

! Precaution

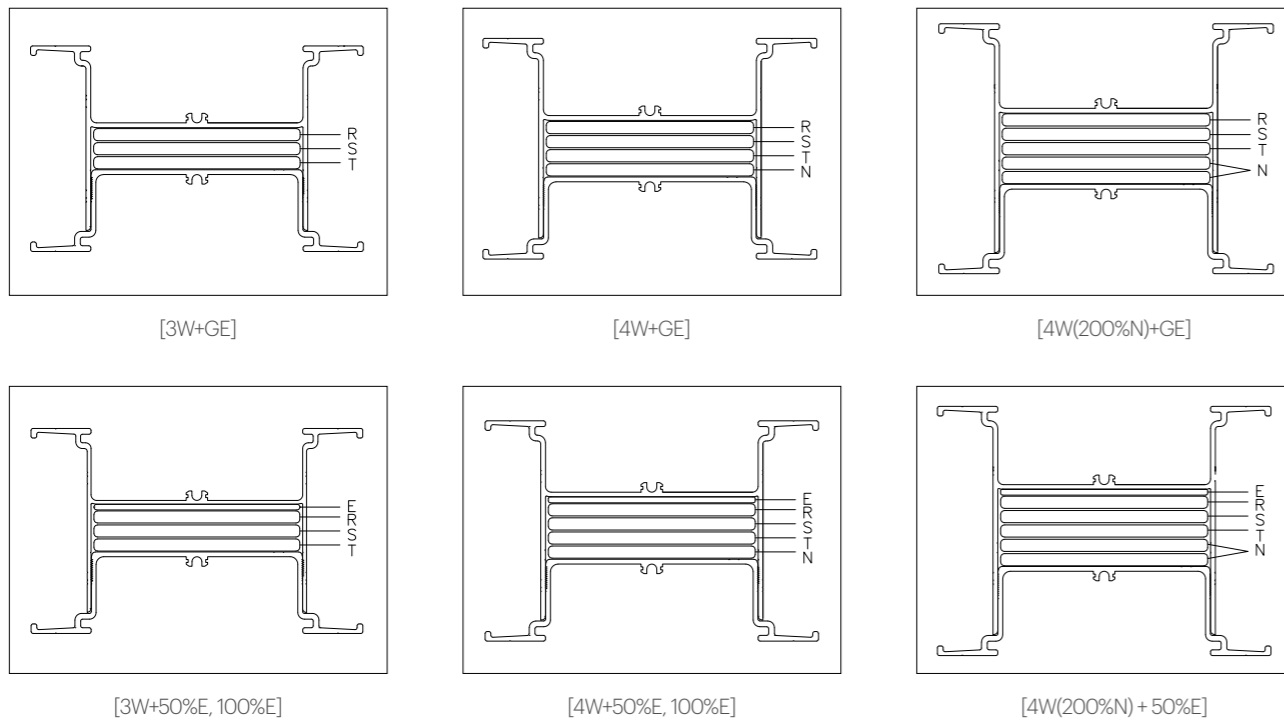
Be sure to clean the interior of the connections prior to installation. Use caution not to twist the joint kit while inserting it, and after it is inserted. An excessive pressure during installation may break the kit. Make sure that the double-headed bolts and the red tags are intact. If proper torques are not applied at the connection, it may cause heat during operation.

Grounding and Harmonics

Ex-way(UL) Busduct features an aluminum housing and two types of ground options: standard integral aluminum housing and optional internal grounding bars.

If increased ground capacity is required, additional internal ground bars can be added to the assembly, providing a 50% or 100% increase in ground path.

The 200% N type Busduct is used for a nonlinear load that generates harmonic current. Lately, the needs for non-linear loads at the power distribution system of buildings are increasing due to the increase of office automation and computer facilities. The harmonic current produced by the system can flow more than 100% of over current at phase N. The LS C&S 200% N type busduct is safe to be used at the distribution system where the harmonic current can be generated.



Plating/Painting

Plating

Standard tin plating is applied at taps, plugs and connections of conductors using an electroplating method to maintain the electrical characteristics and to prevent corrosion. Silver plating is available on request.

Painting

In order to improve heat radiation and to prevent corrosion, as well as to fit in with the surroundings, we apply polyester-epoxy (hybrid) powder coating after treating the surface. A wide range of color is available to meet the needs of our clients.

* Standard color : RAL7032

IP Code (Degree of Protection)

International protection degree codes provided by IEC 60529(Degree of Protection Provided by Enclosure-IP Code)

Sectional View

IP42	IP54	IP55	IP66	IP67
NEMA 1, 2	NEMA 12, 12K, 13	NEMA 3, 3X, 3S, 3SX	NEMA 4, 4X	NEMA 6, 6P

* As the standard differs, it is a similar substitution, not 1:1 substitution.

The degree of protection of the LS C&S Ex-way(UL) can be adjusted from IP42 to IP65 depending on the environment and on request.

IP

Solid Particle Protection

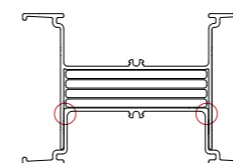
- 0 No Protection
- 1 Protection against 50mm diameter solid particles. (back of a hand)
- 2 Protection against 12mm solid particles. (fingers)
- 3 Protection against 2.4mm solid particles. (tools or thick wires)
- 4 Protection against 1mm solid particles. (tools or most wires)
- 5 Protection against dust.
- 6 Complete protection against dust.

Liquid Ingress Protection

- 0 No Protection
- 1 Protection against falling drops of water.
- 2 Protection against falling drops of water with an enclosure tilted at a 15degree angle from a vertical line
- 3 Protection against spray sat a 60degree angle from a vertical line
- 4 Protection against water splashed from all directions.
- 5 Protection against low pressure jets of water from all directions.
- 6 Protection against strong jets of water from all directions.
- 7 Protection against the effects of immersion between 15.0 centimeters and 1.0 meter.
- 8 Protection against longer periods of immersion under pressure.

Degree of Protection IP54

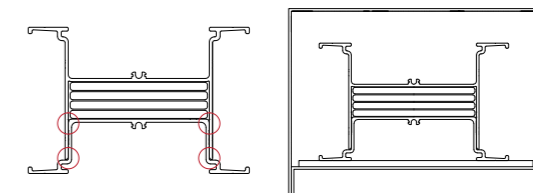
IP54 is applied to the feeder, plug-in and tap-off, and can be used during water leakages and near sprinklers.



Indoor

Degree of Protection IP55/IP65 (Indoor/Outdoor)

With the IP65 rating, the busduct is ideal for corrosive environments. The special sealing between the housing sections seals off water, dust and gasses.

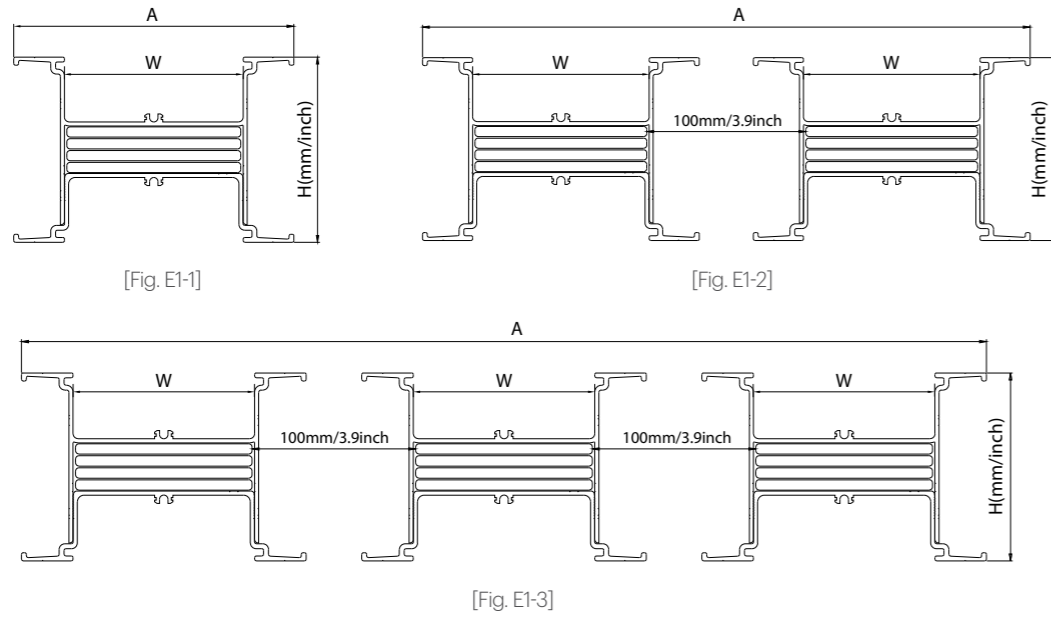


Indoor Type (IP55/65)

Outdoor Type (IP65)

Feeder

Sectional View

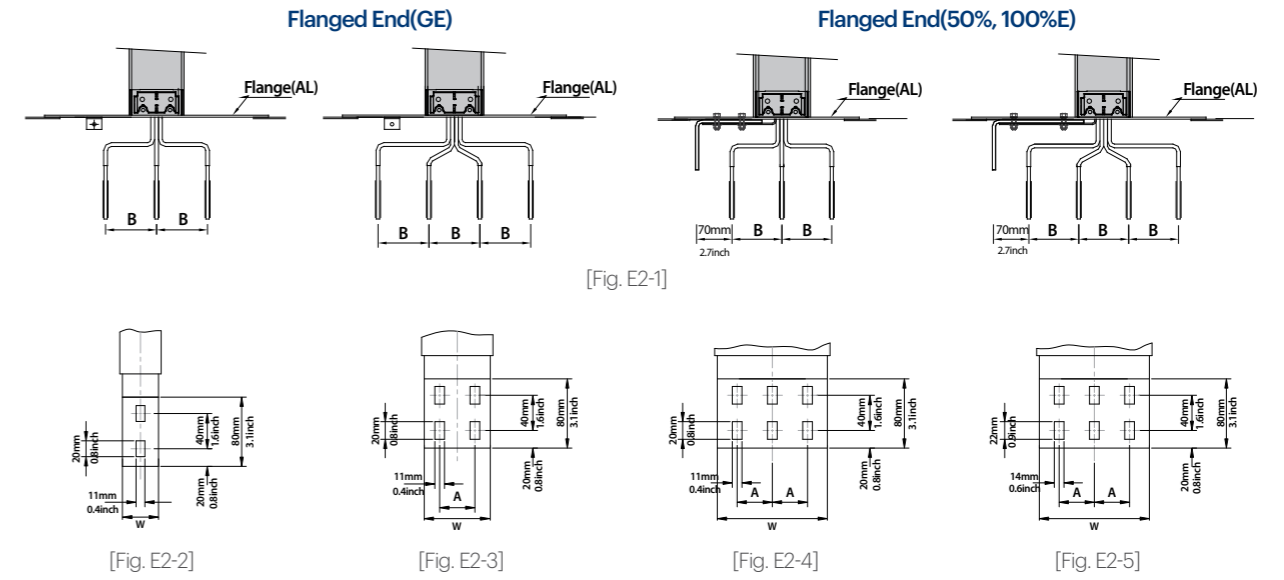


Ampere(A)	t		W		A		3W		4W		4W+50%E		4W+100%E		Fig.	
	mm	inch	mm	inch	mm	inch	kg/m	lb/ft	kg/m	lb/ft	kg/m	lb/ft	kg/m	lb/ft		
AL	6.35	0.25	41	1.61	107	4.21	6.81	4.57	7.8	5.23	8.21	5.51	8.75	5.87	E1-1	
			630	62	2.44	128	5.04	8.41	5.64	9.81	6.58	10.43	6.99	11.18		7.5
			800	86	3.39	152	5.98	10.2	6.84	12.06	8.09	12.91	8.66	13.87		9.3
			1,000	108	4.25	174	6.85	12.57	8.43	14.86	9.96	15.91	10.67	17.14		11.49
			1,250	164	6.46	230	9.06	17.31	11.61	20.73	13.9	22.33	14.97	24.04		16.12
			E1-2	2,000	210	8.27	276	10.87	20.91	14.02	25.23	16.92	27.27	18.29	29.41	19.72
				2,500	126	4.96	418	16.46	27.2	18.24	32.51	21.8	34.98	23.46	37.73	25.3
				3,200	164	6.46	494	19.45	33.77	22.64	40.6	27.22	43.81	29.38	47.39	31.78
				3,600	184	7.24	534	21.02	36.93	24.76	44.55	29.87	48.14	32.28	59.2	39.7
				4,000	210	8.27	586	23.07	41	27.49	49.64	33.29	53.74	36.04	66.22	44.4
E1-3	5,000	184	7.24	818	32.2	54.98	36.87	66.41	44.53	71.8	48.15	88.48	59.33			
	6,000	210	8.27	896	35.28	61.09	40.96	74.06	49.66	80.21	53.79	99.13	66.47			
CU	6.35	0.25	41	1.61	107	4.21	12.49	8.36	15.34	10.29	16.7	11.2	20.81	13.95	E1-1	
			630	41	1.61	107	4.21	12.47	8.36	15.34	10.29	16.7	11.2	20.81		13.95
			800	57	2.24	123	4.84	15.83	10.61	19.73	13.23	21.6	14.48	27.14		18.2
			1,000	73	2.87	139	5.47	19.15	12.84	24.07	16.14	26.45	17.74	33.59		22.52
			1,250	108	4.25	174	6.85	27.06	18.15	34.18	22.92	37.64	25.24	41.09		27.55
			E1-2	2,000	145	5.71	211	8.31	34.98	23.46	44.5	29.84	49.16	32.96	53.77	36.06
				2,500	195	7.68	261	10.28	45.87	30.76	58.61	39.3	64.87	43.5	71.17	47.72
				3,200	108	4.25	382	15.04	53.62	35.96	67.98	45.58	74.98	50.28	82.18	55.11
				3,600	126	4.96	418	16.46	61.21	41.04	77.87	52.22	86.01	57.67	94.1	63.1
				4,000	145	5.71	456	17.95	69.24	46.43	88.32	59.22	97.67	65.49	107.03	71.77
E1-3	5,000	195	7.68	556	21.89	91.03	61.04	116.55	78.15	129.08	86.56	141.64	94.98			
	6,000	164	6.46	758	29.84	116.21	77.93	148.77	99.76	164.62	110.39	180.67	121.15			

* H : 107.5mm/4.23"(3W+GE, 3W+50%E) / 115mm/4.53"(4W+GE, 4W+50%E) / 130mm/5.12"(4W+100%E, 3P+200%N)

Flanged End

Flanged end is connected to either a transformer or panel. Dimension details are listed below.

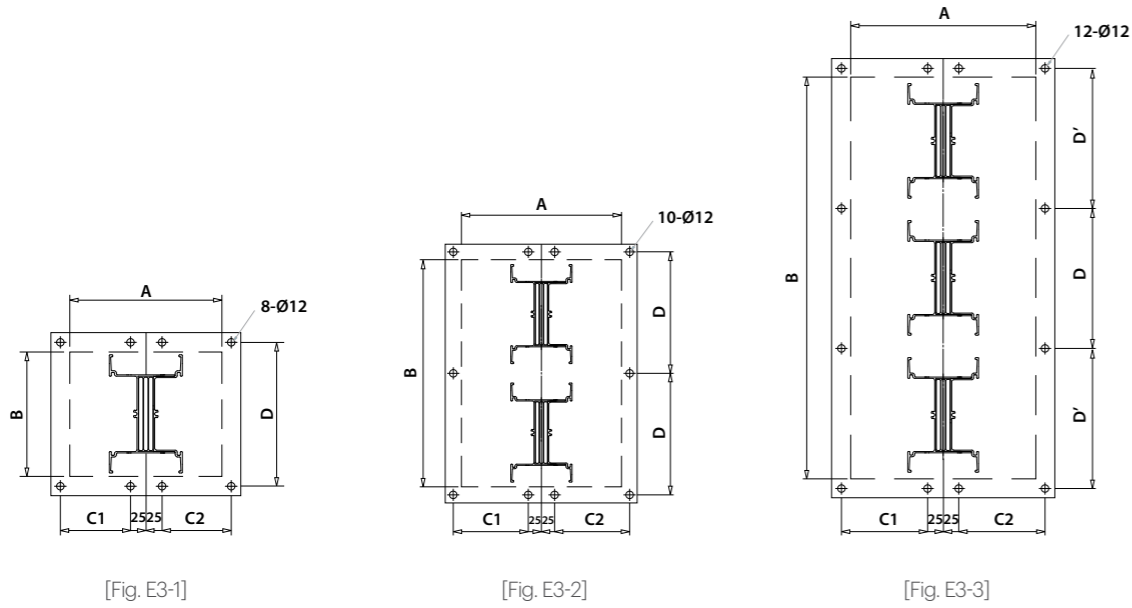


Ampere(A)	t		W		A		B		Fig.	
	mm	inch	mm	inch	mm	inch	mm	inch		
AL	6.35	0.25	41	1.61	-	-	100	3.94	E2-2	
			630	62	2.44	-				-
			800	86	3.39	40			1.57	E2-3
			1,000	108	4.25	50			1.97	
			1,250	164	6.46	60			2.36	E2-5
			2,000	210	8.27	70	2.76			
			2,500	126	4.96	40	1.57	130	5.12	
			3,200	164	6.46	60	2.36			
			3,600	184	7.24	60	2.36			
			4,000	210	8.27	70	2.76			E2-5
5,000	184	7.24	60	2.36						
6,000	210	8.27	70	2.76						
CU	6.35	0.25	41	1.61	-	-	100	3.94	E2-2	
			630	41	1.61	-				-
			800	57	2.24	-			-	E2-3
			1,000	73	2.87	40			1.57	
			1,250	108	4.25	50			1.97	E2-4
			1,600	145	5.71	50	1.97			
			2,000	195	7.68	70	2.76	130	5.12	
			2,500	108	4.25	50	1.97			
			3,200	126	4.96	40	1.57			
			3,600	145	5.71	50	1.97			E2-4
4,000	195	7.68	70	2.76						
5,000	164	6.46	60	2.36	E2-5					
6,000	164	6.46	60	2.36						

* Contact our engineering staff for more detail

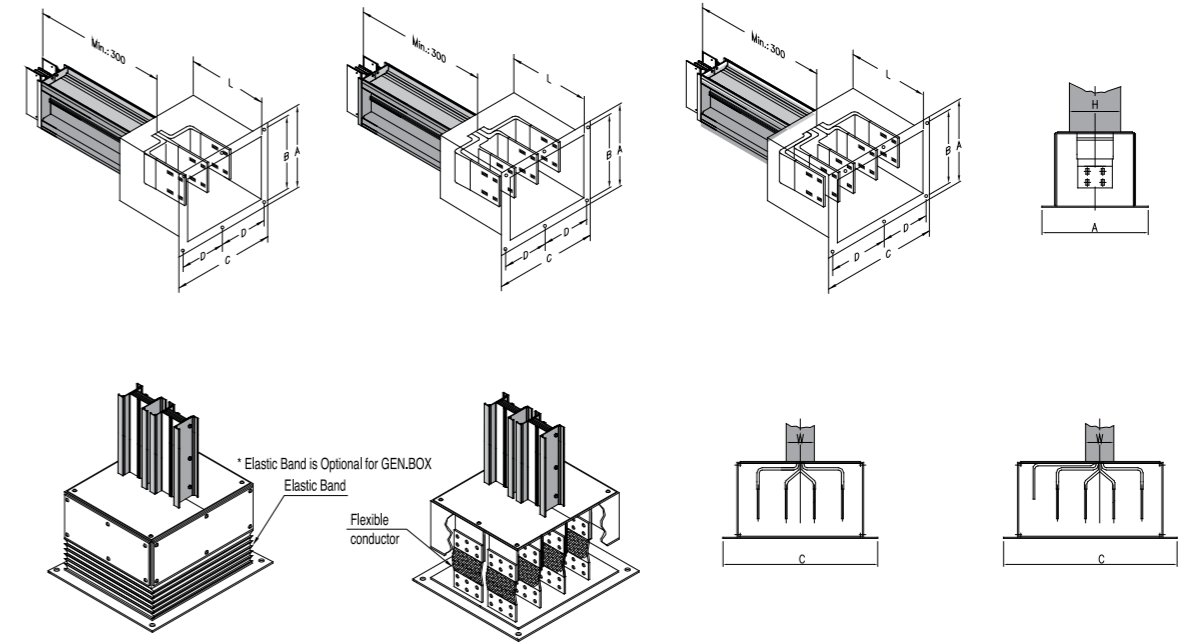
Flanged End (mm)

Drilling Pattern for Flanged End



Conductor	Rating (A)	3W Standard Dimension					4W Standard Dimension					4W+50%E, 100%E Standard Dimension					Fig.	
		A	B	C1, C2	D	D'	A	B	C1, C2	D	D'	A	B	C1	C2	D		D'
		(mm)																
AL	630	240	122	110	152	-	340	122	160	152	-	410	122	230	160	152	-	E3-1
	800	240	143	110	173	-	340	143	160	173	-	410	143	230	160	173	-	
	1,000	240	167	110	197	-	340	167	160	197	-	410	167	230	160	197	-	
	1,250	240	189	110	219	-	340	189	160	219	-	410	189	230	160	219	-	
	1,600	240	245	110	275	-	340	245	160	275	-	410	245	230	160	275	-	
	2,000	240	291	110	321	-	340	291	160	321	-	410	291	230	160	321	-	
	2,500	300	433	140	231.5	-	430	433	205	231.5	-	500	433	275	205	231.5	-	
	3,200	300	509	140	269.5	-	430	509	205	269.5	-	500	509	275	205	269.5	-	
	3,600	300	549	140	289.5	-	430	549	205	289.5	-	500	549	275	205	289.5	-	
	4,000	300	601	140	315.5	-	430	601	205	315.5	-	500	601	275	205	315.5	-	
AL	5,000	300	833	140	285	289	430	833	205	285	289	500	833	275	205	285	289	E3-2
	6,000	300	911	140	311	315	430	911	205	311	315	500	911	275	205	311	315	
CU	630	240	122	110	152	-	340	122	160	152	-	410	122	230	160	152	-	E3-1
	800	240	122	110	152	-	340	122	160	152	-	410	122	230	160	152	-	
	1,000	240	138	110	168	-	340	138	160	168	-	410	138	230	160	168	-	
	1,250	240	154	110	184	-	340	154	160	184	-	410	154	230	160	184	-	
	1,600	240	189	110	219	-	340	189	160	219	-	410	189	230	160	219	-	
	2,000	240	226	110	256	-	340	226	160	256	-	410	226	230	160	256	-	
	2,500	240	276	110	306	-	340	276	160	306	-	410	276	230	160	306	-	
	3,200	300	397	140	213.5	-	430	397	205	213.5	-	500	397	275	205	213.5	-	
	3,600	300	433	140	231.5	-	430	433	205	231.5	-	500	433	275	205	231.5	-	
	4,000	300	471	140	250.5	-	430	471	205	250.5	-	500	471	275	205	250.5	-	
CU	5,000	300	571	140	300.5	-	430	571	205	300.5	-	500	571	275	205	300.5	-	E3-2
	6,000	300	773	140	265	269	430	773	205	265	269	500	773	275	205	265	269	

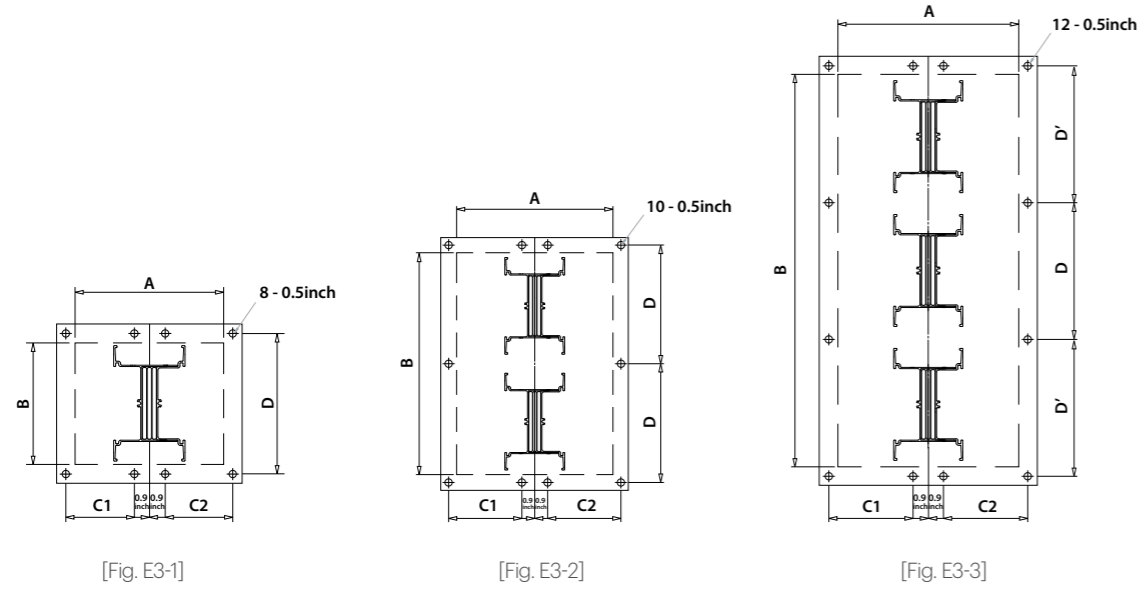
Flanged End Box / Feed in Box



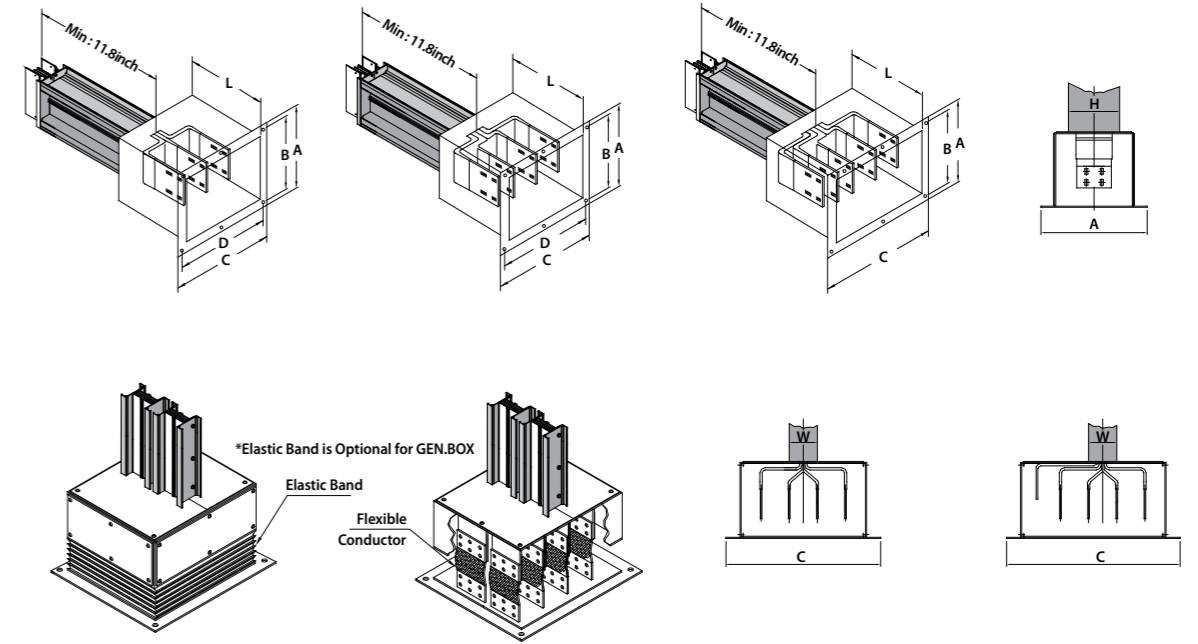
Rating (A)	3W Standard Dimension				4W Standard Dimension				4W+50%E, 100%E Standard Dimension				Fig.	
	A	B	C	D	A	B	C	D	A	B	C	D		
	(mm)													
AL	630	347	297	410	360	347	297	510	460	347	297	580	530	E3-1
	800	368	318	410	360	368	318	510	460	368	318	580	530	
	1,000	392	342	410	360	392	342	510	460	392	342	580	530	
	1,250	414	364	410	360	414	364	510	460	414	364	580	530	
	1,600	470	420	410	360	470	420	510	460	470	420	580	530	
	2,000	516	466	410	360	516	466	510	460	516	466	580	530	
	2,500	658	608	470	420	658	608	600	550	658	608	670	620	
	3,200	734	684	470	420	734	684	600	550	734	684	670	620	
	3,600	774	724	470	420	774	724	600	550	774	724	670	620	
	4,000	826	776	470	420	826	776	600	550	826	776	670	620	
AL	5,000	1058	1008	470	420	1058	1008	600	550	1058	1008	670	620	E3-2
	6,000	1136	1086	470	420	1136	1086	600	550	1136	1086	670	620	
CU	630	347	297	410	360	347	297	510	460	347	297	580	530	E3-1
	800	347	297	410	360	347	297	510	460	347	297	580	530	
	1,000	363	313	410	360	363	313	510	460	363	313	580	530	
	1,250	379	329	410	360	379	329	510	460	379	329	580	530	
	1,600	414	364	410	360	414	364	510	460	414	364	580	530	
	2,000	451	401	410	360	451	401	510	460	451	401	580	530	
	2,500	501	451	410	360	501	451	510	460	501	451	580	530	
	3,200	622	572	470	420	622	572	600	550	622	572	670	620	
	3,600	658	608	470	420	658	608	600	550	658	608	670	620	
	4,000	696	646	470	420	696	646	600	550	696	646	670	620	
CU	5,000	796	746	470	420	796	746	600	550	796	746	670	620	E3-2
	6,000	998	948	470	420	998	948	600	550	998	948	670	620	

Flanged End (inch)

Drilling Pattern for Flanged End



Flanged End Box / Feed in Box



Conductor	Rating (A)	3W Standard Dimension					4W Standard Dimension					4W+50%E, 100%E Standard Dimension					Fig.		
		A	B	C1, C2	D	D'	A	B	C1, C2	D	D'	A	B	C1	C2	D		D'	
		(inch)																	
AL	630	9.45	4.8	4.33	5.98	-	13.39	4.8	6.3	5.98	-	16.14	4.8	9.06	6.3	5.98	-	E3-1	
	800	9.45	5.63	4.33	6.81	-	13.39	5.63	6.3	6.81	-	16.14	5.63	9.06	6.3	6.81	-		
	1,000	9.45	6.57	4.33	7.76	-	13.39	6.57	6.3	7.76	-	16.14	6.57	9.06	6.3	7.76	-		
	1,250	9.45	7.44	4.33	8.62	-	13.39	7.44	6.3	8.62	-	16.14	7.44	9.06	6.3	8.62	-		
	1,600	9.45	9.65	4.33	10.83	-	13.39	9.65	6.3	10.83	-	16.14	9.65	9.06	6.3	10.83	-		
	2,000	9.45	11.46	4.33	12.64	-	13.39	11.46	6.3	12.64	-	16.14	11.46	9.06	6.3	12.64	-		
	2,500	11.81	17.05	5.51	9.11	-	16.93	17.05	8.07	9.11	-	19.69	17.05	10.83	8.07	9.11	-		E3-2
	3,200	11.81	20.04	5.51	10.61	-	16.93	20.04	8.07	10.61	-	19.69	20.04	10.83	8.07	10.61	-		
	3,600	11.81	21.61	5.51	11.4	-	16.93	21.61	8.07	11.4	-	19.69	21.61	10.83	8.07	11.4	-		
	4,000	11.81	23.66	5.51	12.42	-	16.93	23.66	8.07	12.42	-	19.69	23.66	10.83	8.07	12.42	-		
AL	5,000	11.81	32.8	5.51	11.22	11.38	16.93	32.8	8.07	11.22	11.38	19.69	32.8	10.83	8.07	11.22	11.38	E3-3	
	6,000	11.81	35.87	5.51	12.24	12.4	16.93	35.87	8.07	12.24	12.4	19.69	35.87	10.83	8.07	12.24	12.4		
CU	630	9.45	4.8	4.33	5.98	-	13.39	4.8	6.3	5.98	-	16.14	4.8	9.06	6.3	5.98	-	E3-1	
	800	9.45	4.8	4.33	5.98	-	13.39	4.8	6.3	5.98	-	16.14	4.8	9.06	6.3	5.98	-		
	1,000	9.45	5.43	4.33	6.61	-	13.39	5.43	6.3	6.61	-	16.14	5.43	9.06	6.3	6.61	-		
	1,250	9.45	6.06	4.33	7.24	-	13.39	6.06	6.3	7.24	-	16.14	6.06	9.06	6.3	7.24	-		
	1,600	9.45	7.44	4.33	8.62	-	13.39	7.44	6.3	8.62	-	16.14	7.44	9.06	6.3	8.62	-		
	2,000	9.45	8.9	4.33	10.08	-	13.39	8.9	6.3	10.08	-	16.14	8.9	9.06	6.3	10.08	-		
	2,500	9.45	10.87	4.33	12.05	-	13.39	10.87	6.3	12.05	-	16.14	10.87	9.06	6.3	12.05	-		
	3,200	11.81	15.63	5.51	8.41	-	16.93	15.63	8.07	8.41	-	19.69	15.63	10.83	8.07	8.41	-		E3-2
	3,600	11.81	17.05	5.51	9.11	-	16.93	17.05	8.07	9.11	-	19.69	17.05	10.83	8.07	9.11	-		
	4,000	11.81	18.54	5.51	9.86	-	16.93	18.54	8.07	9.86	-	19.69	18.54	10.83	8.07	9.86	-		
5,000	11.81	22.48	5.51	11.83	-	16.93	22.48	8.07	11.83	-	19.69	22.48	10.83	8.07	11.83	-			
CU	6,000	11.81	30.43	5.51	10.43	10.59	16.93	30.43	8.07	10.43	10.59	19.69	30.43	10.83	8.07	10.43	10.59	E3-3	

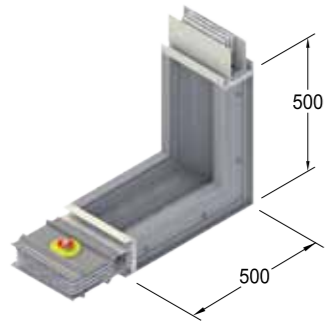
Rating (A)	3W Standard Dimension				4W Standard Dimension				4W+50%E, 100%E Standard Dimension				Fig.		
	A	B	C	D	A	B	C	D	A	B	C	D			
	(inch)														
AL	630	13.66	11.69	16.14	14.17	13.66	11.69	20.08	18.11	13.66	11.69	22.83	20.87	E3-1	
	800	14.49	12.52	16.14	14.17	14.49	12.52	20.08	18.11	14.49	12.52	22.83	20.87		
	1,000	15.43	13.46	16.14	14.17	15.43	13.46	20.08	18.11	15.43	13.46	22.83	20.87		
	1,250	16.3	14.33	16.14	14.17	16.3	14.33	20.08	18.11	16.3	14.33	22.83	20.87		
	1,600	18.5	16.54	16.14	14.17	18.5	16.54	20.08	18.11	18.5	16.54	22.83	20.87		
	2,000	20.31	18.35	16.14	14.17	20.31	18.35	20.08	18.11	20.31	18.35	22.83	20.87		
	2,500	25.91	23.94	18.5	16.54	25.91	23.94	23.62	21.65	25.91	23.94	26.38	24.41		E3-2
	3,200	28.9	26.93	18.5	16.54	28.9	26.93	23.62	21.65	28.9	26.93	26.38	24.41		
	3,600	30.47	28.5	18.5	16.54	30.47	28.5	23.62	21.65	30.47	28.5	26.38	24.41		
	4,000	32.52	30.55	18.5	16.54	32.52	30.55	23.62	21.65	32.52	30.55	26.38	24.41		
CU	5,000	41.65	39.68	18.5	16.54	41.65	39.68	23.62	21.65	41.65	39.68	26.38	24.41	E3-3	
	6,000	44.72	42.76	18.5	16.54	44.72	42.76	23.62	21.65	44.72	42.76	26.38	24.41		
	630	13.66	11.69	16.14	14.17	13.66	11.69	20.08	18.11	13.66	11.69	22.83	20.87		
	800	13.66	11.69	16.14	14.17	13.66	11.69	20.08	18.11	13.66	11.69	22.83	20.87		
	1,000	14.29	12.32	16.14	14.17	14.29	12.32	20.08	18.11	14.29	12.32	22.83	20.87		
	1,250	14.92	12.95	16.14	14.17	14.92	12.95	20.08	18.11	14.92	12.95	22.83	20.87		
	1,600	16.3	14.33	16.14	14.17	16.3	14.33	20.08	18.11	16.3	14.33	22.83	20.87		
	2,000	17.76	15.79	16.14	14.17	17.76	15.79	20.08	18.11	17.76	15.79	22.83	20.87		
	2,500	19.72	17.76	16.14	14.17	19.72	17.76	20.08	18.11	19.72	17.76	22.83	20.87		
	3,200	24.49	22.52	18.5	16.54	24.49	22.52	23.62	21.65	24.49	22.52	26.38	24.41		
3,600	25.91	23.94	18.5	16.54	25.91	23.94	23.62	21.65	25.91	23.94	26.38	24.41			
4,000	27.4	25.43	18.5	16.54	27.4	25.43	23.62	21.65	27.4	25.43	26.38	24.41			
5,000	31.34	29.37	18.5	16.54	31.34	29.37	23.62	21.65	31.34	29.37	26.38	24.41			
6,000	39.29	37.32	18.5	16.54	39.29	37.32	23.62	21.65	39.29	37.32	26.38	24.41			

Fittings

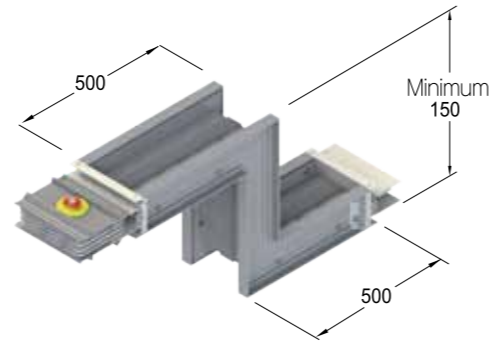
The Ex-way(UL) Busduct has a wide range of fittings to satisfy any layout of buildings. Elbow angles other than 90o are also available. Fitting designs are shown in the following figures, and they consist of the source-side and the load-side. Offset or combination elbows can be used where standard elbows are not feasible. (Dimensions for each fitting are shown in the following figures. Contact our design team for a minimum dimension.)

* Dimension(mm/inch)

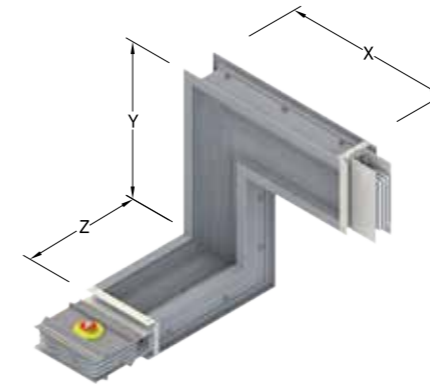
Elbow [Horizontal]



Offset [Horizontal]

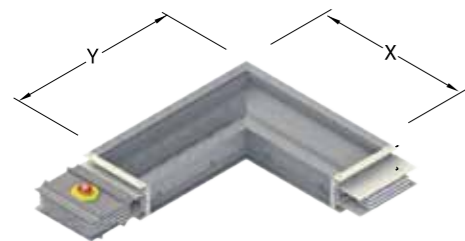


Combination

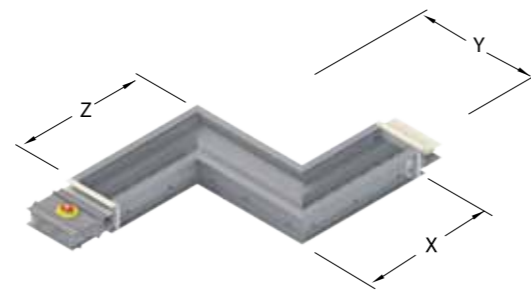


Rating	X		Y		Z		
	mm	inch	mm	inch	mm	inch	
AL	630~1,250	500	19.69	500	19.69	500	19.69
	1,600~2,000	600	23.62	600	23.62	600	23.62
	2,500~4,000	700	27.56	700	27.56	700	27.56
	5,000~6,000	900	35.43	900	35.43	900	35.43
CU	630~1,600	500	19.69	500	19.69	500	19.69
	2,000~3,200	600	23.62	600	23.62	600	23.62
	3,600~5,000	700	27.56	700	27.56	700	27.56
	6,000	800	31.5	800	31.5	800	31.5

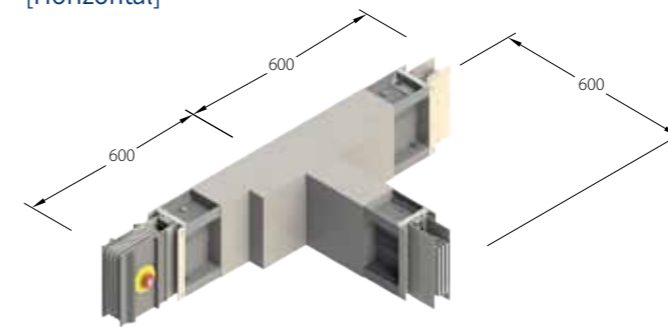
[Vertical]



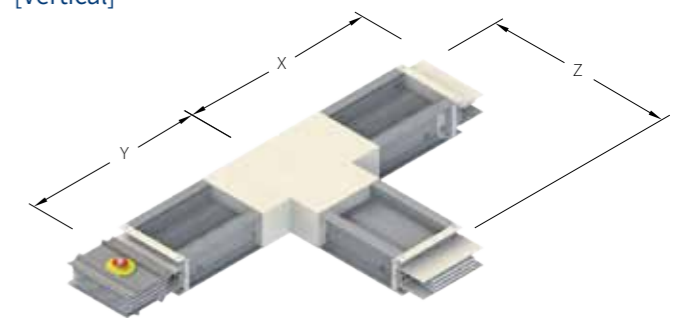
[Vertical]



Tee [Horizontal]



[Vertical]



Vertical Elbow

Rating	X		Y		
	mm	inch	mm	inch	
AL	630~1,250	500	19.69	500	19.69
	1,600~2,000	600	23.62	600	23.62
	2,500~4,000	700	27.56	700	27.56
	5,000~6,000	900	35.43	900	35.43
CU	630~1,600	500	19.69	500	19.69
	2,000~3,200	600	23.62	600	23.62
	3,600~5,000	700	27.56	700	27.56
	6,000	800	31.5	800	31.5

Vertical Offset

Rating	X		Y		Z		
	mm	inch	mm	inch	mm	inch	
AL	630~1,250	500	19.69	150	5.91	500	19.69
	1,600~2,000	600	23.62	150	5.91	600	23.62
	2,500~4,000	700	27.56	150	5.91	700	27.56
	5,000~6,000	900	35.43	150	5.91	900	35.43
CU	630~1,600	500	19.69	150	5.91	500	19.69
	2,000~3,200	600	23.62	150	5.91	600	23.62
	3,600~5,000	700	27.56	150	5.91	700	27.56
	6,000	800	31.5	150	5.91	800	31.5

Vertical Tee

Rating	X		Y		Z		
	mm	inch	mm	inch	mm	inch	
AL	630~1,250	500	19.69	500	19.69	500	19.69
	1,600~2,000	600	23.62	600	23.62	600	23.62
	2,500~4,000	700	27.56	700	27.56	700	27.56
	5,000~6,000	900	35.43	900	35.43	900	35.43
CU	630~1,600	500	19.69	500	19.69	500	19.69
	2,000~3,200	600	23.62	600	23.62	600	23.62
	3,600~5,000	700	27.56	700	27.56	700	27.56
	6,000	800	31.5	800	31.5	800	31.5

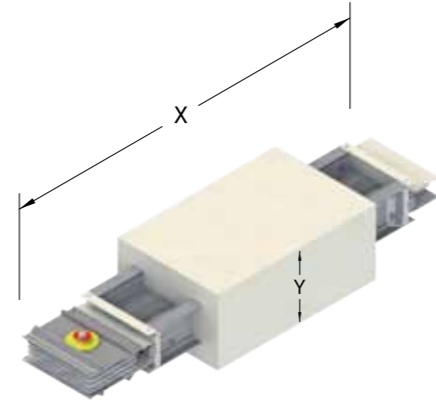
Fittings

Expansion

The fitting is designed to allow a 60mm extension of a straight line.

Ampere(A)	X		Y	
	mm	inch	mm	inch
630~6,300A	1,500	59.06	360	14.17

* Flexible bars installed inside



Reducer

A reducer is used to connect a large capacity busduct to a small capacity busduct.

It can be used for an economical setup to distribute loads.

*Any change made to load distribution or to capacities follows electricity regulations.



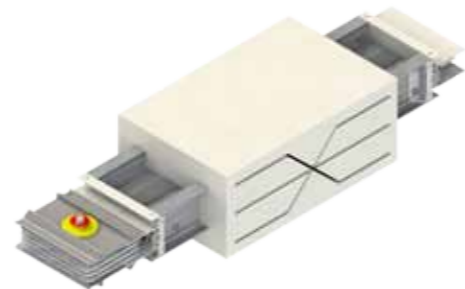
Reducer Box

If a overcurrent breaker needs to be mounted on the reducer by customer request, it is possible to use the reducer box.



Phase Transposition Feeder

A phase transposition feeder is used when the setup transforms the phase.



Hanger

Vertical Mounting Hangers

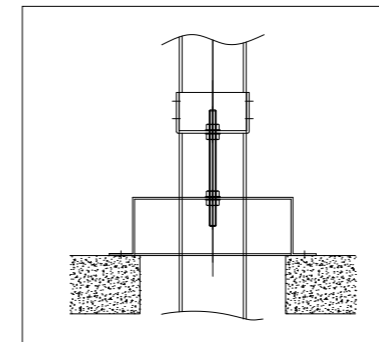
Spring hangers are used to support the busducts between floors. The number of springs depends on the weight of the installed busduct and plug-in boxes. A medium hanger should be installed if the height between the floors exceeds 4.5 meters, and the height of the installed spring hangers can be easily adjusted. Rigid hangers (no spring type) are used on the lowest floor, and they can be used instead of spring hangers depending on the set up design.



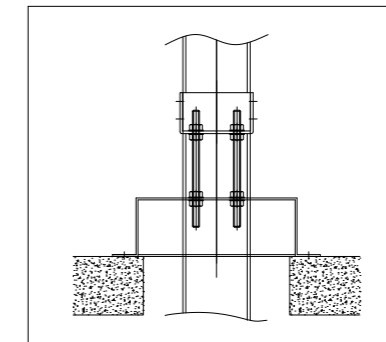
[Rigid Hanger]

[Spring Hanger]

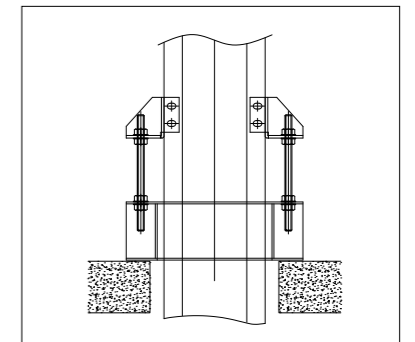
Rigid Hanger



[1 Row]

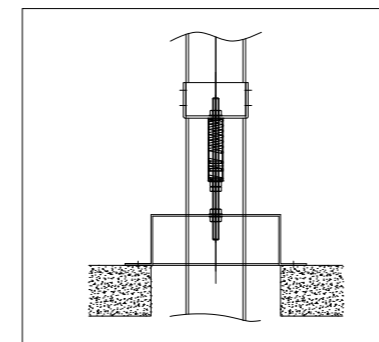


[2 Row]

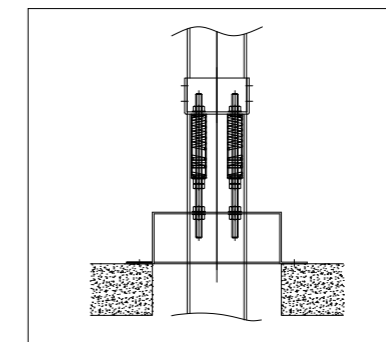


[Side View]

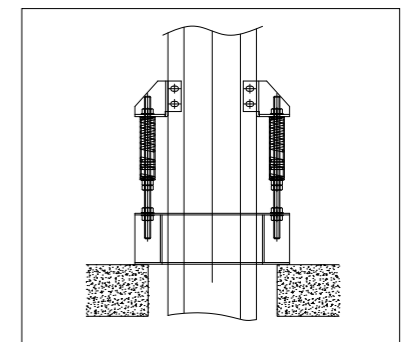
Spring Hanger



[1 Row]



[2 Row]



[Side View]

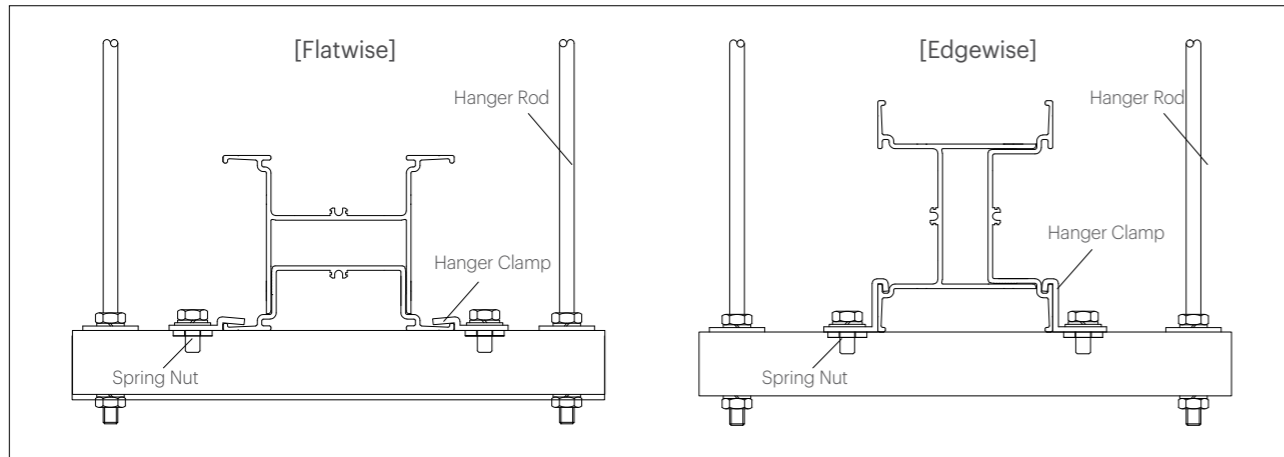
* Hangers with more than 2 rows depending on the installation environment are also available on request. Please contact the design team for further information.

Hanger

Horizontal Hangers

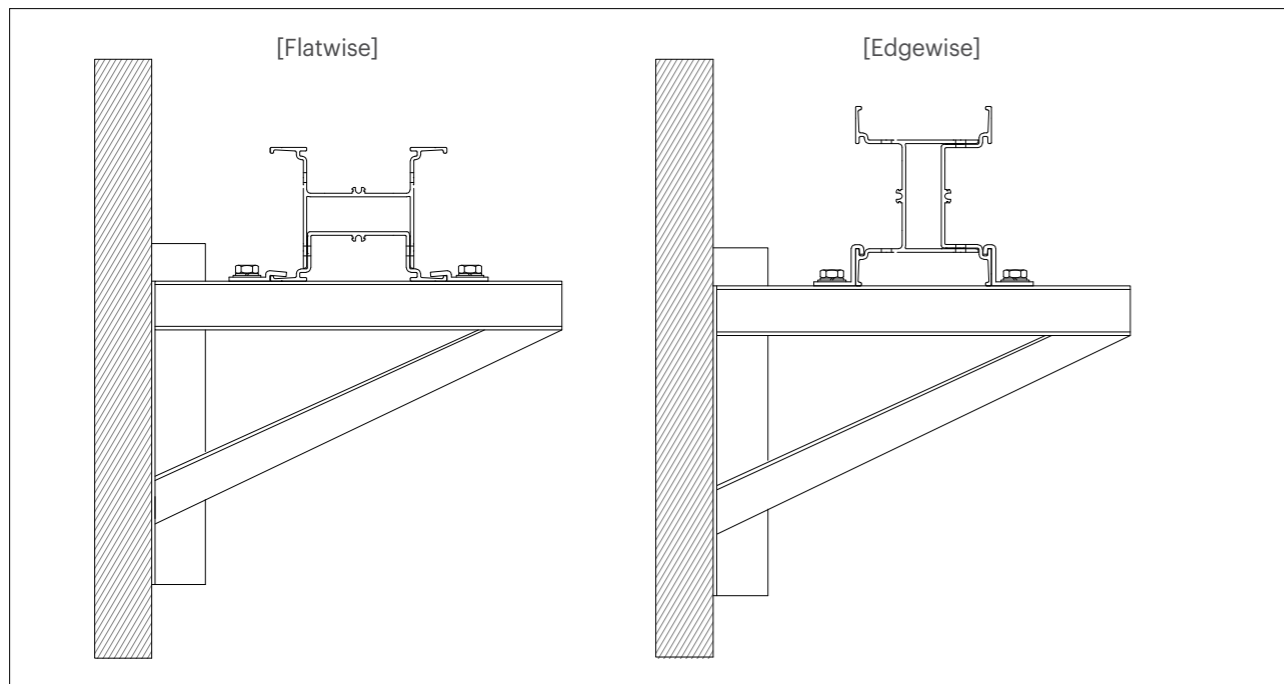
General Hangers

The standard installation method for these hangers is to install them horizontally at 1.5 meters/5ft intervals. They generally require 12mm/0.5inch diameter stud bolts.



Wall Bracket

Wall brackets can be installed on a wall where general hangers are not feasible.



Plug-in Unit

Straight Lengths: Plug-in / Tap-off Intervals

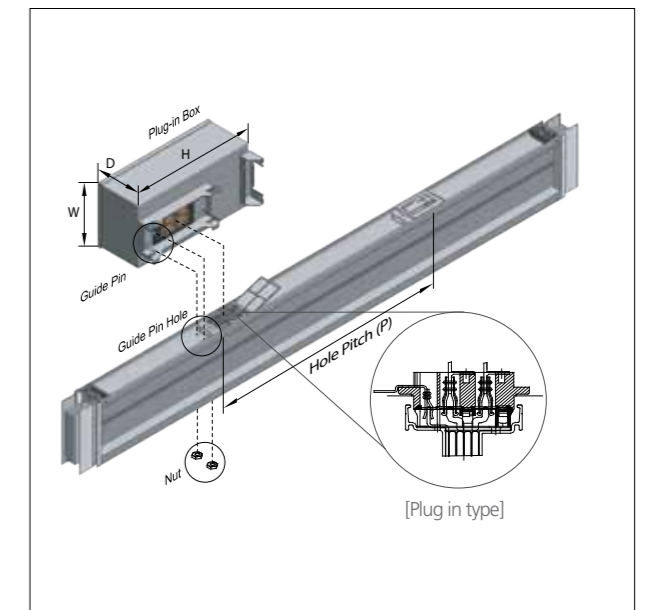
This busduct comes with an overcurrent blocking device (MCCB, fuse) in order to protect the wires while distributing loads. The required minimum intervals of a plug-in(800A or less) and a tap-off(1000A, 1250A, 1600A) are shown below. A length longer than the required minimum intervals can be predestinated on request.

Plug-in Feeder

MCCB Frame (AF)	Plug-in Hole Intervals(P) (mm)	
	(mm)	(inch)
50, 125, 250	650	25.59
400	900	35.43
630, 800	1000	39.37
1000, 1250	1300	51.18

Plug-in Box

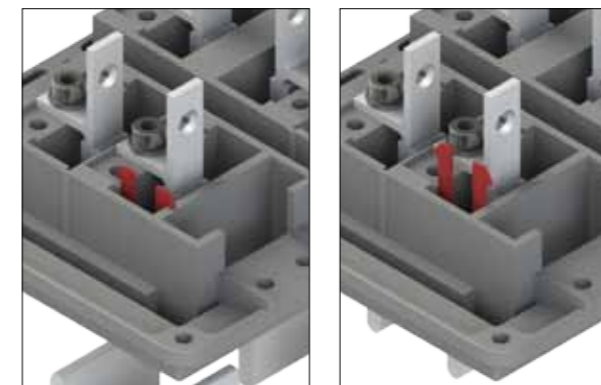
MCCB Frame (AF)	W				D		H		Fig.
	3W	4W	mm	inch	mm	inch	mm	inch	
125	200	7.87	230	9.06	200	7.87	360	14.17	E5-1
250	200	7.87	230	9.06	200	7.87	360	14.17	
400	230	9.06	280	11.02	200	7.87	800	31.5	
630, 800	300	11.81	370	14.57	200	7.87	800	31.5	E5-2
1000, 1250, 1600	400	15.75	450	17.72	230	9.06	1,200	47.24	



[Fig. E5-1]

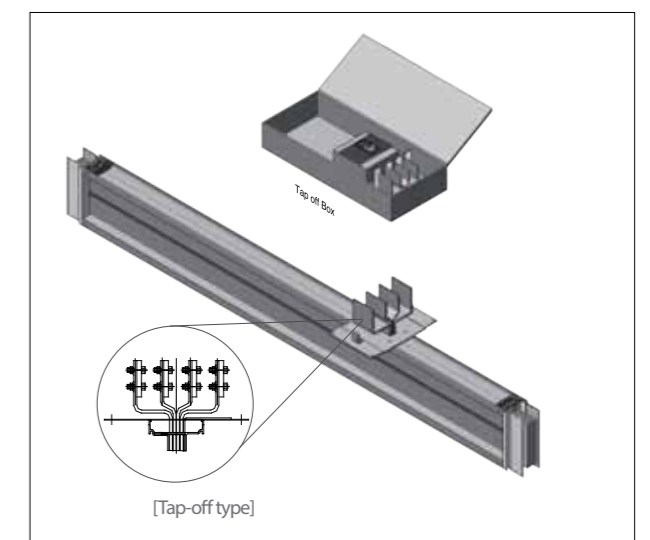
Inspection Pin

This pin is used to check the insertion of the box.
* Available from 400AF box



[Before]

[After]



[Fig. E5-2]

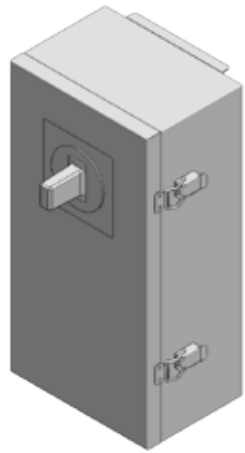
Plug-in Unit

Plug-in Box Attachments

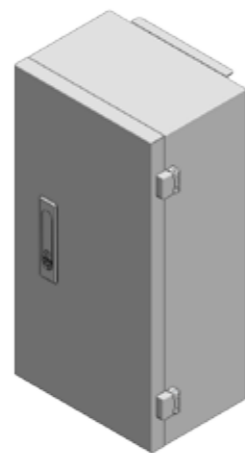
Attachments such as CT, TD and PT can be installed in a plug-in box to control and to supervise the current, voltage and wattage remotely.

Door Types of the Plug-in Unit

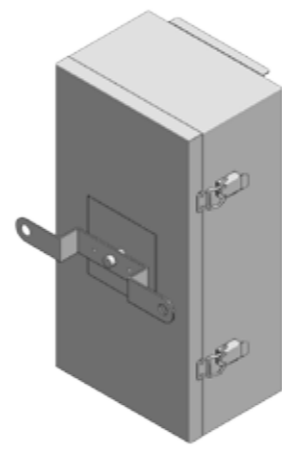
Various design of doors for the plug-in box is available to satisfy the demands of our clients. The available types are shown below.



External handle



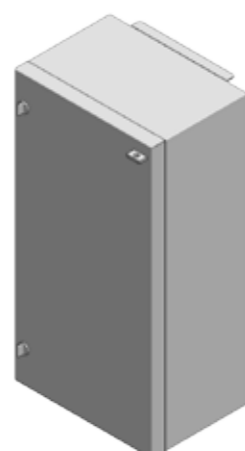
Push Button



External lever interlock



Bolt Fastening



Key Lock

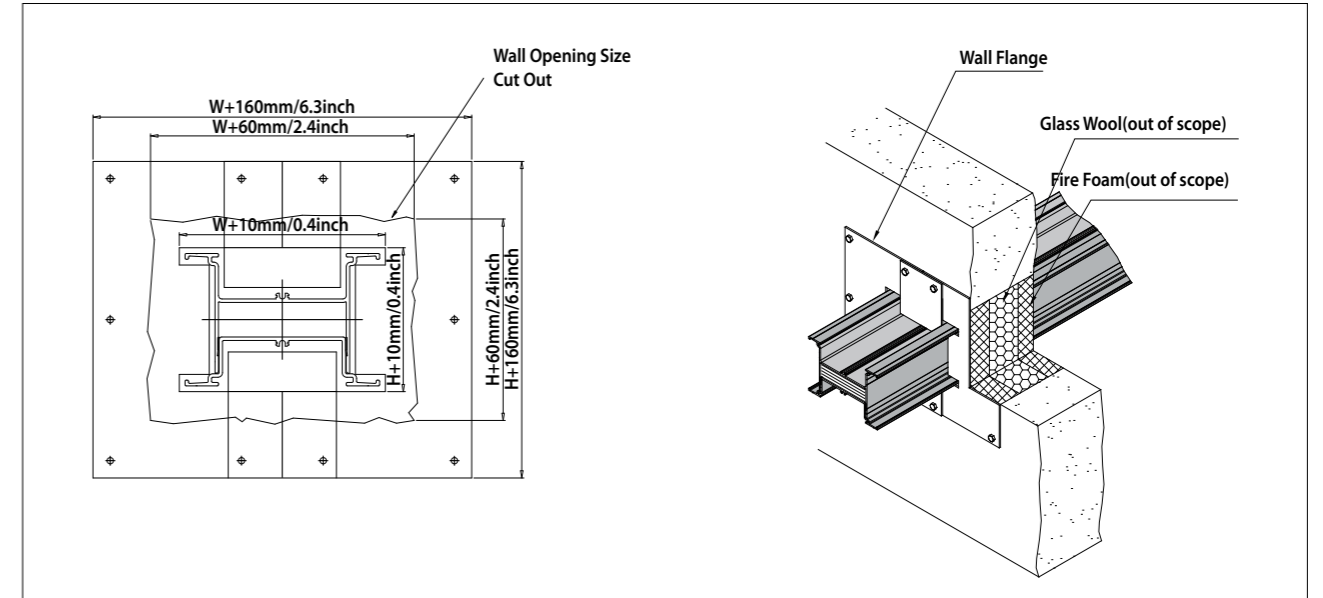


Outlet

Etc.

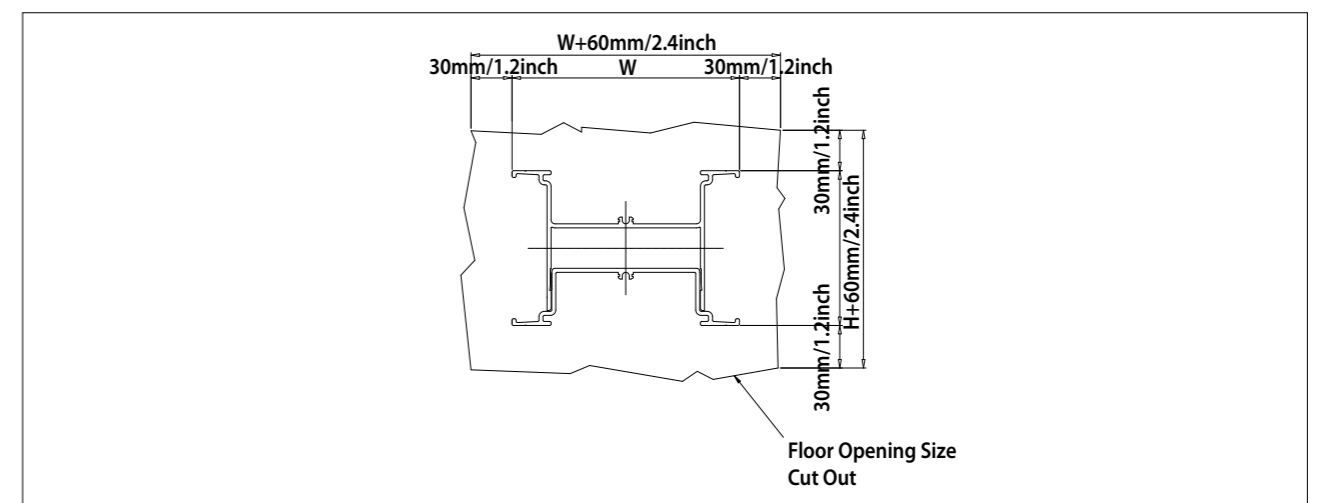
Wall Flange

A wall flange is used to seal the gaps produced during installation of busducts at the walls, ceilings and floor. The standard dimensions of a wall opening should be 30mm/1.2inch larger than the external dimensions of the Ex-way(UL) Busduct.



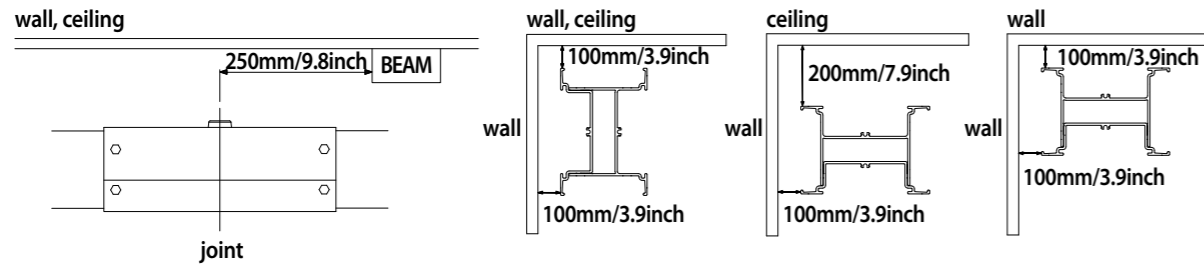
Floor Openings

The standard dimensions of a floor opening should be 30mm/1.2inch larger than the external dimensions of the Ex-way(UL) Busduct.



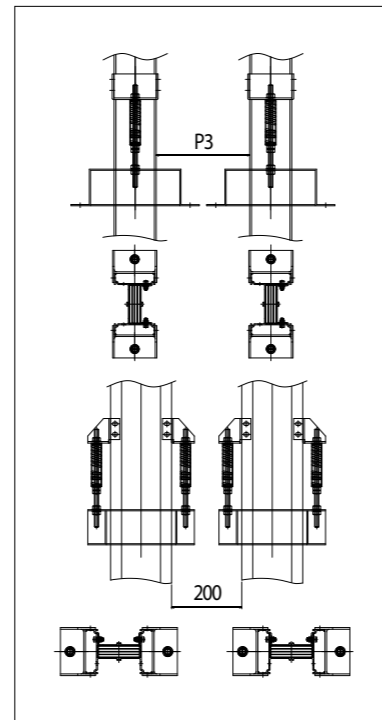
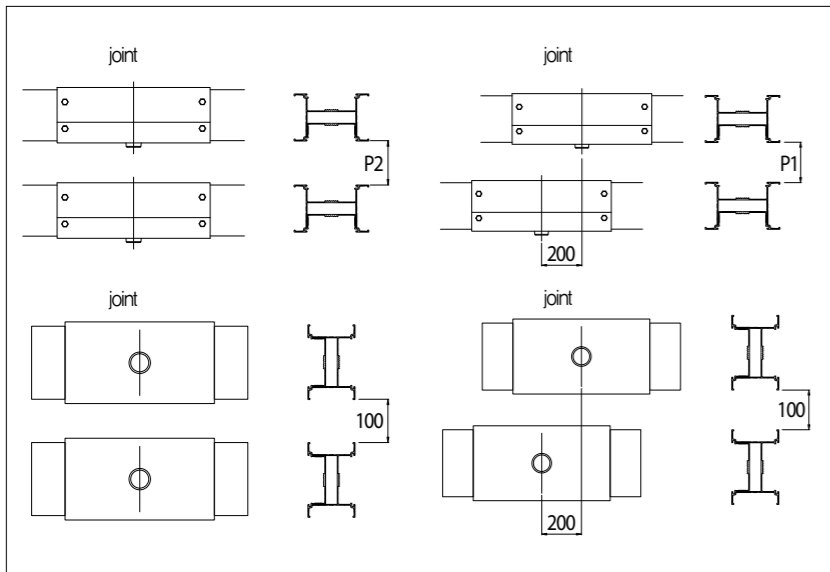
The Required Minimum Distances from a Wall for Heat Dissipation and Maintenance

The required minimum distances between a busduct and a wall, or a ceiling are shown below.



The required minimum distances between busducts

The required minimum distances between busducts are shown below.



	Standard Dimension (mm)					
	3W and 3W		3W and 4W		4W and 4W	
	mm	inch	mm	inch	mm	inch
P1	110	4.3	135	5.3	130	5.1
P2	150	5.9	175	6.9	180	7.1
P3	190	7.5	215	8.5	230	9.1

* Outdoor installation requires a further discussion with our design team about proper distance.

Impedance and Voltage Drop

The formula to measure the voltage drop of a busduct is shown below.

The impedance and voltage drop values for aluminum and copper conductors are shown in the table below.

The values listed are measured between upper and middle lines at 60Hz. For a 50Hz installation, multiply the reactance (X) by 0.83.

$$V_d = I \times \sqrt{3} (R \cos\theta + X \sin\theta)$$

V_d = voltage drop[V] · I = rated load amperes[A] · R = resistance[Ω] · X = reactance[Ω] / \cos = power factor / \sin = reactive factor

$$\text{Actual voltage Drop} = \alpha \times V_d \times \frac{\text{Actual load current}}{\text{Rated load current}} \times \frac{\text{Actual length of the line (m)}}{100m}$$

α (Load Constant) $\alpha = 1$, concentrated load (a place such as an electrical room)
 $\alpha = 0.5$, Distributed load (a place such as a vertical section)

Ampere(A)	$10^{-5} \Omega/m (=10^{-3} \Omega/100m)$ (60hz)			Voltage Drop(/100m)				
	R	X	Z	0.7	0.8	0.9	1	
AL	630	13.98	4.07	14.56	13.85	14.87	15.66	15.25
	800	7.97	2.62	8.39	10.32	11.01	11.52	11.04
	1,000	6.83	2.21	7.18	11.02	11.77	12.32	11.84
	1,250	5.55	1.82	5.84	11.22	11.97	12.52	12.01
	1,600	3.82	1.23	4.02	9.85	10.52	11.02	10.60
	2,000	3.08	1.00	3.24	9.96	10.63	11.12	10.67
	2,500	2.40	0.80	2.53	9.74	10.39	10.86	10.40
	3,200	1.91	0.61	2.00	9.82	10.48	10.98	10.56
	3,600	1.72	0.55	1.81	9.99	10.67	11.18	10.74
	4,000	1.54	0.50	1.62	9.93	10.60	11.09	10.64
	5,000	1.15	0.37	1.21	9.24	9.87	10.34	9.94
	6,000	1.02	0.33	1.08	10.41	11.11	11.63	11.16
CU	630	7.49	4.07	8.53	8.90	9.21	9.30	8.18
	800	7.49	3.84	8.42	11.07	11.50	11.67	10.38
	1,000	5.49	2.99	6.25	10.35	10.72	10.82	9.52
	1,250	4.39	2.45	5.03	10.44	10.78	10.86	9.50
	1,600	3.10	1.71	3.54	9.40	9.72	9.80	8.60
	2,000	2.40	1.35	2.76	9.17	9.46	9.53	8.32
	2,500	1.86	1.05	2.13	8.87	9.16	9.22	8.06
	3,200	1.54	0.85	1.76	9.34	9.66	9.75	8.55
	3,600	1.35	0.74	1.54	9.20	9.51	9.60	8.42
	4,000	1.20	0.67	1.37	9.13	9.42	9.49	8.29
	5,000	0.93	0.52	1.06	8.84	9.13	9.19	8.03
	6,000	0.73	0.39	0.83	8.62	8.93	9.02	7.97

Technical Data (ft)

Impedance and Voltage Drop

The formula to measure the voltage drop of a busduct is shown below.

The impedance and voltage drop values for aluminum and copper conductors are shown in the table below.

The values listed are measured between upper and middle lines at 60Hz. For a 50Hz installation, multiply the reactance (X) by 0.83.

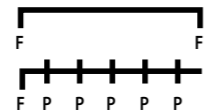
$$V_d = I \times \sqrt{3} (R \cos\theta + X \sin\theta)$$

V_d = voltage drop[V] · I = rated load amperes[A] · R = resistance[Ω] · X = reactance[Ω] / cos = power factor / sin = reactive factor

$$\text{Actual voltage Drop} = \alpha \times V_d \times \frac{\text{Actual load current}}{\text{Rated load current}} \times \frac{\text{Actual length of the line (ft)}}{100\text{ft}}$$

• α (Load Constant) $\alpha = 1$, concentrated load (a place such as an electrical room)

$\alpha = 0.5$, Distributed load (a place such as a vertical section)



• F: Flanged End (panel connections)
• P: Plug-in Unit

Ampere(A)		Impedance(10 ³ Ω /100m, 60Hz)			Voltage Drop(/100m)			
		R	X	Z	0.7	0.8	0.9	1
AL	630	4.26	1.24	4.44	4.22	4.53	4.77	4.65
	800	2.43	0.80	2.56	3.15	3.36	3.51	3.36
	1,000	2.08	0.67	2.19	3.36	3.59	3.76	3.61
	1,250	1.69	0.55	1.78	3.42	3.65	3.82	3.66
	1,600	1.16	0.37	1.23	3.00	3.21	3.36	3.23
	2,000	0.94	0.30	0.99	3.04	3.24	3.39	3.25
	2,500	0.73	0.24	0.77	2.97	3.17	3.31	3.17
	3,200	0.58	0.19	0.61	2.99	3.19	3.35	3.22
	3,600	0.52	0.17	0.55	3.04	3.25	3.41	3.27
	4,000	0.47	0.15	0.49	3.03	3.23	3.38	3.24
CU	630	2.28	1.24	2.60	2.71	2.81	2.83	2.49
	800	2.28	1.17	2.57	3.37	3.51	3.56	3.16
	1,000	1.67	0.91	1.91	3.15	3.27	3.30	2.90
	1,250	1.34	0.75	1.53	3.18	3.29	3.31	2.90
	1,600	0.94	0.52	1.08	2.87	2.96	2.99	2.62
	2,000	0.73	0.41	0.84	2.80	2.88	2.90	2.54
	2,500	0.57	0.32	0.65	2.70	2.79	2.81	2.46
	3,200	0.47	0.26	0.54	2.85	2.94	2.97	2.61
	3,600	0.41	0.23	0.47	2.80	2.90	2.93	2.57
	4,000	0.37	0.20	0.42	2.78	2.87	2.89	2.53
	5,000	0.28	0.16	0.32	2.69	2.78	2.80	2.45
	6,000	0.22	0.12	0.25	2.63	2.72	2.75	2.43

Short Circuit Strength

LS C&S Busduct has been tested under actual short circuit conditions according to UL 857.

The result and the graph are shown below.

Phase to Phase Short Circuit Ratings

Rating(A)	Short Circuit Strength Ipeak(KA)	
	AL	Cu
630	65	75
800	65	75
1,000	125	100
1,250	125	100
1,600	125	100
2,000	150	200
2,500	200	200
3,200	200	200
3,600	200	200
4,000	200	200
5,000	200	200
6,000	200	200

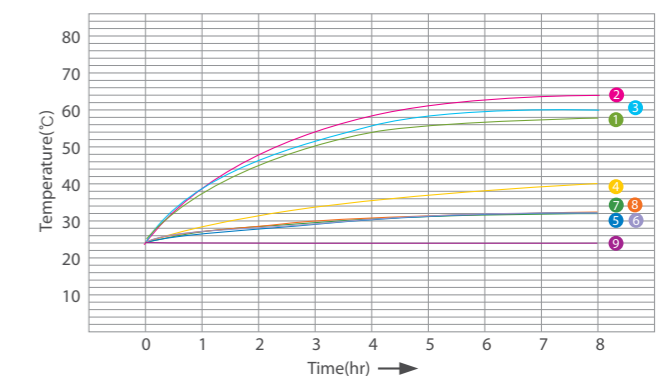
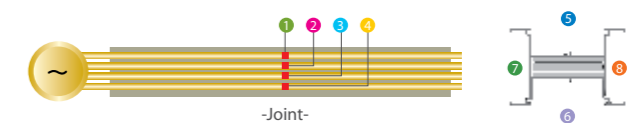
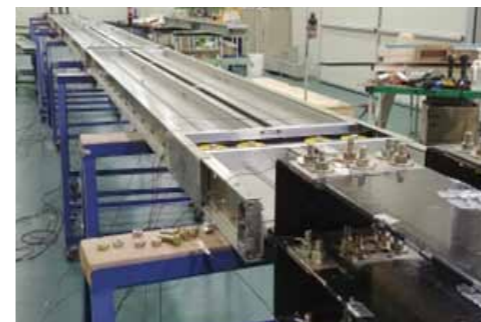


* Above Ipeak data is for 0.1second.(6cycle)

Temperature Rise

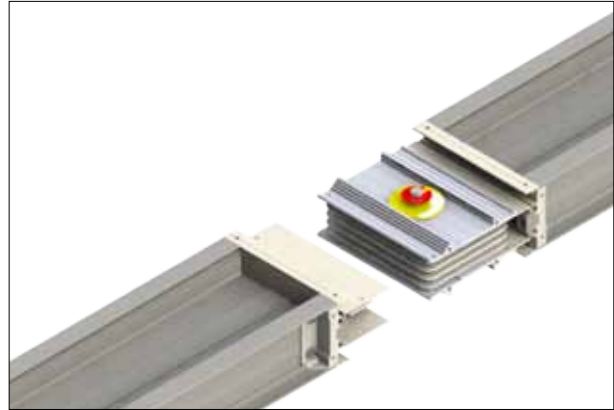
The temperature rise limit is an important property which determines the performance of busducts.

The temperature rise limit of busduct is designed that when a busduct is operated with a rated current, the temperature limit values at any point are within 55K as specified in UL857.

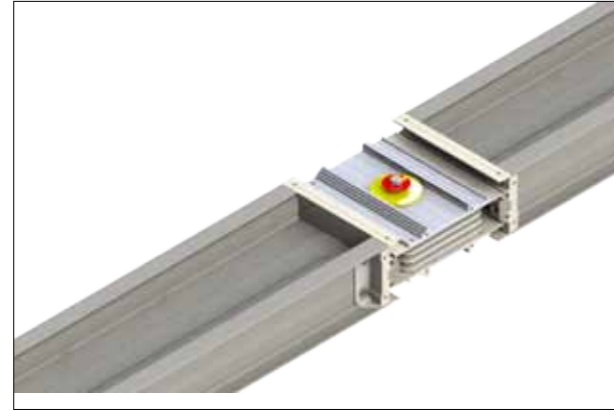


Joint Connection

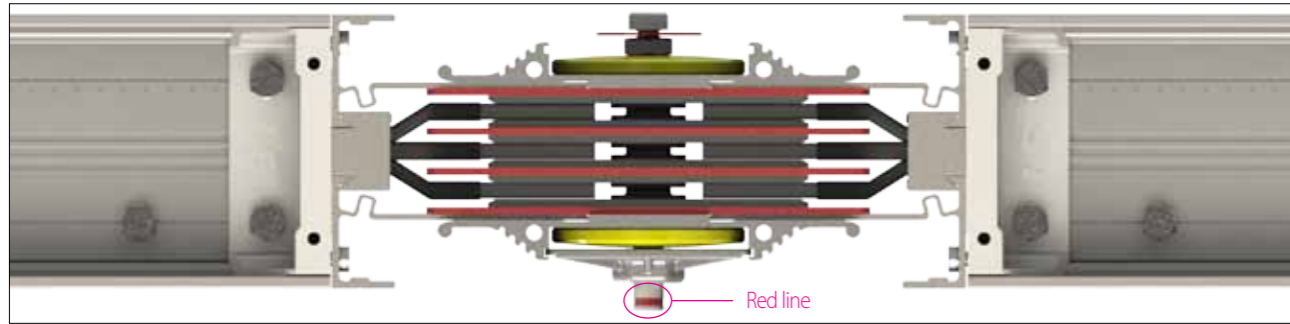
Joint KIT



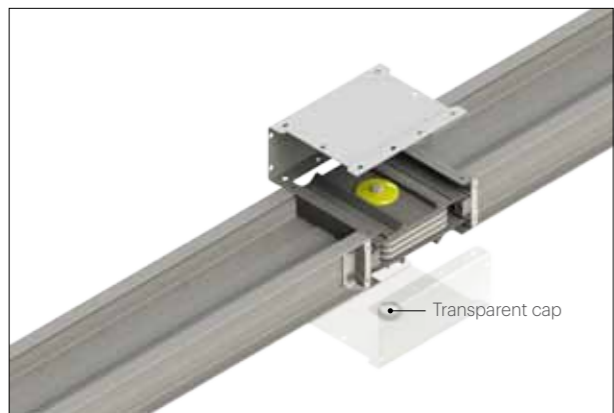
Both parts should be aligned at the top and the bottom and the left and the right as well as horizontally and vertically. (This also applies to the joint connection of the horizontal and vertical ducts.) Make sure that the joint kit is not tilted. (We recommend a jig tool for the installation.)



Using a torque wrench, slowly tighten the exposed bolt head of a double headed bolt. The head of the double headed bolt is designed to break off at 800-1000kgf.cm / 694-868lbf.in / 78-98N.m. Continue tightening the exposed head until it breaks off.



Once the exposed head and the red tag attached to it have been cut off, a red line should be visible, which means they are properly connected. Be sure to check the distance from the housing, and the gaps between the conductors at the kit after the installation.



Before applying the connection cover, check the space between the end block and the holes of the connection cover. The red line should be visible through the inspection cap.



Perform the last inspection of the connection.

Certification & Specification



UL Certification



KS Certification



Dust and Water Proof Certification



Seismic Qualification (SEISMIC ZONE4)



TUV Eco Friendly Certification



ISO 9001



ISO 14001



OHSAS 18001

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- Branch office

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LSCU LONDON

France
LSCF PARIS

Poland
LS EV POLAND DZIERZONIOW
LSCP DZIERZONIOW

Egypt
LSMC
10TH OF RAMADAN CITY

Saudi Arabia
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UAE
DUBAI
ABU DHABI

China
LSHQ YICHANG
LSCW WUXI

Bangladesh
DHAKA

India
LSCI BAWAL

Myanmar
LSGM THILAWA
LSGMT YANGON

Vietnam
LS-VINA HAIPHONG
LSCV HO CHI MINH

Singapore
SINGAPORE

Indonesia
LSAGI JAKARTA
LSAGS JAKARTA

Korea
GUMI PLANT
INDONG PLANT
DONGHAE PLANT

Japan
LSCJ TOKYO

Taiwan
TAIPEI

Australia
LSCAU SYDNEY

KOREA



Gumi Plant
EHV / MV / LV cable
UTP, Coaxial cable
SCR, Magnet wire
Overhead cable, Bus duct



Indong Plant
Optical fiber
Optical cable



Donghae Plant
Submarine cable
Industrial specialty cable

CHINA



LSHQ(Yichang)
EHV / MV / LV cable
Industrial specialty cable



LSCW(Wuxi)
Industrial devices cable
Automotive cable
Harness & module
Aluminum, Bus duct

VIETNAM



LS-VINA(Haiphong)
EHV / MV / LV cable
SCR, ACSR
Overhead cable



LSCV(HO Chi Minh)
MV / LV cable
UTP, Optical cable
Overhead cable

INDIA



LSCI(Bawal)
EHV / MV / LV cable
Coaxial cable
Overhead cable

USA



LSCUS(Tarboro)
MV / LV cable
Control, Instrument cable

POLAND



LS EV Poland./LSCP (Dzierzoniow)
Automotive battery components
Optical cable