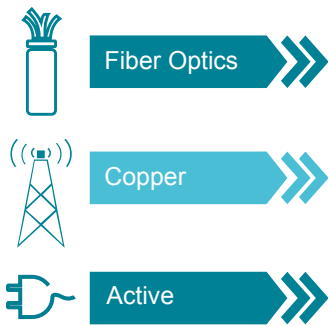






## Products & Services



- ◆ Customised FTTx Solutions
- ◆ Optical Fiber Distribution Frames
- ◆ Patch Panels
- ◆ Distribution Boxes (Optical & Copper)
- ◆ Cross-Connect Cabinets (Optical & Copper)
- ◆ Outdoor Cabinets
- ◆ Network Rack Cabinets
- ◆ Optical Cable Splice Closures
- ◆ Optical Cable Tray / Raceway Systems
- ◆ Power Solutions (PDU & Heat Exchangers & Rectifier Modules & Switching Power Supply)
- ◆ Optical Splitters
- ◆ Optical Distribution Modules / Splice Tray
- ◆ Fiber Optic Adapters / Patch Cords / Pigtails
- ◆ Optical Tools / Accessories
- ◆ Digital Distribution Frames
- ◆ Busbar Trunking System

## Qualification



ISO 14001



ISO 9001

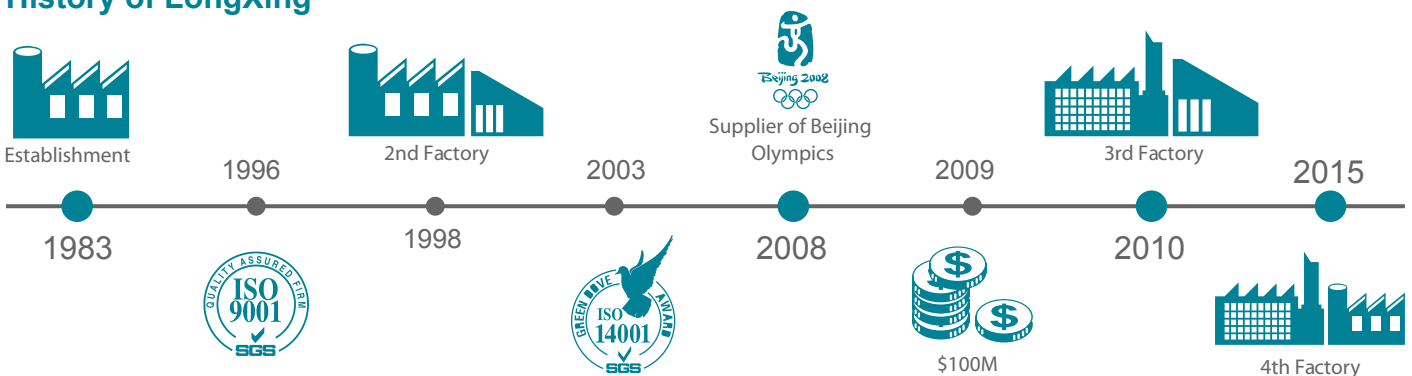


Quality Guarantee



Alibaba Assessment

## History of LongXing

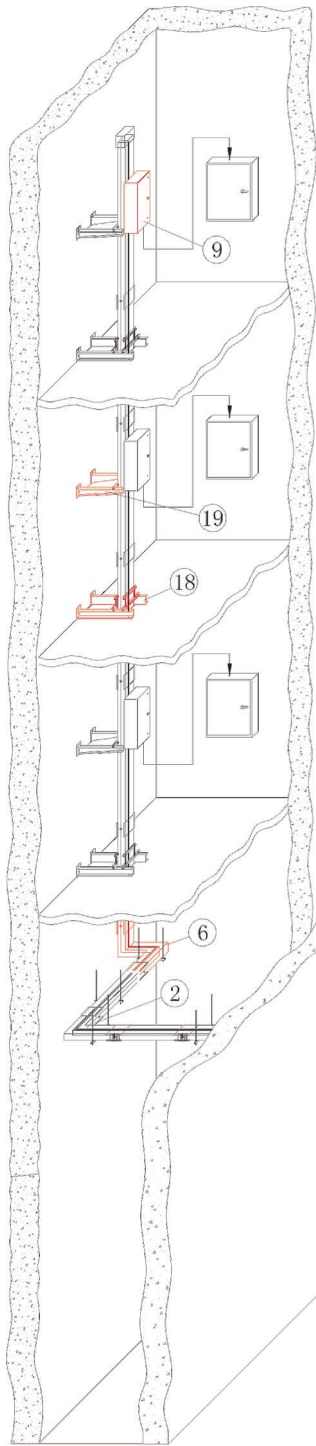


# Catalogue

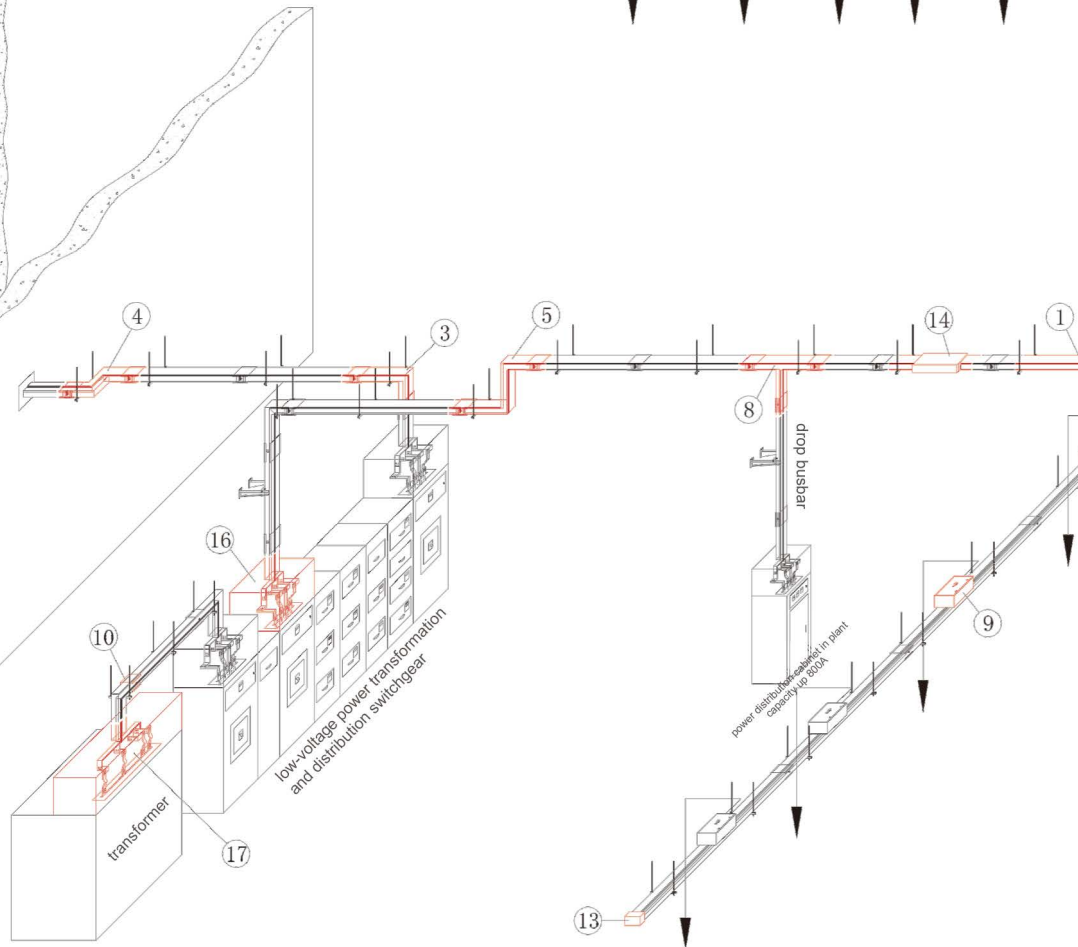
一. Compact Busbar Trunking System .....	02
System Components .....	06
Product Features .....	07
Product Equipment .....	10
Technical Specifications .....	11
System Configurations .....	13
Fittings .....	15
Catalog Number .....	28
Installation .....	30
Notes .....	32
二. Air Type Busbar Trunking System .....	33
System Description .....	33
Main Technical Specifications .....	34
Product Structure .....	36
Installation and Inspection .....	40
Notes .....	42
Installation Diagram .....	43

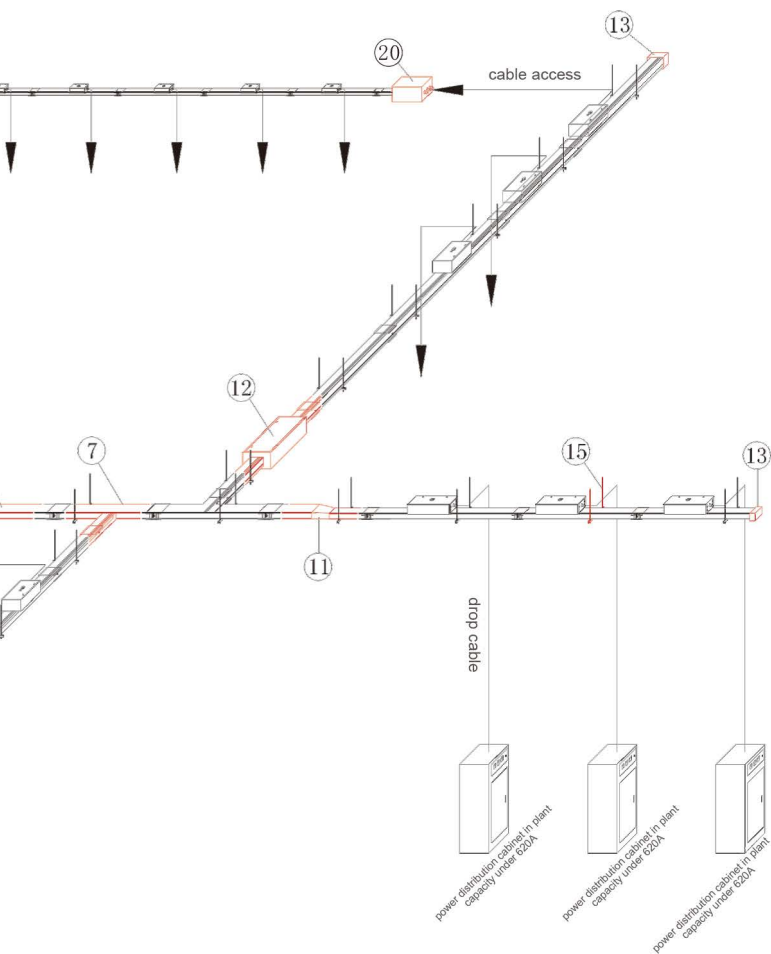


# The Compact FCM-II Busbar Trunking System



1. Straight section
2. Flatwise elbow
3. Edgewise elbow
4. Z flatwise elbow
5. Z edgewise elbow
6. Combination elbow
7. T flatwise elbow
8. T edgewise elbow
9. Jack box
10. Joint pack
11. Reduction
12. Reduction with protection
13. End cover
14. Expansion joint,
15. Horizontal hanger
16. Entry box +entry flange + connection copper bar
17. Entry box +entry flange + flexible connection
18. Spring bracket
19. Mid-fixed bracket
20. Cable entry box





FCM-II compact type busbar system fully comes from the technology form UK Gardermoen Electric, and it's also combined with the electrical environment, enjoys elaborate R&D, safe and reliable performance, and also attractive appearance. The product conforms to GB7251 and IEC60439 standard, with the rated voltage 1000V, rated current ranges from 400A to 6300A, 16A to 1250A plug-in current, and the max protection IP66, it can be applicable to 3P3W, 3P4W and 3P5W system etc. FCM-II enjoys the best overall performance in low voltage busbar field, and gets a wide use in large commercial plaza, high-rise buildings, intelligent building, gymnasium, industrial factories, hospitals and other important occasions.

## System Overview

Creating a design concept for a power supply system, not only involves observing applicable standards and regulations, but also examining and clarifying economic and technical requirements. Electrical equipment selection should be based on whether the entire system can achieve the best configuration, but not limited to the integral features of equipments. For example, in choosing of connection between cabinets and transformers for the distribution, it should take into account the connections between devices as a whole rather than individual choice.

Components should not only be appropriate for rated operation, but should also be suitably applied to withstand faults situations. A power distribution concept should also take the following points into consideration.

- Building type purpose and form (for example, high-rise buildings, flat buildings and number of floors).
- Load centers and possible supply paths and location for transformers and main distribution boards
- Regulations and guidelines of building authorities
- Power supply company guidelines.

There will always be more than one possible solution which will have to be assessed in terms of its technical and economic advantages and disadvantages. In making this assessment, the following requirements are high priorities.

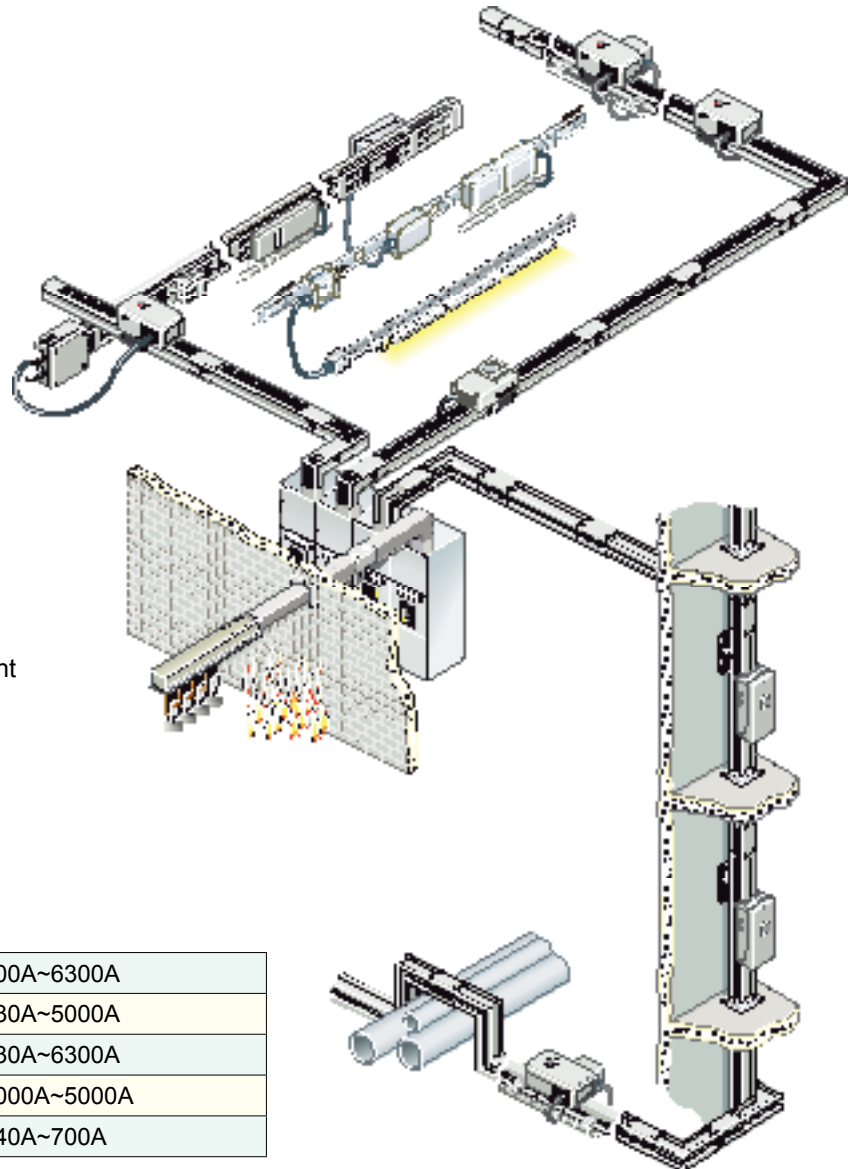
- Simple and transparent design
- Long service life
- High availability
- Low fire load
- Flexible adaptation to building modifications.

These requirements are generally easy to meet with appropriate busbar trunking systems. For this reason, engineers increasingly favor busbar trunking systems over cable installations for power transmission and distribution applications. LongXing offers busbar trunking systems for rated current from 140A to 6300A to meet the needs of different projects.

# LongXing LV Busbar Trunking System

As the power distribution equipment between transformer and switchgear, switchgear and loading equipments, busbar trunking system is widely applied. This system is more safer, longer life-span, reliable and convenient to operate over cable installation. LongXingTelecom mainly offers the busbar trunking systems as the following types:

FCM-II System	Rated current 400A~6300A
LDA-F System	Rated current 630A~5000A
LR System	Rated current 630A~6300A
LD System	Rated current 1000A~5000A
BD1 System	Rated current 140A~700A



Products of LongXing cover wide current range, varied products can meet the needs of different users and the demand for projects. All the busbar systems are type-tested low-voltage assembly (TTA) in accordance with international advanced standard IEC/EN, passed a series of international and domestic tests and certificates, such as Germany Bonn Electric Laboratory Test, ASTA from UK, CCC, etc, which guarantee our products performance.

# System Components

## System components overview

FCM-II system is an excellent choice to connect transformer and switchgear, as well as supplying power for loading equipments. The highest protection degree of IP68 can meet all the requirements of different aggressive environment. The max tapping current 1250A provides reliable power loading condition and higher personnel safety.

### ■ Straight trunking units

Wall-through cover unit is available if needed  
 Protection degree: IP54  
 (The highest can be IP65)

### ○ Feed in type or plug-in type

Standard length:  
 FCMA-II: 4m, 3m, 2m, 1m  
 FCMC-II: 3m, 2m, 1m  
 Optional length:  
 FCMA-II: 0.44 - 3.99m  
 FCMC-II: 0.5 - 2.99m

Vertical and horizontal installation is available

### ○ Plug-in busbar

Single side with socket  
 Double sides with socket  
 Tap-off point protection degree is IP54  
 To prevent wrong installation

### ○ Anti-fire straight trunking unit

Conformed to the JB/T10327-2002 regulation  
 Passed the flame retardant test

### ■ Plug-in units

Adopts breaker or fuse switch as protection  
 Steel enclosure  
 Excellent earthing  
 Protection degree: IP54  
 Standard color: RAL7032 RAL7035  
 Easy installation  
 Mechanical inter-lock device and auto-  
 To prevent wrong installation  
 Plug feet with silver plated

### ■ Incoming units

#### ○ Incoming Units

Special flexible connection device  
 Rated current up to 6300A

#### ○ Switchboard incoming units

Special copper bar connection  
 Rated current up to 6300A

#### ○ Or cable entry unit

### ■ Connection to LV switchboard

Both top and bottom

### ■ Reversing units

Easily change the busbar system direction  
 Angel 70°~175°  
 L unit  
 T unit  
 Z unit

### ■ Accessories

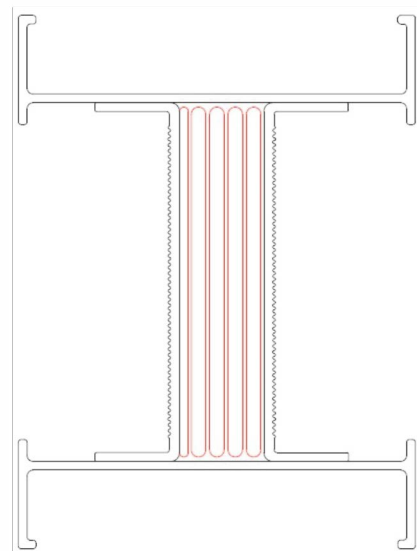
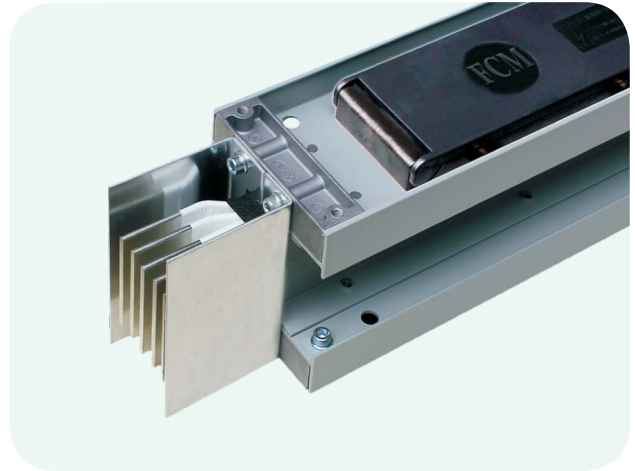
End cap  
 Joint  
 Fixing bracket  
 Tools for connection



# Product Features

## Main structure

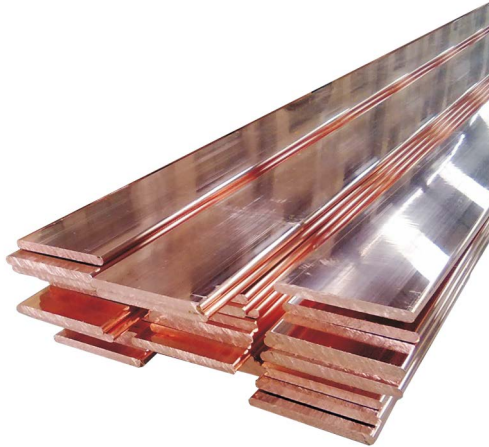
1. Total compact length (including plug-in):  
 Low impedance with lower line loss  
 Small size, space saving  
 Fast heat dissipation capacity with lower temperature-rise.  
 Longer service life.  
 Conducting heat dissipation  
 Load capacity is not affected by installation method  
 No hollow structure, no "chimney effect".
2. Plug-in and joint pack are phase dislocation protected, ensuring correct installation phase sequence.
3. Automatic riveted assembly: High efficiency, fast delivery. Stable processing quality. Better electrical continuity of enclosure .
4. Various diversion units: Layout can adapt to different site environment.



## Aluminum alloy enclosure

1. FCM-II system adopts alloy profile as the enclosure.
2. Enjoy high mechanical strength, strong dynamic stability.
3. Light, convenient for installation.
4. Heat dissipation is 3 times faster than that of the steel.
5. Weak magnetic material, effectively avoid the impact of eddy current and hysteresis losses to the bus duct system.
6. Good performance in corrosion resistant, anti-corrosion ability remains strong even if the coating is scratched.

## Product Features

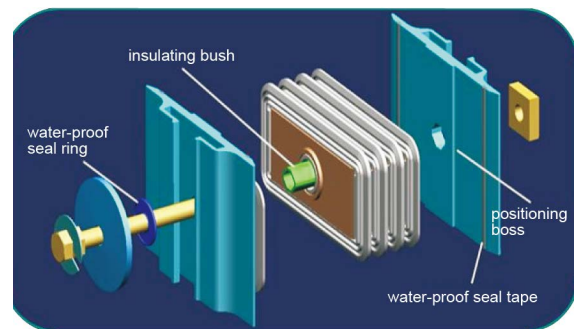


### Conductor-copper or aluminum bar

1. The imported raw copper forms bars in China with the purity of more than 99.95%. It can be coated with tin or silver according to customers' requirements.
2. FCMA-II is of Al conductor, mainly for the high purity electrician Al bar, and the special treatment on the surface improves to high conductivity.

### Joint - fast and stable

1. The double bolt torque memory makes installation fast and stable, even 19mm ordinary wrench can complete the installation and reach to the expected torque;
2. The special butterfly spring equalizes the pressure.
3. Joint pack internal conductor cross section is 1.2 times more than trunking bar section and the double face connection can effectively reduce the contact resistance.



### Insulating materials - Dupont mylar insulation film

The Dupont are coated with Dupont mylar insulation film, with each phase double wrapped, 6 insulation layers between phase to phase ensure the reliability of the insulation. With insulation class B, 130°C heat resistance, per layer withstand voltage is more than 10000V. Dupont mylar is the professional electrical insulation material recommended by IEC, with the characters of no toxicity and no halide even at high temperature.

## Product Features

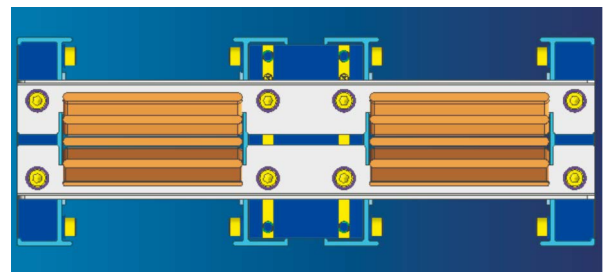
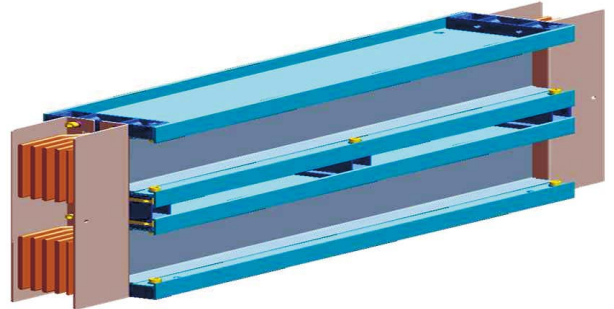


### Plug-in unit - safe and reliable

1. Plug-in feet in "T" structure, with high elastic manganese steel piece, can be repeatedly plugged in and out more than 200 times without any deformation.
2. The feet are silver plated, which can effectively reduce the contact resistance.
3. The safety interlock mechanism can ensure the safety. It can be switched on only when the box is in position, and remains locked when switch-off.

### Heavy current busbar - double bar structure

1. Composed of 4 pieces of "H" enclosure, higher mechanical strength and lower deflection.
2. Radiating surface area is increased, which can obviously improve the cooling capacity, effectively reduce temperature rise.
3. And the integral earthing section is larger, safer and more reliable.



## Product Equipment



The world's leading British Henrob self-piercing riveting technology and LongXing cooperated out the international leading FCM-II busbar automatic assembly lines. The overall structure of enclosure are riveted together automatically, ensuring high degree of automation. The use of hydraulic pressure makes the overall strength of busbar been substantially upgraded, and have a good sealing effect and anti-seepage feature, high-grade protection, excellent electrical continuity, clean and beautiful appearance.

# Technical Specifications

## General technical data

Standard	IEC60439-1,2; GB7251-1,2
Min./max./24 Hours average temp.	-5/+40/35°C
Protection level	IP54、IP65
Torque of connector	70Nm
Surface treatment	Spraying
Material of shell	Aluminum and magnesium alloys
Color	RAL7032、RAL7035
Rated insulation voltage (Ui)	1000VAC
Rated working voltage (Ue)	660VAC
Rated frequency (f)	50/60Hz
Rated current (Ie)	1)
Rated short time withstand current (Icw)	1)
Rated withstand peak current (Ipk)	1)
Cross section of conductor	1)
L1, L2, L3	1)
N	1)
PE	1)
PE One conductor for PE	1)
Material of conductor	CU or AL
No. of Copper for each phase	1)
Max installation distance	
Horizontal	
Horizontal, flat	2m
Installation method	IV
Pollution level	3
Size	1)
Weight	1)

Note:1) Different current range gets its corresponding technical data.

2) Detailed data please refer to the technical specification table in next chapter.

## Technical Specifications

### Parameter (copper busbar system)

Current	Short time withstand current (I <sub>cw</sub> )kA	Withstand peak current (I <sub>pk</sub> )kA	Resistance / m (mΩ)	Reactance / m (mΩ)	Impedance / m (mΩ)	voltage drop per m (V)	Size		Unit weight kg/m	
							(W)	(H)	4 wires	5 wires
400	30	63	0.110	0.039	0.116	0.08	145	94	11.8	12.6
630			0.094	0.035	0.101	0.11	145	99	12.9	13.8
800			0.073	0.031	0.079	0.11	145	109	15.0	16.2
1000	50	105	0.060	0.028	0.066	0.11	145	119	17.2	18.7
1250			0.047	0.024	0.053	0.11	145	139	20.7	22.5
1600	65	143	0.033	0.020	0.039	0.11	145	174	27.6	30.2
2000			0.024	0.017	0.030	0.10	145	194	35.6	39.2
2500			0.018	0.014	0.023	0.10	145	264	45.9	50.7
3150	100	220	0.015	0.012	0.019	0.10	145	354	60.2	66.1
4000			0.011	0.009	0.014	0.10	145	414	76.3	84.0
5000			0.009	0.006	0.011	0.09	145	514	97.0	107.1
6300	120	264	0.007	0.004	0.008	0.08	145	689	124.4	137.7

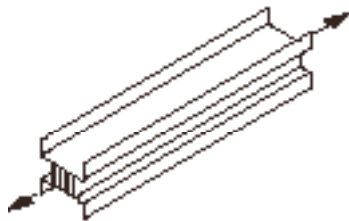
### Parameter (Al busbar system)

Current	Short time withstand current (I <sub>cw</sub> )kA	Withstand peak current (I <sub>pk</sub> )kA	Resistance / m (mΩ)	Reactance / m (mΩ)	Impedance / m (mΩ)	voltage drop per m (V)	Size		Unit weight kg/m	
							(W)	(H)	4 wires	5 wires
400	30	63	0.130	0.029	0.133	0.09	145	104	8.6	9.0
630			0.118	0.028	0.121	0.13	145	134	9.0	9.5
800			0.093	0.024	0.096	0.13	145	154	10.2	10.8
1000	50	105	0.065	0.020	0.068	0.12	145	174	12.7	13.5
1250			0.048	0.017	0.051	0.11	145	194	15.5	15.5
1600			0.036	0.014	0.039	0.11	145	234	19.2	20.6
2000	65	143	0.029	0.012	0.032	0.11	145	264	27.5	29.2
2500			0.022	0.009	0.024	0.10	145	350	33.1	35.5
3150	100	220	0.017	0.006	0.018	0.10	145	414	40.4	43.5
4000			0.013	0.004	0.013	0.09	145	494	51.2	55.3

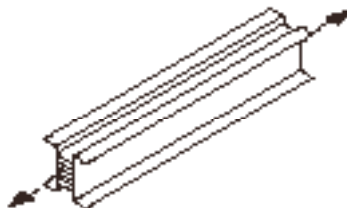
# System Configurations

## Busbar installation

The sandwich-type construction of the FCM-II busbar system maintains a total length of compact structure, which means that its current loading capacity will not be affected by the mounting position. LongXing offers the optimum flexibility in planning busbar layout according to the site condition.



Horizontal or vertical installation



Horizontal installation

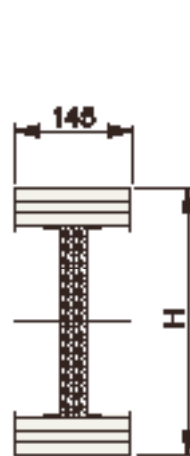


Vertical installation

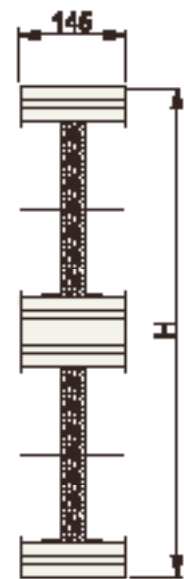
## Dimensions

The dimensions depend on the rated current and conductor material. FCM-II busbar system has 12 current ratings, among them, 8 ratings adopt single bar structure and the rest are double bar structure.

(A) Current	H(mm)	
	FCMC-II	FCMA-II
400	94	104
630	99	134
800	109	154
1000	119	174
1250	139	194
1600	174	234
2000	194	264
2500	264	350
3150	354	414
4000	414	494
5000	514	
6300	689	
Width is 145mm		



Single bar system

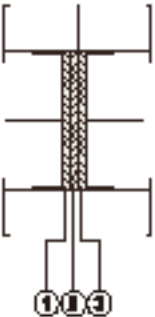
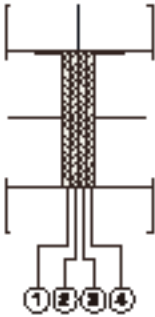
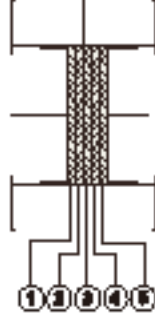


Double bar system

# System Configurations

## Conductor configurations

The IEC standard regulates that the power distribution equipment system configuration should be based on the entire system, and the choice of equipment should fully guarantee the security of the entire system. FCM-II busbar system offers many different conductor configurations to meet per actual site requirement.

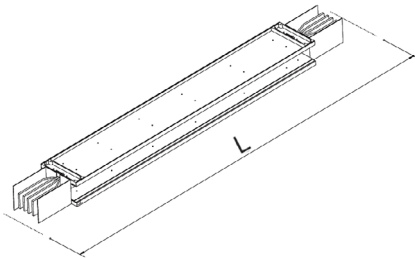
	system	Conductor configurations						Enclosure
		①	②	③	④	⑤	⑥	
	FCM-II ...30	L1	L2	L3	—	—	—	Shell be PE
	FCM-II ...41	L1	L2	L3	PEN	—	—	Shell connect N
	FCM-II ...51	L1	L2	L3	N	—	—	Shell be PE
	FCM-II ...53	L1	L2	L3	N	PE	—	Sparate PE conductor

Shell as PE: Adopting excellent non-magnetism alloy enclosure as integral conductor, the earth capability is 100% more than phase conductor. When there is a high earth fault, it connect busbar with the ground directly, which offers the shortest earth approach.



# Fittings

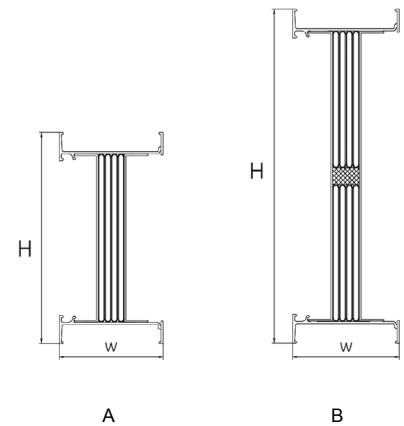
## Feed in straight busbar



Feed in busway loads supply current, with no socket. Standard length is 3000mm or 4000mm. The min length is 400mm.

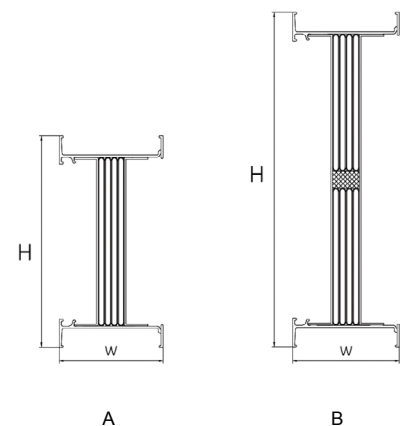
### ■ Copper busbar

(A) Rated current	(mm) Width	(mm) Height	(kg/m) Weight		Pic
			100%N 4 wires	100%N, 50%PE 5 wires	
400	145	94	11.8	12.6	A
630	145	99	12.9	13.8	
800	145	109	15.0	16.2	
1000	145	119	17.2	18.7	
1250	145	139	20.7	22.5	
1600	145	174	27.6	30.2	
2000	145	194	35.6	39.2	
2500	145	264	45.9	50.7	B
3150	145	354	60.2	66.1	
4000	145	414	76.3	84.0	
5000	145	514	97.0	107.1	
6300	145	689	124.4	137.7	



### ■ Al busbar

(A) Rated current	(mm) Width	(mm) Height	(kg/m) Weight		Pic
			100%N 4 wires	100%N, 50%PE 5 wires	
400	145	104	8.6	9.0	A
630	145	134	9.0	9.5	
800	145	154	10.2	10.8	
1000	145	174	12.7	13.5	
1250	145	194	15.5	15.5	
1600	145	234	19.2	20.6	
2000	145	264	27.5	29.2	
2500	145	350	33.1	35.5	B
3150	145	414	40.4	43.5	
4000	145	494	51.2	55.3	



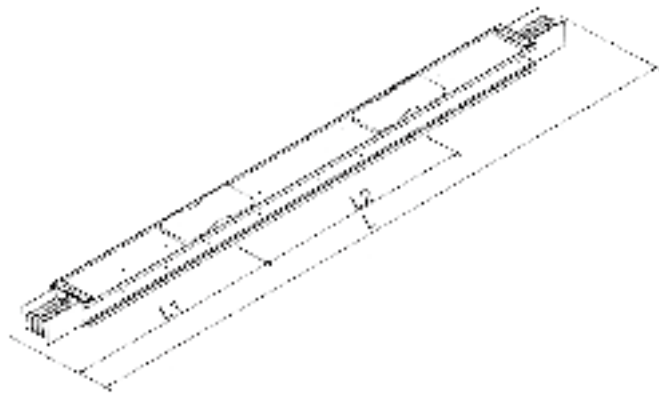
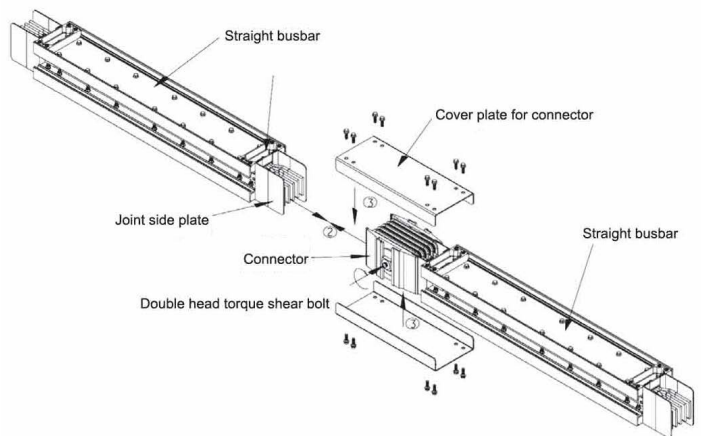
Note: The above is just for reference and longxing reserve the right to modify it.

## Fittings

### Double head torque shear bolt

When the correct torque is reached and the connector is tightened, the bolt head at the top will loose, the red label will fall off.

- The first time installation can be finished without torque wrench.
- After the first nut falls off, the bolt can be re-used by the torque wrench.
- The standard tightening torque is 68N•m.



### Plug-in straight busbar

The plug is very flexible and can be plugged in from both two sides. 3m standard can be adopted with max 4 sockets; the customer can reserve the socket according to the real situation.

There is socket and cover in each socket. And the socket can prevent accidental touch to the active part (IP2X). Phase indication is on the socket. Cover provides dust-proofing and moisture-proofing. Standard length is 3000mm or 4000mm, Min length is 1000mm, L1 is 600mm, L2 is 600mm as well.

# Fittings

## Expansion busbar

Expansion busbar is compensating the expansion due to the temperature.

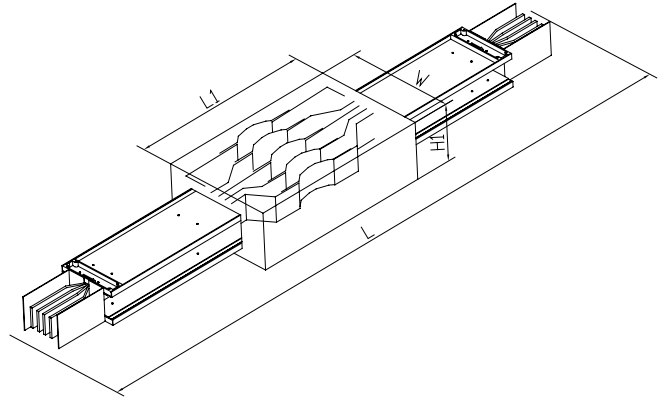
60m distance each to each normally.

Note:  $H1=H+67$  (H is the height of busbar)

L=1500

L1=720

W=440

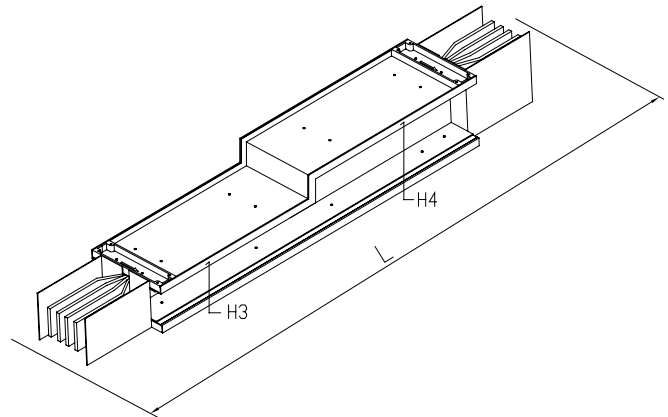


## Capacity change busbar

It is the transition for current change, offering a cost effective solution.

Note: H3, H4 is height of busbar

L=1000



## Phase change busbar

It is the transition section for phase change.

The minimum size is 15mm.

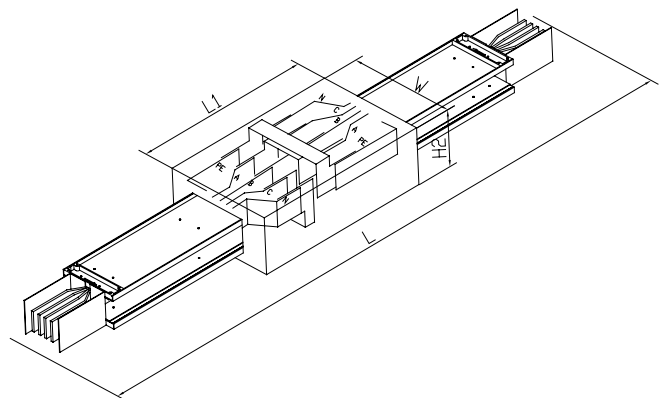
The phase sequence depends on the customers' requirements.

Note:  $H2=H+67$  (H is the height of busbar)

L=1500

L1=720

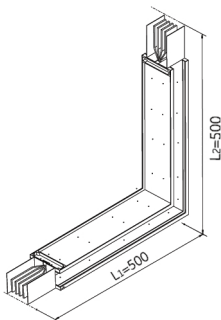
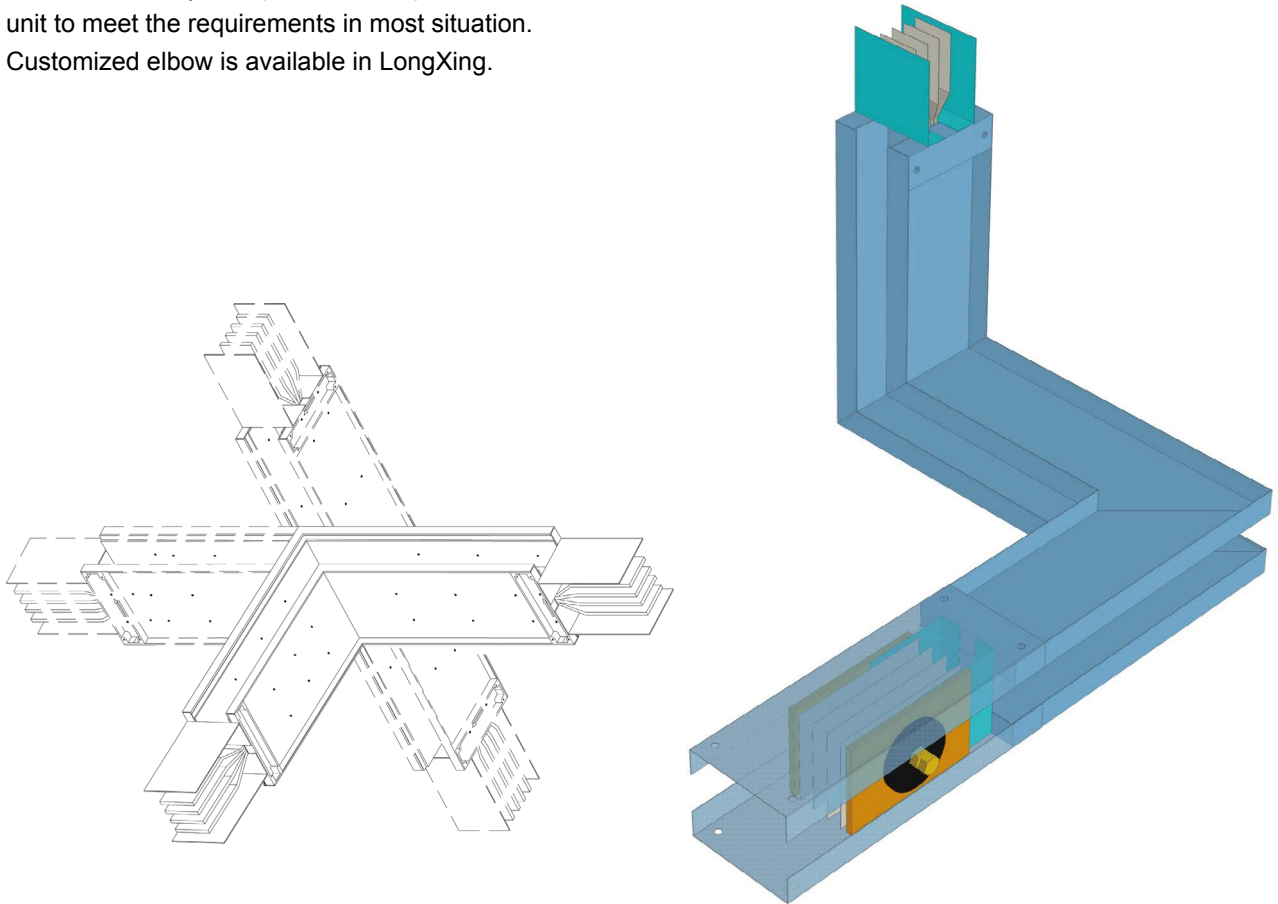
W=470



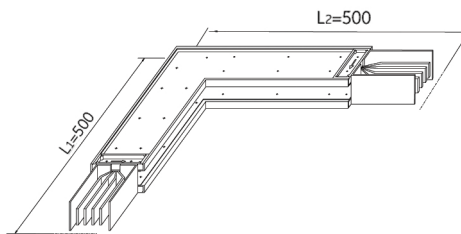
## Fittings

### Elbow

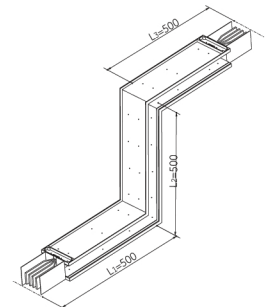
FCM-II busbar system provides complete elbow unit to meet the requirements in most situation. Customized elbow is available in LongXing.



L vertical elbow

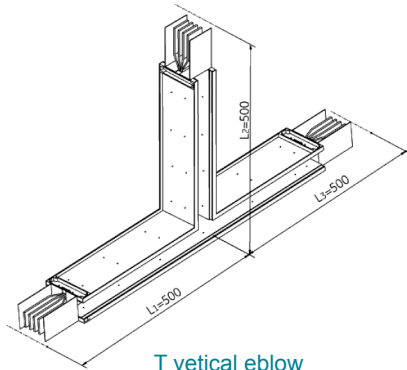


L horizontal elbow

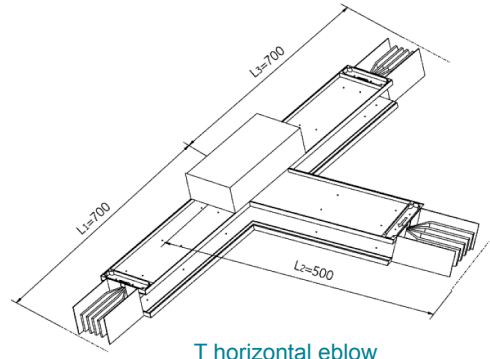


Z vertical elbow

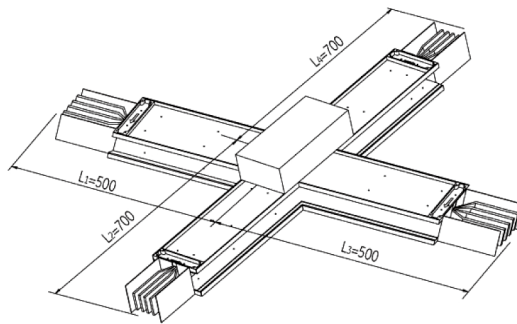
# Fittings



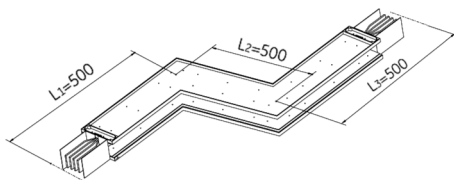
T vertical elbow



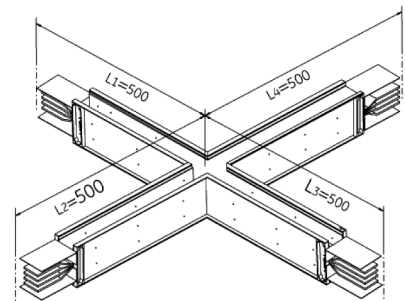
T horizontal elbow



Cross horizontal elbow



Z horizontal elbow



Cross vertical elbow

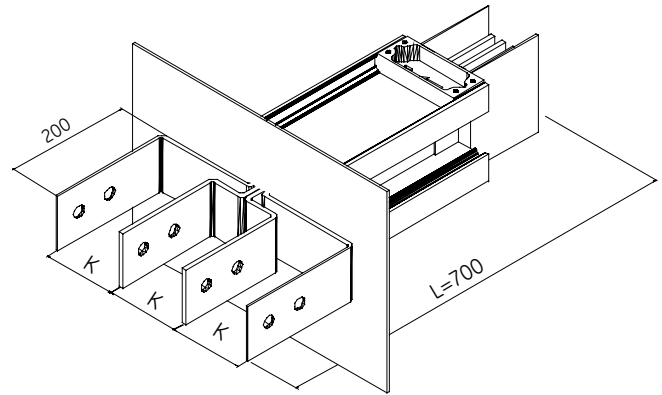
## Fittings

### Terminal joint busbar

Terminal joint busbar with box can be connected with all the types of switchboards and transformer. The distance of busway can be customized.

Note: 1. If the rated current lower than 1600A,  $k=100\text{mm}$ . If the rated current more than 1600A,  $k=120\text{mm}$ .

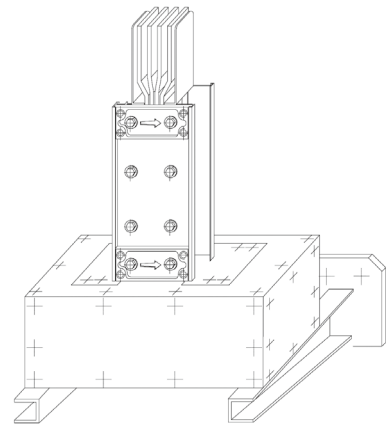
2. All the data is according to the standard product, other data please contact with our engineer.



### Terminal box

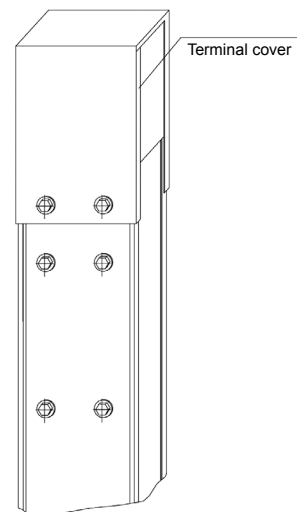
Terminal box protects the busbar and encloses the naked copper. The standard size is  $500*500*500\text{mm}$ . Customized products are provided.

All the data is according to the standard product, other data please contact with our engineer.



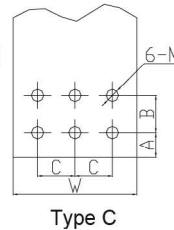
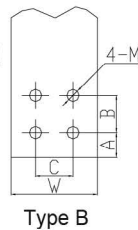
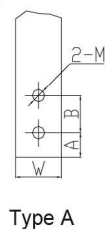
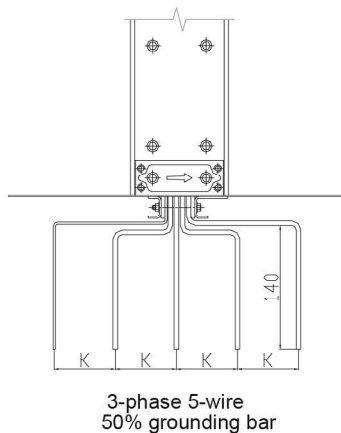
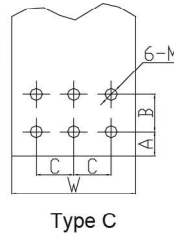
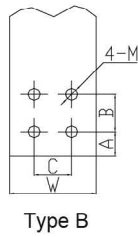
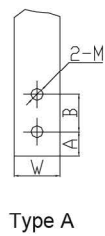
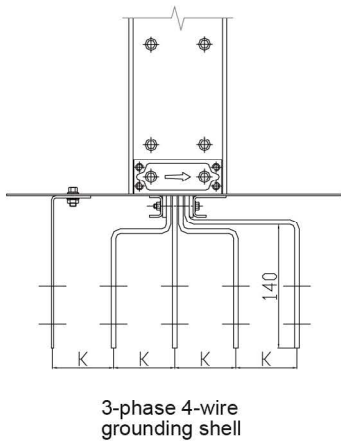
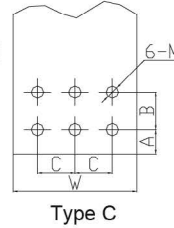
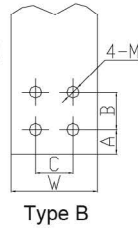
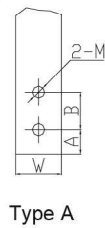
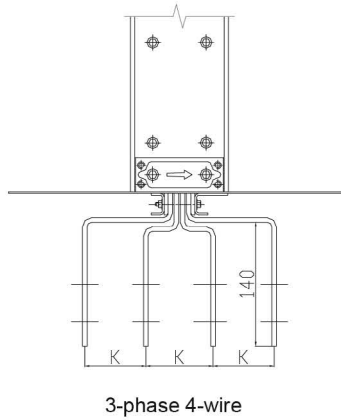
### Terminal cover

Terminal cover is installed at the end of busbar, to avoid accidental touch to active part, making the busbar sealed.



# Fittings

## Technical data of terminal busbar



### ■ Copper busbar

Unit: mm

Rated Current	A	B	C	K	M	Type
400	20	40	~	100	Ø11	A
630	20	40	~	100	Ø11	A
800	20	40	~	100	Ø11	A
1000	25	50	40	100	Ø14	A
1250	25	50	40	100	Ø14	B
1600	25	50	60	100	Ø18	B
2000	30	60	60	120	Ø18	C
2500	30	60	60	120	Ø18	C
3150	30	60	60	120	Ø18	B
4000	25	50	50	120	Ø18	C
5000	30	60	60	120	Ø18	C
6300	30	60	60	120	Ø18	C

### ■ Al busbar

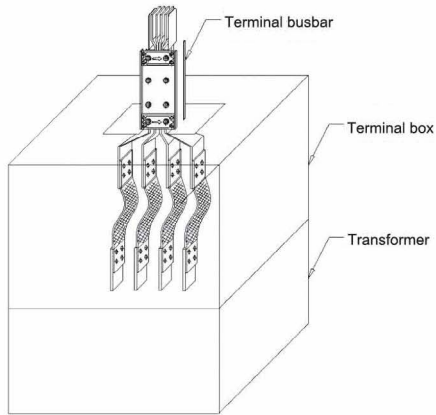
Unit: mm

Rated Current	A	B	C	K	M	Type
400	20	40	~	100	Ø11	A
630	25	50	~	100	Ø14	A
800	20	40	40	100	Ø14	B
1000	20	40	40	100	Ø14	B
1250	30	60	60	100	Ø18	B
1600	25	50	50	100	Ø18	C
2000	30	60	60	120	Ø18	C
2500	30	60	60	120	Ø18	C
3150	25	50	50	120	Ø18	C
4000	30	60	60	120	Ø18	C

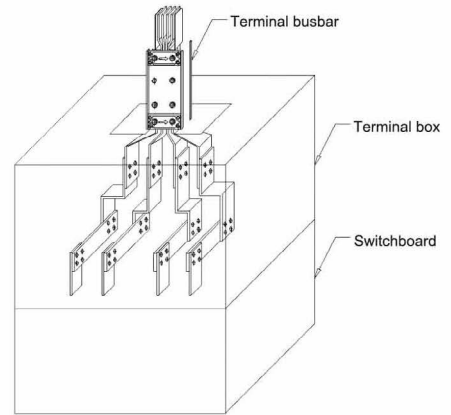
Note: If the current more than 3150A, the double busbar need to be taken and both of them need the holes to connect busbar in switchboard.

# Fittings

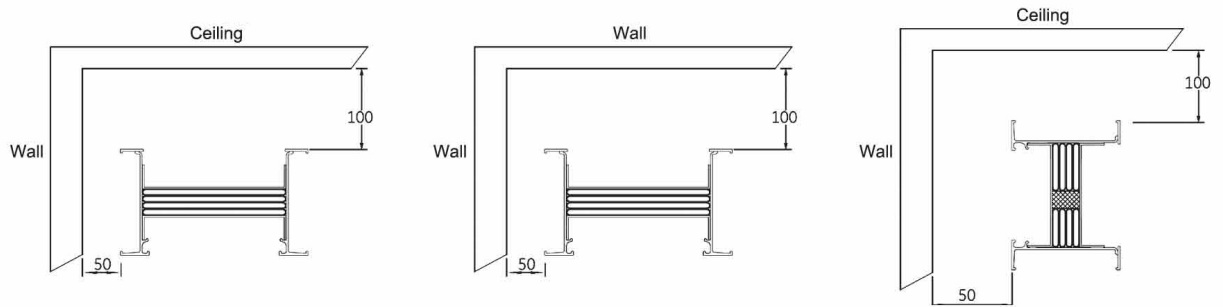
## Terminal busbar connection



## Connect with LV switchboard



## The min distance of installation

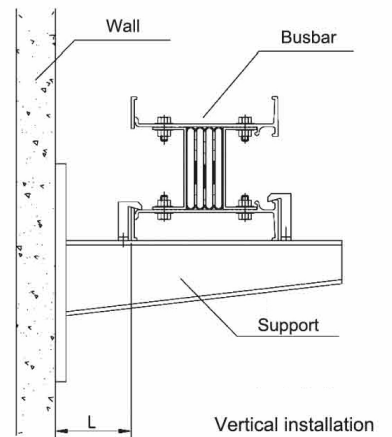


## Reserve the min distance for installing socket

Please consider the dimension if the busbar installed close to the wall.

### ■ The min distance for installing socket

(A) Current of tap unit	100	250	400	630	800	1000
L(mm)	150	195	210	230	260	300



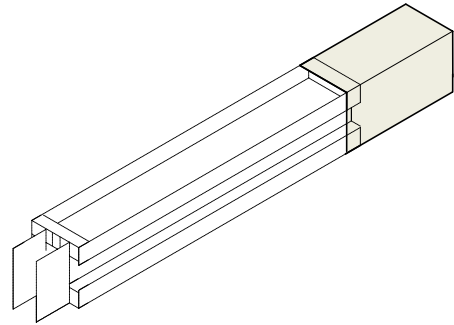


# Fittings

## Accessories

### ■ Terminal unit

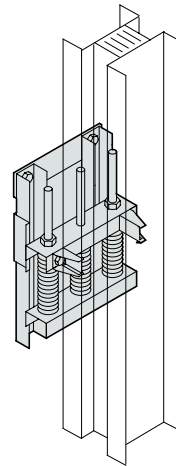
End cap is mounted in the end to avoid exposing of conductors.



### ■ Vertical installation bracket

Special spring bracket are available for installation accessories.

Each spring bracket can afford extra weight brought by busbar and jack box.



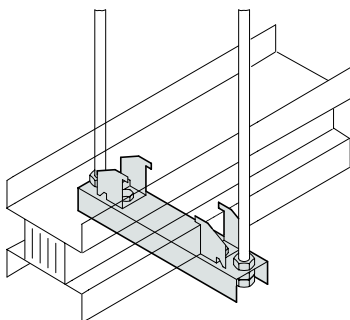
### ■ Horizontal mounting supports

two different mounting devices are available

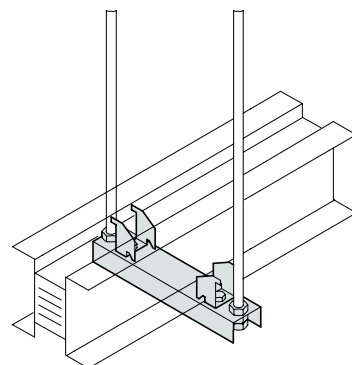
For horizontal flatwise

For horizontal edgewise

Clamps in the bracket which make busbar trunking system stable.



Horizontal flatwise



Horizontal edgewise

# Fittings

## Plug-in unit

Plug-in unit of FCM-II busbar system gains many patents, with compact structure, nice appearance and reliable performance. The rated current is 16A-1250A, each current degree has 5 different dimensions. The design is closer to users' needs.

### Inside configuration

3 pole or 4 pole breaker is collocated according to user's requirements. The breaker is optional for SIEMENS 3VT or 3VL or the other brand as well, including the switch accessories, e.g. operating handle, protection, shunt release (trips) ST, thermal-magnetic trip, leaking protection. Also special design on sizes of plug-in units can be made according to site details after site measurements.

### Cable connection

The plug-in unit supplies power to loading equipments with flexible outputting line collocated with protection sleeves. The diameter depends on the cable size.

### Dimensions and Capacity

Operation way	(A) Current grade	(LxWxH)mm Dimension	Operation way	(A) Current grade	(LxWxH)mm Dimension
Manual operation	100	450×240×260	Rotation operating mechanism	100	450×240×(300+70)
	160-250	550×260×280		160-250	550×260×(320+70)
	400	650×300×300		400	650×300×(340+70)
	630	750×340×320		630	750×340×(360+70)
	800	950×370×340		800	950×370×(360+70)

Remarks: 1. The dimension is set according to the normal 3P/4P breaker. The 70mm is additional space for installing rotation handle.

2. All the data are for standard product. If you have sepecail requirement, we can customize.

3. Please contact us if the junction box is not standard size and higher current grande.



#### ■ Plug-in point

Plug-in point of FCM-II busbar system is in high compact structure with low impedance and fast radiating. It is strong in universality and can be used in different kinds of conductor configuration. High elastic rubber protective pad fixed by Ultrasonic Plastic Welding is planned between plug-in device and conductor, ensuring high level of protection, safe and reliable plugging.



#### ■ Plugging method

International Patent supported T-pins are stable, reliable with large current-loading capacity. 16A to 630A is single side tapping; 800A to 1000A is double sides tapping; 1250 and above is joint pack connection.

#### ■ Safety operation

Anti-installed-wrongdesign;  
Protection degree of IP54;  
Silver-plated plug feet ensures reliable electrical continuity;  
Multi inter-lock prevents plugging when power on.

## Fittings

### Joint pack unit

#### ■ “QWIKMAKE”™ joint pack

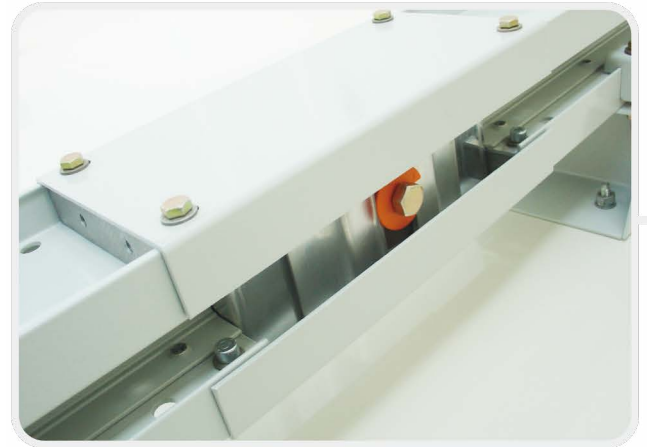
By abandoning the traditional design, its installation time is half of that of the ordinary connector. For it cannot be overturned, wrong phase operation won't occur when connect two busbar units, simplifying the installation procedure, and contributing to the rapid and safe installation.

#### ■ High pressure balanced clamp

The pressure caused by bolt locking passes to the balanced clamp (the same section as copper) through a special designed butterfly gasket, ensuring that the appropriate pressure, uniform elastic, safe and reliable electrical continuity at system joints.

#### ■ High protection degree

Each part and component of joint pack is designed with waterproofing measures. Meanwhile, joint pack cover guarantees a higher degree of protection.



#### ■ Double-head torque bolt

The universal bolts are imported from UK. Tightening the bolt until the outside head as well as the yellow plate break off which shows the torque of joints gets the best condition with only 19mm ordinary wrench. 75% time is saved. After installation, the rest head bolt can be reused in later maintenance and disassembly.

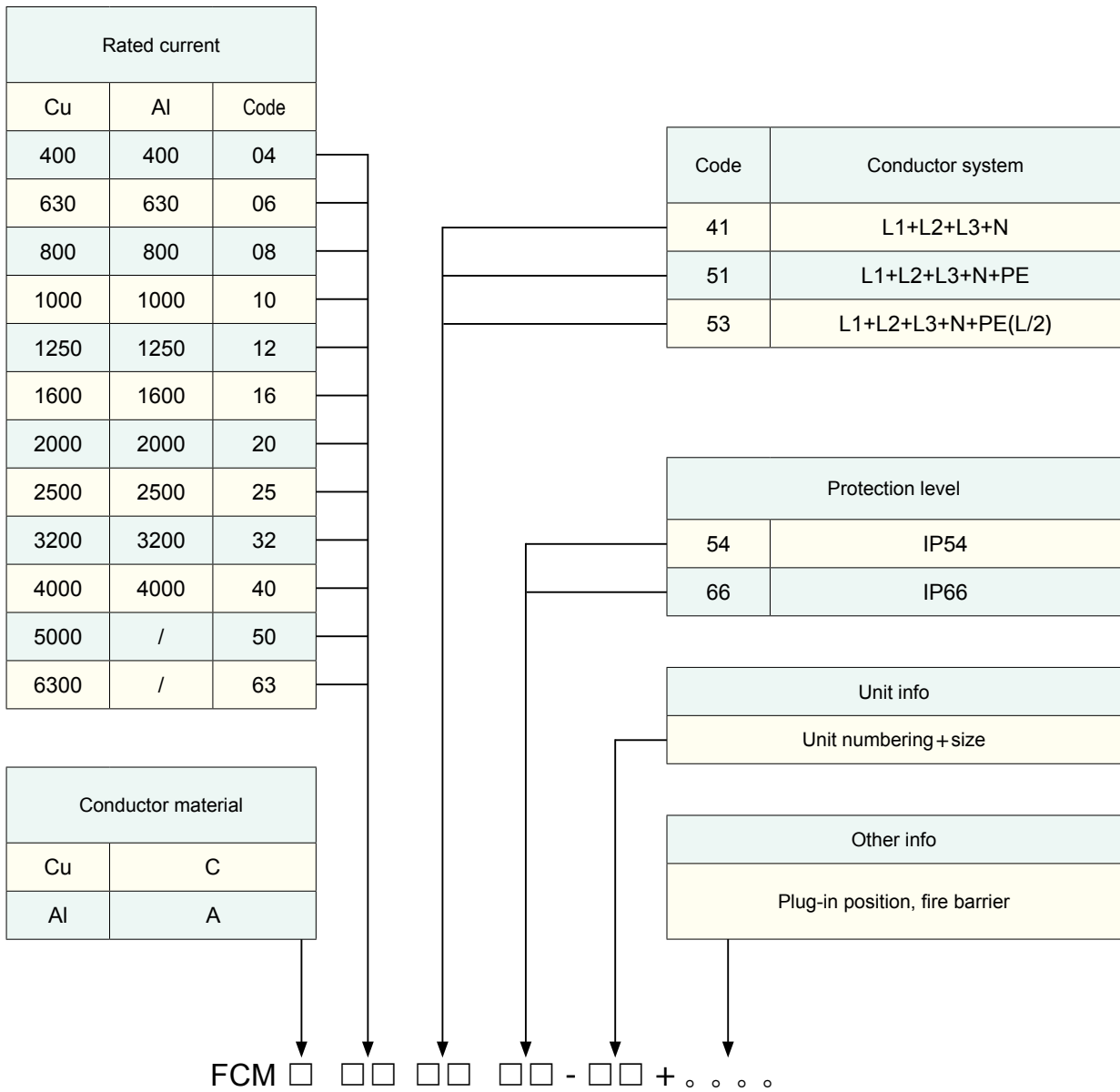


#### ■ Compensation for expansion

Joint pack (butt type) of FCM-II busbar system meets the requirements of linear expansion due to thermal expansion. With the premise of no loss on mechanical strength, electrical continuity, current-loading capacity and short-circuit capacity, 7mm expansion compensation is provided to replace extra special expansion section in FCM-II busbar trunking system.

# Catalog Number

## FCM-II busbar system

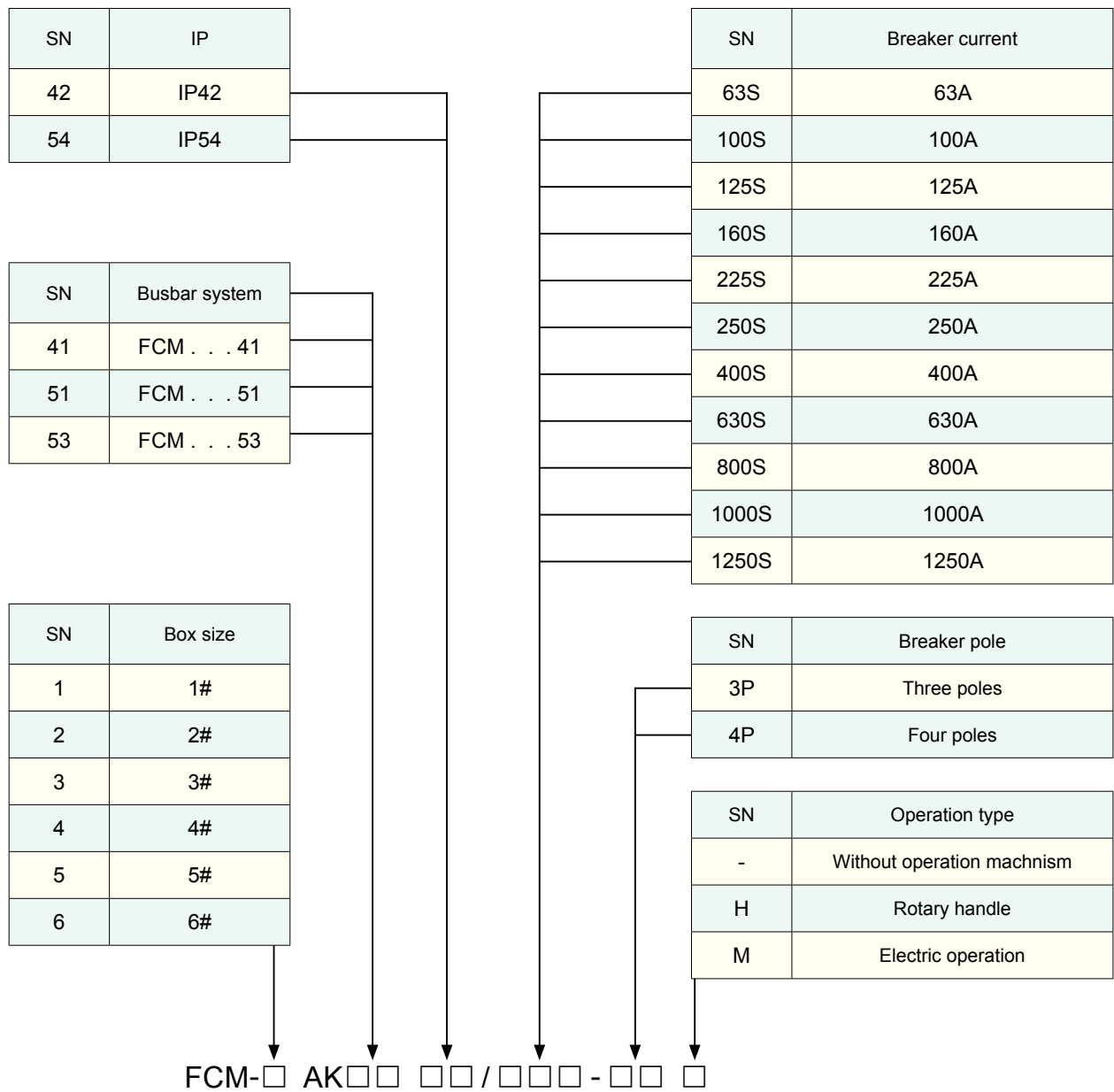


For example: FCMC165366-3 mean:

FCM series, copper busway, rated current 1600A, five wire (PE=L/2), IP66.

# Catalog Number

## FCM-II Plug-in unit



For example: FCM-2AK5154/160S-3P-H mean plug-in box type 2#, system 51, IP54, c/w breaker with rotary handle, 3 poles and rated current 160A.

# Installation of Busbar System

## Mounting

The installation is prescribed for jack box with vertical busbar runs. The plug-in cable must be connected through the bottom. This installation is also applied when L1 conductor in the left-hand side.

## Vertical mounting

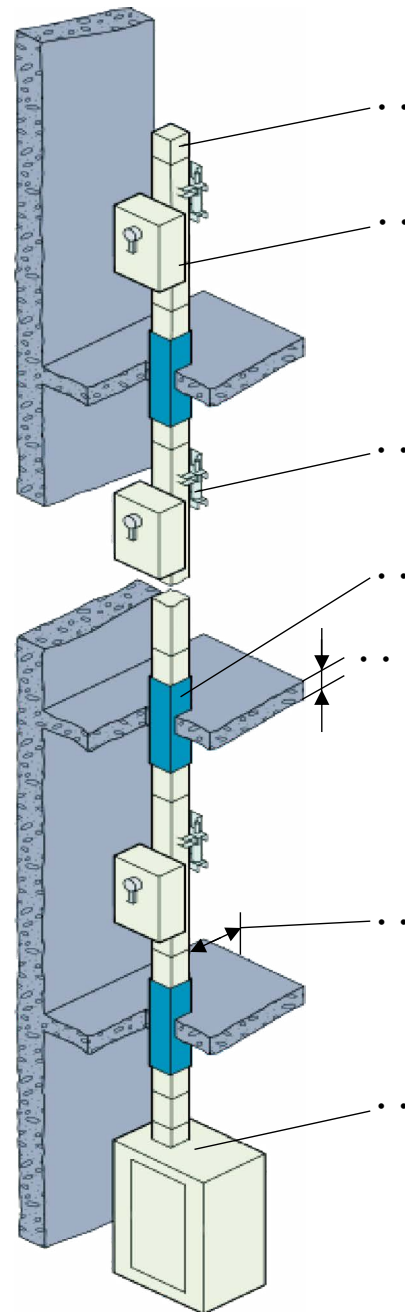
Special spring brackets are required for installing vertical FCM-II busbar. Per storey At least one bracket should be taken for single system and two brackets for double systems on each floor. The spring bracket is designed to carry and secure the weight of busway and the linear extension of running systems. Two types of spring brackets are available for different extra weight of jack box.

	Current(A)	Qty.
Transmission	400~2500	1
	3150~6300	2
Distribution	400~2500	1
	3150~6300	2

**Note:**

At least one set of jack box unit need to be taken in on each floor.

- ① End cap
- ② Plug-in unit
- ③ Spring bracket
- ④ Fireproofing bar
- ⑤ Thickness of ceiling
- ⑥ 10cm between wall and bracket
- ⑦ Switchboard



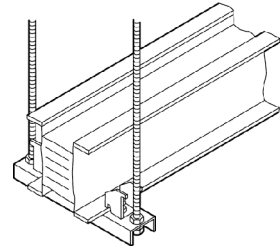
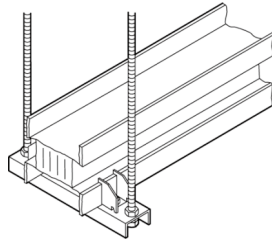
Vertical installation of busbar



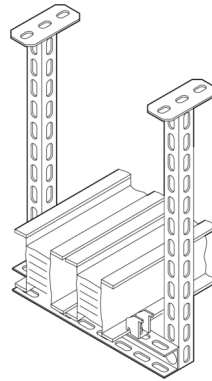
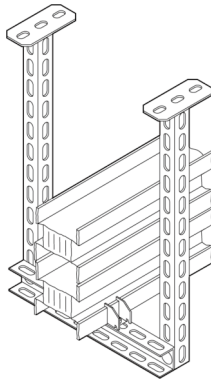
# Installation of Busbar System

## Hanger

Single bar

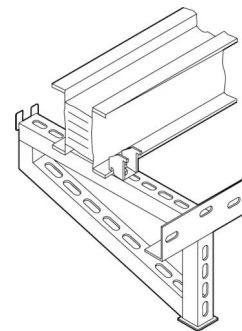
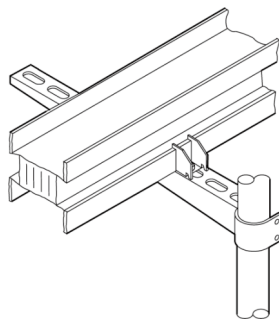


Double bar

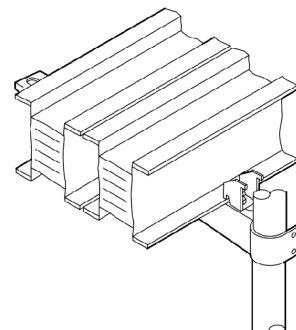
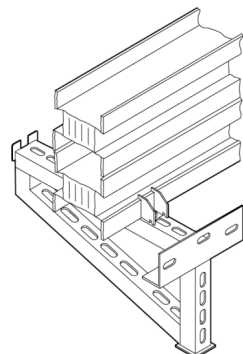


## Bracket support

Single bar



Double bar



## Notes

### Warning

1. Busbar system is low voltage electrical equipment. Operations should be under the guidance.
2. The ingress and corrosion of water, salt and concrete need to be prevented during the whole installation process.
3. Taking measures against water and solarization before finishing the whole installation.
4. No sitting or standing on the equipments.

### Loading

1. Avoid moisture, rain or chemical substances.
2. While loading, avoid stress on the busbar.
3. When lifting the busway, make sure the busway weight is distributed and balanced. No dragging on the ground.
4. Use a forklift to handle the busway.

### Storage

1. Avoid dust and liquid, away from the aisle.
2. Stored indoor, avoid direct sun exposure.
3. Busbar should be stacked on the wood block and kept separately. no more than five pieces should be stacked on the top of each other.
4. Do not remove the whole packing material until installation starts.

### Usage

1. Check the phase sequence of busway.
2. Make sure the busway is protected from dust and liquid.
3. Ensure the steady of fixing brackets and reliable connection of bolts.
4. While energizing the busway, all the tapping devices should be in off position.
5. All load currents should no more than rated current of busway.

### Maintenance

1. Power should be cut off before maintaining the busway system.
2. Check the tightness of bolt after first use of 3 months, and then check it annually.
3. Cut off power if any abnormal condition occurs, and then find out the reasons and take measures.
4. Keep the system away from the adverse factors, such as water, powder, and heat source.

## System Description

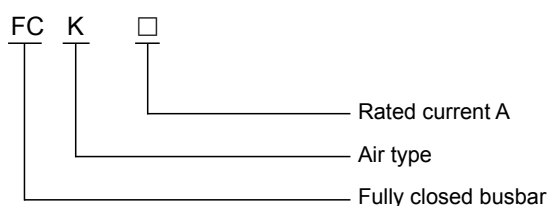


### ■ Application

FCK air type busbar is applicable to the AC 3-phase 3-wire, 3-phase 4-wire and 3-phase 5-wire power supply with the frequency of 50 Hz(60Hz). The rated operational voltage is 660V and the operational current is 100-5000A. The most ideal power supply and distribution device for high buildings of large and medium sized enterprises, to introduce engineering experimental base.

For the busbar with socket, it is very convenient to lead to power branch by plugging switch box. The installation of busbar can be direct from the transformer to power distribution cabinet as well as the low-voltage switchgear to the power distribution system as a main power distribution circuit.

### ■ Product type



### ■ Normal working conditions

- The ambient temperature is  $-5^{\circ}\text{C}\sim+40^{\circ}\text{C}$  and the average temperature in 24 hours should be lower than  $+35^{\circ}\text{C}$ .
- The relative humidity need to be under 90% (when the ambient temperature is  $+20^{\circ}\text{C}$ ).
- The altitude of the installation place no more than 2000m.
- The pollution grade is Level 3.
- Installation category: level III, IV.
- If the service condition has special requirements, it should be marked in the contract and our company will produce it according to the special requirements.

# Main Technical Specifications

- 1. Rated insulation voltage: 380V, 690V
- 2. Rated frequency: 50~60Hz
- 3. Rated current: See table 1

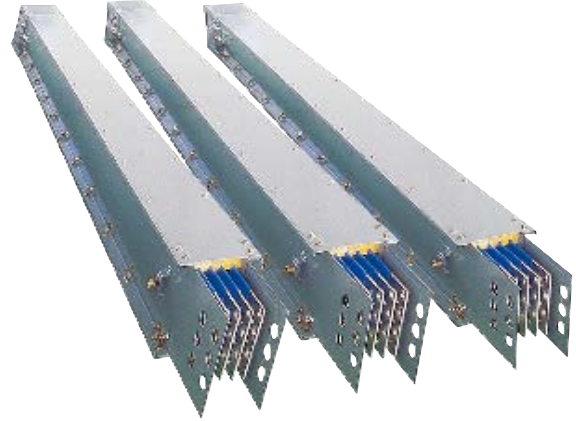


table 1

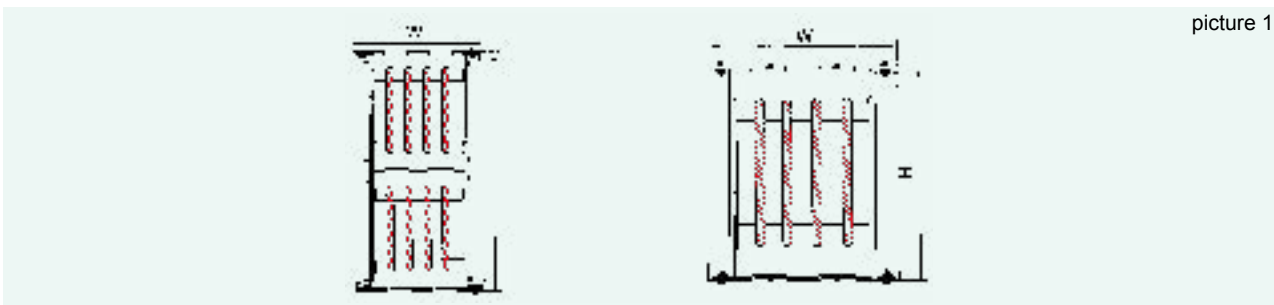
3-phase 4-wire	100、160、200、250、315、400、630、800、1000、
3-phase 4-wire	1250、1600、2000、3150、3500、4000、5000

- 4. Insulation resistance value: The resistance value for each busway should be more or equal to 20MΩ. Please check the resistance value before installation.
- 5. Insulation strength: 50Hz, 2500V/min or 3750V/min power-frequency voltage-withstand test for each busbar are conducted before shipping.
- 6. Short-circuit strength: the busway can afford the thermal stress and electrodynamic force specified in table 2 caused by the rated short time current and the rated peak withstand current. There is no permanent visible deformation after testing.

table 2

Rated operational current A	TCW (effective value) kA	COS	n
100-630A	15	0.30	2.00
800-2000A	30	0.25	2.10
2500-3150A	50	0.20	2.20
3500-5000A	80	0.20	2.20

- 7. Dimension and weight of the busway (see picture 1 and table 3)



picture 1

# Main Technical Specifications

table 3

Current grade (A)	3-wire			4-wire			5-wire		
	W(mm)	H(mm)	Weight (kg/m)	W(mm)	H(mm)	Weight (kg/m)	W(mm)	H(mm)	Weight (kg/m)
250	176	85	16.8	176	85	18.4	176	85	20.1
400	176	95	18.6	176	95	20.7	176	95	22.8
630	176	105	19.4	176	105	22.1	176	105	24.7
800	176	115	24.5	176	115	27.7	176	115	30.9
1000	176	135	28.9	176	135	32.2	176	135	36.5
1250	176	155	34.3	176	155	39.9	176	155	45.4
1600	176	195	42.2	176	195	50.2	176	195	57.7
2000	176	215	51.3	176	215	59.8	176	215	68.3
2500	176	265	64.2	176	265	77.3	176	265	88.5
3150	220	275	87.3	220	275	101.8	220	275	115.3
3500	220	295	94.4	220	295	116.6	220	295	132.2
4000	220	275	105.6	220	275	125.7	220	275	143.5
5000	220	325	126.8	220	325	152.3	220	325	174.5

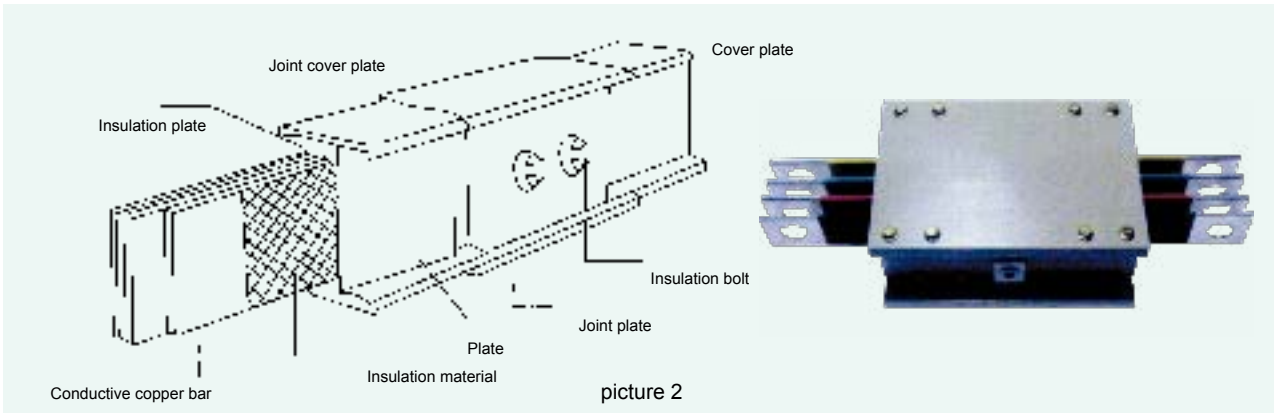
8. Voltage drop, resistance, reactance of each meter busway see table 4 (50Hz)

table 4

Rated current (A)	Resistance $R \times 10^{-6} Q/M$	Resistance $R \times 10^{-6} Q/M$	Resistance $R \times 10^{-6} Q/M$	Voltage drop V						
				COS $\Phi$ Power factor COS $\Phi$						
				1.0	0.95	0.9	0.85	0.8	0.75	0.7
250	94.39	47.19	105.5	0.023	0.024	0.024	0.026	0.026	0.027	0.026
400	70.81	43.59	83.2	0.036	0.036	0.028	0.038	0.039	0.038	0.038
630	72.99	38.21	72.4	0.076	0.084	0.086	0.085	0.085	0.083	0.081
800	61.39	33.21	69.8	0.085	0.095	0.097	0.097	0.096	0.094	0.092
1000	46.91	26.39	53.8	0.081	0.091	0.093	0.093	0.092	0.091	0.090
1250	35.21	20.00	40.6	0.073	0.083	0.084	0.084	0.084	0.083	0.081
1600	26.91	15.49	31.0	0.075	0.084	0.086	0.085	0.085	0.084	0.083
1800	24.01	13.39	27.7	0.073	0.085	0.086	0.086	0.086	0.085	0.084
2000	31.02	11.89	24.1	0.074	0.082	0.083	0.083	0.083	0.082	0.080
2500	17.19	9.71	19.7	0.074	0.084	0.085	0.085	0.085	0.084	0.080
3000	14.30	8.21	16.5	0.073	0.084	0.085	0.085	0.085	0.084	0.080
3500	12.01	6.90	13.8	0.073	0.082	0.084	0.083	0.080	0.082	0.081
4000	10.49	6.01	12.1	0.073	0.082	0.084	0.083	0.083	0.082	0.081
4500	8.23	6.88	10.7	0.064	0.078	0.083	0.083	0.083	0.084	0.083
5000	6.81	7.79	10.3	0.059	0.077	0.086	0.088	0.088	0.089	0.089

# Product Structure

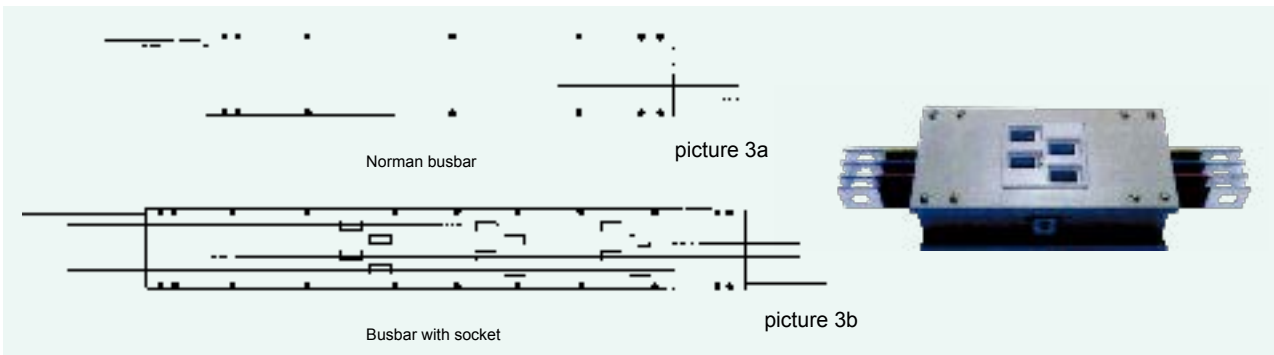
1. The busway consists of current-carrying conductor, shell and insulation material (see picture 2)



- 2. With good corrosion resistant performance, flat and glossy surface, the shell of the busbar is made of cold-roll steel plate with good quality or stainless steel, having enough mechanical strength. The surface is treated with plastics spraying.
- 3. The material of the current-carrying conductor meets the GB5585.1-5585.3 standard. The contact surface of the conductor is treated specially to make the connection joint safe and reliable.
- 4. The busbar can be divided into trunking unit, feeding unit, branching unit, reducing unit, expansion unit and various kinds of bending units.

### 5.1 Trunking unit

The trunking unit has two types: with(3a) or without(3b) branching devices. The basic structure and dimension of the two types are the same. So it is easy for connection and installation.



A. Trunking unit without branching device (see table 5)

table 5

Rated operational current A	Standard length mm	Min. length mm	Max. length mm
100-250	2000, 3000	600	6000
630-1600	2000, 3000	600	6000
2000-5000	2000, 3000	600	6000

# Product Structure

## B. Trunking unit with branching device

Each trunking unit with branching device has branching socket for distributing power load. The quantity of branching socket is decided by the user. The length of the trunking unit with branching socket (see table 6)

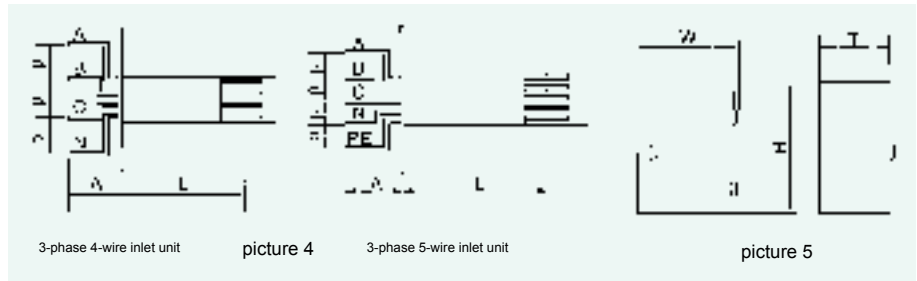
### 5.2 Feeding unit

The feeding unit includes inlet unit and inlet box for user's option.

A. The inlet unit and inlet box are the connection parts for busway and cable. The inlet unit can be connected to the power distribution cabinet or transformer directly as the power input or output of the busway. (See table 4)

table 6

Rated current of trunking A	Component in the branching box A	Min. length of trunking mm	Min. hole distance of branching socket mm
100-250	Without component	1000	500
	100A and lower		700
	250		800
630-1600	Without component		500
	100A and lower		700
2000-5000	250		800
	400, 630		900
	630, 800		1000



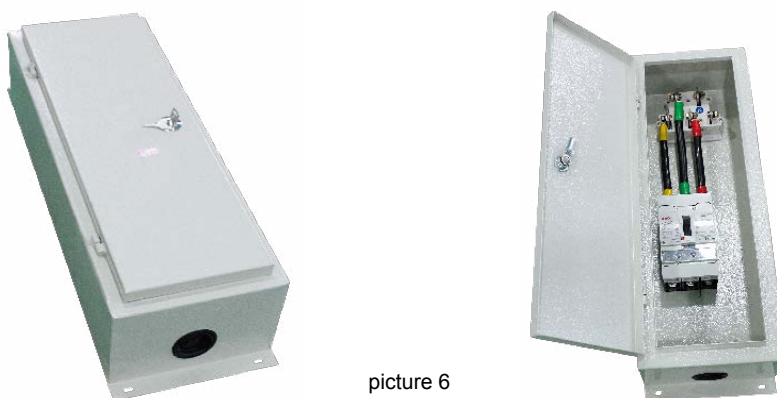
B. The inlet box and inlet unit make up power input device in two types: with switch and without switch. The type of the switch in the inlet box is decided by the user. The dimension is in picture 5 and table 7 (remark: can be customized according to the dimension of the transformer and switch cabinet)

table 7

Rated current of trunking A	Dimension of the inlet box without switch		
	W	H	T
100-630	500	500	250
800-1250	500	600	350
1600-2500	500	600	400
3150-3500	650	900	550
4000-5000	650	1000	800

## Product Structure

5.3 The jack box is used very often and is the key part for protecting branching current. The automatic air switch is installed in the box to avoid shunt overload and make short circuit protection. The types are 100A, 200A, 400A, 630A, and the setting current is decided by the user. The plug is an important part for the jack box. Our special technique is to add 2 pcs of 65Mn spring steel to the plug, ensuring the good spring contact after plugging more than 200times. For the plug over 250A, we use reliable clamping method with external force to make it have good contact.



picture 6

table 8

No.	The component in the branching box	Rated current of branching box	a x b x h (mm)
1	No component	100-200	400 x 200 x 140
		250-630	400 x 250 x 140
2	DZ20, TG, TI, HFB, HKB, HLA, C45, NC-100	100	500 x 220 x 140
		250	600 x 220 x 140
		400	650 x 250 x 160
		630	700 x 300 x 160
3	RT0, NT100, HR5, QSA, FIN	100	700 x 330 x 190
		250	700 x 380 x 190
		400	775 x 330 x 190
		630	760 x 430 x 190

### 5.4 Reducing unit

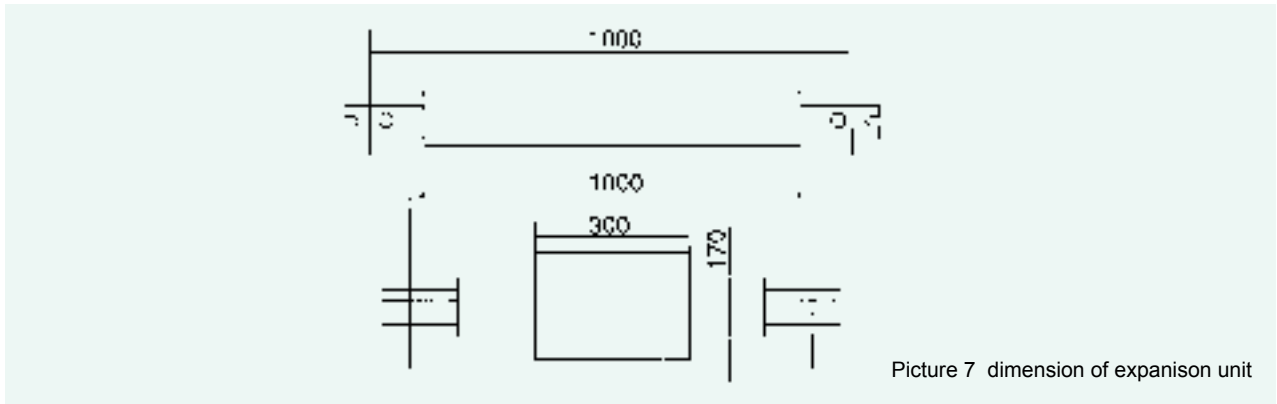
The reducing unit is used for connection of 2 trunking units of busway with different rated current. The standard length of the reducing unit is 1m. The current can be 100A-5000A.

### 5.5 Expansion unit

The expansion unit is used for absorbing variation in the buswayled by thermal expansion. Normally, one expansion unit must be used if the installation length of the busway exceeds 80m, the dimension see picture 7.



# Product Structure



## 5.6 Various kind of bending unit

Used for connection of horizontal and vertical busbar and direction change of busbar, the bending unit includes four types: L, T, Z and cross. The standard length see picture 8, table 9.

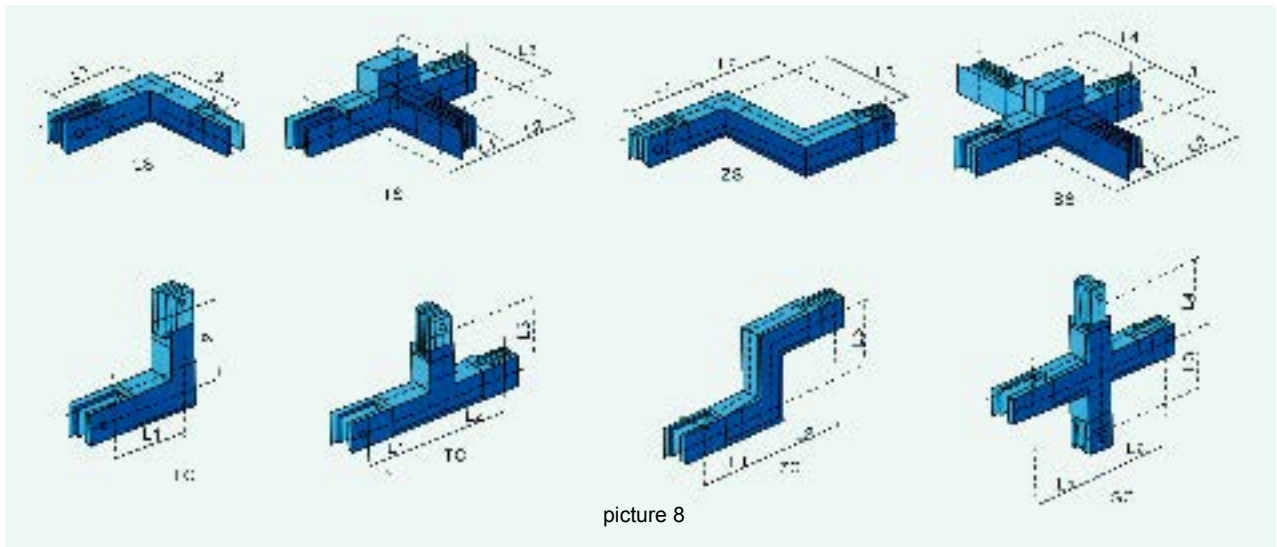


table 9

Rated current of trunking A	100-2500	3150-3500	4000-5000
L1	500	650	650
L2			
L3			
L4			

## 5.7 Terminal box

Used for safety and protection, the terminal box is installed at the end of the busway. The busways in different size have suitable terminal boxes.

# Installation and Inspection

1. Inspection of busway installation

Check if the shell is completed or damaged and check the cold insulation resistance with 1000V framegger, each section need to be higher than 20M.

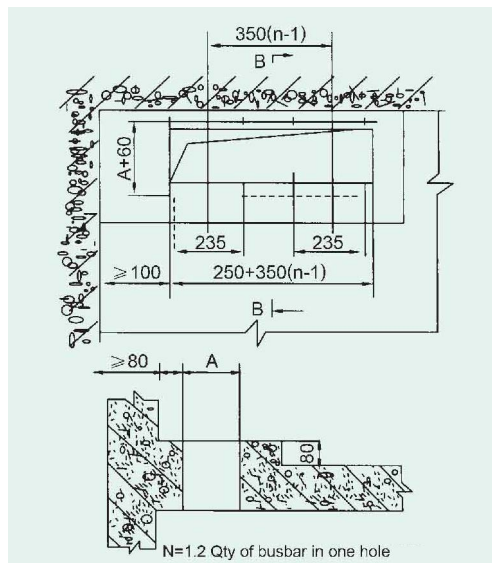
2. Please refer to the related standard of JD6-457, JD6-458 for building electric installation project when installing.

3. Vertical installation of bus duct (through the floors)

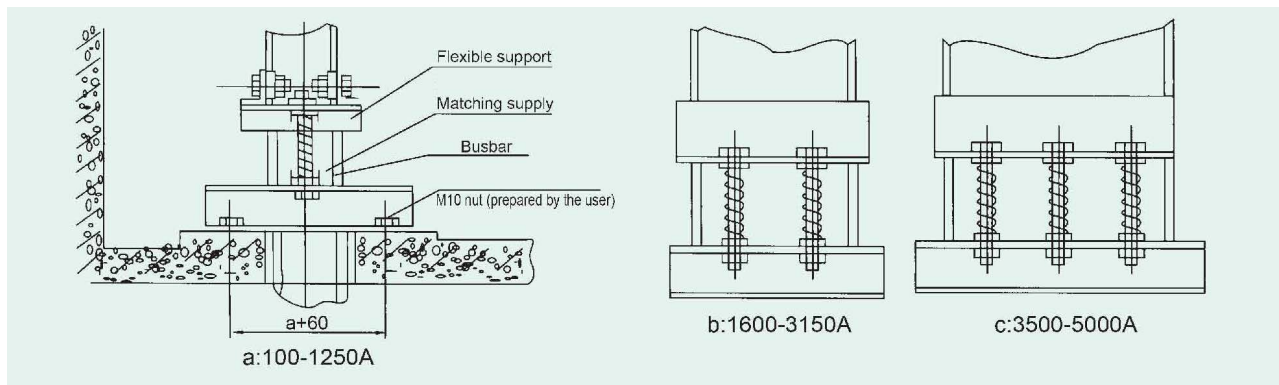
When the busway is installed vertically, the dimension of the prepared holes on the floors refers to picture 9 and table 10. The installation of flexible bracket see picture 10.

table 10

Rated current of trunking A	100-1000	1250-2000	2500-3150	4000-5000
A	250	350	500	700



Picture 9 dimension of the prepared hole in the floorslab

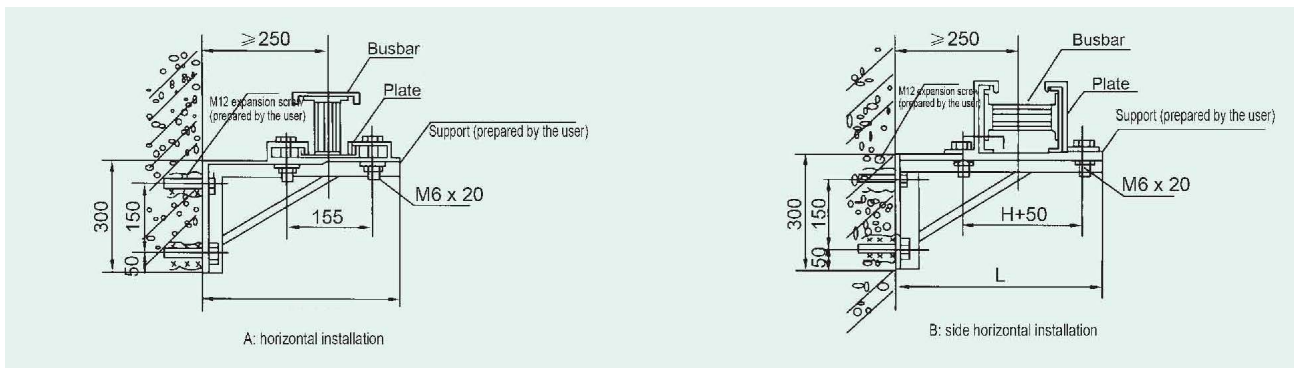


Picture 10 vertical installation of busbar

# Installation and Inspection

## 4. Installation the busbar on the wall

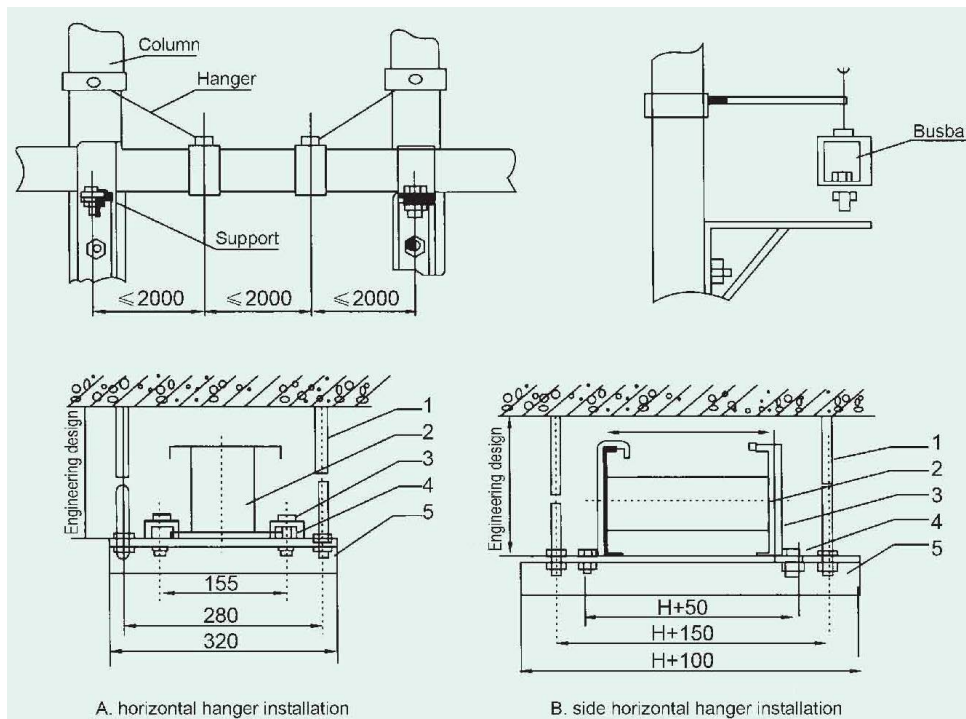
When the bus ducts are installed on the wall, the distance between two supports should be  $\leq 2m$  (see picture 11).



Picture 11 installation diagram the busbar on the wall, L in the diagram is set according to the site

## 5. Horizontal installation along columns, installation diagram of bus duct columns see picture 12.

## 6. Hanger installation. The distance between two supports should be $>2m$ , see picture 12.



picture 12

H: See table 3

1. Boom: Round bar  $\Phi 12$  (prepared by the user)

2. Busway

3-4. Follower bolt, wire (provided by us)

5. Angle bar 50x50x5 (prepared by the user)

Remark: We can also provide the parts prepared by customer, it needs to be stated when placing order.

## Notes

### ■ Connection of busbar

1. After plugging both ends of busway, inserting insulation bolt and installing spring washer, tightening the bolt with wrench, then installing the splint. Tightening the connection bolt is the guarantee of busbar connection. The total torque for the wire under 630A must reach 12kg, check with 0.1mm filler gauge after tightening.
2. The power of busbar must be off when installing or disconnecting jack box. Please take more care of the phase when installing the junction box to avoid wrong plugging.
3. It needs to check procedure carefully after finishing installation so that there is no mistake.
4. It must to test the phase and connection before power on. Check the grounding resistance and insulation resistance. Check if the phase of the device connected to the busbar system is right. After making sure there is no fault, then power can be on.
5. When installing the busbar, our company can arrange technician for instructing on site.

### ■ Storage conditions for busbar

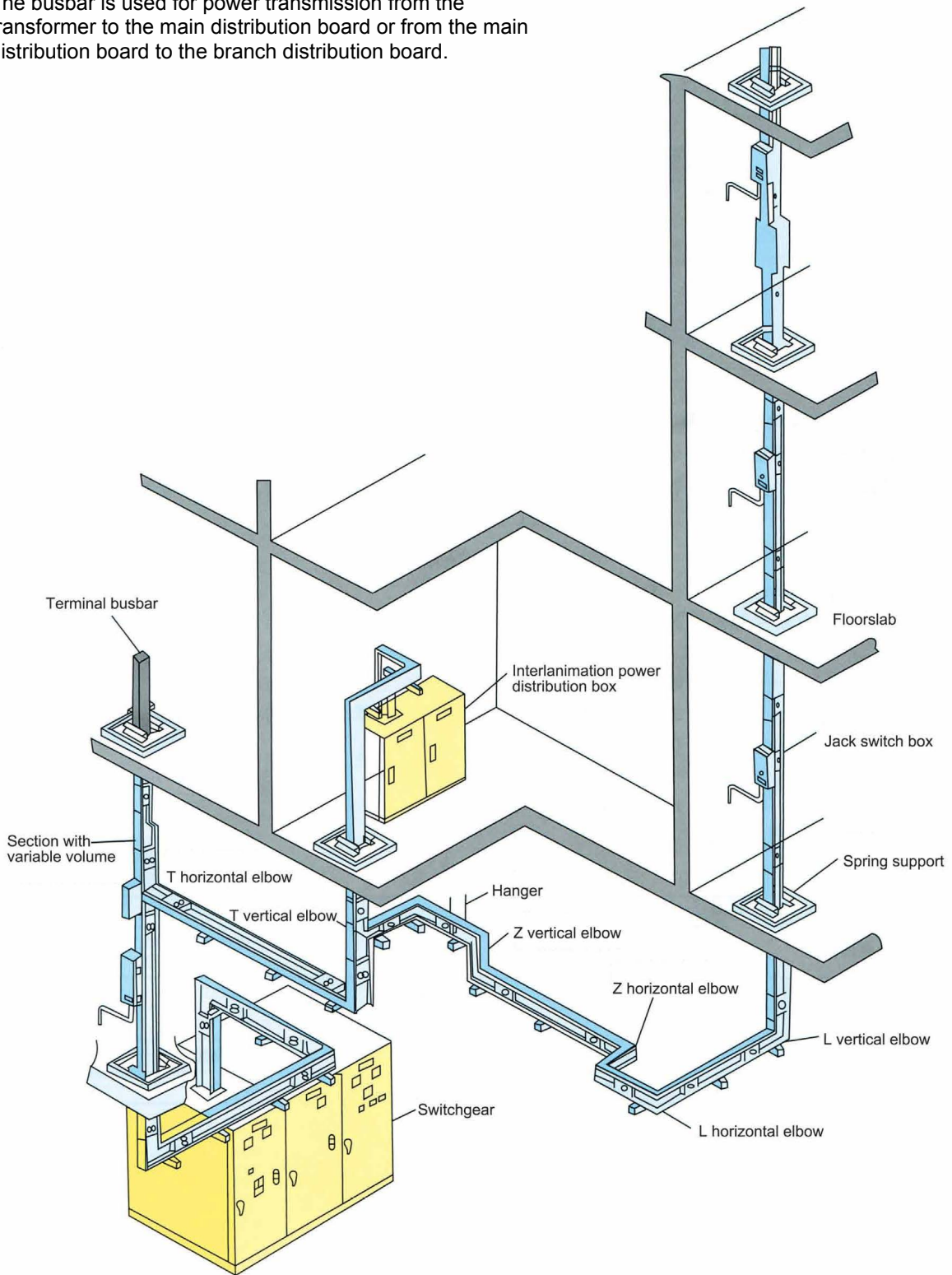
When the storage conditions do not conform to the normal working conditions, the user should sign special agreement with our company. The storage temperature should be between  $-25^{\circ}\text{C} \sim +55^{\circ}\text{C}$ . The temperature can reach  $+70^{\circ}\text{C}$  in short time ( $\leq 24$  hours).

### ■ Ordering Information

1. The following parameters should be specified when placing order:
  - A. Type of busbar, rated current, volatage, phase and wire.
  - B. Standard length and Qty of bus duct, Qty of bending unit and matching accessories.
  - C. The Qty of outlet for each busbar.
  - D. Qty of branching, type and rated parameters of switch.
  - E. Color of the shell.
  - F. Building chart should be provided if the busbar need to be laid vertically.
2. Special requirements should be stated in written form.
3. Our company keeps the contract, delivers the product on time and provides satisfactory after sale service.

# Installation Diagram

The busbar is used for power transmission from the transformer to the main distribution board or from the main distribution board to the branch distribution board.





# LONGXING

## LONGXING

Add: 18 Anju Road, Beilun, Ningbo, 315800, China

Tel: +86 574 87917627 ( English & Chinese )

Fax: +86 574 87908188

Postcode: 315800

Email: [info@nblxtelecom.com](mailto:info@nblxtelecom.com)

Website: [www.lxtelecom.com](http://www.lxtelecom.com)

Ver. FNS160407



Recycled Paper

### **ATTENTION:**

Specifications published here are current as of the date of publication of this document. Because we are continuously improving our products, LongXing reserves the right to change specifications without prior notice. At any time, you may verify product specifications by contacting LongXing.