



TECHNICAL GUIDE

ReliaGear™ low amp busway

225–800 A

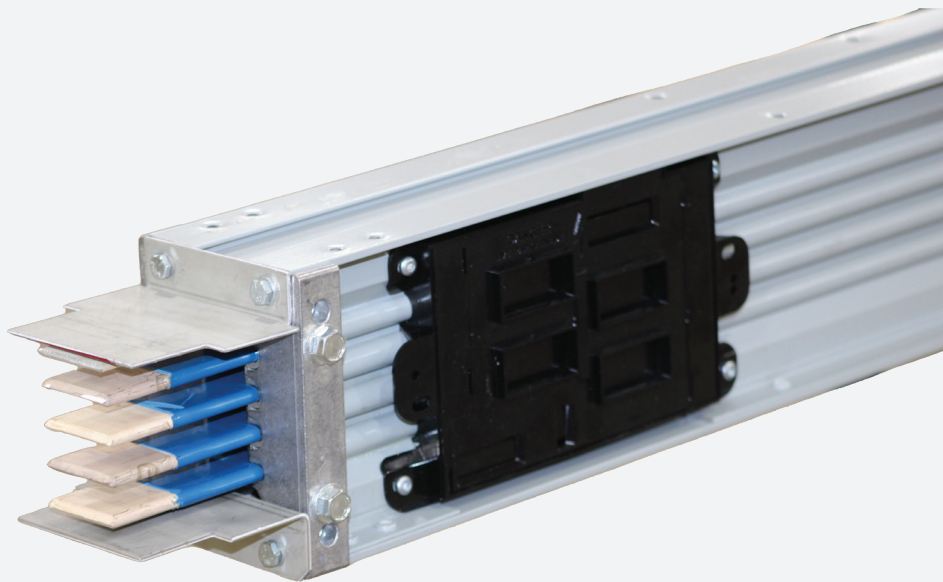


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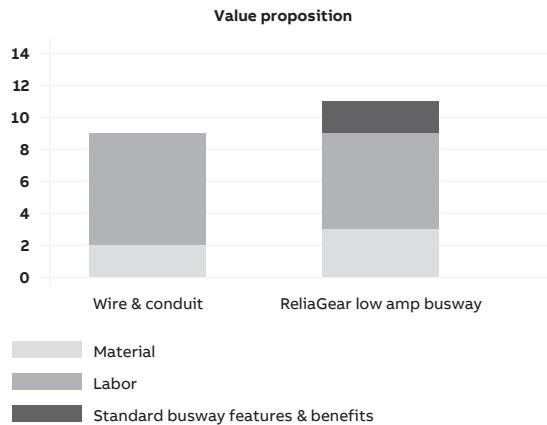
05	The installed cost of conduit
06	Built-in features for built-in savings and safety
07–08	Application data
09–15	Electrical data
16–24	Physical data
26–27	Guide form specifications

ReliaGear™ low amp busway is a custom designed modular electrical power distribution system and is available in both feeder and plug-in styles. ReliaGear™ replaces wire and conduit in most applications, reducing installed costs and improving reliability.



The installed cost of conduit

With standard, built-in busway features



The bigger the job, the better the savings with ReliaGear™ low amp busway. Feeder or plug-in construction, with ten usable plug outlets - each plug-in ten foot length.

Take advantage of the standard built-in features available with ReliaGear™ low amp busway:

- Available with an adjustable straight length, and all busway joints are adjustable. Field adjustability minimizes the need for time consuming measurements, or special field check pieces
- Integral dead front, automatic shutter plug outlet mechanism for positive, safe plug installations. Helps eliminate accidental contact with live conductors
- Same proven, long-life, Blue Coat™ Epoxy bus bar insulation system as used in other ABB busways.
- Lightweight. Easy to install. One person can handle ten foot lengths, saving labor costs
- Complies with appropriate international codes and standards including UL, NEMA, IEEE

Built-in features for built-in savings and safety

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01 Standard flatwise clevis hanger

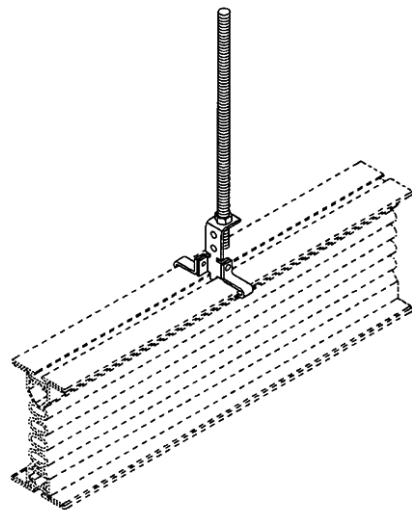
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02 Optional clevis or trapeze hangers

Lightweight, but rugged, ReliaGear™ low amp busway can be quickly installed allowing users to move on to the next job.

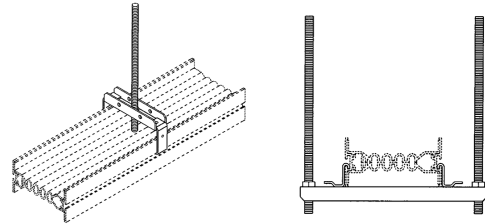
An adjustable straight length, field adjustable from a minimum of 48" to a maximum of 60", provides on-site, on-time field flexibility.

Dead front plug outlet, automatic shutter mechanism opens to allow plug stabs to contact conductors as the plug is inserted. The shutter system provides dead front protection, meeting IEC finger test standards.

An insulated, polarized, one-bolt joint allows quick, easy, hassle-free joining of lengths and fittings, feeder and plug-in. All joints (straight lengths and fittings) are adjustable to ($\pm\frac{3}{4}$ ", 16mm), reducing the need for precise measurements.



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01



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02

Aluminum or copper bus bars are epoxy coated using the exclusive UL Class B listed, 130°C, 50-year life, Blue Coat™ epoxy bus bar insulation system.

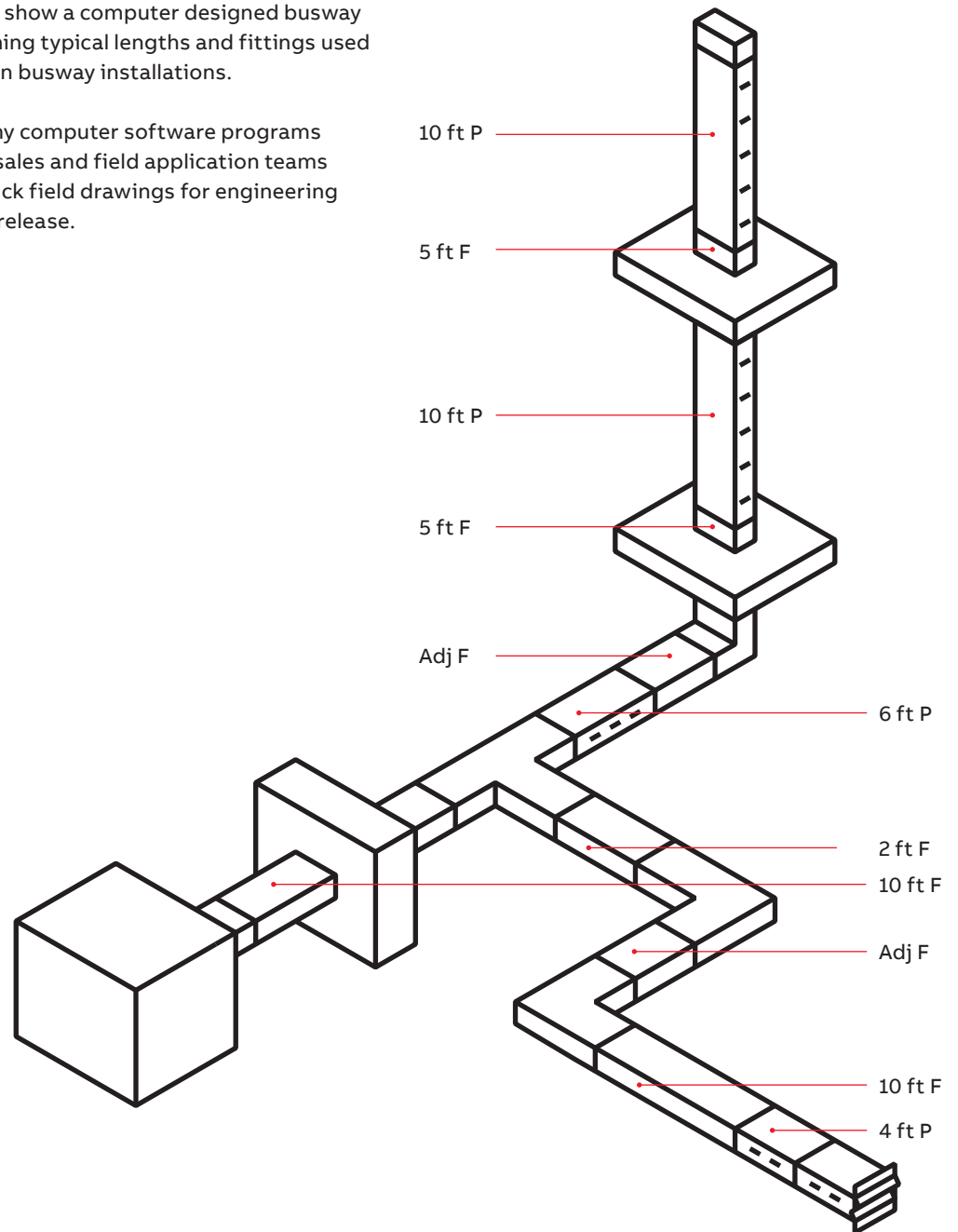
ReliaGear™ low amp busway is available with copper or aluminum bus bars. An optional internal ground bus (copper only) is available. Normally, the busway housing will serve as a ground path.

ReliaGear™ low amp busway is reusable. Reposition machinery on the plant floor and ReliaGear™ low amp busway can be easily disassembled and rearranged to fit unique requirements or easily moved to another location.

Application data

Pages 8 and 9 show a computer designed busway layout containing typical lengths and fittings used for drawings in busway installations.

There are many computer software programs used by field sales and field application teams to provide quick field drawings for engineering approval and release.



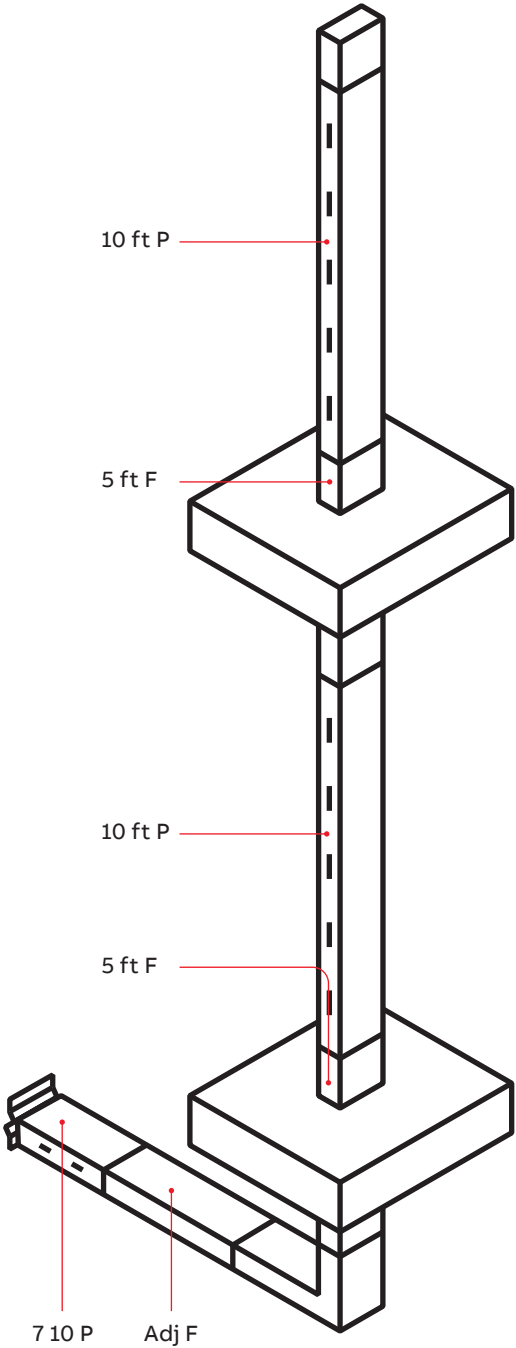
Typical bill of material

Requisition #: _____
Run #1 consists of: _____
ReliaGear™ low amp busway, 800 A, copper,
3 phase 4 wire, 100% N, Grd

Qty	Description	
3	RLF4GC08ASST	Adjustable feeder
2	RLF4GC08EBST	End box
2	RLF4GC08ERST	Flat elbow
2	RLF4GC08EUST	Edge elbow
1	RLF4GC08SL02	2' feeder
4	RLF4GC08SL05	5' feeder
2	RLF4GC08SL10	10' feeder
1	RLF4GC08TBST	End CTB
1	RLF4GC08TRST	Flat Tee
1	RLP4GC08SL04	4' Plug-in
1	RLP4GC08SL06	6' Plug-in
11	RLP4GC08SL10	10' Plug-in
4	SLSR5	Spring hanger
5	SLWF5	Wall/Floor flange

Typical title block

Job Name: _____
Location: _____
Contractor: _____
Distributor: _____
P No.: _____
Action: _____
ABB Sales Engr.: _____
Requisition#: _____



Electrical data

Voltage drop: Plug-in or feeder

ReliaGear™ low amp busway has excellent low-voltage-drop values. Minimum reactance (X) is due to close bar spacings, and a non-magnetic housing. Values shown are identical for plug-in and feeder. 60 Hz values are shown.

For 50 Hz, multiply reactance (X) by 0.83 and resistance values do not change. For 400 Hz, multiply reactance by 3.9 and multiply resistance by 1.4. Calculate new voltage drop per 100 foot $V_d = A \text{ load} \times \sqrt{3} (R \cos \theta + X \sin \theta)$, where $\cos \theta = \text{Power Factor}$.

Integrated housing ground resistance

ReliaGear™ low amp busway all-aluminum housing provides an extremely low impedance ground path with less resistance than internal ground bus bars for both copper and aluminum systems. ReliaGear™ low amp busway's integrated housing ground resistance values exceed NEC 250-95 standards for minimum ground conductors. Plug-in outlet grounding uses a plated aluminum bar attached to the housing for superior ground continuity through the system and to the plug stab. An internal copper ground bus bar (50% capacity, .125" thick) is also available for low ground path impedance and a complete copper system.

Table 1: Voltage drop: Plug-in or feeder

Bar material	Rated low A	Bar width x .250" thickness	Ohms x 10 ⁻³ /100 ft line-to-neutral			Voltage drop - concentrated Load ¹ Line-to Line/100Ft @ 100% rated load, 25°C Amb.							
			R	X	Z	Power factor							
						.3	.4	.5	.6	.7	.8	.9	1.0
AU	225	0.750	9.11	3.75	9.85	2.46	2.76	3.04	3.3	3.53	3.72	3.83	3.55
	400	1.125	6.38	3.12	7.1	1.69	1.87	2.04	2.19	2.32	2.42	2.46	2.21
	600	1.750	4.32	2.35	4.92	3.68	4.03	4.36	4.65	4.89	5.06	5.11	4.49
	800	2.875	2.73	1.73	3.23	3.42	3.71	3.97	4.19	4.36	4.46	4.45	3.78
	225	0.750	5.1	3.75	6.33	1.99	2.13	2.26	2.36	2.43	2.47	2.43	1.99
CU	400	0.750	5.58	3.75	6.72	1.82	1.96	2.09	2.2	2.28	2.33	2.31	1.93
	600	1.125	3.86	3.12	4.96	2.15	2.29	2.41	2.5	2.56	2.58	2.51	2.01
	800	1.750	2.53	2.35	3.45	2.08	2.19	2.29	2.35	2.39	2.38	2.29	1.75

¹ For plug-in distributed loads divide by 2

Actual voltage drop = V_d (from Table) × actual load/rated load × actual distance(ft)/100 feet

Table 2: Integrated housing ground resistance

Bar width	De resistance Ohms x 10 ⁻³ /100 ft @ 75°C		
	Integrated housing ground	50% Aluminum Internal Ground Bus @	50% copper internal Ground Bus @
0.750	0.65	18.67	10.74
1.125	0.64	12.44	7.16
1.750	0.61	8.00	4.60
2.875	0.57	4.87	2.80

Note: ReliaGear™ low amp busway is not available with an internal aluminum ground bus bar. The housing satisfies 50% ground bus conductor requirements.

Short-circuit ratings

ReliaGear™ low amp busway uses a unique insulated through bolt joint system, providing predictable, consistent strength and high short circuit ratings. The ratings shown below are UL listed rms symmetrical A for both feeder and plug-in phase to-phase and phase-to-ground. Tests were run at three cycles minimum per UL standards.

Additional tests were run at six cycles, and one second. The short-circuit rating of the busway system with protective devices that are part of the busway, such as power takeoffs and reducers, is equal to the lower of the short-circuit rating of the protective device or the busway with which the fitting is used.

For example, a fusible power takeoff rated 200,000 A rms sym. with Class J fuses when installed on a busway rated 50,000 A rms sym. would have a rating of 50,000 A rms sym. Standard short-circuit busway ratings can be given a higher UL Listed short-circuit rating when protected by specific J, T, and R Class fuses as shown below.

Table 3: Short-circuit ratings plug-in and feeder

Amp. rating	Aluminum (kA)			Copper (kA)		
	3 cycles	1 sec.	3 secs.	3 cycles	1 sec.	3 secs.
225	30	11	6	30	17	10
400	42	17	10	30	17	10
600	50	28	16	42	25	15
800	50	50	29	50	42	24

Table 4: Maximum fuse sizes for increased short-circuit protection

Amp. rating	Max fuse sizes for increased short circuit rating					
	100kA			200kA		
	"J"	"T"	"R"	"J"	"T"	"R"
Aluminum						
225	600	800	200	400	400	200
400	600	800	400	600	800	400
600	600	800	600	600	800	400
800	600	800	600	600	800	400
Copper						
225	600	800	200	400	400	200
400	600	800	200	400	400	200
600	600	800	400	600	800	400
800	600	800	600	600	800	400

Standards

ReliaGear™ low amp busway conforms to the latest revisions of: NEMA BU-1; ANSI/UL 857; federal spec W-B-811b. The ABB busway factory is ISO 9001:2015 certified. Contact factory for details.

Table 5: International electrical code - degrees of protection (PER IEC 529)

ReliaGear™ busway type	Designation	Nameplate marking
Indoor	IP409	(INDR)
Dripproof		
Flat	IP439	DRP-PRF
Vertical riser	IP549	DRP-PRF

Busway operation in higher ambient temperatures

ReliaGear™ low amp busway may be operated continuously at its assigned ratings without exceeding the maximum hot-spot temperature rise of 55°C, provided the ambient temperature does not exceed 40°C. For higher ambient temperatures the ratings should be reduced by applying the appropriate multiplier per Table 6.

Busway operation at other frequencies

ReliaGear™ low amp busway continuous current ratings are for 50/60 Hz frequency. For 400Hz operation, de-rating is required.

Busway transverse barrier

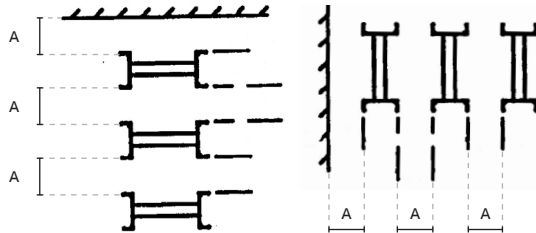
ReliaGear™ low amp busway is available with an optional transverse barrier in all feeder straight lengths. The transverse barrier provides a smoke barrier, and when used with a UL listed 3-Hr building fire stop material, will offer a 3-Hr fire rating.

Busway proximity structures

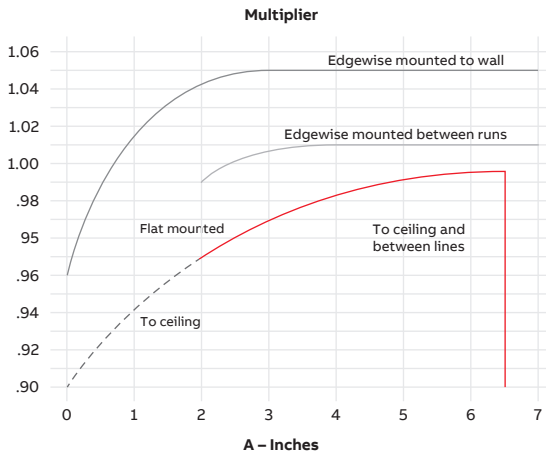
Fig. 10 below shows busway proximity to structures. It illustrates the possible positions of busways relative to walls and to each other. Fig. 11 has curves and derating multipliers for the busway not to exceed 55°C rise. If the horizontally mounted busways are three high, there is an additional multiplying factor of 0.95 for the top run and 0.975 for the center run. The average current hours per week the busway runs at that current and the acceptable life will all have to be taken into account to determine if the installation is acceptable.

- 03 Busway positions
- 04 Derating multipliers
- 05 Reliagear busway plug-in unit

Switch-operated fusible plug-in units are equipped with ABB OS and OT switches with ratings from 30 to 400 A, 240 to 600 V. Positive pressure NEC fuse clips are furnished standard . They are also available with class 'J' or 'R' fuse clips. Circuit breaker plug-in units are available with molded case circuit breakers, in ratings from 15 to 250 A, 240 to 600 V.



03



04

Table 6: Ambient temperatures

Ambient temperature degrees C	Multiplier
40	1.00
45	0.95
50	0.90
55	0.85
60	0.80
65	0.74
70	0.67

Both fusible and circuit breaker ReliaGear™ busway plug-in units have:

- Plug assist mechanism standard on plug-in units rated above 200 A. Optional on lower ratings
- A cover interlock that prevents opening the cover when the switching device is in the "ON" position. The interlock can be defeated by operating the release mechanism through the door. However, by bending down a tab inside the cover, the interlock becomes non-def eatable
- A device interlock that prevents the switching device from being accidentally operated when the cover is open
- A provision to padlock the plug in the "OFF" position when the cover is closed (suitable for up to three padlocks with a 5/16" shank)
- A handle that can be operated by a hook stick
- A safety interlock that prevents insertion or removal of the plug when in the "ON" position
- Rating plug that simplifies factory floor and equipment changeovers because plug has trip/ ampinterchangeability
- True digital rms sensing providing more accurate and reliable trip interruption
- High interrupting rating that satisfies high IC requirements up to 100kA IC@ 480V

Busway plug-in units



05

Table 7: Recommended type OS/OT fusible switch combinations

Fusible switch			Fuse	Short-circuit rating in amperes rms symmetrical
Type	Amperes	U/L class	Description	
OS/OT	30–400	H	One-time	10,000
		R	Current limiting	200,000
		J	Current limiting rejection	200,000

Table 8: Fusible plug-in unit horsepower ratings¹

Device rating in amperes	3-Phase horsepower ratings					
	With NEC fuses			With time delay functions		
	240 V	480 V	600 V	240 V	480 V	600 V
30	3	5	7½	10	20	20
60	7½	15	15	20	40	50
100	15	25	30	30	60	75
200	25	50	60	60	125	150
400	50	100	125	125	250	350

¹ Ratings are based on NEC article 430. Horsepower ratings for plug-in units with NEC fuses are based one-time fuses having minimum time delay. When time delay fuses are used, the horsepower ratings are maximum for the plug-in unit.

Table 9: ReliaGear SACE® Tmax® plug-in unit

Construction	SACE TMAX Frame	Trip ratings (amps)	Old Frame Type	Trip ratings (amps)	XT frame IC ratings		
					240V	380, 415 and 480V	600V
Low Tier			SEDA	15-150			
	XT2N	15-125	SEHA	15-150	65	25	18
	XT4N	70-250	SFHA	70-250	65	35	22
Mid Tier	XT2S	15-125	SELA	15-150	100	65	25
	XT4S	70-250	SFLA	70-250	100	65	25
High Tier	XT2L	15-125	SEPA	15-150	200	100	35
	XT4L	70-250	SFPA	70-250	200	100	50

Table 10: ReliaGear breaker plug-in unit data

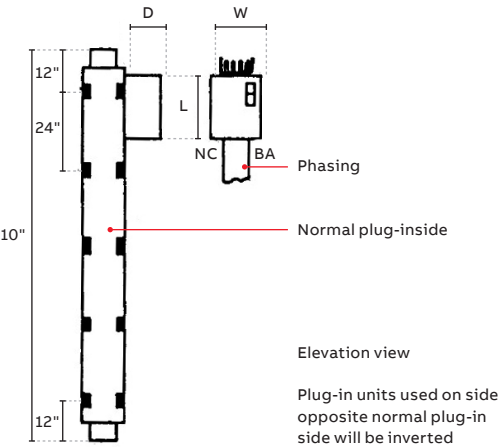
Plug-in unit dimensions					
Rating (amps)	ABB Device	Length "L" [in/mm] (hanger to hanger)	Width "W" [in/mm]	Depth "D" [in/mm] (top of handle to edge of busway housing)	Number of plug outlets
15-125	XT2	20.00/508	9.80/249	12.50/318	1
70-250	XT4	20.00/508	9.80/249	12.50/318	1

06 Typical Vertical Application

07 Door hinges at top. All dimensions are shown over largest part of plug

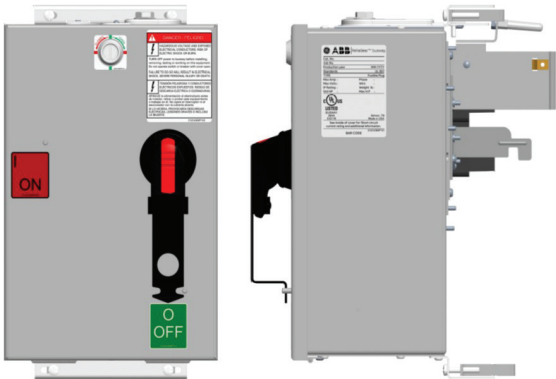
Table 11: ReliaGear fusible plug-in unit data

Plug-in unit dimensions								
"Rating(amps) /Fuse Type"	"ABB Device"	Length [in/mm]		Width [in/mm]		Depth [in/mm]		"Plug-In Outlets"
30 H	OT100	23	584	12,5	318	14	356	1
60 H	OT100	23	584	12,5	318	14	356	1
100 H	OT100	23	584	12,5	318	14	356	1
200 H	OT200	23	584	12,5	318	14	356	1
200 H Extended	OT200	30	762	12,5	318	14	356	2
400 H	OT400	37,2	945	22,5	572	18,9	480	2
30 R	OT200	23	584	12,5	318	14	356	1
60 R	OT200	23	584	12,5	318	14	356	1
100 R	OT200	23	584	12,5	318	14	356	1
200 R	OT400	37,2	945	22,5	572	18,8	478	2
400 R	OT600	42	1067	22,5	572	21,7	551	2
30 J	OS30	16	406	9,75	248	14	356	1
60 J	OS60	16	406	9,75	248	14	356	1
100 J	OS100	16	406	9,75	248	14	356	1
200 J	OS200	24,8	630	17	432	18,5	470	2
400 J	OS400	24,8	630	17	432	18,5	470	2



06

If plug assist is required on the 100 A frame sizes, add suffix 'P' to Catalog Number. Drip proof is available on all bus plug-in units and should be specified when using drip proof busway. To add drip proof to the bus plug, add suffix 'I' to the catalog number.



07

A grounding stab to engage internal or integrated housing ground bus is provided as standard on all low amp bus plug-in units. Mating stab is standard on ReliaGear™ low amp plug-in busway. All fusible plug-in units are furnished with type NEC fuse clips as standard. Optional fuse clips are available.

Busway plug-in units

Fusible busway plug-in unit catalog numbering system.

Type	Code	Description
PRODUCT	RG	ReliaGear Busway
	RL	ReliaGear Low Amp
	RA	Aarmor-Clad
SERVICE	3	3Ø3W
	4	3Ø4W
	2	240 ¹
VOLTS	6	600
	3	30
	6	60
	10	100
	20	200
	40	400
	60	600
	80	800
AMPS	T	OT
	S	OS ²
SWITCH	H	Class H
	R	Class R
	J	Class J
FUSE CLIPS	N	None
	P	Plug Assist
PLUGS ASSIST	I	Indoor
ENCLOSURE RATING	S	Splash/Drip Proof

Notes:
1. Lugs size may vary depending on the application. Contact factory for details.
2. Compression lugs are available as an option.
* Plug assist feature is standard on 200 amp and greater; optional for plugs 150 and below.

SACE® Emax® 2 air circuit catalog numbering system**Busway plug-in units**

Breaker bus plug-in unit catalog numbering system.

Type	Code	Description	RG	3	015	XT2LU	P	I	S
PRODUCT	RG	ReliGear Busway							
	RL	ReliGear Low Amp							
	RA	Armor-Clad							
SERVICE	3	3Ø3W							
	4	3Ø4W							
	15	15							
	20	20							
	30	30							
	40	40							
	50	50							
	60	60							
	70	70							
	80	80							
	90	90							
	100	100							
	110	110							
	125	125							
	150	150							
	175	175							
	200	200							
	225	225							
	250	250							
	300	300							
	400	400							
	500	500							
	600	600							
	700	700							
AMPS	800	800							
		XT2NU							
		XT2SU							
		XT2LU							
		XT4NU							
		XT4SU							
		XT4LU							
		XT5NU							
		XT5SU							
		XT5LU							
		XT7SU							
BREAKER FAMILY		XT7LU							
PLUGS ASSIST	N	None							
	P	Plug Assist							
ENCLOSURE RATING	I	Indoor							
	S	Splash/Drip Proof							
SHUNT TRIP	N	None							
	S	Shunt Trip							

Miscellaneous plug modifications

- Plug Assist-Standard for plug-in units over 100 A. Add suffix "P" to the catalog number for plug-in units 100 A and below
- Drip Resistant Plug-in units-Includes cover and stab base gasketing. Busway must be ordered as drip resistant. Add suffix "I" to plug catalog number

Physical data

Dimensions

- 08 Plug-in powercase
- 09 One bar per phase plug-in and feeder
- 10 Joint assembly offers field adjustability of ±3/4". Figure shows nominal dimension



Straight lengths: Plug-in and feeder
ReliaGear™ low amp busway is available in ratings from 225-800 A in both feeder and plug-in using common joint and housing parts. One standard flatwise, clevis type hanger (see Fig. 5) is provided with each straight length.

Plug-in lengths are available in 4-, 6- and 10-foot lengths and feeder lengths are available in 2, 3, 5 and 10-foot lengths. The +/- 1/2" adjust able, removable joint is attached to one end of each section. Plug-in busway has up to 10 unobstructed, usable plug outlets. Trapeze hanger positions may obstruct some openings.

The plug outlet shutter mechanism is molded of tough, impact and chemical resistant polycarbonate thermoplastic.

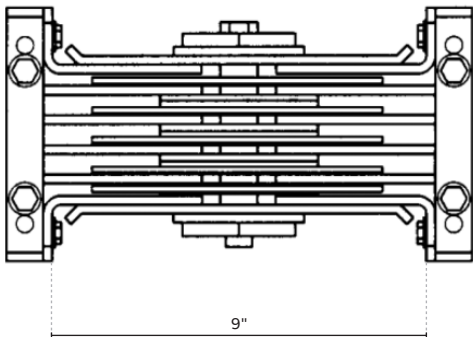
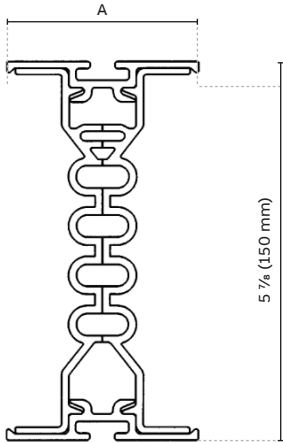


Table 12: Straight Lengths Plug-in and Feeder (all bus is UL listed@ 600 V)

Bar material	Rated load A	"A" Width		Bar sizes width × thickness (Inches)	DC Ampere rating ¹	Approx. weight			
						lbs./ft.		Kg/m	
	Inches	mm				3-wire	4-wire	3-wire	4-wire
Al	225	3	76	.750 × .250	225	5.1	5.4	7.6	8.0
	400	3¾	86	1.125 × .250	600	5.8	6.0	8.6	8.9
	600	4	102	1.750 × .250	800	7.0	7.5	10.4	11.2
	800	5	127	2.875 × .250	1200	9.1	10.0	13.5	14.9
Cu	225	3	76	.750 × .250	225	6.6	7.4	9.8	11.0
	400	3	76	.750 × .250	600	6.6	7.4	9.8	11.0
	600	3¾	86	1.125 × .250	800	8.1	9.2	12.1	13.7
	800	4	102	1.750 × .250	1200	10.5	12.2	15.6	18.2

¹ DC bus is 4-wire with "+ - + -" polarity

11 Plug outlet locations

12 Four foot plug-in Length

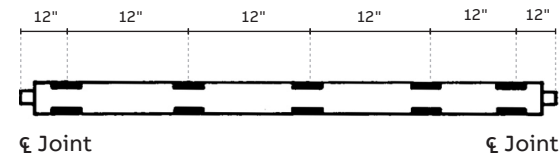
13 Up elbow shown (Down Elbow Reversed)

14 Right elbow shown (left elbow reversed)

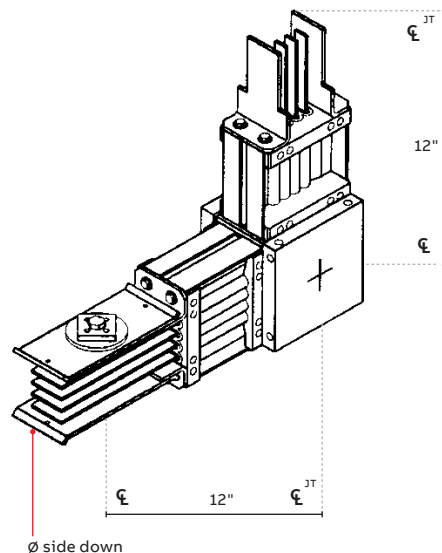
15 Down tee shown (up tee reversed)

Straight lengths: Plug-in

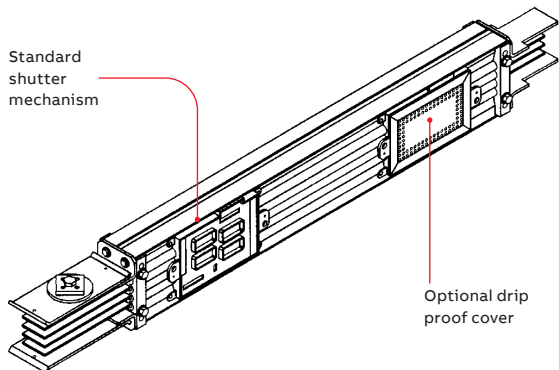
Horizontal runs of plug-in busway will be furnished with the phase Ø side label on the bottom of the bus bar stack so that the plug ON/OFF position pointer and labels will be visible from the floor. Operating handles will be on the end walls (for hook stick access). Additionally, vertical risers of plug-in busway will be furnished with the phase Ø side label on the right so that the line-side of the plug will be up and operating handle will be on the right side.



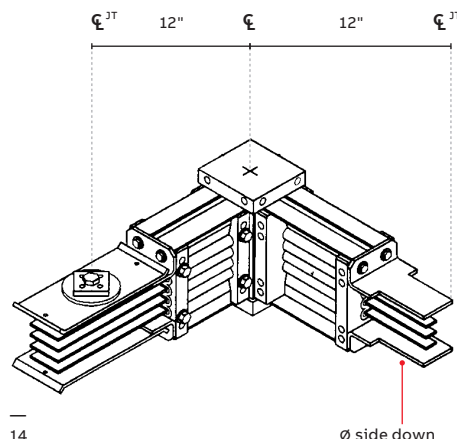
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13



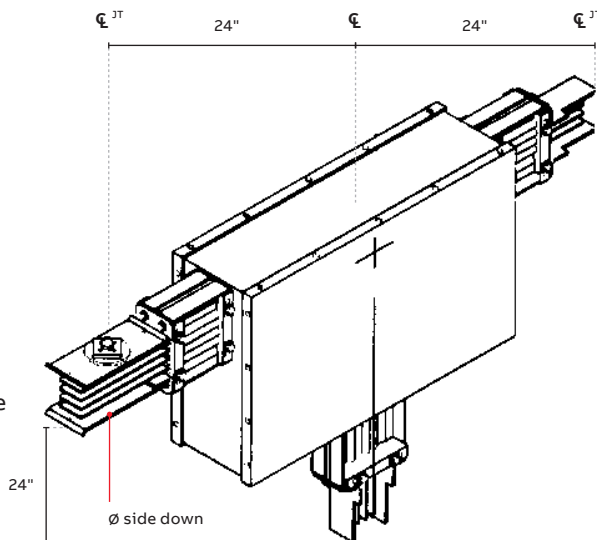
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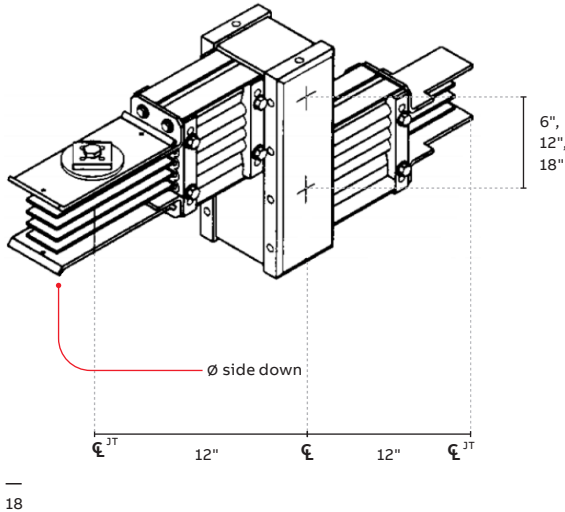
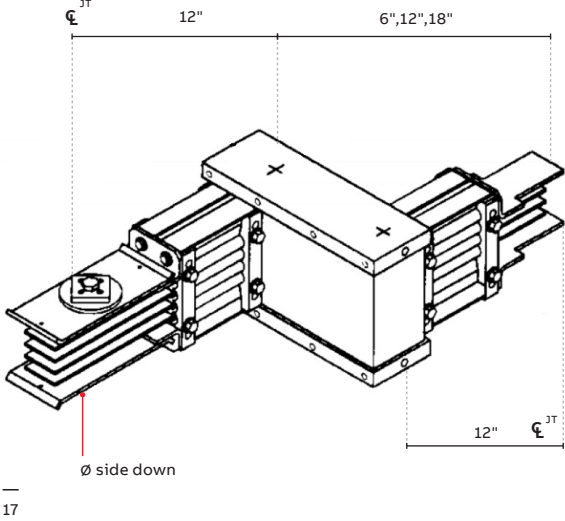
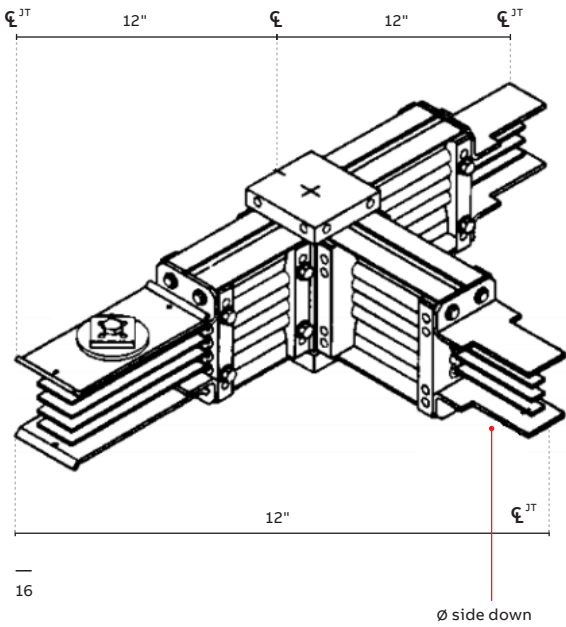
Fittings - elbows, tees and offsets

ReliaGear™ low amp busway has a complete family of standard catalog fittings to meet virtually all layout requirements using the compact minimum sizes shown. Nomenclature for completely defining the turn is accomplished by looking into the joint end with phase Ø side facing down on the busway. Using this guideline, a right elbow turns right, an up elbow turns up, etc. Every piece of busway is labeled to maintain proper phasing. Unless otherwise noted, all turn dimensions are defined from the centerline of the joint end to the centerline of the busway. Fig. 20-25 show dimensions for elbow, tee and offset fittings.



15

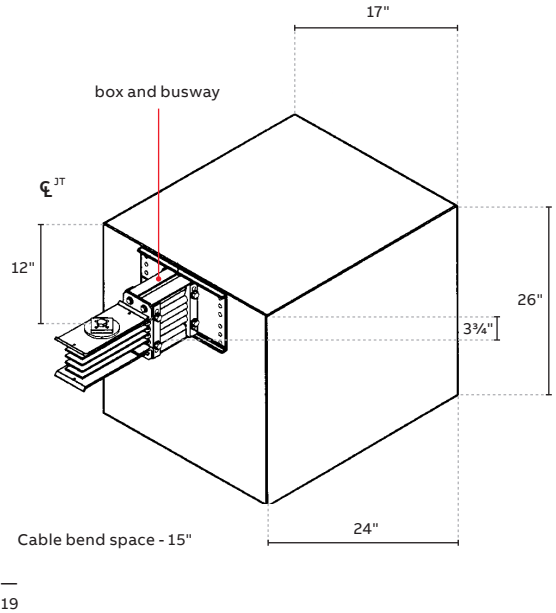
- 16 Right tee shown (left tee reversed)
- 17 Down offset shown (up offset reversed)
- 18 Right offset shown (left offset reversed)
- 19 End tap box: feeder or plug-in



Fittings - cable tap boxes

ReliaGear™ low amp tap boxes are used where a run of busway is fed by cable and conduit. The corner post design permits removal of up to three side walls for cable access/entrance, and for greater flexibility and installation ease. Universal lug terminal plates will accept almost all NEMA and non-NEMA mechanical and compression lugs without field modification (Max 1¼" wide).

End cable tap boxes



20 Standard end tap box
down position, side view

21 Inverted end tap box
up position, side view

22 Center tap box:
feeder or plug-in

23 Standard center tap box
down position, side view

24 Inverted center tap
box up position, side view

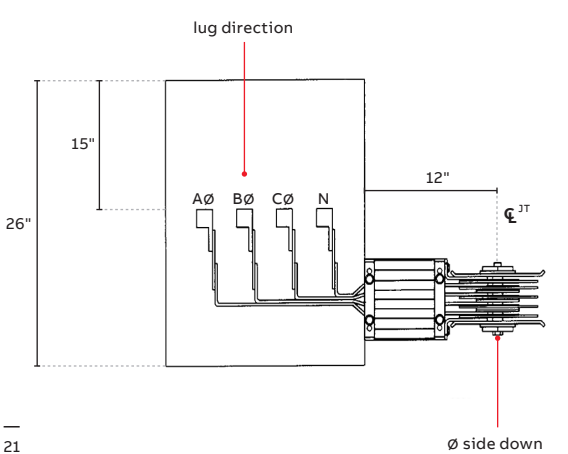
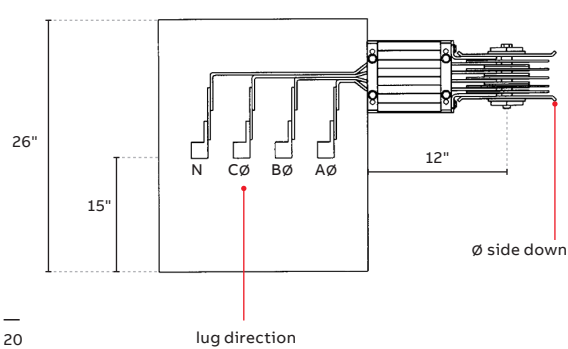
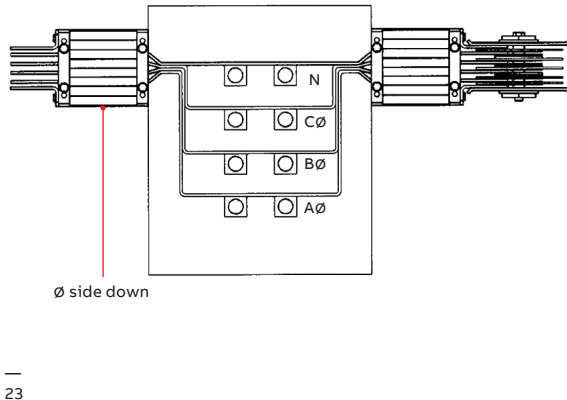


Table 13: Lugs per phase end tap box

A	Number of #2-600 MCMLugs PerØ; N, &: GRD	
	Ø	N, &: GRD
225	1	
400	2	
600	2	
800	3	



Center cable tap boxes

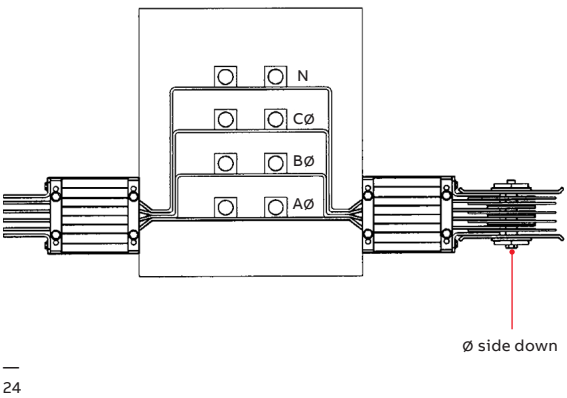
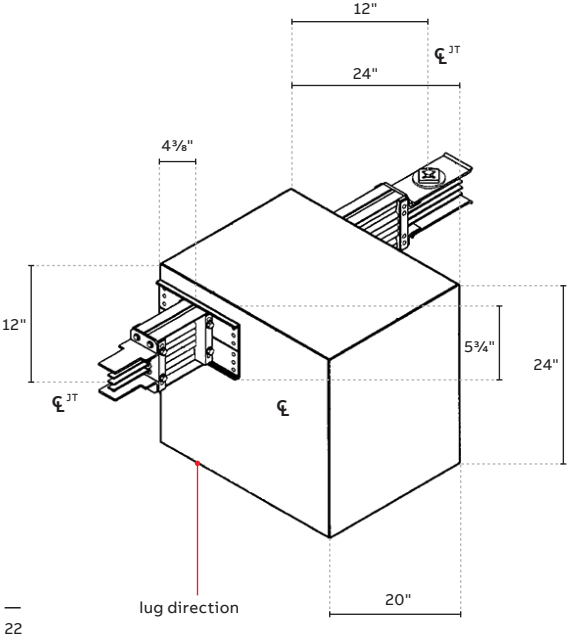
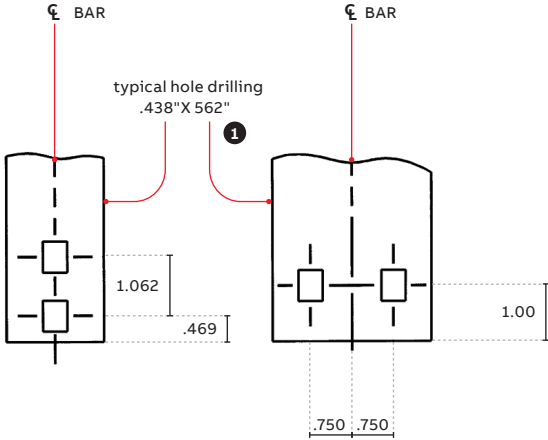
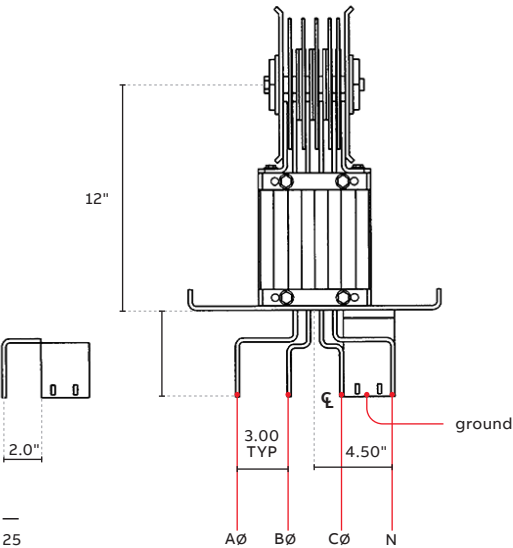


Table 14: Lugs per phase end tap box

A	Number of #2-600 PerØ; N, &: GRD	
	Ø	N, &: GRD
225	1	
400	2	
600	2	
800	3	

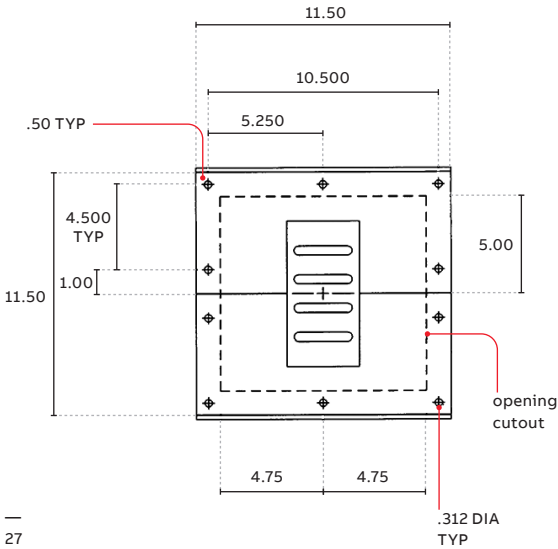
- 25 Flanged end without lugs
- 26 Flanged end bus bar hole pattern
- 27 Flanged end without lugs - cutout and hole drilling pattern
- 28 Flanged end with lugs

Flanged ends-without lugs
The standard flanged end stub provides a universal stub for field "Hard Bus" connections. See flanged end with lugs for cable connections.

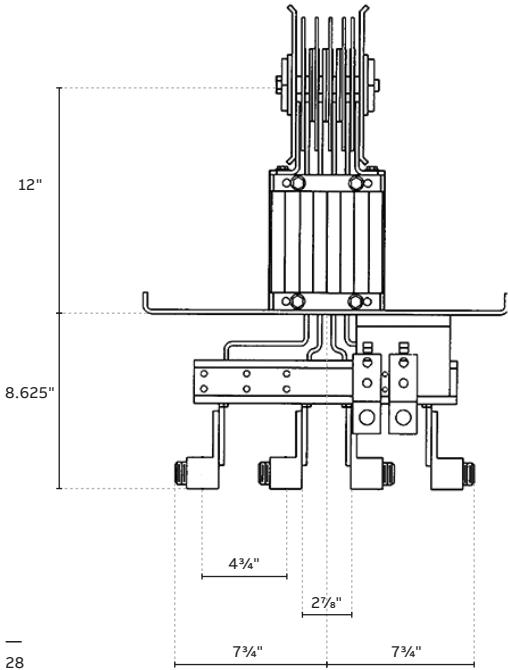


Bar widths: .750, 1.125, 1.750
2.875 Bar width
① Note : .75 Bar uses .406 Square holes

26



Flanged ends-with lugs
Flanged end with lugs are provided with standard #2-600MCM mechanical lugs (see Table 21) or they will accept all NEMA lugs up to 1 3/4" wide.



28

- 29 Flanged end with lugs
- 30 Flanged end with lugs - cutout and hole drilling pattern
- 31 Adjusted from nominal 54" to max. adjusted 60"; Expansion section
- 32 Adjusted from nominal 54" to min. adjusted 48"; Expansion section

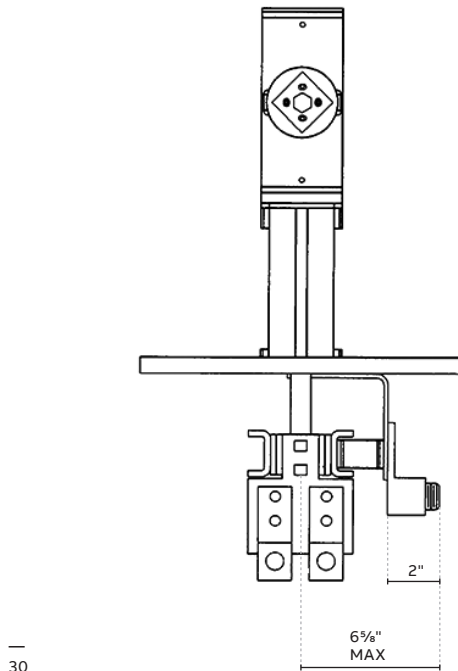
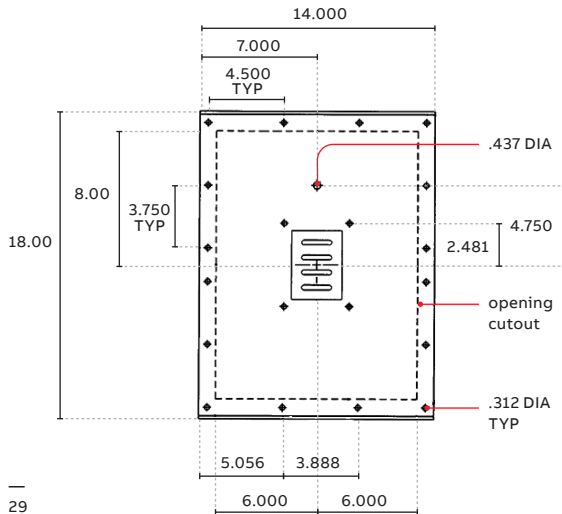


Table 15: Lugs supplied

A	Number of #2-600	
	MCMLugs Per 0; N, &: GRD	
225	1	
400	2	
600	2	
800	3	

Flanged ends-without lugs

Thermal/building expansion $\pm 2''$

Consideration should be given to the effects of thermal expansion. The expansion fitting may be necessary for long straight runs of 150 feet or more, particularly if the busway is not free at the ends of the run.

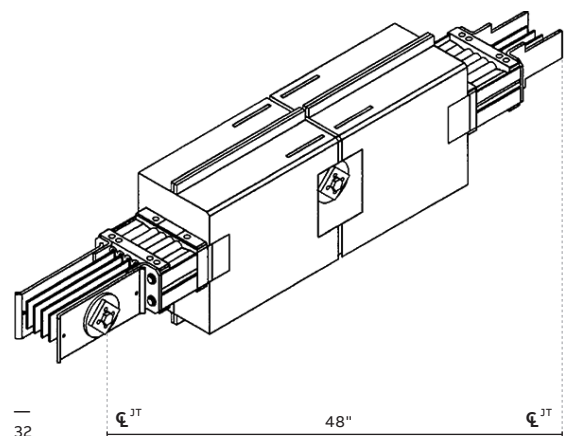
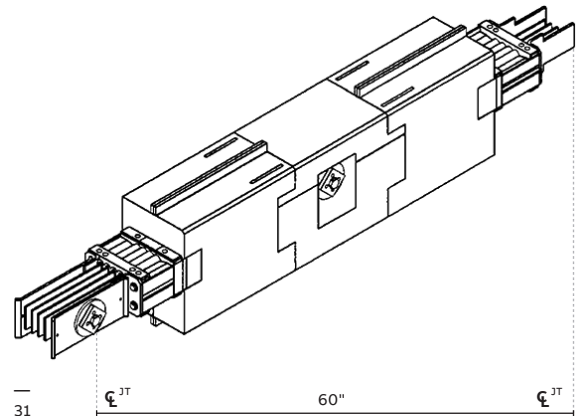
The use of an expansion fitting is also required when the busway run crosses a building expansion joint. Refer to company for dimensions.

Adjustable straight length

The ReliaGear™ low amp adjustable straight length offers additional flexibility, reducing the need for exact field measurements, providing on site, on time field flexibility. The adjustable straight length uses the unique features of the joint through bolt and belleville spring washer assembly, to provide positive pressure over the adjustable portion of the adjustable straight length, allowing $\pm 6''$ adjustability, from a nominal 54" to either 48" or 60".

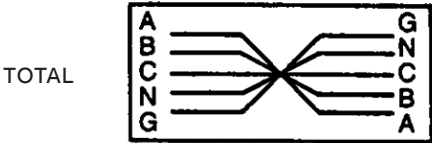
Busway adapters

The ReliaGear™ low amp busway adapter is used to convert existing ReliaGear™ or Armor-Clad busway to low amp busway. Joint center line to joint center line dimension will be 36", refer to factory for further dimensional information.



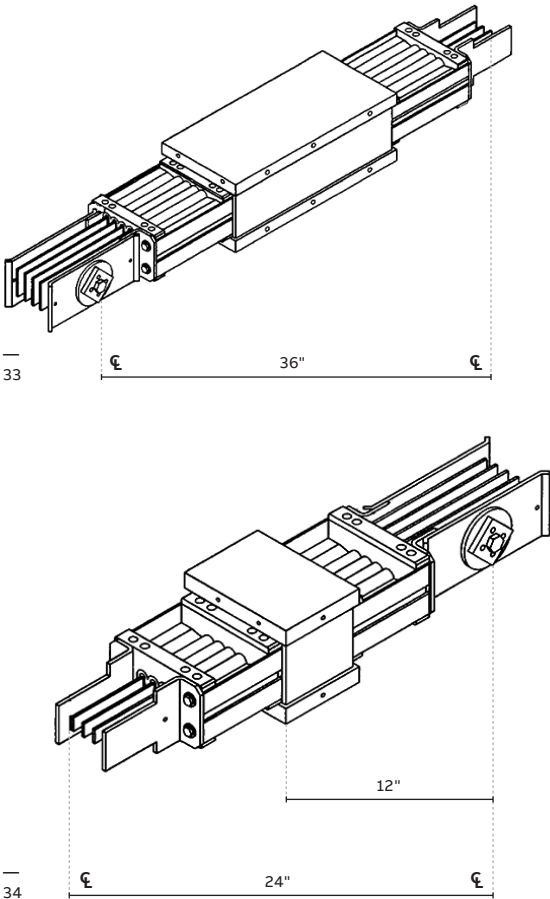
- 33 Transposition length
- 34 No fuse reducer
- 35 End box
- 36 Floor/Wall flange cutout and drilling detail

Transportation lengths
A total phase transposition is available where applications require phasing to be reversed prior to entering equipment.



Reducers
Per NEC 364-11, a no-fuse reduced busway shall not exceed 50 feet in length and have a current rating at least the previous section rating, industrial use only. Commercial applications require protection in all application (1993 NEC).

Reducers/Adapter cubicles
Fused and circuit breaker reducer cubicles are used in applications requiring a protective device when reducing from one ampere bus to another. Fused and circuit breaker adapter cubicles are used when lugs are required on the line side of the protective device with bus on the load side. Refer to company for dimensions.



End boxes
End Boxes are required to terminate busway runs. No joint assembly is required, and the end surface of the box is even with the joint centerline. See Table 18 for "A" dimension. Box is secured via joint cap bolts.

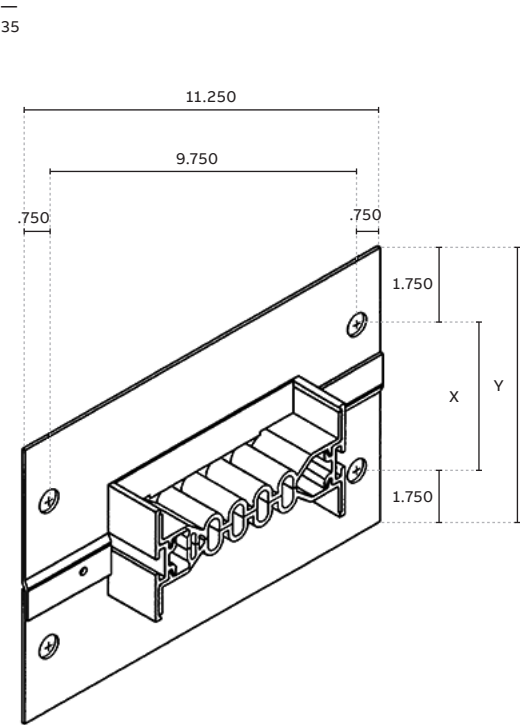
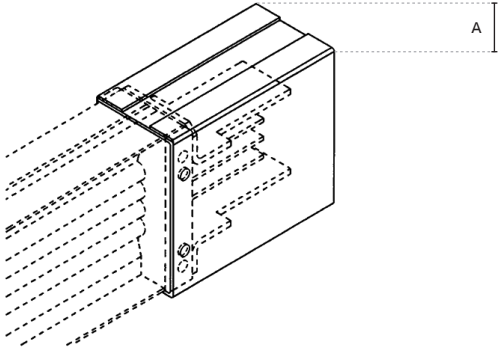


Table 16: Floor/wall flange

Bar Width	X	Y
.750	5.000	8.500
1.125	5.375	8.875
1.750	6.000	9.500
2.875	7.125	10.625

Note: Floor or wall opening should provide 1/2" clearance all around the busway

—
37 (Standard) Flatwise hanger shipped with each straight length

—
38 Clevis hanger for edgewise mounting

—
39 Trapeze hanger for edgewise mounting

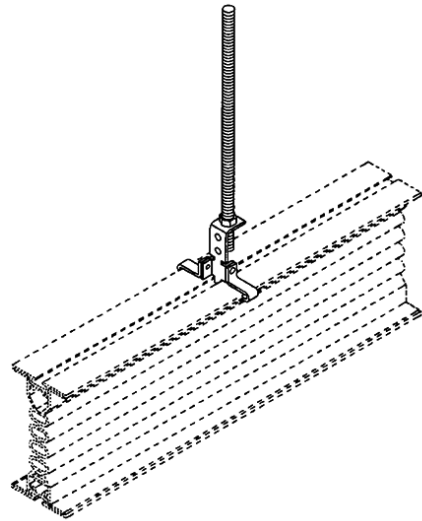
—
40 Trapeze hanger for flatwise mounting

—
41 Vertical spring riser hanger

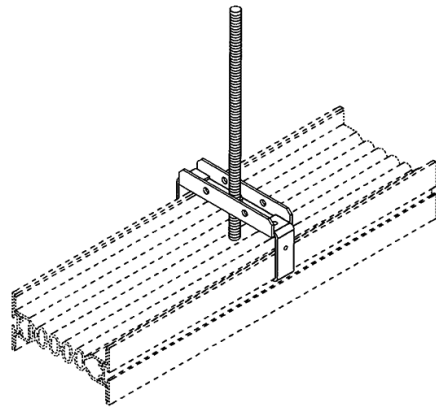
Hangers

Horizontal mounting

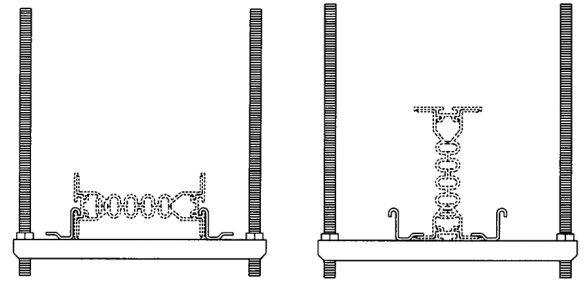
One standard clevis type flatwise hanger is furnished with each straight length. Edgewise clevis and edgewise/flatwise trapeze hangers are option ally available. Drop rods are not furnished.



—
37



—
38

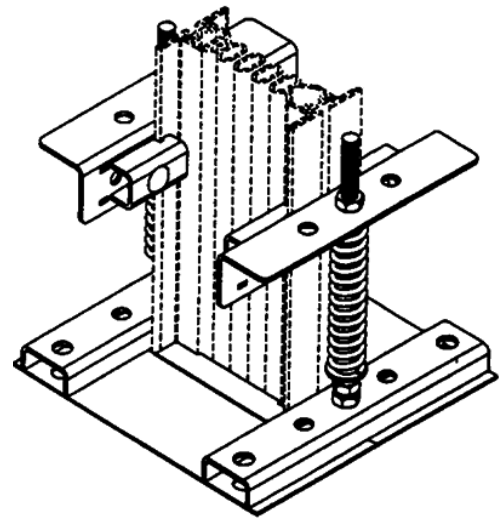


—
39

—
40

Vertical mounting

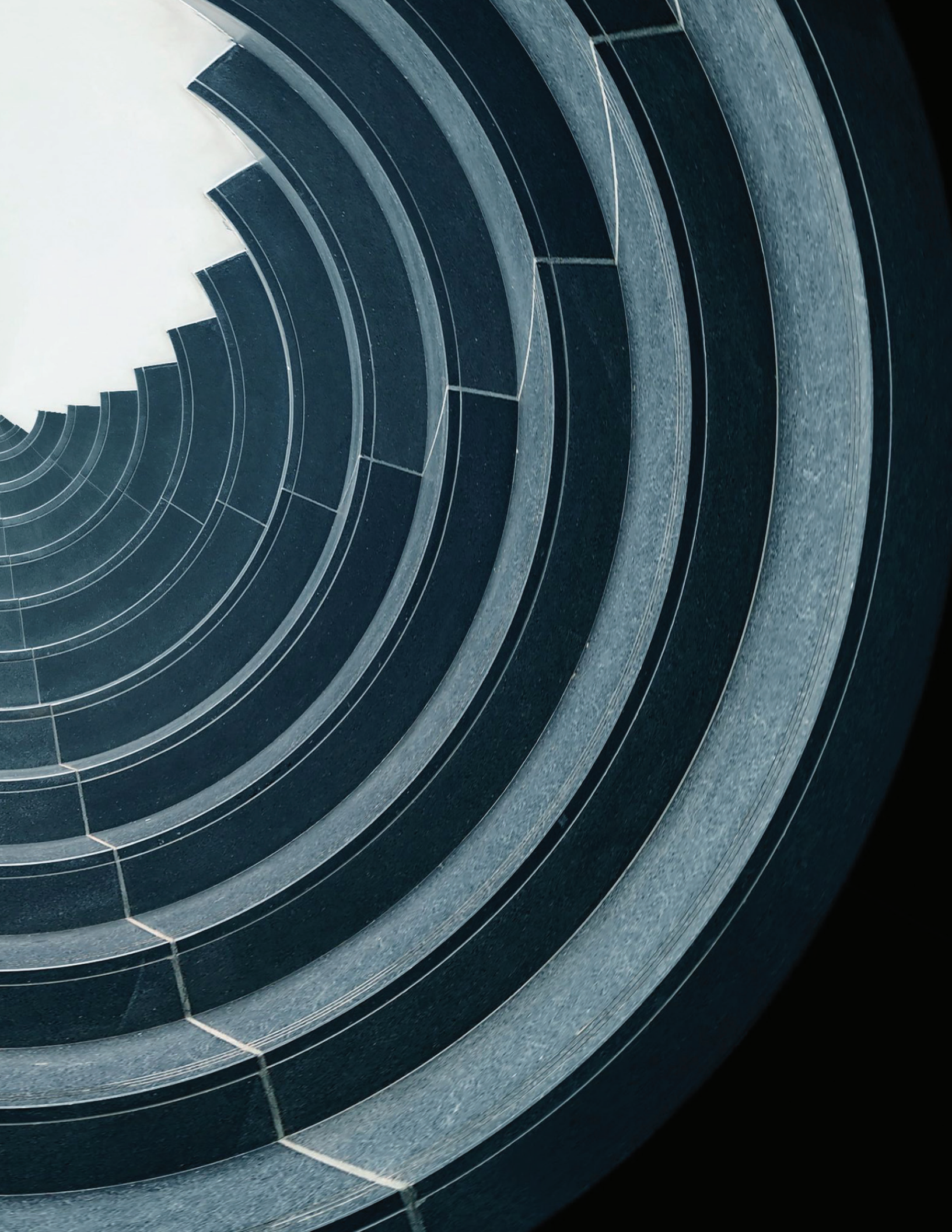
Spring hangers are required to support the busway at each floor. When the floor-to-floor span is over 16 feet, support for the spring hanger should be provided. Simple adjustment procedures are included with installation instructions. Mounting holes align with floor flanges.



—
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ReliaGear™ low amp busway catalog numbering system

			RL	F	3	H	C	02	SL	02	B



Guide form specifications

Drawing notes for ReliaGear™ low amp feeder and plug-in busway

The following information should appear on the electrical drawings:

1. Amp rating, continuous;
2. Service: ____ phase, ____ wire ____ , V, with or without internal ground.
3. Available short-circuit current at input end in Arms symmetrical;
4. Maximum voltage drop and power factor output whether distributed, or concentrated load;
5. Bus bar material (aluminum or copper);
6. Location of all fittings. As required by NEC (National Electrical Code);
7. Limiting dimensions of busway width and depth where passing through walls or floors or around obstructions;
8. Mounting position of busway (flatwise, edge wise, or vertical riser).

Feeder busway specifications

Where shown on plans, furnish and install a totally enclosed, low impedance busway system of the indicated ratings with all necessary fittings, power takeoffs, hanging devices and accessories. Material and installation shall comply with all applicable codes, recommended practices, and standards of ANSI, IEEE, NEMA, UL, NOM, and IEC. All components of the busway shall be as shown on the drawings and specified herein.

The housing shall be of extruded aluminum to provide maximum protection against corrosion from water and other contaminants normally encountered during construction. All hardware shall be plated to prevent corrosion.

Busway shall be adequately braced to withstand, without damage or permanent distortion, short circuit currents of the magnitude shown on the drawings when tested in accordance with UL standards. Busway shall be finished in ANSI-61 grey enamel.

Joints shall be of the one-bolt removable/ isolatable type with through-bolts that can be visually checked for tightness without deenergizing the system. It shall be possible to make up a joint from one side in the event the busway is installed against a wall or ceiling. The joint shall be so designed as to allow removal of any length without disturbing adjacent lengths. Belleville spring washers shall be provided to give positive pressure over complete contact area. Plug in and feeder joints shall use identical parts.

The maximum hot-spot temperature rise at any point in the busway at continuous rated load shall not exceed 55°C above a maximum ambient temperature of 40°C in any position. Bus bars shall be suitably plated on all joints and contact surfaces.

All insulation material shall be NEMA class B (130°C) epoxy.

Horizontal runs of busway shall be UL Listed for hanging on 10-foot centers in any position. Vertical riser runs of busway shall be supported with rigid and/ or spring hangers in positions indicated on plans (max 16' centers).

Final field measurements shall be made by the contractor prior to release for manufacture to assure coordination with other trades. The busway shall be ReliaGear™ low amp busway.

Plug-in busway specifications

Plug-in busway shall be identical to feeder construction and performance except: There shall be five dead-front automatic shutter type, plug outlets per side, per 10-foot length. All outlets shall be usable simultaneously.

Plug-in units

Where shown on plans, furnish and install busway plug-in units of the types and ratings indicated. When applicable, plug-in units shall be UL and CSA labeled.

Housing shall completely enclose the switching device and shall be of sheet steel furnished in ANSI-61 grey enamel over a rust inhibitor. Provide stab shields that protect stabs and ground plug-in unit body to busway housing before stabs make power contact. Provide grounding terminal inside plug-in unit body and adequate shielding to prevent access to live parts when cover is open. A ground stab to engage grounding tab on busway shall be provided. An internal ground bus shall be provided when required.

Provide means for padlocking cover and operating handle in "OFF" position. All current carrying parts shall be suitably plated. Operating switch type plug-in units shall have positive quick-make, quick-break interrupter, and positive pressure fuse clips. Provide a releasable cover interlock that prevents opening cover except when switch is in "OFF" position.

This interlock shall be convertible to non-releasable type on the job. A releasable interlock preventing closing switch with cover open shall also be included as well as an interlock to prevent insertion or removal from busway when in "ON" position. Circuit breaker type plug-in units shall have an interrupting rating of not less than _____ A rms symmetrical.

They shall have a releasable cover inter lock that prevents opening of cover except with breaker in "OFF" position. This interlock shall be convertible to non-releasable type on the job.

An interlock to prevent insertion or removal from the busway when in "ON" position shall be provided, as well as an interlock (releasable) to prevent closing circuit breaker with cover open.

Plug assists shall be furnished on all plug-in units over 100 A that will mechanically engage or disengage the plug-in unit from the busway, but only when the plug-in unit is in the "OFF" position.

ABB's exclusive Joint Guard* Bolt acts as a protection system which shows you, with color, whether a busway joint is loose or tight. The center spot is bright red when a joint is loose and turns dark when proper torque is applied.

It does this, not just once, but even after repeated tightening and loosening so often required during installation. And it will keep on working that way for years to come.

The optional Joint Guard* simplifies periodic maintenance with visual inspection — even from a distance. This bolt eliminates labor-intensive re-torquing and gets even easier when combined with the superior torque-retention design of the Belleville washer. Both elements deliver the best solution for your maintenance program.

ABB Inc.

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