GE Energy
Industrial Solutions

WORLDWIDE PARTNER



WavePro LT

Busway System

GE imagination at work

GE

GE is a diversified organization covering a myriad of market segments, including infrastructure, finance and media. From energy, water, transportation and health to access to money and information, GE serves customers in more than 100 countries and employs more than 300,000 people worldwide.

The company traces its beginnings from Thomas A. Edison, who established the Edison Electric Light Company in 1878. In 1892, a merger of Edison General Electric Company and Thomson-Houston Electric Company created the General Electric Company. GE is the only company listed in the Dow Jones Industrial Index today that was also included in the original index in 1896.

Industrial Solutions

GE Industrial Solutions – a division of GE Energy Group, is a global leading provider in power distribution, offering a wide range of products which include medium and low voltage power distribution equipments and components, and motor & control systems that are safe, reliable and offer high performance. Its innovative solutions can improve energy efficiency and environmental impact in power plants, power grids, oil & gas, mining, industrial manufacturing, rail transportation, commercial buildings, residential houses, alternative energy and many other industries.



GE is one of the worldwide partners of the Olympic Games. In 2008, GE assisted Beijing with this tremendous event, which was unprecedented in scale and first-class in its use of science and technology, offering a series of innovative solutions and products for around 400 Olympic infrastructure projects, covering fields in electricity distribution, lighting, security, water processing, benefiting some 37 Olympic venues and 168 commercial buildings. GE also brought its experiences to the 2010 Expo in Shanghai, Asia Games in Guangzhou, Vancouver Olympic Games and will continue through to the London 2012 Olympic Games.

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GE's WavePro LT Busway System provides safe and reliable electrical distribution in commercial and industrial applications. WavePro LT Busway System reduces installation cost while providing superior performance for electrical contractors and end users.

Reference Standards

WavePro LT busway system complies with:

IEC 60439.1
IEC 60439.2
IEC 60529
GB 7251.1
GB 7251.2

Certificates

The WavePro LT busway has been issued certificates from KEMA-KUER, following successful testing according with IEC standards.


KEMA
CERTIFICATE
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KEMA
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System Overview



WavePro LT busway system is a flexible and reliable electrical distribution system with a sandwich construction and superior performance. It is a safe and robust system with high electrical efficiency, low temperature rise, efficient heat dissipation, low voltage drop, high mechanical strength and ease of installation. It is suitable for alternating current three-phase three-wire, three-phase four-wire and three-phase five-wire power supply and distribution system, with the frequency 50～60Hz, rated working voltage up to 690V, rated insulation voltage up to 1000V, and rated working current 100-5000A.



WavePro LT busway system makes a logical choice for commercial and industrial electrical distribution applications that require up to 5,000 amps of capacity with short-circuit protection. It's one of the lightest busway systems in the industry, considering customer requirements for installation and system reliability.

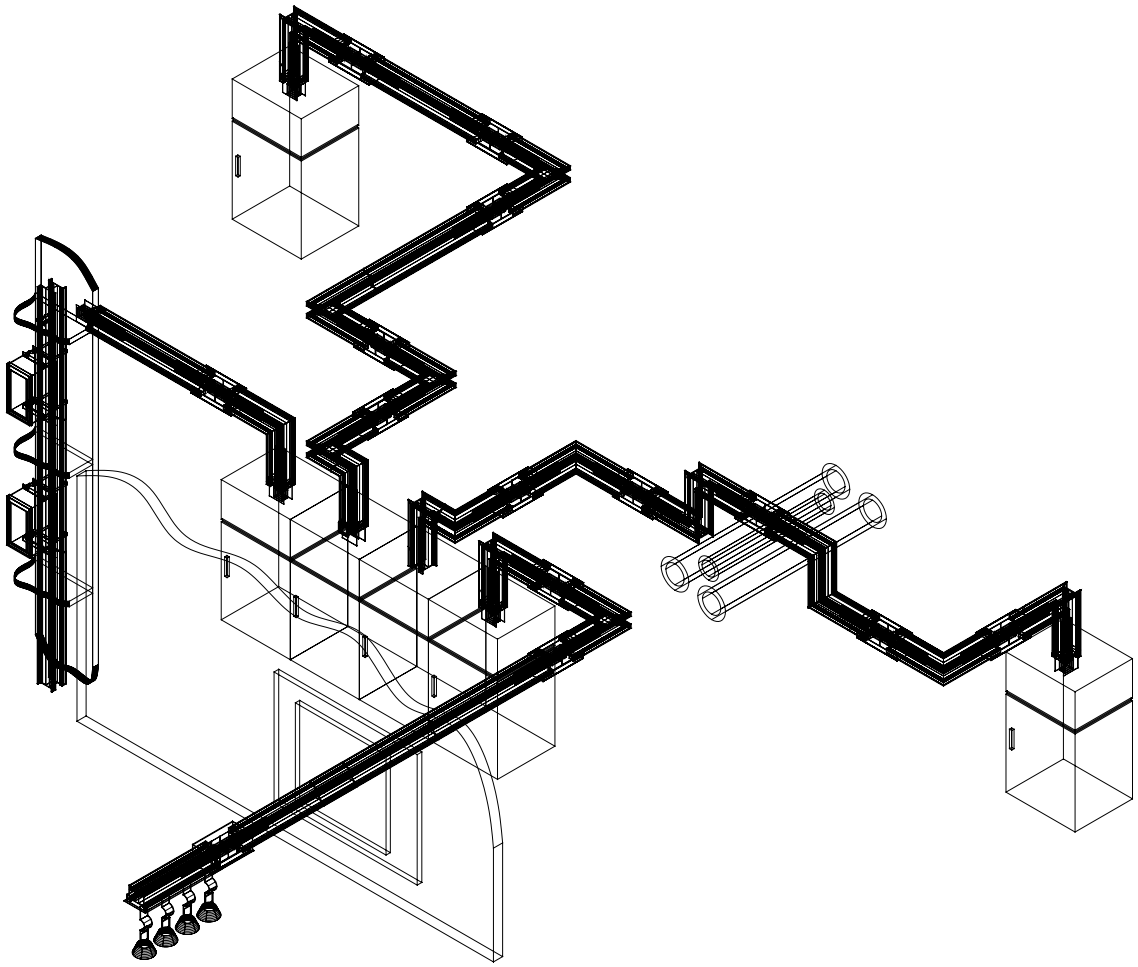


WavePro LT busway system provides internal neutral busbar 100% or 200%, which can meet with the requirements of various power systems for eliminating harmonic effects in the installations where non-linear loads are present. The housing, made from low magnetic material (aluminium and magnesium alloy), will not produce hysteresis loss on the distribution system.



As one of high current carrying capacity power transmission and distribution solutions, WavePro LT busway system can be widely applied in the areas of industrial factories, commercial buildings, hospitals, power generation, oil & gas, data centre applications, etc.

Features of WavePro LT Busway System



Safety Feature of the Bus Plug

- The operating handle of plug can be installed on the top or side with accurate opening or closing indication.
- The padlock mechanism is set for protecting the plug from mal-operation and any unauthorized access.
- Plug outlet covers prevent unintentional contact of the busbar.
- Plug in units are automatically grounded on installation. Polarized engagement of the plug to the busway provides the installer with positive plug/phase alignment.
- Bus plugs are provided with internal interlocking mechanisms to prevent their doors from being opened whilst energized, ensuring operation safety.



Compact Design Means Flexibility

- The compact "sandwich" design saves space with minimum voltage drop, specially designed to fit into the tight angle and height requirements of today's architectural space, between floors and along walls.
- The conductor is fully enclosed with the aluminium housing, which provides excellent heat dissipation, thus improving the power transmission efficiency and reducing voltage drop.





Robust Housing with Light-Weight Feature

- With light-weight, aluminum alloy housing, the unique design can fit your specific application with high flexibility, safety and reliability.
- The powder coated aluminum alloy housing has been tested to withstand the salt spray test.
- The aluminum alloy housing is corrosion resistant, providing high heat dissipation and an extremely low impedance ground path, with 50% grounding capacity.

Reliable Insulation

- Busway system utilizes high performance tin-plated or silver-plated copper or tin plated aluminium conductor, and provides high quality protection from corrosion and high conductivity at the contact surface.
- The conductive busbar is wholly wrapped in polyester film insulating material, providing significant insulation level and resistance to impact.
- The insulating material meets the requirements of RoHS, and safety requirements of GE.





Ease of Installation

- The joint assembly's cone-shaped insulation plate design increases mechanical strength while its molded joint ground side plate ensures even pressure applied across the joint.
- Large sized Belleville washers assure even pressure on contact .
- No special torque wrench is required. Just a common 16mm socket wrench is used to fasten the fixed captive torque bolt with red indication disc. (When the indicating disc falls off, the joint is properly tightened automatically).
- ±4mm per joint field adjustable isolation allows for job site flexibility during installation.

Product Advantages



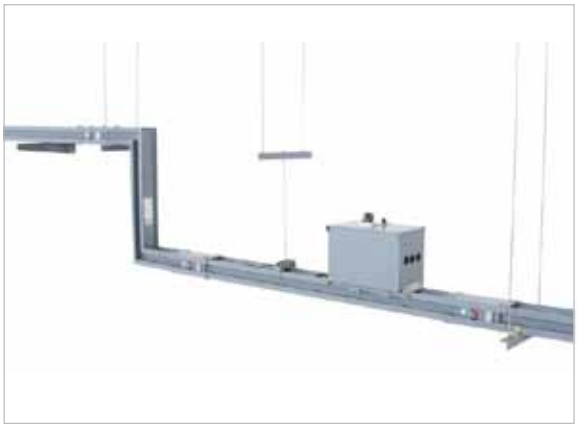
WavePro LT busway features an aluminum housing that cuts busway weight up to 50% – reducing installation costs.



WavePro LT Busway busbars are completely wrapped with two layers of polyester insulation material, up to class B (130˚C).



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.



Sections can be hung every 2m with a standard trapeze hanger up to 2000 amp aluminum or 1600 amp copper. For high amp rating busway, please contact with our engineer for the trapeze hanger installtion. WavePro LT busway is light enough to reduce ceiling loads up to 50%.



For secure flexible long-term reliability and minimal maintenance, WavePro LT busway offers up to ±4mm adjustable joints with Belleville spring washers that do not require re-torquing.
And the double headed "break off" joint bolt is used to tighten the busway without the use of a torque wrench. Every busway joint is provided with color coded temperature indicator to give an early warning when high temperature occurs at the joint.

Cable and Wire Conversion

Busway is quick and easy to install. Using busway can save up to 30% of the total cost of using cable. And it takes approximately half the time to install compared with cable.

High overload capacity: all insulation materials used in busway is up to Class B (130℃) while cable is generally rated at 95℃ and 105℃. Therefore, the overload capacity of the busway is much higher than that of cables.

WavePro LT has good heat dissipation performance; insulating layers of cables (core insulation and outer insulation) are insulating electrically as well as thermally, while the busway disperses heat through convection and radiates heat through the tightly connected housing. Busway has superior heat dissipation performance compared with cable.

WavePro LT busway weight

Weight: (kg/m)

Rated current (A)	Copper busbar 4W	Copper busbar 5W	Aluminium busbar 4W	Aluminium busbar 5W
100	-	-	8.8	9.2
160	-	-	8.8	9.2
200	-	-	8.8	9.2
250	13.4	14.4	8.8	9.2
400	13.4	14.4	9.9	10.3
500	-	-	11.0	11.5
630	14.8	15.9	12.0	12.7
800	17.4	18.8	14.1	15.0
1000	24.1	26.1	15.8	16.8
1250	27.9	30.5	18.9	20.1
1350	-	-	20.5	22.0
1600	34.4	37.8	23.5	25.18
2000	47.0	51.8	26.9	29.0
2500	59.3	65.5	33.4	36.22
3150	72.6	80.2	-	-
3200	-	-	48.0	51.9
3800	85.7	94.8	57.9	62.8
4000	91.0	100.6	62.3	67.6
4500	114.6	126.9	-	-
5000	125.1	138.6	-	-

table.8-1

2000A,3P4W

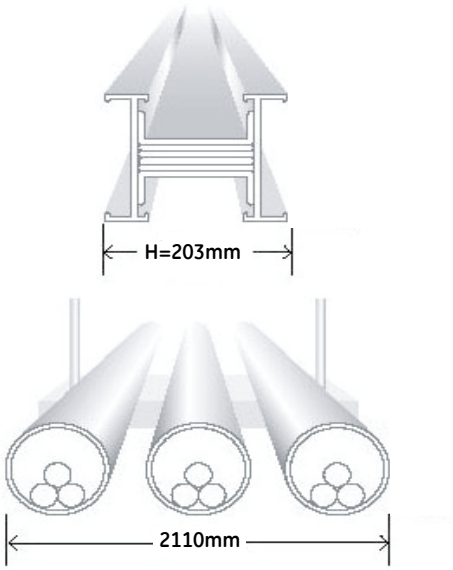


fig.8-1

WavePro LT busway dimension

Size: mm

Rated current (A)	Copper busbar (H)	Aluminium busbar (H)
100	-	88
160	-	88
200	-	88
250	88	88
400	88	98
500	-	108
630	93	118
800	103	138
1000	128	153
1250	143	183
1350	-	198
1600	168	228
2000	218	258
2500	263	323
3150	340	460
3200	-	460
3800	390	550
4000	410	590
4500	500	-
5000	540	-

table.8-2

Typical application of cable and busway system

Below are the drawings to show the differences of typical application between cable and busway system. Cable system requires one separate calbe for each power terminal. Busway system uses a main power supply busway and separates the current close to the power terminal. It saves installation space and make the whole system more safe.

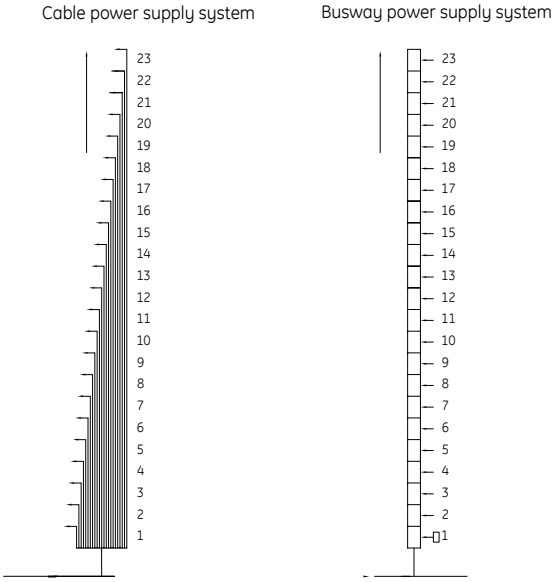


fig.9-1

Item	Busway	Cable
From transformer to incoming cubicle	Max current of busway is up to 5000A, and can match transformers up to 2.5MVA. Busway is 100% load rated and in its own housing, with ground.	Higher currents require additional cables per phase, installed in separate housings and derating. Additional cable ground is required.
Power supply control of multistage buildings	Riser busways for distributed power to each floor enables reduced switchboard sizing.	Multiple circuits are required to each floor requiring larger riser space and multiple MCCB's in the main siwtchboard.

table.9-1

Performance and price comparision of busway and cable

Item	Description	Busway	Cable
1	Long-term investment cost	Less than cable 50～60%, less than branch cable 60～70%.	Higher than bus 50～60%
2	Depreciation Rate (Annually)	2%	5～8%
3	Life	50 years	15～20 years
4	Insulation performance	⩾20MΩ	⩾5MΩ
5	Alteration loss rate	10～20%	70～80%
6	Occupying area	Reduced size	Large cable tray sizing
7	Current carrying capacity	Large current up to 5000A, applicable for many circumstances.	Mulitple cables per phase to suit current required, up to 1600A, poor application range.
8	Mechanical strength	Strong mechanical strength, high protection degree, applicable for large span installation.	Cable tray must be added.
9	Feature and dimension	Customized color, small volume, sandwich configuration.	Large volume
10	Current branch	Offering multi plug outlets for plug to increase branch circuits without disconnecting power supply, easy installation.	Main power supply and cable must be disconnected.
11	Over loading capacity	Maximum temperature of insulation material is 130℃, short time over load capacity, excellent heat dissipation.	Maximum operation temperature of insulation lagging and outer coating 105℃, poor over loading capacity.
12	Installation and maintenance	Easy installation and disassembly, positive to do electric check for branch circuit without disconnecting main power supply.	The main power supply has to be disconnected down when checking either of the branch circuit.
13	Maintenance	Easy maintenance, without maintenance degradation.	Difficult maintenance, with maintenance degradation.
14	Flexibility	Spare circuit bus plug helps recover power supply during system error, steady power supply system, flexible for extension and upgrade.	Negative to do electric check during accident, delayed power recovery.

table.9-2

Electrical Characteristics

WavePro LT busway's all-aluminum and aluminum alloy housing provide an extremely low impedance ground path with small resistance (reduce watt losts) 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. Optional internal ground busbar (50% or 100% capacity) is also available to provide a complete system.

Grounding bar resistance of WavePro LT busway system (temperature=20℃):

DC resistance copper bar (Internal 50% ground bus)

No.	Rated current (A)	Resistance ($10^{-6}\Omega$/m)
1	250	207.9
2	400	207.9
3	630	179.1
4	800	141.1
5	1000	94.2
6	1250	81.0
8	1600	64.3
9	2000	46.7
10	2500	37.6
11	3150	28.9
12	3800	24.8
13	4000	23.3
14	4500	18.8
15	5000	17.4

table.10-1

DC resistance copper bar (Internal 50% ground bus + Integraded housing ground)

No.	Rated current (A)	Resistance ($10^{-6}\Omega$/m)
1	250	104.0
2	400	104.0
3	630	89.6
4	800	70.5
5	1000	47.1
6	1250	40.5
8	1600	32.1
9	2000	23.3
10	2500	18.8
11	3150	14.4
12	3800	12.4
13	4000	11.7
14	4500	9.4
15	5000	8.7

table.10-2

DC resistance aluminium bar (Internal 50% ground bus)

No.	Rated current (A)	Resistance （$10^{-6}\Omega$/m）
1	100	342.7
2	160	342.7
3	200	342.7
4	250	342.7
5	400	259.8
6	500	210.7
7	630	178.1
8	800	138.0
9	1000	119.4
10	1250	95.2
11	1350	86.1
12	1600	73.4
13	2000	63.3
14	2500	50.4
15	3150	35.0
16	3200	35.0
17	3800	28.6
18	4000	25.2

table.10-3

DC resistance aluminium bar (Internal 50% ground bus + Integraded housing ground)

No.	Rated current (A)	Resistance （$10^{-6}\Omega$/m）
1	100	171.3
2	160	171.3
3	200	171.3
4	250	171.3
5	400	129.9
6	500	105.3
7	630	89.0
8	800	69.0
9	1000	59.7
10	1250	47.6
11	1350	43.0
12	1600	36.7
13	2000	31.7
14	2500	25.2
15	3150	17.5
16	3200	17.5
17	3800	14.3
18	4000	12.6

table.10-4

Short-circuit current ratings

The WavePro LT busway provides predictable, consistent strength and high short-circuit ratings.
WavePro busway is third party certified by KEMA to be in compliance with IEC60439-1 and-2 short circuit withstand test for 1 second.

Copper conductor

Rated current (A)	Rated short-time withstand current (kA)	Rated peak withstand current (kA)
250～800	30	63
1000～1600	50	105
2000～2500	65	143
3150～5000	100	220

table.11-1 Icw@1s

Aluminium conductor

Rated current (A)	Rated short-time withstand current (kA)	Rated peak withstand current (kA)
100～250	10	17
400～500	20	40
630～800	30	63
1000～2500	50	105
3150～4000	80	176

Icw@1s

table.11-2

Ambient temperature's influence on application

Within the ambient temperature of 35℃, WavePro LT busway system can continuously operate at rated current while the maximum housing temperature rise won't exceed 55K.
If the busway continuously operated at higher ambient temperature, it should be derated first, i.e. the busway current-carrying capacity = rated current x de-rating factor. (As shown in tables)

Ambient temperature (℃)	Factor
35	1.00
40	0.95
45	0.90
50	0.85
55	0.80
60	0.74
65	0.67

table.11-3

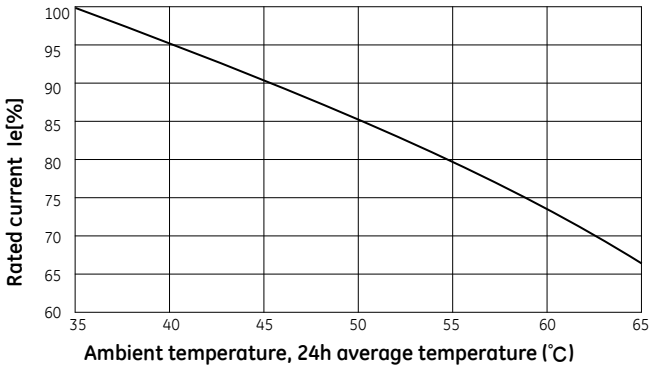


table.11-4

Electrical Characteristics

Resistance, reactance, impedance and voltage drop

WavePro LT busway has low voltage-drop values. Minimum reactance (X) is due to very close bar spacings (sandwiched construction) and a non-magnetic housing. Values shown are identical for plug-in and feeder.
50Hz values shown. For 60Hz, multiply reactance (X) by 1.2048 and resistance values do not change. For 400Hz, multiply reactance by 4.6988 and multiply resistance by 1.4. Calculate new voltage drop Vd=amps load × 3 (R cos Q + X sin Q) m, where cos Q=Power Factor. Contact your local GE representative for help with electrical calculations.

Copper busbar (temperature=20℃)

Rated current (A)	Resistance	Reactance	Impedance	Voltage drop (V/m) Power factor cos ϕ				
	($10^{-6}\Omega$/m)			0.6	0.7	0.8	0.9	1.0
250	104.0	35.3	109.8	0.039	0.042	0.045	0.047	0.045
400	104.0	35.3	109.8	0.063	0.068	0.072	0.076	0.072
630	89.6	32.1	95.1	0.087	0.093	0.099	0.103	0.098
800	70.5	27.4	75.7	0.089	0.095	0.101	0.105	0.098
1000	47.1	20.7	51.4	0.078	0.083	0.087	0.089	0.082
1250	40.5	18.3	44.4	0.084	0.089	0.094	0.096	0.088
1600	32.1	15.7	35.8	0.088	0.093	0.097	0.099	0.089
2000	23.3	12.5	26.5	0.083	0.087	0.091	0.092	0.081
2500	18.8	10.7	21.6	0.086	0.090	0.093	0.094	0.081
3150	14.4	9.5	17.3	0.089	0.092	0.094	0.094	0.079
3800	12.4	6.5	14.0	0.083	0.087	0.091	0.092	0.082
4000	11.7	6.3	13.3	0.083	0.088	0.091	0.092	0.081
4500	9.4	5.4	10.8	0.078	0.081	0.084	0.084	0.073
5000	8.7	5.0	10.0	0.080	0.084	0.086	0.087	0.075

table.12-1

Aluminium busbar (temperature=20℃)

Rated current (A)	Resistance	Reactance	Impedance	Voltage drop (V/m) Power factor cos ϕ				
	($10^{-6}\Omega$/m)			0.6	0.7	0.8	0.9	1.0
100	171.3	35.3	174.9	0.023	0.025	0.027	0.029	0.030
160	171.3	35.3	174.9	0.036	0.040	0.044	0.047	0.047
200	171.3	35.3	174.9	0.045	0.050	0.055	0.059	0.059
250	171.3	35.3	174.9	0.057	0.063	0.069	0.073	0.074
400	129.9	29.5	133.2	0.070	0.078	0.084	0.090	0.090
500	105.3	25.6	108.4	0.072	0.080	0.086	0.092	0.091
630	89.0	22.8	91.9	0.078	0.086	0.093	0.098	0.097
800	69.0	19.1	71.6	0.079	0.086	0.092	0.098	0.096
1000	59.7	17.1	62.1	0.086	0.093	0.100	0.106	0.103
1250	47.6	14.5	49.8	0.087	0.094	0.101	0.107	0.103
1350	43.0	13.6	45.1	0.086	0.093	0.100	0.105	0.101
1600	36.7	12.1	38.7	0.088	0.095	0.102	0.106	0.102
2000	31.7	10.9	33.5	0.096	0.104	0.110	0.115	0.110
2500	25.2	9.1	26.8	0.097	0.104	0.111	0.116	0.109
3150	17.5	5.8	18.5	0.083	0.089	0.095	0.100	0.096
3200	17.5	5.8	18.5	0.084	0.091	0.097	0.102	0.097
3800	14.3	5.0	15.2	0.083	0.089	0.095	0.099	0.094
4000	12.6	4.8	13.5	0.079	0.085	0.090	0.093	0.087

table.12-2

Note:
① Actual voltage drop= Vd (from Table) × $\frac{\text{actual load}}{\text{rated load}}$

② 1 feet=0.3048m
Get the data/feet, please multiply the data with 0.3048.

Physical Data

Straight length

Feeder straight length

Feeder straight lengths may be installed either vertically or horizontally.

Standard length is 3000mm, and the minimum length is 400mm.

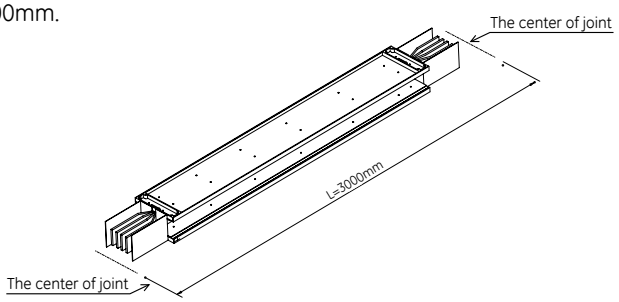


fig.13-1

Dimensions and weight

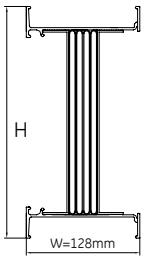


fig.13-2

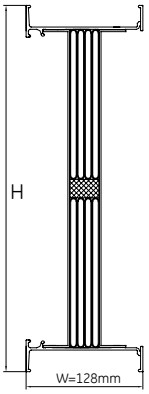


fig.13-3

Copper busbar

Rated current (A)	Width W (mm)	Height H (mm)	Weight of busbar (kg/m) with joint		Fig.
			Four-wire 100%N	Five-wire 100%N, 50%PE	
250	128	88	13.4	14.4	13-2
400	128	88	13.4	14.4	
630	128	93	14.8	15.9	
800	128	103	17.4	18.8	
1000	128	128	24.1	26.1	
1250	128	143	27.9	30.5	
1600	128	168	34.4	37.8	
2000	128	218	47.0	51.8	
2500	128	263	59.3	65.5	
3150	128	340	72.6	80.2	13-3
3800	128	390	85.7	94.8	
4000	128	410	91.0	100.6	
4500	128	500	114.6	126.9	
5000	128	540	125.1	138.6	

table.13-1

Aluminum busbar

Rated current (A)	Width W (mm)	Height H (mm)	Weight of busbar (kg/m)		Fig.
			Four-wire 100%N	Five-wire 100%N, 50%PE	
100~250	128	88	8.8	9.2	13-2
400	128	98	9.9	10.3	
500	128	108	11.0	11.5	
630	128	118	12.0	12.7	
800	128	138	14.1	15.0	
1000	128	153	15.8	16.8	
1250	128	183	18.9	20.1	
1350	128	198	20.5	22.0	
1600	128	228	23.5	25.18	
2000	128	258	26.9	29.0	
2500	128	323	33.4	36.22	
3150	128	460	48.0	51.9	13-3
3200	128	460	48.0	51.9	
3800	128	550	57.9	62.8	
4000	128	590	62.3	67.6	

table.13-2



table.13-4

Physical Data

Plug-in straight length

Plug-in busway has a flexible design with optional plug outlets on both sides. The minimum space between plugs is 610mm and up to 4 plug outlets may be fixed on each side of the 3-meter standard length. The customer may reserve plug outlets for extension in the future when changes occurs in terms of the equipment load or busway run. The plug-in busway may be installed either vertically or horizontally.
Both base plate and socket cover are set for each plug outlet. The former helps to prevent fingers from contacting live conductors (IP2X) by accident, on which the phase sequences of conductors are identified. And the latter prevents the conductive contacting surface from ingress of dust or contaminant . A pad may be used to keep off dust or moisture.
Standard length is 3000mm, and the minimum length is 400mm. The standard length of L1 (distance from the center of plug outlet to standard end) is 600mm, and the standard length of L2 (distance between the centers of two adjacent plug outlets) is 610mm.

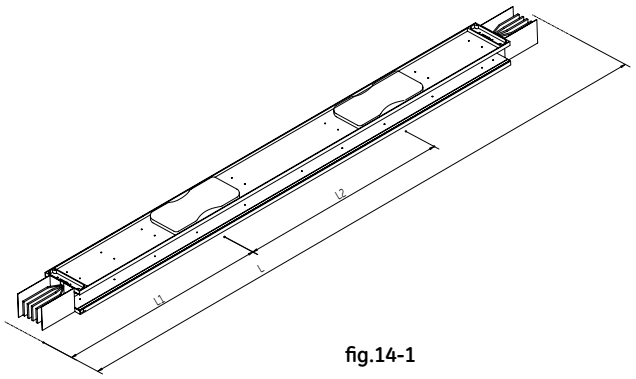


fig.14-1

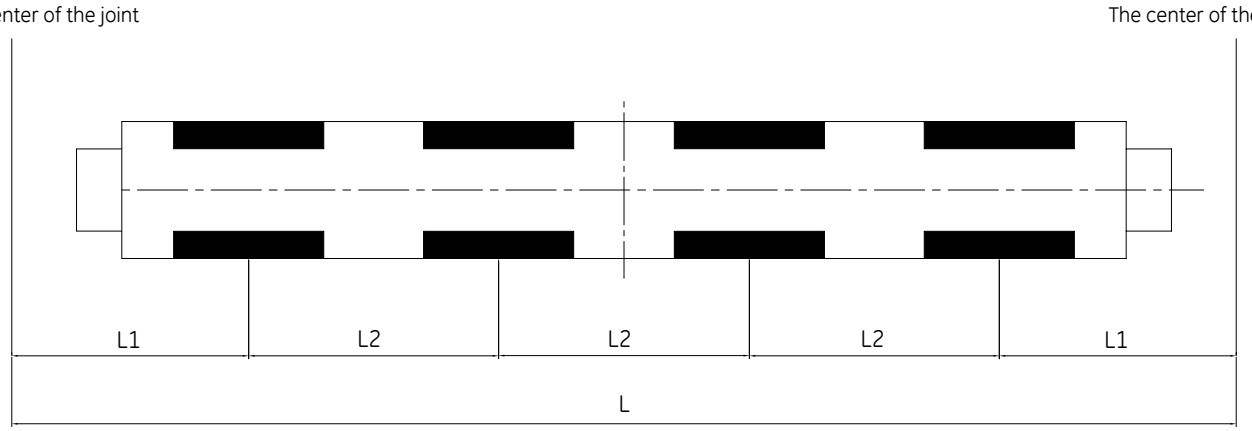


fig.14-2



fig.14-3

Joint

WavePro LT busway system adopts the double-headed torque limiting joint bolt. When the bolt is properly tightened, the top bolt head will break off so as to ensure the correctness of installation.
The joint has ±4mm adjustments for both side busway.
The connection cover plate avoids excessive adjustment of the joint. The joint may be safely removed without obstructing the adjacent length.

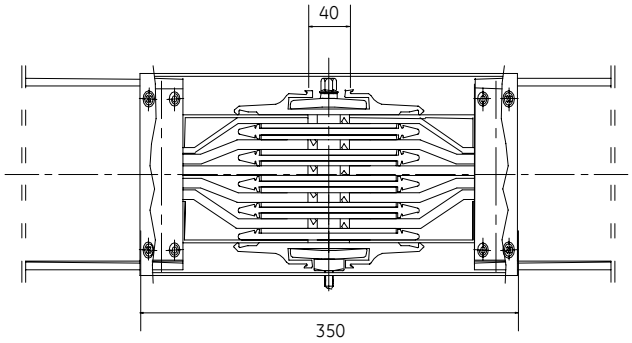


fig.15-1

Double-headed torque limiting joint bolt

This bolt is the standard joint bolt offered for all WavePro LT Series Busway.

- When the bolt is properly tightened, the outer head will break off with the bright red label removed. This will help eliminate any errors occur during installation by a quick visual inspection.
- No torque wrench is required for initial installation.
- The bolt is reusable after the top head is broken off by using a standard torque wrench on the second bolt head.
- The standard torque is 66 ± 5N.m.

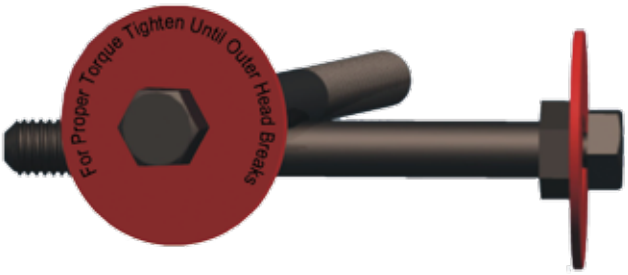


fig.15-2

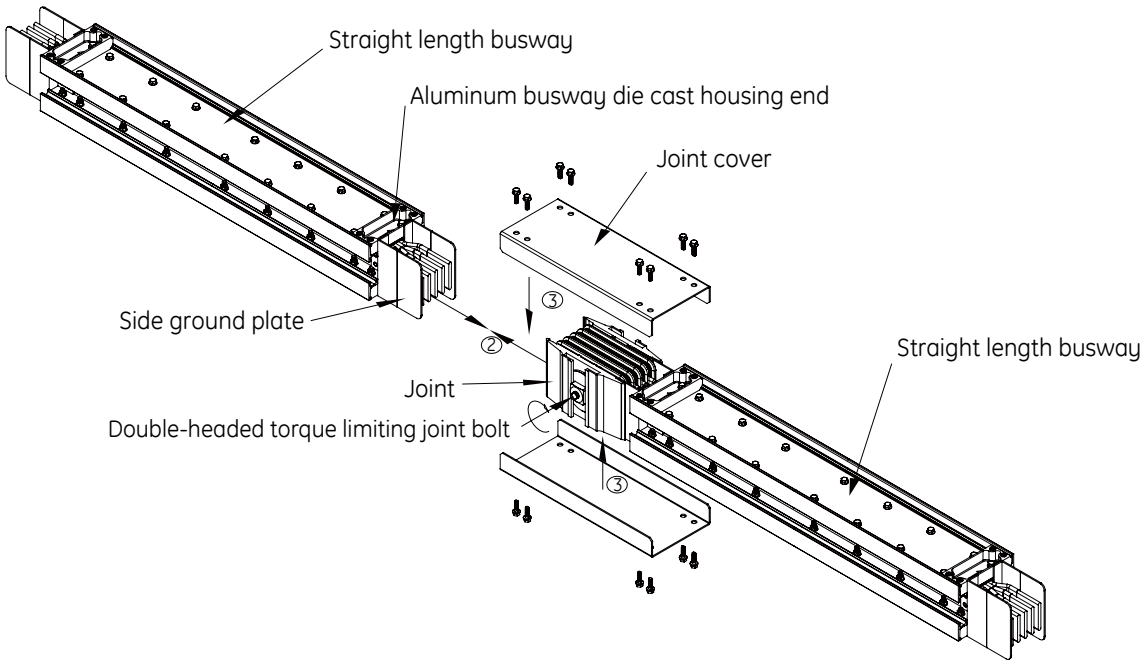


fig.15-3

Physical Data

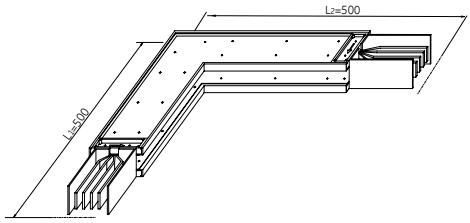
Fittings

WavePro LT busway system has a complete family of fittings to meet virtually all layout requirements using the compact minimum sizes shown. Special turns such as flat angles greater than 90° and crosses are also available.
Each piece of busway is labeled to maintain proper phasing. All housing width and depth dimensions are identical to straight lengths.

Note: Offsets and combination elbows are typically used only when standard elbows will not fit.

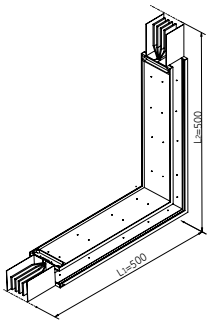


fig.16-1



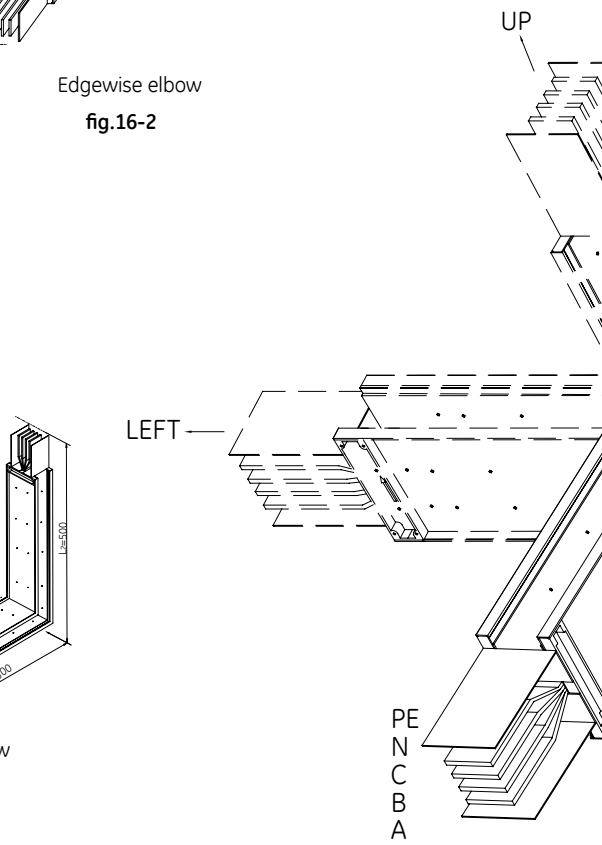
Edgewise elbow

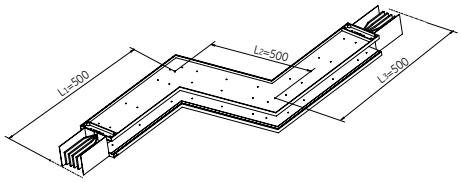
fig.16-2



Flatwise elbow

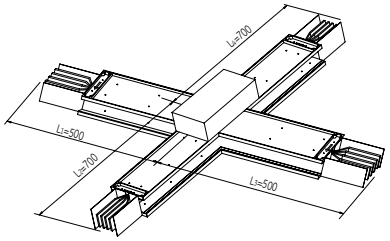
fig.16-3





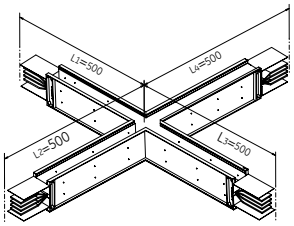
Edgewise offset

fig.16-4



Edgewise cross

fig.17-6



Flatwise cross

fig.17-5

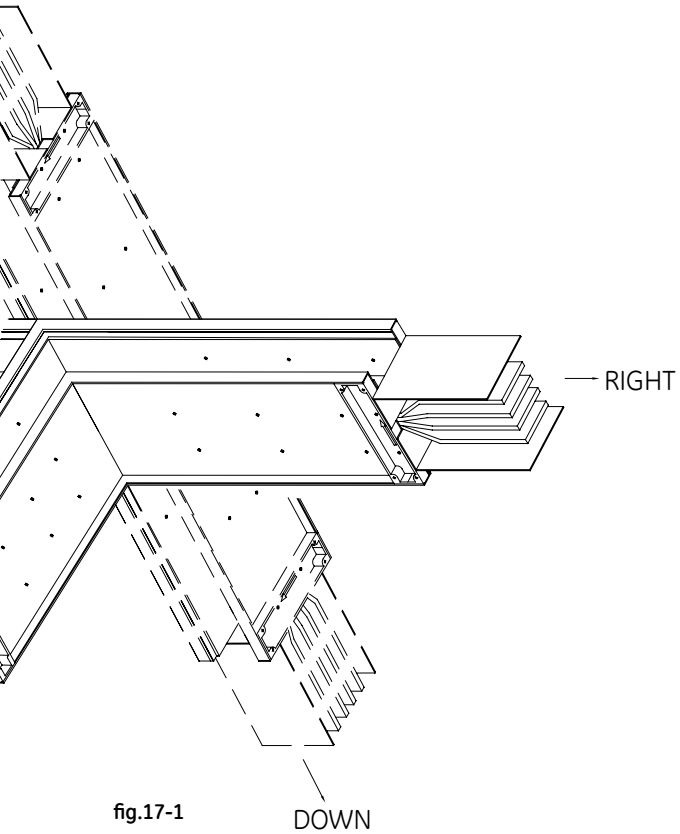
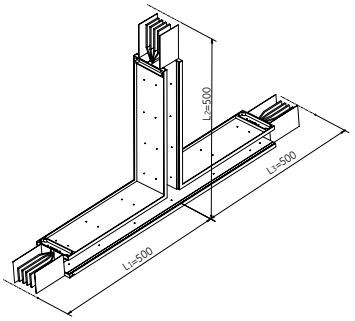
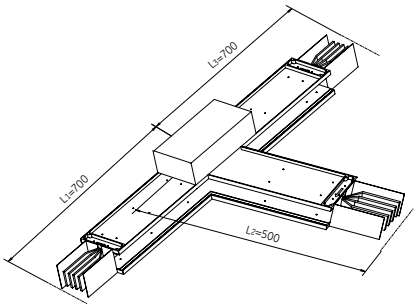


fig.17-1



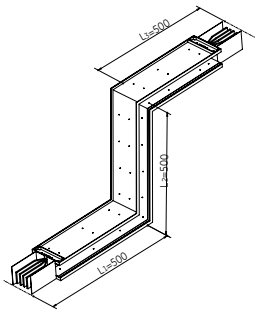
Flatwise tee

fig.17-4



Edgewise tee

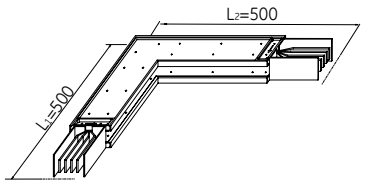
fig.17-3



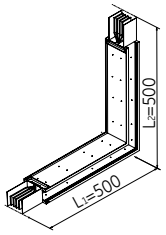
Flatwise offset

fig.17-2

Physical Data



Edgewise elbow
fig.18-1



Flatwise elbow
fig.18-2

Fittings data

Edgewise elbow

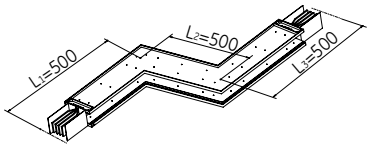
Rated current (A)	Copper busway size (mm)					Aluminium busway size (mm)				
	Busway height H	Minimum		Standard		Busway height H	Minimum		Standard	
		L1	L2	L1	L2		L1	L2	L1	L2
100	-	-	-	-	-	88	245	245	500	500
160	-	-	-	-	-	88	245	245	500	500
200	-	-	-	-	-	88	245	245	500	500
250	88	245	245	500	500	88	245	245	500	500
400	88	245	245	500	500	98	245	245	500	500
500	-	-	-	-	-	108	245	245	500	500
630	93	245	245	500	500	118	245	245	500	500
800	103	245	245	500	500	138	245	245	500	500
1000	128	245	245	500	500	153	245	245	500	500
1250	143	245	245	500	500	183	245	245	500	500
1350	-	-	-	-	-	198	245	245	500	500
1600	168	245	245	500	500	228	245	245	500	500
2000	218	245	245	500	500	258	245	245	500	500
2500	263	245	245	500	500	323	245	245	500	500
3150	340	245	245	500	500	460	245	245	500	500
3200	-	-	-	-	-	460	245	245	500	500
3800	390	245	245	500	500	550	245	245	500	500
4000	410	245	245	500	500	590	245	245	500	500
4500	500	245	245	500	500	-	-	-	-	-
5000	540	245	245	500	500	-	-	-	-	-

table.18-1

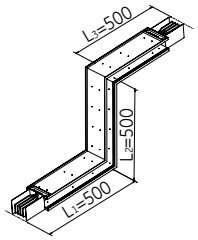
Flatwise elbow

Rated current (A)	Copper busway size (mm)					Aluminium busway size (mm)				
	Busway height H	Minimum		Standard		Busway height H	Minimum		Standard	
		L1	L2	L1	L2		L1	L2	L1	L2
100	-	-	-	-	-	88	224	224	500	500
160	-	-	-	-	-	88	224	224	500	500
200	-	-	-	-	-	88	224	224	500	500
250	88	224	224	500	500	88	224	224	500	500
400	88	224	224	500	500	98	229	229	500	500
500	-	-	-	-	-	108	234	234	500	500
630	93	227	227	500	500	118	239	239	500	500
800	103	232	232	500	500	138	249	249	500	500
1000	128	244	244	500	500	153	257	257	500	500
1250	143	252	252	500	500	183	272	272	500	500
1350	-	-	-	-	-	198	279	279	500	500
1600	168	264	264	500	500	228	294	294	500	500
2000	218	289	289	500	500	258	309	309	500	500
2500	263	312	312	500	500	323	342	342	500	500
3150	340	350	350	500	500	460	410	410	500	500
3200	-	-	-	-	-	460	410	410	500	500
3800	390	375	375	500	500	550	455	455	500	500
4000	410	385	385	500	500	590	475	475	500	500
4500	500	430	430	500	500	-	-	-	-	-
5000	540	450	450	500	500	-	-	-	-	-

table.18-2



Edgewise offset
fig.19-1



Flatwise offset
fig.19-2

Edgewise offset

Rated current (A)	Copper busway size (mm)							Aluminium busway size (mm)						
	Busway height H	Minimum			Standard			Busway height H	Minimum			Standard		
		L1	L2	L3	L1	L2	L3		L1	L2	L3	L1	L2	L3
100	-	-	-	-	-	-	-	88	245	50	245	500	500	500
160	-	-	-	-	-	-	-	88	245	50	245	500	500	500
200	-	-	-	-	-	-	-	88	245	50	245	500	500	500
250	88	245	50	245	500	500	500	88	245	50	245	500	500	500
400	88	245	50	245	500	500	500	98	245	50	245	500	500	500
500	-	-	-	-	-	-	-	108	245	50	245	500	500	500
630	93	245	50	245	500	500	500	118	245	50	245	500	500	500
800	103	245	50	245	500	500	500	138	245	50	245	500	500	500
1000	128	245	50	245	500	500	500	153	245	50	245	500	500	500
1250	143	245	50	245	500	500	500	183	245	50	245	500	500	500
1350	-	-	-	-	-	-	-	198	245	50	245	500	500	500
1600	168	245	50	245	500	500	500	228	245	50	245	500	500	500
2000	218	245	50	245	500	500	500	258	245	50	245	500	500	500
2500	263	245	50	245	500	500	500	323	245	50	245	500	500	500
3150	340	245	50	245	500	500	500	460	245	50	245	500	500	500
3200	-	-	-	-	-	-	-	460	245	50	245	500	500	500
3800	390	245	50	245	500	500	500	550	245	50	245	500	500	500
4000	410	245	50	245	500	500	500	590	245	50	245	500	500	500
4500	500	245	50	245	500	500	500	-	-	-	-	-	-	-
5000	540	245	50	245	500	500	500	-	-	-	-	-	-	-

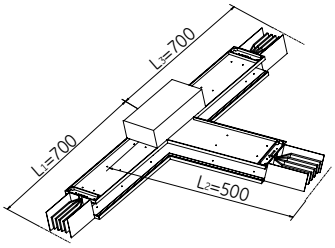
table.19-1

Flatwise offset

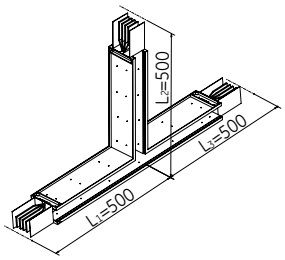
Rated current (A)	Copper busway size (mm)							Aluminium busway size (mm)						
	Busway height H	Minimum			Standard			Busway height H	Minimum			Standard		
		L1	L2	L3	L1	L2	L3		L1	L2	L3	L1	L2	L3
100	-	-	-	-	-	-	-	88	224	50	224	500	500	500
160	-	-	-	-	-	-	-	88	224	50	224	500	500	500
200	-	-	-	-	-	-	-	88	224	50	224	500	500	500
250	88	224	50	224	500	500	500	88	224	50	224	500	500	500
400	88	224	50	224	500	500	500	98	229	50	229	500	500	500
500	-	-	-	-	-	-	-	108	234	50	234	500	500	500
630	93	227	50	227	500	500	500	118	239	50	239	500	500	500
800	103	232	50	232	500	500	500	138	249	50	249	500	500	500
1000	128	244	50	244	500	500	500	153	257	50	257	500	500	500
1250	143	252	51	252	500	500	500	183	272	50	272	500	500	500
1350	-	-	-	-	-	-	-	198	279	50	279	500	500	500
1600	168	264	50	264	500	500	500	228	294	50	294	500	500	500
2000	218	289	50	289	500	500	500	258	309	50	309	500	500	500
2500	263	312	50	312	500	500	500	323	342	50	342	500	500	500
3150	340	350	50	350	500	500	500	460	410	50	410	500	500	500
3200	-	-	-	-	-	-	-	460	410	50	410	500	500	500
3800	390	375	50	375	500	500	500	550	455	50	455	500	500	500
4000	410	385	50	385	500	500	500	590	475	50	475	500	500	500
4500	500	430	50	430	500	500	500	-	-	-	-	-	-	-
5000	540	450	50	450	500	500	500	-	-	-	-	-	-	-

table.19-2

Physical Data



Edgewise tee
fig.20-1



Flatwise tee
fig.20-2

Fittings data

Edgewise tee

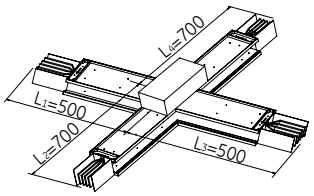
Rated current (A)	Copper busway size (mm)							Aluminium busway size (mm)						
	Busway height H	Minimum			Standard			Busway height H	Minimum			Standard		
		L1	L2	L3	L1	L2	L3		L1	L2	L3	L1	L2	L3
100	-	-	-	-	-	-	-	88	340	300	340	500	500	500
160	-	-	-	-	-	-	-	88	340	300	340	500	500	500
200	-	-	-	-	-	-	-	88	340	300	340	500	500	500
250	88	340	300	340	500	500	500	88	340	300	340	500	500	500
400	88	340	300	340	500	500	500	98	350	300	350	500	500	500
500	-	-	-	-	-	-	-	108	360	300	360	500	500	500
630	93	345	300	345	500	500	500	118	370	300	370	500	500	500
800	103	355	300	355	500	500	500	138	390	300	390	500	500	500
1000	128	380	300	380	500	500	500	153	405	300	405	500	500	500
1250	143	395	300	395	500	500	500	183	435	300	435	500	500	500
1350	-	-	-	-	-	-	-	198	450	300	450	500	500	500
1600	168	420	300	420	500	500	500	228	480	300	480	500	500	500
2000	218	470	300	470	700	500	700	258	510	300	510	700	500	700
2500	263	515	300	515	700	500	700	323	575	300	575	700	500	700
3150	340	435	300	435	700	500	700	460	495	300	495	700	500	700
3200	-	-	-	-	-	-	-	460	495	300	495	700	500	700
3800	390	460	300	460	700	500	700	550	540	300	540	700	500	700
4000	410	470	300	470	700	500	700	590	560	300	560	700	500	700
4500	500	515	300	515	700	500	700	-	-	-	-	-	-	-
5000	540	535	300	535	700	500	700	-	-	-	-	-	-	-

table.20-1

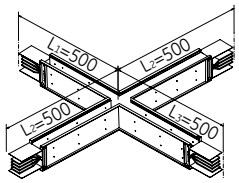
Flatwise tee

Rated current (A)	Copper busway size (mm)							Aluminium busway size (mm)						
	Busway height H	Minimum			Standard			Busway height H	Minimum			Standard		
		L1	L2	L3	L1	L2	L3		L1	L2	L3	L1	L2	L3
100	-	-	-	-	-	-	-	88	224	224	224	500	500	500
160	-	-	-	-	-	-	-	88	224	224	224	500	500	500
200	-	-	-	-	-	-	-	88	224	224	224	500	500	500
250	88	224	224	224	500	500	500	88	224	224	224	500	500	500
400	88	224	224	224	500	500	500	98	229	229	229	500	500	500
500	-	-	-	-	-	-	-	108	234	234	234	500	500	500
630	93	227	227	227	500	500	500	118	239	239	239	500	500	500
800	103	232	232	232	500	500	500	138	249	249	249	500	500	500
1000	128	244	244	244	500	500	500	153	257	257	257	500	500	500
1250	143	252	252	252	500	500	500	183	272	272	272	500	500	500
1350	-	-	-	-	-	-	-	198	279	279	279	500	500	500
1600	168	264	264	264	500	500	500	228	294	294	294	500	500	500
2000	218	289	289	289	500	500	500	258	309	309	309	500	500	500
2500	263	312	312	312	500	500	500	323	342	342	342	500	500	500
3150	340	350	350	350	500	500	500	460	410	410	410	500	500	500
3200	-	-	-	-	-	-	-	460	410	410	410	500	500	500
3800	390	375	375	375	500	500	500	550	455	455	455	500	500	500
4000	410	385	385	385	500	500	500	590	475	475	475	500	500	500
4500	500	430	430	430	500	500	500	-	-	-	-	-	-	-
5000	540	450	450	450	500	500	500	-	-	-	-	-	-	-

table.20-2



Edgewise cross
fig.21-1



Flatwise cross
fig.21-2

Edgewise cross

Rated current (A)	Copper busway size (mm)									Aluminium busway size (mm)								
	Busway height H	Minimum				Standard				Busway height H	Minimum				Standard			
		L1	L2	L3	L4	L1	L2	L3	L4		L1	L2	L3	L4	L1	L2	L3	L4
100	-	-	-	-	-	-	-	-	-	88	300	372	300	372	500	500	500	500
160	-	-	-	-	-	-	-	-	-	88	300	372	300	372	500	500	500	500
200	-	-	-	-	-	-	-	-	-	88	300	372	300	372	500	500	500	500
250	88	300	372	300	372	500	500	500	500	88	300	372	300	372	500	500	500	500
400	88	300	372	300	372	500	500	500	500	98	300	382	300	382	500	500	500	500
500	-	-	-	-	-	-	-	-	-	108	300	392	300	392	500	500	500	500
630	93	300	377	300	377	500	500	500	500	118	300	402	300	402	500	500	500	500
800	103	300	387	300	387	500	500	500	500	138	300	422	300	422	500	500	500	500
1000	128	300	412	300	412	500	500	500	500	153	300	437	300	437	500	500	500	500
1250	143	300	427	300	427	500	500	500	500	183	300	467	300	467	500	500	500	500
1350	-	-	-	-	-	-	-	-	-	198	300	482	300	482	500	500	500	500
1600	168	300	452	300	452	500	700	500	700	228	300	512	300	512	500	700	500	700
2000	218	300	502	300	502	500	700	500	700	258	300	542	300	542	500	700	500	700
2500	263	300	547	300	547	500	700	500	700	323	300	607	300	607	500	700	500	700
3150	340	300	467	300	467	500	700	500	700	460	300	527	300	527	500	700	500	700
3200	-	-	-	-	-	-	-	-	-	460	300	527	300	527	500	700	500	700
3800	390	300	492	300	492	500	700	500	700	550	300	572	300	572	500	700	500	700
4000	410	300	502	300	502	500	700	500	700	590	300	592	300	592	500	700	500	700
4500	500	300	547	300	547	500	700	500	700	-	-	-	-	-	-	-	-	-
5000	540	300	567	300	567	500	700	500	700	-	-	-	-	-	-	-	-	-

table.21-1

Flatwise cross

Rated current (A)		Copper busway size (mm)									Aluminium busway size (mm)							
	Busway height H	Minimum				Standard				Busway height H	Minimum				Standard			
		L1	L2	L3	L4	L1	L2	L3	L4		L1	L2	L3	L4	L1	L2	L3	L4
100	-	-	-	-	-	-	-	-	-	88	224	224	224	224	500	500	500	500
160	-	-	-	-	-	-	-	-	-	88	224	224	224	224	500	500	500	500
200	-	-	-	-	-	-	-	-	-	88	224	224	224	224	500	500	500	500
250	88	224	224	224	224	500	500	500	500	88	224	224	224	224	500	500	500	500
400	88	224	224	224	224	500	500	500	500	98	229	229	229	229	500	500	500	500
500	-	-	-	-	-	-	-	-	-	108	234	234	234	234	500	500	500	500
630	93	227	227	227	227	500	500	500	500	118	239	239	239	239	500	500	500	500
800	103	232	232	232	232	500	500	500	500	138	249	249	249	249	500	500	500	500
1000	128	244	244	244	244	500	500	500	500	153	257	257	257	257	500	500	500	500
1250	143	252	252	252	252	500	500	500	500	183	272	272	272	272	500	500	500	500
1350	-	-	-	-	-	-	-	-	-	198	279	279	279	279	500	500	500	500
1600	168	264	264	264	264	500	500	500	500	228	294	294	294	294	500	500	500	500
2000	218	289	289	289	289	500	500	500	500	258	309	309	309	309	500	500	500	500
2500	263	312	312	312	312	500	500	500	500	323	342	342	342	342	500	500	500	500
3150	340	350	350	350	350	500	500	500	500	460	410	410	410	410	500	500	500	500
3200	-	-	-	-	-	-	-	-	-	460	410	410	410	410	500	500	500	500
3800	390	375	375	375	375	500	500	500	500	550	455	455	455	455	500	500	500	500
4000	410	385	385	385	385	500	500	500	500	590	475	475	475	475	500	500	500	500
4500	500	430	430	430	430	500	500	500	500	-	-	-	-	-	-	-	-	-
5000	540	450	450	450	450	500	500	500	500	-	-	-	-	-	-	-	-	-

table.21-2

Physical Data

Flanged end

Flanged end and end tap box can be used in connection with switchgear and transformer of any type, and users can determine the spacing between the stubs of the bus bar based on the specific applications.

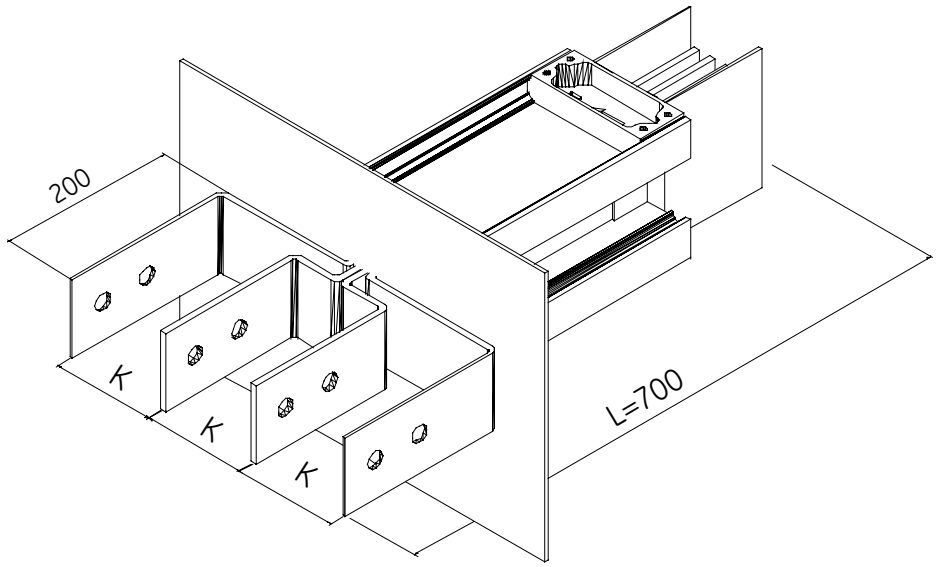
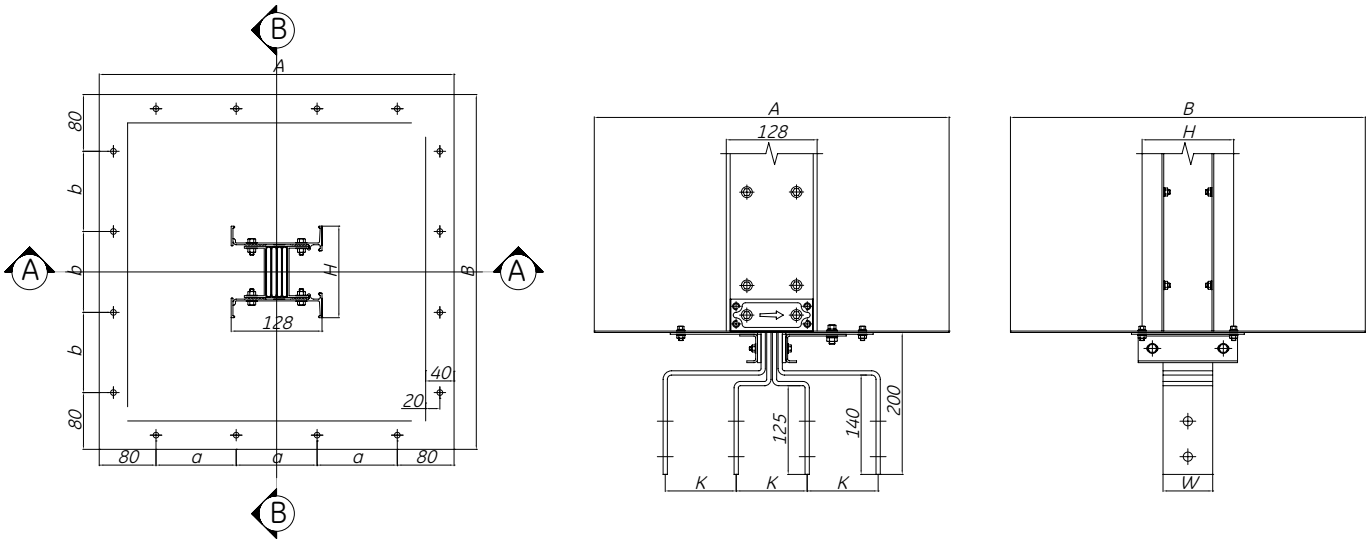


fig.22-1



FLANGED END STUB PLAN VIEW　　SECTION `A' - 'A'　　SECTION `B' - 'B'

fig.22-2

Note:

1. AS a standard flanged end, when the bus bar current is less than or equal to 1600A, K=100mm; when the bus bar current is more than 1600A, K=120mm.

2.All the dimensions provided are for standard products. Please contact our engineers for customized products' dimensions.

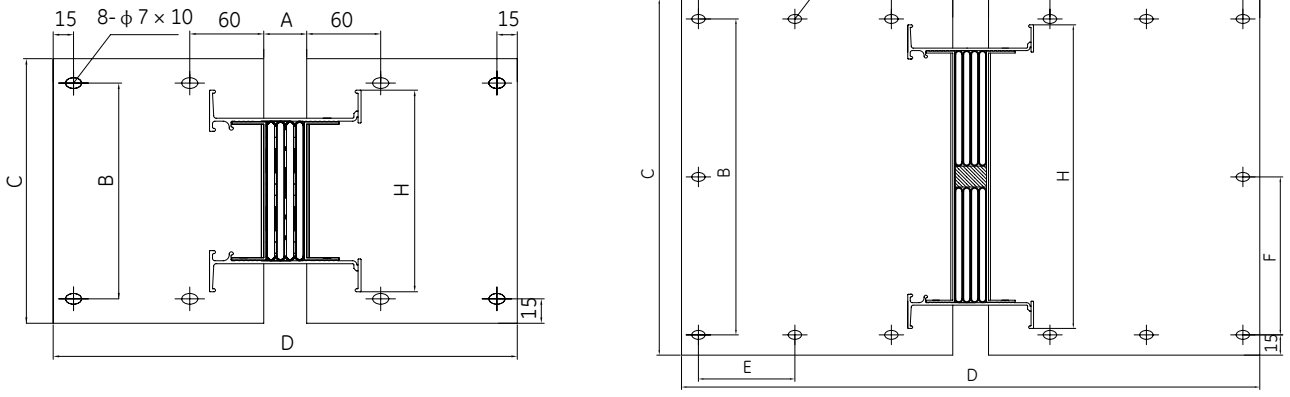


fig.23-1

Copper bar

Size: mm

Rated current (A)	H	A		B	C	D	
		4 Wire	5 Wire			4 Wire	5 Wire
250	88	35	39	90	120	390	490
400	88	35	39	90	120	390	490
630	93	35	39	95	125	390	490
800	103	35	39	105	135	390	490
1000	128	35	39	130	160	390	490
1250	143	35	39	145	175	390	490
1600	168	35	39	170	200	390	490
2000	218	35	39	220	250	450	570
2500	263	35	39	265	295	450	570
3150	340	35	39	342	372	450	570
3800	390	35	39	392	422	450	570
4000	410	35	39	412	442	450	570
4500	500	35	39	502	532	450	570
5000	540	35	39	542	572	450	570

table.23-1

Note:

1. As shown in the figure, for the location of the hole of outboard, it shall be 15mm away from the outer edge; while for the location of the one of inboard, it shall be 60mm away from the inner edge. The rest distance wherein is given uniformly for mid holes according to situation.

2. E and F indicate the distance between the centers of two adjacent holes, and the value shall be limited with the extension from 100mm to 250mm, E and F will be confirmed and sent to the customer when the end tap box dimension is confirmed.

Aluminium bar

Size: mm

Rated current (A)	H	A		B	C	D	
		4 Wire	5 Wire			4 Wire	5 Wire
100	88	35	39	90	120	390	490
160	88	35	39	90	120	390	490
200	88	35	39	90	120	390	490
250	88	35	39	90	120	390	490
400	98	35	39	100	130	390	490
500	108	35	39	110	140	390	490
630	118	35	39	120	150	390	490
800	138	35	39	140	170	390	490
1000	153	35	39	155	185	390	490
1250	183	35	39	185	215	390	490
1350	198	35	39	200	230	390	490
1600	228	35	39	230	260	390	490
2000	258	35	39	260	290	450	570
2500	323	35	39	325	355	450	570
3150	460	35	39	462	492	450	570
3200	460	35	39	462	492	450	570
3800	550	35	39	552	582	450	570
4000	590	35	39	592	622	450	570

table.23-2

Physical Data

Flanged end details

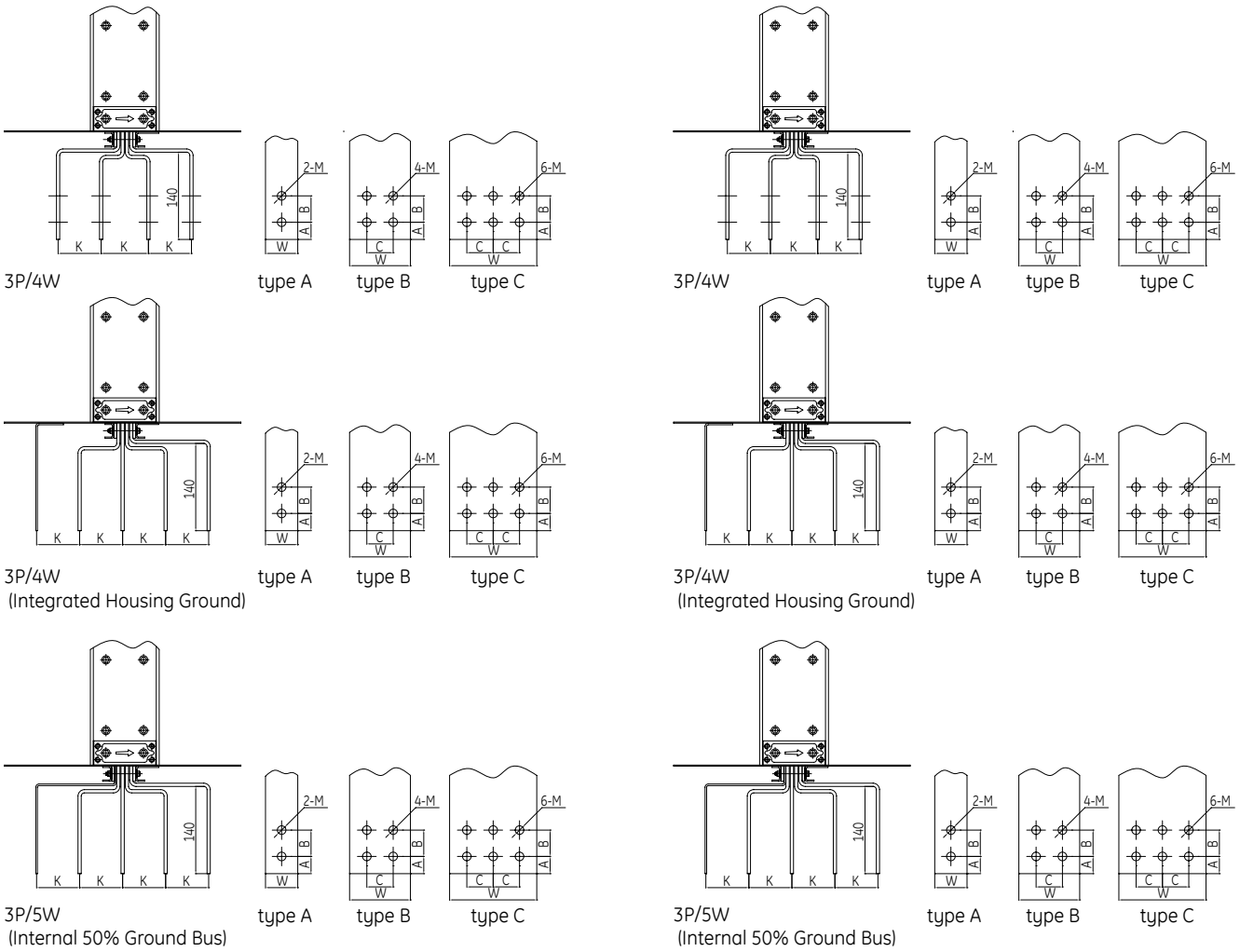


fig.24-1

fig.24-2

Copper busbar

Size: mm

Rated current (A)	A	B	C	K	2-M	Type
100	-	-	-	-	-	-
160	-	-	-	-	-	-
200	-	-	-	-	-	-
250	20	40	-	100	2- ϕ 11	A
400	20	40	-	100	2- ϕ 11	A
630	20	40	-	100	2- ϕ 11	A
800	20	40	-	100	2- ϕ 11	A
1000	25	50	-	100	2- ϕ 14	A
1250	20	40	40	100	4- ϕ 14	B
1600	25	50	50	100	4- ϕ 18	B
2000	30	60	60	120	4- ϕ 18	B
2500	30	60	60	120	6- ϕ 18	C
3150	30	60	60	120	4- ϕ 18	B
3800	25	50	50	120	6- ϕ 18	C
4000	25	50	50	120	6- ϕ 18	C
4500	30	60	60	120	6- ϕ 18	C
5000	30	60	60	120	6- ϕ 18	C

table.24-1

Aluminium busbar

Size: mm

Rated current (A)	A	B	C	K	2-M	Type
100	20	40	-	100	2- ϕ 11	A
160	20	40	-	100	2- ϕ 11	A
200	20	40	-	100	2- ϕ 11	A
250	20	40	-	100	2- ϕ 11	A
400	20	40	-	100	2- ϕ 11	A
500	25	50	-	100	2- ϕ 14	A
630	25	50	-	100	2- ϕ 14	A
800	20	40	40	100	4- ϕ 14	B
1000	20	40	40	100	4- ϕ 14	B
1250	30	60	60	100	4- ϕ 18	B
1350	30	60	60	100	4- ϕ 18	B
1600	25	50	50	100	6- ϕ 18	C
2000	30	60	60	120	6- ϕ 18	C
2500	30	60	60	120	6- ϕ 18	C
3150	25	50	50	120	6- ϕ 18	C
3200	25	50	50	120	6- ϕ 18	C
3800	30	60	60	120	6- ϕ 18	C
4000	30	60	60	120	6- ϕ 18	C
4500	-	-	-	-	-	-
5000	-	-	-	-	-	-

table.24-2

Note: For the current equal to or above 3150A, two bars shall be adopted for per phase, and the hole dimension shown in the tab shall be furnished in both bars.

End tap box

WavePro LT busway system tap boxes are used where a run of busway is fed by cable. We offer standard size end tap box (1m × 1m × 1m) while we also supply with nonstandard box according to the on-site measurement.
All the dimension provided are for standard products. Please contact our engineers for customized products' dimensions.



fig.25-1

Flang end with end tap box connection

The flange plate can be manufactured according to the size of the end tap box, it can be connected directly with end tap box.



fig.25-2

Terminal cover

Terminal cover is installed to terminate the busway, preventing outsider environment from contacting with the live parts, thus enclosing the whole bus system.

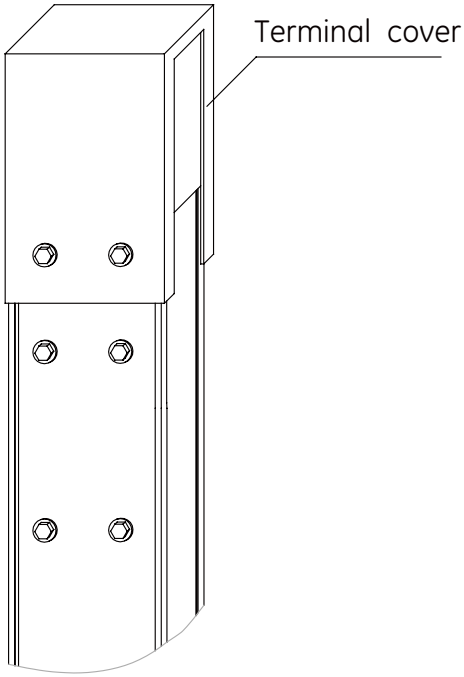


fig.25-3

Physical Data

Flanged end cutout and hole pattern

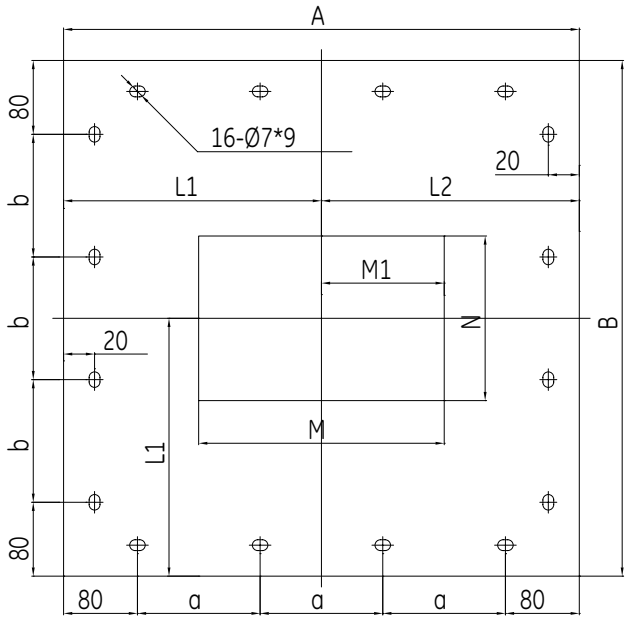


fig.26-1

Copper busbar

Size: mm

Rated current (A)	M		N
	4 Wire	5Wire	
100	-	-	-
160	-	-	-
200	-	-	-
250	330	430	60
400	330	430	60
500	-	-	-
630	330	430	65
800	330	430	75
1000	330	430	100
1250	330	430	115
1600	330	430	140
2000	390	510	190
2500	390	510	235
3150	390	510	312
3800	390	510	362
4000	390	510	382
4500	390	510	472
5000	390	510	512

table.26-1

Aluminium busbar

Size: mm

Rated current (A)	M		N
	4 Wire	5Wire	
100	330	430	60
160	330	430	60
200	330	430	60
250	330	430	60
400	330	430	70
500	330	430	80
630	330	430	90
800	330	430	110
1000	330	430	125
1250	330	430	155
1350	330	430	170
1600	330	430	200
2000	390	510	230
2500	390	510	295
3150	390	510	432
3200	390	510	432
3800	390	510	522
4000	390	510	562
4500	-	-	-
5000	-	-	-

table.26-2

Note:

1、"A" indicates the length of end tap box while "B" indicates the width, they are based on the site situation.

2、"L1" and "L2" are based on the location of flanged end. For standard product, they' are the same.

3、"M1" is based on the location of flanged end. For standard product, M1=M/2.

4、As shown in the figure, the hole in the corner shall be 75mm away from one edge of end tap box and 20mm away from the other, the rest distance wherein is given uniformly for mid holes according to situation.

5、"a" and " b" indicate the distance between the centers of two adjacent holes, and the value shall be limited with the extension from 100mm to 250mm.

Expansion length

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

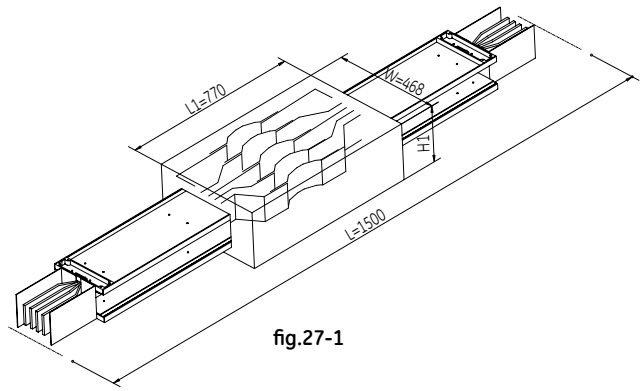


fig.27-1

Note: H1=H+67 (H is bus height)

Reducer

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

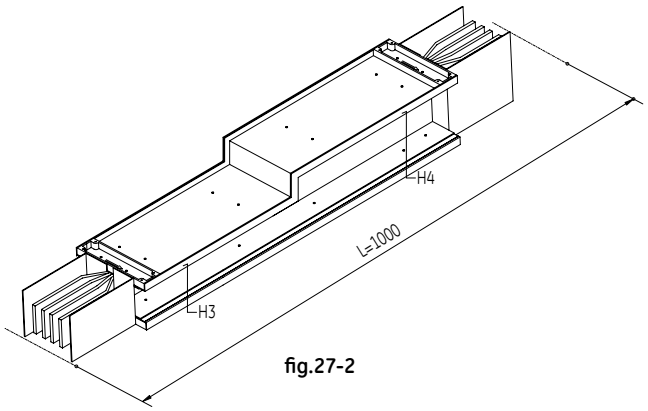


fig.27-2

Note: H3, H4 is the height of the busway.
Please refer to table.12-2.

Transposition section

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

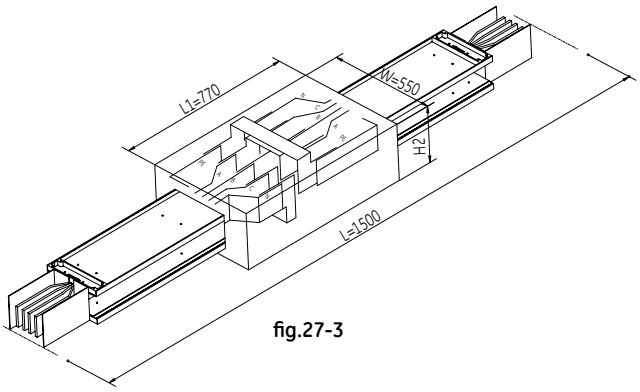


fig.27-3

Note: H2=H+200mm (H is busbar height)

Note:
1.For H dimensions please refer to table.12-2.
2.All the dimensions provided are for standard products. Please contact our engineers for customized products' dimensions.

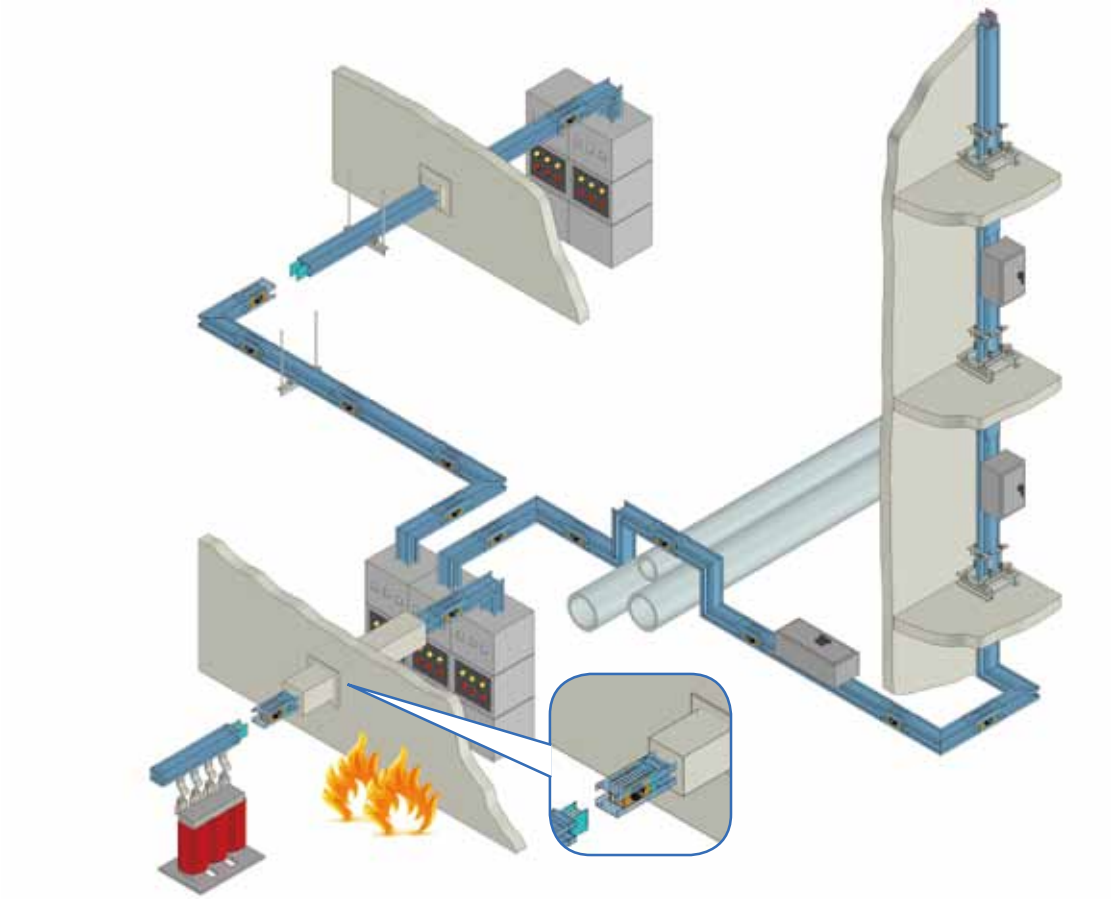
Physical Data

Resistance to flame propagation

WavePro LT Busway meets requirement of 8.2.14 of IEC60439-2 - Resistance to flame-propagation.
The test is performed according to IEC 60332-3, with a flame application time of 40 Min.

Fire proofing in building penetration

WavePro LT Busway, fitted with a fire barrier unit, meets requirement of 8.2.15 of IEC60439-2 – Fire resistance in building penetrations. Fire resistance 120 min.



Wall flange

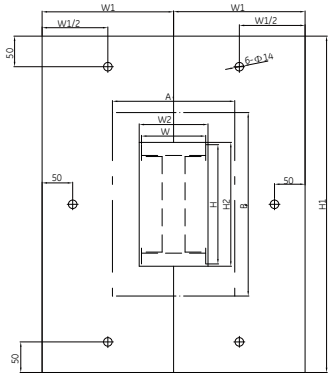


fig.29-1

1. W indicates the width of busway while H indicates the height;
2. A indicates the width of cutout while B indicates the height;
3. W1 indicates the external width of flange while H1 indicates the height;
4. W2 indicates the internal width of flange while H2 indicates the height;
5. The flange is dimidiate;
6. Flange is necessary in both sides of the cutout;
7. Flange is fixed against the wall with internal expansion bolt.

Copper bar

Size: mm

Rated current (A)	External dimension of busway W×H	Dimension of cutout A×B (≥)	External dimension of wall flange W1×H1 (≥)	Internal dimension of wall flange W2×H2 (≥)
250	128×88	230×190	215×390	140×100
400	128×88	230×190	215×390	140×100
630	128×93	230×195	215×395	140×105
800	128×103	230×205	215×405	140×115
1000	128×128	230×230	215×430	140×140
1250	128×143	230×245	215×445	140×155
1600	128×168	230×270	215×470	140×180
2000	128×218	230×320	215×520	140×230
2500	128×263	230×365	215×565	140×275
3150	128×340	230×442	215×642	140×352
3800	128×390	230×492	215×692	140×402
4000	128×410	230×512	215×712	140×422
4500	128×500	230×602	215×802	140×512
5000	128×540	230×642	215×842	140×552

table.29-1

Aluminium bar

Size: mm

Rated current (A)	External dimension of busway W×H	Dimension of cutout A×B (≥)	External dimension of wall flange W1×H1 (≥)	Internal dimension of wall flange W2×H2 (≥)
100	128×88	230×190	215×390	140×100
160	128×88	230×190	215×390	140×100
200	128×88	230×190	215×390	140×100
250	128×88	230×190	215×390	140×100
400	128×98	230×200	215×400	140×110
500	128×108	230×210	215×410	140×120
630	128×118	230×220	215×420	140×130
800	128×138	230×240	215×440	140×150
1000	128×153	230×255	215×455	140×165
1250	128×183	230×285	215×485	140×195
1350	128×198	230×300	215×500	140×210
1600	128×228	230×330	215×530	140×240
2000	128×258	230×360	215×560	140×270
2500	128×323	230×425	215×625	140×335
3150	128×460	230×562	215×762	140×472
3200	128×460	230×562	215×762	140×472
3800	128×550	230×652	215×852	140×562
4000	128×590	230×692	215×892	140×602

table.29-2

Physical Data

Bus plug

WavePro LT bus plugs are used to apply electrical power directly to the load from the busway system. The protection component in a bus plug can be either a circuit breaker or fuse.

Circuit breaker bus plugs:

Circuit breaker protection is available for a current between 16A~1000A.
GE circuit breakers are provided as standard offering.
3-Pole or 4-Pole circuit breakers may be installed in the plug for load protection, including accessories of circuit breakers such as rotary handles, shunt release, thermal magnetic release and leakage-current protection module..

Fused bus plugs:

Fused bus plugs are made specifically per customer's project specifications.
Please contact with our local sales office for ordering information.

Unique fail-safe base pins: the plug is equipped with a positioning device that prevents incorrect installations.
Base lugs: all the lugs are silver-plated to improve their electrical conductivity.

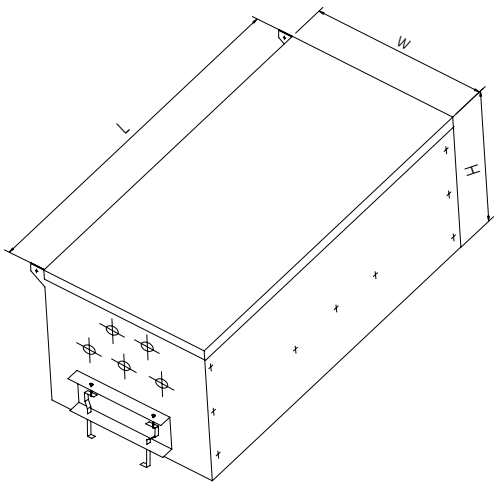


fig.30-1

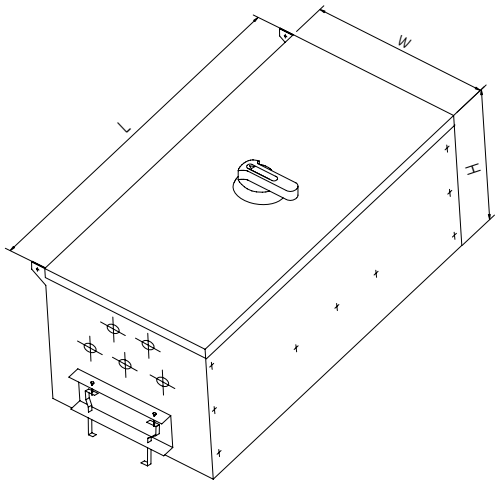


fig.30-2

Physical data of plug (L × W × H) mm

For any nonstandard dimension, please contact with us.

Operation mode	Rated current (A)	Dimension of plug (L × W × H) mm
Manual operating mechanism fig.30-1	25~160	450 × 240 × 260
	200, 250	550 × 260 × 280
	400	650 × 300 × 300
	800~1000*	1200 × 550 × 400
Rotary operating mechanism** fig.30-2	25~160	430 × 240 × (275+70)**
	225	460 × 260 × (275+70)**
	200, 250	550 × 260 × (320+70)**
	400	650 × 300 × (340+70)**
	800~1000*	1200 × 550 × (400+70)**

table.30-1

*** Contact local sales.**
**** The added 70mm is for the rotary handle installation space.**

Accessories

Edgewise hanger & Edgewise installation beam

The edgewise hanger is used when the busway is edgewise installed. It can fit all ampere ratings.

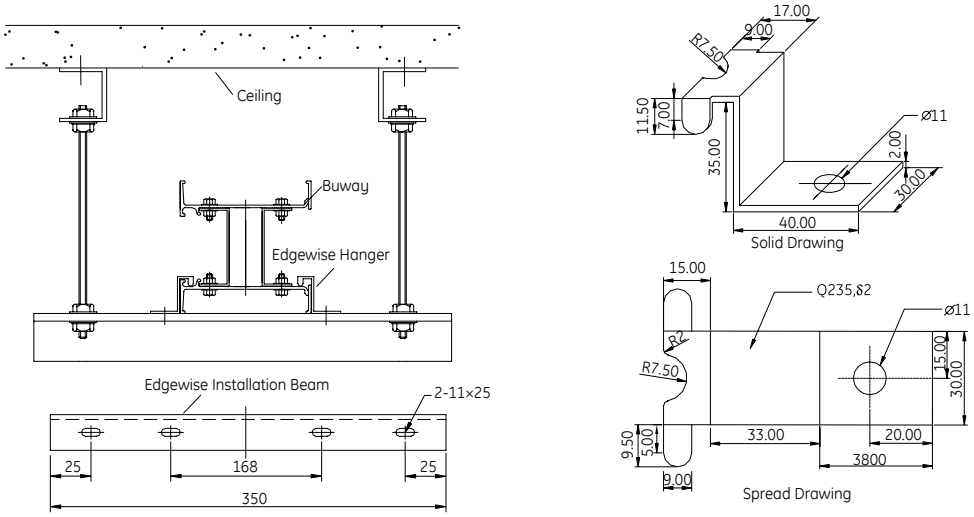


fig.31-1

Flatwise hanger & Flatwise installation beam

The flatwise hanger is used when the busway is flatwise installed. It can fit all ampere ratings. But the dimension of the flatwise installation beam is related with the ampere ratings. In the pic below W is the width of the busway.

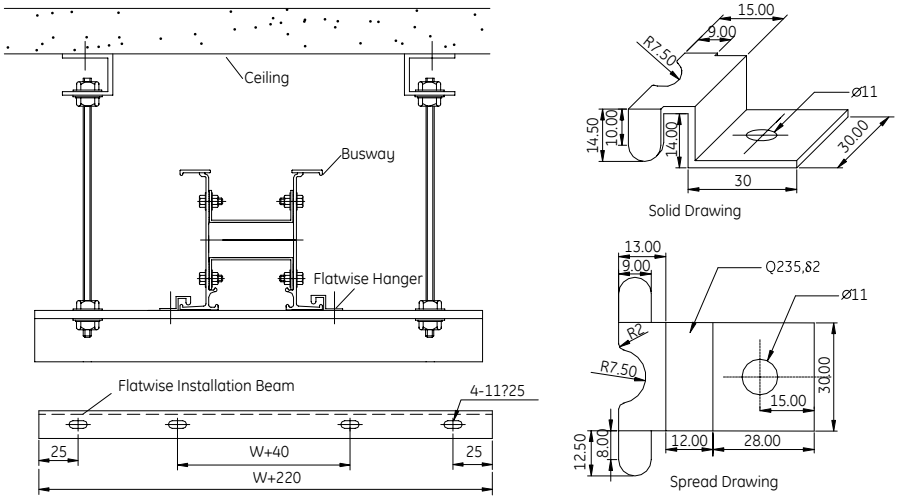


fig.31-2

Note:
1.All the dimension's unit is mm.
2.All the dimensions provided are for standard products. Please contact our engineers for customized products' dimensions.
3.The edgewise and flatwise hanger are provided by the factory.
4.The installtion beam and steeve are provided by the installtion company as a rule. It is charged separately when provided by the factory,and the dimension should be provided.

Accessories

Fixed hanger

The fixation hanger is used when the busway is vertically installed. It is installed on the wall between the two floors. It keeps the busway from moving horizontally. It can fit all ampere ratings. Fixation hanger has two parts, a pair of "Fixation Hanger Holder" which are perpendicular to the wall and a "Fixation Hanger Beam" which is parallel with the wall.

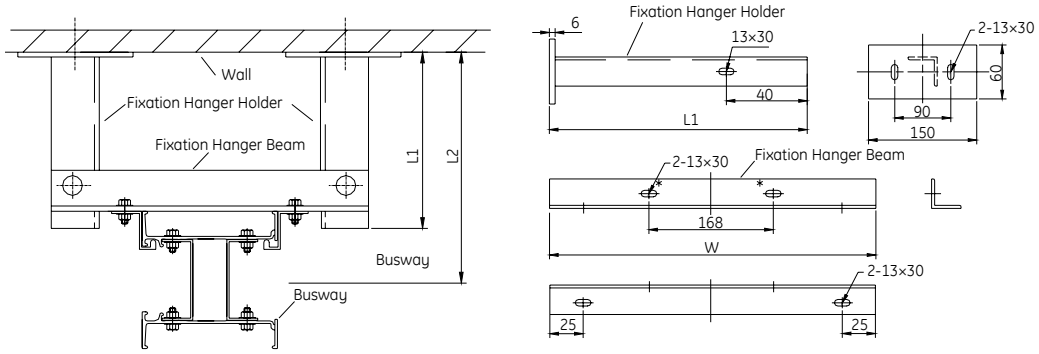
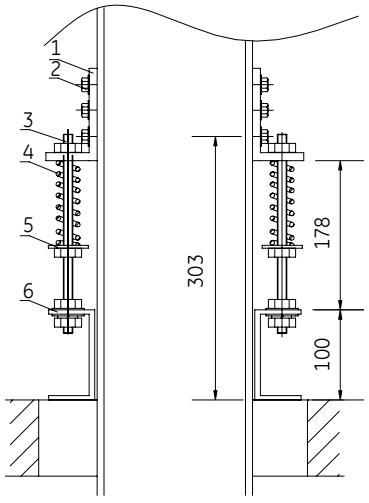


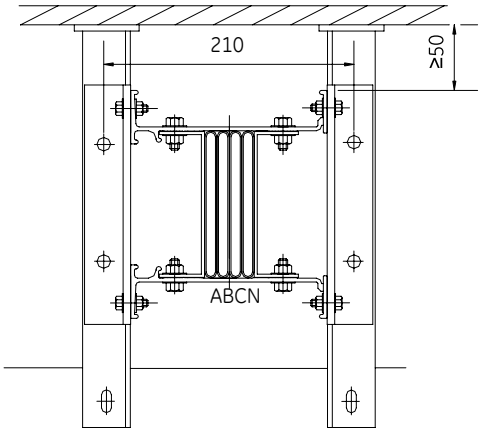
fig.32-1

Note:
1. L1 and L2 are customized based on different projects. Other dimensions are for standard products.
2. The fixation hanger are provided by the installtion company as a rule. It is charged separately when provided by the factory, and the dimension should be provided.

Spring hanger

Spring hanger is used in each floor to support the vertically installed busway's weight.
The spring hanger is connected with the busway by bolt.
Spring hangers have different spring quantities for different ampere rating busways. Please refer to table. 36-1.





Accessories:
1. Spring supporter
2. Hex head bolt
3. Double-headed bolt
4. Spring
5. Cushion
6. Channel steel base

fig.32-2

Rated current	Spring Qty
250-800	2
1000-2500	4
3150-5000	6

table. 32-1

Note:
1. All the dimensions' unit is mm.
2. All the dimension provided are for standard products. Please contact our engineers for customized products' dimensions.

Application

Connection to Low Voltage Switchgear

WavePro LT busway system provides flanged end/stub units for termination to the switchboard busbars.

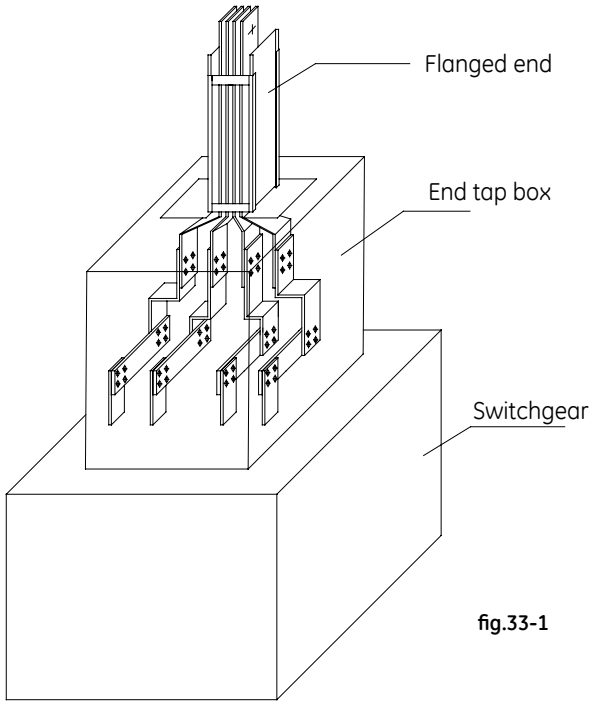


fig.33-1

Connection to Transformer

WavePro LT busway system provides flanged end/stub units for flexible or hard connection. It may be designed according to the LV terminal of the transformers.

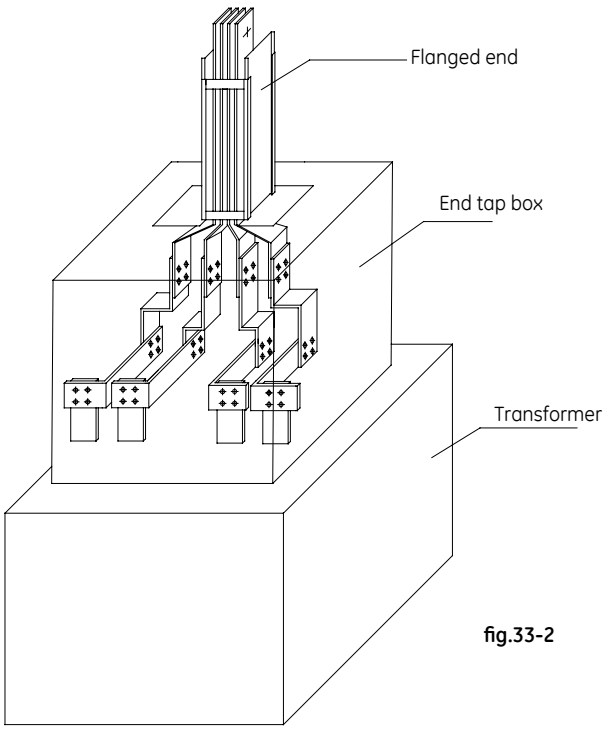


fig.33-2

Note: Please make clear the connection parts type and provider. We charged it separately when provided by the factory.

Installation

Protection Class

GE WavePro LT busway systems are offered with options for indoor, drip proof and splash proof applications.

IP40 - Protection against dusts.
IP42 - Protection against dusts and water drops.
IP54 - Protection against dusts and water sprays.
IP65 - Protection against dusts and water jets.

Minimum clearance required for heat dissipation

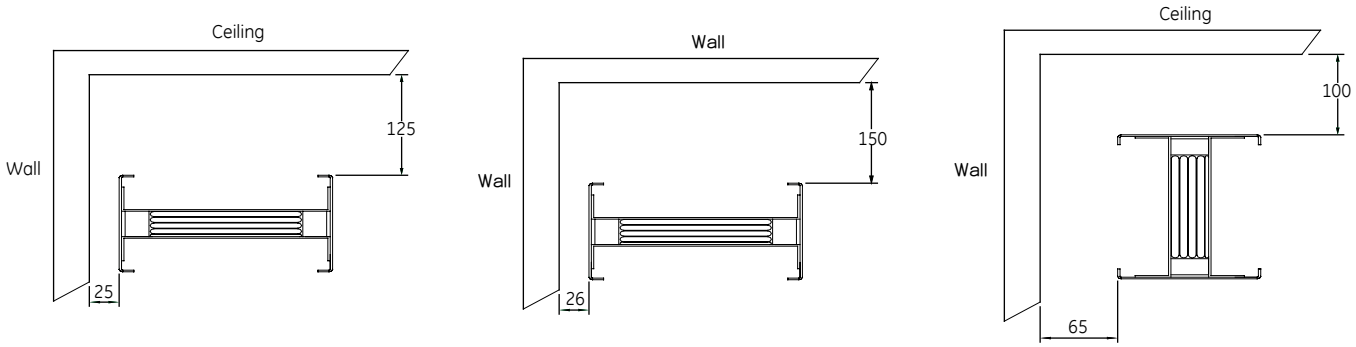
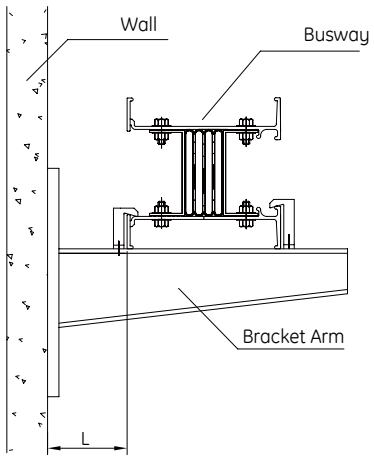


fig.34-1

Minimum clearance required for Plug-in box installation

When the busway is horizontally or vertically installed near the wall, a minimum clearance is required for Plug-in box installation. Pls refer to below table.38-1



Upright Installation

fig.34-2

Rated current of plugs (A)	100	250	400	630	800	1000
L (mm)	150	195	210	230	260	300

table.34-1

Note: All the dimensions' unit is mm.

Horizontal installation

1.Horizontal through-the-wall installation

For dimensions of through-the-wall installation, please refer to the following figure:

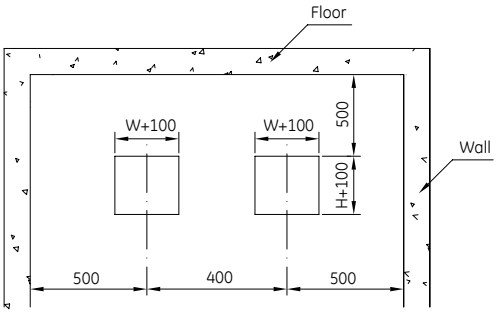


fig.35-1

2.Horizontal installation - trapeze hangers Overhead Support

Holes shall be first drilled in the floor so as to inlay steel expansion bolts (holes may also be drilled on the spot for flexible installation) or pre-bury steel U-channel for welding with hangers. The distance between two adjacent hangers shall not exceed 2m. Please specify your special requirements in order.

There are two forms of horizontal installation. Please refer to the following figure:

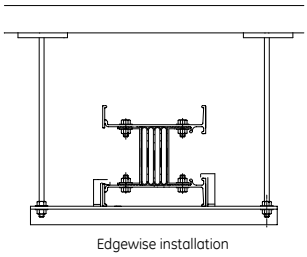


fig.35-2

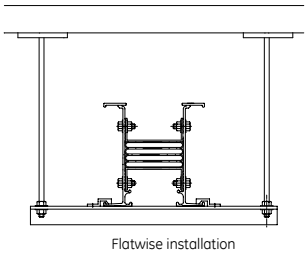


fig.35-3

3.Horizontal installation - wall support

Please pay attention to linearity of the installation hole (i.e. the entire run of supports shall be installed at the same level). For installation types, refer to the graphic representation.

Horizontal installation along the wall may also contain vertical and horizontal installation.

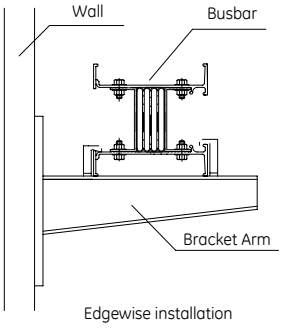


fig.35-4

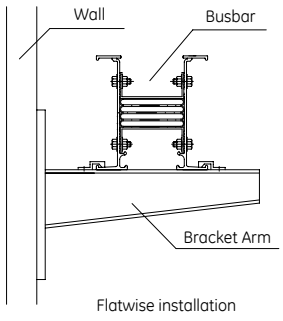


fig.35-5

Installation

Vertical installation

For installing vertical bus run, please refer to the fig.36-1 for dimension of cut holes. It shall be ensured that the spacing between every two runs of busway exceeds 400mm if there're two or more than two vertical runs of busway installed in the same riser. Please refer to the fig.36-1 below:

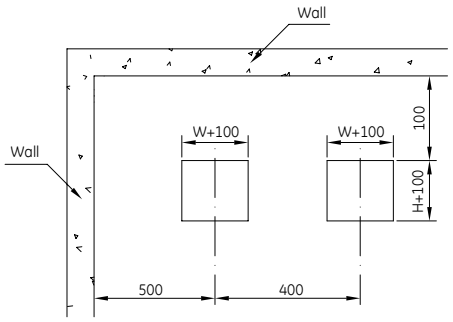


fig.36-1

1. When choosing the spring hangers, the elastic force should be adjusted to (G+F) kilogram (G is the weight of busbar between each floor while F is 5~10 kilograms which refer to the on-site condition) . There are mainly two types of installation:

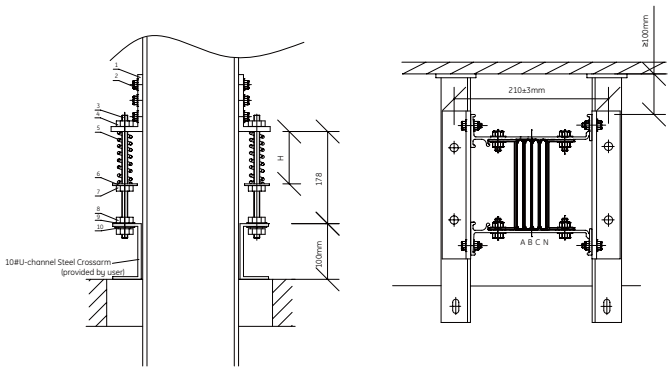
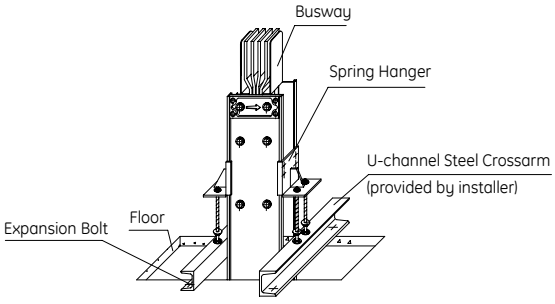
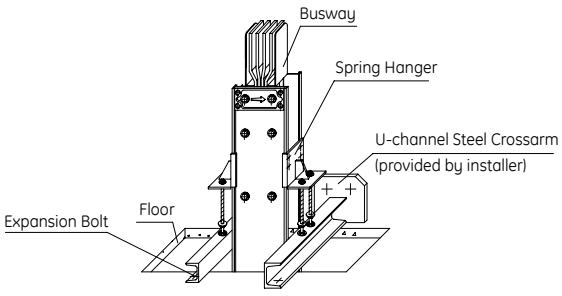


fig.36-2



When the hatch is under normal situation

fig.36-3



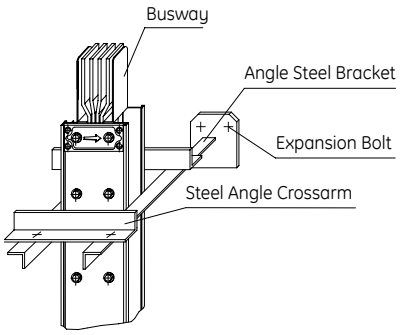
When one edge of the hatch coincides with the wall

fig.36-4

Key points in Vertical installation

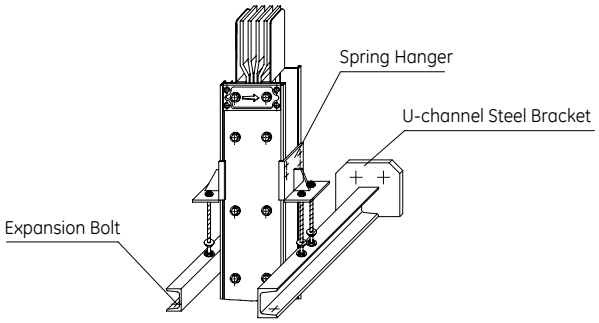
- In vertical installation, the distance between joint and ground should not be less than 0.56m, while distance between busway and wall backwards should be more than 0.1m.
- Busway installed in riser should be reinforced in the center (generally when the space between floors exceed 4m or according to the users' special requirements), which may be carried out referring to the figure. The additional supporters is related with busway rating..
- In vertical installation, spring bracket should be installed first and then busway, together with the spring bracket, can be fixed on the channel steel bed. Switch the spring to adjust the nut so that bracket spring can naturally bear the weight of busway.
- The central distance between two neighbor vertical busways should be more than 0.4m. If have the special situation, please contact with project engineer.
- The joint should not be located at the area across the floor.

2. Busway installed in riser should be reinforced in the center (generally when the space between floors exceeds 4m or according to the users' special requirements), which may be carried out referring to the figure (the additional supporters is related with busway rating).



For the Selection of Steel Angle Installation

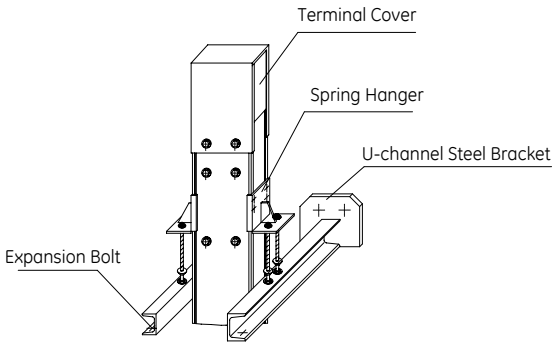
fig.37-1



For the Selection of Spring Hanger Installation

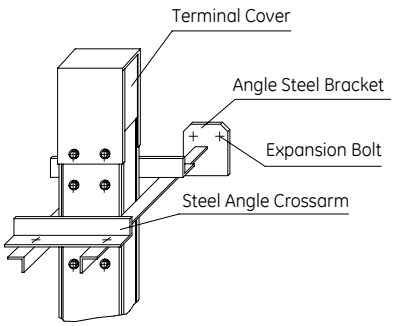
fig.37-2

3. The reinforcement of the end of busway installed vertically in riser may be carried out referring to the figure.



For the Selection of Spring Hanger Installation

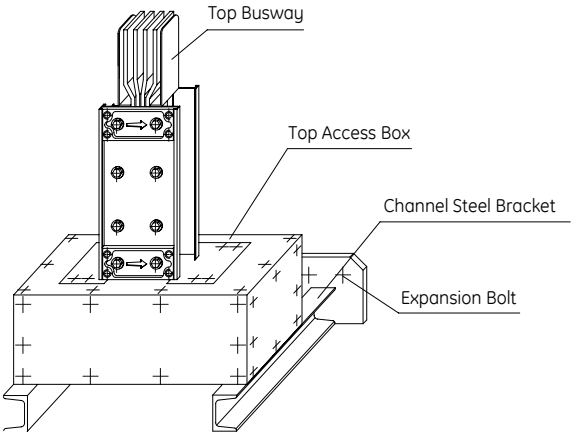
fig.37-3



For the Selection of Steel Angle Installation

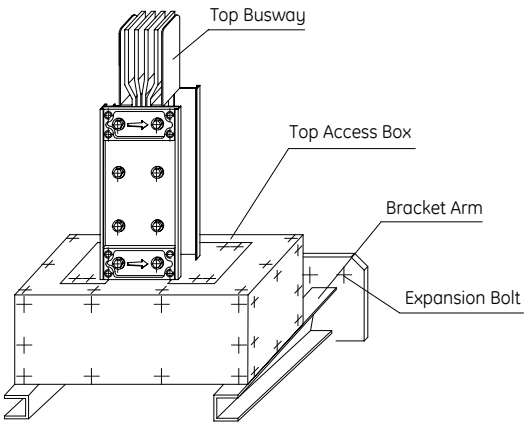
fig.37-4

4. The reinforcement of the end tap box installed in riser may be carried out referring to the figure.



For the Selection of Steel Angle Installation

fig.37-5



Adoption of Bracket Arm

fig.37-6

Ordering Information

WavePro LT purchase guide

The following information should be noted in building construction drawings and busway arrangement drawings:

- Model, rated current, rated voltage
- Plug-in busway or in feeder busway
- Characteristics of the power supply and protection degree
- All fittings' installation locations and the dimension limits
- Power connecting method
- Surface treatment and color and accessories
- Name, model, specifications, quantity of components and protection degree of the plug

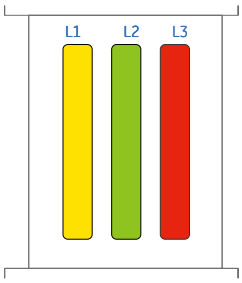
WavePro LT Busway Quotation Inquiry Form

Item	Details	
Conduct type	☐ Copper ☐ Aluminium	
Rated capacity	☐ 100A ☐ 160A ☐ 200A ☐ 250A ☐ 400A ☐ 500A ☐ 630A ☐ 800A ☐ 1000A ☐ 1250A ☐ 1600A ☐ 2000A ☐ 2500A ☐ 3150A ☐ 3200A ☐ 3800A ☐ 4000A ☐ 4500A ☐ 5000A	
Number of phase and wire	☐ 3P3W (L1, L2, L3)	☐ 3P4W (L1, L2, L3, 100%PEN)
	☐ 3P5W (L1, L2, L3, 100%N, 50% Housing Ground)	☐ 3P5W (L1, L2, L3, 100%N, 50% Internal Ground)
	☐ 3P5W (L1, L2, L3, 100%N, 100% Internal Ground)	☐ 3P5W (L1, L2, L3, 200%N, 50% Internal Ground)
	☐ 3P5W (L1, L2, L3, 200%N, 50% Housing Ground)	
Phase sequence and color	☐ Option 1 ☐ Option 2 ☐ Option 3 ☐ Option 4 ☐ Option 5 ☐ Option 6 ☐ Option 7	
Frequency	☐ 50Hz	☐ 60Hz
Voltage	☐ 415V	☐ 690V
Certification	☐ IEC	☐ Others (consult the manufacturer in advance)
Degree of protection	☐ IP40 ☐ IP42 ☐ IP54 ☐ IP65 ☐ Others	
Short withstand current@1s	☐ 10kA ☐ 20kA ☐ 30kA ☐ 50kA ☐ 65kA ☐ 80kA ☐ 100kA	
Color	☐ GE Standard Grey (RAL7000)	☐ Others (please note)
Model	☐ Plug-in busway, Qnty: _____meter (s)	☐ Feed-in busway, Qnty: _____meter (s)
Number of Plug Outlets	☐ 1 ☐ 2 ☐ 3 ☐ 4	☐ One side ☐ Both side
Accessories	☐ L type horizontal elbow (inside N phase), Qnty: _____	☐ L type horizontal elbow (outside N phase), Qnty: _____
	☐ L type vertical elbow (above N phase), Qnty: _____	☐ L type vertical elbow (under N phase), Qnty: _____
	☐ T type horizontal elbow (inside N phase), Qnty: _____	☐ T type horizontal elbow (outside N phase), Qnty: _____
	☐ T type vertical elbow (above N phase), Qnty: _____	☐ T type vertical elbow (under N phase), Qnty: _____
	☐ Terminal, quantity: _____ ☐ Flanged end, quantity: _____	
	☐ Reducer, quantity: _____ ☐ Expansion length, quantity: _____ ☐ Transposition length, quantity: _____	
Plug	☐ MCCB ☐ Others	☐ Rotary handle operation ☐ Manual operation
	Rated current	___A, quantity: ___ ___A, quantity: ___ ___A, quantity: ___ ___A, quantity: ___ ___A, quantity: ___ ___A, quantity: ___
		___A, quantity: ___ ___A, quantity: ___ ___A, quantity: ___ ___A, quantity: ___ ___A, quantity: ___ ___A, quantity: ___
	Short-circuit current	___A
Bracket	☐ Horizontal, quantity: _____	☐ Vertical, quantity: _____
Delivery date		
Mode of shipping		
Packaging requirement		
Address of destination		
Contact Person Info.		
Contact		
Special requirement		

table.38-1

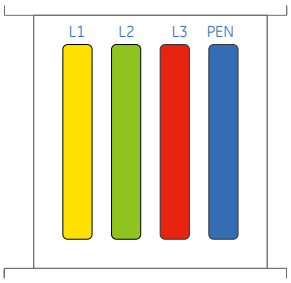
Busway Phase Sequence and Phase Color

Option 1



3P3W

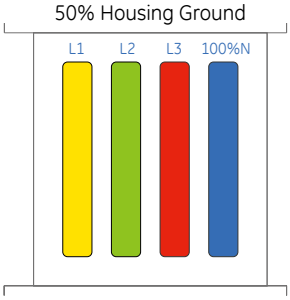
Option 2



3P4W

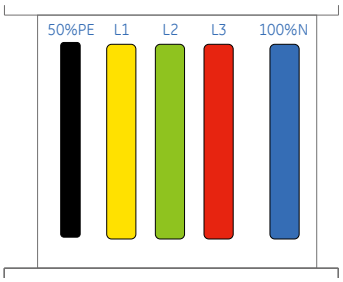
Option 3

50% Housing Ground



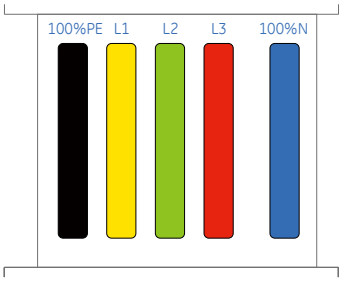
3P5W, 100%N, 50% Housing Ground

Option 4



3P5W, 100%N, 50% Internal Ground

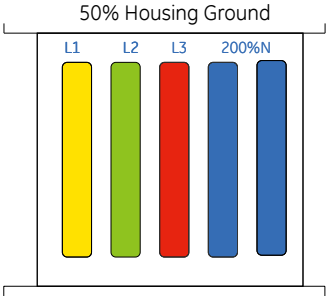
Option 5



3P5W, 100%N, 100% Internal Ground

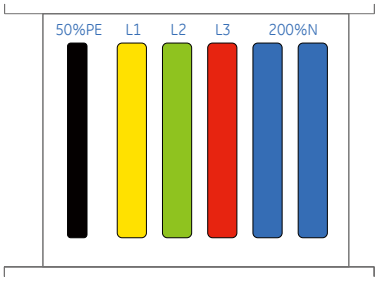
Option 6

50% Housing Ground



3P5W, 200%N, 50% Housing Ground

Option 7



3P5W, 200%N, 50% Internal Ground

WavePro LT Busway System Catalog Ordering Numbers

WavePro LT Busway System can be ordered by catalog numbers. Please refer to the following catalog number system and contact with our engineers to place orders.

WT	B	F1	CSLN	1	00A	C	40	B
WavePro LT	Busway			1：3P3W（L1、L2、L3） 2：3P4W（L1、L2、L3、PEN） 3：3P5W（L1～L3, 100%N, 50% Housing Ground） 4：3P5W（L1～L3, 100%N, 50% Internal Ground） 5：3P5W（L1～L3, 100%N, 100% Internal Ground） 6：3P5W（L1～L3, 200%N, 50% Housing Ground） 7：3P5W（L1～L3, 200%N, 50% Internal Ground）	00：100A 01：160A 02：200A 03：250A 04：400A 05：500A 06：630A 08：800A 10：1000A 12：1250A 13：1350A 16：1600A 20：2000A 25：2500A 31：3150A 32：3200A 38：3800A 40：4000A 45：4500A 50：5000A NAA：Outlet	A：Al C：Cu	40：IP40 42：IP42 54：IP54 65：IP65 00：Spring Hanger and Outlet	Asia except China mainland

F1：Feeder & Accessories For feeder (joint beyond)
F2：Joint
P1：Plug-in（with 1 plug outlet）
P2：Plug-in（with 2 plug outlets）
P3：Plug-in（with 3 plug outlets）
P4：Plug-in (with 4 plug outlets)
P6：Plug-in（with 6 plug outlets）
P8：Plug-in（with 8 plug outlets）

CSLN：Straight Length
CFEN：Flanged End
CTCN：Terminal Cover
LEIN：Edgewise Elbow（N Phase Inboard）
LEIF：Edgewise Elbow with Flanged End（N Phase Inboard）
LEON：Edgewise Elbow（N Phase Outboard）
LEOF：Edgewise Elbow with Flanged End（N Phase Outboard）
LFNN：Flatwise Elbow
LFUF：Flatwise Elbow with Flanged End（N Phase Up）
LFDF：Flatwise Elbow with Flanged End（N Phase Down）
ZFNN：Edgewise Offset
ZFUN：Flatwise Offset（N Phase Up）
ZFDN：Flatwise Offset（N Phase Down）
TEIN：Edgewise T（N Phase Inboard）
TEON：Edgewise T（N Phase Outboard）
TFNN：Flatwise T
CFNN：Flatwise Cross
CENN：Edgewise Cross
TREN：Reducer
ELNN：Expansion Length
TPLN：Transposition Length
OTHR：Other
SPHR：Spring Hanger
OTLT：Outlet

WT	P	R	BP	3P	10	40	FEN
WavePro LT	Busway Plug	M：Manual Mechanism R：Rotary Mechanism	BP：with Record Plus Breaker OT：others	3P：without Neutral Line 3N：with Neutral Line 4P：Others	02： Rating Current 25A 03： Rating Current 32A 04： Rating Current 40A 05： Rating Current 50A 06： Rating Current 63A 08： Rating Current 80A 10： Rating Current 100A 13： Rating Current 125A 16： Rating Current 160A 20： Rating Current 200A 25： Rating Current 250A 32： Rating Current 315A 40： Rating Current 400A 100：Rating Current 1000A	40：IP40 42：IP42 54：IP54	FEN FEH FEL FGN FGH FKN OTH

WT	A	C	DRR	A
WavePro LT	Accessory	C: Connecting Accessory I: Installing Accessory F: Fire Barrier Accessory	DRR：Drop Rod VP5：Steel Pillar (5#Angle Steel) VP8：Steel Pillar (8#Channel Steel) CB5：Cross Beam (5#Angle Steel) CB8：Cross Beam (8# Channel Steel) BRH：Bracket (Horizontal Installation) BRV：Bracket (Vertical Installtion,Angle Steel) ETB：End Tap Box HPP：Horizontal Press Plate VPP：Vertical Press Plate FLC：Flexible Connection CNB：Connecting Bar OTH：Others	00：Spring Hanger and Outlet 03：100~250A 04：400A 05：500A 06：630A 08：800A 10：1000A 12：1250A 13：1350A 16：1600A 20：2000A 25：2500A 31：3150A 32：3200A 38：3800A 40：4000A 45：4500A 50：5000A

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GE Energy
Industrial Solutions

GE Asia Headquarters China
4F, Building 2, CTP, No.1 Hua Tuo Rd.
Zhang Jiang Hi-Tech Park
Pudong, Shanghai 201203
T : +86 21 3877 7888
F : +86 21 3877 7600

Australia
125-127 Long Street
Smithfield, Sydney, NSW 2164
T : +61 2 8788 6911
F : +61 2 8788 7224

Indonesia
BRI II Tower, 27th floor
Jl. Jend. Sudirman No. 44-46
Jakarta 10210
T: +62 21 573 0430
F: +62 21 574 7089

India
The Millenia, 6F, Tower B, #1&2
Murphy Road, Ulsoor Bangalore
560 008
T : +91 80 4143 4000
F : +91 80 4143 4199

HongKong
8F, The Lee Gardens, 33 Hysan
Avenue Causeway Bay, HongKong
T : +852 2100 6800
F : +852 2376 0013

Japan
11F, Akasaka Park Bldg.,5-2-20
Akasaka Minato-ku, Tokyo
107-0052
T: +81 3 5544 6780
F: +81 3 3589 3372

Korea
3F, GE Tower, 71-3, Chungdam-
Dong, Kangnam-Gu, Seoul 135-100
T: +82 2 6201 4501
F: +82 2 6201 4545

Malaysia
Level 6, 1 Sentral, Jalan Travers,
Kuala Lumpur 50470
T : +603 2273 9788
F : +603 2273 3481

New Zealand
Level 1, 8 Tangihua Street.
Auckland. North Island.
T : +64 9 353 6706
F : +64 9 353 6707

Philippines
8F Net Cube Building, 30th Street
Corner 3rd Avenue, Crescent West Park
Global City Taguig 1634
T : +63 2 877 7000
F : +63 2 846 0629

Singapore
240 Tanjong Pagar Road
#06-00 GE Tower
Singapore 088540
T : +65 6326 3404
F : +65 6326 3015

Taiwan
6F, No.8, Sec. 3, Minsheng E. Road
Taipei 10480
T : +886 2 2183 7000
F : +886 2 2516 6829

Thailand
7th Floor, Capital Tower, All Seasons Place
87/1 Wireless Road, Lumpini
Pathumwan, Bangkok 10330
T : +66 2 648 0199
F : +66 2 648 0100

Vietnam
7F, Saigon Center 65 Le Loi
Boulevard, Dist 1,
HoChiMinh City
T : +84 8 8219 254
F : +84 8 8219 400

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