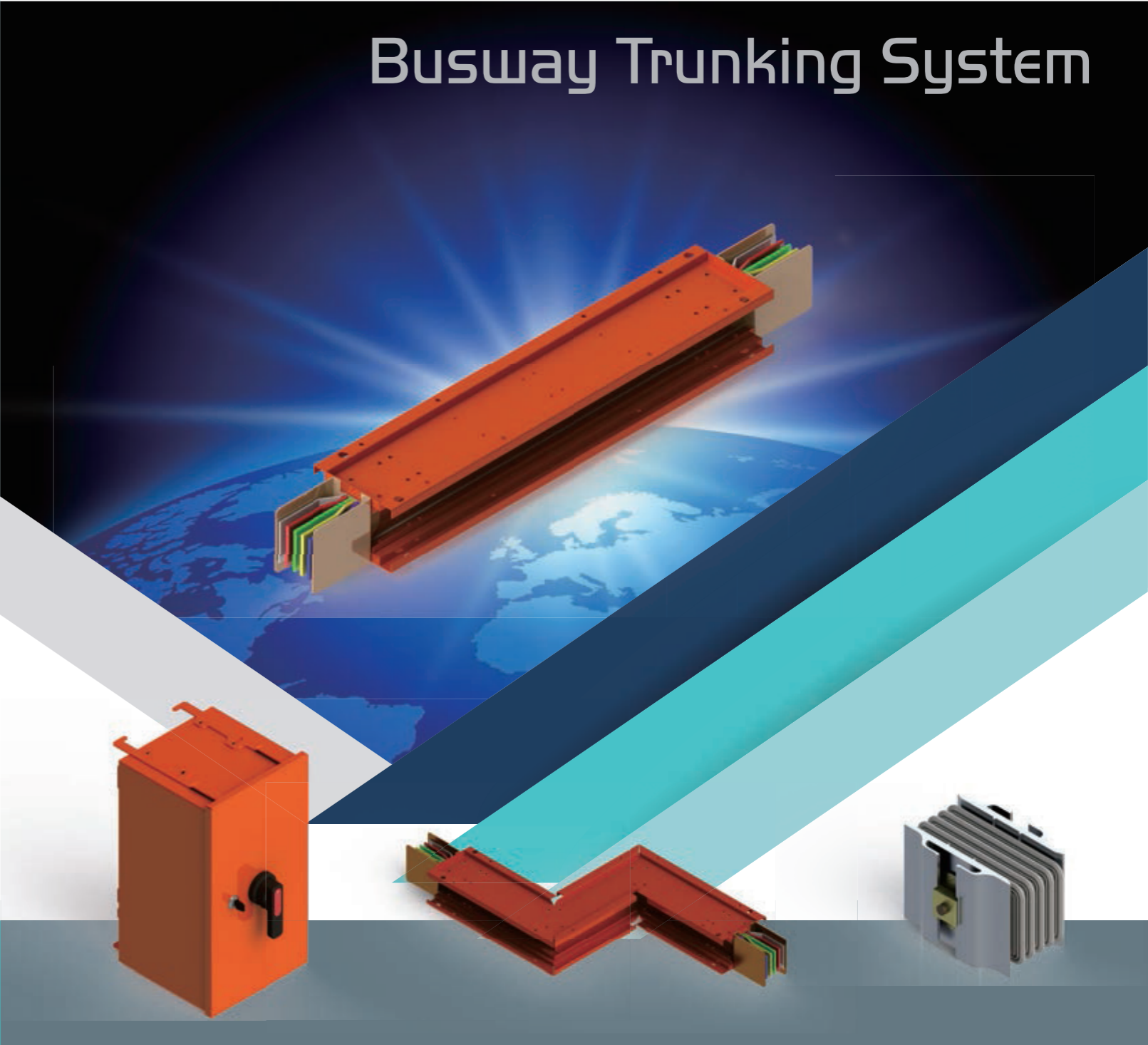


Busway Trunking System



MEGA TECHNOLOGY (ZHENJIANG) CO.,LTD.

Add: No.36 Ganglong Road, Economic Development Zone, Yangzhong, JiangSu Province, China

Tel: +86-511-88136688 Fax: +86-511-88131655

E-mail: salesmegachina@optimus-busduct.com

http://www.optimus-busbar.com

OPTIMUS TECHNOLOGY CO.,LTD.

Office: 6th Floor, No.805, Zhengde Road, Zuoying District Kaohsiung City, Taiwan

Tel: +886-7-3458385 Fax: +886-7-3421424

E-mail: vicara88@ms17.hinet.net

http://www.vicara-trade.com

MEGA ENERGY (THAILAND) CO.,LTD.

Office: Building M5, NO.23/7 Ratbamrung Road, Tambon Huai Pong Amphoe Mueang Rayong, Province Rayong 21150

OPTIMUS POWERTECH PRIVATE LIMITED (INDIA)

Office: Thriveni academy, Thriveni Nagar, Vadakkupattu village, Kanchipuram, Tamil Nadu.



OPT-I-6-1804

The manufacturer reserves the right of product changes.



MEGA TECHNOLOGY (ZHENJIANG) CO.,LTD.
 OPTIMUS TECHNOLOGY CO.,LTD.
 MEGA ENERGY (THAILAND) CO.,LTD.
 OPTIMUS POWERTECH PRIVATE LIMITED (INDIA)

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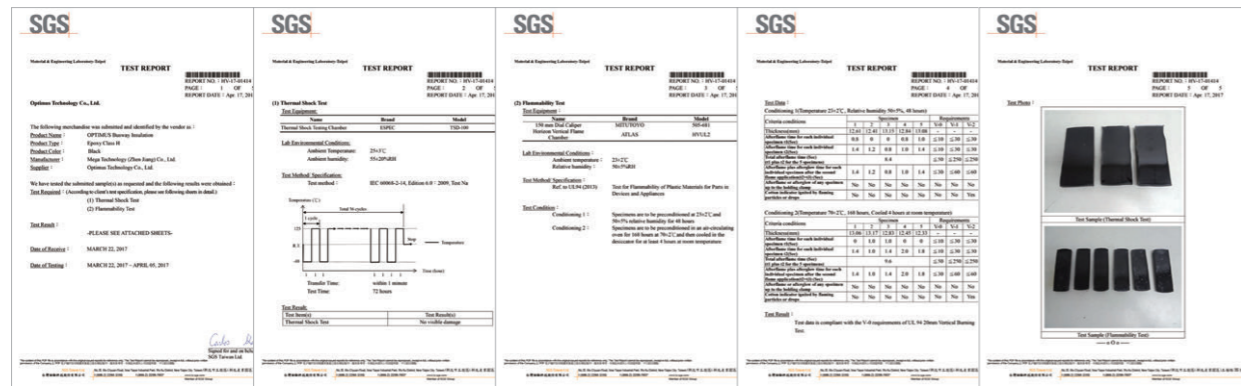
About Us

PRO OPTIMUS busway trunking systems possess strong R&D resource, perfect quality and satisfactory service, which have successfully completed many projects to overseas and local market. With the continuing product research and development process carried out by Mega Technology(Zhenjiang) Co.,Ltd, we are able to provide uniquely designed and highly reliable products. This is achieved by adopting sophisticated thermodynamic design applications and quality manufacturing methods to deliver high performance products to our customers.

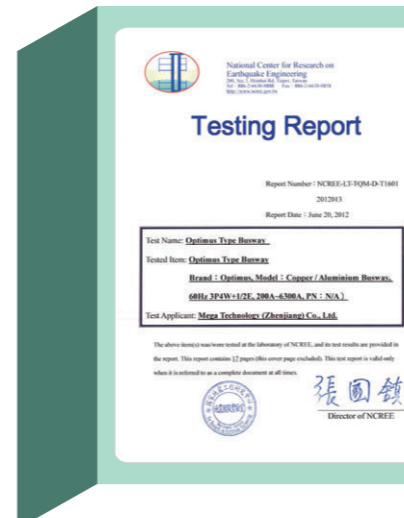




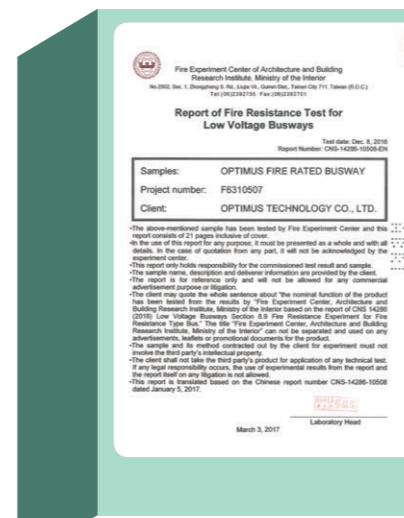
Waterproof intensify busway uses Epoxy coating and it has been successfully tested with UL 94 V-0 and successfully passed 36 cycle thermal shock tests in accordance with IEC60068-2-14 and EU ROHS certificate.



Full type test certificates of PRO OPTIMUS busway trunking system is in accordance with IEC 61439-6:2012 and IEC 60439-2:2005.

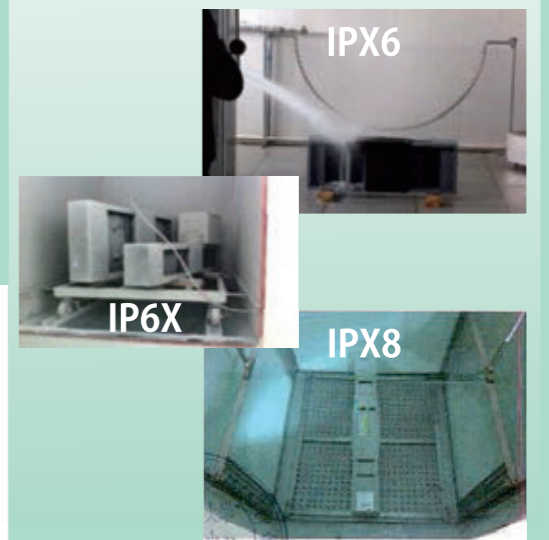


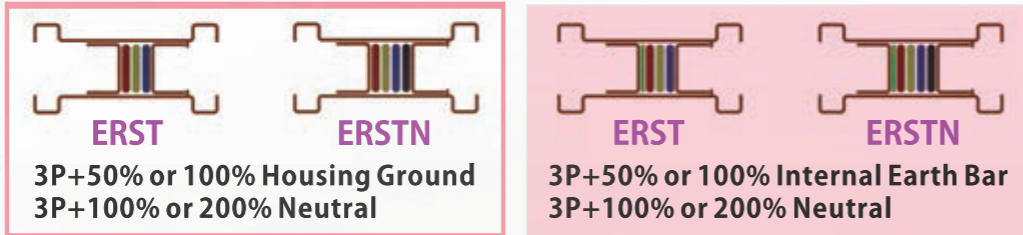
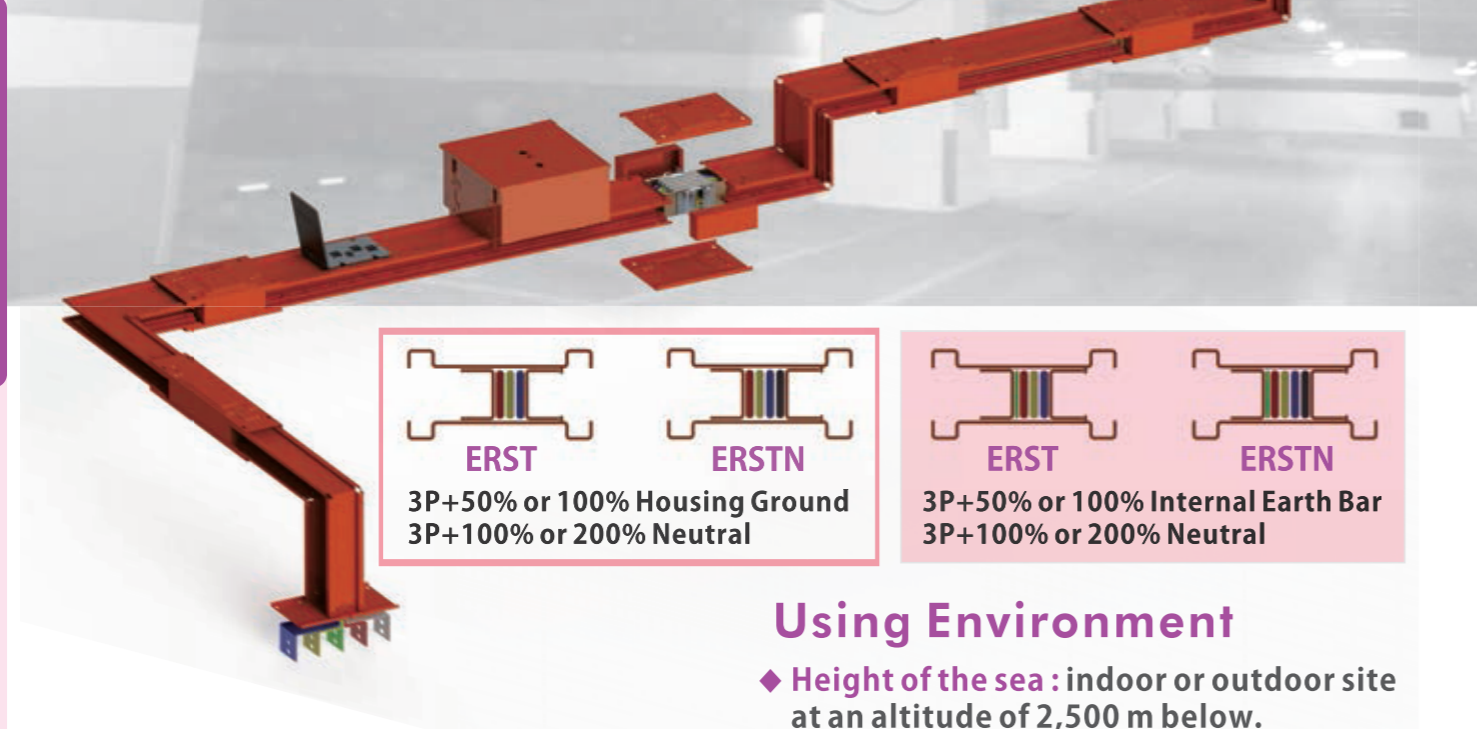
Earthquake Test PRO OPTIMUS busway trunking system has been successfully tested of 7.0 earthquake strength on three axissimulations of the AC156, IBC2006 and ASCE7-05 standard.



Fire Resistance Test PRO OPTIMUS busway trunking system has been successfully tested for 840 °C in 30 minutes of the fire proof resistance in accordance with JIS C8364, JIS A1304, CNS 14286, and CNS 12514.

Protection Test PRO OPTIMUS busway trunking system has been successfully tested for IP66 and IP68 in accordance with resistance of IEC 60529.





Harmonic Suppression

System Harmonic hazards to the busway are mainly caused by the third harmonic neutral phase's overload, according to the content of the third harmonic I_{h_3} different, and we can take different solutions:

- ◆ $I_{h_3} \leq 15\%$:The cross-sectional area of neutral phase should choose half cross-sectional area of phase line.
- ◆ $I_{h_3} \leq 33\%$:The cross-sectional area of neutral phase should be the same as cross-sectional area of phase line.
- ◆ $I_{h_3} > 33\%$:Should be considered to install active or passive filter device in the harmonic branch.

Using Environment

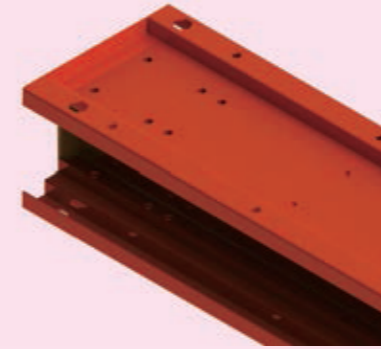
- ◆ **Height of the sea** : indoor or outdoor site at an altitude of 2,500 m below.
- ◆ **Humidity** : indoor or outdoor site at relative humidity of 98% below.
- ◆ **Ambient Temperature** : indoor or outdoor site at between 0 °C to 50 °C.
- ◆ **Frequent Range** : 50 or 60Hz.
- ◆ **Voltage** : 1000V and below.

Reference Standards

PRO OPTIMUS busway trunking systems are tested and certified by KEMA KEUR and 3C to comply with :

- | | |
|--------------------------|-------------|
| ◆ IEC 60439-1 | ◆ UL 857 |
| ◆ IEC 60439-2 | ◆ UL1709 |
| ◆ IEC61439-1/IEC 61439-6 | ◆ ANSI |
| ◆ IEC 60331/IEC 60332 | ◆ IEE/IEEE |
| ◆ GB 7251.1/GB 7251.2 | ◆ NFPA 70 |
| ◆ CNS 14286/CNS 12514 | ◆ NEMA BU1 |
| ◆ JIS C8364/JIS A1304 | ◆ IEC 60529 |

Housing



Materials:

- ◆ Aluminum Extrusion
- ◆ Cold rolled Steel
- ◆ Electro-galvanised Steel
- ◆ Stainless Steel Sheet

PRO OPTIMUS busway trunking systems are high heat dissipation, extremely low impedance ground path and totally enclosed (sandwich type) in the powder coated housing. Any orientation of the system under severe site conditions will not affect the performance of the busduct.

- ◆ **Ground Capacity**: 50% or 100%.
- ◆ **Protection IP Degree**: IP40/IP42/IP54/IP55/IP65/IP66/IP67/IP68.

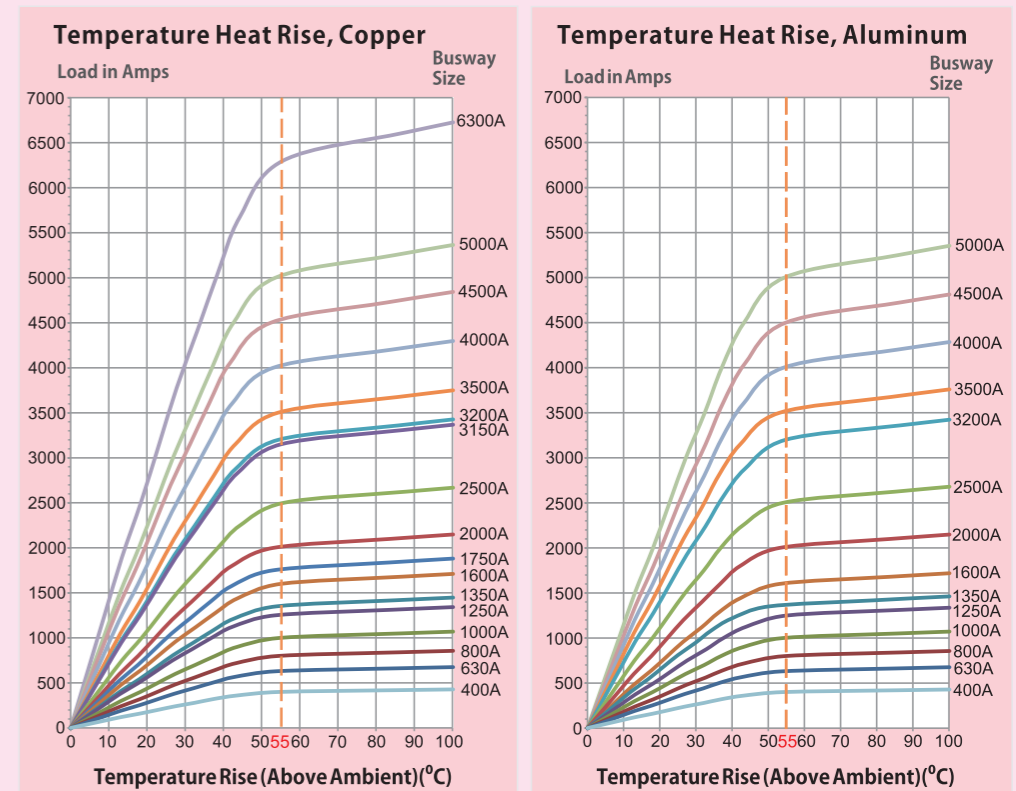
Note : Protection of outdoor type can be provided upon special request for customers.



※The Metal housing passed 1,800 hours of salt spray test.

Conductors

- ◆ **Copper busbars** have high conductivity (>99.99%) with high purity (>99.97%) , tin or silver-plated.
- ◆ **Aluminum bars** have conductivity > 58% ~ 61% , copper plated and tin or silver-plated for contact aluminum system.
- ◆ According to customer's request, we can provide the products which overload 25% and sustained 24 hours of high reliability products.



As the line graph shown above, when rated current of 50 or 60 Hz flows in the PRO OPTIMUS Busway, the values of saturation temperature rise in the conductor are not more than 55 °C for any rated current.

Insulation



Mylar Film



Mica Film

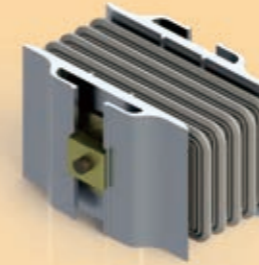


Epoxy Coating

- ◆ **Normal busway** uses the whole wrap in Mylar film of the Class B (130 °C) or Class F(155 °C), providing insulation and dielectric strength of up to 15 kV/mm. The busway of riser configuration has been successfully tested for preventing flame propagation by IEC 60332-3 : 1992, GB/T 18380.3:2001 and fire barrier in building penetration of preventing ISO 834.
- ◆ **Fire rated busway** uses the whole wrap in Mica film of insulating material, and has been successfully tested for 840 °C 30 minutes of fire proof resistance of JIS C8364, JIS A1304, GA/T 537, CNS 14286, and CNS 12514.
- ◆ **Waterproof intensify busway** uses Epoxy coating of the Class H (180 °C), has been successfully tested for IP68 protection of IEC 60529 and comply by UL 94 V-0, EU ROHS.

Note: All busducts are tested at 2.5 kV / 3.75 kV / 5 kV / 6.5 kV for 1 minute and ≥ 2000 MΩ in the testing condition of the factory.

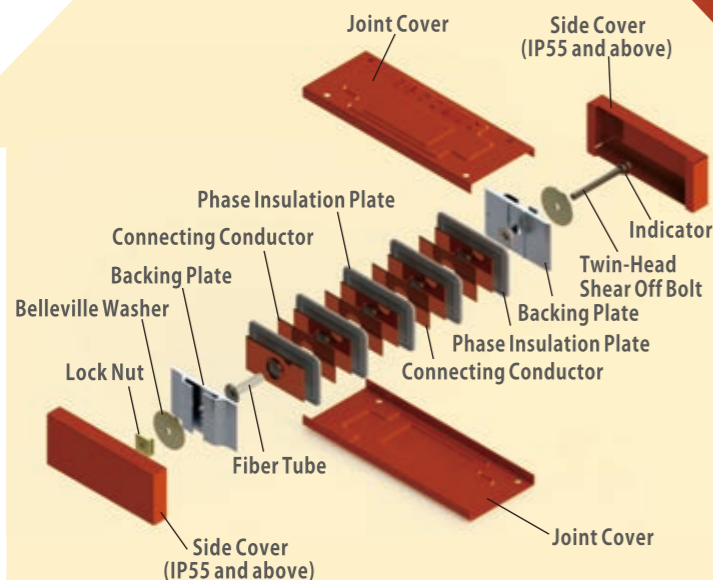
Block Joint System (Bridge Type)



The bridge type joint which is easy to install / remove, providing outstanding features as follows:

- ◆ The design of the joint assembly cone-shaped insulation plate design increases mechanical strength while its molded joint side plate ensures cover not to deform.
- ◆ The steel large size of Belleville washers ensures average pressure of contact.
- ◆ Use common 16 mm socket wrench to tighten the torque bolt. (When indication disc falls off, the joint is properly tightened automatically).
- Note: Use a standard torque which is 70 Nm when the joint bolt reinstall.
- ◆ Each joint allows thermal expansion of 5 mm, and allows 10mm field adjustable isolation for job site flexibility during installation, allowing the tilt angle of ± 5, and allows more than 40 mm area length of overlapping.
- ◆ Bolts and nuts can be stainless, galvanized or chromed black high tensile steel.
- ◆ The earth effect of the cable characteristic is more than 150 mm² electric.
- ◆ The temperature rise sensors can be purchased according to customer needs to examine if the joints overload or overheat.

Detail of The Block Joint



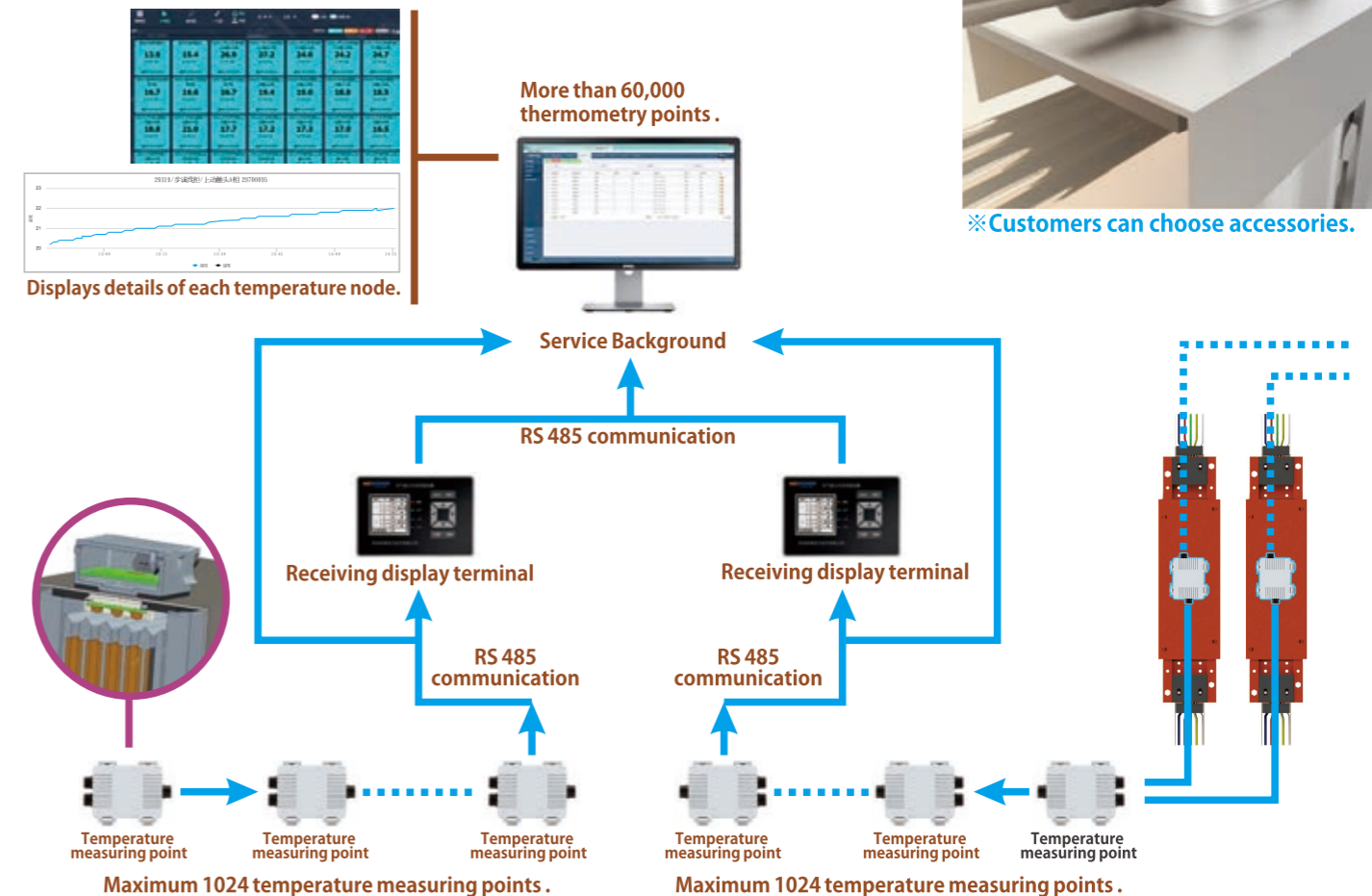
Temperature Sensor Sticker



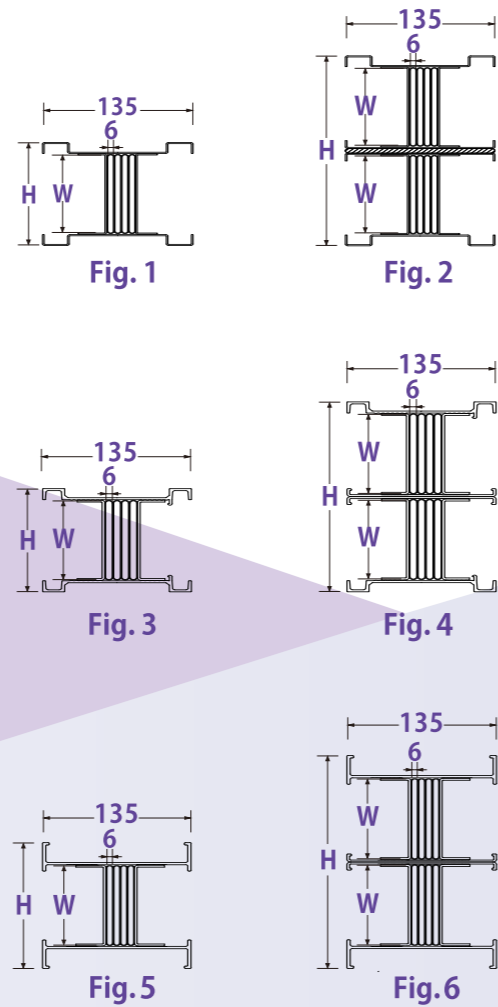
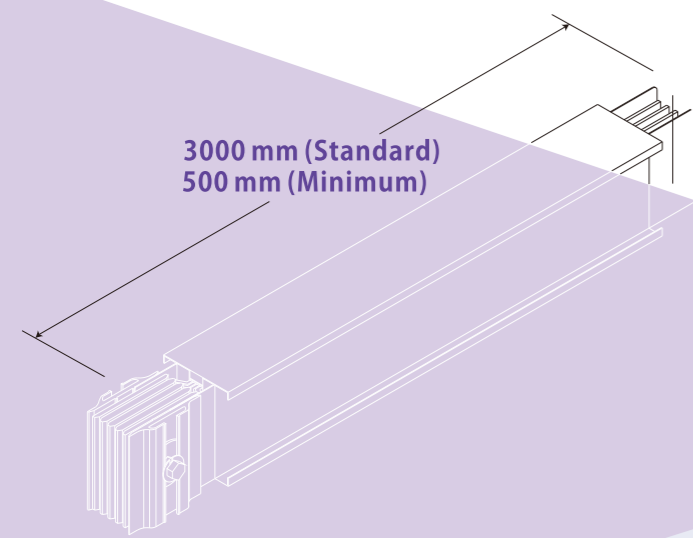
Note: When the temperature rise is excessively high, the color will change and the demonstrate digit, in the normal condition, when reaching 80°C, must reduce the power strength overhaul.

※Customers can choose accessories.

Temperature monitoring technology system



Feeder Busduct



Rating (A)	W (mm)	H (mm)	Steel Sheet(CS)				Fig	H (mm)	Aluminium Extrusion(AC)				Fig	H (mm)	Aluminium Extrusion(AE)				Fig
			Weight (kg/m)						Weight (kg/m)						Weight (kg/m)				
			3P3W	3P3W 1/2E	3P4W	3P4W 1/2E			3P3W	3P3W 1/2E	3P4W	3P4W 1/2E			3P3W	3P3W 1/2E	3P4W	3P4W 1/2E	
CU Conductor																			
400	50	82	13.50	14.70	16.10	17.30	1	82	12.25	13.53	14.81	17.09	3	110	13.35	14.63	15.91	17.19	5
630	50	82	13.50	14.70	16.10	17.30		82	12.25	13.53	14.81	17.09		110	13.35	14.63	15.91	17.19	
800	60	92	16.15	17.72	19.39	20.97		92	13.95	15.49	17.02	19.55		120	15.05	16.59	18.12	19.65	
1000	80	112	19.10	21.05	23.05	25.10		112	17.34	19.39	21.44	24.48		140	18.44	20.49	22.54	24.58	
1250	110	142	25.30	27.50	29.55	33.50		142	22.43	25.25	28.06	31.87		170	23.53	26.35	29.16	31.97	
1600	150	182	33.92	37.50	41.10	45.80		182	29.22	33.06	36.89	41.73		210	30.32	34.16	37.99	41.83	
2000	175	207	36.07	41.50	44.55	50.80		207	33.46	37.94	42.42	47.89		235	34.56	39.04	43.52	47.99	
2500	230	262	46.88	53.90	60.22	66.89		262	42.79	48.68	54.56	61.44		290	43.89	49.78	55.66	61.54	
3200	(2)150	345	57.32	65.18	72.55	79.97		351	59.54	67.22	74.89	83.56		379	60.64	68.32	75.99	83.66	
4000	(2)175	395	68.25	76.66	85.52	93.93		401	68.03	76.98	85.93	95.88		429	69.13	78.08	87.03	95.98	
5000	(2)230	505	92.10	103.91	116.38	128.19	511	86.69	98.46	110.22	122.99	539	87.79	99.56	111.32	123.09			
AL Conductor																			
400	50	82	8.82	9.22	9.70	10.10	1	82	6.16	6.56	7.03	7.41	3	110	6.94	7.34	7.81	8.21	5
630	50	82	8.82	9.22	9.70	10.10		82	6.16	6.56	7.03	7.41		110	6.94	7.34	7.81	8.21	
800	80	112	11.03	11.67	12.43	13.07		112	8.09	8.73	9.49	10.12		140	8.87	9.51	10.27	10.90	
1000	100	132	12.51	13.30	14.25	15.05		132	9.38	10.17	11.12	11.92		160	10.16	10.95	11.90	12.70	
1250	120	152	13.85	14.84	16.03	17.02		152	9.99	10.98	12.16	13.16		180	11.27	12.26	13.44	14.54	
1600	185	217	18.90	20.33	22.03	23.47		217	15.03	16.46	18.16	19.59		245	15.81	17.24	18.94	20.37	
2000	225	257	21.87	23.47	25.35	26.95		257	17.31	18.91	20.79	22.39		285	18.09	19.69	21.57	23.17	
2500	(2)125	295	27.24	29.58	32.68	35.46		295	20.77	22.16	25.99	27.38		323	23.55	26.94	29.77	31.16	
3200	(2)160	365	33.14	35.69	38.70	41.25		365	26.27	28.66	31.49	33.88		393	26.84	29.44	32.27	34.66	
4000	(2)225	495	42.71	46.30	50.53	54.12		495	34.43	38.01	42.25	45.83		523	35.21	38.79	43.03	46.61	

Unit: 10⁻⁶Ω/m (20 °C)

Rating (A)	Busbar Size (mm)	50Hz			60Hz		
		R	X	Z	R	X	Z
CU Conductor							
400	50	50.0	32.6	57.3	50.0	39.3	60.2
630	50	50.0	32.6	57.3	50.0	39.3	60.2
800	60	50.0	32.6	57.3	50.0	39.3	60.2
1000	80	40.0	29.8	51.6	40.0	35.9	56.1
1250	110	35.0	27.9	46.0	35.0	33.6	50.1
1600	150	23.7	21.2	31.8	23.7	25.5	34.8
2000	175	19.8	13.2	23.8	19.8	15.9	25.4
2500	230	12.6	8.2	15.0	12.6	9.9	16.0
3200	(2)150	12.6	7.8	14.8	12.6	9.4	15.7
4000	(2)175	9.5	6.8	11.7	9.5	8.2	12.5
5000	(2)230	6.7	5.8	8.9	6.7	7.0	9.7
AL Conductor							
400	50	98.6	42.0	107.2	98.6	50.6	110.8
630	50	98.6	42.0	107.2	98.6	50.6	110.8
800	80	54.9	23.2	59.6	54.9	28.0	61.6
1000	100	44.2	19.1	48.2	44.2	23.0	49.8
1250	120	33.3	15.9	36.9	33.3	19.2	38.4
1600	185	24.2	11.9	27.0	24.2	14.3	28.1
2000	225	19.3	8.9	21.3	19.3	12.3	22.5
2500	(2)125	16.1	8.9	18.4	16.1	10.7	19.3
3200	(2)160	14.2	6.6	15.7	14.2	8.0	16.3
4000	(2)225	10.7	5.4	12.0	10.7	6.5	12.5

Note : Voltage drop=amps load x √3 x (R cos θ + X sin θ), cos θ = Power Factor

Ambient Temperature Application

When installed in higher ambient temperature, the busduct current rating shall be decreased according to the factors for the following table:

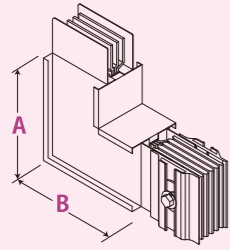
Ambient Temperature (°C)	Derating Factor
40 and below	1.00
45	0.95
50	0.90
55	0.85
60	0.80
65	0.78
70	0.74
80	0.70

Short-circuit current withstand

PRO Optimus busway trunking systems provide predictable, consistent strength and high short - circuit ratings.

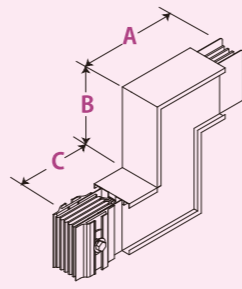
Testing is certified by KEMA KEUR , in accordance with IEC 60439-1 & 2 and IEC 61439-6 of short circuit withstand test for 1 second and 3 seconds.





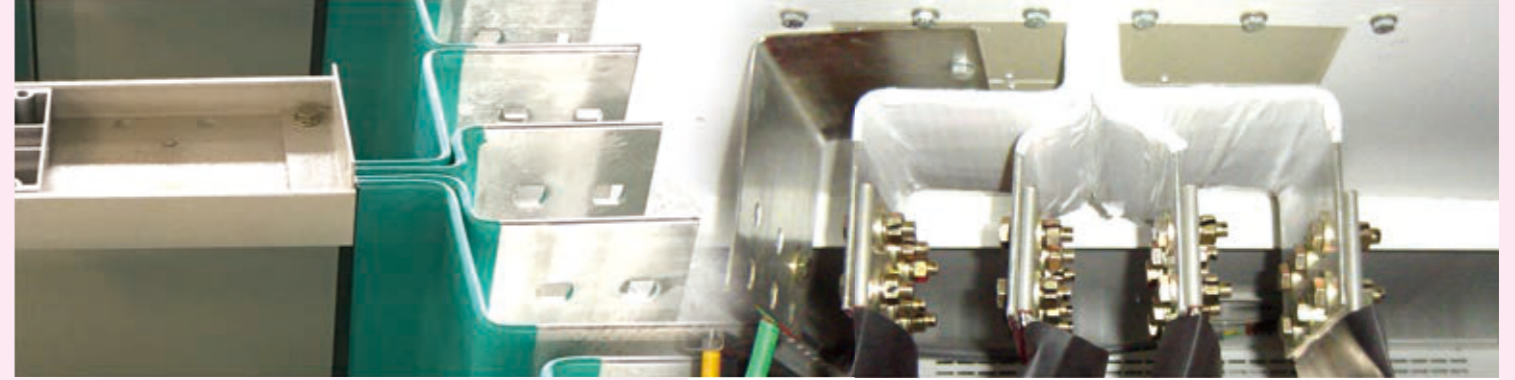
Flatwise Elbow

	Rating (A)	Standard Length (mm)
CU	400 - 2500	A / B = 350
	3150	A / B = 400
	3200 - 4000	A / B = 450
	4500 - 5000	A / B = 500
	6300	A / B = 550
AL	400 - 2000	A / B = 350
	2500 - 3200	A / B = 450
	3500 - 4500	A / B = 500
	5000	A / B = 550

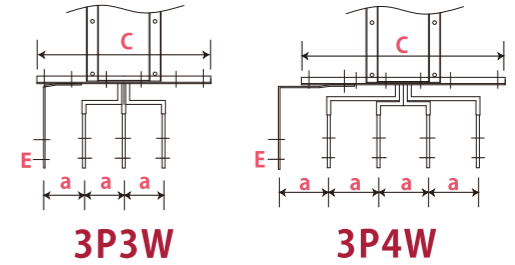
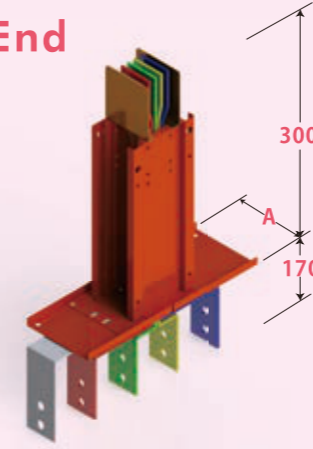


Flatwise Offset

	Rating (A)	Standard Length (mm)
CU	400 - 2500	A / C = 350, B = 300
	3150	A / C = 400, B = 300
	3200 - 4000	A / C = 450, B = 400
	4500 - 5000	A / C = 500, B = 400
	6300	A / C = 550, B = 400
AL	400 - 2000	A / C = 350, B = 300
	2500 - 3200	A / C = 450, B = 350
	3500 - 4500	A / C = 500, B = 400
	5000	A / C = 550, B = 400



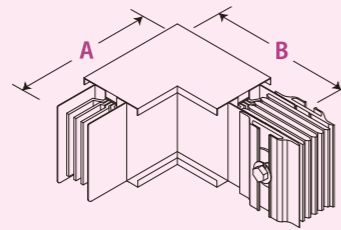
Flange End



- ◆ E : 50% / 100% PE
- ◆ E : 50% / 100% (Housing Ground)

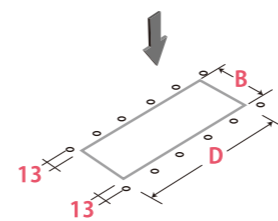
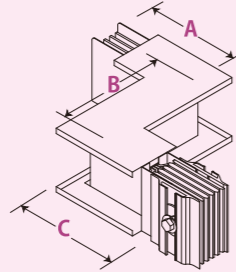


Edgewise Elbow



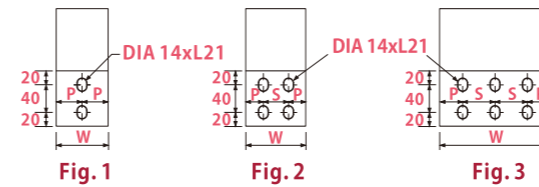
	Rating (A)	Standard Length (mm)
CU	400 - 6300	A / B / C = 350
AL	400 - 5000	

Edgewise Offset

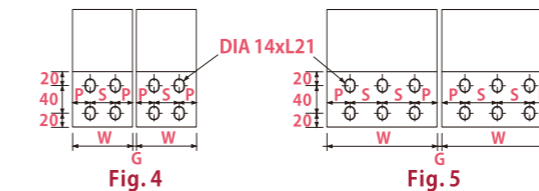


Phase	Interval "a" (mm)	Mounting Dimension "C" (mm)	Opening Dimension "D" (mm)
3W	80	250	230
	100	310	290
4W	80	350	280
	100	410	340

One Trunk

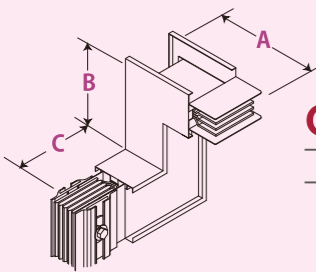


Double Trunk



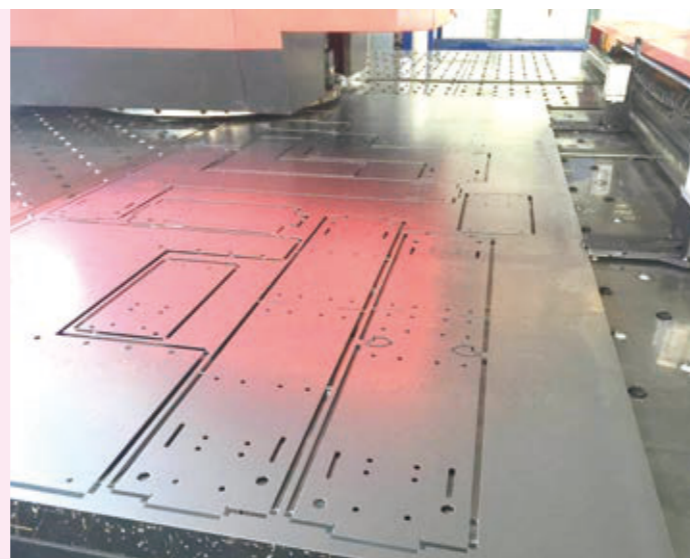
Rating (A)	Dimension (mm)									Fig
	W	S	P	Aluminum Extrusion			Steel Sheet			
				G	A	B	G	A	B	
400	50	-	25	-	136	80	-	136	80	1
630	50	-	25	-	136	80	-	136	80	
800	60	-	30	-	146	90	-	146	90	
1000	80	-	40	-	166	110	-	166	110	2
1250	110	50	30	-	196	140	-	196	140	
1600	150	80	35	-	236	180	-	236	180	3
2000	175	50	37.5	-	261	205	-	261	205	
2500	230	80	35	-	316	260	-	316	260	4
3200	(2)150	80	35	19	405	349	13	399	343	
4000	(2)175	50	37.5	19	455	399	13	449	393	5
5000	(2)230	80	35	19	565	509	13	559	503	

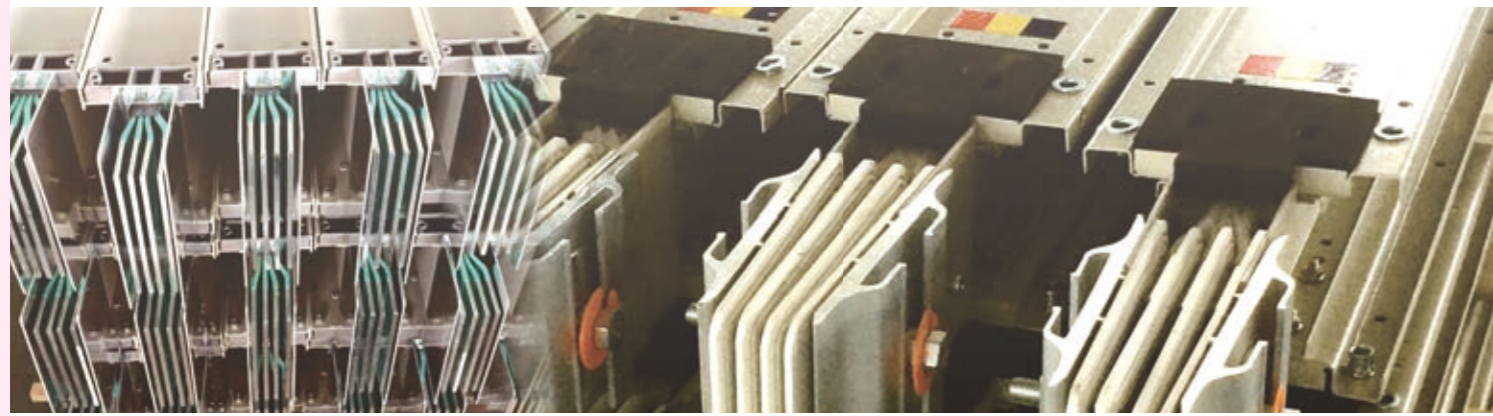
Rating (A)	Dimension (mm)									Fig
	W	S	P	Aluminum Extrusion			Steel Sheet			
				G	A	B	G	A	B	
400	50	-	25	-	136	80	-	136	80	1
630	50	-	25	-	136	80	-	136	80	
800	80	-	40	-	166	110	-	166	110	
1000	100	-	50	-	186	130	-	186	130	2
1250	120	60	30	-	206	150	-	206	150	
1600	185	60	32.5	-	271	215	-	271	215	3
2000	225	80	32.5	-	311	255	-	311	255	
2500	(2)125	60	32.5	13	349	293	13	349	293	4
3200	(2)160	80	40	13	419	363	13	419	363	
4000	(2)225	80	32.5	13	549	493	13	549	493	5



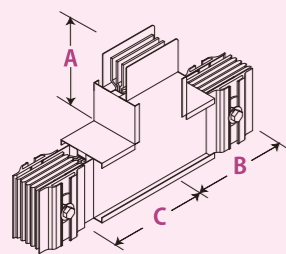
Combination Elbow

	Rating (A)	Standard Length (mm)
CU	400 - 2500	A / B = 300, C = 300
	3150	A / B = 300, C = 400
	3200 - 4000	A = 300, B / C = 450
	4500 - 5000	A = 300, B / C = 500
	6300	A = 300, B / C = 550
AL	400 - 2000	A / B = 300, C = 350
	2500 - 3200	A = 300, B / C = 450
	3500 - 4500	A = 300, B / C = 500
	5000	A = 300, B / C = 550





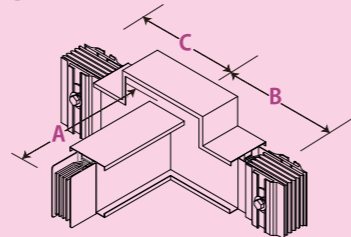
Flatwise Tee



Rating (A)	Standard Length (mm)
400-2500	A / B / C = 350
3150	A / B / C = 400
CU 3200-4000	A / B / C = 450
4500-5000	A / B / C = 500
6300	A / B / C = 550

Rating (A)	Standard Length (mm)
400-2000	A / B / C = 350
2500-3200	A / B / C = 450
AL 3500-4500	A / B / C = 500
5000	A / B / C = 550

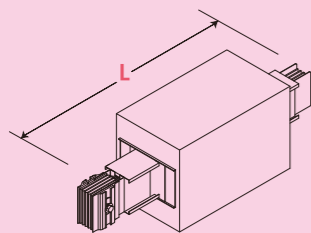
Edgewise Tee



Rating (A)	Standard Length (mm)
400-1750	A = 500, B / C = 450
CU 2000-2500	A = 500, B / C = 500
3150-6300	A = 500, B / C = 550

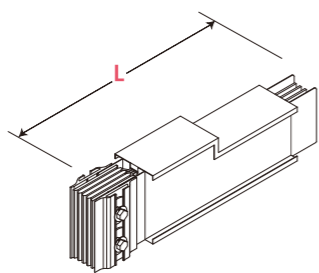
Rating (A)	Standard Length (mm)
400-1250	A = 500, B / C = 450
AL 1350-2000	A = 500, B / C = 500
2500-5000	A = 500, B / C = 550

Expansion Unit



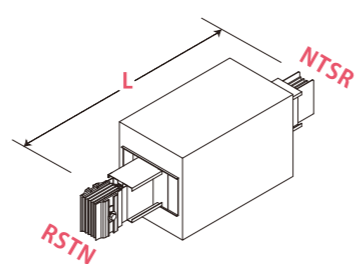
Rating (A)	Standard Length (mm)
630-6300	L = 1200 ± 25

Reducer Unit



Rating (A)	Standard Length (mm)
630-6300	L = 1000

Phase Transposition Unit

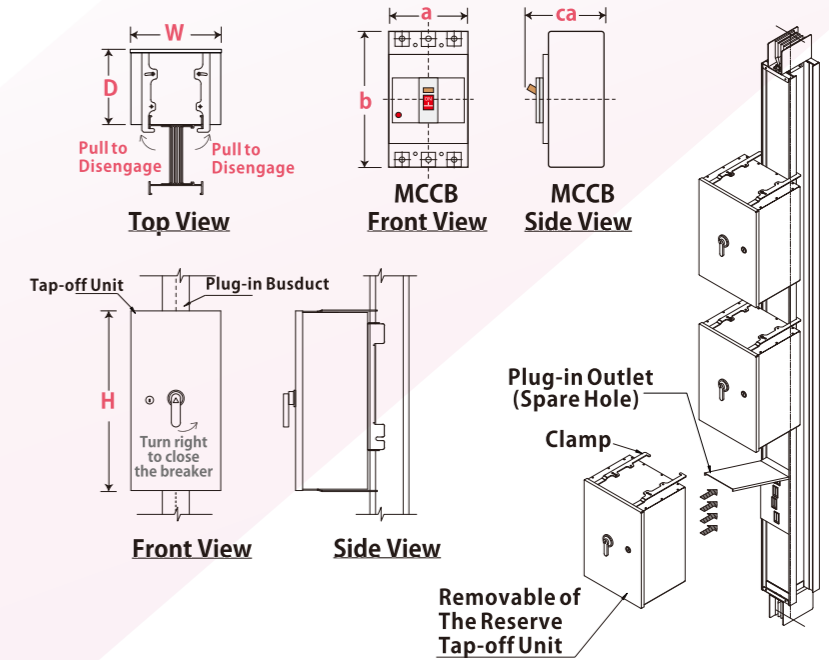


Rating (A)	Standard Length (mm)
630-6300	L = 1200

Plug-in Busduct and Plug-in Unit

Rating of MCCB	Box Size (mm)					
	a	b	ca	H	W	D
100 A	75	130	90	400	250	220
	90	155	112	400	250	250
100 A / 250A	105	165	92	400	250	220
	105	165	112	400	250	250
400 A	140	343	132	550	320	320
	140	343	155	550	320	350
630 A	210	449	155	680	420	360

Note: The plug-in box size decided upon the brand of MCCB.

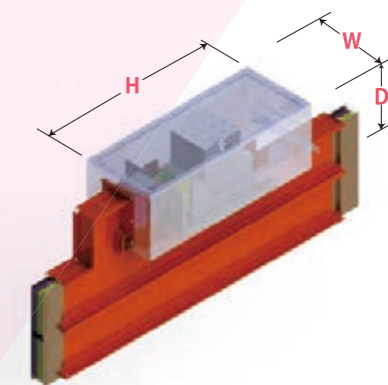


- ◆ Tap-off unit (plug-in) protection : IP2X / IP40 / IP42 / IP54 / IP55.
- ◆ Plug-in hole conductor with tin or silver plated.
- ◆ Tap-off units with non-fused circuit breakers (MCCB) or fused-switch breakers of various current ratings are available for catering to most installations.
- ◆ Maximum five (5) tap-off units per face can be installed, total ten (10) nos per length of 3 m busduct pending upon the size of MCCB_s.
- ◆ Tap-off units are interlocked to prevent removal when outgoing device is in "on" position.
- ◆ When the tap-off unit cover is "open", it is interlocked that MCCB cannot be turned "on".

Plug-in Unit (Bridge Type)

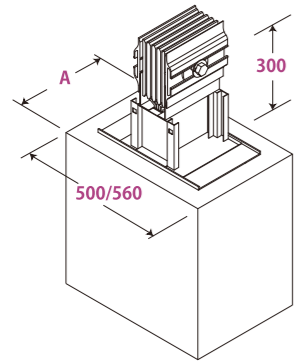


Rating of MCCB	Box Size (mm)			
	H	W	D (Manual Operation)	D (Electric Operation)
800 A	900	420	320	300
1000 A	1050	420	300	400
1200 A	1050	450	300	400
1600 A	1150	500	300	400

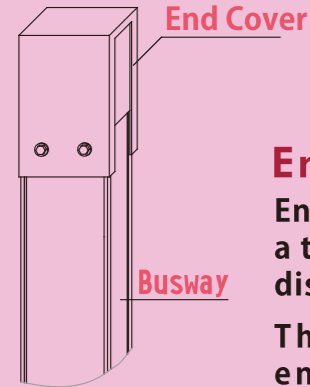
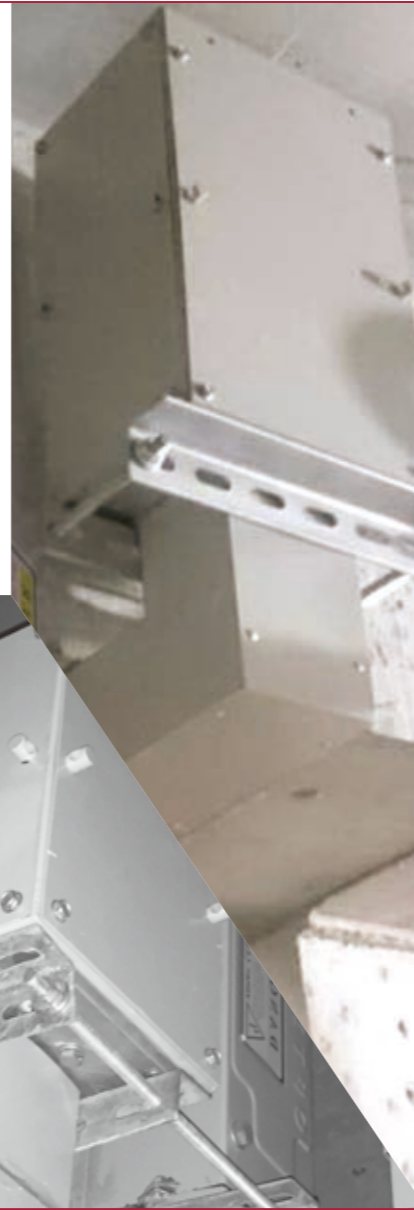


- Note: 1.Can be inserted into the connector in power on condition.
2.With electric / manual operation ON -OFF.
3.The plug-in box size decided upon the brand of MCCB.

End Feed Box



Rating (A)	Copper A (mm)	Rating (A)	Aluminum A (mm)
400	205	400	230
630	215	630	240
800	225	800	255
1000	240	1000	270
1250	255	1250	290
1350	265	1350	330
1600	280	1600	350
1750	305	2000	380
2000	340	2500	Contact with and above the factory
2500	365	3150	430
3200 and above	Contact with the factory		

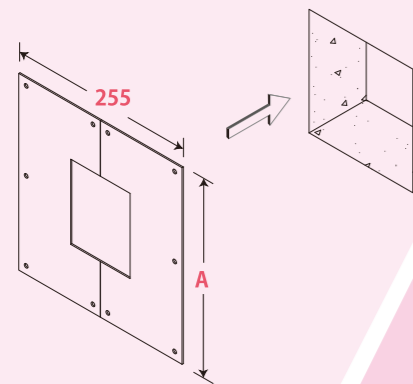


End Cover

End covers are used at the ends of distribution feeders. They are used to ensure the whole system which is devoid of exposed live parts.

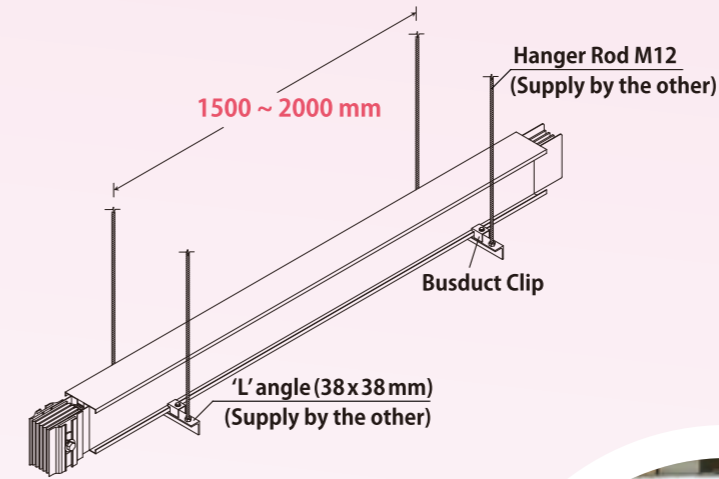


Floor / Wall Flange

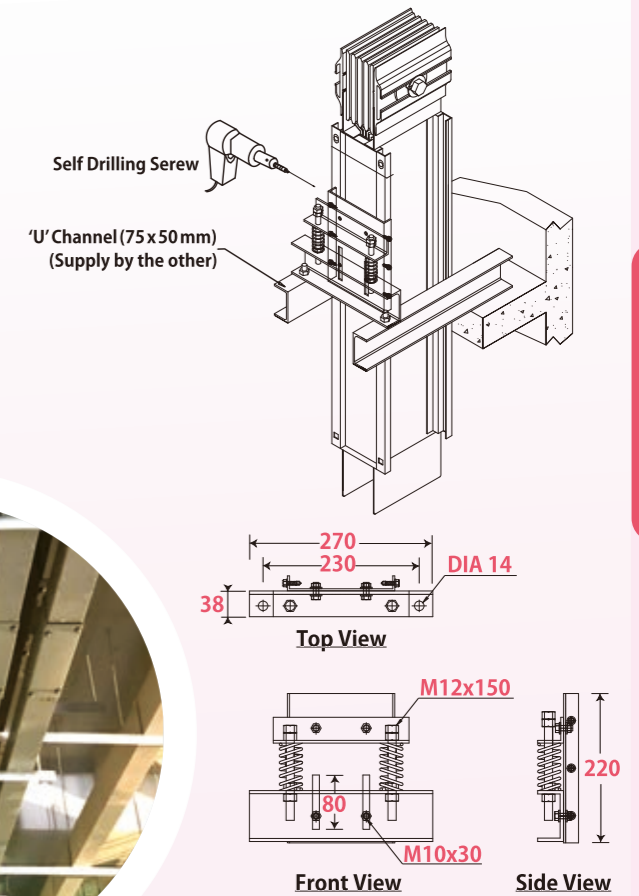


Rating (A)	Copper A(mm)		Aluminum A(mm)	
	Aluminum Extrusion	Steel	Aluminum Extrusion	Steel
400	175	175	200	200
630	185	185	210	210
800	195	195	225	225
1000	210	210	240	240
1250	225	225	260	260
1350	235	235	300	300
1600	250	250	320	320
1750	275	275	350	350
2000	310	310	465	460
2500	335	335	505	500
3150	400	400	535	530
3200	410	415	565	560
3500	440	445	615	610
4000	480	485	665	660
4500	570	575		
5000	610	615		
6300	660	665		

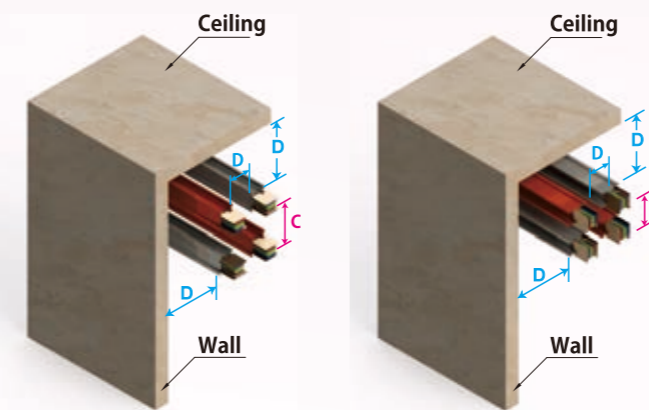
Horizontal Support



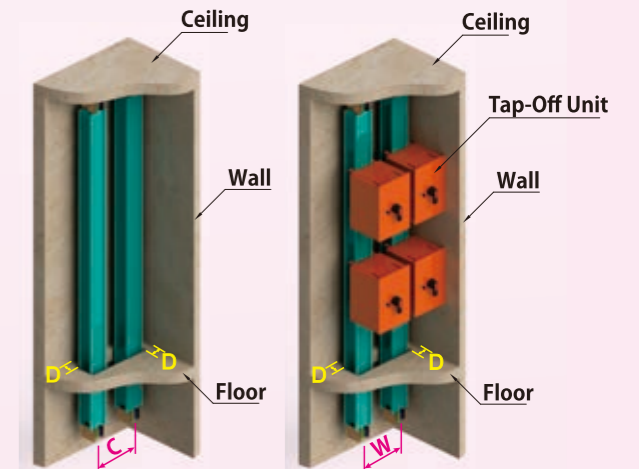
Vertical Spring Hanger



Minimum Space Required for Horizontal Installation



Minimum Space Required for Vertical Installation



Note: $D=100\text{mm}$, "D" represents the distance from the edge of between the busway and the wall.
 $C=250\text{mm}$, "C" represents the distance from the center of the busway.
 $W=350\sim 600\text{mm}$, according to the rating of the plug-in unit determines the distance of the busway center.

◆ ISO 9001



◆ ISO 14001



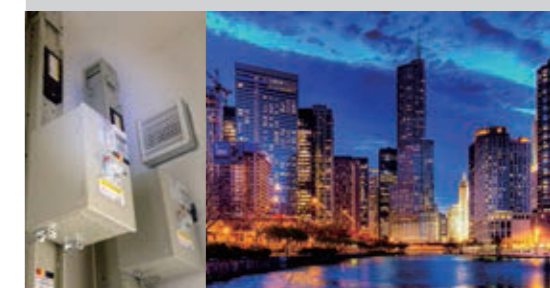
◆ ISO 45001



Shopping Malls

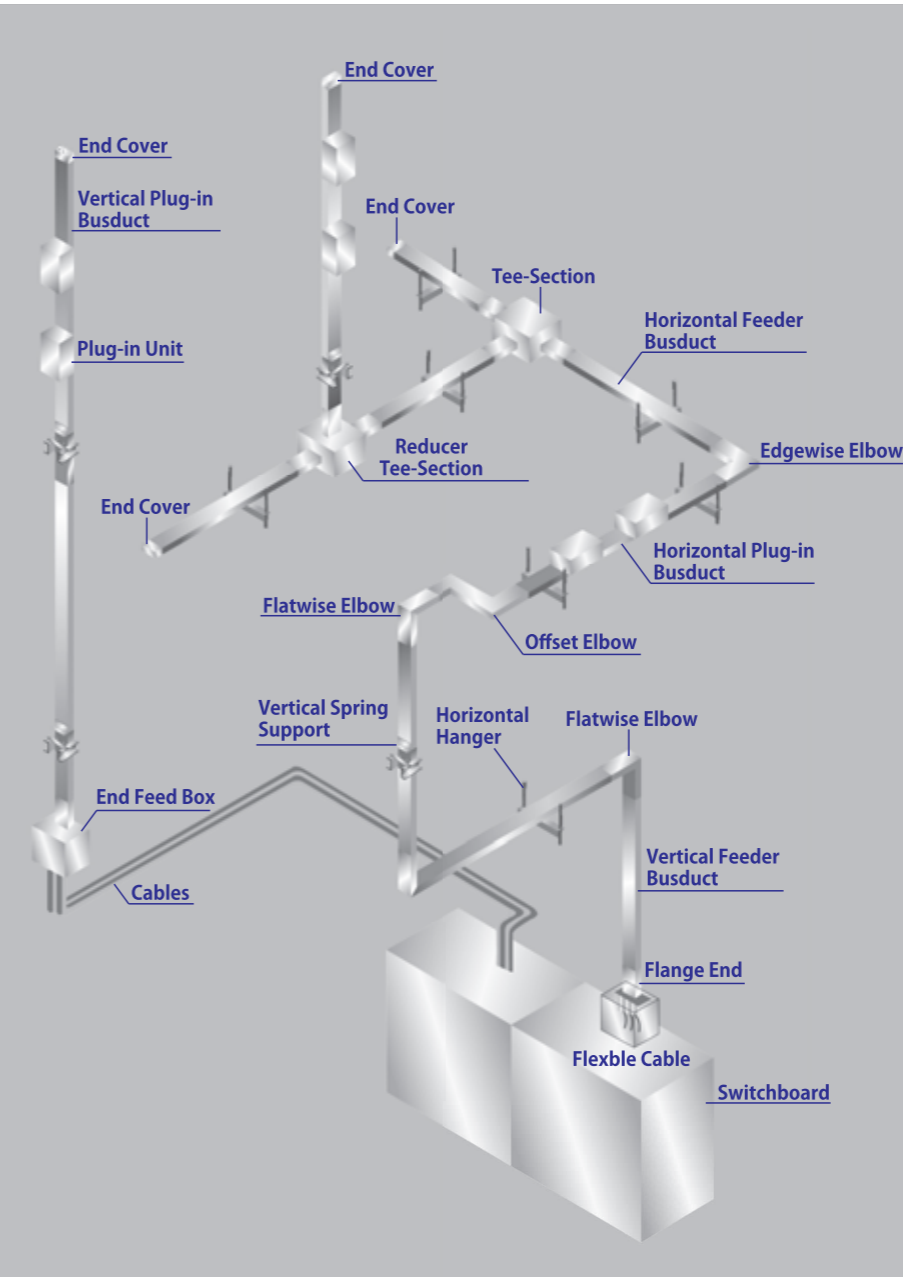


Skyscraper / Hotel



IT Plant / Data Center

Residential Building



Substation Center

