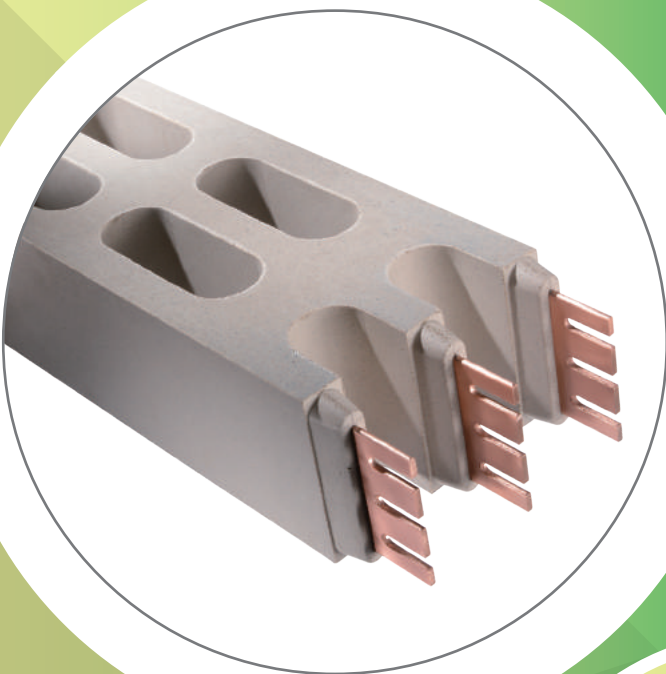
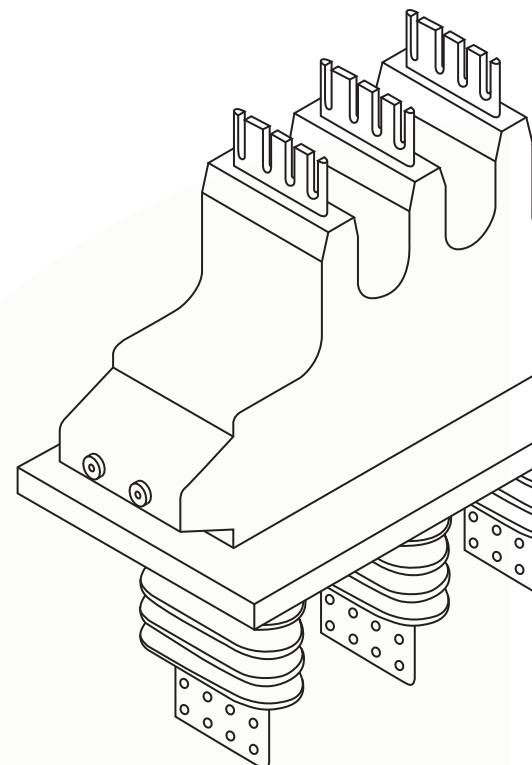


TEC  **BAR**

**CAST-RESIN INSULATED
BUSWAY SYSTEMS
UP TO 24kV**



**MEDIUM
Voltage**



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Foreword

Due to drastic increase in the requirement of safety and stability for power distribution among public engineering, the conventional power cable and metal -enclosed busway can no longer fulfill the requirement stated above. TAIAN-ECOBAR Technology Co., Ltd. was established in 1988 to further develop the cutting edge cast-resin insulated busway systems from Europe to reach its fullest potential.

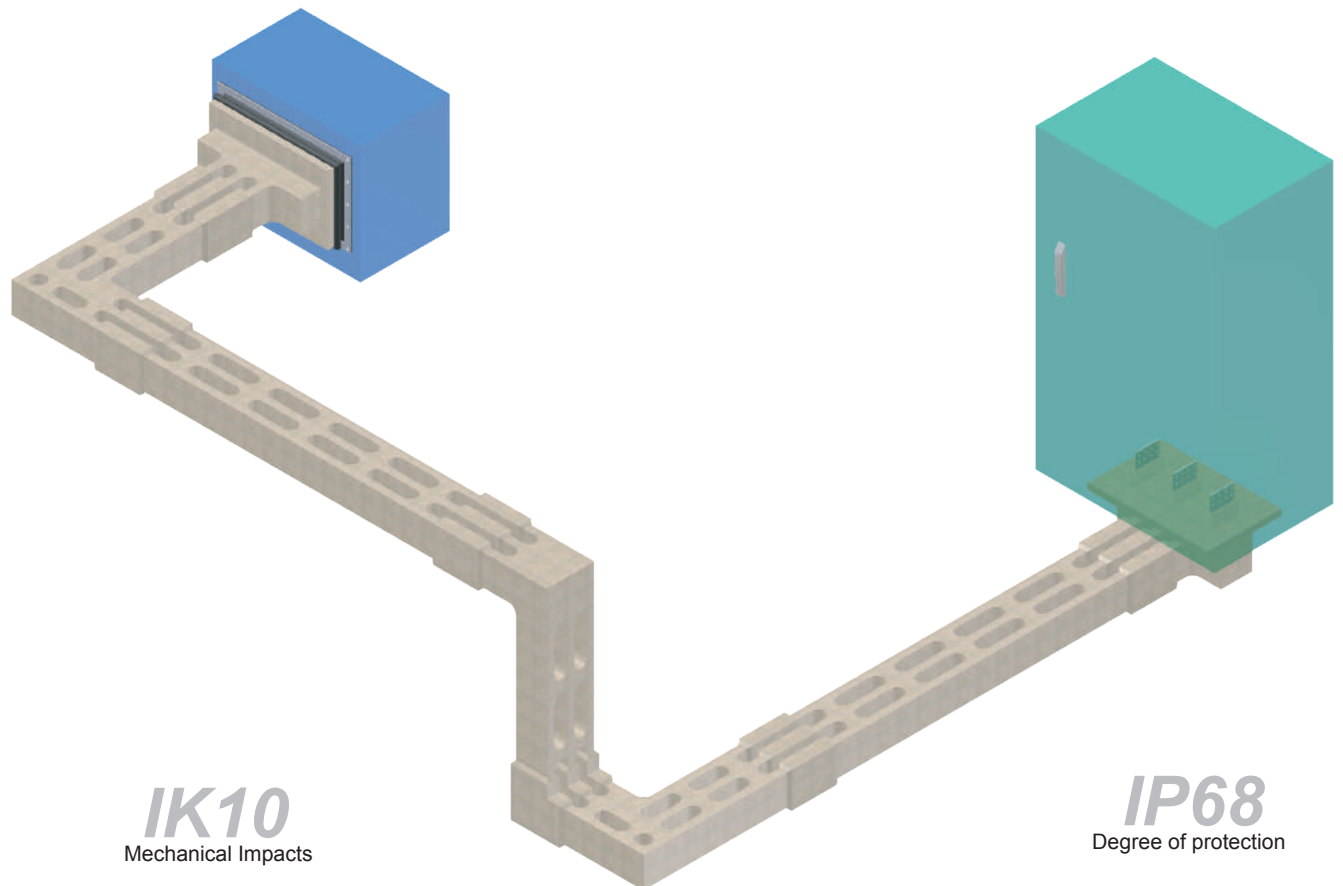
TECOBAR product is built with excellent features of electrical characteristic and mechanical strength, fire and water proof, anti-corrosion, compact size, easy installation and most importantly maintenance free. Today, TECOBAR has become the first choice of power transmission serving broad range of applications from high-rise residential buildings to nuclear power plants.

With the reputation based on strong customer orientation, solid engineering support and fast delivery schedule, TECOBAR cater a complete package of services from conceptual design to commissioning to global clientele.

We will continue to make every effort to further enhance our services in our continuous pursuit for service excellence.

Excellence

1. Medium voltage products meet the standard of IEC 60694, IEC 62271-200, IEC 62771-201 IEC 62271-202 and IEEE C 37.23.
2. Compact, easy to install, no emission of toxic gas.
3. The purity of conductor is 99.9% for copper with conductivity above 98% IACS.
4. Low voltage drop, high short circuit current withstand, carried out overload + 20% for 2 hours.
5. Degree of protection tested in accordance with IEC-60529, IP68. Mechanical Impacts IK10.
6. Mixing excellent material such as non-organic volcanic rock with small amount of resin made of busway. With excellent insulation and heat dissipation properties.
7. Low EMC
8. Insulation level of class B 130°C.
9. Products have shown excellent results for at least 40 years, and passed aging test with safety operation over 50 years.
10. Maintenance free.



IK10
Mechanical Impacts

EMC
Electromagnetic compatibility

IP68
Degree of protection

Product Certification



Electrical Characteristics of Medium Voltage Busway

1. Title: TECOBAR Medium Voltage Cast-Resin Insulated Non Segregated Phase Busway.

2. Product Description:

TECOBAR Medium Voltage Cast-Resin Insulated Busway is developed for power systems between 3.6kV~24kV. The product has features of safety and compact. It is designed to using insulation material to perform cast resin sealing to the copper (aluminum) conductor. The insulation material is cast resin containing non-organic volcanic rock and has excellent insulation characteristics and mechanical strength, humidity-proof, non-combustible, and self-extinguishing features.

3. Applicable Scope:

TECOBAR medium voltage busway is manufactured in accordance with, IEC 60694, IEC 62271-200, IEC 62271-201, IEC 62271-202 and IEEE C37.23 standards. The elements included as below:

3.1 Straight elements, Elbow elements, T-elements and Terminal elements, etc.

4. Condition of Use:

TECOBAR medium voltage busway is composed of the parts listed in item 3.1. The elements are connected through junction units on site before cast molding with insulation mix to complete the medium voltage busway. Conditions for TECOBAR:

4.1 Altitude: below 1000m, indoor or outdoor site.

4.2 Ambient temperature: -45°C~65°C

4.3 Ambient humidity: 0%~100%

5. Technical Specifications:

5.1 Rated Voltage

Model	SH	PH	PE
Voltage	7.2kV	17.5kV	24kV

5.2 Frequency Hz: 50/60

5.3 System Type: 3Φ3w.

5.4 Conductor Material : Copper (Purity : 99.9% Conductivity : Above 98% IACS) and Aluminum.

According to standards : JIS H3140 , DIN 1787, DIN 1759, DIN 40500.

5.5 Electrical characteristics of each TECOBAR element:

Partial discharge : ◎ Partial discharge coulomb value less than 20pC.

Protection degree : ◎ In accordance with IEC 60529 IP68.

Mechanical impacts : ◎ In accordance with IEC 60068-2-75 IK10.

Insulation capabilities : ◎ Max 50kV/1min. (PE Type).

Temperature rise limit : ◎ At average ambient temperature of 35°C with daily peak 40°C temperature rise of conductor $\leq 50K$.

Product Specifications SH

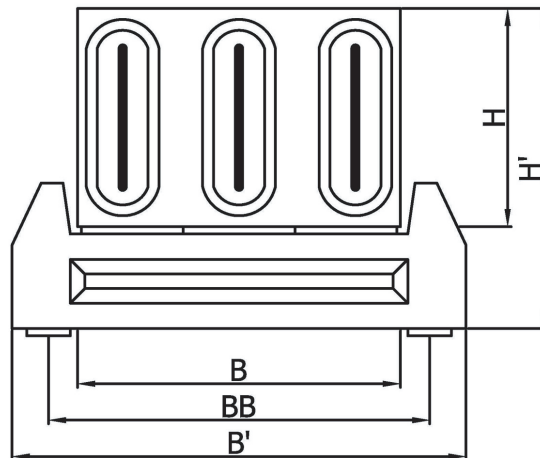
50/60 Hz 1kV~7.2kV IP68 IK10

TYPE	B x H mm	BB mm	B' x H' mm	I _n (A) norm	I _n (A) 35/40°C	Cond. mm ²	R ₂₀ μΩ	R ₆₀ μΩ	R ₈₅ μΩ	X μΩ	I _{CW} kA/1Sec	I _{peak}	P _{Loss90} W/m	Total Weight kg/m
------	-------------	----------	---------------	----------------------------	-------------------------------	--------------------------	-----------------------	-----------------------	-----------------------	---------	----------------------------	-------------------	----------------------------	-------------------------

COPPER

Single Line

SH1	160x100	200	250 x 155	1000	1040	300	53.6	62.0	67.3	122	25	65	205.1	48
				1250	1295	480	31.6	36.5	39.7	117	30	78	188.6	51
				1500	1540	720	21.5	24.9	27.0	112	45	117	184.8	56



※Please contact us for specific layouts and connection details.

※Please refer to the temperature correction coefficient of rated current on page 19 while ambient temperature exceeds 40°C.

Product Specifications PH

50/60 Hz 7.2kV~17.5kV IP68 IK10

TYPE	B x H mm	B' x H' mm	I _n (A) norm	I _n (A) 35/40°C	Cond. mm ²	R ₂₀ μΩ	R ₆₀ μΩ	R ₈₅ μΩ	X μΩ	I _{CW} kA/1Sec	I _{peak}	P _{Loss90} W/m	Total Weight kg/m
------	-------------	---------------	----------------------------	-------------------------------	--------------------------	-----------------------	-----------------------	-----------------------	---------	----------------------------	-------------------	----------------------------	-------------------------

COPPER

Single Line

PH10	492 x 170	572 x 318	1600	1650	400	28.1	32.5	35.3	151	38	98.8	292.7	80
			2000	2070	600	26.6	30.7	33.4	149	55	143	406.3	95
				2308	800	20.5	23.7	25.7	147	75	195	390.2	97
			2500	2560	1000	15.8	18.3	19.8	145	95	247	377.0	100
				2800	1200	17.9	20.7	22.5	143	100	255	535.6	107

PH16	492 x 230	572 x 378	3150	3215	1280	12.9	14.9	16.2	116	100	260	477.0	132
				3525	1600	10.2	11.8	12.8	114	100	260	477.0	139
				3711	1920	11.9	13.8	14.9	113	100	255	623.5	147

PH20	492 x 280	572 x 428	4000	4208	2000	8.0	9.3	10.0	98	105	273	540.0	172
				4535	2400	6.6	7.6	8.3	97	105	273	510.4	182
			5000	5000	3000	5.5	6.3	6.9	95	105	273	524.2	196

Double Lines

PH16	800 x 230	880 x 378	6300	6300	2 x 1600	7.0	8.1	8.8	51.3	120	312	1064.7	278
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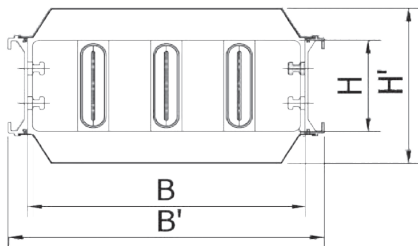
ALUMINUM

Single Line

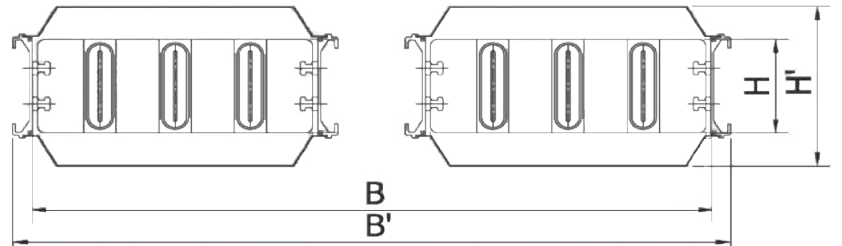
PH10	492 x 170	572 x 318	1600	1607	600	46.6	54.0	58.5	150	85	216	456.7	84
				1815	800	35.7	41.3	44.8	148	85	216	442.7	86
			2000	2030	1000	29.8	34.4	37.4	146	85	216	455.4	88
				2223	1200	25.8	29.9	32.4	144	85	216	477.6	91

PH16	492 x 230	572 x 378	2500	2502	1280	23.8	27.6	29.9	117	100	255	569.3	124
				2736	1600	19.8	23.0	24.9	115	100	255	553.4	129
				2897	1920	16.9	19.5	21.2	114	100	255	524.1	135

PH20	492 x 280	572 x 428	3150	3332	2000	15.9	18.4	19.9	99	100	255	661.3	166
				3580	2400	12.9	14.9	16.2	98	100	255	604.4	175
			4000	4005	3000	11.9	13.8	14.9	96	100	255	728.7	187



Single Line



Double Lines

※ Please contact us for specific layouts and connection details.

※ Please refer to the temperature correction coefficient of rated current on page 19 while ambient temperature exceeds 40°C.

Product Specifications PE

50/60 Hz 24kV IP68 IK10

TYPE	B x H mm	B' x H' mm	In(A) norm	In(A) 35/40°C	Cond. mm ²	R ₂₀ μΩ	R ₆₀ μΩ	R ₈₅ μΩ	X μΩ	ICW kA/1Sec	I _{peak}	P _{Loss90} W/m	Total Weight kg/m
------	-------------	---------------	---------------	------------------	--------------------------	-----------------------	-----------------------	-----------------------	---------	----------------	-------------------	----------------------------	-------------------------

COPPER

Single Line

PE10	570 x 150	650 x 378	2000	1950	600	31.8	36.7	39.9	156	100	255	461.8	100
				2174	800	24.8	28.7	31.1	153	100	255	438.6	105
			2500	2637	1200	17.9	20.7	22.4	149	100	255	461.8	110

PE16	570 x 210	650 x 438	3150	3203	1600	13.9	16.1	17.4	121	100	255	544.1	145
				3500	1920	11.9	13.8	14.9	119	100	255	557.9	148
			4000	4019	2400	10.9	12.6	13.7	117	100	255	668.0	153

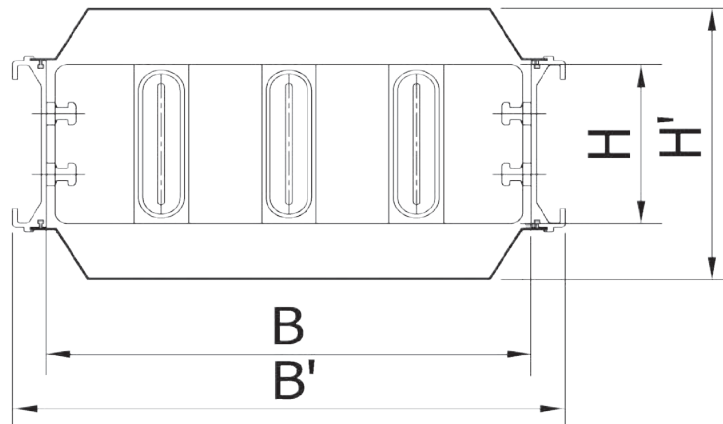
ALUMINUM

Single Line

PE10	550 x 150	650 x 378	1250	1438	600	46.6	54.0	58.5	157	65	165	349.6	89	
				1600	1660	800	35.7	41.3	44.8	155	80	204	349.8	91
			2000	2004	1200	25.8	29.9	32.4	151	100	255	394.7	94	

PE16	550 x 210	650 x 438	2500	2667	1600	19.8	23.0	24.9	122	100	255	513.1	115
------	-----------	-----------	------	------	------	------	------	------	-----	-----	-----	-------	-----

PE20			3150	3210	2400	13.9	16.1	17.4	118	100	255	544.1	122
------	--	--	------	------	------	------	------	------	-----	-----	-----	-------	-----

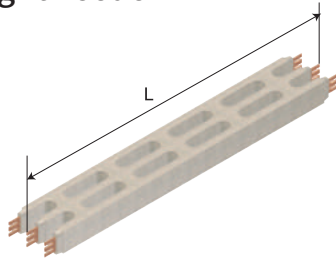


※ Please contact us for specific layouts and connection details.

※ Please refer to the temperature correction coefficient of rated current on page 19 while ambient temperature exceeds 40°C.

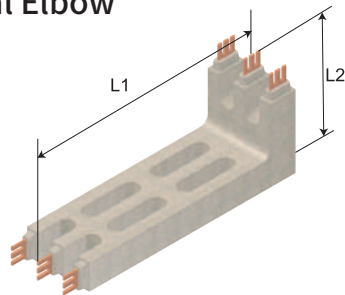
Selection of Standard Parts

Straight Feeder



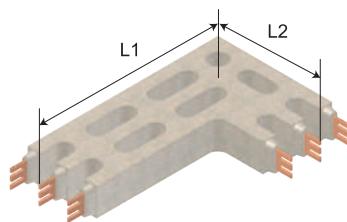
Model	Length
RE	L=1000mm~2000mm 3000mm~4000mm (Max)

Vertical Elbow



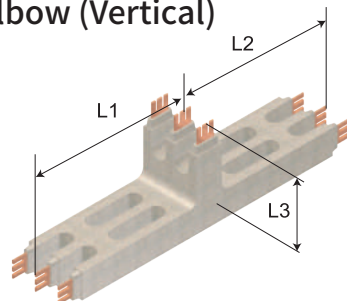
Model	Length
HL1	L1+L2=1000mm
HL2	L1+L2=2000mm
HL1	L1=550mm L2=450mm

Horizontal Elbow



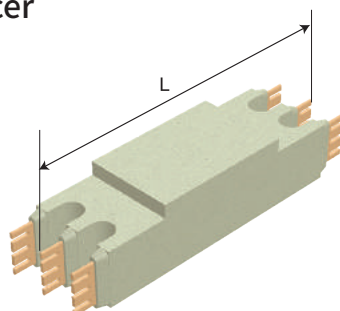
Model	Length
HB1	L1+L2=1000mm
HB2	L1+L2=2000mm
HB1	L1=550mm L2=450mm

Tee Elbow (Vertical)



Model	Length
TL2	L1=L2=L3=500mm

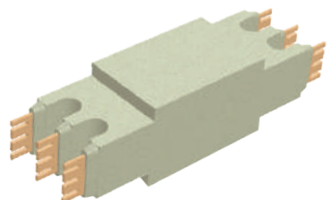
Reducer



Model	Length
TF	L=1200mm

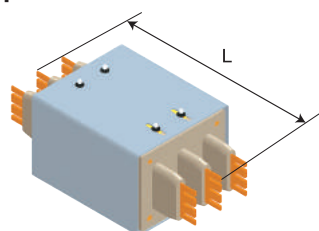
Selection of Standard Parts

Phase Switch Feeder



Model	Length
PC1	L=1200mm

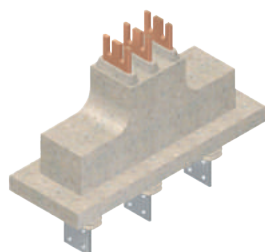
Expansion



SH/PH/PE series
(7.2kV/17.5kV/24kV)

Model	Length
EX	L=1000mm

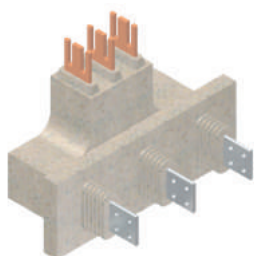
AG Type Terminal



SH/PH/PE series
(7.2kV/17.5kV/24kV)

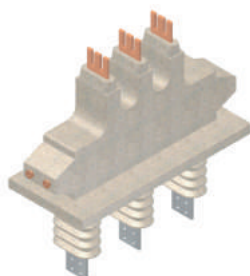
Model	Length
AG1	Refer to Page 14

AO Type Terminal



Model	Length
AO1	Refer to Page 15

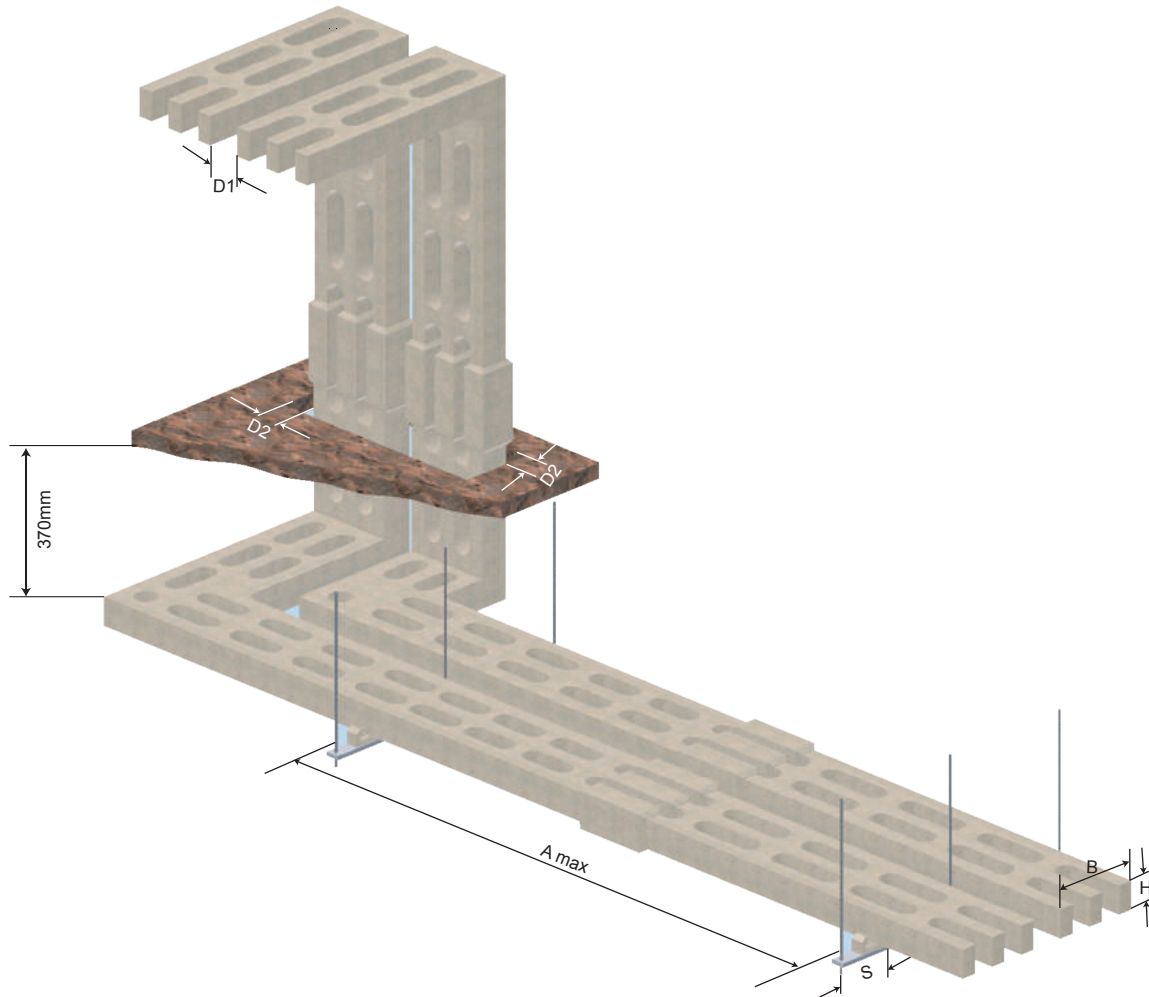
AG Type Terminal



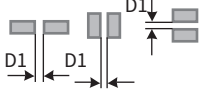
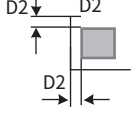
PH/PE series
(17.5/24kV)

Model	Length
AG1	Refer to Page 14

Product Installation

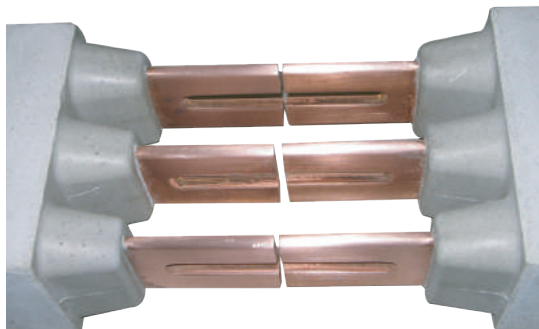


Unit: mm

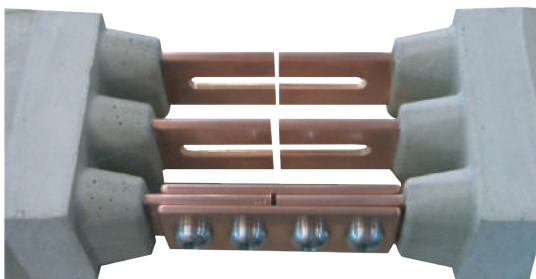
Type	External Size $B \times H$	Limit of Hanger Installation Pitch A		Minimum pitch between busway		S: Distance between Hanger and Busway
		Horizontal Installation	Vertical Installation	Layout of busway arrangement	Distance between wall opening and busway	
SH1	160×100	1500	4000			55
PH10	322×150			150	60	75
PH16	322×210			250	100	75
PH20	322×260			150 (Enclosure)	120	75
PE10	570×150					
PE16	570×210					

Note : Distance between hangers and busway are allowed to be adjusted on site while required.

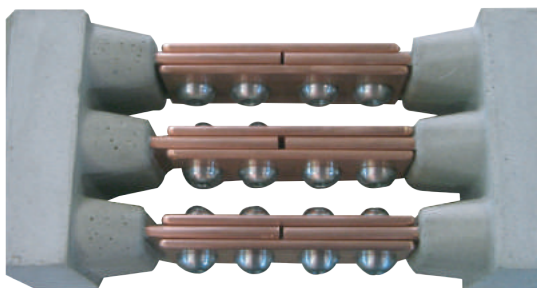
Assembly Diagrams of Medium Voltage Busway Junction



- ▶ Distance between two elements are within $10\text{mm} \pm 10\text{mm}$ (inclusive). The distance can be flexibly adjusted on site by the requirement of construction.

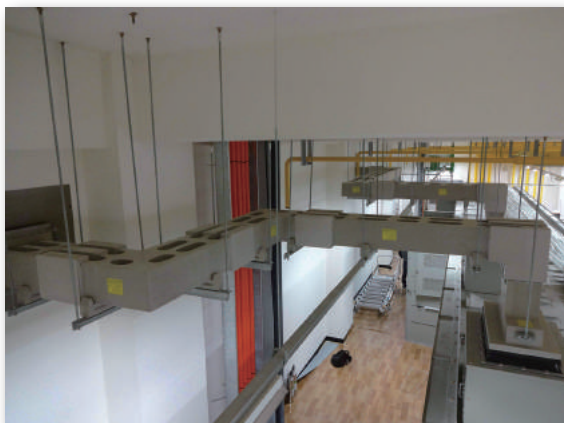


- ▶ Illustration of JUNCTION assembly.

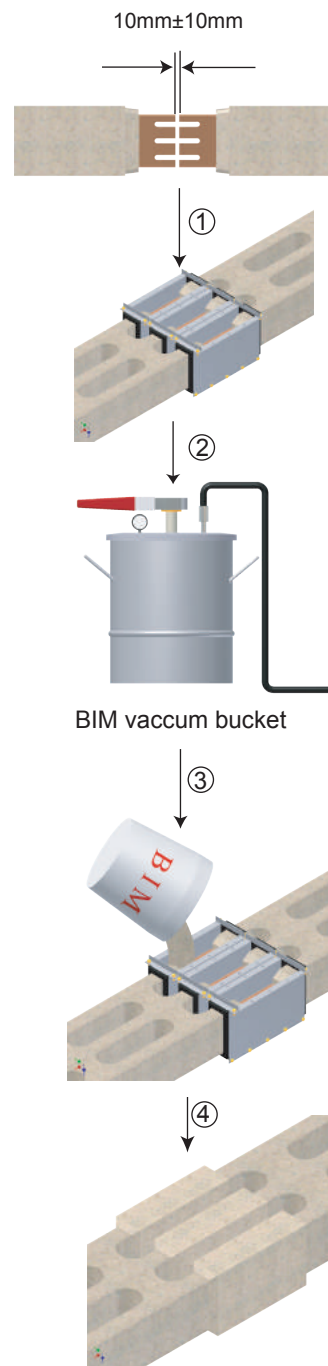


- ▶ The assembly bolt of Junction must be secured by torque wrench.

Illustration of cast-resin after completion.



Method of cast-resin work on-site.
Refer to installation guide for casting method on site

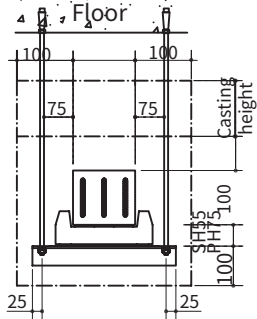


Torque of bolt during work:

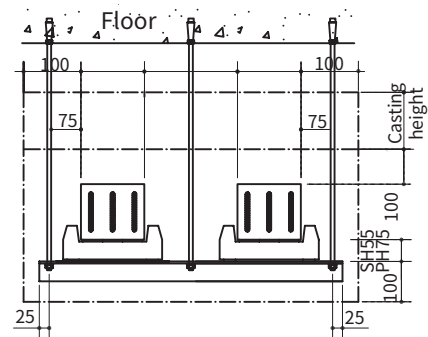
Specs	M12
Torque value (N-m) for Cu	74
Torque value (N-m) for Al	60

Medium Voltage Busway Horizontal Hanger Standard

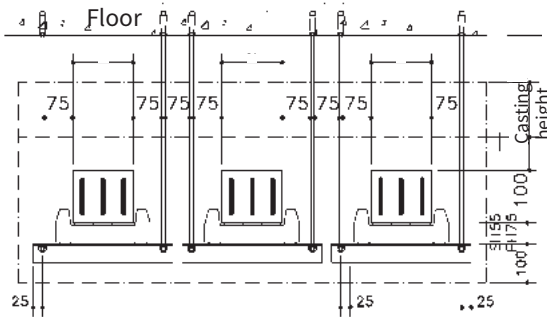
Unit:mm



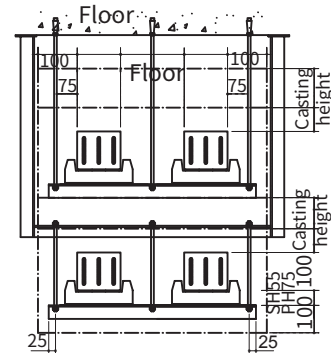
Cross-sectional Diagram of Single-Busway



Cross-sectional Diagram of Dual-Busway

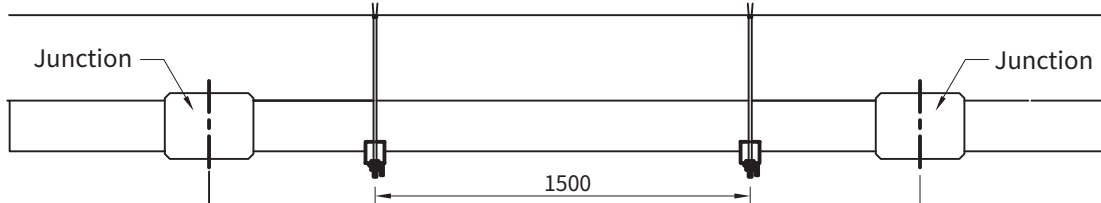


Cross-sectional Diagram of Triple-Busway

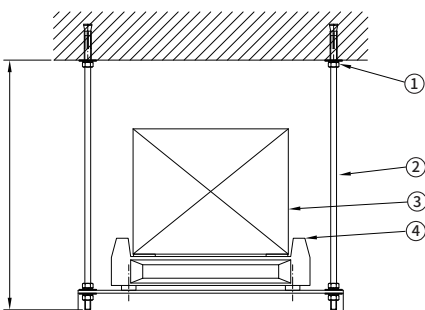


Cross-sectional Diagram of Quadruple-Busway

Side view



- 1.The installation pitch between each hanger has to comply with the standard as above. If the work condition can not meet the standard, it may be adjusted according to the condition on site. However, it must meet the requirement described in page 18 of the installation guide: minimum pitch requirement of the busway.
- 2.The space required for installing busway is shown in the diagram. The safety space above the busway should have 100mm + casting height of 270mm = 370 mm for clearance standard of installation space. In addition, the height of the floor should be within 5m above the ground to allow expansion of bolts, full-thread bolts, and channel, etc. to install at the bottom of the floor.
- 3.One set of L-shape stopping plate part.



No.	Name of Part	Specs	Remark
1	Inner thread inflated screws	1/2"*2"	Zinc-plated item.
2	Full thread bolts	1/2"	Zinc-plated item.
3	Busway		TECOBAR
4	Insulation support	BIM (Refer to Product Specifications)	TECOBAR

Dimensions of Standard Terminal Elements for Medium Voltage Busway

AG Type Terminal Elements

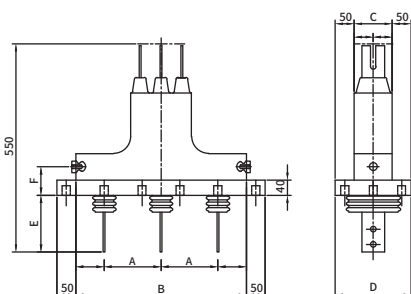


Figure 1

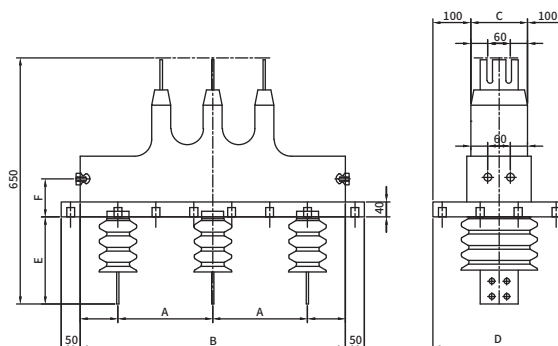


Figure 2

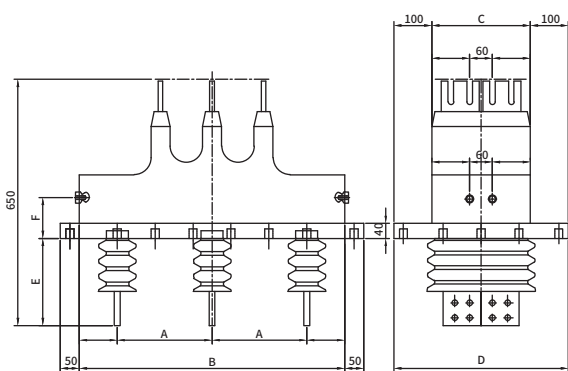


Figure 3

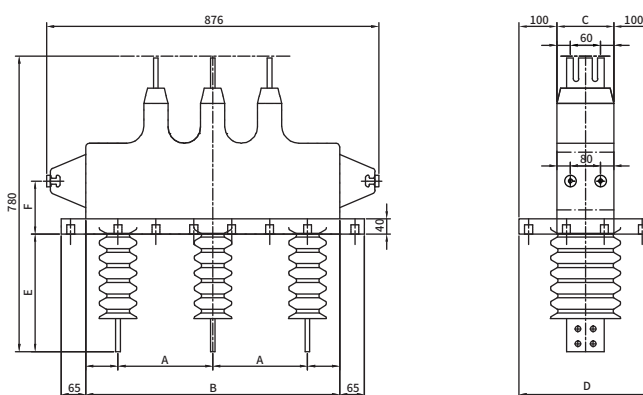


Figure 4

Unit : mm

Figure No.	Type	3Φ3w					
		A	B	C	D	E	F
Figure 1	SH1	150	450	100	200	150	75
Figure 2	PH10	250	700	150	350	230	90
	PH16	250	700	210	410	230	100
Figure 3	PH20	250	700	260	460	230	100
Figure 4	PE10	250	700	150	350	315	100
	PE16	250	700	210	410	315	100

Note 1 : The design is in accordance with IEC-815 standard, pollution class is classified as class II .

Note 2 : The design needs to be revised if require pollution class is greater than II .

Dimensions of Standard Terminal Elements for Medium Voltage Busway

AO Type Terminal Elements

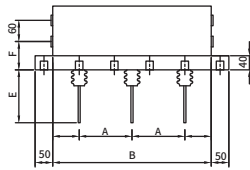


Figure 1

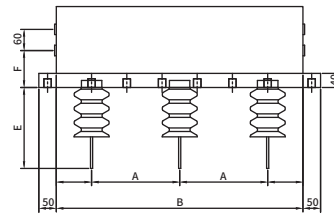
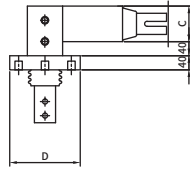


Figure 2

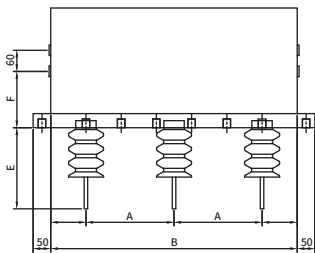
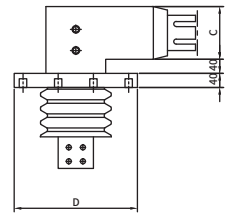


Figure 3

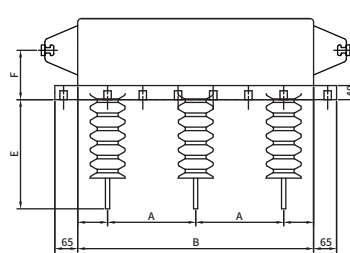
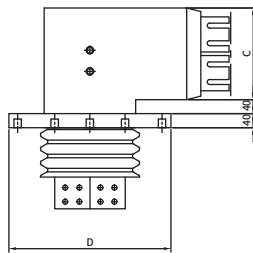
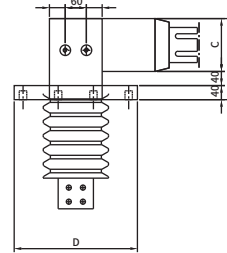


Figure 4



Unit : mm

Figure No.	Type	3Φ3w					
		A	B	C	D	E	F
Figure 1	SH1	150	450	100	200	150	80
Figure 2	PH10	250	700	150	350	230	105
	PH16	250	700	210	410	230	105
Figure 3	PH20	250	700	260	460	230	160
Figure 4	PE10	250	700	150	350	315	90
	PE16	250	700	210	410	315	90

Note 1 : The design is in accordance with IEC-815 standard, pollution class is classified as class II .

Note 2 : The design needs to be revised if require pollution class is greater than II .

**Dimensions of Standard Terminal Elements
Copper Plate for Medium Voltage Busway**

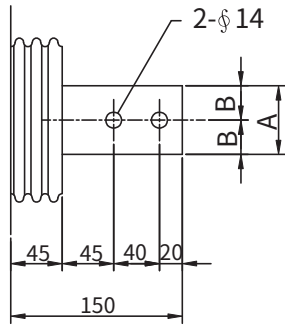


Figure 1

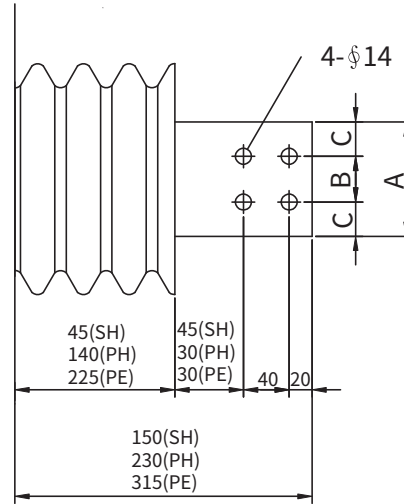


Figure 2

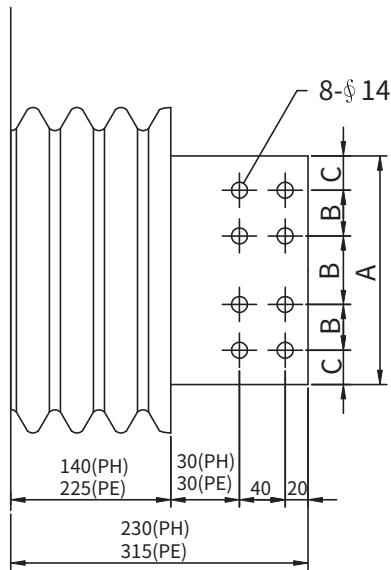


Figure 3

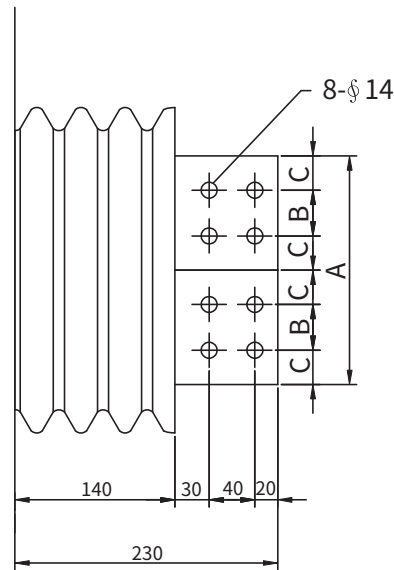
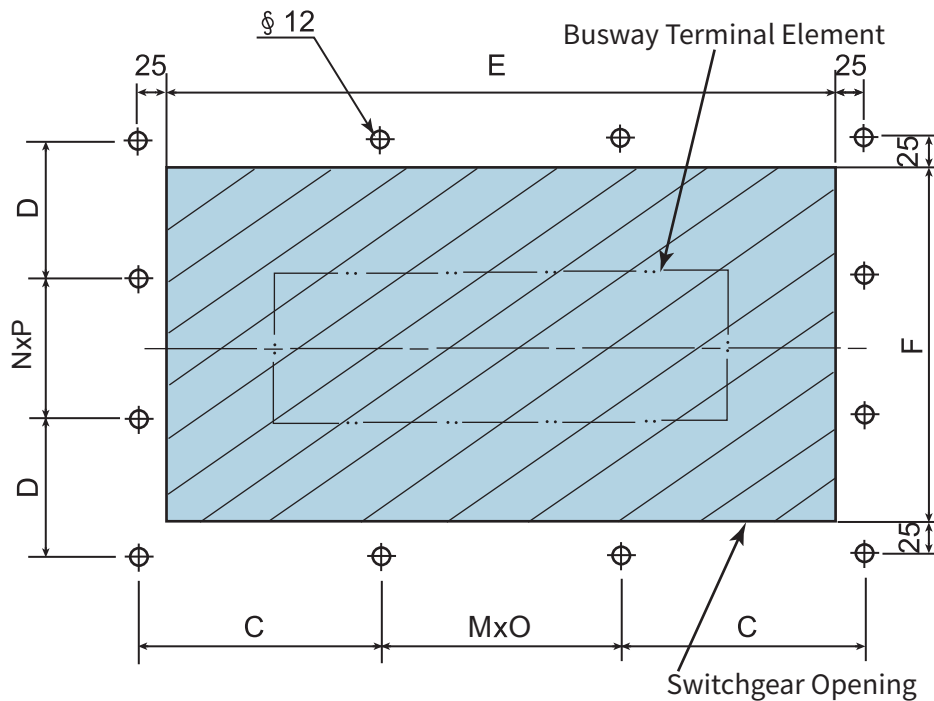


Figure 4

Figure No.	Type	Type of Terminal Elements	Dimensions (unit : mm)		
			A	B	C
Figure 1	SH1	AG/AO	60	30	-
Figure 2	PH10 PE10	AG/AO	100	40	30
Figure 3	PH16 PE16	AG/AO	160	40	20
Figure 4	PH20	AG/AO	200	40	30

Opening Requirement of Standard Terminal Elements and Switchgear for Medium Voltage Busway



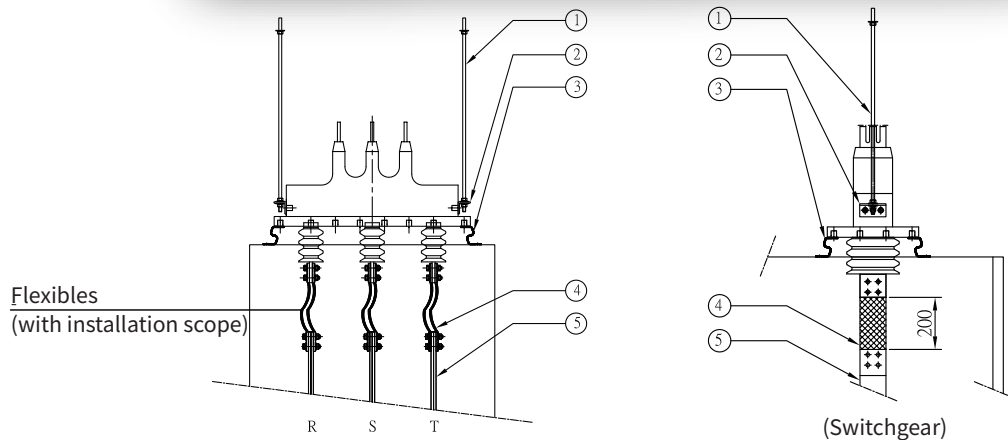
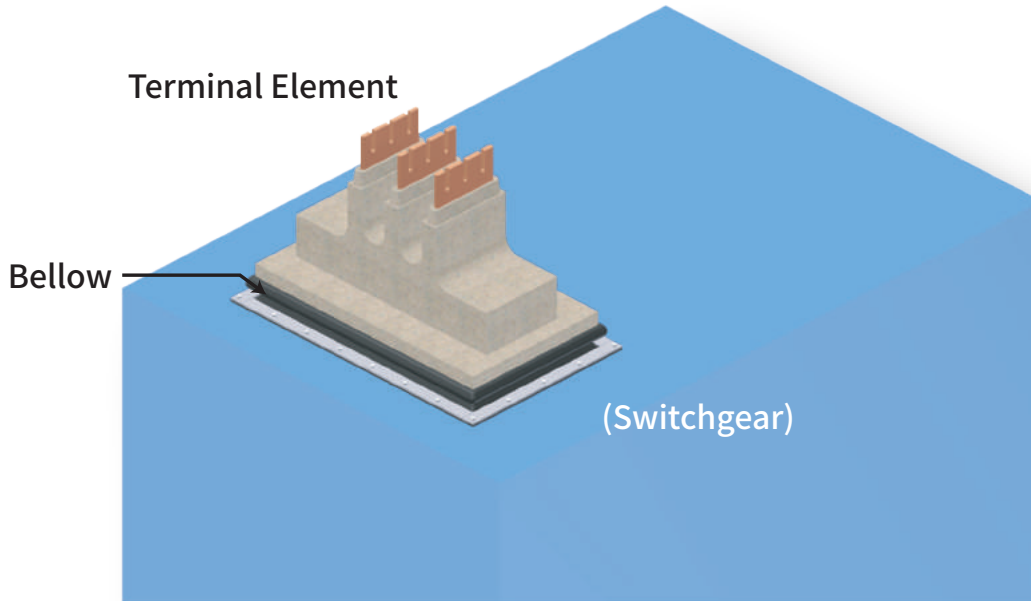
Busway Terminal Elements Opening Dimensions

Unit: mm

Type	AG Type Terminal Elements								AO Type Terminal Elements								Remark
	P	C	D	E	F	M	N	O	C	D	E	F	M	N	P	O	
SH1	-	100	75	450	100	3	-	100	100	75	450	100	3	-	-	100	with flange
	-	-	-	510	160	-	-	100	-	-	510	160	-	-	-	100	without flange
	-	125	130	560	210	5	-	120	70	130	560	210	5	-	-	120	with bellow
PH10/PE10	-	125	100	700	150	5	1	100	125	100	700	150	5	1	100	100	with flange
	130	130	75	810	360	5	2	120	130	75	810	360	5	-	130	120	with bellow
PH16/PE16	-	125	130	700	210	5	1	100	125	130	700	210	5	1	100	100	with flange
	130	130	105	810	420	5	2	120	130	105	810	420	5	2	130	120	with bellow
PH20	-	125	105	700	260	5	2	100	125	105	700	260	5	2	100	100	with flange
	130	130	130	810	470	5	2	120	130	130	810	470	5	2	130	120	with bellow

Note : M·N=No. of Intervals among drillings.

Medium Voltage Busway Terminal Element and Switchgear Standard Guideline



No.	Name	Specs	Remark
1	Full threaded screw	1/2"	Zinc-plated product (Included in installation work)
2	Angle Steel	6t×50×50mm	Zinc-plated product (Included in installation work)
3	Terminal element seal	t=5mm	M10 screws (Outdoor type)
4	Flexibles	The 200mm reserved space between terminal element and switchgear are connected by flexibles.	Materials of this portion and connection work does not belong to the busway contractor.
5	Connection copper plate of switchgear	Depends on Switchgear design.	The drillings on copper plate are designed, processed and connected by switchger cortractor.

Note: This diagram is the standard connection interface.
Actual location of connection is determined case by case.

Product Design Theory

1. Temperature correction coefficient for rated current

Maximum ambient temperature °C	20	25	30	35	40	45	50	55	60
Daily average ambient temperature °C	15	20	25	30	35	40	45	50	55
Correction coefficient	1.18	1.14	1.09	1.05	1.00	0.94	0.88	0.82	0.75

2. Voltage drop calculation

$$\Delta U = \sqrt{3} \times I_s \times L \times (R \cos \theta + X \sin \theta) \times 10^{-6}$$

ΔU =Voltage drop (Volts)

I_s =Load current (Amps)

L =Line length (m)

R =Resistance ($\mu \Omega/m$)

X =Reactance ($\mu \Omega/m$)

$\cos \theta$ =Power factor

$\sin \theta = \sqrt{1 - \cos^2 \theta}$

Product Model Identification

PH 10 E C 3 - 1000

PH	Product series code	SH: 7.2kV PH: 17.5kV PE: 24kV
10	Copper bar width	10 w=100mm , 16 w=160mm , 20 w=200mm
E	Single/Double conductor of each phase	E Single line D Double line
C	Conductor material	C Copper conductor A Aluminium conductor
3	No. of conductors	
1000	Cross sectional area of conductor	1000mm ²

Medium Voltage Busway Routine Test Items

A. Medium voltage busway dielectric tests: Insulation resistance test and power frequency voltage withstand test

	Electrical tests	Power frequency voltage withstand	Insulation resistance test
	Standards	IEC 60060	IEC 60270
Type	Ur	Ud at 60 Hz	q at 1.1 Ur
	kV	kV /1min	pC
SH series	7.2	20	≤ 20
PH series	17.5	38	≤ 20
PE series	24	50	≤ 20

Ur : Rated voltage Ud : Power frequency voltage
q : Volume of partial discharge (pico-Coulomb)

B. Appearance inspection

The appearance of each element must be inspected. Result to be mentioned in final inspection report.

C. Dimension inspection

All dimensions are to be compared with customer's order sheet. Result to be mentioned in final inspection report.

D. Outgoing test report

Medium voltage parts shall be tested prior to shipment and attached with outgoing test report.

Projects Reference List

Energy & Infrastructure



- ABB PNG LNG (SINGAPORE)
- BYELORUSSIAN STEEL WORKS SUBSTATION (BELARUS)
- CHANG HU HYDRO POWER PLANT (CHINA)
- EGAT MAE MOH POWER PLANT (THAILAND)
- GUANGDONG SHAOGUAN #1 #2 V
- GUANGDONG TAISHAN NUCLEAR POWER PLANT PHASE I LOT11K 12KV (CHINA)
- GUANGDONG TAISHAN NUCLEAR POWER (UNIT #1EXPANSION) (CHINA)
- GUANGDONG YANGJIANG NUCLEAR POWER PLANT #5&6 (CHINA)
- GUANGDONG YANGJIANG NUCLEAR POWER PLANT (CHINA)
- GUANGDONG YANGJIANG NUCLEAR POWER PLANT (UNIT #3&4 LOT73C BUSDUCT) (CHINA)
- GUANGDONG YANGJIANG NUCLEAR POWER PLANT 220KV AUXILIARY TRANSFORMER 6.6KV (CHINA)
- GUANGXI FANGCHENGGANG NUCLEAR POWER PLANT (220KV TRANSFORMER - 10KV BUSDUCT) (CHINA)
- GUANGXI FANGCHENGGANG NUCLEAR POWER PLANT (UNIT #1&2 LOT73C BUSDUCT) (CHINA)
- GUANGZHOU ZDLX POWER CO.,LTD (CHP 2×300MW PROJECT) (CHINA)
- HSIN YUAN POWER PLANT (TAIWAN)
- HUBEI XINGFA CHEMICALS GROUP CO.,LTD (ENERGY MANAGEMENT PLATFORM) (CHINA)
- KIMANIS 300MW CCPP PROJECT (MALAYSIA)
- LINKOU POWER STATION (TAIWAN)
- LURGI AL-YER HYDROGEN PLANT (SAUDI ARABIA)
- MALAYSIA FAST TRACK3A (MALAYSIA)
- MALAYSIA FAST TRACK4A (MALAYSIA)
- MARAFIQ (SAUDI ARABIA)
- MEGA MV (THAILAND)
- MINGTAN POWER STATION (TAIWAN)
- PT PLN MPP NIAS (INDONESIA)
- QINGYUAN PUMPED STORAGE POWER STATION (CHINA)
- SEM-CALACA (PHILIPPINES)



- SHANGHAI JINQIAO EXPORT PROCESSING ZONE (CHINA)
- SUZHOU POWER PLANT (CHINA)
- TAISHAN NUCLEAR POWER PLANT PHASE I LOT11K 12KV CAST-RESIN BUSDUCT (AUXILIARY POWER TRANSFORMER SECTION) (CHINA)
- TAIZHOU POWER PLANT (CHINA)
- TAIZHOU POWER PLANT/QUANTITY ADDITION (CHINA)
- TALIN POWER STATION (TAIWAN)
- TATAN POWER STATION (TAIWAN)
- THAI BINH 2 THERMAL POWER PLANT (VIETNAM)
- TUNG HSIAO POWER STATION (TAIWAN)
- XIANJU HYDRO POWER #1 #2 (CHINA)
- YINGXIUWAN GENERAL HYDRO POWER PLANT (CHINA)
- ZHENENG WENZHOU COAL-FIRED POWER PLANT #03A (CHINA)
- ZHENENG WENZHOU COAL-FIRED POWER PLANT #03B 6KV PROJECT (CHINA)
- ZHENENG WENZHOU COAL-FIRED POWER PLANT #4 6KV FEEDER NEW BUILT (CHINA)
- ZHENENG WENZHOU COAL-FIRED POWER PLANT (CHINA)
- ZHENENG WENZHOU COAL-FIRED POWER PLANT (PHASE II) (CHINA)
- ZHENENG WENZHOU COAL-FIRED POWER PLANT UNIT #5 (CHINA)



Iron & Steel

- FORMOSA HA TINH STEEL CORPORATION (COKING PLANT - 2) (VIETNAM)
- FORMOSA HA TINH STEEL CORPORATION (COKING PLANT) (VIETNAM)
- FORMOSA HA TINH STEEL CORPORATION (WATER TREATMENT PLANT - 3) (CHINA)

Pharmaceutical

- NOVARTIS (SINGAPORE)

Projects Reference List

Chemical Plant

- AEROSIL (THAILAND)
- AMMONIA AND UREA PLANT IN MARY (TURKMENISTAN)
- ASAHI CHEMICAL (THAILAND)
- BINTULU PROJECT (MALAYSIA)
- KRABI (THAILAND)
- SIBIRSKY CHEMICAL (RUSSIA)
- PT. ASAHIMAS CHEMICAL (INDONESIA)

Petrochemical

- FU SHUN 6.3KV (CHINA)
- FU SHUN ETHYLENE (CHINA)
- HANWHA TOTAL ADL (SOUTH KOREA)
- NINGBO-CHEMICAL PLANT (CHINA)
- SAMSUNG TOTAL DAESAN (SOUTH KOREA)
- SHANGHAI ORIENTAL PETROCHEMICAL CORPL (CHINA)
- SHANGHAI XIAO HUA ADDITIONAL FEEDER (CHINA)
- SHANGHAI-YADONG PETROCHEMICAL PLANT (CHINA)
- SHENHUA NINGXIA COAL LIQUEFACTION PLANT (CHINA)
- SK ENERGY (SOUTH KOREA)

Oil & Gas

- S-Oil RUC (SOUTH KOREA)
- SK ENERGY (SOUTH KOREA)
- SHAANXI YANCHANG PETROLEUM (CHINA)

Pulp & Paper

- TJIWI KIMIA SURABAYA PAPER MILL (INDONESIA)
- MONDI RICHARDS BAY 3RD STEAM TURBINE (SOUTH AFRICA)
- TJIWI KIMIA TK4 PROJECT (INDONESIA)
- CHENG LOONG CORP. VIETNAM CLVP PAPER MILL (VIETNAM)

Textile

- FEPV CHEMICAL FIBER POWER DISTRIBUTION STATION (VIETNAM)
- LEALEA ENTERPRISE CHUNGHWA PLANT (TAIWAN)

Factory

- MONSANTO (THAILAND)
- FORMOSA CHEMICALS & FIBER CORPORATION - NINGBO (CHINA)
- SAMSUNG ASSEMBLY FACTORY (CHINA)
- SSANGYONG E&C (SOUTH KOREA)

E-house

- TAN BURRUP (AUSTRALIA)



Projects Reference List



Data Center Hi-Tech Industry



Petrochemical



Airport



Industry



High Rise Building



Oil & Gas



Power Plant



CAST-RESIN INSULATED BUSWAY SYSTEMS



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