

Series LV

BB-IP



Up to: **IP 66**

***Electric power distribution with optional
video, phone and data transmission
capabilities***



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System overview



BLINDOBARRAS



LV series busway system is a reliable and efficient electrical distribution system with sandwich construction and superior performance. It is a safe and robust power distribution system with high electrical efficiency, low voltage drop, high mechanical strength.



The system offers a full line of busway to meet the world market: suitable for three-phase three-wire, three-phase four-wire, three-phase five-wire power supply and distribution, with rated current from 250 to 6300A, rated operation voltage up to 690V (rated insulation voltage up to 1000V), IP degree up to Ip66 and the frequency 60Hz.



Constructed with of aluminum housing, LV breaks the barrier or weight as one of the lightest system in the business and offers you maximum flexibility. The full aluminum alloy housing, a low magnetic material, avoid hysteresis loss on the distribution system.



LV Series busway provides longer life than mylar by epoxy insulation(H class)

From every aspect-performance, flexibility, quality and customer value, LV is **the best** choice for your installation.

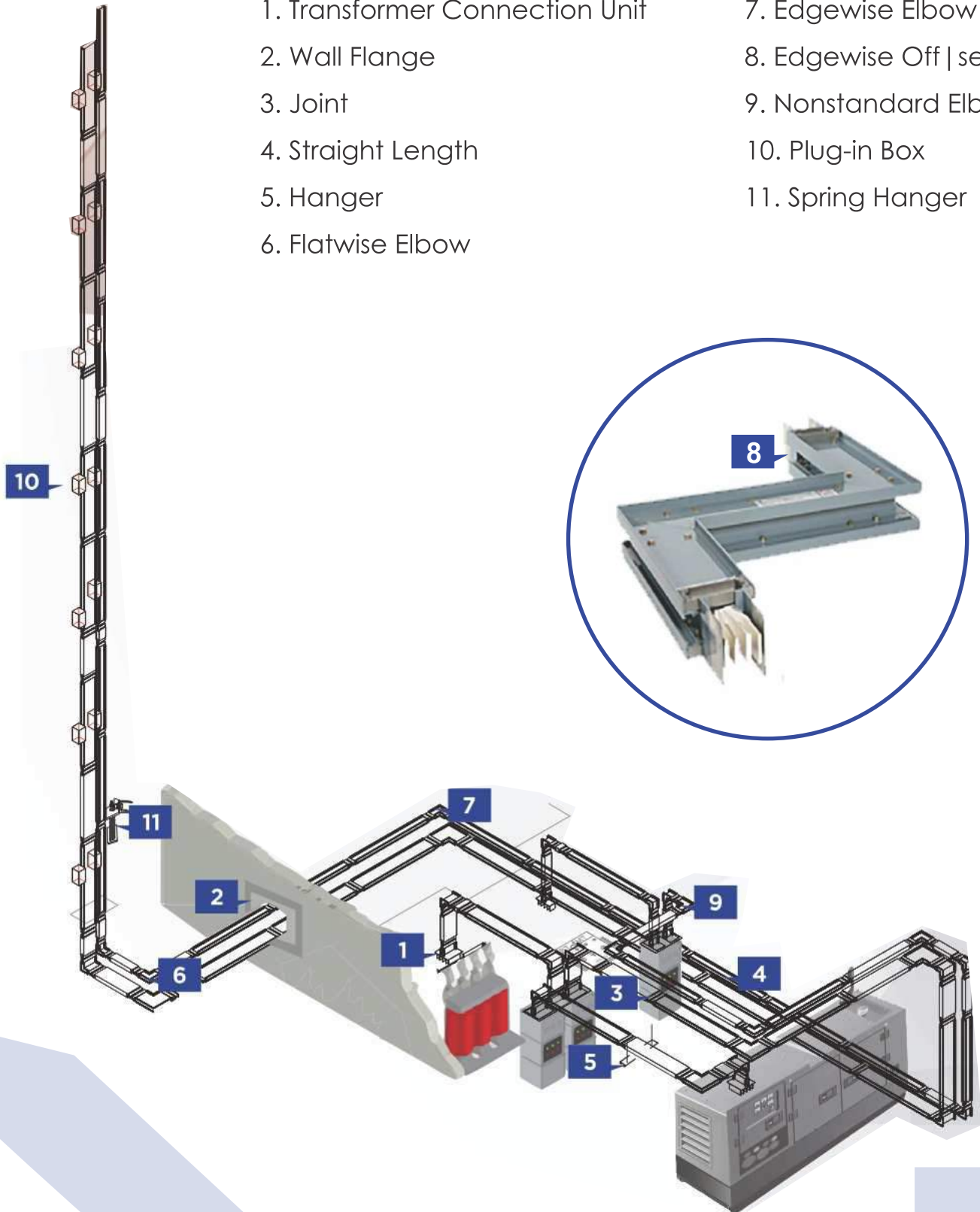
Ideal for: commercial, residential, hospitals, government and military buildings, data centers, telephone operators, etc.

System overview



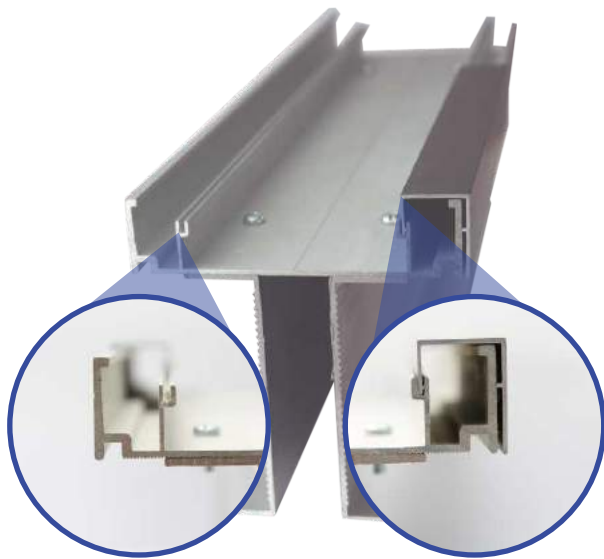
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1. Transformer Connection Unit
2. Wall Flange
3. Joint
4. Straight Length
5. Hanger
6. Flatwise Elbow
7. Edgewise Elbow
8. Edgewise Off | set
9. Nonstandard Elbow
10. Plug-in Box
11. Spring Hanger



Unique structure design

The unique design of housing greatly improves the dissipation for the whole busway system. LV series busway provides more reliable IP protection for the field application than traditional design.



STRUCTURE 1

STRUCTURE 2

STRUCTURE 1

Using the “Faraday cage” technology, we offer 4 useful ducts for UTP cabling, fiber optic or control cable for television, cameras, internet, telephony, etc.

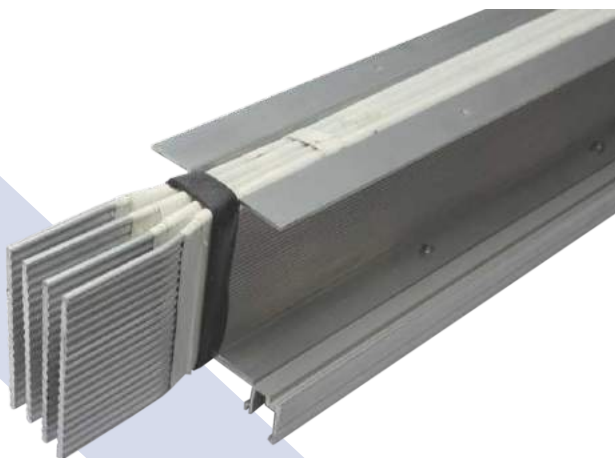
STRUCTURE 2

Greater degree of protection and greater mechanical resistance due to our exclusive joint design of the casing profiles.

the incorporation of lateral channels for the conduction of communication or control cables give the LV system an additional advantage by providing a conduit channel free of electromagnetic interference.

Novel conductor structure

True Sandwich structure for design and construction. Sinusoidal electrical distribution (patent pending): allows an increase of 14.58% of the contact surface achieving better conductivity and lower temperature in the contact joints.



with the sinusoidal design in the conductors we expand the contact area, causing an increase in the driving capacity using a smaller section

Superior and reliable Insulation



Class B(130) PET and Class H (180) epoxy insulation are available.

Epoxy insulation on bus bar applied by an automated process with "3M" coating powder.

Epoxy insulation offers an exceptional electrical performance with dielectric strength as well.

LV epoxy insulation provides longer life (50 years) for the system as Class H insulation allows for continuous operation at maximum ambient.

The flame-retardant performance of LV epoxy insulation complies to V0 grade (UL standards). The busway system is halogen-free with no toxic emission in case of fire.

Compact design with Lighter weight, smaller size



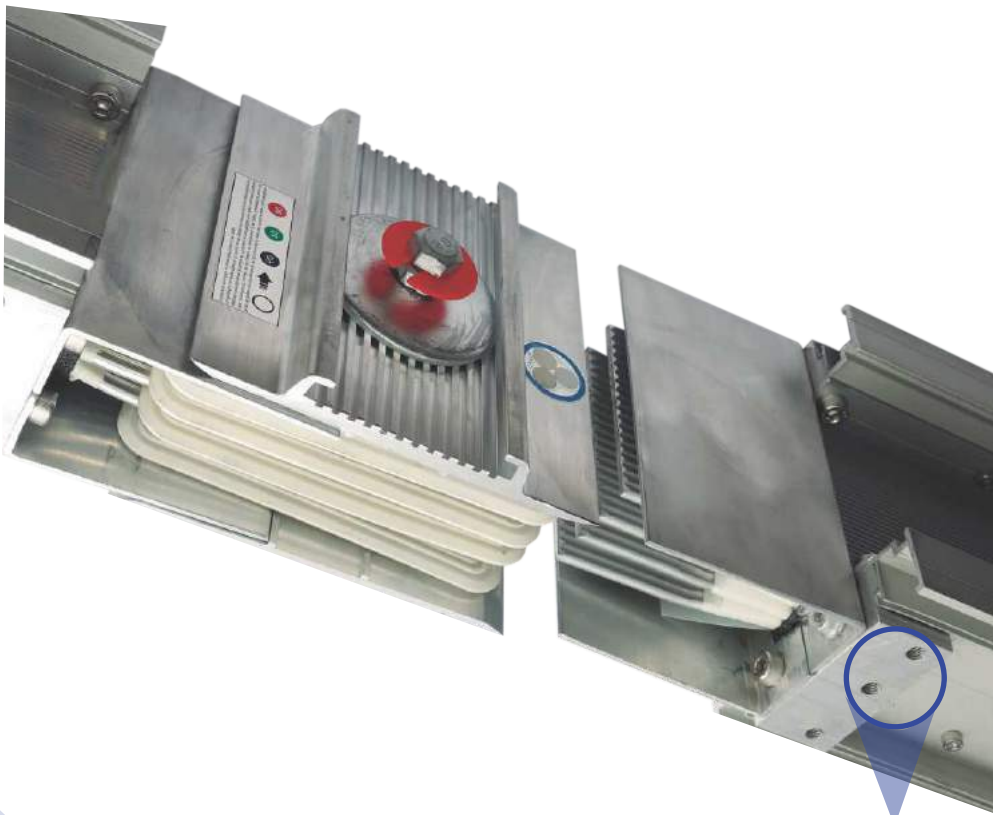
LV busway dimension at 125mmx103mm for 400-630A ratings with very compact design. Bus plug is also compact and dimension begins at 360mm x 250mm x 225mm for 1000 A, with more space for equipment.

Ease of installation and safe operation

Unique error-proof device

A unique error-proof device is designed to prevent potential damage on bus bar due to incorrect connection.

With this unique device, the installers can not connect two sections of busway successfully with incorrect phase orientation.



Neutro

Ease of installation and safe operation

Unique joint design



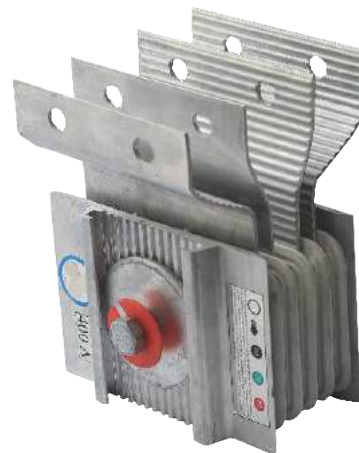
- Single bolt joint design is applied to shorten the time of connection by 50% than the traditional design.
- Double headed "break off" joint bolt is applied to **tighten** the busway with no torque wrench required.

Just a common 16mm socket wrench is used to fasten the fixed captive torque bolt with red indication disc. Belleville spring washers are adopted to ensure pressure evenly applied across the joint.

- Joint insulator with a convex-concave groove edge provides an increased creepage distance.
- color coded temperature indicator is applied at busway joint to give an early warning when high temperature occurs at the joint.



- We replaced the traditional plug-in type boxes by the most reliable screwed systems



High quality guarantee by the state of art equipment and process



BLINDOBARRAS



We produce our own aluminum alloy. A perfect recipe to increase the conductivity in the conductors and increase the mechanical resistance in our products enclosure, achieving the appropriate malleability with the best mechanical resistance. In the photos, our coatings system is shown which has all the environmental certifications required in the current market and one of the profile production lines.

High-speed sawing machine, numerical control machinery is used to precision polish-saw all busbar ends.

The resulting high quality bus end finish does not suffer from the deformed, stretched, inconsistent flat end surfaces common with punched busbar at the most critical interconnection joint locations.



High quality guarantee by the state of art equipment and process



BLINDOBARRAS



Very few factories worldwide have the capability to produce their own profiles and their own aluminum alloys. This fact allows us the most efficient design, eliminating the harmful contaminants of the paint normally used by all the others busbar producers. That is why we can offer a product free of contaminants since paint is replaced by anodized aluminum profiles.

This coating is like that used in aluminum window frames and outdoor structures. We guarantee our coatings for up to 15 years against defects in your pledge.



In our Group Blindobarras we have our own laboratories, we have verification of the alloy with a regularity of 30 to 60 minutes, checking the correct proportion of components such as copper, silicon, manganese, etc. This allows us to have the most reliable product. In the same way, we test the mechanical characteristics so that they are within the parameters designed by our engineers, as well as the density of the chemicals of the coating systems of our profiles.



Lv Series Busway aluminum alloy housing provide an extremely low impedance ground path with small resistance for both copper and aluminum systems. Plug-in outlet grounding is supplied with tin-plated copper tabs bolted to the plug in box housing for **superior** continuity through standard bus plug ground stabs.

Grounding resistance of LV busway system (temperature).

LVA

Current	Internal 50% ground bus resistance(mΩ/m)	Integrated housing ground DC resistance(mΩ/m)
250	291.7	22.88
400	233.3	22.01
630	179.5	20.83
800	147.7	19.84
1000	112.2	18.29
1250	83.9	16.48
1600	61.7	14.44
2000	56.1	9.59
2500	42.0	8.60
3200	30.9	7.50
4000	25.5	6.80

Short-circuit ratings

LV busway provides a stable and efficient power transmission, with a high short-circuit withstand capability. LV busway has been certified by KEMA to be in compliance with IEC 61439-6 and 2-short circuit withstand test for 1 second.

Aluminum conductor

Current	Rated short circuit withstand current(ICW)KA	Rated peak withstand current(IPK)KA
250	20	40
400		
630	30	63
800		
1000	50	105
1250		
1600	65	143
2000	80	176
2500		
3200	120	264
4000		

Kema-LV Aluminium

Tech List Operation Temperature 20°C~40°C

Current	Outline Dimension		Weight Kg/meter		short circuit test current KA	ilcw KA	iPK jKA	IP	Rated insulation voltage Ui	Rated operation voltage Ue	Rated impulse withstand voltage Uimp
	Width (W)	Height (h)	4 W 100% N	5 W 100% N 50% PE							
250	125	103	6,7	7,1	20	20	40	Feeder IP66 Plug-in IP54	AC1000V	AC690V	8KV
400	125	113	7,4	7,8							
630	125	128	8,4	8,9	30	30	63				
800	125	142	9,4	10,0							
1000	125	167	11,1	11,9	50	50	105				
1250	125	202	13,5	14,6							
1600	125	252	16,9	18,3	80						
2000	125	320	21,2	22,8		80	176				
2500	125	390	26,0	28,1							
3200	125	490	32,8	35,7	120	120	264				
4000	125	570	39,2	42,9							

Resistance, reactance, impedance and voltage drop

Aluminium busway

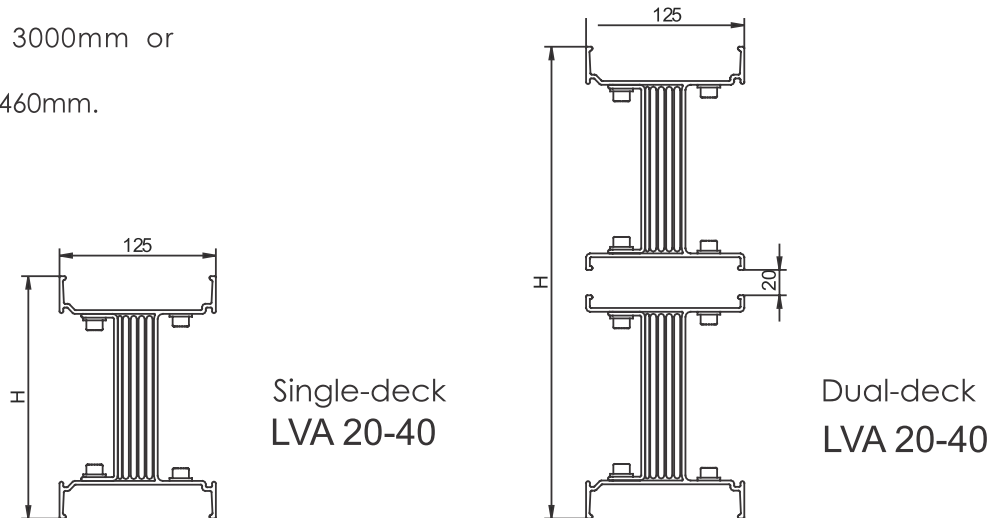
60HZ, temperature 20°C ~ 40°C

Current	Bars per Phase	AC Resistance	Reactance	Impedance	Voltage Drop per meter @ full load			
					Power factor			
					0,7	0,8	0,9	1
250	1	0,154	0,024	0,156	0,054	0,059	0,065	0,067
400	1	0,123	0,021	0,125	0,070	0,077	0,084	0,085
630	1	0,095	0,018	0,097	0,087	0,095	0,102	0,103
800	1	0,077	0,016	0,079	0,090	0,099	0,106	0,106
1000	1	0,059	0,014	0,060	0,088	0,096	0,102	0,102
1250	1	0,044	0,011	0,046	0,084	0,091	0,097	0,095
1600	1	0,033	0,009	0,033	0,081	0,087	0,092	0,090
2000	2	0,030	0,008	0,030	0,092	0,099	0,104	0,102
2500	2	0,022	0,006	0,023	0,086	0,092	0,097	0,095
3200	2	0,016	0,004	0,017	0,078	0,084	0,090	0,090
4000	4	0,012	0,002	0,013	0,071	0,078	0,084	0,086
5000	4	0,010	0,002	0,011	0,067	0,074	0,082	0,083

Straight length

Feeder, the straight length without outlets, may be installed either horizontally or vertically.

The standard length is either 3000mm or 4000mm. The minimum length is 460mm.



Aluminum conductor

Current	Dimension		Weight per meter (kg/m)		Fig.
	Width (W)	Height (H)	4wire 100%N	5wire 100%N, 50%PE	
250	125	78.5	6.7	7.1	13-1
400	125	100	7.4	7.8	
650	125	126	8.4	8.9	
800	125	147.5	9.4	10	
1000	125	168.5	11.1	11.9	
1250	125	200.3	13.5	14.6	
1600	125	238	16.9	18.3	
2000	125	337	21.2	22.8	13-2
2500	125	400.6	26	28.1	
3200	125	476	32.8	35.7	
4000	125	600.9	39.2	42.9	

L flatwise elbow

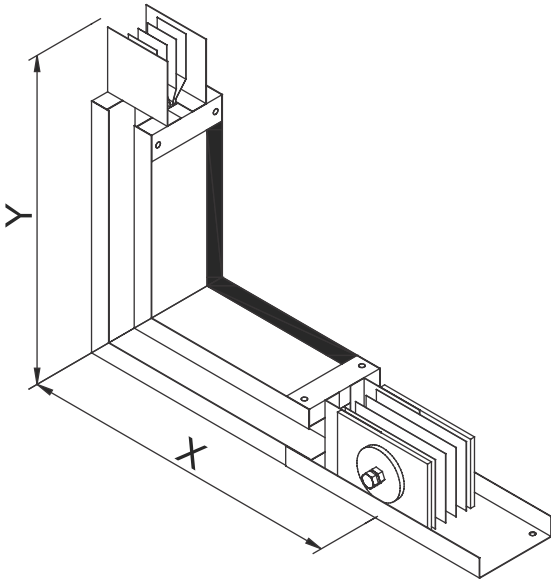


Fig 15-1

Rated current (A)	Aluminium busway size (mm)			
	Minium		Standard	
	X	Y	X	Y
250	341	341	450	450
400	351	351	450	450
630	366	366	450	450
800	381	381	450	450
1000	406	406	450	450
1250	441	441	500	500
1600	491	491	500	500
2000	560	560	850	850
2500	630	630	850	850
3200	730	730	850	850
4000	810	810	850	850

L edgewise elbow

Rated current (A)	Aluminium busway size (mm)			
	Minium		Standard	
	X	Y	X	Y
250	363	363	400	400
400	363	363	400	400
630	363	363	400	400
800	363	363	400	400
1000	363	363	400	400
1250	363	363	400	400
1600	363	363	400	400
2000	363	363	400	400
2500	363	363	400	400
3200	363	363	400	400
4000	363	363	400	400

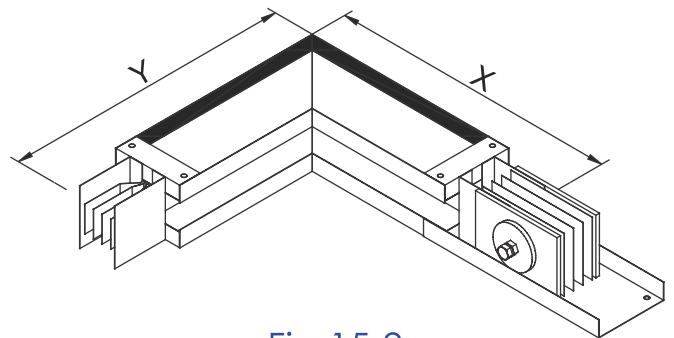


Fig 15-2

Z flatwise o set

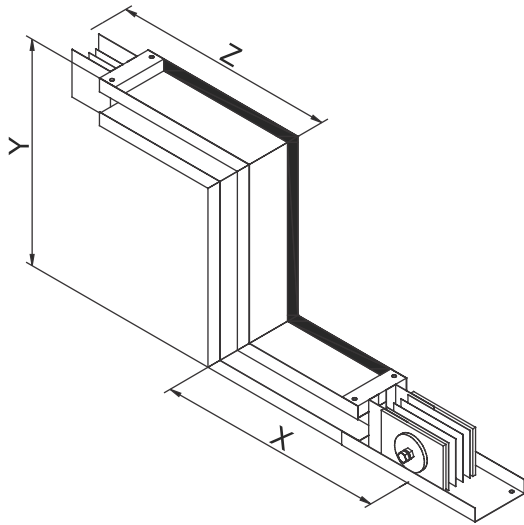


Fig 16-1

Rated current (A)	Aluminium busway size (mm)					
	Minium			Standard		
	X	Y	Z	X	Y	Z
250	341	326	341	450	500	450
400	351	346	351	450	500	450
630	366	376	366	450	500	450
800	381	406	381	450	500	450
1000	406	456	406	450	500	450
1250	441	526	441	500	650	500
1600	491	626	491	500	650	500
2000	560	764	560	850	1300	850
2500	630	904	630	850	1300	850
3200	730	1104	730	850	1300	850
4000	810	1264	810	850	1300	850

Z edgewise off set

Rated current (A)	Aluminium busway size (mm)					
	Minium			Standard		
	X	Y	Z	X	Y	Z
250	363	370	363	400	400	400
400	363	370	363	400	400	400
630	363	370	363	400	400	400
800	363	370	363	400	400	400
1000	363	370	363	400	400	400
1250	363	370	363	400	400	400
1600	363	370	363	400	400	400
2000	363	370	363	400	400	400
2500	363	370	363	400	400	400
3200	363	370	363	400	400	400
4000	363	370	363	400	400	400

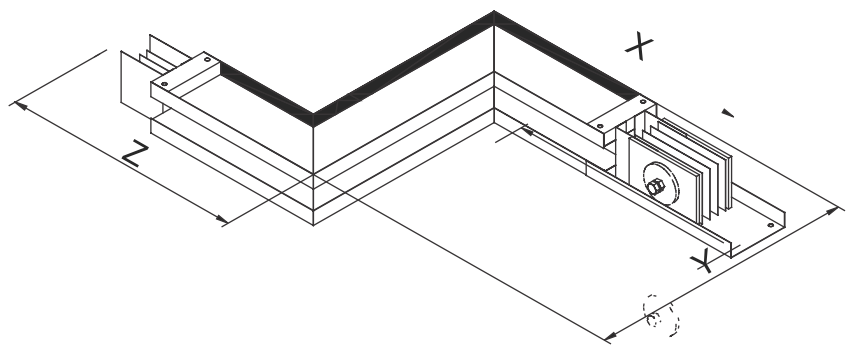


Fig 16-2

Flatwise U

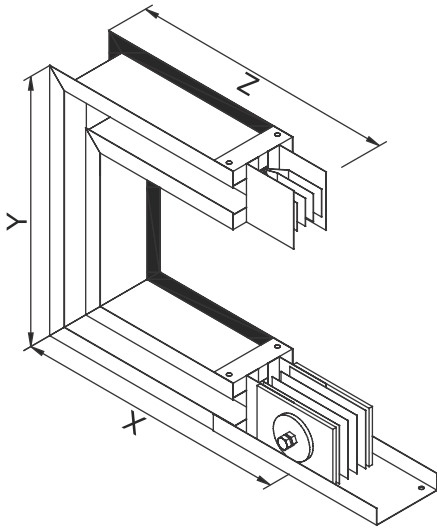


Fig 17-1

Rated current (A)	Aluminium busway size (mm)					
	Minium			Standard		
	X	Y	Z	X	Y	Z
250	341	326	341	450	500	450
400	351	346	351	450	500	450
630	366	376	366	450	500	450
800	381	406	381	450	500	450
1000	406	456	406	450	500	450
1250	441	526	441	500	650	500
1600	491	626	491	500	650	500
2000	560	764	560	500	650	500
2500	630	904	630	850	1300	850
3200	730	1104	730	850	1300	850
4000	810	1264	810	850	1300	850

Edgewise U

Rated current (A)	Aluminium busway size (mm)					
	Minium			Standard		
	X	Y	Z	X	Y	Z
250	363	370	363	400	400	400
400	363	370	363	400	400	400
630	363	370	363	400	400	400
800	363	370	363	400	400	400
1000	363	370	363	400	400	400
1250	363	370	363	400	400	400
1600	363	370	363	400	400	400
2000	363	370	363	400	400	400
2500	363	370	363	400	400	400
3200	363	370	363	400	400	400
4000	363	370	363	400	400	400

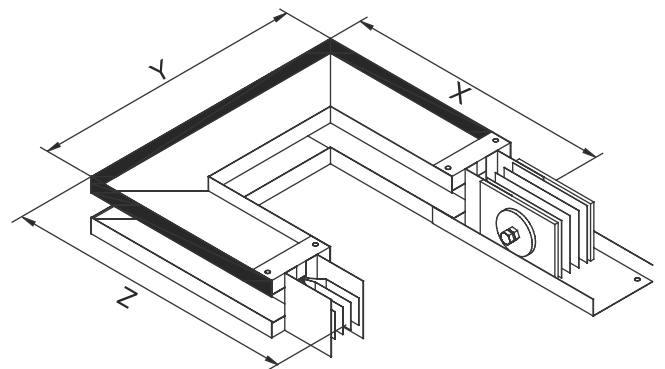


Fig 17-2

Flatwise Tee

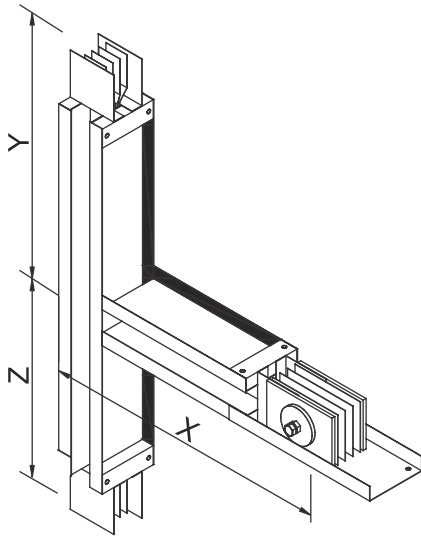


Fig 18-1

Rated current (A)	Aluminium busway size (mm)					
	Minium			Standard		
	X	Y	Z	X	Y	Z
250	341	290	290	450	350	350
400	351	295	295	450	350	350
630	366	302	302	450	350	350
800	381	310	310	450	350	350
1000	406	322	322	450	350	350
1250	441	340	340	500	400	400
1600	491	365	365	500	400	400
2000	560	399	399	850	550	550
2500	630	434	434	850	550	550
3200	730	484	484	850	550	550
4000	810	524	524	850	550	550

Edgewise Tee

Rated current (A)	Aluminium busway size (mm)					
	Minium			Standard		
	X	Y	Z	X	Y	Z
250	363	411	411	400	500	500
400	363	421	421	400	500	500
630	363	436	436	400	500	500
800	363	451	451	400	500	500
1000	363	476	476	400	500	500
1250	363	511	511	400	600	600
1600	363	561	561	400	600	600
2000	363	630	630	400	900	900
2500	363	700	700	400	900	900
3200	363	800	800	400	900	900
4000	363	880	880	400	900	900

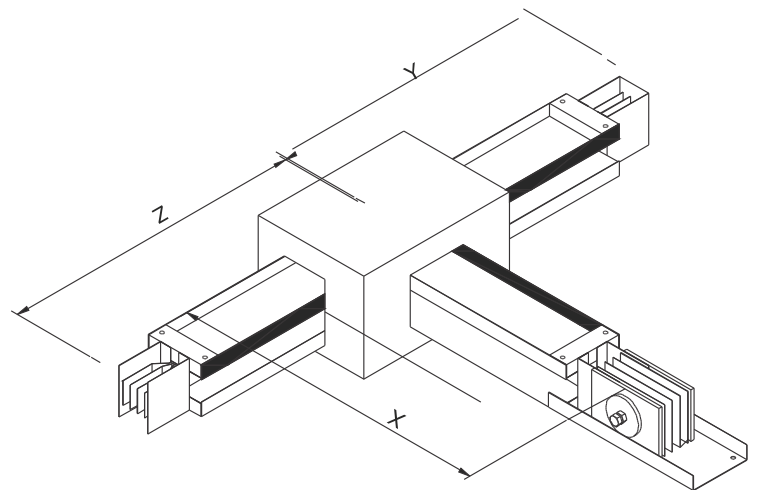


Fig 18-2

Combination Elbow

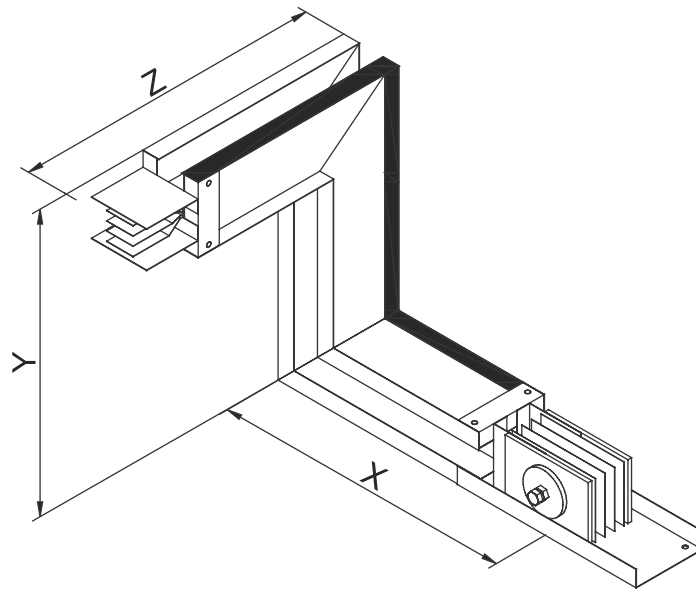
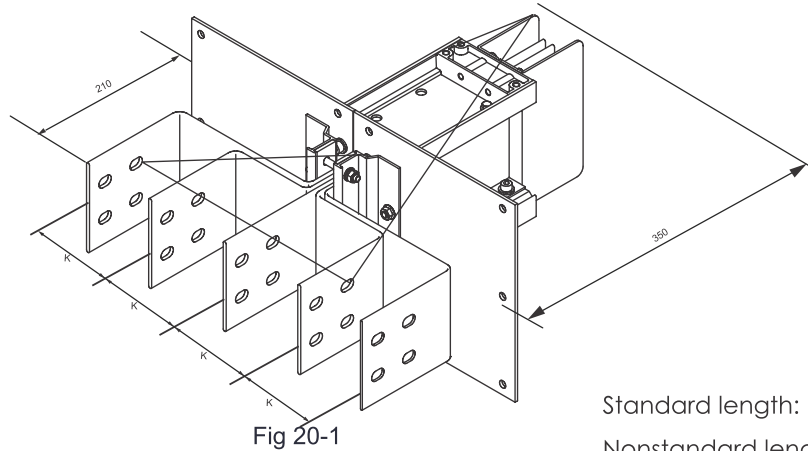


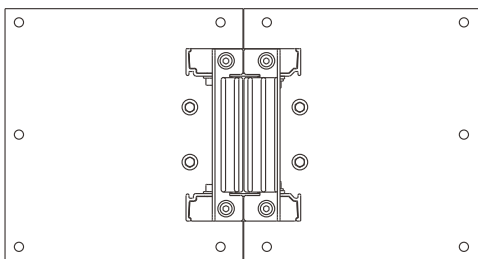
Fig 19-1

Rated current (A)	Aluminium busway size (mm)					
	Minium			Standard		
	X	Y	Z	X	Y	Z
250	341	348	363	450	450	400
400	351	358	363	450	450	400
630	366	373	363	450	450	400
800	381	388	363	450	450	400
1000	406	413	363	450	450	400
1250	441	448	363	500	500	400
1600	491	498	363	500	500	400
2000	560	567	363	850	850	400
2500	630	637	363	850	850	400
3200	730	737	363	850	850	400
4000	810	817	363	850	850	400

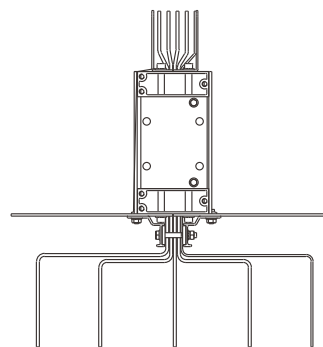
Flange end



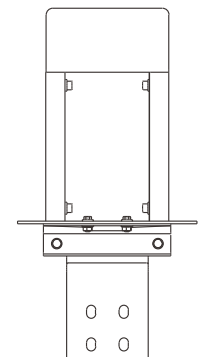
Standard length: $L=0.56\text{m}$
 Nonstandard length: $L=0.56 - 2.00\text{m}$



Section view
 Fig 20-2



Top view
 Fig 20-3

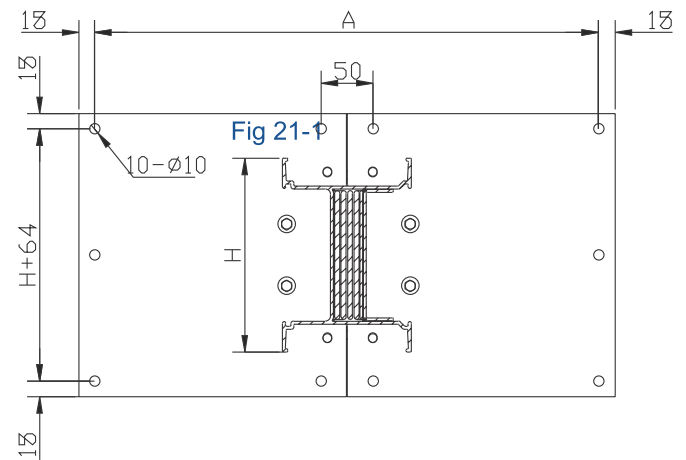


Side view
 Fig 20-4

Flanged end and end tap box can be used in connection with any type of switchgear cabinets and transformers. Flanged end busbar spacing can be customized on specific application.

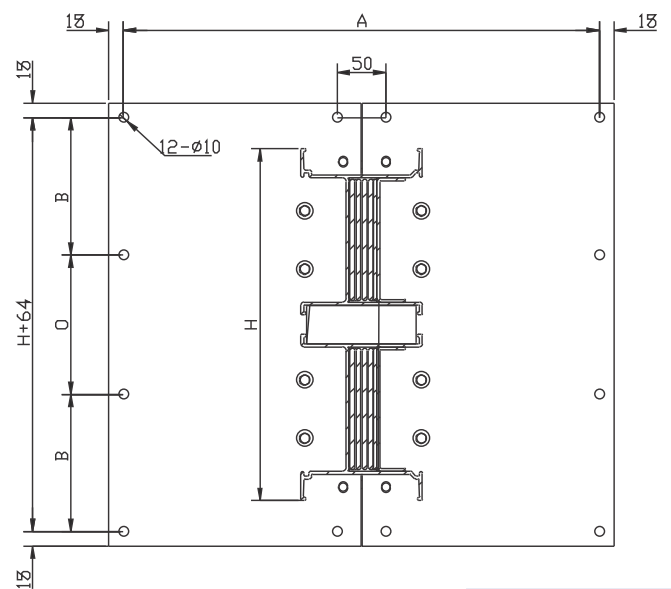
Note:
 All the dimension provided are for standard products. Please contact our engineers for customized dimensions.

Flanged end cut out and drilling pattern

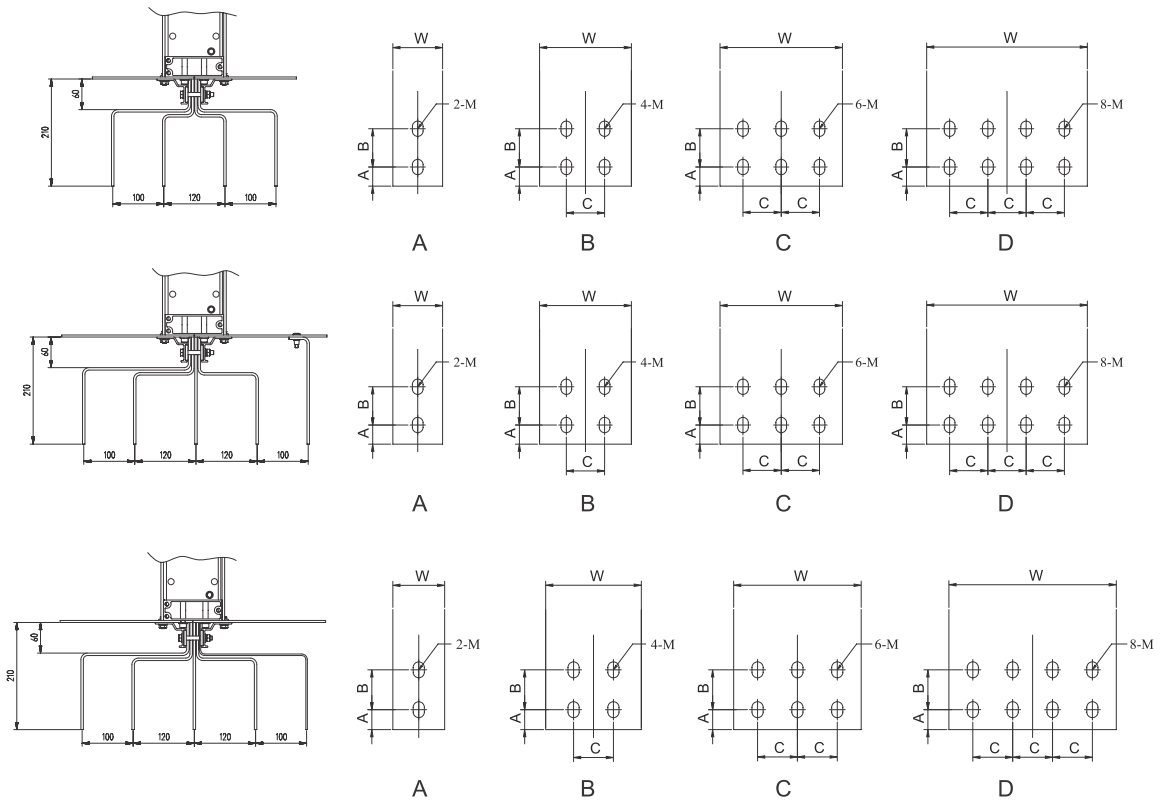


LVA

Rated Current (A)	3L+N+PE Size (mm)				3L+N Size (mm)			Fig
	H	A	B	C	A	B	C	
250	103	490	-	-	370	-	-	21-1
400	113	490	-	-	370	-	-	
630	128	490	-	-	370	-	-	
800	143	490	-	-	370	-	-	
1000	168	490	-	-	370	-	-	
1250	203	490	-	-	370	-	-	
1600	253	490	-	-	370	-	-	21-2
2000	322	490	130	126	370	130	126	
2500	392	490	150	156	370	150	156	
3200	492	490	185	186	370	185	186	
4000	572	490	210	216	370	210	216	



Flaged end bar hole pattern



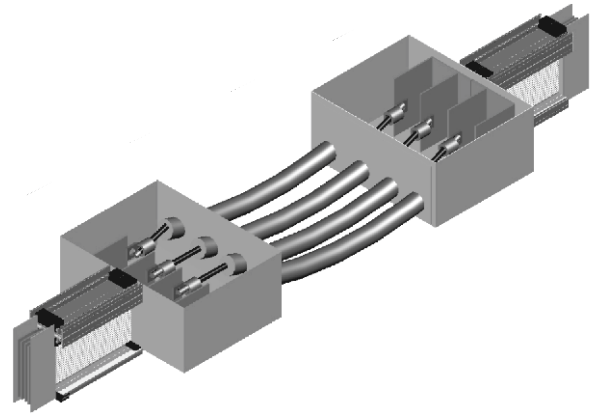
Aluminum conductor

Rated Current	A	B	C	M	Type
250	25	50		Ö14×20	A
400	25	50		Ö14×20	A
630	25	50		Ö14×20	A
800	25	50		Ö14×20	A
1000	25	50	50	Ö14×20	B
1250	25	50	50	Ö14×20	C
1600	25	50	50	Ö14×20	C
2000	25	50	50	Ö14×20	D
2500	25	50	50	Ö14×20	C
3200	25	50	50	Ö14×20	C
4000	25	50	50	Ö14×20	D

Seismic board resistant

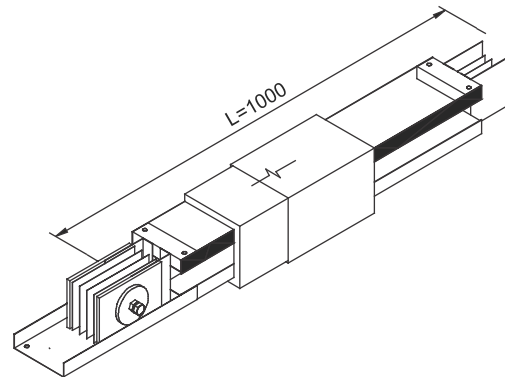
In seismic zones the installation of anti-seismic joints is recommended.

These are two final boxes joined with appropriate cables for the installation conditions and duly protected with flexible anticorrosive pipe



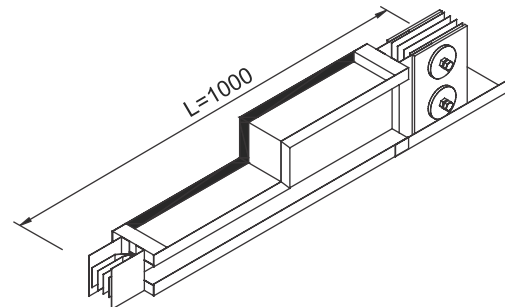
Expansion joint

Expansion length is the transition section compensating for thermal expansion, it is normally set each 60m in linear distance.



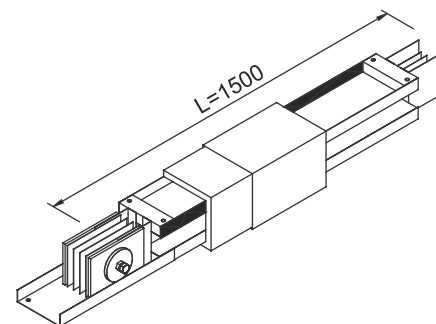
Transition joint

This transition section is used for reducing busbar size to the final load, it provides users with more economic power transmission and distribution method.



Transposition joint

Transposition section is the transition parts used for changing phase sequence of the busbar; it is minimum size is 1500mm. The phase sequence of both sides has to be provided by the customer.



Bolt-on box

The safest way derive
replace the traditional, less safe,
plug-in boxes

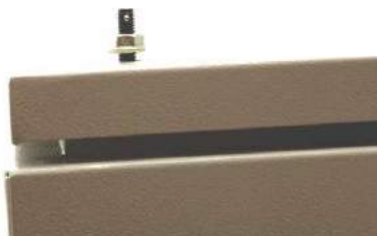


Upon opening the lid, there are no live parts
that could endanger the operator

During installation, the internal lid can slide
out for effortless connection and inspection



Screws with perforations for attaching
antifraud security seals

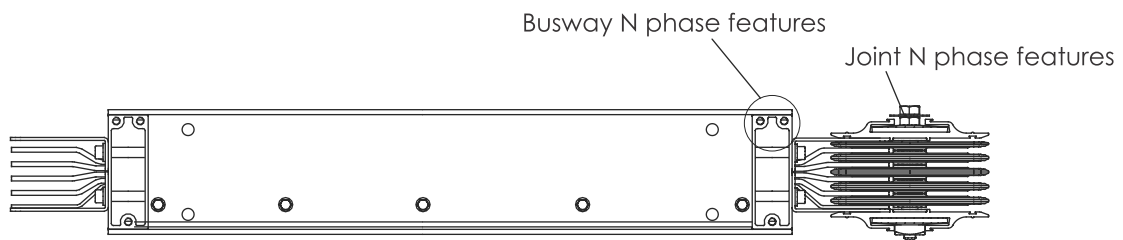


Opening for introduction of joint
derivation connectors

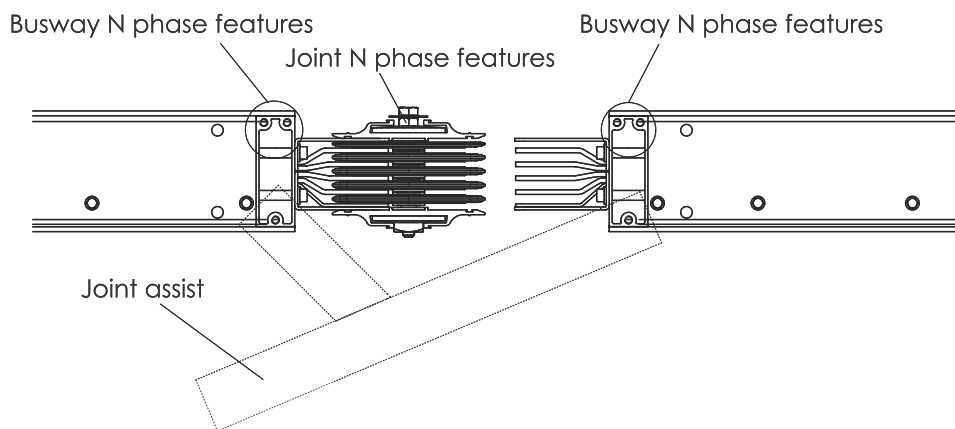


Installation busway and joint

- ◆ Put the busway on the overhead support;
- ◆ Loosen the double-headed torque bolt of joint;
- ◆ Assemble the joint to busway with "N" phase matching with each other (Note: failure to fix the bolt may cause fall of joint).

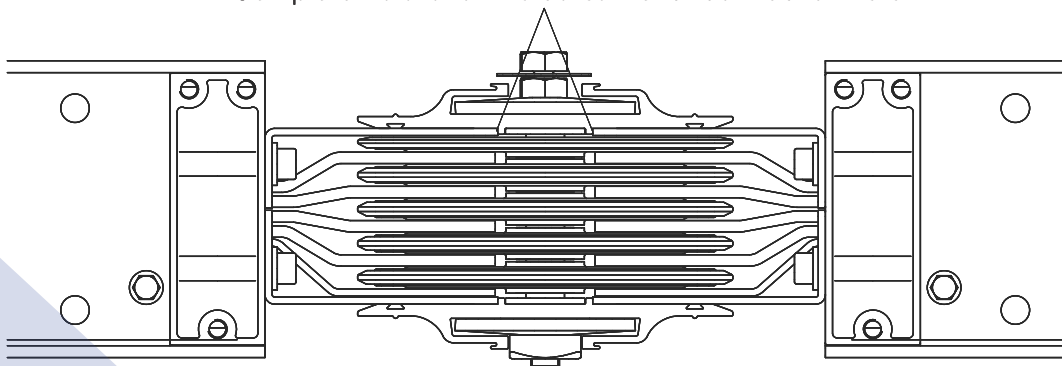


(3) Assemble the next busway to the other side of joint. (Joint assist will make the installation easier)



(4) Position the busway and joint to make sure reliable and complete connection.

Complete installation indicates the full connection here

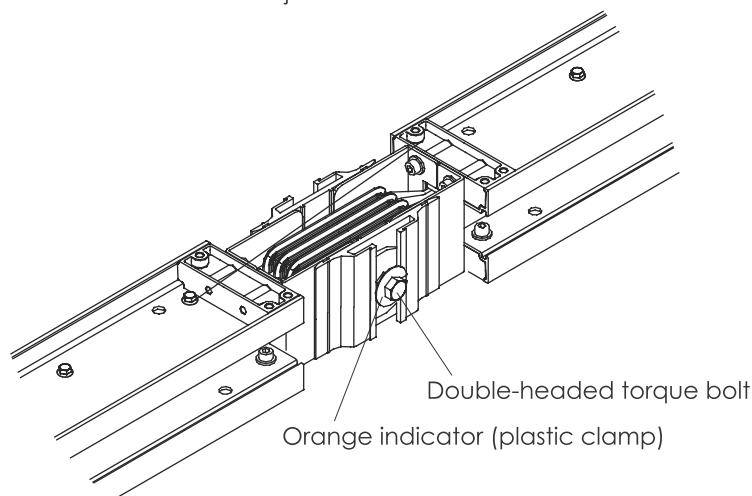


Installation busway and joint

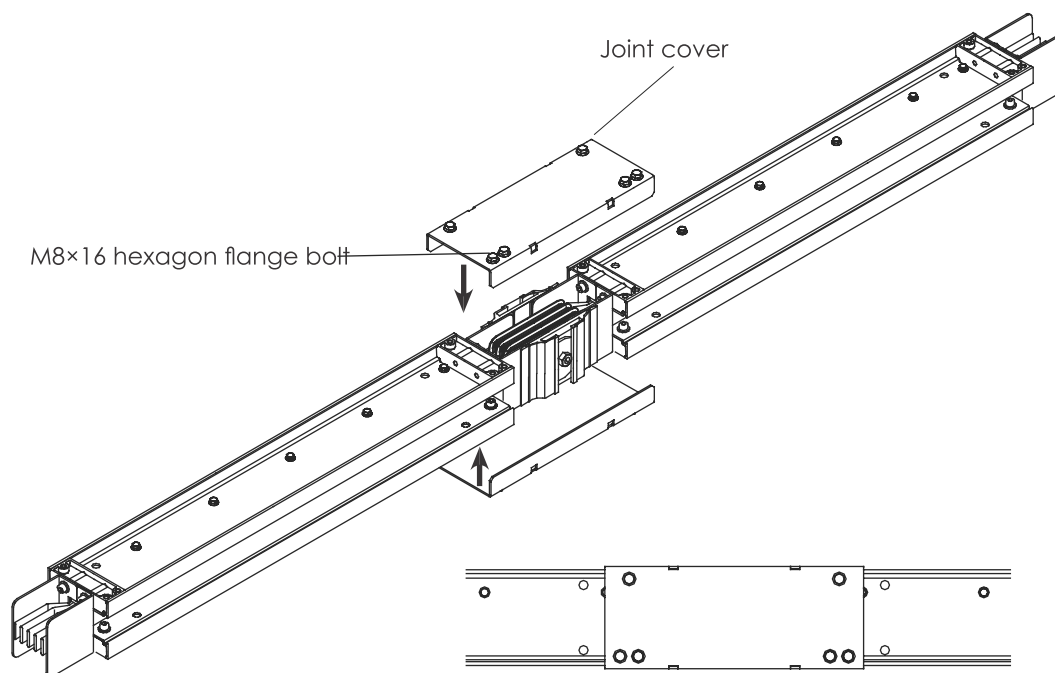


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(5) Tighten the double-headed torque bolt with a spanner until the top bolt head shears off and orange indicator falls off to achieve reliable connection of joint.



(6) Install the top, bottom cover plate and tighten the bolt by following steps shown below.



(7) Megohm the busway installed with joint, insulation resistance reading shall be more than 5 M Ω

Installation for Vertical Spring Hanger

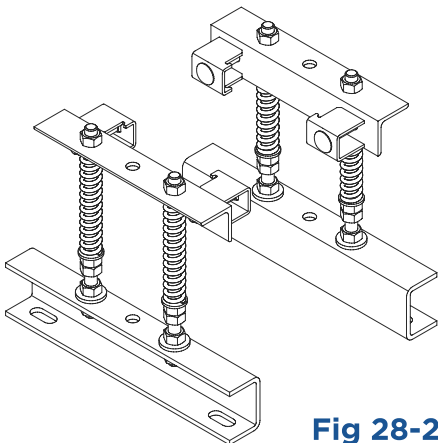


Fig 28-2

Vertical Spring Hanger

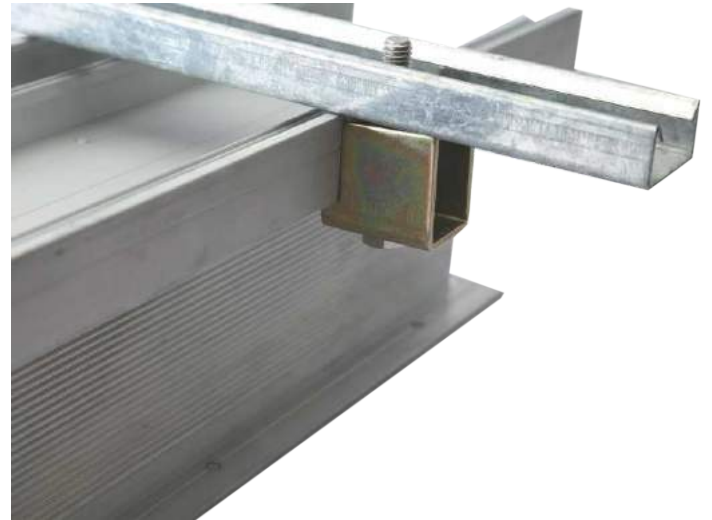


Fig 28-3

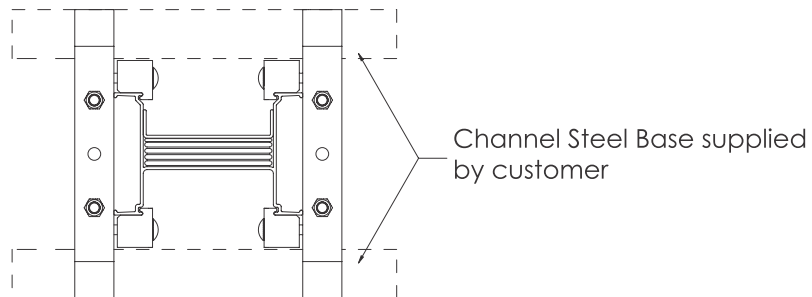
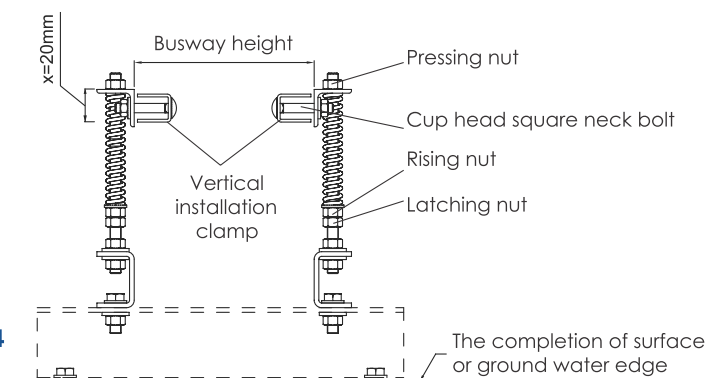


Fig 28-4



Installation Schematic Diagram

Installation for Vertical Fixed Hanger

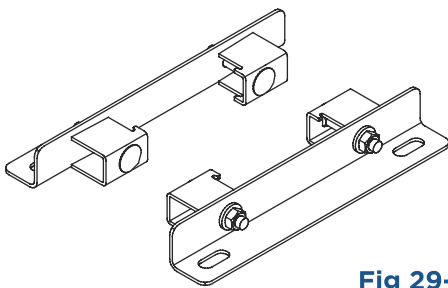
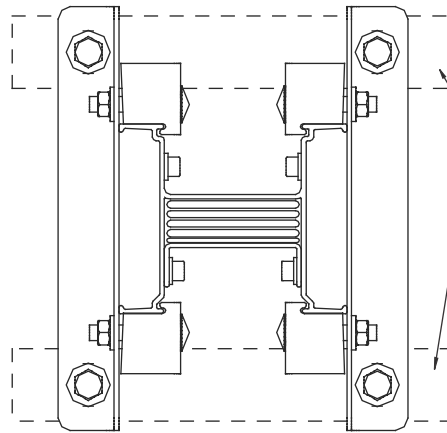


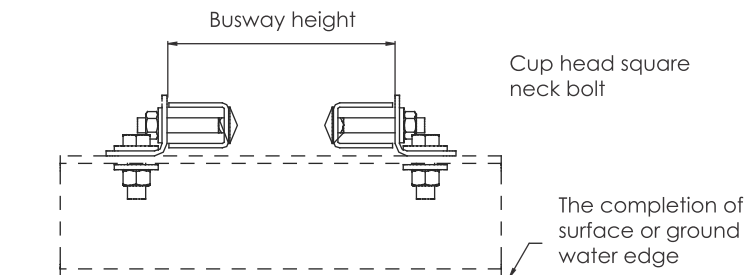
Fig 29-1

Vertical Fixed Hanger



Channel Steel supplied by customer
Customer supply the fixed parts of channel steel to ground and hanger to channel steel

Fig 29-2



Installation Schematic Diagram

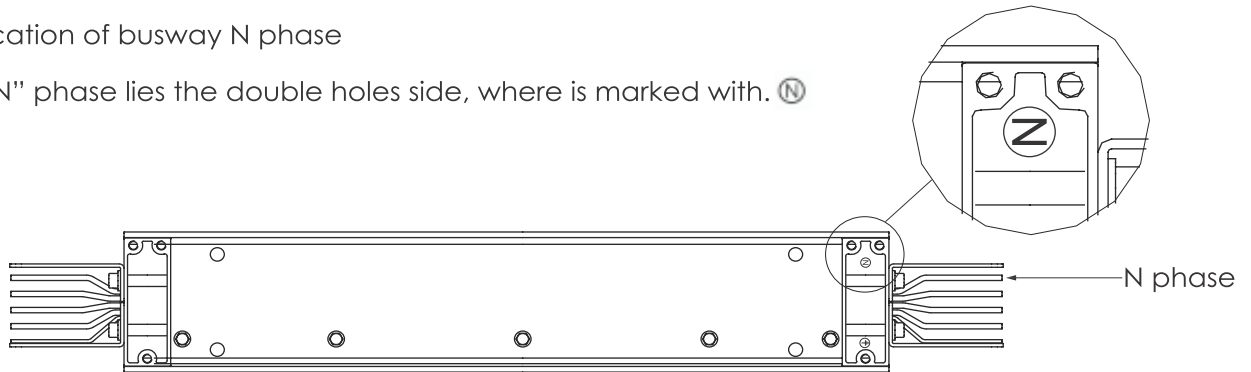
Fig 29-3

1. Construction features identification

Maintain N phase alignment of busway and joint during installation.

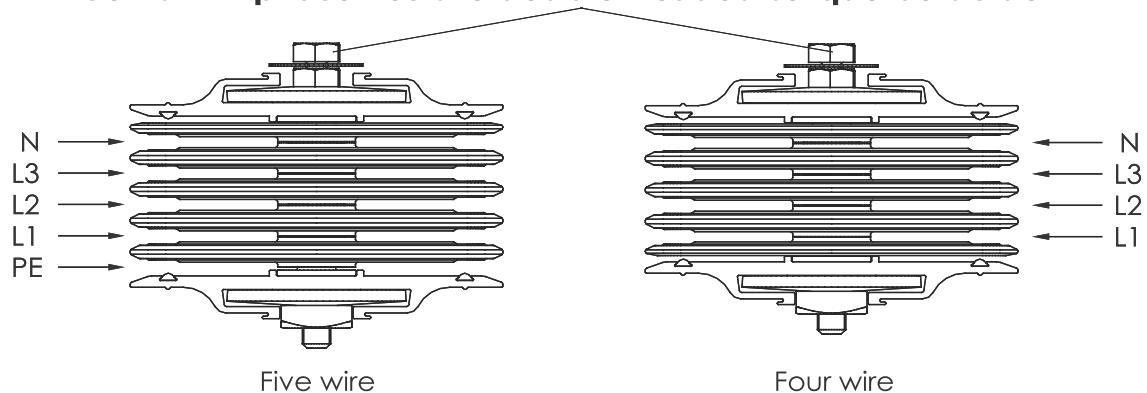
(1) Identification of busway N phase

Busay "N" phase lies the double holes side, where is marked with. N



(2) Identification of joint N phase

Joint "N" phase lies the double-headed torque bolt side.



2. Installation tools:

tapeline, megohm, $\phi 19$ tubular spanner, 12# ring spanner(hexagon open spanner) etc.

3. Installation steps

(1) Pre-installation procedure

- ◆ Check out the busway and joint per the installation material;
- ◆ Inspect the busway and joint, make sure they are in good condition;
- ◆ Megohm test each busway before installation, the insulation resistance shall be more than $100 \text{ M}\Omega$
- ◆ Prepare to install.

Transformer Connection

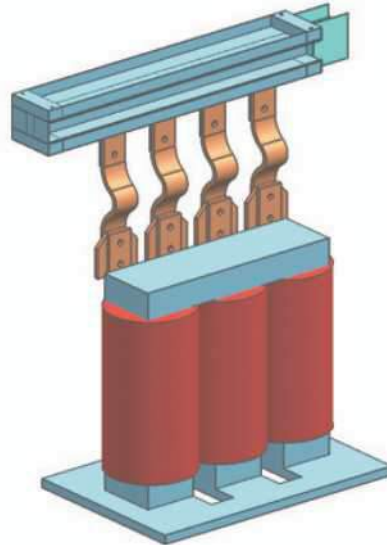


Fig 30-1

Switchgear Connection

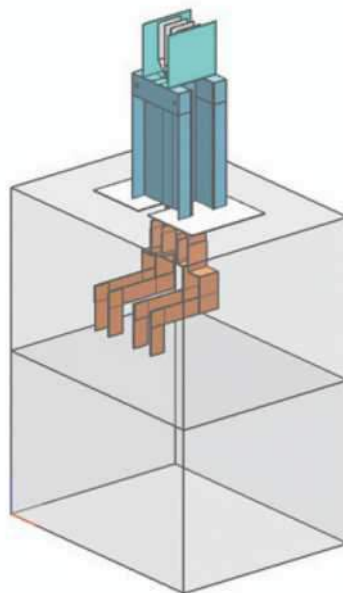


Fig 30-2



SERIE LV™ purchase guide

Quotation Inquiry Form

- Model, rated current, rated voltage
- Plug-in busway or in feeder busway
- Characteristics of the power supply and protection degree
- Surface treatment and color and accessories
- Name, model, specifications, quantity of components and protection degree of the plug

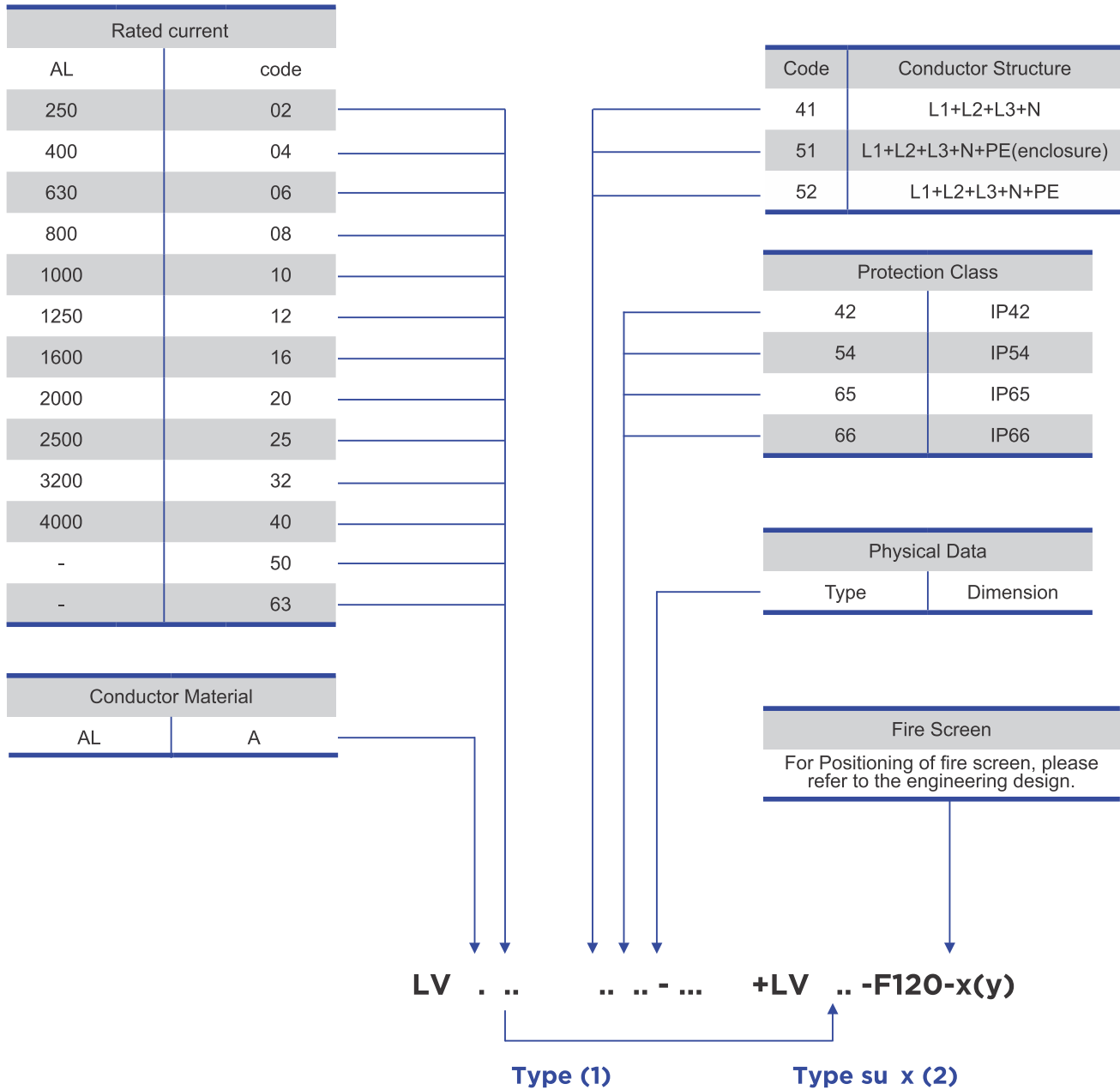
Items	Details											
Conductor Type	copper conductor				aluminium conductor							
Rated Capacity	250A	400A	500A	630A	800A	1000A	1250A	1350A	1600A	2000A	2500A	3200A
	3800A	4000A	4500A	5000A	6300A							
Phase and Wire	3P4W L1, L2, L3, PEN100%				3P4W L1, L2, L3, N100%				3P5W L1, L2, L3, N100%PE50%			
Phase Sequence	option 1	option 2	option 3	option 4	option 5	option 6	option 7	option 8	others			
Frequency	50Hz	60Hz										
Voltage	400V	690V										
Protection Class	IP40	IP42	IP54	IP65	IP66	others						
Colour	light grey		light yellow			others						
Product Type	Plug-in straight length _____ M					Feeder straight length _____ M						
No. of Outlet	1	2	3	4	5	One side	Both side					
Attachment	L edgewise elbow (N-phase inward) _____ piece					L edgewise elbow (N-phase outward) _____ piece						
	L edgewise elbow (N-phase upside) _____ piece					L edgewise elbow (N-phase underside) _____ piece						
	T edgewise elbow (N-phase inward) _____ piece					T edgewise elbow (N-phase outward) _____ piece						
	T edgewise elbow (N-phase upside) _____ piece					T edgewise elbow (N-phase underside) _____ piece						
	terminal _____ piece					terminal busway _____ piece						
	transposition busway _____ piece				expansion busway _____ piece				phase conversion busway _____ piece			
	Isolating switch + fuze			MCCB			Rotary handle operation			Rotating crank operation		
Plug-in box	Rated current	_____ A _____ pce		_____ A _____ pce		_____ A _____ pce		_____ A _____ pce		_____ A _____ pce		
		_____ A _____ pce		_____ A _____ pce		_____ A _____ pce		_____ A _____ pce		_____ A _____ pce		
Short Circuit Current												
Support	horizontal _____ pce					vertical _____ pce						
Delivery date												
Transportation												
Destination Address												
Contact												
Special Requirements												

Table 31-1

LV Busway System Numbering



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For example: LVC045265-3 means:

Straight length with LV type busway, rated current of 400A, three phase five wire (with PE), Ip65 and length of 3000mm.

Model: LV, current rating 400A, 5-wire system(with a separate PE), protection rating:Ip66 length=3m

Our corporate group has the following certifications



BLINDOBARRAS



