Industrial Solutions

WavePro-II Busway

Leading the future of electrification

About GE

GE (NYSE: GE) works on things that matter. The best people and the best technologies taking on the toughest challenges. Finding solutions in energy, health and home, transportation and finance. Building, powering, moving and curing the world. Not just imagining. Doing. GE works. For more information, visit the company's website at www.ge.com.

Industrial Solutions

Industrial Solutions, a GE heritage business, is leading the future of electrification with advanced technologies that protect and control the distribution of electricity throughout a facility's infrastructure. We provide customers, across various industries, with end-to-end product and service solutions that ensure the reliability and protection of the electrical infrastructure; from the substation, to a facility's critical equipment, and all the power technologies in between.

Find more information on www.geindustrial.com

Honour

FORTUNE 2013 WORLD'S MOST ADMIRED COMPANIES Industry Champion – Ranked #1
2013 World's Most Admired Companies

Interbrand Creating and managing brand value™
2012 Best Global Brand

FINANCIAL TIMES
2010 World's Most Respected Companies

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2010 World's Most Innovative Companies

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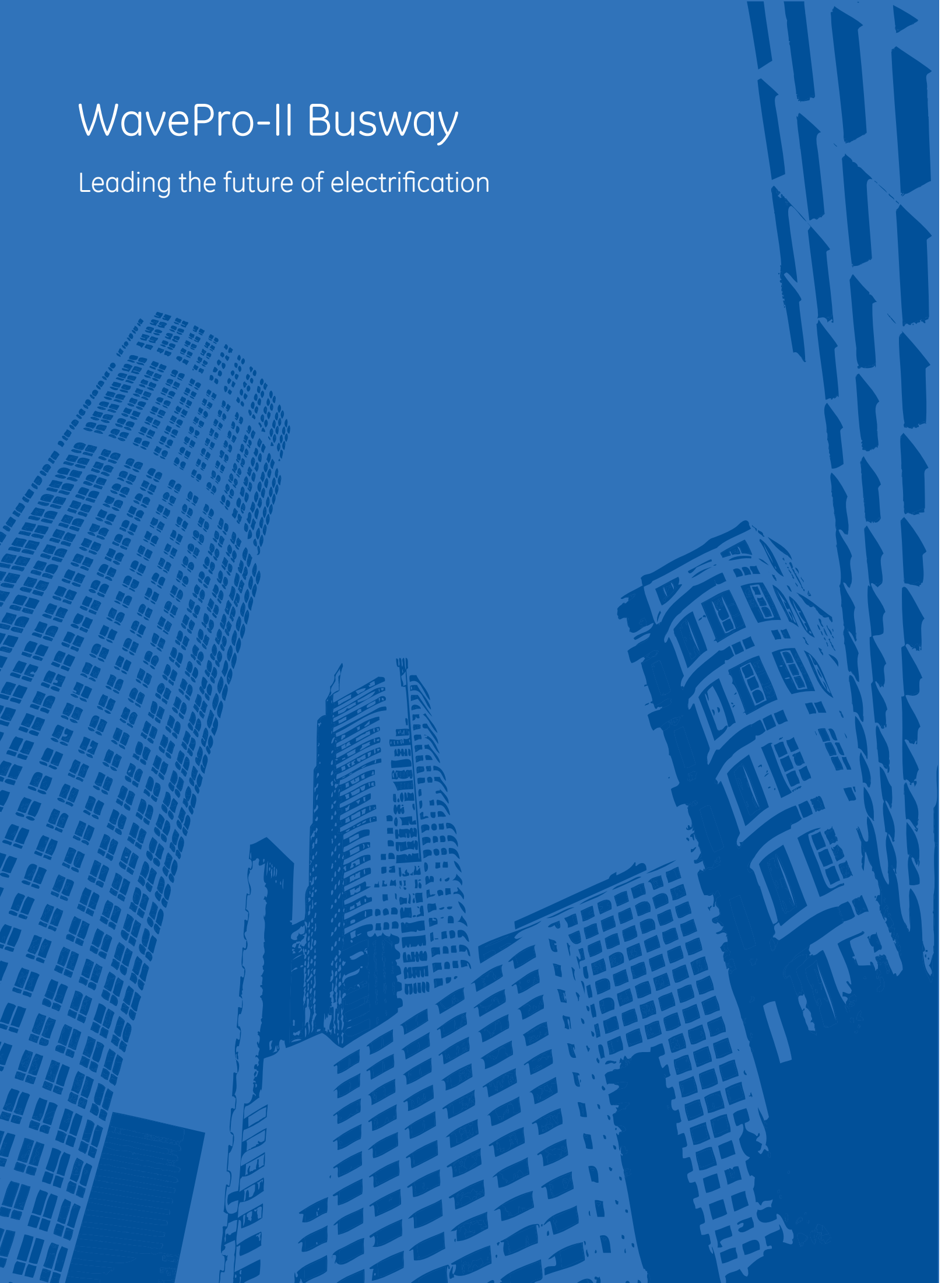
WavePro-II Busway

Leading the future of electrification



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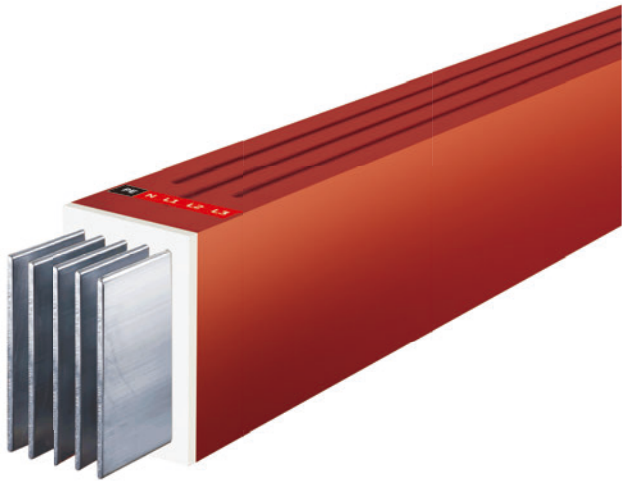
GE Busway

Along with the rapid growth of American automotive industry in the last century, the world's earliest busway was produced in 1940's, i.e. the first generation busway product developed by GE - LVD busway with steel housing.

After 70 years of unremitting efforts, GE has developed a wide range of low voltage busway families, including power busway, lighting busway and other series.

GE China R&D center and the global busway R&D teams work closely to participate in the development of busway products jointly, to ensure simultaneous development of global technology and better serve customers from different markets worldwide.

WavePro-F
A New Generation of Fire Rated Busway



WavePro-F busway uses an Automatic Pressure Gelatin (APG) process, resulting in a compact cast resin with low internal stress. The cast resinforms an external surface which provides a water tight barrier around the current carrying conductors. WavePro-F busway features excellentfire resistant performance and up to IP68 protection level.

It is especially suitable for emergency generator circuits of high rise commercial buildings, shipyards, the chemical industry, and otherdemanding applications with high requirements on Fire proofing, waterproofing and corrosion resistance.

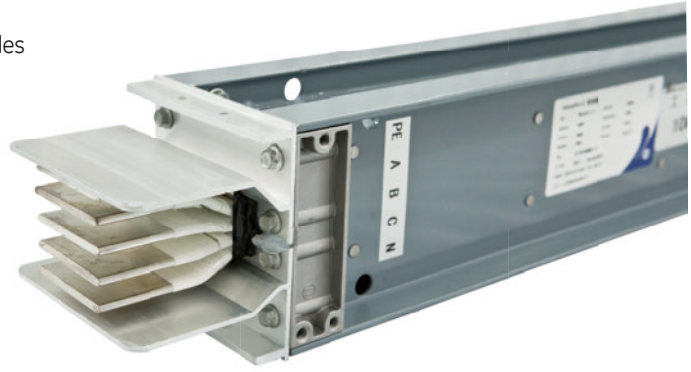
Features

- Comply with IEC61439-6
- BS 6387 Class C：950°C/180min
- IEC61439-6 Clause 10.101: Resistance to flame-propagation
- Integrity Joint Design, no dedicated mold is needed
- KEMA KEUR Certified

KEMA KEUR

IEC

WavePro™ Series Busway



WavePro™ Series busway provides a full range of low voltage busway products that GE launches for IEC market, including WavePro-F busway and WavePro-II busway:

WavePro-II busway design with aluminum housing and sandwich structure that provides perfect heat dissipation performance. As low magnetic material, aluminum housing can effectively reduce the eddy current hysteresis loss. WavePro-II busway provides a safe and cost efficient means of carrying power between low voltage equipment and distributing power over a broad area. WavePro busway complies with IEC and GB standards.

WavePro-II Overview

WavePro-II low-voltage compact busway features rated current 400A-5000A, the ability of providing neutral busbar with 100% and 200% capacity, and has two options available: 50% integrated housing ground and 50% internal ground, which can meet the requirements of various power distribution systems.

The ingress protection grade is up to IP65, the users can select according to the installation environment.

- GE (China) R&D Center located in Shanghai

WavePro II reference standards & certificates

Design Standards:

IEC 61439-1 2011 LV switchgear and control gear assemblies – Part 1: General rules

IEC 61439-6 2012 LV switchgear and control gear assemblies – Part 6: Busbar trunking systems (busways)

Product Certificates / Test Reports:

KEMA KEUR/DEKRA

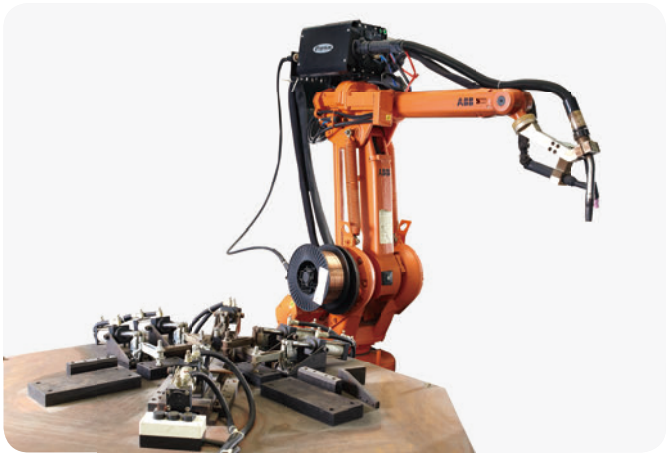
Temperature rise limit test at ambient temperature of 50 °C with KEMA test report.

Resistance to flame propagation (IEC 61439-6, Clause 10.101) and fire resistance in wall penetrations (IEC61439-6, clause 10.102, with fire resistance of 240 minutes), KEMA test report and certificate.

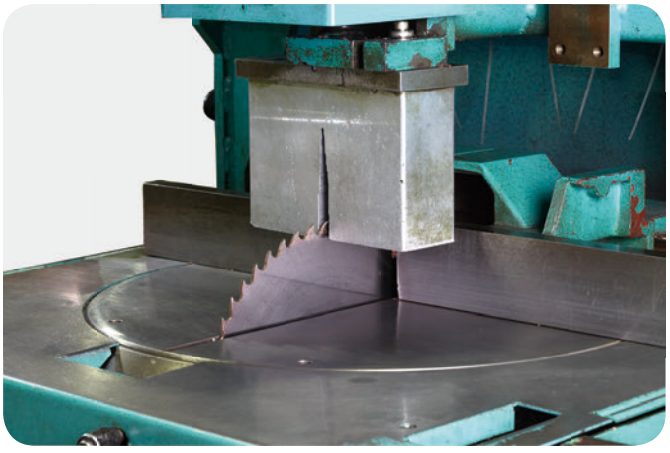
WavePro-II Overview

Production facilities

- GE WavePro-II busway plant has industry-leading equipment including the industry-leading CNC machines and supporting busway testing center. In terms of system management, it successfully obtained ISO9001, ISO14001, OHSAS18001 and other management system certification



- The elbow welding robot ensures stable and reliable welding quality



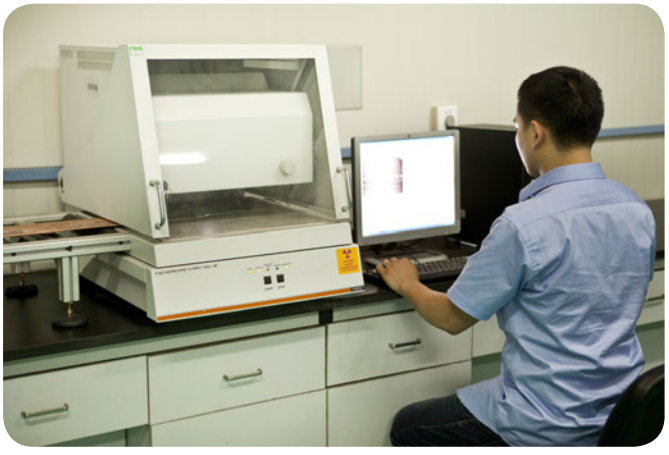
- The circular sawing machine made in Germany ensures flat busbar overlapping surface. The state-of-the-art conductor polish-saw and plating process ensure flat conductor cutting surface and better contact between the conductor and the joint. The whole busway including the cutting surface is plated, which ensures more comprehensive protection of conductors

- CNC machining center

Test Equipment

- Busway waterproof test equipment, used to test the water protection ability of the busway

- Test device to verify protection against dust (dust chamber)



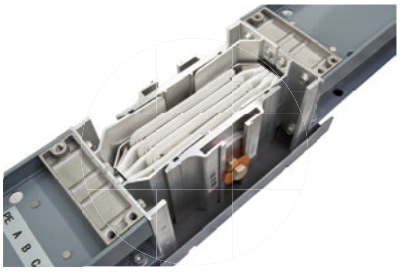
- X-ray fluorescence thickness gauge, used to test the thickness and quality of tin-plated, silver plated or galvanized coating on the metal surface

- Intelligent tensile test equipment, used to test the tensile strength of the material

Product Features

Aluminum alloy housing

- The housing is made of an aluminum alloy profile which is low magnetic material and effectively minimizes the hysteresis loss during busway energisation.
- The aluminum alloy profile has excellent heat dissipation performance, ensuring the maximum temperature rise of the busway not exceeding the limit at rated current
- The housing is powder coated and has been tested to withstand 1000 hours of salt fog test
- Optimized housing design, compact structure, stronger busway overall protection

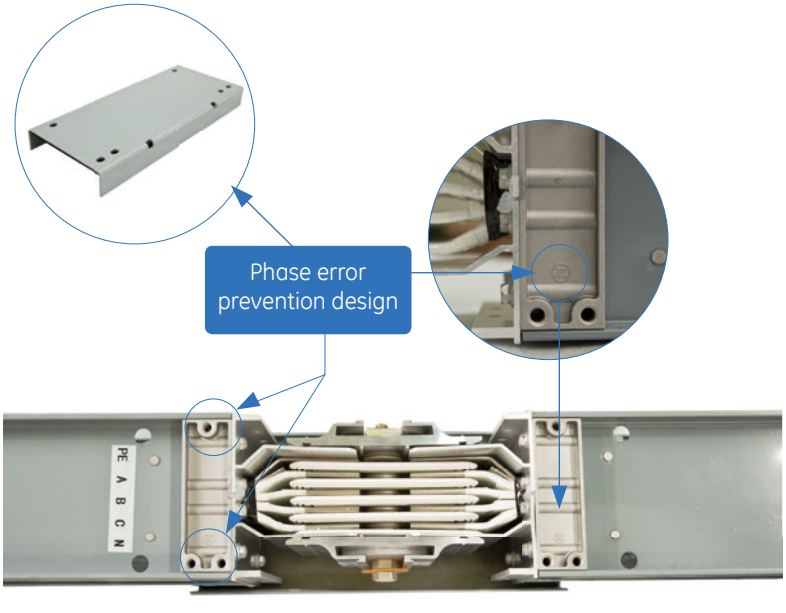


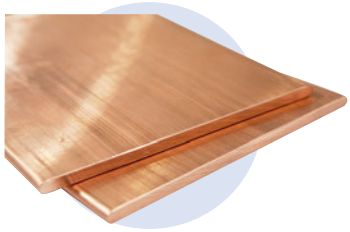
Joint

- It has a stopper mechanism which ensures quick and reliable joint installation
- It uses the double-headed torque limiting joint bolt, with standard tightening torque of 70 ± 5N•m. When the bolt is properly tightened with required torque, the orange identification label is released naturally
- Each joint has a +/- 4mm adjustment range to compensating for the length change due to thermal expansion

Busway phase error prevention mechanism

- Aluminum cast terminal of the busway is of asymmetrically fixed hole construction, and it combines with joint cover to effectively prevent phase error





Conductor polish-saw process

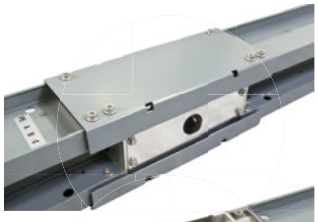
- The polish-saw process is used to cut the conductors to ensure a high quality bar end finish. This process is better than cutting and avoids secondary damage to insulation materials
- The conductor is machined and then tin-plated*

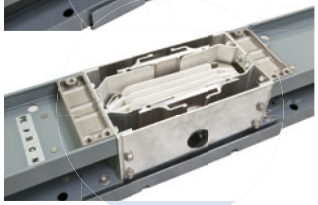
Reliable insulation material

- WavePro-II busway is wrapped with two layers of polyester film as insulation, insulation level is class B
- Prior to the busway leaving the factory it is tested to withstand 3750V AC high voltage, which ensures 100% qualified insulation performance

Plug outlet and busway plug

- Both outlet phase tabs and plug stab fingers are fully silver-plated
- The bus plug has complete safety interlock mechanism to ensure electric safety
- The plug outlet protection module is embedded with waterproof silicone rubber, up to IP54
- Up to 8 plug outlets can be installed every 3 m of straight length busway





Protection degree

- Standard protection grade include:IP41/IP54/IP65 (feeder busway), IP41/IP54 (plug-in busway), IP41/IP54 (plug)
- The plug outlet protection module is embedded with waterproof silicone rubber. The joint is protected with an all-round protection cover plate suitable for the busway of IP54 or above

Note*: Bus bar is partial tin-plating (at two ends and joints) as standard offering, and full length tin-plating is optional. Please contact our sales office for more details.

Electrical Data

Ground resistance

WavePro-II busway all-aluminum housing provides excellent integrated housing ground path, with the equivalent grounding capacity more than 50% of capacity. An internal ground bus bar (50% capacity) is also available to meet customers' special needs.

Ground resistance ($10^{-6}\Omega$/m @ ambient temperature of 20 ℃)

No.	Rated current	50% housing ground	50% internal ground
1	400A	46.5	203.4
2	630A	46.5	178.0
3	800A	42.4	142.4
4	1000A	37.5	109.5
5	1250A	32.4	83.8
6	1600A	26.3	59.3
7	2000A	21.6	44.5
8	2500A	17.6	33.9
9	3200A	13.7	29.7
10	4000A	11.1	22.3
11	5000A	9.1	17.0

Voltage drop

WavePro-II busway features low voltage drop. High-purity copper conductor provides extremely low resistance. The aluminum housing designed with compact sandwich construction and low magnetic materials can minimize the conductor reactance. Electrical impedance and voltage drop data of the busway straight lengths are shown below.

The following data is for a 50Hz systems, for 60Hz applications multiply the Reactance by 1.205, there is no change to the Resistance. For distributed loads when using plug in busway, the voltage drop is divided by 2.

Rated Current[1]	Rated short-time withstand current (Icw)	Rated peak withstand current (Ipk)	20°C	100% Rated Load/steady state (50Hz), 20° C Amb.							
			Resistance	Resistance	Reactance	Impedance	Line-to-line voltage drop (V/m) - Concentrated load, 20° C Amb. [2]				
A	kA/s	kA	(10-6Ω/m, phase-to-neutral)				cosϕ=0.6	cosϕ=0.7	cosϕ=0.8	cosϕ=0.9	cosϕ=1.0
400	30	63	113.0	146.8	34.2	150.8	0.080	0.088	0.096	0.102	0.102
630	30	63	98.8	128.5	31.8	132.4	0.112	0.123	0.133	0.141	0.140
800	30	63	79.1	102.8	28.2	106.6	0.117	0.128	0.137	0.145	0.142
1000	50	105	60.8	79.1	24.4	82.7	0.116	0.126	0.135	0.142	0.137
1250	50	105	46.5	60.5	21.0	64.0	0.115	0.124	0.132	0.138	0.131
1600	65	143	32.9	42.8	17.0	46.1	0.109	0.117	0.123	0.127	0.119
2000	65	143	24.7	32.1	14.0	35.1	0.106	0.113	0.118	0.121	0.111
2500	65	143	18.8	24.5	11.3	26.9	0.103	0.109	0.114	0.117	0.106
3200	100	220	16.5	21.4	9.9	23.6	0.115	0.122	0.128	0.131	0.119
4000	100	220	12.4	16.1	7.1	17.6	0.106	0.113	0.118	0.122	0.111
5000	100	220	9.4	12.2	4.4	13.0	0.094	0.101	0.107	0.112	0.106

Note:

1. With an average ambient temperature of 35℃, the busway can continuously operate at rated current. If the busway is continuously operated at higher ambient temperature, please contact with local GE office.
2. Concentrated load: voltage drop= $\sqrt{3}I(R\cos\phi+X\sin\phi)$ Distributed load: voltage drop= $[\sqrt{3}I(R\cos\phi+X\sin\phi)]/2$
   To determine Actual voltage drop = Voltage Drop from Table x actual load/rated load

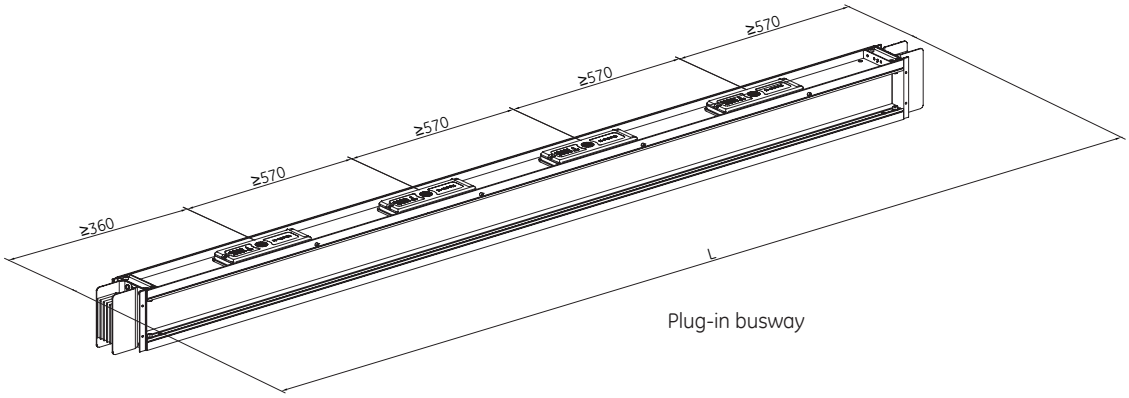
Physical Data

Straight length

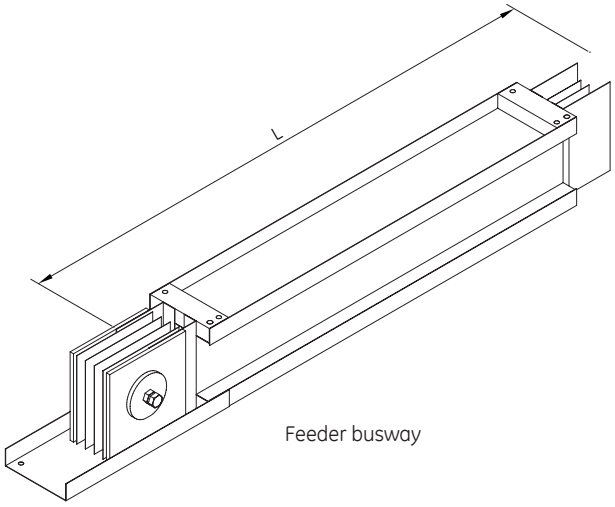
Feeder busway minimum length is 400mm, maximum length is 3000mm. Other lengths can be customized.

Plug-in busway with 1 plug outlet, the minimum length is 720mm. The outlet is set in the center.

Both sides of the plug-in busway can be customized with plug outlets. For the busway with standard length of 3 meters, one side can be customized with up to 4 outlets.



Plug-in busway



Feeder busway

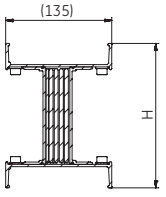


Fig. 9-1

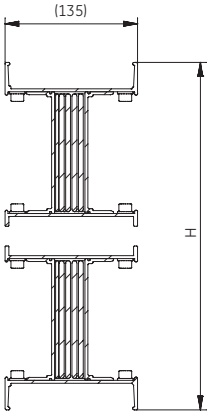
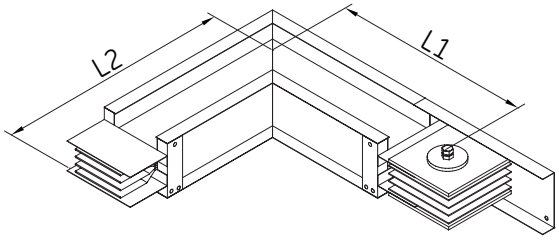


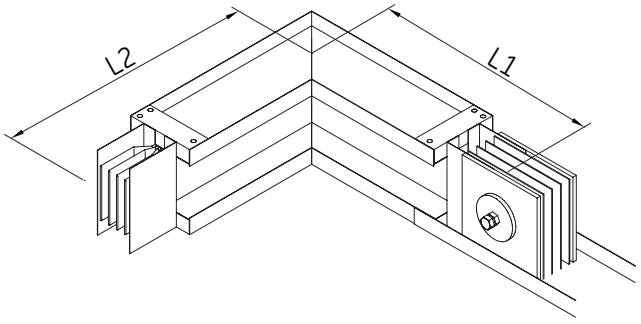
Fig. 9-2

Rated current (A)	H (mm)	Weight (kg/m)		Fig. No.
		3L+100%N+50% housing ground	3L+100%N+50% internal ground	
400	104	10.0	10.8	Fig. 9-1
630	104	11.8	12.9	
800	114	13.7	15.1	
1000	129	16.6	18.4	
1250	149	21.5	23.9	
1600	184	27.3	30.5	
2000	224	35.1	39.4	
2500	274	44.8	50.4	
3200	354	53.6	60.1	Fig. 9-2
4000	434	69.2	77.7	
5000	534	88.6	99.8	

Physical Data



Flatwise elbow

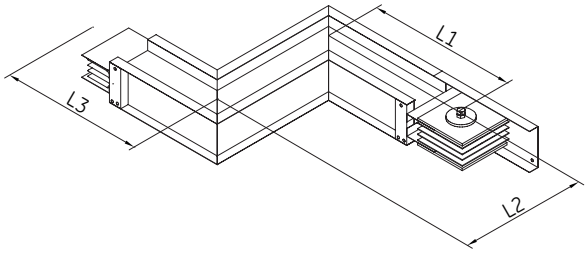


Edgewise elbow

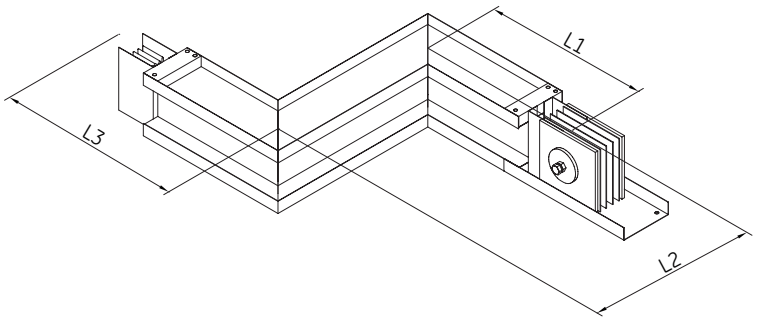
Elbows

(mm)

Rated current (A)	Flatwise Elbow		Edgewise Elbow	
	Minimum Size L1/L2	Standard Size L1/L2	Minimum Size L1/L2	Standard Size L1/L2
400	293	400	308	400
630	293	400	308	400
800	298	400	308	400
1000	306	400	308	400
1250	316	400	308	400
1600	333	500	308	400
2000	353	500	308	400
2500	378	600	308	400
3200	418	600	308	400
4000	458	700	308	400
5000	508	800	308	400



Flatwise offset



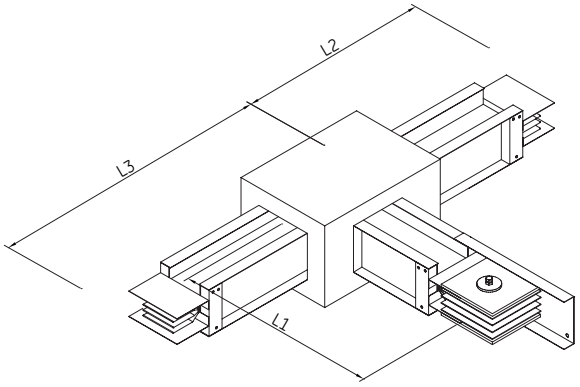
Edgewise offset

Offsets

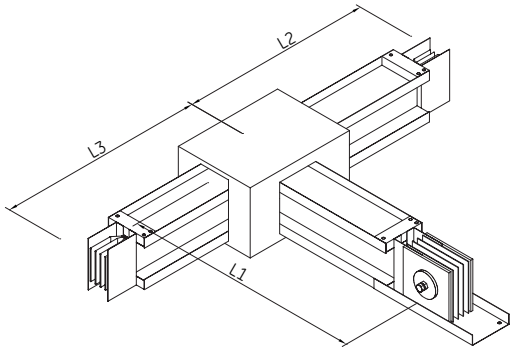
(mm)

Rated current (A)	Flatwise Offset				Edgewise Offset		
	Minimum L1 / L3	Minimum L2	Standard L1 / L3	Standard L2	Minimum L1 / L3	Minimum L2	Standard L1 / L2 / L3
400	293	186	400	300	308	283	400
630	293	186	400	300	308	283	400
800	298	196	400	400	308	283	400
1000	305	211	400	400	308	283	400
1250	315	231	400	400	308	283	400
1600	333	266	500	500	308	283	400
2000	353	306	500	600	308	283	400
2500	378	356	600	700	308	283	400
3200	418	436	600	800	308	283	400
4000	458	516	700	1000	308	283	400
5000	508	616	800	1200	308	283	400

Physical Data



Flatwise tee

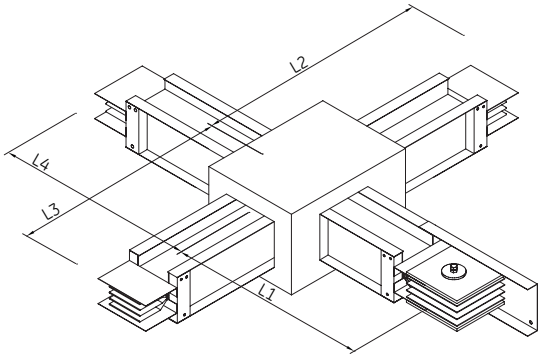


Edgewise tee

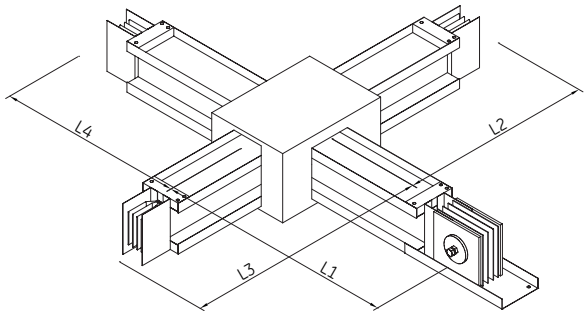
Tees

(mm)

Rated current (A)	Flatwise Tees		Edgewise Tees			
	Minimum L1 / L2 / L3	Standard L1 / L2 / L3	Minimum L1	Minimum L2 / L3	Standard L1	Standard L2 / L3
400	295	300	308	386	400	400
630	295	300	308	386	400	400
800	300	300	308	396	400	400
1000	305	400	308	411	400	500
1250	315	400	308	431	400	500
1600	335	400	308	466	400	500
2000	355	400	308	506	400	600
2500	380	400	308	556	400	600
3200	420	500	308	466	400	500
4000	460	500	308	506	400	600
5000	510	600	308	556	400	600



Flatwise cross



Edgewise cross

Cross

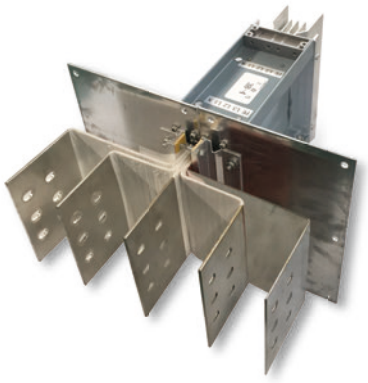
(mm)

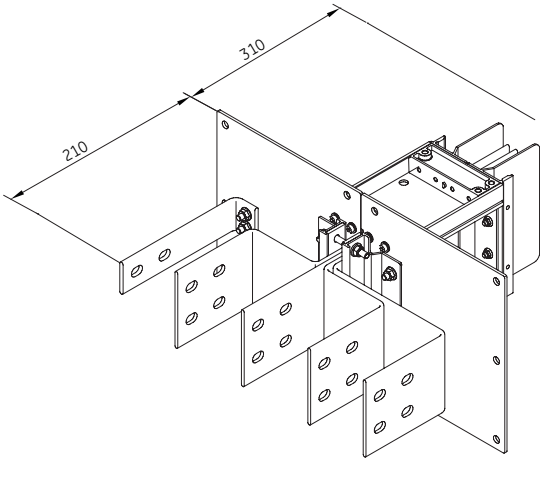
Rated current(A)	Flatwise cross		Edgewise cross	
	Minimum L1 / L2 / L3 / L4	Standard L1 / L2 / L3 / L4	Minimum L1 / L2 / L3 / L4	Standard L1 / L2 / L3 / L4
400	295	300	386	400
630	295	300	386	400
800	300	300	396	400
1000	305	400	411	500
1250	315	400	431	500
1600	335	400	466	500
2000	355	400	506	600
2500	380	400	556	600
3200	420	500	466	500
4000	460	500	506	600
5000	510	600	556	600

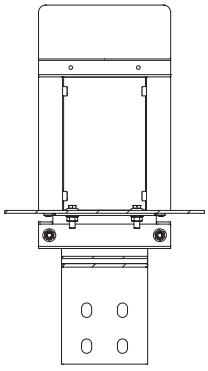
Physical Data

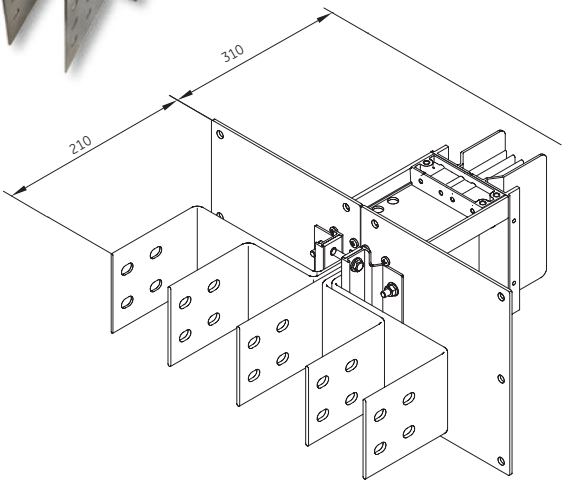
Flanged end

Flanged end provides an interface for field connections.



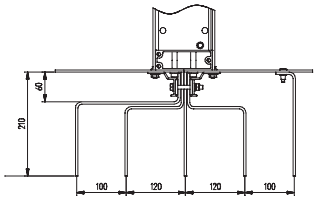




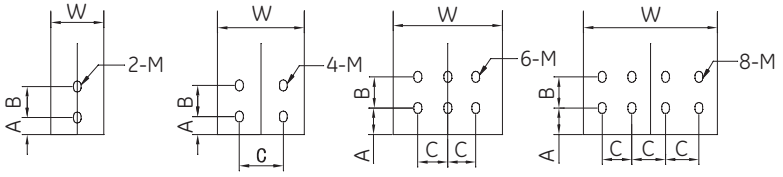


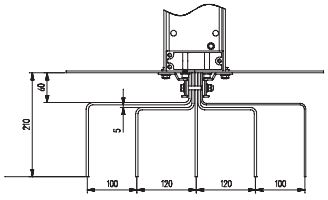
3L+100%N+50% housing ground

3L+100%N+50% internal ground

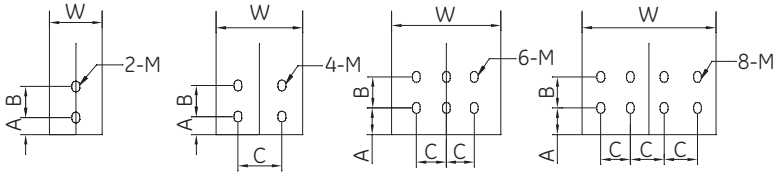


3L+100%N+50% housing ground





3L+100%N+50% internal ground



Type 1 Type 2 Type 3 Type 4

Rated Current (A)	A (mm)	B (mm)	C (mm)	M (mm)	Type
400	25	50	—	Φ12	1
630	25	50	—	Φ14×2	1
800	25	50	—	Φ14×2	1
1000	25	50	—	Φ14×2	1
1250	25	50	50	Φ14×4	2
1600	25	50	50	Φ14×4	2
2000	25	50	50	Φ14×4	3
2500	25	50	50	Φ14×4	4
3200	25	50	50	Φ14×4	2
4000	25	50	50	Φ14×6	3
5000	25	50	50	Φ14×8	4

Flanged end stub

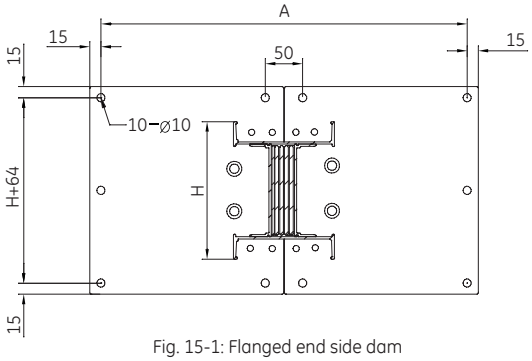


Fig. 15-1: Flanged end side dam

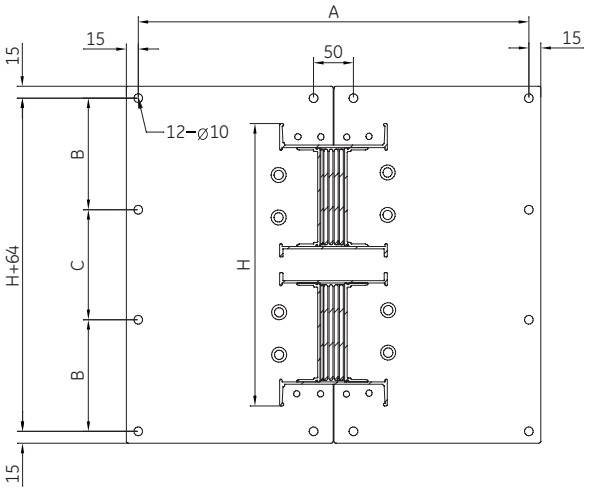
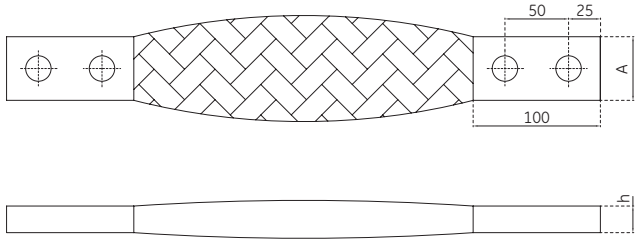


Fig. 15-2: Flanged end side dam

Rated Current (A)	H (mm)	A (mm)	B (mm)	C (mm)	Fig. No.
400	104	490	—	—	Fig. 15-1
630	104	490	—	—	
800	114	490	—	—	
1000	129	490	—	—	
1250	149	490	—	—	
1600	184	490	—	—	
2000	224	490	—	—	
2500	274	490	—	—	
3200	354	490	140	138	Fig. 15-2
4000	434	490	165	168	
5000	534	490	200	198	

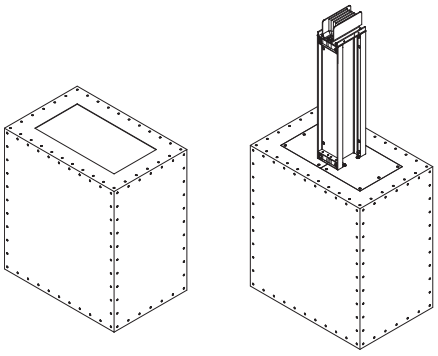
Flexible connection

Rated current (A)	A (mm)	h (mm)	Flex connector nos. / pole	
			A,B,C,N	PE
400	46	10	1	1
630	48	14	1	1
800	46	10	2	1
1000	48	14	2	1
1250	48	14	2	1
1600	48	14	3	2
2000	48	14	4	2
2500	48	14	4	2
3200	48	14	6	3
4000	48	14	7	4
5000	48	14	8	4



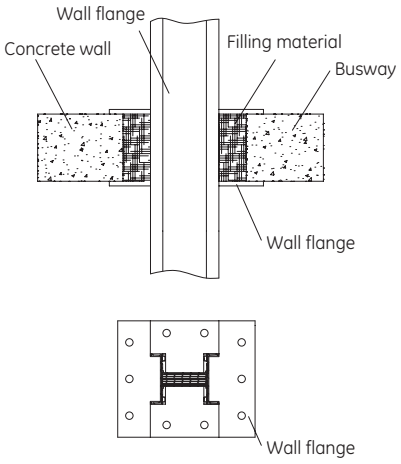
Physical Data

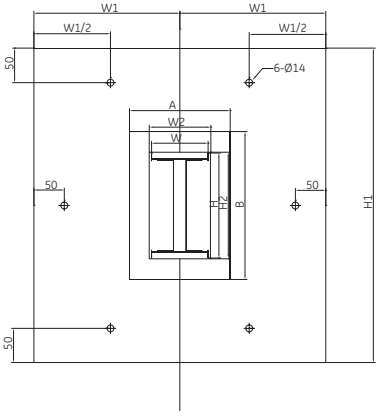
End tap box



End tap boxes are used where a run of busway is fed by cable. The standard size is 1000mm × 1000mm × 1000mm, while we also able to supply with nonstandard box according to customer requirements.

Wall flange





Wall flange and cutout dimensions

(mm)

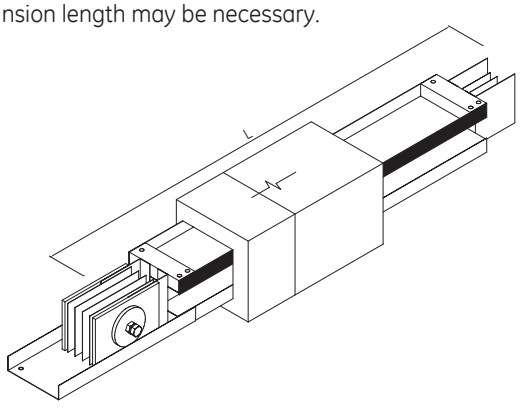
Busway rating (A)	External dimension of busway W × H	Dimension of cutout A × B (≥)	External dimension of wall flange W1 × H1 (≥)	Internal dimension of wall flange W2 × H2 (≥)
400	135 × 104	240 × 205	225 × 405	150 × 115
630	135 × 104	240 × 205	225 × 405	150 × 115
800	135 × 114	240 × 215	225 × 415	150 × 125
1000	135 × 129	240 × 230	225 × 430	150 × 140
1250	135 × 149	240 × 250	225 × 450	150 × 160
1600	135 × 184	240 × 285	225 × 485	150 × 195
2000	135 × 224	240 × 325	225 × 525	150 × 235
2500	135 × 274	240 × 375	225 × 575	150 × 285
3200	135 × 354	240 × 455	225 × 655	150 × 365
4000	135 × 434	240 × 535	225 × 735	150 × 445
5000	135 × 534	240 × 635	225 × 835	150 × 545

Notes:

1. One SKU includes two wall flanges (one per side)
2. Wall flange is fixed against the wall with internal expansion bolt

Expansion length

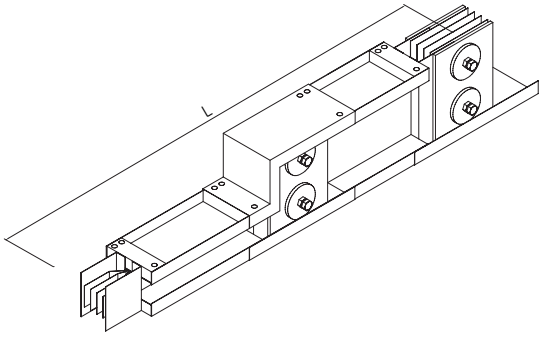
An expansion length is the section compensating for thermal expansion of the busway when it is run either across or up a building. The expansion range of each expansion length is ±25mm. It is normally set each 60m on the straight length. When the busway run straight length is 60m or more, particularly if the Busway is not free to move at the ends of the run, the expansion length may be necessary.



Note: The standard length L is 1000mm

Reducer

The reducer is the transition section used for reducing the current. It provides users with more economic power transmission and distribution method.



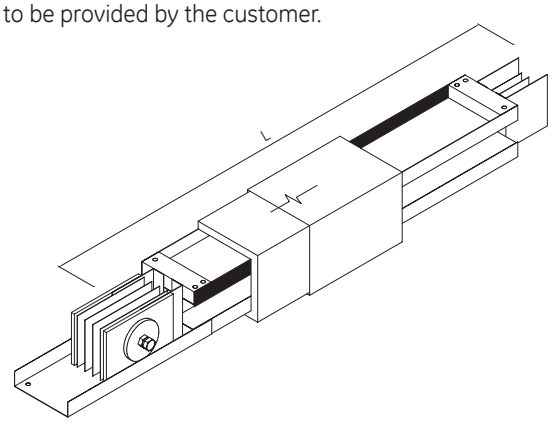
Note: The standard length L is 1000mm

Reducer

Busway rating	Rating after reducer									
SKU suffix	400	630	800	1000	1250	1600	2000	2500	3200	4000
630	R04	-	-	-	-	-	-	-	-	-
800	R04	R06	-	-	-	-	-	-	-	-
1000	R04	R06	R08	-	-	-	-	-	-	-
1250	-	R06	R08	R10	-	-	-	-	-	-
1600	-	R06	R08	R10	R12	-	-	-	-	-
2000	-	-	R08	R10	R12	R16	-	-	-	-
2500	-	-	-	R10	R12	R16	R20	-	-	-
3200	-	-	-	-	R12	R16	R20	R25	-	-
4000	-	-	-	-	-	R16	R20	R25	R32	-
5000	-	-	-	-	-	-	R20	R25	R32	R40

Transposition section

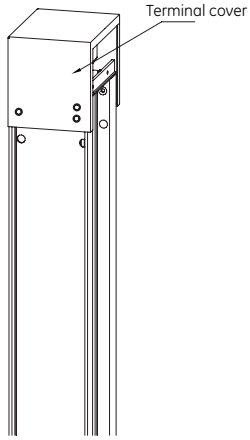
Transposition section is the transition parts used for changing phase sequence of the busbar. The phase sequence of both sides has to be provided by the customer.



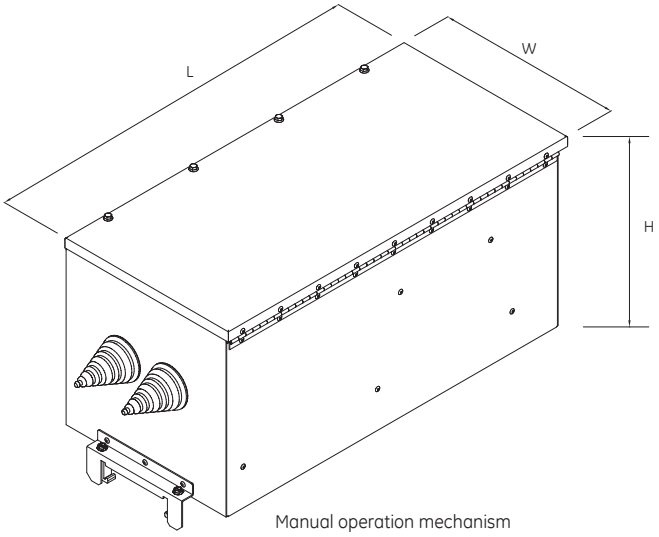
Note: The standard length L is 1000mm

Terminal Cover

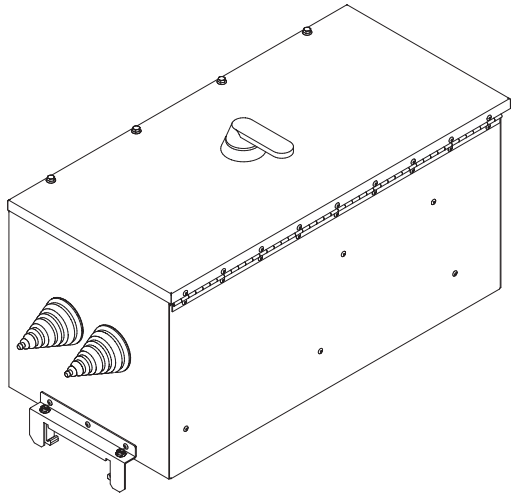
Terminal cover is installed to terminate the busway run to prevent ingress of external materials/particles and contact with live parts, thus enclosing the whole busway system.



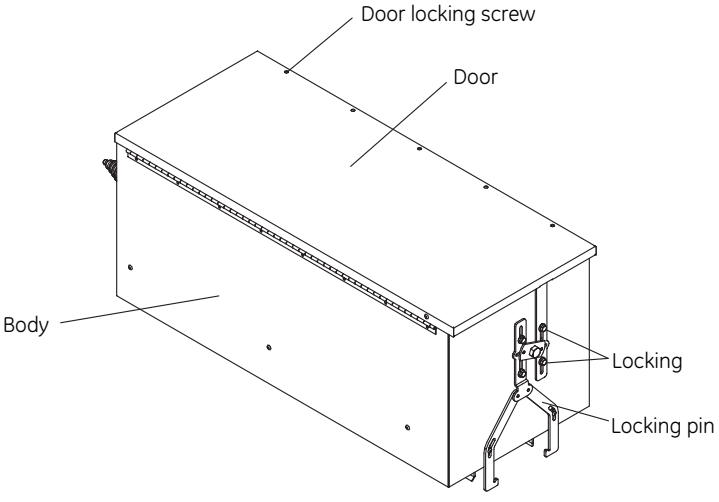
Busway Plugs



Manual operation mechanism



Rotary operation mechanism



Bus plug interlock mechanism

Bus plug

Bus plug dimensions

Bus plug current (A)	Bus plug size (mm, L x W x H)	
	Manual operation	Rotary handle operation
16	400x250x310	400x250x(310+50)
25		
32		
40		
50		
63		
80		
100		
125		
100	520x270x310	520x270x(310+50)
125		
160		
200		
250		
400	700x340x340	700x340x(340+50)
500	810x360x350	810x360x(350+50)
630		
800	1200x420x350	1200x420x(350+54)
1000		

(1) Additional 50/54mm is considered for installing the rotary handle

Bus plug protection components

Record C series circuit breaker

Molded case circuit breaker rated insulation voltage is 1000V, rated voltage is 400V. Available in five breaker frame sizes with rated current from 16A up to 800A.

The circuit breaker thermal-magnetic protection unit provides reliable protection function for overload, short circuit and under voltage, and also protect from fire hazard which may be caused by long-standing ground fault that cannot be detected by overcurrent protection. Record C breakers are compact and have high breaking capacity.

Record C is suitable for installation in industrial segment, factories, residential and commercial buildings. The breakers are suitable to be installed in enclosures.

The circuit breaker conforms to: IEC 60947-2.

Record Plus series circuit breaker

In Record Plus™ circuit breaker, the device with unique current limiting characteristic and the integrated protection device generally called as trip unit meet the protection and isolation requirements of low voltage power distribution line.

FD160

FD160 frame, rated current up to 160A, can be used as thermal magnetic circuit breakers, disconnectors and magnetic motor protection circuit protection.

FE160 and FE250

FE160/250 frame, rated current up to 250A. FE series provide cable gland, used for copper or aluminum conductors. This design allows to use interchangeable thermal-magnetic, magnetic protection and electronic trip unit.

FG400 and FG630

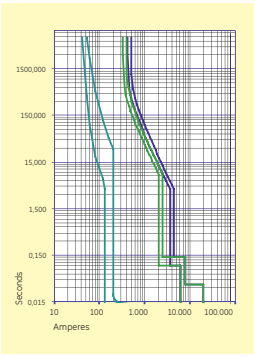
The rated values of FG series are 400A and 630A, their frames include all advanced characteristics of FD and FE frames.

FG connection area provides easy-to-use busbar and also provides cable glands used with one or more copper or aluminum conductors. This circuit breaker could be used together with interchangeable electronic unit and be adjusted to several protection degrees easily.

Busway Plugs

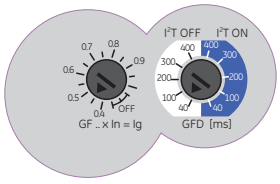
PremEon ™

PremEon is a new generation of electronic trip units combines sophisticated 32 bit technology with a complete set of protection functions. Simple dials provide access to a wide setting range of 0.3 to 1 times In.
Designed to fit the Record Plus line of Circuit Breakers, the devices are available as 3 or 4 pole units in a current range of 7 to 630A.



The Selective Choice

Each standard unit has between two and four overcurrent protection devices:
An overload protection (LT) with a range of 0.3 to 1 times the chosen trip unit rating (1). Each of the possible 15 positions has a rating mentioned in Amps.
A delayed short circuit protection (ST) with a wide setting band of 2 to 13(2) times the LT device setting or Ir value. A fixed time setting per breaker size is applied.
A selective instantaneous device set at fixed values of 14(2) times the chosen trip unit rating and uses Waveform Recognition to assure selectivity.

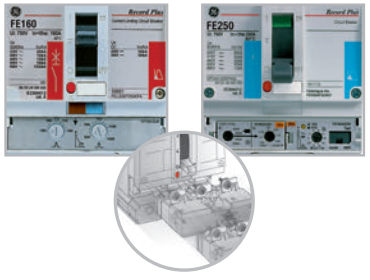


Ground Fault Protection

An optional Ground Fault Protection Device (Residual principle) can be set from 0.4 to 1 times the chosen trip unit rating and be used with multiple delay and/or I2T settings.

Easy-to-install rotary handle

This device installed at the front end of the circuit breaker allows the vertical handle to be rotated, which is OFF at 3 o'clock position and ON at 6 o'clock position. The new internal design could provide precision indication for the three positions of circuit breaker, i.e. open, close and trip.



Thermal-magnetic trip

The current range of available devices is 16 to 250A, used as three-pole or four-pole device. Electromechanical trip unit contains thermal-magnetic, magnetic protection and motor protection types. High performance thermal-magnetic trip unit has selective and non-selective types, equipped with a fault indicator which could distinguish overload and short-circuit time and comply with HD384. This patented safety characteristic allows the user directly reset the circuit breaker to reduce shutdown time after overload event.

Record C Circuit Breaker Busway Plugs

Rotary handle, 3 pole 3 trips

Rated Current (A)	Icc/400V	Breaker	SKU (standard)	SKUl (with shunt trip)
16	20kA	CB125S3PTM016	WPR3P0141CB125S	WPR3P0141CB125SS
25	20kA	CB125S3PTM025	WPR3P0241CB125S	WPR3P0241CB125SS
32	20kA	CB125S3PTM032	WPR3P0341CB125S	WPR3P0341CB125SS
40	20kA	CB125S3PTM040	WPR3P0441CB125S	WPR3P0441CB125SS
50	20kA	CB125S3PTM050	WPR3P0541CB125S	WPR3P0541CB125SS
63	20kA	CB125S3PTM063	WPR3P0641CB125S	WPR3P0641CB125SS
80	20kA	CB125S3PTM080	WPR3P0841CB125S	WPR3P0841CB125SS
100	20kA	CB125S3PTM100	WPR3P1041CB125S	WPR3P1041CB125SS
125	20kA	CB125S3PTM125	WPR3P1241CB125S	WPR3P1241CB125SS
100	30kA	CB250S3PTM100	WPR3P1041CB250S	WPR3P1041CB250SS
125	30kA	CB250S3PTM125	WPR3P1241CB250S	WPR3P1241CB250SS
160	30kA	CB250S3PTM160	WPR3P1641CB250S	WPR3P1641CB250SS
200	30kA	CB250S3PTM200	WPR3P2041CB250S	WPR3P2041CB250SS
250	30kA	CB250S3PTM250	WPR3P2541CB250S	WPR3P2541CB250SS
400	50kA	CB630N3PTM400	WPR3P4041CB630N	WPR3P4041CB630NS
500	50kA	CB630N3PTM500	WPR3P5041CB630N	WPR3P5041CB630NS
630	50kA	CB800N3PTM630	WPR3P6341CB800N	WPR3P6341CB800NS

Rotary handle, 4 pole 4 trips

Rated Current (A)	Icc/400V	Breaker	SKU (standard)	SKU (with shunt trip)
16	20kA	CB125N4PTM016	WPR4P0141CB125N	WPR4P0141CB125NS
25	20kA	CB125N4PTM025	WPR4P0241CB125N	WPR4P0241CB125NS
32	20kA	CB125N4PTM032	WPR4P0341CB125N	WPR4P0341CB125NS
40	20kA	CB125N4PTM040	WPR4P0441CB125N	WPR4P0441CB125NS
50	20kA	CB125N4PTM050	WPR4P0541CB125N	WPR4P0541CB125NS
63	20kA	CB125N4PTM063	WPR4P0641CB125N	WPR4P0641CB125NS
80	20kA	CB125N4PTM080	WPR4P0841CB125N	WPR4P0841CB125NS
100	20kA	CB125N4PTM100	WPR4P1041CB125N	WPR4P1041CB125NS
125	20kA	CB125N4PTM125	WPR4P1241CB125N	WPR4P1241CB125NS
100	30kA	CB250N4PTM100	WPR4P1041CB250N	WPR4P1041CB250NS
125	30kA	CB250N4PTM125	WPR4P1241CB250N	WPR4P1241CB250NS
160	30kA	CB250N4PTM160	WPR4P1641CB250N	WPR4P1641CB250NS
200	30kA	CB250N4PTM200	WPR4P2041CB250N	WPR4P2041CB250NS
250	30kA	CB250N4PTM250	WPR4P2541CB250N	WPR4P2541CB250NS
400	50kA	CB630H4PTM400	WPR4P4041CB630H	WPR4P4041CB630HS
500	50kA	CB630H4PTM500	WPR4P5041CB630H	WPR4P5041CB630HS
630	50kA	CB800H4PTM630	WPR4P6341CB800H	WPR4P6341CB800HS

Note: the above-listed items are common models. For special requirement, please contact GE sales engineer.

Busway Plugs

Record Plus Circuit Breaker Busway Plugs

Plug with FD160 frame circuit breaker, rotary handle, 3 pole 3 trips

Rated Current (A)	Icc/400V	Breaker	Plug model (standard)	Plug model (with shunt trip)
25	20kA	FDS160 25A, 36kA 3P	WPR3P0241FDS	WPR3P0241FDSS
32	20kA	FDS160 32A, 36kA 3P	WPR3P0341FDS	WPR3P0341FDSS
40	20kA	FDS160 40A, 36kA 3P	WPR3P0441FDS	WPR3P0441FDSS
50	20kA	FDS160 50A, 36kA 3P	WPR3P0541FDS	WPR3P0541FDSS
63	20kA	FDS160 63A, 36kA 3P	WPR3P0641FDS	WPR3P0641FDSS
80	20kA	FDS160 80A, 36kA 3P	WPR3P0841FDS	WPR3P0841FDSS
100	20kA	FDS160 100A, 36kA 3P	WPR3P1041FDS	WPR3P1041FDSS
125	20kA	FDS160 125A, 36kA 3P	WPR3P1341FDS	WPR3P1341FDSS

Plug with FD160 frame circuit breaker, rotary handle, 4 pole 4 trips

Rated Current (A)	Icc/400V	Breaker	Plug model (standard)	Plug model (with shunt trip)
25	20kA	FDS160 25A, 36kA 4P	WPR4P0241FDS	WPR4P0241FDSS
32	20kA	FDS160 32A, 36kA 4P	WPR4P0341FDS	WPR4P0341FDSS
40	20kA	FDS160 40A, 36kA 4P	WPR4P0441FDS	WPR4P0441FDSS
50	20kA	FDS160 50A, 36kA 4P	WPR4P0541FDS	WPR4P0541FDSS
63	20kA	FDS160 63A, 36kA 4P	WPR4P0641FDS	WPR4P0641FDSS
80	20kA	FDS160 80A, 36kA 4P	WPR4P0841FDS	WPR4P0841FDSS
100	20kA	FDS160 100A, 36kA 4P	WPR4P1041FDS	WPR4P1041FDSS
125	20kA	FDS160 125A, 36kA 4P	WPR4P1341FDS	WPR4P1341FDSS

Plug with FE/FG frame circuit breaker, rotary handle, 3 pole 3 trips

Rated Current (A)	Icc/400V	Breaker	Plug model (standard)	Plug model (with shunt trip)
25	20kA	FEN160 25A, 50kA 3P	WPR3P0341FEN	WPR3P0241FENS
32	20kA	FEN160 32A, 50kA 3P	WPR3P0341FEN	WPR3P0341FENS
40	20kA	FEN160 40A, 50kA 3P	WPR3P0441FEN	WPR3P0441FENS
50	20kA	FEN160 50A, 50kA 3P	WPR3P0541FEN	WPR3P0541FENS
63	20kA	FEN160 63A, 50kA 3P	WPR3P0641FEN	WPR3P0641FENS
80	20kA	FEN160 80A, 50kA 3P	WPR3P0841FEN	WPR3P0841FENS
100	20kA	FEN160 100A, 50kA 3P	WPR3P1041FEN	WPR3P1041FENS
125	20kA	FEN160 125A, 50kA 3P	WPR3P1341FEN	WPR3P1341FENS
160	30kA	FEN250 160A, 50kA 3P	WPR3P1641FEN	WPR3P1641FENS
200	30kA	FEN250 200A, 50kA 3P	WPR3P2041FEN	WPR3P2041FENS
250	30kA	FEN250 250A, 50kA 3P	WPR3P2541FEN	WPR3P2541FENS
400	50kA	FGN630 400A, 50kA 3P	WPR3P4041FGN	WPR3P4041FGNS

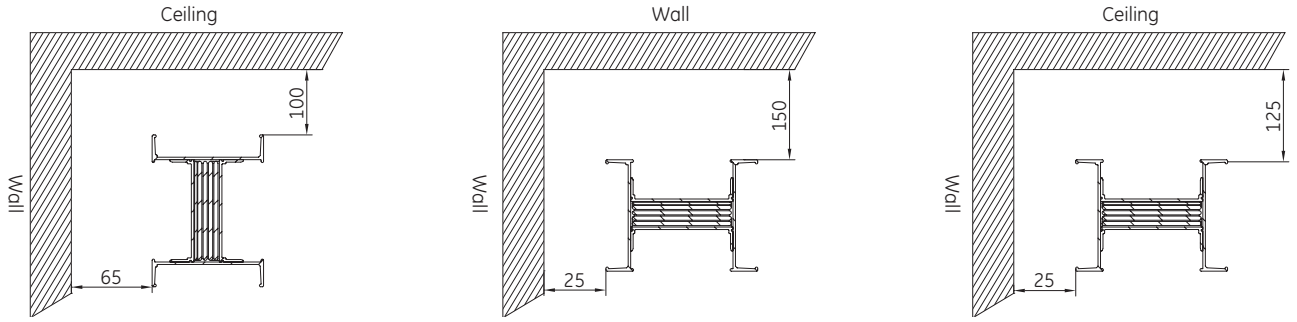
Plug with FE/FG frame circuit breaker, rotary handle, 4 pole 4 trips

Rated Current (A)	Icc/400V	Breaker	Plug model (standard)	Plug model (with shunt trip)
25	20kA	FEN160 25A, 50kA 4P	WPR4P0241FEN	WPR4P0241FENS
32	20kA	FEN160 32A, 50kA 4P	WPR4P0341FEN	WPR4P0341FENS
40	20kA	FEN160 40A, 50kA 4P	WPR4P0441FEN	WPR4P0441FENS
50	20kA	FEN160 50A, 50kA 4P	WPR4P0541FEN	WPR4P0541FENS
63	20kA	FEN160 63A, 50kA 4P	WPR4P0641FEN	WPR4P0641FENS
80	20kA	FEN160 80A, 50kA 4P	WPR4P0841FEN	WPR4P0841FENS
100	20kA	FEN160 100A, 50kA 4P	WPR4P1041FEN	WPR4P1041FENS
125	20kA	FEN160 125A, 50kA 4P	WPR4P1341FEN	WPR4P1341FENS
160	30kA	FEN250 160A, 50kA 4P	WPR4P1641FEN	WPR4P1641FENS
200	30kA	FEN250 200A, 50kA 4P	WPR4P2041FEN	WPR4P2041FENS
250	30kA	FEN250 250A, 50kA 4P	WPR4P2541FEN	WPR4P2541FENS
400	50kA	FGN630 400A, 50kA 4P	WPR4P4041FGN	WPR4P4041FGNS

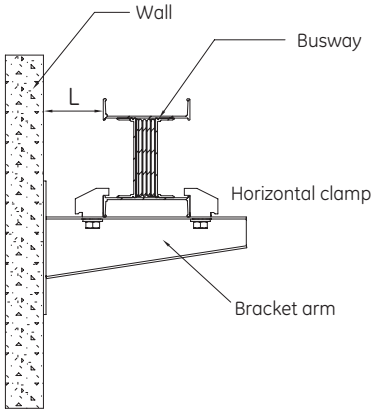
Note: the above-listed items are common models. For special requirement, please contact GE sales engineer.

Busway Installation

Minimum distance required for feeder busway installation



Minimum distance required for plug-in busway installation



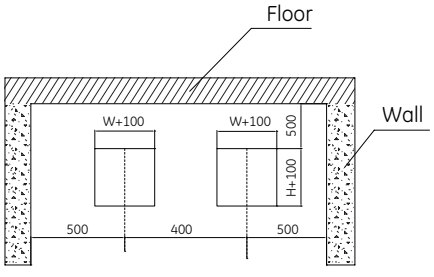
Relationship between the bus plug rated current and the spacing L

When the busway is installed against the wall horizontally or vertically, there should be certain spacing reserved for bus plug installation.

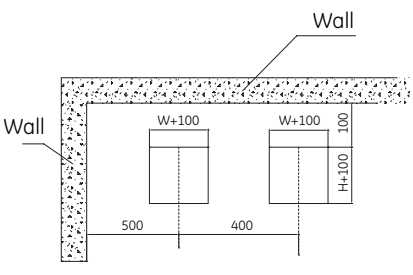
Rated current of bus plug (A)	100	160	250	400	630	800	1000
L (mm)	150	175	195	210	230	260	300

Reserved holes for busway installation

Dimensions of cut holes for busway horizontal through-the-wall installation



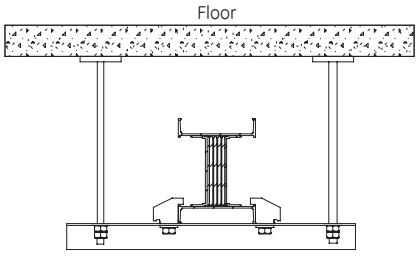
Dimensions of cut holes for busway vertical through-the-floor installation



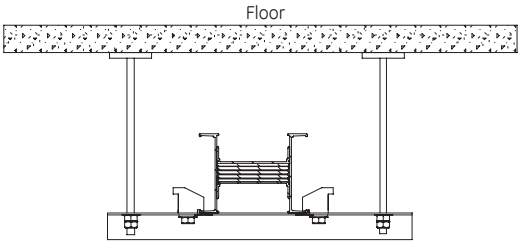
Busway Installation

Horizontal mounting – trapeze hangers

Edgewise

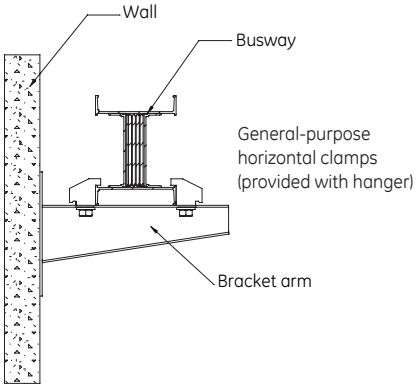


Flatwise

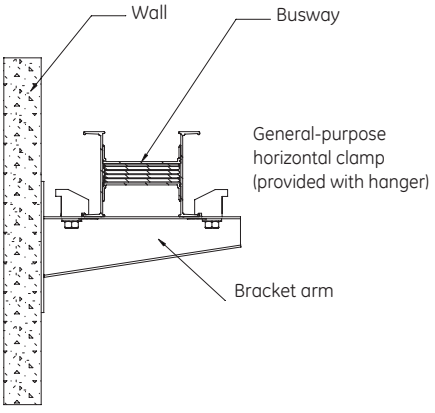


Horizontal mounting – brackets

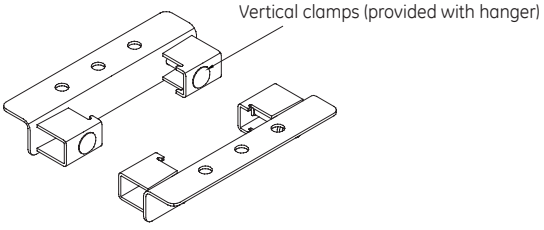
Edgewise

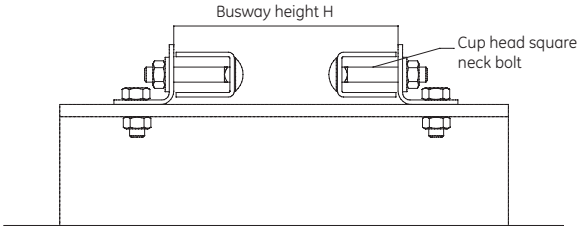


Flatwise



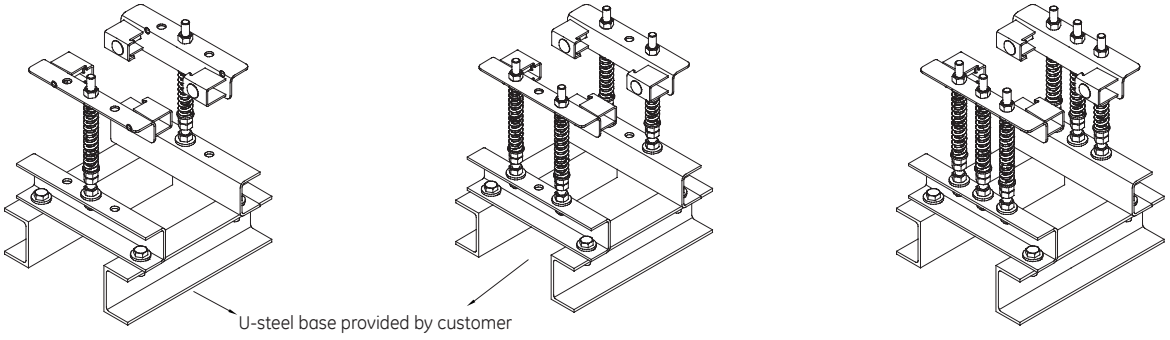
Vertical hanger





Rated current (A)	Number of springs
400-800	2
1000-2500	4
3150-5000	6

Vertical spring hanger



Note 1: For flatwise busway installation, it is recommended the hanger spacing should not be greater than 2 meters

Note 2: For edgewise busway installation, it is recommended the hanger spacing should not be greater than 4 meters

WavePro-II Busway Numbering System

Straight length and fittings

W	B	FD	EL	2	20	C	54
WavePro-II	Busway	FD：Feeder Busway/Fittings	CSLN: Straight length CFEN: Flanged end EL: Elbow ZL: Offset TE: Tee CL: Cross TREN: Reducer ELNN: Expansion unit TPLN: Transposition unit JONT: Joint OTLT: Plug outlet CTCN: Terminal cover WF: Wall flange	Service: 1: 3L+50% housing ground 2: 3L+100%N+50% housing ground 3: 3L+100%N+50% internal ground 4: 3L+200%N+50% housing ground 5: 3L+200%N+50% internal ground	04：400A 06：630A 08：800A 10：1000A 12：1250A 16：1600A 20：2000A 25：2500A 32：3200A 40：4000A 50：5000A	C: copper conductor	41: IP41 54: IP54 65: IP65

Selection example:

1. IP54, 2000A feeder busway, 3L+100% N+50% integrated housing ground, copper conductor: WBFDCSLN220C54
2. IP54, 4000A elbow, 3L+100% N+50% integrated housing ground, copper conductor: WBFDEL240C54
3. Bus plug outlet: WBFDOTLTC

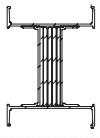
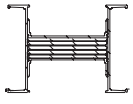
Plugs & Power take-offs

W	P	R	3P	10	41	FEN	S
WavePro-II	Plugs/Power Take-offs	M: Manual R: Rotary Handle	3P: 3-pole 4P: 4-pole, 4-trips	02: 25A 16: 160A 03: 32A 20: 200A 04: 40A 25: 250A 05: 50A 40: 400A 06: 63A 50: 500A 08: 80A 63: 630A 10: 100A 80: 800A 13: 125A 100: 1000A	41: IP41 54: IP54	Circuit breaker CBS CBN CBH FDS FDN FEN FGN FEH FGH	-: Without shunt trip S: with shunt trip

Accessories

W	A	SPHR	08
WavePro-II	Accessory	THR: Trapeze hanger BKT: Bracket SPHR: Spring hanger VHR: Vertical fixed hanger HPP: Horizontal hanger clamps VPP: Vertical hanger clamps ETB: End tap box FLC: Flexible connection CNB: Connecting bar	00：end tap box 04：400A 06：630A 08：800A 10：1000A 12：1250A 16：1600A 20：2000A 25：2500A 32：3200A 40：4000A 50：5000A

WavePro-II Busway Checking List

Technical standards	☐ IEC 61439-1 2011 & IEC 61439-6 2012	
Relative humidity (%) at + 20℃	≤90	
Altitude (m)	<2000	
Max. temperature (℃)	40	
Min. temperature (℃)	-5	
Average temperature (℃)	35	
Conductor	☐ Copper	
Conductor plating	☐ Partial tin-plating ☐Full length tin-plating ☐ Silver plated	
Rated operating voltage (V)	☐ 400 (plug-in) ☐ 1000 (feeder)	
Rated insulation voltage (V)	☐ 800 (plug-in) ☐ 1000 (feeder)	
Rated frequency (Hz)	50/60	
Rated current (A)	☐ 400 ☐ 630 ☐ 800 ☐ 1000 ☐ 1250 ☐ 1600 ☐ 2000 ☐ 2500 ☐ 3200 ☐ 4000 ☐ 5000	
Number of phases	3P	
Service	☐ 3L + 50% housing ground	
	☐ 3L+100%N+50% housing ground	
	☐ 3L+100%N+50% internal ground	
	☐ 3L+200%N+50% housing ground	
	☐ 3L+200%N+50% internal ground	
	☐ Other:	
Degree of protection	☐ IP41 ☐ IP54 ☐ IP65 ☐ Other	
Insulation class	☐Class B ☐ Other	
Housing color	☐ RAL7000 GE standard gray ☐ RAL9001 ☐ Other:	
Phase sequence	☐ IEC standard: L1, L2, L3, N, PE	
	☐ Other	
System grounding method	☐ TN-S ☐ TN-C	
Bus plug – Protection grade	☐ IP41 ☐ IP54 ☐ Other	
Bus plug – Operation method	☐ Manual operation ☐ Rotary handle	
Bus plug – Circuit breaker	☐ Record C ☐ Record Plus ☐ Special requirements	
Bus plug – Number of poles	☐ 3 poles, 3 trips ☐ 4 poles, 4 trips	
Horizontal section Installation	☐ Edgewise  ☐ Flatwise 	
Installation – Horizontal installation	Hanger type ☐ Trapeze hangers ☐ Bracket arm	
	Hanger accessories ☐ Horizontal hanger clamps	
Installation – Vertical installation	Hanger type ☐ Spring hanger ☐ Vertical fixed hanger	
	Hanger accessories ☐ U-steel base ☐ Vertical hanger clamps	
Copper busbar connection, flexible connection and device connection	☐ GE provides materials, and the user fabricates on site	
	☐ Other:	
Other special requirements		
List of attachments		

GE Energy Connections
Industrial Solutions

Industrial Solutions is a first class global supplier of low and medium voltage products including wiring devices, residential and industrial electrical distribution components, automation products, enclosures, switchboards and uninterruptible power supplies. Demand for the company's products comes from wholesalers, installers, panelboard builders, contractors, OEMs and utilities worldwide.

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