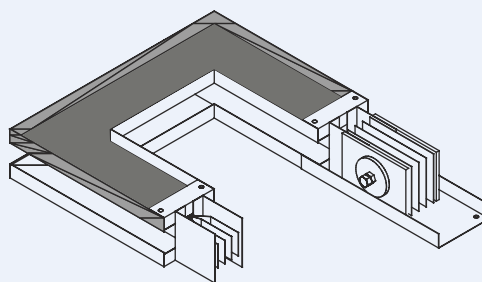
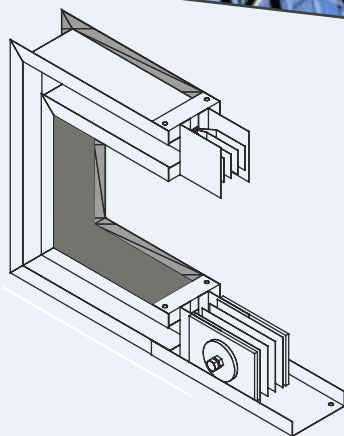
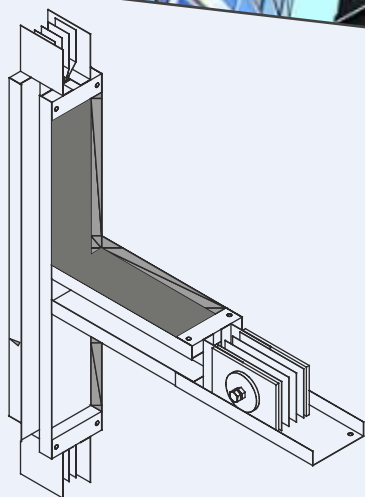
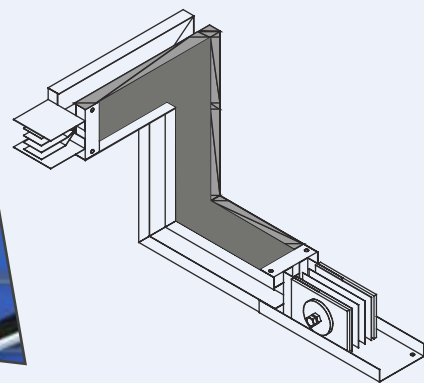
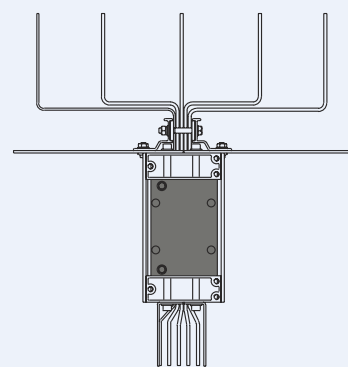
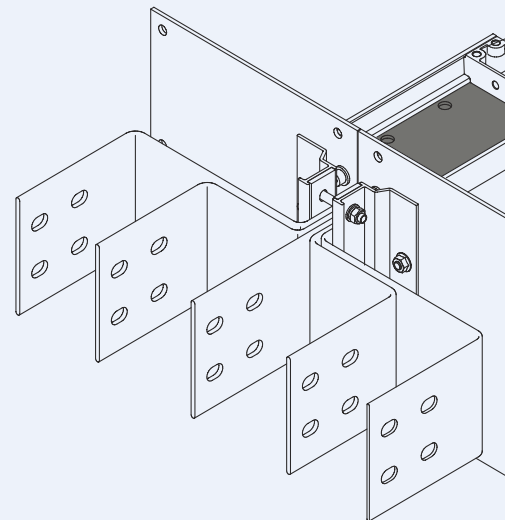


Busway Systems Sandwich SL Series





31st October 2015

Effibar UK Ltd
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Pride Park, Derby DE24 8JY

Elecsis Switchgear Ltd, Riverside Mill
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Telephone: +44 (0)1278 427374
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For the attention of Jeremy Peat

Dear Mr Peat

Project: - Palace of Westminster/ Houses of Parliament

We thank you for supplying your Low Voltage Busbar Trunking on the recent project for the Palace of Westminster/Houses of Parliament

We highly recommend your LV Busbar product and the service you provided throughout the duration of this project to any interested party

Our client is very please with the quality of the busbar and the installation and I am sure you will be looking forward to servicing them again once the next phases are ready to be installed

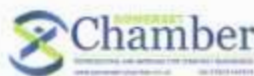
Yours sincerely



Chris Pratt
Chairman & Owner



VAT Number: 125 0451 54
Company Registration Number: 7841739
Registered Office: Riverside Mill Business Park,
Bridgwater, Somerset TA6 4BH



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COMPANY HISTORY

EFFIBAR has evolved from Busbar Installations Which was established in 1999, now involved in busbar system manufacturing and installation.

EFFIBAR has got multiple manufacturing facilities at United Kingdom, India, UAE and South Africa

The company is a reliable and high integrity supplier and installer of busbar systems (both copper and aluminum) from 220 Volts to 12,000 Volts and from 100 Amps to 90,000 Amps, along with flexible connectors to suit the required application. Site installations commissioning are also carried out by the company.

The company is proud of the fact that it has built long-term relationships and partnerships with its many customers. Our facilities have a list of well known customers which include: ABB, Bateman, Chlorchem, Dimension Data, Edison Power, Evraz Highveld Steel, Group 5, Mondi, NCP, Nampak, Nestle, Sappi, Sasol Synthetic Fuels, Sasol Chemicals, Scaw Metals, Shaw Controls, Siemens and TWP Projects as well as numerous electrical contractors.

The company strongly believes that customer service will continue to play an important role in the world market. In this regard it fully understands and appreciates that there is no substitute for a competent workforce and therefore promotes ongoing training as being one of the best management tools available to motivate and empower its staff.

VISION STATEMENT

To become worldwide leading and preferred supplier of busbar systems to the commercial and industrial power-distribution industry by 2019

MISSION STATEMENT

To supply our valued client with most suited designed and manufactured quality busbar systems and thereby recognized as an integral part of their business.



System overview



EFFIBAR series busway system is reliable and efficient electrical distribution system. It is safe and robust power distribution system with high efficiency, low losses and high mechanical strength



EFFIBAR system offers most comprehensive system to meet the requirement of worldwide market. System offered is suitable for 3 phase 3 wire, 3 phase 4 wire, 3 phase 5 wire and direct current distribution current ratings offered are from 25A to 6300A. Rated operational voltage up to 690V and rated insulation voltage up to 1000V. IP degree up to IP67 and frequency 50/60 Hz.



Construction of sandwich design is 2 piece aluminum housing EFFIBAR offers one of the lightest available sandwich product. Aluminum housing offers a low magnetic system with low hysteresis losses and better efficiency.



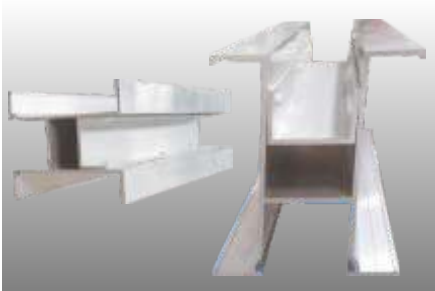
EFFIBAR is an obvious choice for various applications including commercial, industrial, wind power, horizontal and vertical power distribution applications.

Product Features



Superior design and performance.

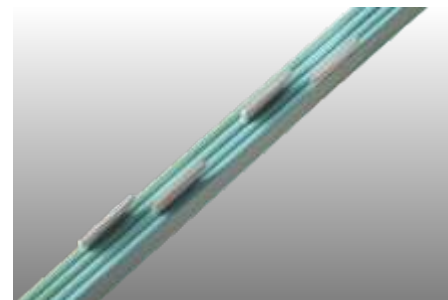
Two Piece Housing



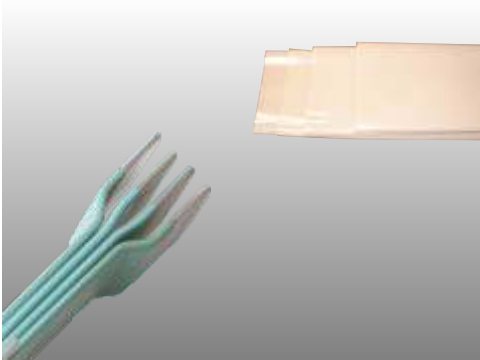
The EFFIBAR unique “serrated surface” design of its housing greatly improves the heat dissipation capacity of the busbar system which can offer a lower temperature rise and extend the lifespan of the busbar. The two piece design of the housing will offer a more reliable IP protection than usual four piece casing design. and provides less joints with the housing construction.

EFFIBAR have designed and constructed busbar to offer a true sandwich design for connecting the tap off units, are welded in place using state of the welding methods and the compact arrangement offers a superior heat dissipation, lower temperature rise and the elimination of the “chimney effect”.

True Sandwich Design



Superior & reliable insulation



Both polyester and epoxy insulation are available epoxy insulation on busbar is applied by an automated process.

Epoxy insulation offers an exceptional electrical performance and superior mechanical strength as well.

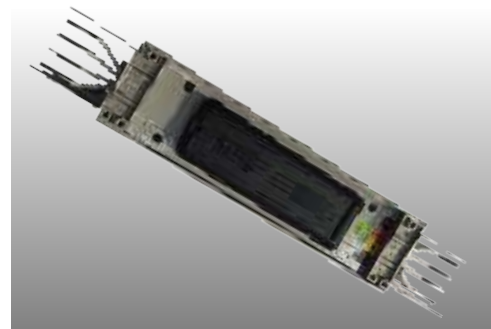
The 3M TFT Polyester insulation offers “Class F” protection rated for 155°C.

The Epoxy insulation offers “Class F” protection rated for 155°C

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

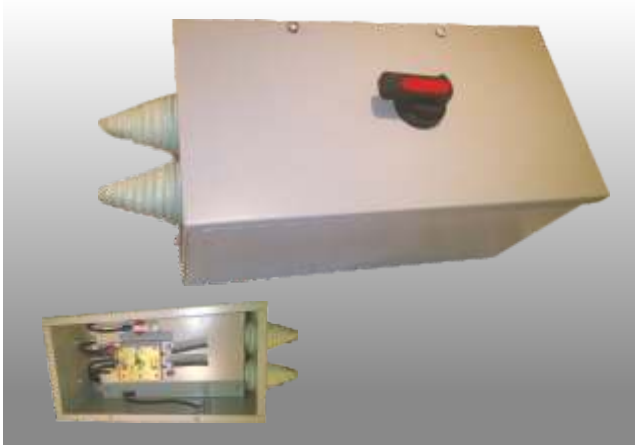
EFFIBAR busway dimension begins at 130mmx84mm for smaller ratings with very compact design. Busplugs are also compact and dimensions begin at 350mmx240mm for 100A. with more space for equipment.

Compact Design



Ease of installation and safe operation

Safe plug-in operation mechanism



The installation of “Tap Off Units” can be easily achieved by an ordinary wrench to complete the push in and pull out. The interlock mechanism is designed in compliance with IEC61439-6, preventing on-load connection and fully ensuring the safety of the operator, therefore the PE connection is always the first one made and the last to disconnect.

Unique error-proof design



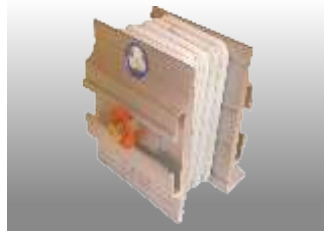
EFFIBAR has a unique “error proof” design to prevent potential damage to the busbar and the systems due to incorrect installation. Due to this system the installers cannot install two sections of the busbar with the incorrect phase orientation.






- Joint blocks are designed with single bolt system which reduces the installation time up to 50% compared to traditional joint.
- Double headed "break off " bolts are used in the joint blocks to avoid need of torque wrench and regular 16mm socket wrench.

Ease of installation and safe operation

Unique joint design



- Joint insulator with a convex-concave groove edge provides an increased creepage distance.
- Color coded temperature indicator is at each busway joint to give an a visual indication of the temperature.

	<p>1. Copper conductor. Current ratings: 400A~2500A. Design: One bolt design.</p>	<p>1. Aluminium conductor. Current ratings: 250A~2000A. Design: One bolt design.</p>
	<p>2. Copper conductor. Current ratings: 2500A~4000A. Design: Two bolt design.</p>	<p>2. Aluminium conductor. Current ratings: 2500A~3200A. Design: Two bolt design.</p>
	<p>3. Copper conductor. Current ratings: 5000A, 5500A, 6300A. Design: Four bolt design.</p>	<p>3. Aluminium conductor. Current ratings: 3600A~5000A. Design: Four bolt design.</p>

High quality guarantee



by the state of art equipment and process



A high-speed sawing machine, imported from Germany along with automated controlled machinery is used to precision saw and polish all the busbar lengths.

The resulting highly finished ends do not suffer from the deformed, stretched and inconstant flat end surfaces common with punched busbar at the most critical part of the joint locations.

Automatic assemble lines guarantee a high stability of quality and fast manufacturing process, enabling prompt delivery of large orders.



Effibar have also imported a state of the art welding machine from Europe for busbar welding, this provides an extremely high quality and consistent weld across the busbar range.

Effibar has a rigorous quality procedure for checking the raw materials used in their busbar and will only utilise high quality materials from reputable suppliers for their busbar. Copper and aluminum used for conductors meet the requirement as per the International busbar standards.



Standards and certificates



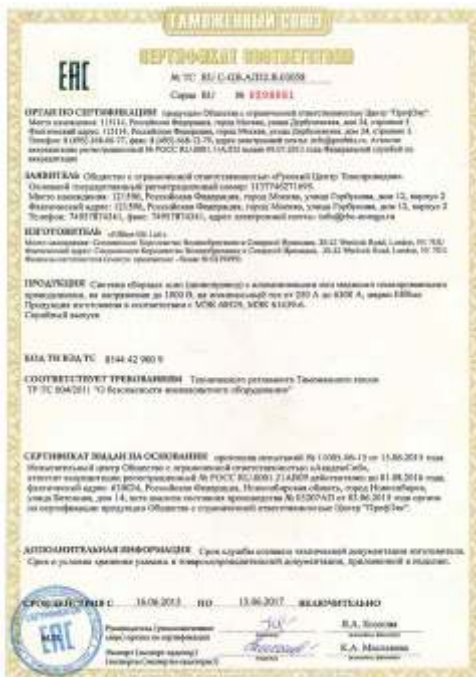
Reference Standards

SL busway system complies with:

- IEC 61439-1
- IEC 61439-6
- IEC 60439-1
- IEC 60439-2
- IEC 60529

Certificates

Fire Test



Electrical specification



EFFIBAR Series Bus way aluminum alloy housing provide an extremely low impedance ground path with minimal resistance for both copper and aluminum systems.

Grounding resistance of SL busway system (temperature=20°C):

Rated current (Amp.)	Internal 50% ground bus resistance(m? /m)	Integrated housing ground DC resistance(m? /m)
400	192.4	20.88
630	143.1	20.88
800	102.7	19.6
1000	86.1	18.83
1250	61.6	17.19
1600	42.4	15.16
2000	32.3	13.6
2500	23.3	11.76
3200	21.9	8.11
4000	16.6	7.15
5000	11.2	6.23
6300	10.0	5.1

Rated current (Amp.)	Internal 50% ground bus resistance(m? /m)	Integrated housing ground DC resistance(m? /m)
250	286.7	20.88
400	228.3	20.01
630	174.5	18.83
800	142.7	17.84
1000	107.2	16.29
1250	78.9	14.48
1600	56.7	12.44
2000	51.1	7.59
2500	37	6.6
3200	25.9	5.5
4000	20.5	4.8



Short-circuit ratings

SLbusway provides a stable and efficient power transmission, with a high short-circuit withstand capability. SLbusway has been certified by DEKRA and UL to be in compliance with IEC61439-6 and-2 short circuit withstand test for 1 second.

Copper conductor (SLC) Table 10-1

Rated current (Amp.)	Rated short circuit withstand current(ICW)KA	Rated peak withstand current(IPK)KA
400		
630	35	72
800		
1000		
1250	50	103
1600		
2000	65	141
2500	85	175
3200		
4000		
5000	120	264
6300		

Aluminum conductor (SLA) Table 10-2

Rating current (Amp.)	Rated short circuit withstand current(ICW)KA	Rated peak withstand current(IPK)KA
250	20	40
400		
630	30	63
800		
1000		
1250	50	105
1600		
2000		
2500	80	171
3200		
4000	120	262
5000	120	262

Table 10-3 Table 10-4

CROSS SECTION AREA - COPPER - SLC		CROSS SECTION AREA - ALUMINUM - SLA	
Current Rating (Amp)	cross section (mm 2)	Current Rating (Amp)	cross section (mm 2)
400	240	250	120
630	240	400	240
800	270	500	300
1000	360	630	360
1250	480	800	480
1600	660	1000	570
1800	750	1250	750
2000	870	1600	960
2500	1140	1800	1080
3200	1320	2000	1200
3600	1500	2500	1500
4000	1740	3200	1920
5000	2280	3600A	2160
6300	2880	4000	2400
		5000	3000

Resistance, reactance, impedance and voltage drop

EFFIBAR SL Series 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. Calculate new voltage drop $V_d = \text{amps load} \times \sqrt{3} (R \cos Q + X \sin Q) \text{ m}$, where $\cos Q = \text{Power Factor}$.

SLC Busduct (50HZ) R X Z Vd (CU) 20° C

Table 11-1

Rated Current (A)	R20 (mΩ/m)	R95 (mΩ/m)	X20 (mΩ/m) 50HZ	Z20 (mΩ/m)	Vd (V/m)				
					Power Factor cos Ø				
					0.6	0.7	0.8	0.9	1.0
400	0.083	0.111	0.032	0.113	0.052	0.056	0.059	0.061	0.056
630	0.083	0.111	0.032	0.113	0.085	0.091	0.096	0.099	0.09
800	0.059	0.08	0.027	0.079	0.083	0.088	0.092	0.094	0.083
1000	0.049	0.067	0.021	0.07	0.087	0.092	0.097	0.099	0.088
1250	0.034	0.047	0.014	0.048	0.08	0.082	0.088	0.09	0.08
1600	0.023	0.032	0.01	0.032	0.075	0.079	0.082	0.083	0.073
2000	0.017	0.024	0.007	0.026	0.075	0.079	0.082	0.082	0.071
2500	0.012	0.017	0.006	0.02	0.078	0.081	0.082	0.082	0.068
3200	0.01	0.015	0.003	0.02	0.069	0.695	0.079	0.082	0.077
4000	0.015	0.01	0.002	0.01	0.055	0.061	0.067	0.071	0.071
5000	0.003	0.006	0.001	0.006	0.053	0.059	0.064	0.068	0.068
6300	0.002	0.004	0.001	0.002	0.046	0.053	0.058	0.064	0.066

SLC Busduct (50HZ) R X Z Vd (CU) 95° C

Table 11-2

Rated Current (A)	R20 (mΩ/m)	R95 (mΩ/m)	X20 (mΩ/m) 50HZ	Z20 (mΩ/m)	Vd (V/m)				
					Power Factor cos Ø				
					0.6	0.7	0.8	0.9	1.0
400	0.083	0.111	0.032	0.113	0.064	0.07	0.075	0.079	0.076
630	0.083	0.111	0.032	0.113	0.104	0.113	0.121	0.127	0.122
800	0.059	0.08	0.027	0.079	0.101	0.109	0.116	0.12	0.112
1000	0.049	0.067	0.021	0.07	0.106	0.114	0.121	0.126	0.119
1250	0.034	0.047	0.014	0.048	0.096	0.104	0.111	0.115	0.108
1600	0.023	0.032	0.01	0.032	0.09	0.097	0.102	0.106	0.098
2000	0.017	0.024	0.007	0.026	0.09	0.097	0.102	0.105	0.097
2500	0.012	0.017	0.006	0.02	0.092	0.098	0.102	0.103	0.092
3200	0.01	0.015	0.001	0.02	0.085	0.093	0.09	0.106	0.104
4000	0.015	0.01	0.001	0.01	0.07	0.079	0.087	0.094	0.097
5000	0.003	0.006	0.001	0.006	0.067	0.076	0.083	0.09	0.092
6300	0.002	0.004	0.001	0.002	0.061	0.069	0.083	0.085	0.09

Resistance, reactance, impedance and voltage drop

50Hz values shown. For 60Hz, multiply reactance (X) by 1.2048 and resistance values do not change. Calculate new voltage drop $V_d = \text{amps load} \times \sqrt{3} (R \cos Q + X \sin Q) \text{ m}$, where $\cos Q = \text{Power Factor}$.

SLABusduct (50HZ) R X Z Vd(AL) 20° C

Table 12-1

Rated Current (A)	R20 (mΩ/m)	R95 (mΩ/m)	X20 50HZ (mΩ/m)	X20 60HZ (mΩ/m)	Z20 (mΩ/m)	Vd (V/m) Power Factor cos Ø				
						0.046	0.051	0.056	0.060	0.062
250	0.143	0.185	0.025	0.031	0.168	0.046	0.051	0.056	0.060	0.062
400	0.113	0.147	0.023	0.028	0.149	0.060	0.066	0.072	0.077	0.078
630	0.09	0.112	0.021	0.026	0.128	0.077	0.085	0.092	0.098	0.098
800	0.058	0.074	0.018	0.022	0.103	0.068	0.074	0.079	0.083	0.080
1000	0.043	0.055	0.015	0.019	0.083	0.065	0.071	0.075	0.078	0.074
1250	0.031	0.041	0.012	0.015	0.059	0.061	0.066	0.069	0.072	0.067
1600	0.022	0.029	0.009	0.011	0.046	0.057	0.060	0.064	0.066	0.061
2000	0.02	0.026	0.008	0.01	0.042	0.064	0.068	0.072	0.074	0.069
2500	0.014	0.019	0.005	0.007	0.028	0.054	0.058	0.061	0.064	0.061
3200	0.01	0.013	0.002	0.003	0.021	0.042	0.047	0.051	0.055	0.055
4000	0.007	0.0012	0.005	0.002	0.012	0.057	0.059	0.060	0.059	0.048
5000	0.006	0.009	0.004	0.001	0.001	0.059	0.061	0.062	0.062	0.052

SLABusduct (50HZ) R X Z Vd(AL) 95°

Table 12-2

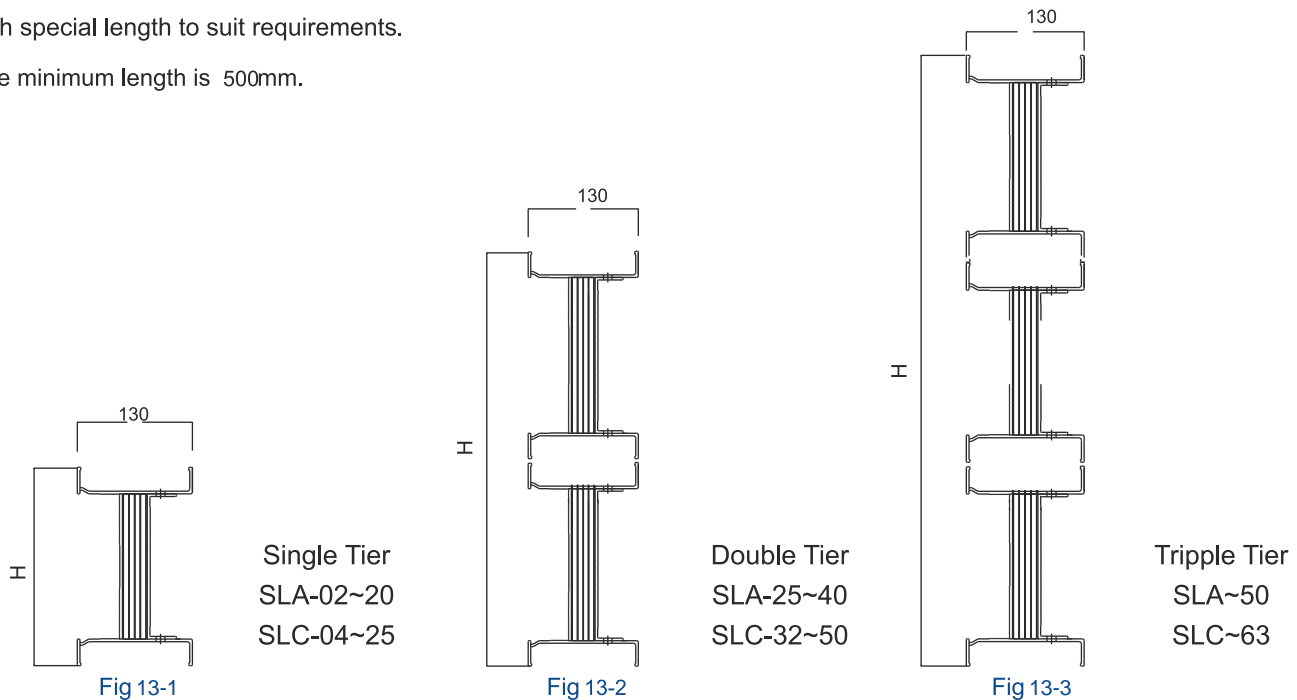
Rated Current (A)	R20 (mΩ/m)	R95 (mΩ/m)	X20 50HZ (mΩ/m)	X20 60HZ (mΩ/m)	Z20 (mΩ/m)	Vd (V/m) Power Factor cos Ø				
						0.057	0.064	0.071	0.077	0.080
250	0.143	0.185	0.025	0.031	0.168	0.057	0.064	0.071	0.077	0.080
400	0.113	0.147	0.023	0.028	0.149	0.074	0.083	0.091	0.099	0.102
630	0.09	0.112	0.021	0.026	0.128	0.092	0.102	0.112	0.120	0.122
800	0.058	0.074	0.018	0.022	0.103	0.068	0.074	0.079	0.083	0.080
1000	0.043	0.055	0.015	0.019	0.083	0.065	0.071	0.075	0.078	0.074
1250	0.031	0.041	0.012	0.015	0.059	0.061	0.066	0.069	0.072	0.067
1600	0.022	0.029	0.009	0.011	0.046	0.057	0.060	0.064	0.066	0.061
2000	0.02	0.026	0.008	0.01	0.042	0.064	0.068	0.072	0.074	0.069
2500	0.014	0.019	0.005	0.007	0.028	0.054	0.058	0.061	0.064	0.061
3200	0.01	0.013	0.002	0.003	0.021	0.042	0.047	0.051	0.055	0.055
4000	0.007	0.01	0.002	0.001	0.012	0.057	0.059	0.060	0.059	0.048
5000	0.00577	0.00877	0.00377	0.00077	0.00077	0.059	0.061	0.062	0.062	0.052

Straight length

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

The standard length is either 3000mm or 4000mm. with special length to suit requirements.

The minimum length is 500mm.



Copper conductor Table 13-1

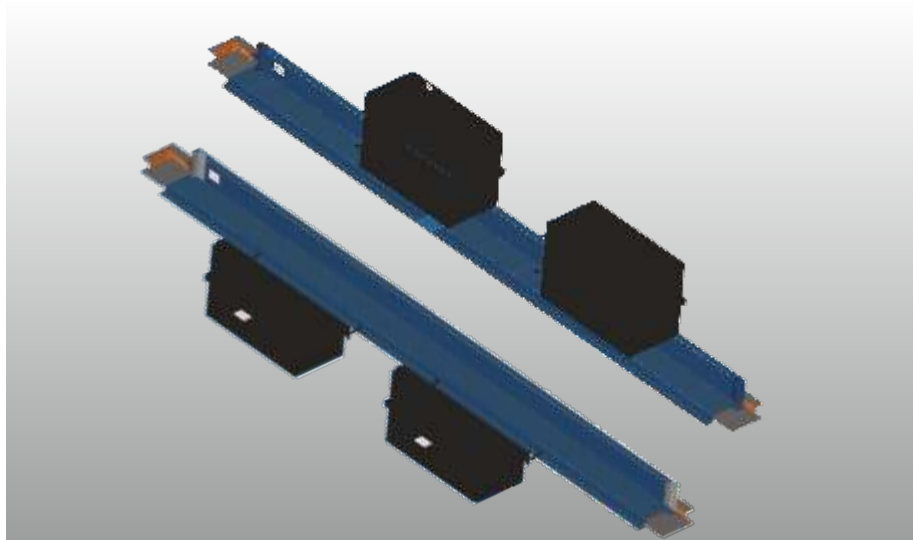
Rated Current	Dimension		Weight per meter (kg/m)		Fig.
	Width (W)	Height (H)	4wire 100%N	5wire 100%N, 50%PE	
400	130	104	14.16	15.48	13-1
630		109	17.64	19.44	
800	130	124	19.92	22.08	
1000	130	144	25.56	28.44	
1250	130	174	33.96	37.92	
1600	130	209	41.88	46.92	
2000	130	254	53.52	60.24	13-2
2500	130	374	63.96	71.52	
3200	130	444	82.56	92.76	
4000	130	534	105.84	119.28	
5000	130	679	137.40	154.68	13-3

Unit = mm

Aluminum conductor Table 13-2

Rated Current	Dimension		Weight per meter (kg/m)		Fig.
	Width (W)	Height (H)	4wire 100%N	5wire 100%N, 50%PE	
250	130	84	7.50	8.6	13-1
400	130	104	8.71	9.23	
500	130	114	9.62	10.14	
630	130	124	10.92	11.57	
800	130	144	12.22	13	
1000	130	159	14.43	15.47	
1250	130	189	17.55	18.98	
1600	130	224	21.97	23.79	
2000	130	264	27.56	29.64	
2500	130	404	33.8	36.53	
3200	130	474	42.64	46.41	13-2
4000	130	554	50.96	53.17	
5000	130	662	63.7	66.4625	13-3

Plug-in straight length



The plug-in busway has a flexible design with optional plug outlets on both sides. A maximum of 5 outlets can be fixed on each side of 3m standard length. The customer may reserve plug outlets for extension in the future when changes occur in terms of the equipment load or busway run. Both base plate and socket cover are set for each plug outlet. Base plate helps to prevent fingers from contacting live conductors (IP2X) by accident, on which the phase sequences of conductors are identified. Socket cover prevents the conductive contacting surface from being contaminated. A gasket is used to keep off dust or moisture.

Standard length is 3000mm or 4000mm. The minimum length is 720mm. The minimum length of L1 (distance from the center of plug outlet to standard end) is 360mm. The minimum length of L2 (distance between the centers of two adjacent plug outlets) is 570mm.

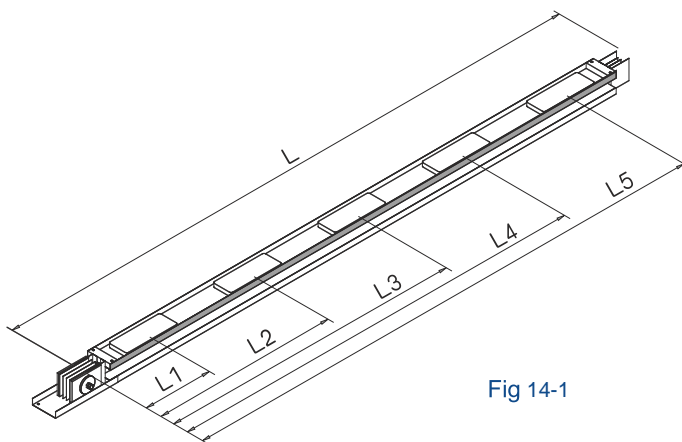


Fig 14-1

L1=0.36

L2=0.93

L3=1.50

L4=2.07

L5=2.64

Standard length:

SLC: L=1、2、3m SLA: L=1、2、3m

Optional length:

SLC: L=0.72~2.99m SLA : L=0.72~4m

Fig 15-1

Fig 15-2

L flatwise elbow

Table 15-1

Rated current (A)	Copper busway size (mm)		Aluminium busway size (mm)	
	Minium		Minium	
	X	Y	X	Y
250			341	341
400	341	341	351	351
630	341	341	366	366
800	351	351	381	381
1000	366	366	406	406
1250	391	391	441	441
1600	421	421	491	491
2000	461	461	560	560
2500	511	511	630	630
3200	590	590	730	730
4000	670	670	810	810
5000	770	770		
6300	939	939		

L edgewise elbow

Table 15-2

Rated current (A)	Copper busway size (mm)		Aluminium busway size (mm)	
	Minium		Minium	
	X	Y	X	Y
250			365	365
400	365	365	365	365
630	365	365	365	365
800	365	365	365	365
1000	365	365	365	365
1250	365	365	365	365
1600	365	365	365	365
2000	365	365	365	365
2500	365	365	365	365
3200	365	365	365	365
4000	365	365	365	365
5000	365	365	365	365
6300	365	365	365	365

Customized sizes are available on request

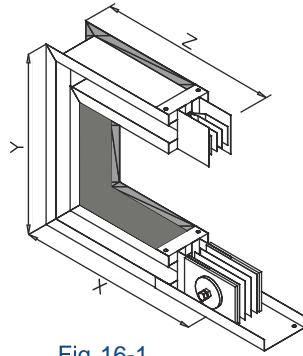


Fig 16-1

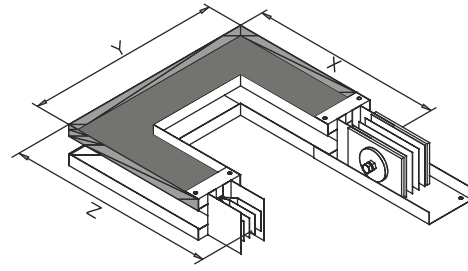


Fig 16-2

Flatwise U

Table 16-1

Rated current (A)	Copper busway size (mm)			Aluminium busway size (mm)		
	Minium			Minium		
	X	Y	Z	X	Y	Z
250				341	326	341
400	341	326	341	351	346	351
630	341	326	341	366	376	366
800	351	346	351	381	406	381
1000	366	376	366	406	456	406
1250	391	426	391	441	526	441
1600	421	486	421	491	626	491
2000	461	566	461	560	764	560
2500	511	666	511	630	904	630
3200	590	824	590	730	1104	730
4000	670	984	670	810	1264	810
5000	770	1184	770			
6300	939	1522	939			

Edgewise U

Table 16-2

Rated current (A)	Copper busway size (mm)			Aluminium busway size (mm)		
	Minium			Minium		
	X	Y	Z	X	Y	Z
250				365	370	365
400	365	370	365	365	370	365
630	365	370	365	365	370	365
800	365	370	365	365	370	365
1000	365	370	365	365	370	365
1250	365	370	365	365	370	365
1600	365	370	365	365	370	365
2000	365	370	365	365	370	365
2500	365	370	365	365	370	365
3200	365	370	365	365	370	365
4000	365	370	365	365	370	365
5000	365	370	365	365	370	365
6300	365	370	365	365	370	365

Customized sizes are available on request

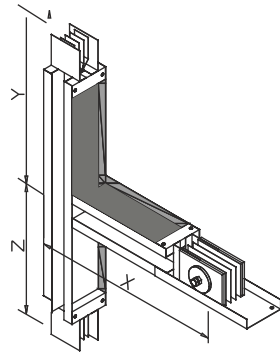


Fig 17-1

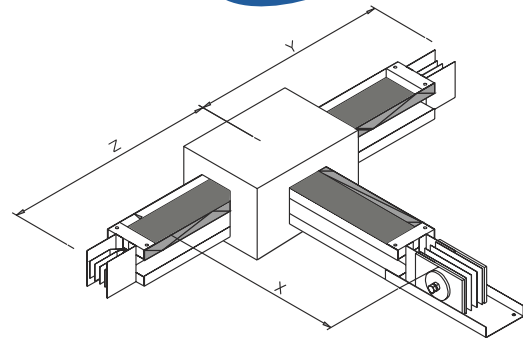


Fig 17-2

Flatwise Tee

Table 17-1

Rated current (A)	Copper busway size (mm)			Aluminium busway size (mm)		
	X	Minimum Y	Z	X	Minimum Y	Z
250				341	290	290
400	341	290	290	351	295	295
630	341	290	290	366	302	302
800	351	295	295	381	310	310
1000	366	302	302	406	322	322
1250	391	315	315	441	340	340
1600	421	330	330	491	365	365
2000	461	350	350	560	399	399
2500	511	375	375	630	434	434
3200	590	414	414	730	484	484
4000	670	454	454	810	524	524
5000	770	504	504			
6300	939	589	589			

Edgewise Tee

Table 17-2

Rated current (A)	Copper busway size (mm)			Aluminium busway size (mm)		
	X	Minimum Y	Z	X	Minimum Y	Z
250				363	411	411
400	365	411	411	363	421	421
630	365	411	411	363	436	436
800	365	426	426	363	451	451
1000	365	436	436	363	476	476
1250	365	461	461	363	511	511
1600	365	496	496	363	561	561
2000	365	531	531	363	630	630
2500	365	581	581	363	700	700
3200	365	660	660	363	800	800
4000	365	740	740	363	880	880
5000	365	840	840			
6300	365					

Customized sizes are available on request

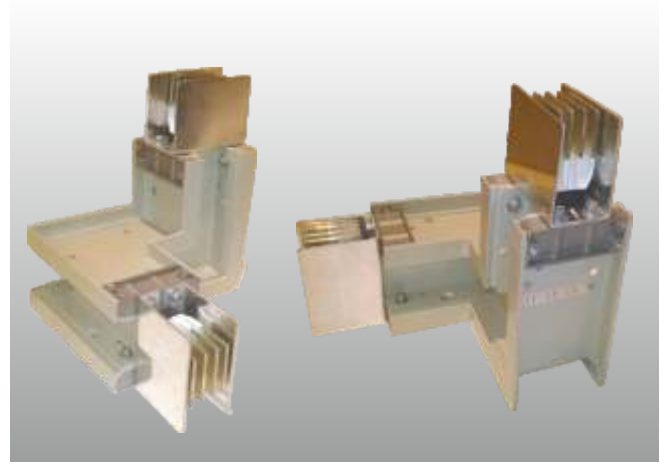
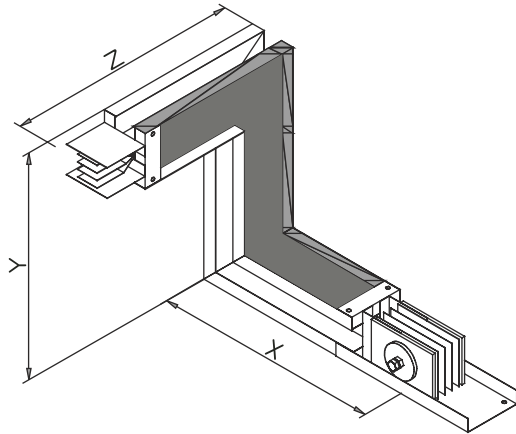


Fig 18-1

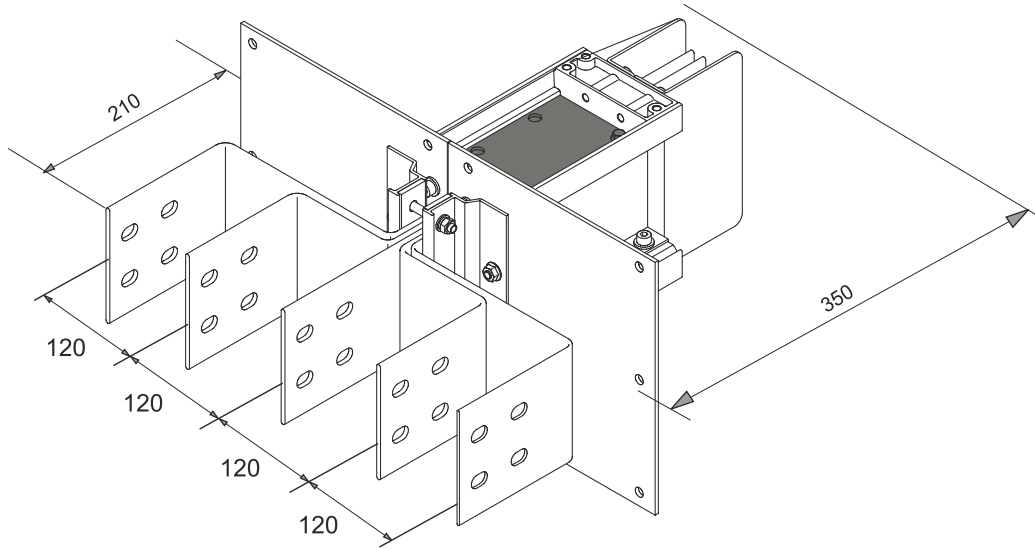
Combination Elbow

Table 18-1

Rated current (A)	Copper busway size (mm)			Aluminium busway size (mm)		
	Minium			Minium		
	X	Y	Z	X	Y	Z
250				341	348	365
400	341	348	365	351	358	365
630	341	348	365	366	373	365
800	351	358	365	381	388	365
1000	366	373	365	406	413	365
1250	391	398	365	441	448	365
1600	421	428	365	491	498	365
2000	461	468	365	560	567	365
2500	511	518	365	630	637	365
3200	590	597	365	730	737	365
4000	670	677	365	810	817	365
5000	770	777	365			365
6300	939	946	365			

Customized sizes are available on request

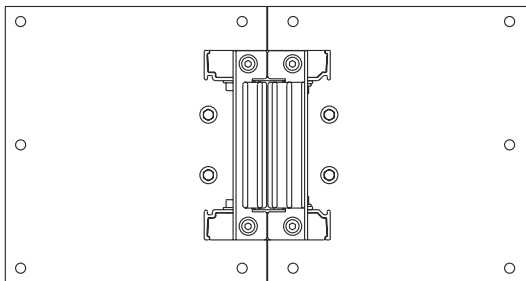
Flange End



Standard length: L=0.56m

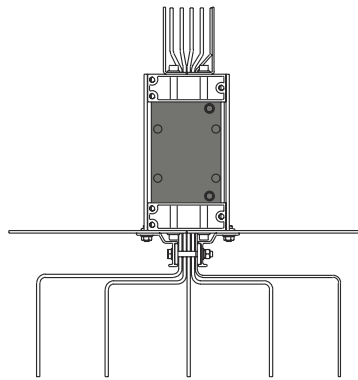
Nonstandard length: L=0.56~2.00m

Fig 19-1



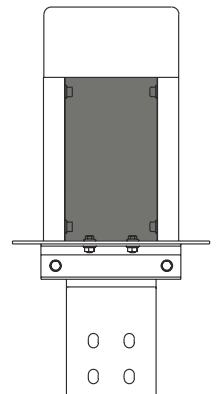
Section view

Fig 19-2



Top view

Fig 19-3



Side view

Fig 19-4

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

Note:

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

Flange end cut out and drilling pattern

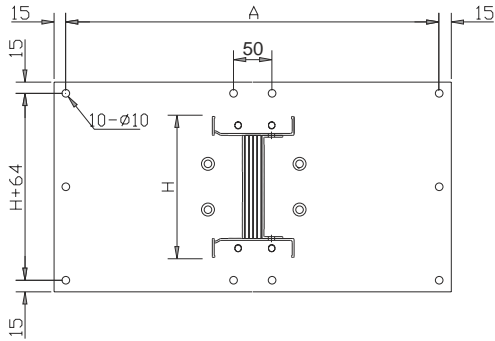


Fig 20-1

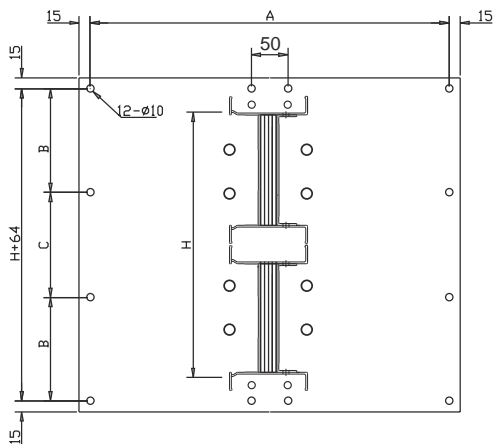


Fig 20-2

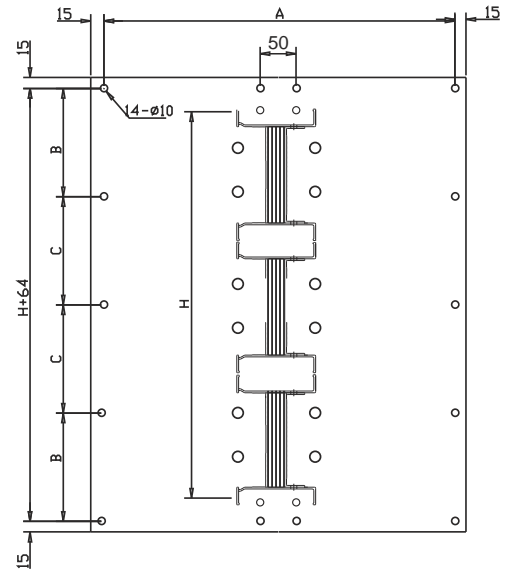


Fig 20-3

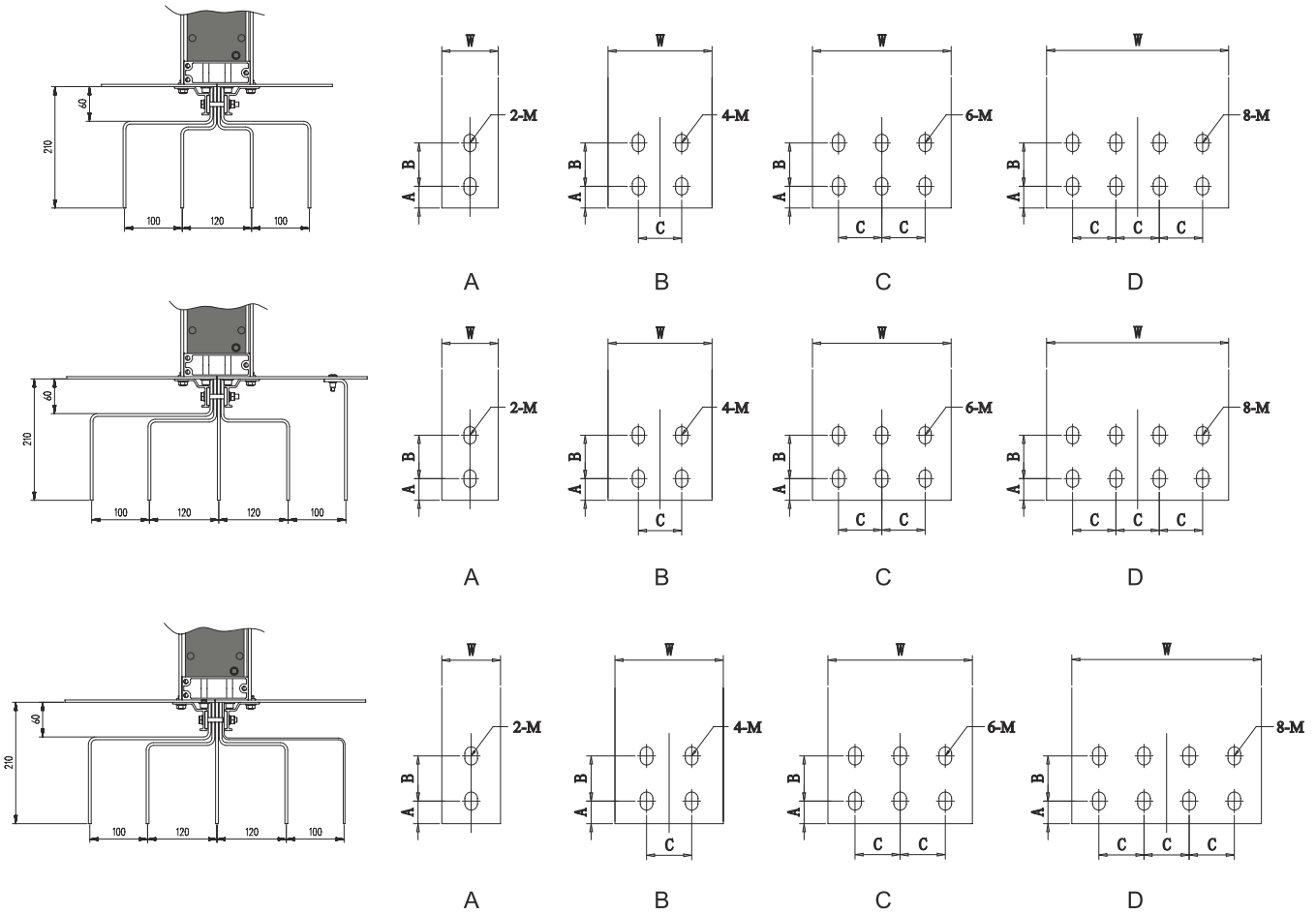
SLC Table 20-1

Rated Current (A)	3L+N+PE Size (mm)				3L+N Size (mm)			Fig
	H	A	B	C	A	B	C	
400	104	490	-	-	370	-	-	18-1
630	104	490	-	-	370	-	-	
800	109	490	-	-	370	-	-	
1000	124	490	-	-	370	-	-	
1250	144	490	-	-	370	-	-	
1600	174	490	-	-	370	-	-	
2000	209	490	-	-	370	-	-	
2500	254	490	-	-	370	-	-	
3200	374	490	146	146	370	140	136	18-2
4000	444	490	169	170	370	165	166	
5000	534	490	185	184	370	200	196	
6300	679	490	170	169	370	190	192.5	18-3

SLA Table 20-2

Rated Current (A)	3L+N+PE Size (mm)				3L+N Size (mm)			Fig
	H	A	B	C	A	B	C	
400	104	490	-	-	370	-	-	18-1
500	114	490	-	-	370	-	-	
630	124	490	-	-	370	-	-	
800	144	490	-	-	370	-	-	
1000	159	490	-	-	370	-	-	
1250	189	490	-	-	370	-	-	
1600	224	490	-	-	370	-	-	
2000	264	490	-	-	370	-	-	
2500	404	490	-	-	370	130	126	18-2
3200	474	490	-	-	370	150	156	
4000	554	490	147	148	370	185	186	
5000	662	490	197	198	370	210	216	18-3

Flange end bar hole pattern



Copper conductor Table 21-1

Rated Current	A	B	C	W	M	Type
400	25	50		40	Φ12	A
630	25	50		40	Φ14×20	A
800	25	50		45	Φ14×20	A
1000	25	50		60	Φ14×20	A
1250	25	50	50	80	Φ14×20	B
1600	25	50	50	110	Φ14×20	B
2000	25	50	50	145	Φ14×20	C
2500	25	50	50	190	Φ14×20	D
3200	25	50	50	110	Φ14×20	B
4000	25	50	50	145	Φ14×20	C
5000	25	50	50	190	Φ14×20	D
6300	25	50	50	145	Φ14×20	C

Customized sizes are available on request

Aluminum conductor Table 21-2

Rated Current	A	B	C	W	M	Type
250	25	50		20	Φ14×20	A
400	25	50		40	Φ14×20	A
500	25	50		45	Φ14×20	A
630	25	50		60	Φ14×20	A
800	25	50		80	Φ14×20	A
1000	25	50	50	95	Φ14×20	B
1250	25	50	50	125	Φ14×20	C
1600	25	50	50	160	Φ14×20	C
2000	25	50	50	200	Φ14×20	D
2500	25	50	50	125	Φ14×20	C
3200	25	50	50	160	Φ14×20	C
4000	25	50	50	200	Φ14×20	D
5000	25	50	50	160	Φ14×20	D

Unit = mm

Expansion joint

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

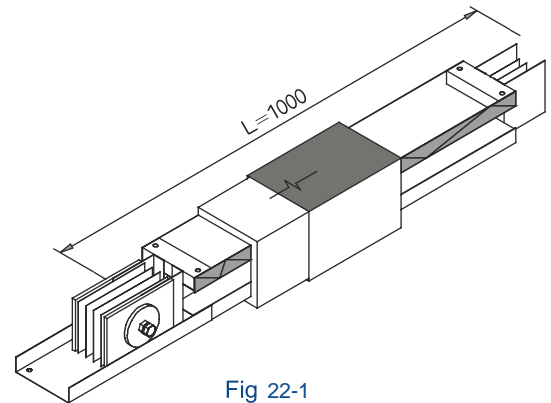


Fig 22-1

Reducer

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

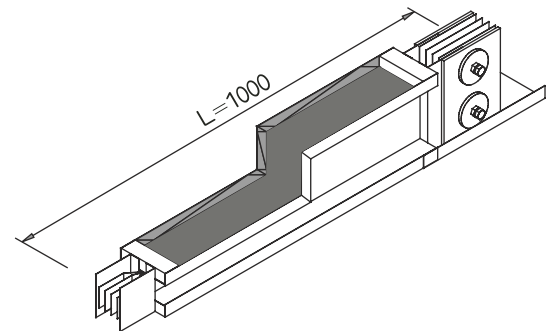


Fig 22-2

Transposition joint

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.

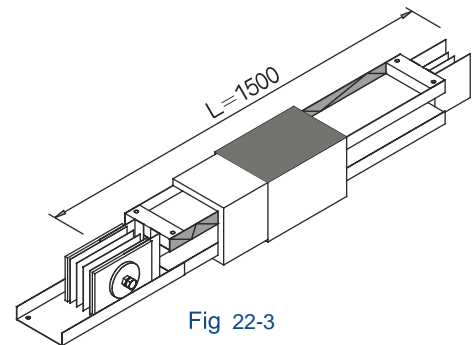


Fig 22-3

Terminal cover

Terminal cover / End cover used to protect from rain water/dust, moisture from top of the river.

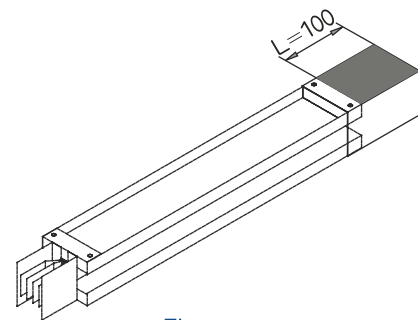


Fig 22-4

Plug-in Box

Plug-in box is adopted to apply electrical power directly to the load from the busway system. Fully considering customer's requirements, SL bus plug offers the options of circuit breaker or fuse.

Bus plug-in with circuit breaker

- Circuit breaker protection can be available with a current range from 16A-1000A.
- Load protection in the plug can be 3-pole or 4-pole circuit breakers, including accessories of breakers such as rotary handles, shunt release, thermal, magnetic release and leakage-current protection module.

Plug-in box with fuse

- Plug-in boxes with fuses can be produced according to customer specifications.
 - Unique fail-safe base pins
- the plug is equipped with a positioning device that prevents incorrect phase installations.
- Plug pins: All the pins are silver-plated to improve the electrical conductivity.

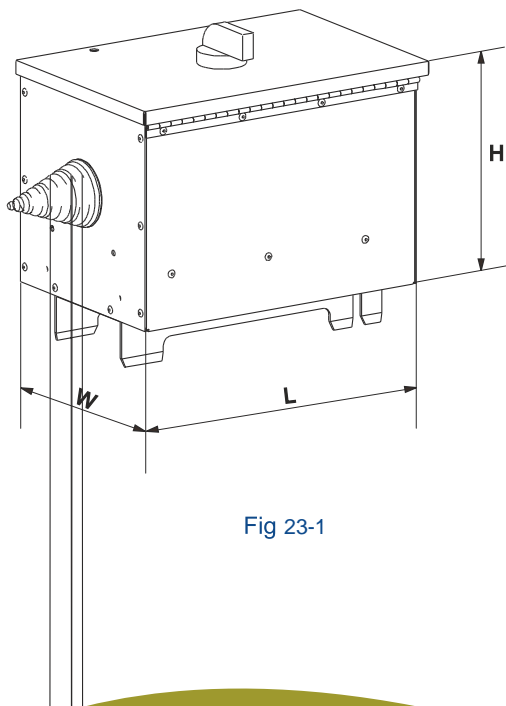


Fig 23-1

Plug in box dimensions (L×W×H)mm

- For non-standard dimension, please contact the manufacturer.

Table 23-1

Current ratings (A)	Plug-in box Dimensions		
	L(mm) Length	W(mm) Width	H(mm) Height
100	360	250	250
160	400	250	250
250	520	270	270
400	650	310	310
630	800	340	340
800-1000	1200	420	350

Note:

Table 25-1 size is based on the size of common circuit breaker 3 Pole / 4 Pole.

Our busway protection class is up to IP67 according to different applications.

Notes:

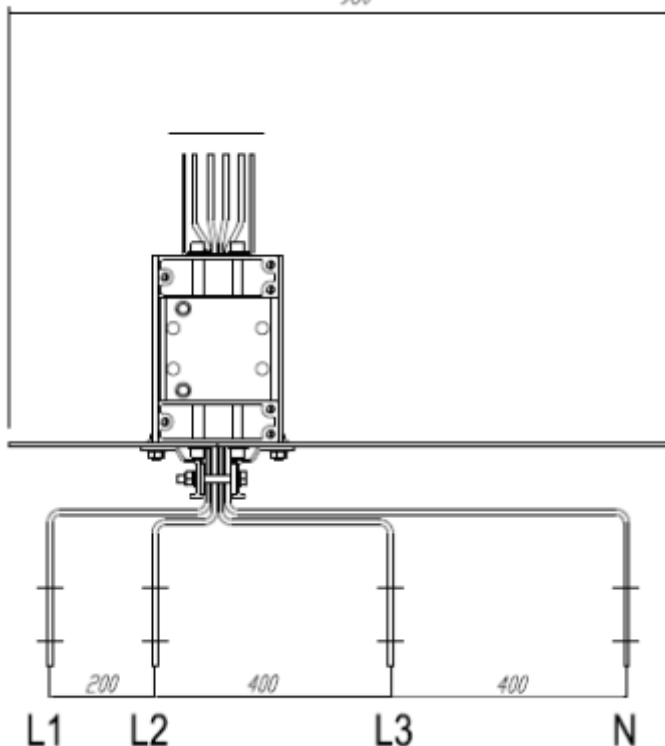
- IP40---"4" indicates that solid objects greater than 1mm in diameter will not penetrate the housing."0" denotes no protection.
- IP42---"4" indicates that solid objects greater than 1mm in diameter will not penetrate the housing."2" denotes prevention of water dripping inside by an angle of up to 15°.
- IP54---"5" for dust, "4" indicates splashes of water.
- IP65---"6" for dust density, "5" indicates protection from water spray.
- IP66---"6" for dust density, "6" for protection of stronger water spray.
- IP67---"6" for dust density, "7" for protection of water resistance.

Flanged End options

Transformer Connection for Dry Type Transformer



980 Fig 24-1



Switch Board Connection

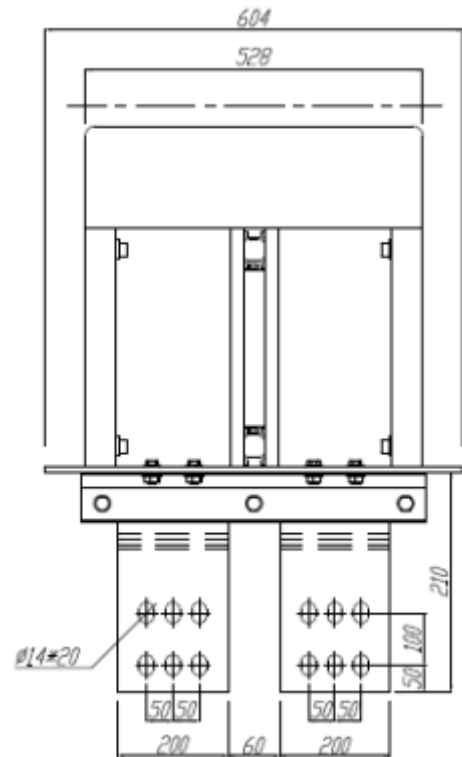


Fig 24-2

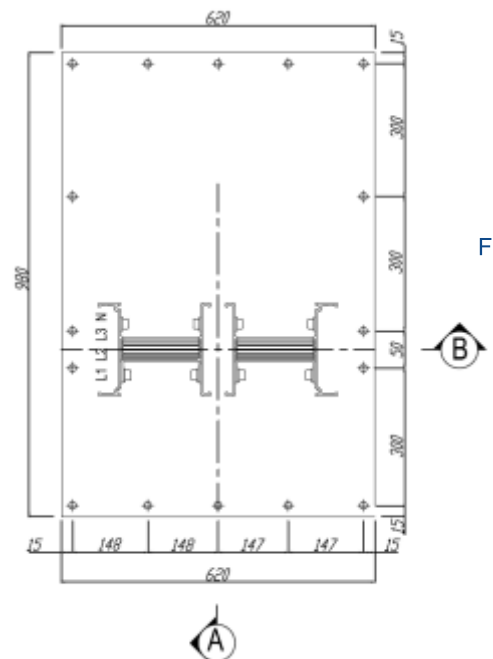


Fig 24-3

Horizontal through-wall installation

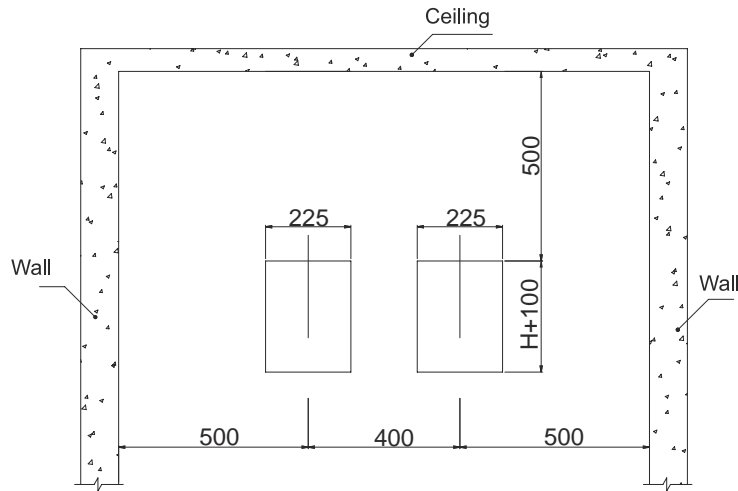
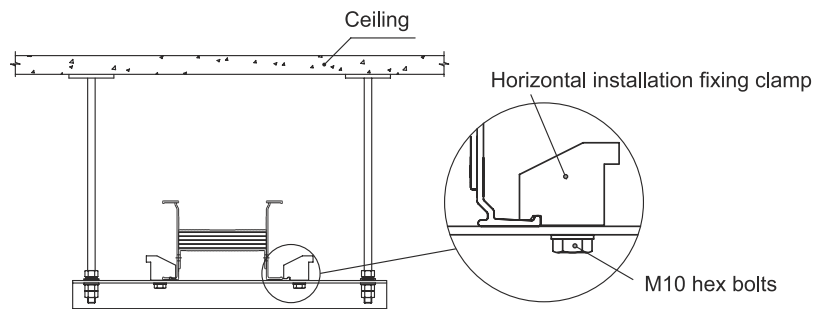


Fig 25-1

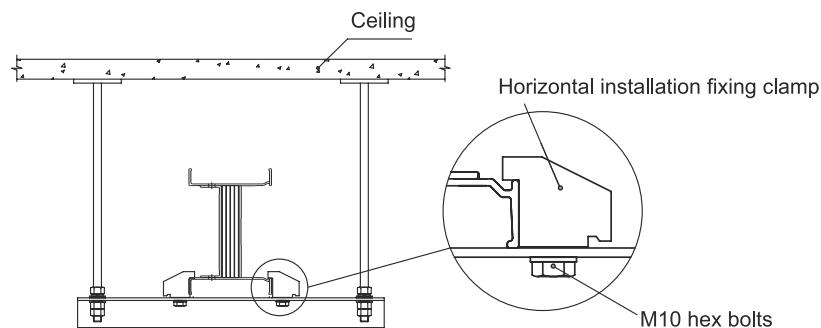
Horizontal installation-trapeze hangers overhead support

Holes should be first drilled in the floor so as to install anchor bolts (holes may also be drilled on the spot for flexible installation) or fit steel U-channel for welding with hangers. The distance between two adjacent hangers shall not exceed 2 meters. Please specify any special requirements when placing your order.



Flatwise installation

Fig 25-2



Edgewise installation

Fig 25-3

Horizontal installation-wall support

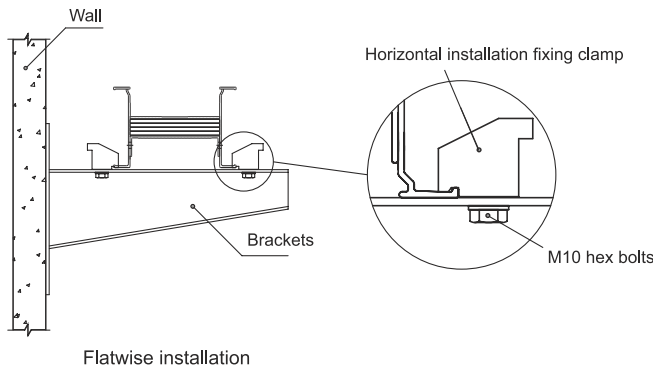


Fig 26-1

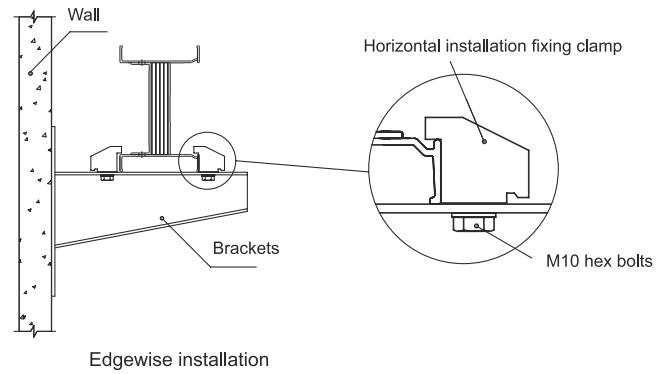


Fig 26-2

Minimum clearance required for installation

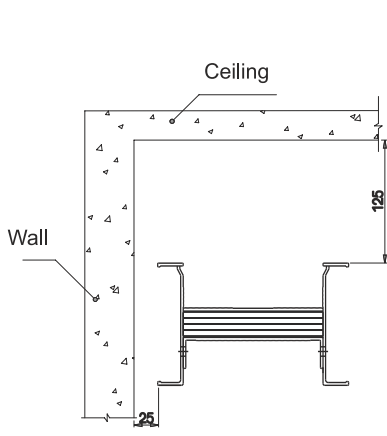


Fig 26-3

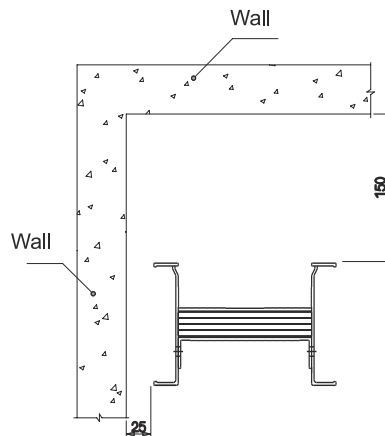


Fig 26-4

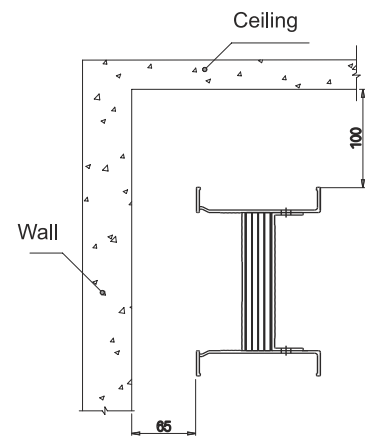


Fig 26-5

Minimum clearance required for plug-in box installation

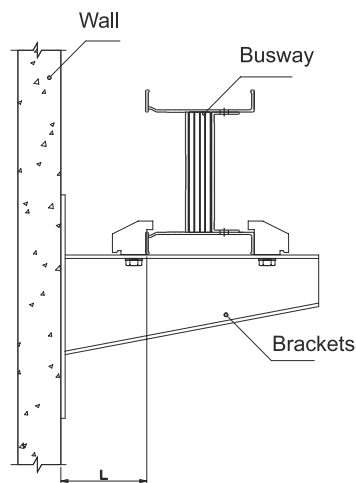


Fig 26-6

Table 26-1

Current level for plug-in box	L(mm)
100	150
160	175
250	195
400	210
630	230
800	260
1000	300

Vertical installation

when installing a vertical bus run, please refer to the figure for the dimension of the typical access holes. Please ensure that the spacing between every two runs of busway exceeds 350mm, especially if there are two or more vertical runs of busway installed in the same riser. Please refer to the figure below:

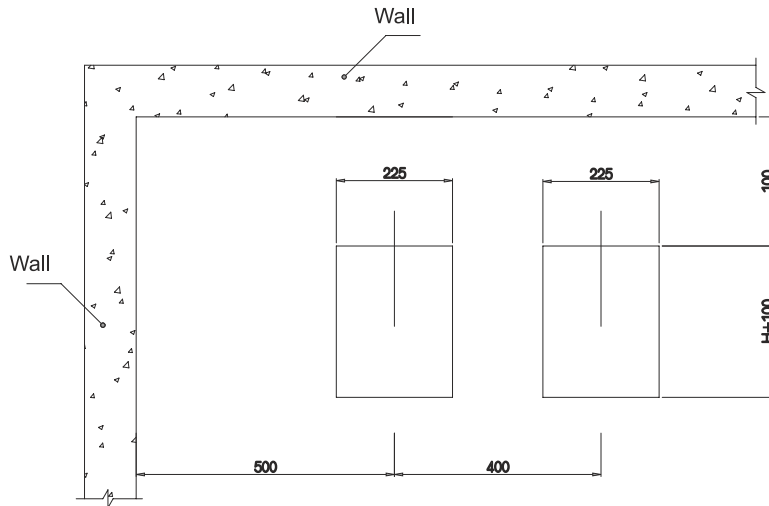


Fig 27-1

Installation for Vertical Spring Hanger

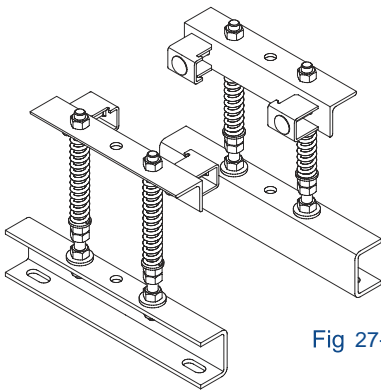


Fig 27-3

Vertical Spring Hanger

Fig 27-2

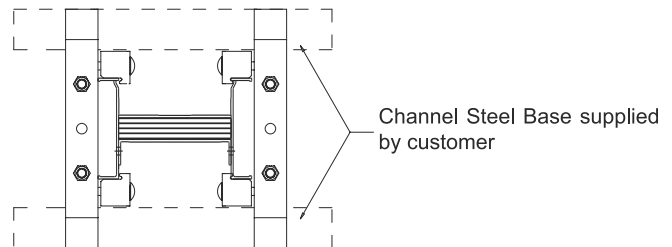
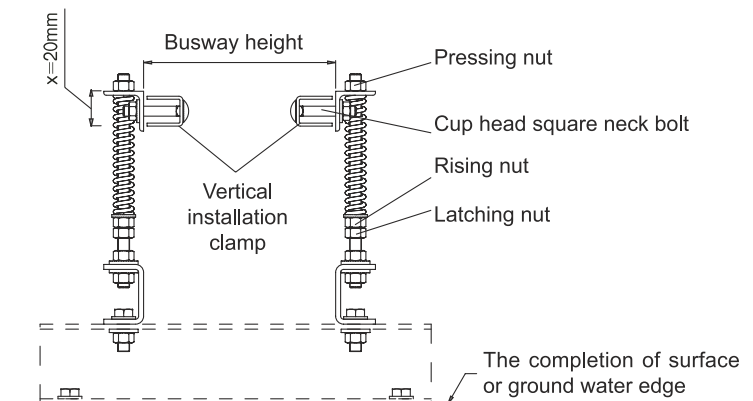


Fig 27-4



Installation Schematic Diagram

Installation for Vertical Fixed Hanger

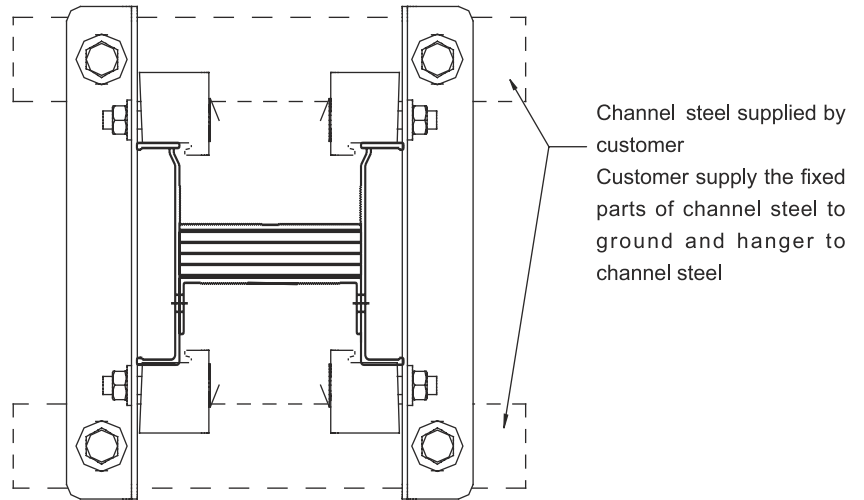


Fig 28-1

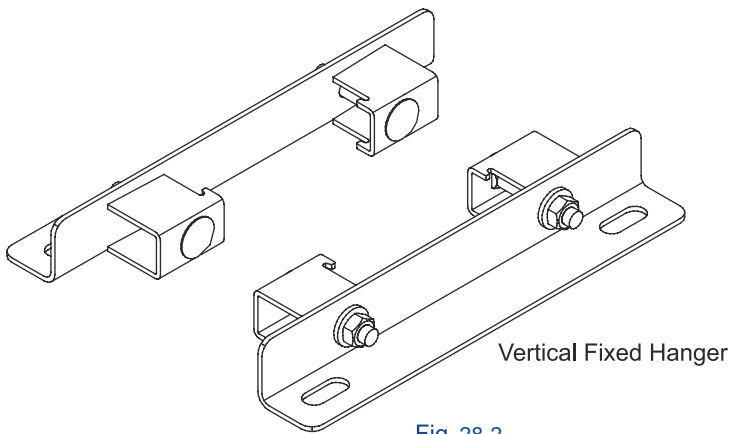


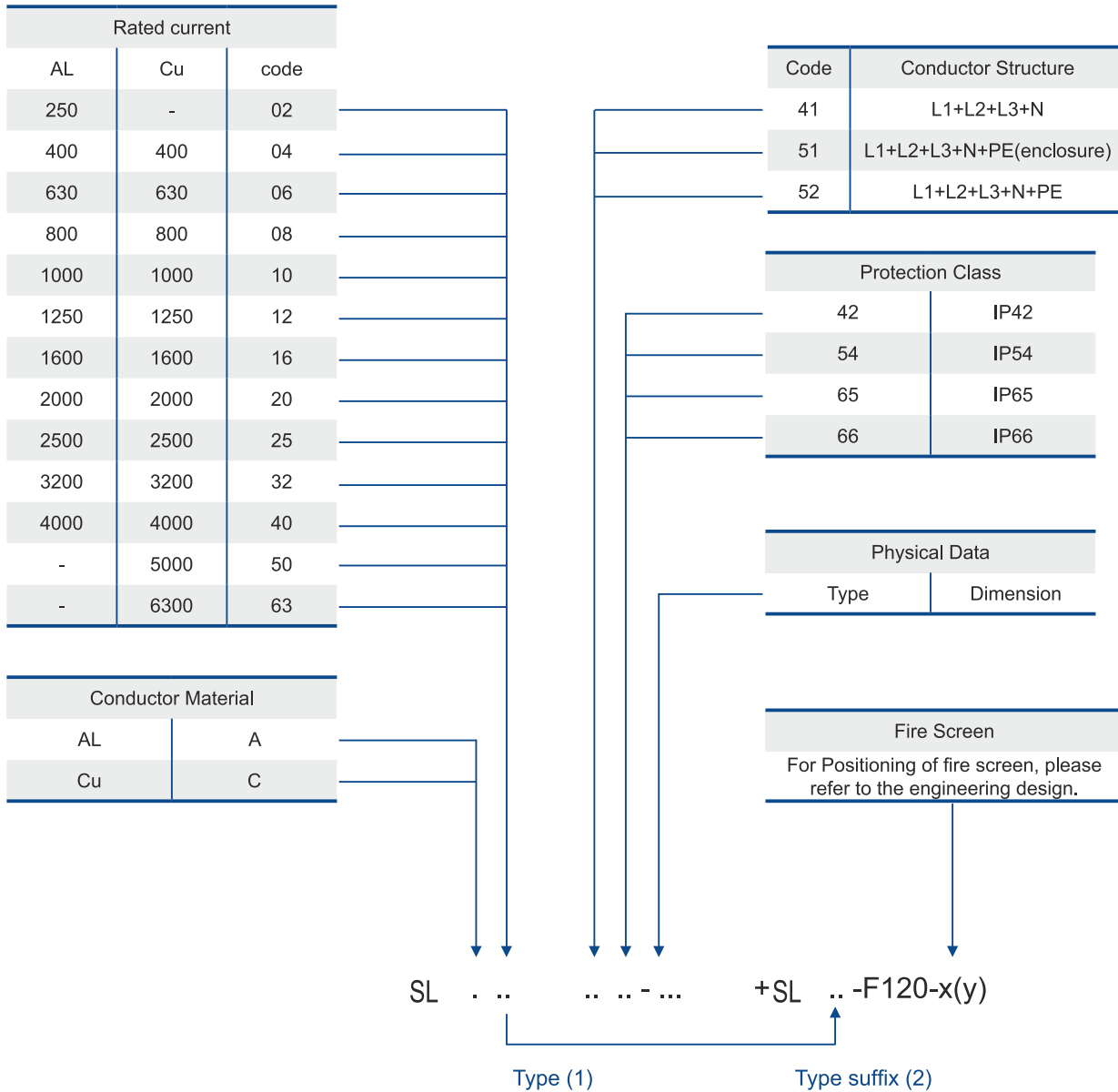
Fig 28-2



Installation Schematic Diagram

Fig 28-3

SL Busway system numbering

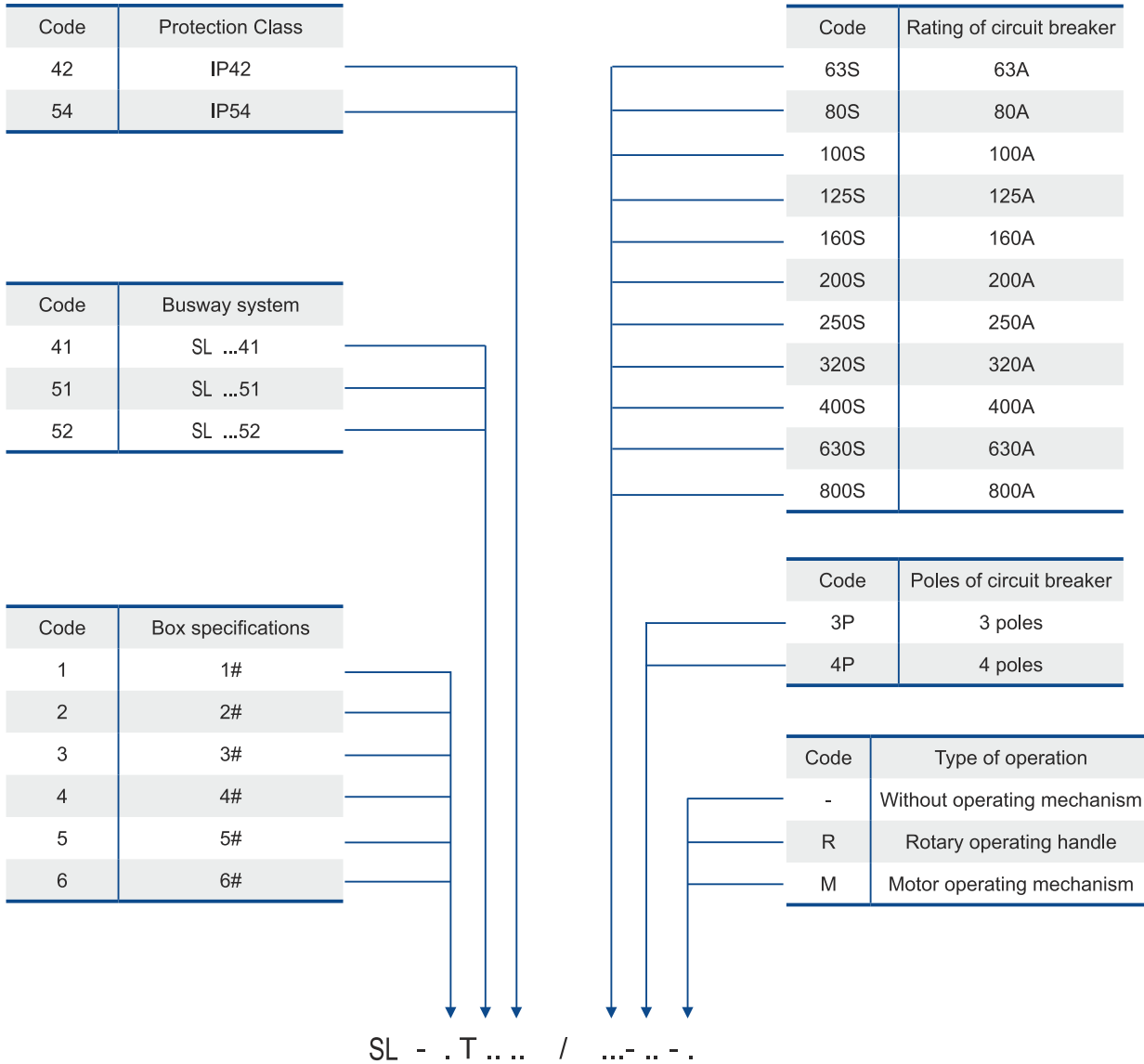


For example; SL C045265-3 means:

Straight length with SL type busway, rated current of 400A, three phase five wire (with PE), IP65 and length of 3000mm.

Model: SL, current rating 400A, 5-wire system(with a separate PE), protection rating: IP65, length=3m

SL Plug-in box system numbering



For example:

SL-3T5254/200S-3P-R means the plug-in box with specification of 3#, busway system of 52, protection rating of IP54, 3P breaker protection and rotary operating handle, rated current 200A.

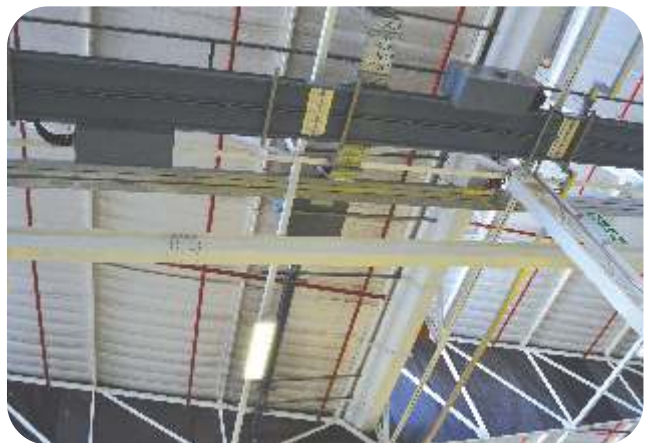
Solution for each segment



Installation Pictures



Installation Pictures





Our Clientele



Commercial

- ◆ Boardwalk Hotel
- ◆ Portside Cape town
- ◆ Ernst & Young
- ◆ Phase 3 gateway Shopping Centr
- ◆ Polokwane High Court
- ◆ ABSA AUCKLAND PARK
- ◆ Willowbridge officer
- ◆ Tzaneen Prison
- ◆ Military Health Base Pretoria
- ◆ Southgate Mall (ICR)
- ◆ Department of Env. Affairs
- ◆ Mall Of Rosebank (Quote 1891)
- ◆ Westonaria Gold 1
- ◆ Teraco Cape Town
- ◆ Hilltop Mega Centre
- ◆ Carnival City
- ◆ Ikeja Mall
- ◆ Teraco River horse valley
- ◆ ICR Unisa Florida
- ◆ FNB Menlyn Corner
- ◆ Boardwalk Hotel

Industrial

- ◆ ACSA Fuel Farm
- ◆ Nocola PORT 4505138203
- ◆ Fairscape Precint
- ◆ Grainfield Chicken Farm
- ◆ Proconics Outside Ash Plant
- ◆ Muffle Furnace
- ◆ Air liquide highveld Project
- ◆ Heineken Breweries 15956
- ◆ Iveco Paints Plant
- ◆ Natref Integration Pipeline
- ◆ Mothersons Rosslyn
- ◆ Nile Breweries (High Tech)
- ◆ UTI Pharma
- ◆ Schnieder (Grainfields Rietz)
- ◆ Cambridge Foods
- ◆ Vodacam Commercial park
- ◆ Siemens (Supe Project)
- ◆ Devcotech (Noodle plant)
- ◆ Master Power (Umhlanga mayfair)
- ◆ Devcotech (Babelgi Nestle)
- ◆ Uganda Breweries

IT

- ◆ Induscomm Power Project
- ◆ Sandton Skype
- ◆ Vodacom MTA heidelberg Elec
- ◆ Dimension Data Jupiters
- ◆ Syngenta Rolec System
- ◆ ICR Unisa Florida
- ◆ 1st Rand Data Centre(FNB)
- ◆ Gibson technologies cc
- ◆ Heidelberg (Data Center) DT
- ◆ Vodacam Commercial park

Banks

- ◆ Bank of Tanzania
- ◆ FNB Witbank
- ◆ Polokwane High Court
- ◆ ABSA AUCKLAND PARK
- ◆ SA Reserve Bank
- ◆ Nedbank Lakeview
- ◆ Sasol (Rosebank)
- ◆ SA Reserve Bank

Hospitals

- ◆ De Aar Hospital(electro Trust)
- ◆ King George Hospital (ANI Elec)
- ◆ Kiaat Private Hospital
- ◆ Windhoek Hospital Q1921
- ◆ Milpark Hospital 3005
- ◆ Cecilea Makiwane Hospital
- ◆ Pretoria East Hospital
- ◆ Brits Hospital



WORLDWIDE NETWORK



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United Kingdom



IPS GROUP PTE. LTD
Singapore



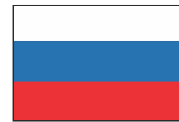
INTEC SYSTEMS AND SOLUTIONS
Sri Lanka



GAMA ENGINEERING
Dubai, UAE



BARAKAT ENGINEERING
Doha, Qatar



RUSSIAN BUSBAR CENTER



PM ELECTRIC
Jakarta, Indonesia



EFFIBUS INC.
Manilla Philippines



IPS GROUP
Kuala lampur, Malaysia



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PLANT-1, (DUBAI)



PLANT-2&3, (SOUTH AFRICA)



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