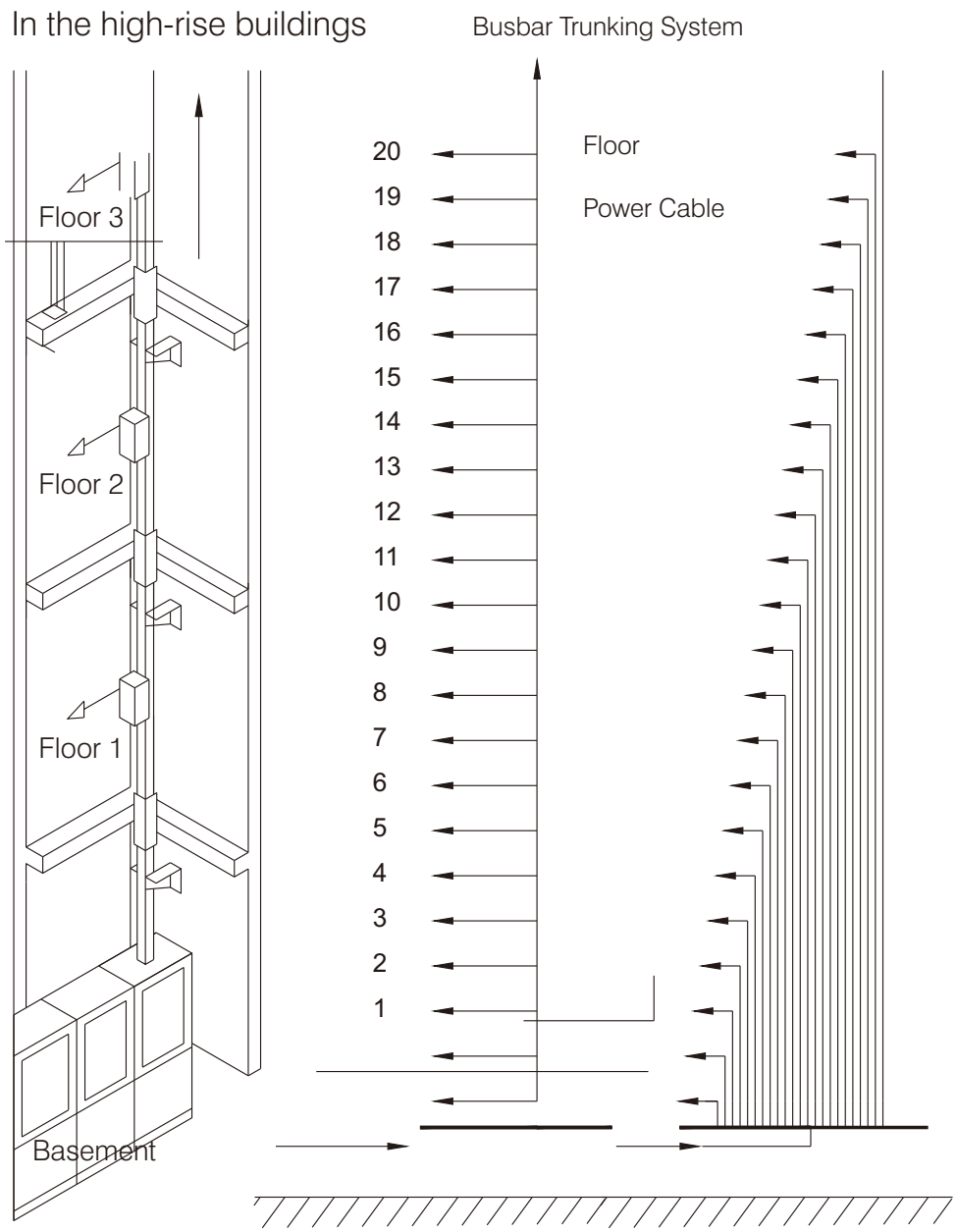
Busbar Trunking System (Busway)

1. General

1.1 Application

Applicable in three-phase three-wire, three-phase four-wire and three-phase five-wire power supply and distribution system of rated current up to 5000A, voltage up to 660V, 50/60Hz. It is widely applied in industrial workshop with huge span steel structure, high-rise buildings, substation, power station, and airport for power transmission and distribution.

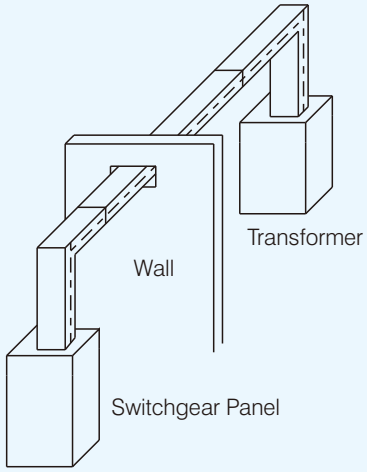
1.2 Standard: IEC 60439-2:2000



2. Main Application

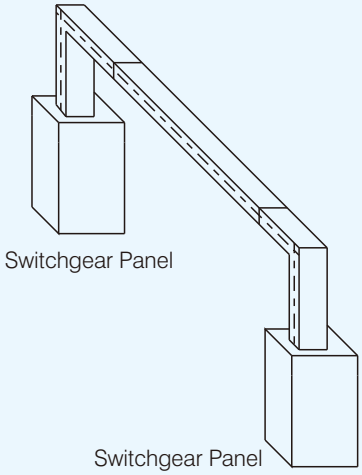
Feeder busway for incoming

Transmit power from transformer to the incoming terminal of the switchgear panel.



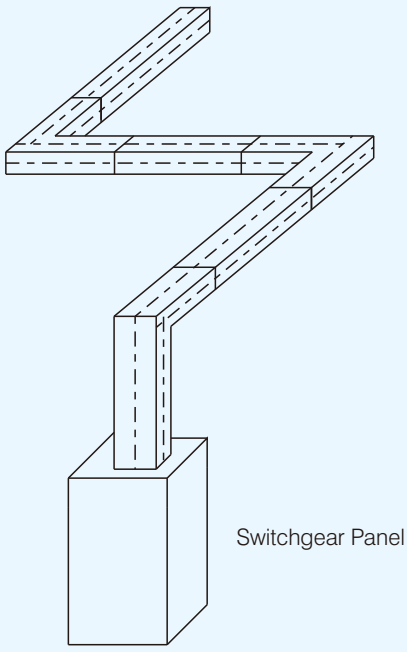
Feeder busway for coupling

Transmit power from switchgear to busbar coupler panel.



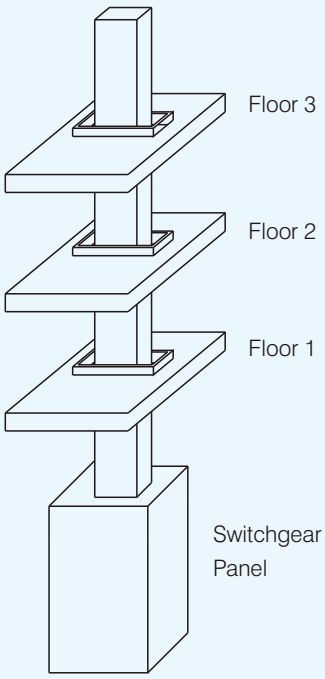
Horizontal installation and plug-in type busway

Transmit power for switchgear panel to different loads in buildings.



Vertical installation and plug-in type busway

mainly used in high-rise buildings, and transmit power to different floors through plug-in boxes.



3. Type Designation

N C□ 1-□-□ (□)

- (□) Function code (sheet 2)
- -□ Rated short-time withstand current (sheet 1)
- -□ Rated current (sheet 1)
- 1- Design code: 1. Common type 2. Fire-resistant type 3. High protective type
- C M dense insulated busway
- C K air insulated busway
- N Company code

Sheet 1

Rated current (A)	Rated short-time withstand current (1s,kA)	Rated withstand current (peak, kA)
200, 315, 400, 500, 630	20	40
630, 800, 1000, 1250	31.5	66
1600, 2000, 2500, 3150	50	105
3150, 4000, 5000	80	176

Sheet 2

No.	Item	No.	Item
A	Linear type busbar trunking unit (straight sector)	LC	L shaped vertical joint
B	Incoming feeder section	LS	L shaped horizontal joint
C	Incoming feeder box	TS	T shaped horizontal joint
CK	Plug-in box	ZC	Z shaped vertical joint
TH	Spring bracket	ZS	Z shaped horizontal joint
TB	Corbel	TC	T shaped vertical joint
DG	Suspender	DJ	Suspender

4. Structure Feature

4.1 Structure

4.1.1 Busbar ABC

4.1.1.1 T2 copper complying with IEC standard adopted. Copper covering aluminum conductor customized, which is made of L1 pure industrial aluminum with a good performance equal to pure copper.

4.1.1.2 The joint part surface of busbar is plated with silver, and the surplus surface is processed by advanced CPWP copper lightening technology, which is of great anti-oxidation and anti-corruption capability.

4.1.1.3 The insulation of the busbar is epoxy insulation coating processed. The puncture voltage of the coating can reach to 22Kv/mm 1min, and the aging resistance imitated duration test is 50 years. The product has features of reliability, fire-resistant, withstand to high temperature and wet,anti-dust and so on, etc.

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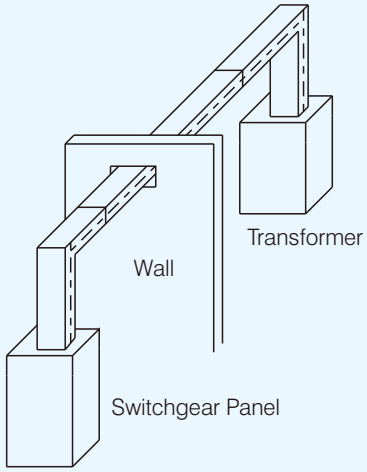

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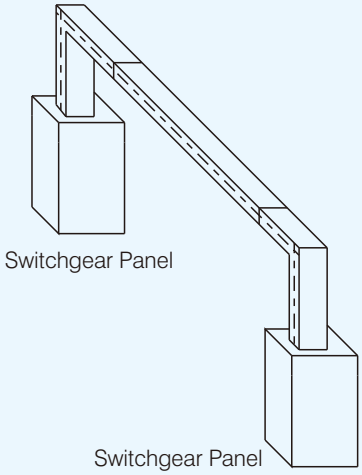

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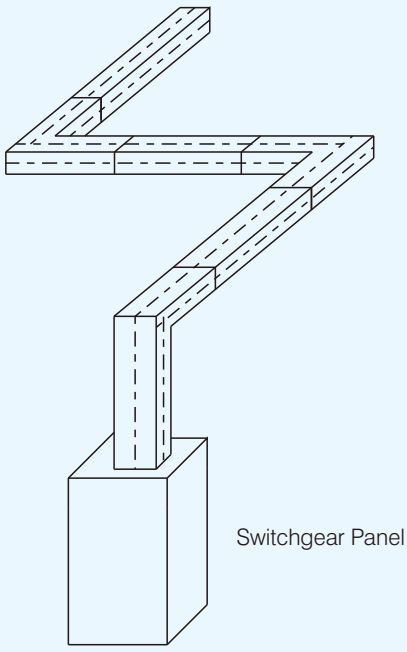

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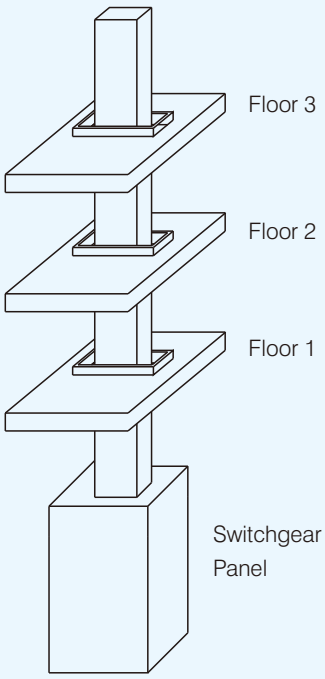

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5. Technical Parameter

5.1 Rated operating voltage: ~380V, ~660V, DC800V.

5.2 Rated tapping operating voltage: ~380V, ~660V.

5.3 Rated insulation voltage: AC690V, DC800V.

5.4 Rated current (A): 200, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000.

5.5 Rated current of incoming feeder box: 250~5000A.

5.6 Rated current of plug switch box: 63~800A.

5.7 Frequency: 50/60Hz.

5.8 Protection level: IP40, IP54.

5.9 Wiring: three-phase three-wire, three-phase four-wire and three-phase five-wire.

5.10 Temperature rise: (sheet 3)

Sheet 3

Postion	Temperature rise (k)	Postion	Temperature rise (k)
Terminals to connect outside insulation wire	70	Silver coated copper Silver coated copper	80
Contact position of plug connector on the channel and fixed joint position between busbars		Touchable enclosure and cover board	
Copper copper	50	Metal surface	30[1)]
Stannum coated copper Tin coated copper	70	The surface of insulation material	40[1)]
Stannum coated aluminum Stannum coated aluminum	55		

※ Note: [1)] Except that other regulations exist, the temperature rise of the enclosure of the busway, which people can get close to them, but have no necessary to touch can be raised, metal surface up to 25K, and insulation surface can up to 15K.

5.11 Short-time withstand current and peak withstand current (sheet 4)

Sheet 4

Rated current Ie (A)	Short time withstand current Icw (1sec, kA)	Rated peak withstand current (kA)
200~630	20	40
630~1250	31.5	66
1600~3150	50	105
3150~5000	80	176

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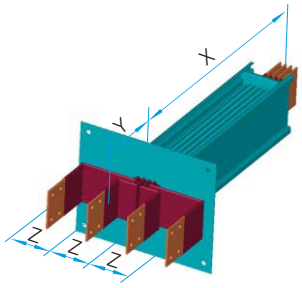
6. Function Unit

Every busbar system are constituted with many independent functional units. The following are the specifications of various kinds of functional units, type choosing and the means to order non-standard products of N series of bus way. (Normal specifications are with *)

6.1 Start terminal (or Incoming feeder section)

The start terminal and origin box comprise the power incoming unit of the bus way, which can also be applied to the connection between the transformer and the switchgear panel.

Sheet 5

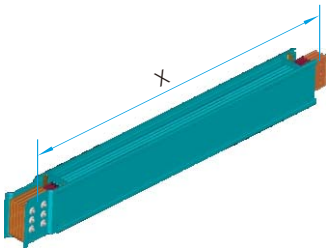
X	Y	Z	Functional code	Diagram
500	250	100	(B-1) *	
500	250	150	(B-2)	
500	250	200	(B-3)	
Non-standard size	Non-standard size	Non-standard size	(B-X+Y+Z)	

6.2 Straight sector

The straight sector is defined as feed type and plug-in type. The feed type has no jack, used as power transmission. The plug-in type has jacks on both sides of the straight sector, and can distribute the power through installing the plug-in box.

The gap between the plugs should be larger than 600mm, less than 6m.

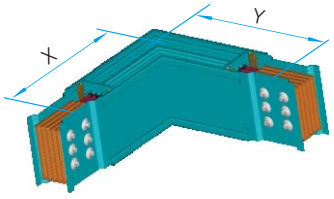
Sheet 6

X	Quantity of jacks (n)	Function code	Diagram
1000	4	(A-1)	
2000	8	(A-2)	
3000	12	(A-3) *	
Non-standard size	Non-standard No.	(A-X+n)	

6.3 L shaped horizontal elbow

L shaped horizontal elbow works as the connection unit when bus way bends in horizontal direction.

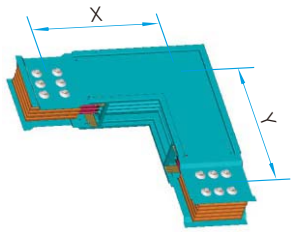
Sheet 7

X	Y	Function code	Diagram
400	400	(LS-1)	
500	500	(LS-2) *	
600	600	(LS-3)	
Non-standard size	Non-standard size	(LS-X+Y)	

6.4 L shaped vertical elbow

L shaped vertical elbow works as the connection unit when bus way bends in vertical direction. And the bending angle is 90° .

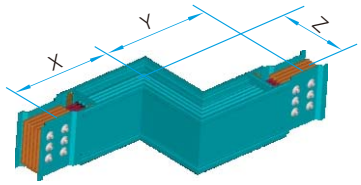
Sheet 8

Rated current (A)	X	Y	Function code	Diagram
250～2000	500	500	(LC-1) *	
2500～3150	600	600	(LC-2) *	
4000～5000	700	700	(LC-3) *	
	Non-standard size	Non-standard size	(LC-X+Y)	

6.5 Z shaped vertical elbow

Z shaped vertical elbow works as the connection unit when bus way bends in horizontal direction. Z is the departure dimension.

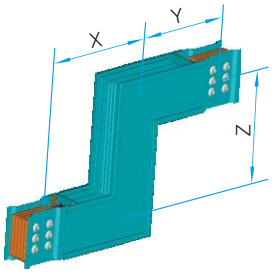
Sheet 9

X	Y	Z	Function code	Diagram
500	500	200	(ZS-1)	
500	500	300	(ZS-2) *	
500	500	500	(ZS-3)	
Non-standard size	Non-standard size	Non-standard size	(ZS-X+Y+Z)	

6.6 Z shaped vertical elbow

Z shaped vertical elbow works as the connection unit when bus way bends in vertical direction, Z is the departure dimension.

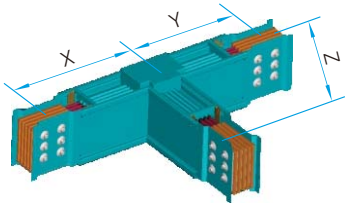
Sheet 10

Rated current (A)	X	Y	Z	Function code	Diagram
250～2000	500	500	200	(ZS-1)	
2500～3150	500	500	300	(ZS-2) *	
4000～5000	500	500	500	(ZS-3)	
	Non-standard size	Non-standard size	Non-standard size	(ZS-X+Y+Z)	

6.7 T shaped horizon elbow

T shaped horizontal elbow works as the connection unit when bus way bends in horizontal direction.

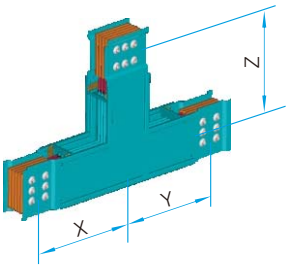
Sheet 11

X	Y	Z	Function code	Diagram
400	400	400	(TS-1)	
500	500	500	(TS-2) *	
600	600	600	(TS-3)	
Non-standard size	Non-standard size	Non-standard size	(TS-X+Y+Z)	

6.8 T shaped vertical elbow

T shaped vertical elbow works as the connection unit when bus way bends in vertical direction.

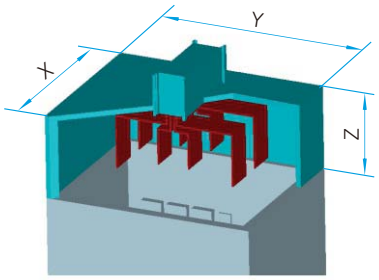
Sheet 12

Rated current (A)	X	Y	Z	Function code	Diagram
250～2000	500	500	500	(TC-1) *	
2500～3150	600	600	600	(TC-2) *	
4000～5000	700	700	700	(TC-3) *	
	Non-standard size	Non-standard size	Non-standard size	(TC-X+Y+Z)	

6.9 Origin box

Origin box is providing the connecting space and sealed protection for letting the electrical cable go through the bus way or inlet on the top of transformers and switchgear panel.

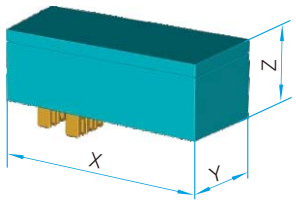
Sheet 13

X	Y	Z	Function code	Diagram
300	400	300	(C-1)	
400	400	300	(C-2)	
500	400	300	(C-3)	
600	600	400	(C-4)	
600	800	400	(C-5)	
600	1000	400	(C-6)	
800	800	400	(C-7)	
800	1000	400	(C-8)	
1000	1000	400	(C-9)	
Non-standard size	Non-standard size	Non-standard size	(C-X+Y+Z)	

6.10 Jack box

Jack box is a output and distribute electric unit, it can also be used as low current inlet box. It should be used along with plug line portion. When ordering, the switch type should be marked following jack box type.

Sheet 14

Current (A)	Quantity of poles	X	Y	Z	Function code	Diagram
10～225	3P	500	220	140	(CK-1—type)	
250～400	3P	650	260	170	(CK-2—type)	
630～800	3P	800	300	170	(CK-3—type)	
10～225	4P	500	220	140	(CK-4—type)	
250～400	4P	650	260	170	(CK-5—type)	
630～800	4P	800	340	170	(CK-6—type)	