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* Schedules will be established at order placement and will be within 16 weeks if parts are available. If parts cannot be obtained, some versions will not be available. Date and availability information will be provided at order placement.
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  - Straight Sections  
  - Busway Fittings and Components  
    - Elbows  
    - Tees  
    - Crosses  
    - Flanges and Floor Supports  
    - End Closers and Hangers  
    - Tap Boxes  
    - Switchboard Connections  
    - Cubicles  
    -Reducers  
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  - Job Planning Tips  
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**XL-X² Busway—The Extra Performance Edge.**

**Types:**
- Indoor: Feeder or Plug-in.
- Outdoor: Feeder.

**Capacities:**
- To 4,000 amperes (aluminum).
- To 5,000 amperes (copper).

**Conductors:**
- 3 phase, 3 wire or 3 phase, 4 wire with internal ground bus 600V or less.

**Short Circuit Ratings:**
- 30,000 to 200,000 RMS amperes symmetrical.
XL-X Busway—The Choice Of Professionals.

From Designers to Maintenance Engineers, People Whose Reputations for Quality Demand the Very Best, the Busway of Choice is I-T-E.*

The Siemens reputation for quality makes I-T-E busway systems an easy choice for people whose livelihood depends on attention to details. But there are two equally important reasons why our busway enjoys wide popularity: It is readily available, and backed by one of the best warranties in the industry. All XL-X busway and accessories carry a one year warranty from date of shipment by Siemens Energy & Automation, Inc.

As a participant in the ON ROUTE/ON TIME™ program, XL-X busway equipment and related components can be enroute to any destination throughout North America within 72 hours from receipt of order.

At Siemens, we design and engineer our product lines to meet the present and future needs of our customers. We have adopted a long-range approach to our business as well as yours. Our ongoing efforts in research and development illustrate this commitment to delivering the kinds of products that offer quality, economy and performance.

And that's why we totally redesigned our proven I-T-E® XL-X® busway. We found ways to make it an even better performance value, and believe you will too.
Redesigned for Optimum Capacity and Simplified Installation.

Siemens has been designing and building the most advanced busway modern technology can produce since 1927. That's the year we introduced busway to meet the critical need for a more economical method of conveying electrical energy over cost intensive pipe and wire. It was a success and a new industry was launched.

With the introduction of our new I-T-E® XL-X® busway design, we maintain our leadership position as a manufacturer of quality busway systems. This improved version of our popular XL-X system features an integral ground bus bar for enhanced performance and greater reliability. Further, in reconfiguring our XL-X busway, we designed it so it could only be assembled one way—the correct way. The resulting overall design provides optimum current carrying capacity to size ratio that is far superior to pipe and wire. The XL-X busway system's compact size, lightweight, and neat appearance offer real quality.

Material and Labor Costs are Reduced, Step by Step.

Totally compatible with existing XL-X busway installations, our new system assures:

- easy planning due to its standardization, flexibility and availability,
- low initial cost,
- low installation cost,
- low maintenance cost,
- and low operating cost.

Plus, it saves the design engineer time because XL-X busway is an easy system to work with due to its wide range of proven components, compact size and flexibility. Such versatility helps lower cost projections and maximize usable, profitable space.

Contractors like XL-X busway because it is easy to assemble. In many situations only two installers and a few easy-to-use tools are required.

Built-in features save time and aid proper installation as well. For example, inspection to assure proper installation is simplified with the use of joint integrity indicators. Bright orange in color, they are clearly visible at a distance up to 25 feet. If not visible, the joint connection needs to be examined.

Contractors and users alike appreciate the lifetime flexibility factor of an XL-X busway system. As conditions change, the system can be moved quickly and easily from place to place to meet new distribution requirements. Because feeder and plug-in sections can be interchanged without employing special adaptors, both time and money are saved.

For Commercial or Industrial Applications, Your Best Choice is XL-X Busway.

There are many reasons why XL-X busway has become the premier busway on the market today.

- Only the highest quality materials go into our XL-X busway system, and we never compromise on standards. Our state-of-the-art design and manufacturing expertise keep XL-X busway in a class above the rest.
- The styling of XL-X busway's strong outer steel housings complement today's modern manufacturing environments. Each housing is protected with a durable coating of ANSI 61 gray paint electrostatically applied to ensure a tough, smooth finish.
- XL-X busway sections are available in convenient sizes from 2 to 10 foot lengths. A variety of easy-to-install tap stacks and tap boxes, tees, crosses, elbows, plugs, and reducers round out the XL-X busway's proven flexibility.
- Hassle-free single-bolt joint stacks ensure fast, secure connections. Requires only 45 ft.-lbs. torque to tighten.

- Belleville washers maintain 4,000 pounds of constant pressure on joint connections for maximum operating efficiency.
- Joint integrity indicators throughout—visual warning devices that signal when joint connections have not been tightened, can be seen from the floor.
- Joint plates can be removed from all four sides for inspection and maintenance ease.
- Bus plug interlocks prevent plug removal, or the addition of a plug, when the bus plug is in the "ON" position.
- Bus plug receptacles on 24-inch centers expand service capabilities to the maximum.
- Bus bars made of either high-quality aluminum or copper provide cool operating temperatures for top load-carrying capabilities and long life.
- Tough, triple-layer 105°C insulation surrounds each bus bar for added safety and more reliable operation.
- Sandwiched bus bars optimize heat-dissipating properties for efficient performance. This is the only design that meets stringent requirements of shipboard applications.
- Lightweight bus sections contain an integral ground bus.
- Polarized busway sections (feeders, risers, plug-ins) are designed to permit installation in a single, predetermined way...the correct way.
- Exceeds UL and NEMA standards.

As you more closely examine the features and benefits of an XL-X busway system, you'll discover that we've built the busway system you would have designed. Simple, easy to use, and built to deliver low cost service for many years to come. A "no compromise" system on which we can stake our reputation.
Insulated for Long Life...XL-X
Bus Bars Distribute Heavy Loads
Year-After-Year.

Tough, rugged insulation and
demanding durability tests are impor-
tant reasons for the XL-X busway
system’s success.

A combination of three insulations
work as a safety team—polyvinylchloride
film at the core, Mylar® polyester next,
and glass-reinforced tape as a final
wrapping. These insulators provide
reliable protection against short-circuit
surges and the rigors of day-to-day
performance.

When the insulated XL-X bus bars
are finally encased in their steel
enclosure, they are tested for overall
reliability at 2500 volts—far exceeding
normal loads. Considering the low
reactance and low voltage drop ratings,
combined with an insulation rating of
105°C (221°F), it is evident why XL-X
busway is widely preferred. As an option,
130°C insulation is also available.

Mylar is a registered trademark of the DuPont Corporation.
XL-X busway housing is made of high-quality steel giving it the toughness needed to hold up for years. Snug fitting single-bolt joint connections integrate neatly with the external housing of XL-X busway sections. Pipe and wire take up more space and do not have the clean lines of an XL-X busway system.

But there are other considerations: XL-X busway comes in a variety of section lengths—all polarized with safety-designed one-way only assembly for ease of installation. This flexibility lets you quickly modify your busway requirements—even dismantle, transport, and reuse an entire busway system for new or different applications.
XL-X Busway Joint Stacks and Tap Stacks Increase Operating Efficiency And Adaptability.

An important feature of the XL-X busway joint stack is it permits heat to dissipate quickly. This lowers operating temperatures, increases the operating efficiency of the system, and assures a long life for your electrical system.

Joint stacks pull out to allow removal of sections from any direction making it easy to modify a system. Affected sections can be removed without disturbing others.

Tap stacks can be inserted in place of a joint stack for further system modification. Simply insert tap stack between sections to connect main metering switch, modular metering, enclosed switch or panelboards.
XL-X Busway Single-Bolt Joint Combines Increased Strength With Labor Savings.

Too often quality gets slighted in the process of saving installation time. With the XL-X busway system, this is not the case.

Not only is the single-bolt joint stack a unique timesaver—but it enhances the overall quality of the XL-X busway system. Instead of numerous bolts that must be tediously tightened, XL-X busway comes equipped with a single bolt at each joint connection. Since it requires only 45 ft.-lbs. torque to tighten—about half that required by other manufacturers—the quality of the overall installation effort improves due to reduced worker fatigue. Also, the use of Belleville washers maintains 4,000 pounds of uniform pressure on the joint stack for maximum operating efficiency.

A special joint integrity indicator at each joint provides a visual alert warning if a bolt is not properly tightened. This indicator appears bright orange in color—easily visible 25 feet away. No orange spot means a joint connection bolt may need additional tightening. A torque wrench should always be used when tightening.
XL-X Busway Straight Sections Come In Various Lengths.

A choice of XL-X busway section lengths satisfies most installation needs. In addition to the standard 10 foot plug-in sections, lengths of 4, 6, and 8 feet are also available.

Feeder busway sections are available in even-foot multiples from 2 to 10 feet. Non-standard feeder lengths are also available. Every section includes a removable joint stack.

### Straight Section Dimensions (In Inches)

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### FIGURE 1
**Feeder Busway—Bottom and Side Views**
(Available in any length from 14.5" to 120")

**FIGURE 2**
3 Bus Bars for 383W
4 Bus Bars for 384W

**FIGURE 3**
3 Bus Bars for 383W
4 Bus Bars for 384W

**FIGURE 4**
6 Bus Bars for 383W
8 Bus Bars for 384W

**FIGURE 5**
9 Bus Bars for 383W
12 Bus Bars for 384W

### FIGURE 3
**Plug-In Busway—Top and Side Views**
(Available only in 4, 6, 8 and 10-foot lengths)

- **Joint Stack**
- **Bolt Head Side**
- **Plug-In Opening**
- **Nameplate**

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XL-X Busway Elbows, Tees And Crosses Expand System Flexibility.

Whatever your layout requirements, quality I-T-E busway components are available to let you build your system any way you want.

Elbows allow corners to be made in any direction—up, down, right or left. Each comes complete with joint stack attached.

Tees, available in either left- or right-hand configurations, feed power to branch runs. Tees come equipped with two joint stacks. Edgewise tees have a special enclosure.

Crosses direct power feeds to two or three branch runs from a central point. Two joint stacks are furnished with each cross.

Elbows
General Information:
1. Elbows are furnished with splice plates and a joint-stack connector at one end for connecting to a busway section. Inspection covers are included.
2. When required, odd angle elbows are available.

Elbow Dimensions (In Inches)

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FIGURE 1
Edgewise elbow right-hand shown. When joint stack assembly is moved to other leg, this edgewise elbow becomes left-hand.

FIGURE 2
Flatwise elbow left-hand shown. When joint stack assembly is moved to other leg, this flatwise elbow becomes right-hand.
XL-X Busway Fittings/cont’d

Flatwise Tees

Dimensions

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Edgewise Tees

Dimensions

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FIGURE 1
Edge View (typical)

FIGURE 2
Plan View

FIGURE 3
Plan View

FIGURE 4
Plan View

FIGURE 1
Plan View (typical)

FIGURE 2
Elevation View

FIGURE 3

FIGURE 4
Edgewise Crosses

Dimensions

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Flatwise Crosses

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XL-X Busway Custom Components
Complete System Flexibility.

Wall, Ceiling and Floor Flanges

Wall, ceiling and floor flanges are designed to close off the area around the busway as it passes through a wall, ceiling or floor. The flange IS NOT INTENDED to provide an air tight seal around the busway. THE INSTALLER WILL BE RESPONSIBLE FOR ANY ADDITIONAL CAULKING OR SEALING TO MEET LOCAL CODES.

Floor Supports

Floor supports provide secure mounting of XL-X busway in riser applications. The support has adjustable brackets, mounting channels, floor-support angles and leveling bolts. The support assembly can be moved higher or lower if the connection requires more adjustment than is provided by the leveling bolts. Standard floor supports are furnished with four leveling bolts for adjusting. Additional bolts, spring-loaded floor supports, or intermediate floor supports are available upon special request. For these and other special arrangements, contact your local sales office.

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<td>7.5</td>
<td>11.52</td>
<td>10.75</td>
<td>11.12</td>
</tr>
<tr>
<td>RF10</td>
<td>2 &amp; 6</td>
<td>10.0</td>
<td>14.12</td>
<td>10.75</td>
<td>11.12</td>
</tr>
<tr>
<td>RF13</td>
<td>3 &amp; 7</td>
<td>13.5</td>
<td>17.69</td>
<td>11.12</td>
<td>11.12</td>
</tr>
<tr>
<td>RF18</td>
<td>3 &amp; 7</td>
<td>18.5</td>
<td>22.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF27</td>
<td>4 &amp; 8</td>
<td>27.0</td>
<td>31.25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Dimensions (in inches)</th>
<th>Case Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFS5</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>RFS75</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>RFS10</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>RFS13</td>
<td>13.5</td>
<td></td>
</tr>
<tr>
<td>RFS18</td>
<td>18.5</td>
<td></td>
</tr>
<tr>
<td>RFS27</td>
<td>27.0</td>
<td></td>
</tr>
</tbody>
</table>

Spring Floor Support

FIGURE 1
Wall Cross-Section

FIGURE 2
Support Steel Supplied By Installer

FIGURE 3
Bolt

FIGURE 4
Wall

FIGURE 5

FIGURE 6

FIGURE 7

FIGURE 8
End Closers
End closers are used on the end of a run to terminate the busway and must have a joint stack in order to maintain proper electrical clearances.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Dimensions (in inches)</th>
<th>&quot;A&quot; Case Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>RE590</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>RE1075</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>RE1100</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>RE2135</td>
<td>13.5</td>
<td></td>
</tr>
<tr>
<td>RE2185</td>
<td>18.5</td>
<td></td>
</tr>
<tr>
<td>RE327D</td>
<td>27.0</td>
<td></td>
</tr>
</tbody>
</table>

Hangers
A one-piece flatwise trapeze hanger is needed for feeder or plug-in busway per section, unless otherwise specified.

<table>
<thead>
<tr>
<th>Number</th>
<th>Number</th>
<th>Dimensions (in Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RH5</td>
<td>1</td>
<td>5.50</td>
</tr>
<tr>
<td>RH7</td>
<td>2</td>
<td>7.50</td>
</tr>
<tr>
<td>RH10</td>
<td>3</td>
<td>10.00</td>
</tr>
<tr>
<td>RH13</td>
<td>4</td>
<td>13.50</td>
</tr>
<tr>
<td>RH18</td>
<td>5</td>
<td>18.50</td>
</tr>
<tr>
<td>RH27</td>
<td>6</td>
<td>27.00</td>
</tr>
</tbody>
</table>

FIGURE 1
Typical End View

FIGURE 2

FIGURE 3
Typical edgewise mounted hanger
Catalog No. RH5

FIGURE 4
XL-X Busway Cable Tap Boxes
Meet Multi-Job Needs.

Several types of cable tap boxes are available to meet the requirements of your system. The tap box covers the connection of cables to busway and fastens to the busway itself. The box can be installed at either end of the busway system.

Specifications are as follows: Center cable tap boxes can be installed at any joint connection and are easy to relocate. Lugs are suitable for aluminum or copper conductors. End cable tap boxes can be installed at either end of the busway system. Standard mechanical lugs suitable for aluminum or copper conductors are supplied. Compression lugs are optional, but may affect the size of the box.

**Center Cable Tap Box Data**

<table>
<thead>
<tr>
<th>Catalog Number Suffix</th>
<th>Dimensions (In Inches)</th>
<th>Ampere Rating Per Phase (Copper or Aluminum)</th>
<th>No. of Lugs Per Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>25.0 x 16.0</td>
<td>600 MCM</td>
<td>(2) 600 MCM</td>
</tr>
<tr>
<td>-3</td>
<td>30.0 x 19.0</td>
<td>1200-1350 MCM</td>
<td>(4) 600 MCM</td>
</tr>
</tbody>
</table>

**End Cable Tap Box Dimensions And Ratings**

<table>
<thead>
<tr>
<th>Ampere Rating</th>
<th>No. and Size of Bus Bars Per Pole (In Inches)</th>
<th>Dimensions (In Inches)</th>
<th>Cable Lugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>Copper</td>
<td>“A” (Case Width)</td>
<td>“B”</td>
</tr>
<tr>
<td>225</td>
<td>225</td>
<td>5.5 x 8.0 x 1.00</td>
<td>6.0</td>
</tr>
<tr>
<td>400</td>
<td>400</td>
<td>5.5 x 8.0 x 1.50</td>
<td>6.0</td>
</tr>
<tr>
<td>600</td>
<td>600</td>
<td>5.5 x 8.0 x 2.00</td>
<td>6.0</td>
</tr>
<tr>
<td>800</td>
<td>800</td>
<td>5.5 x 8.0 x 2.50</td>
<td>6.0</td>
</tr>
<tr>
<td>1000</td>
<td>1000</td>
<td>5.5 x 8.0 x 3.00</td>
<td>6.0</td>
</tr>
<tr>
<td>1200</td>
<td>1200</td>
<td>5.5 x 8.0 x 4.00</td>
<td>6.0</td>
</tr>
<tr>
<td>1600</td>
<td>1600</td>
<td>5.5 x 8.0 x 5.00</td>
<td>6.0</td>
</tr>
<tr>
<td>2000</td>
<td>2000</td>
<td>5.5 x 8.0 x 6.50</td>
<td>6.0</td>
</tr>
<tr>
<td>2500</td>
<td>2500</td>
<td>5.5 x 8.0 x 6.00</td>
<td>6.0</td>
</tr>
<tr>
<td>3000</td>
<td>3000</td>
<td>5.5 x 8.0 x 7.00</td>
<td>6.0</td>
</tr>
<tr>
<td>4000</td>
<td>4000</td>
<td>5.5 x 8.0 x 8.50</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Note: There are two ratings for center tap boxes: 600A and 1350A. Use suffix "M" with Standard Catalog Number to form proper Catalog Number.

1. #3 AWG-350 MCM
2. #4 AWG to 600 MCM Copper or Aluminum Lugs
3. Nut Side Plate
XL-X Busway Switchboard
Connections Link Vital Components.

With a switchboard connection, it is easy to link busway to switchboards, panelboards, motor control centers, unit substations, and other equipment.

A switchboard connection extends eight inches into the electrical equipment enclosure for a solid connection to internal bussing, or it can be cable connected. A flange is provided allowing attachment of the switchboard connection at the cutout location on the electrical equipment enclosure.

Specifications are as follows:

Switchboard Connection Dimensions

<table>
<thead>
<tr>
<th>Ampere Rating</th>
<th>Figure Number</th>
<th>Number and Size of Bus Bars Per Pole (In Inches)</th>
<th>Dimensions (In Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>Copper</td>
<td></td>
<td>&quot;A&quot; (Case Width)</td>
</tr>
<tr>
<td>225</td>
<td>225</td>
<td>1–25 x 1.00</td>
<td>5.5</td>
</tr>
<tr>
<td>400</td>
<td>600</td>
<td>1–25 x 1.50</td>
<td></td>
</tr>
<tr>
<td>600</td>
<td>600</td>
<td>1–25 x 2.00</td>
<td>7.5</td>
</tr>
<tr>
<td>800</td>
<td>1000</td>
<td>1–25 x 2.50</td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>1200</td>
<td>1–25 x 3.00</td>
<td>10.0</td>
</tr>
<tr>
<td>–</td>
<td>1350</td>
<td>1–25 x 4.25</td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td>1600</td>
<td>1–25 x 5.00</td>
<td></td>
</tr>
<tr>
<td>1350</td>
<td>–</td>
<td>1–25 x 6.00</td>
<td>13.5</td>
</tr>
<tr>
<td>1600</td>
<td>–</td>
<td>1–25 x 7.00</td>
<td>6.0</td>
</tr>
<tr>
<td>–</td>
<td>2000</td>
<td>2–25 x 4.25</td>
<td>18.5</td>
</tr>
<tr>
<td>2000</td>
<td>–</td>
<td>2–25 x 5.00</td>
<td>8.5</td>
</tr>
<tr>
<td>–</td>
<td>2500</td>
<td>2–25 x 6.00</td>
<td>6.0</td>
</tr>
<tr>
<td>2500</td>
<td>–</td>
<td>2–25 x 7.00</td>
<td></td>
</tr>
<tr>
<td>–</td>
<td>3000</td>
<td>2–25 x 6.50</td>
<td>27.0</td>
</tr>
<tr>
<td>3000</td>
<td>–</td>
<td>2–25 x 6.00</td>
<td></td>
</tr>
<tr>
<td>–</td>
<td>4000</td>
<td>3–25 x 6.00</td>
<td>8.5</td>
</tr>
<tr>
<td>4000</td>
<td>–</td>
<td>3–25 x 6.50</td>
<td></td>
</tr>
</tbody>
</table>
XL-X Busway Cubicles Join Busways With Circuit Breakers And Fusible Switches.

Cubicles provide a means of mounting switches or circuit breakers at a point where power enters or leaves a busway system. Cubicles are used where bolted connections are preferred, instead of a plug-in unit, or at ampere ratings exceeding standard plug ratings. Cubicles can also be modified to accept accessories such as kirk key interlocks, ground fault detectors, electrical operated devices, automatic sensing equipment or other specialized protective elements.

<table>
<thead>
<tr>
<th>Description of Unit</th>
<th>Type of Unit</th>
<th>Dimensions (In Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fusible Switch</td>
<td>400-600A Vacu-Break®</td>
<td>H: 28.0, W: 28.0, D: 26.0, 32.0 or 36.0</td>
</tr>
<tr>
<td></td>
<td>800-1200A Vacu-Break®</td>
<td>H: 36.0, W: 28.0 or 32.0, D: 36.0, 44.0 or 48.0</td>
</tr>
<tr>
<td>Molded Case Circuit Breaker</td>
<td>JX66, JX6, LD6, MD6, ND6</td>
<td>H: 28.0, W: 24.0 or 28.0, D:</td>
</tr>
<tr>
<td></td>
<td>CN</td>
<td>H: 36.0, W: 28.0 or 32.0, D: 36.0, 44.0 or 48.0</td>
</tr>
<tr>
<td></td>
<td>CP</td>
<td>H: 36.0, W: 28.0 or 32.0, D: 36.0, 44.0 or 48.0</td>
</tr>
<tr>
<td>Power Circuit Breaker</td>
<td>RL600 (Stationary)</td>
<td>H: 32.0, W: 28.0, D: 28.0, 32.0 or 36.0</td>
</tr>
<tr>
<td></td>
<td>RL800, RL1200 (Drawout)</td>
<td>H: 32.0, W: 28.0, D: 28.0, 32.0 or 36.0</td>
</tr>
<tr>
<td></td>
<td>RL1600, RL2000, RL3200, RL4000 (Stationary)</td>
<td>H: 36.0, W: 32.0, D: 36.0, 44.0 or 48.0</td>
</tr>
<tr>
<td></td>
<td>RL1600, RL2000, RL1660, (Drawout)</td>
<td>H: 36.0, W: 32.0, D: 36.0, 44.0 or 48.0</td>
</tr>
</tbody>
</table>

Note: Dimensions listed above are based on standard cubicle construction. Where multiple dimensions are shown they indicate variations caused by size and/or orientation of busway runs with respect to top of cubicle and face of protective device. Use larger value for layout purposes and factory will build to smaller dimension if possible.

Busway entry and/or exit can be in back, top, bottom or sides of cubicle.
For applications with distributed loads, end users can use reducers to save space, weight, time and money. Going from a large to a small case size has definite construction and installation advantages.

Reducers are manufactured to job specifications with or without circuit protection. The National Electrical Codes, article 364-11, specifies the criteria under which reducers can be used.

### Reducing Dimensions

<table>
<thead>
<tr>
<th>Reducing From “A” Case Width</th>
<th>To “B” Case Width</th>
<th>Minimum Dimensions “L”</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.5</td>
<td>7.5</td>
<td>30.0</td>
</tr>
<tr>
<td>13.5</td>
<td>10.0</td>
<td>30.0</td>
</tr>
<tr>
<td>16.5</td>
<td>13.5</td>
<td>30.0</td>
</tr>
<tr>
<td>19.5</td>
<td>16.5</td>
<td>30.0</td>
</tr>
<tr>
<td>27.0</td>
<td>19.5</td>
<td>30.0</td>
</tr>
<tr>
<td>27.0</td>
<td>18.5</td>
<td>30.0</td>
</tr>
<tr>
<td>27.0</td>
<td>19.5</td>
<td>30.0</td>
</tr>
</tbody>
</table>
XL-X Bus Plugs
Designed For Easy Installation.

Installing bus plugs on plug-in busway is simple with captive hardware. Everything the installer needs is attached to the bus plug, so there is no time lost finding parts. Installation is quick and hassle-free.

A built-in safety interlock system prevents the addition or removal of a bus plug in the “ON” position. A large indicator clearly shows when the plug is in the “ON” or “OFF” position, and it can be seen from as far away as 25 feet.

Additionally, in almost all applications, plug-in busway sections are designed to be installed with the nameplate clearly visible from the floor, assuring correct placement for bus plug mounting.

Bus plugs are available with Sentron™ Series molded case circuit breakers, or quick-make, quick-break Vacu-Break® fusible switches. Floor-operated plugs may be operated with a rope, or hook stick.

### Fusible Vacu-Break® Switch Plugs—Floor Operable

<table>
<thead>
<tr>
<th>Ampere Rating</th>
<th>&quot;A&quot;</th>
<th>&quot;B&quot;</th>
<th>&quot;C&quot;</th>
<th>&quot;D&quot;</th>
<th>&quot;E&quot;</th>
<th>&quot;H&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>13.69</td>
<td>11.13</td>
<td>7.63</td>
<td>4.50</td>
<td>3.50</td>
<td>3.88</td>
</tr>
<tr>
<td>60</td>
<td>13.69</td>
<td>11.13</td>
<td>7.63</td>
<td>4.50</td>
<td>3.50</td>
<td>3.88</td>
</tr>
<tr>
<td>100</td>
<td>17.19</td>
<td>11.13</td>
<td>7.63</td>
<td>4.50</td>
<td>3.50</td>
<td>4.38</td>
</tr>
<tr>
<td>200</td>
<td>20.43</td>
<td>11.13</td>
<td>7.63</td>
<td>4.50</td>
<td>3.50</td>
<td>4.56</td>
</tr>
<tr>
<td>400</td>
<td>21.00</td>
<td>17.25</td>
<td>11.13</td>
<td>7.00</td>
<td>–</td>
<td>4.00</td>
</tr>
<tr>
<td>600</td>
<td>34.25</td>
<td>15.00</td>
<td>12.38</td>
<td>7.00</td>
<td>–</td>
<td>4.00</td>
</tr>
</tbody>
</table>

### Circuit Breaker Plugs—Floor Operable

<table>
<thead>
<tr>
<th>Frame Size</th>
<th>Ampere Rating</th>
<th>&quot;A&quot;</th>
<th>&quot;B&quot;</th>
<th>&quot;C&quot;</th>
<th>&quot;D&quot;</th>
<th>&quot;E&quot;</th>
<th>&quot;H&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED2, ED4, ED6</td>
<td>100</td>
<td>13.19</td>
<td>10.88</td>
<td>7.44</td>
<td>1.50</td>
<td>1.00</td>
<td>3.88</td>
</tr>
<tr>
<td>FD6, FXD6</td>
<td>250</td>
<td>21.19</td>
<td>10.88</td>
<td>7.44</td>
<td>4.50</td>
<td>3.50</td>
<td>4.00</td>
</tr>
<tr>
<td>JXO2, JXD6, JD6</td>
<td>400</td>
<td>21.00</td>
<td>17.19</td>
<td>10.63</td>
<td>1.00</td>
<td>–</td>
<td>4.00</td>
</tr>
<tr>
<td>LXD6, LD6</td>
<td>600</td>
<td>34.25</td>
<td>15.00</td>
<td>12.38</td>
<td>3.81</td>
<td>1.88</td>
<td>3.88</td>
</tr>
<tr>
<td>MD6</td>
<td>800</td>
<td>34.25</td>
<td>15.00</td>
<td>12.38</td>
<td>3.81</td>
<td>1.88</td>
<td>4.00</td>
</tr>
</tbody>
</table>

### Circuit Limiting Plugs—Floor Operable

<table>
<thead>
<tr>
<th>Frame Size</th>
<th>Ampere Rating</th>
<th>&quot;A&quot;</th>
<th>&quot;B&quot;</th>
<th>&quot;C&quot;</th>
<th>&quot;D&quot;</th>
<th>&quot;E&quot;</th>
<th>&quot;H&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>CED6</td>
<td>100</td>
<td>17.19</td>
<td>10.88</td>
<td>7.63</td>
<td>7.63</td>
<td>1.00</td>
<td>3.88</td>
</tr>
<tr>
<td>CFD6</td>
<td>225</td>
<td>21.19</td>
<td>10.88</td>
<td>7.63</td>
<td>4.50</td>
<td>3.50</td>
<td>4.00</td>
</tr>
<tr>
<td>CJ6</td>
<td>400</td>
<td>34.25</td>
<td>17.19</td>
<td>10.38</td>
<td>1.00</td>
<td>–</td>
<td>4.00</td>
</tr>
<tr>
<td>CMD6</td>
<td>800</td>
<td>39.25</td>
<td>15.00</td>
<td>12.38</td>
<td>3.51</td>
<td>1.88</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Note: For short circuit rating on breakers, consult the current SpeedFax. These charts show the family size of breakers that can be used in each enclosure. Other breakers may be used if their physical size matches that of these families.

A full range of Sentron™ Series current-limiting circuit breakers are available from 15 to 1200 amperes. Because of soaring energy demands and substantial increases in fault currents, Sentron™ Series current-limiting circuit breakers are often used in bus plugs for systemwide protection up to 200,000A IR. With Sentron™ circuit breakers, peak current and energy let-through are significantly reduced—allowing more design flexibility and less stress on system components.

The concept behind using fuseless, current-limiting circuit breakers, like Sentron™ Series, as a component in a series-connected system is two-fold:

- higher interrupting ratings, and
- increased control over peak current (ip) and energy let-through (I²t).

A series-connected system is a combination of components, typically circuit breakers, of which some of the downstream breakers may have lower interrupting ratings than system available prospective fault current.

### Series Rated Connected Combinations

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Short Circuit Rating</th>
<th>Circuit Breaker Bus Plugs</th>
<th>Approved Downstream Branch Breakers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ampere Rating</td>
<td>Type</td>
<td>Ampere Rating</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>240</td>
<td>200,000A</td>
<td>100</td>
<td>CED6</td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>CFD6</td>
<td>15-30</td>
</tr>
<tr>
<td></td>
<td>400</td>
<td>CJD6</td>
<td>125-225</td>
</tr>
<tr>
<td>480</td>
<td>200,000A</td>
<td>100</td>
<td>CED6</td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>CFD6</td>
<td>70-225</td>
</tr>
<tr>
<td></td>
<td>400</td>
<td>CJD6</td>
<td>15-100</td>
</tr>
</tbody>
</table>

© and 2 pole branches only, if 3 pole breakers are needed, use all ED2 type branches. For 3 pole branches at 240V with CFD6 Main, must use ED2 type branches.
XL-X Busway Copper Bus Bars—Efficient Performers That Run Cool And Long.

Lower operating temperatures increase the useful life of XL-X busway systems. These excellent conductors easily withstand the rigors of day-to-day operation delivering years of economical performance. Please see the accompanying charts for information.

<table>
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Voltage Drop, Concentrated Loading 3 Phase, Line-To-Line Per 100 Feet Of Busway At Rated Current For Copper Conductors

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Notes:
1. To determine voltage drop based on uniformly distributed loading, divide above values by 2.
2. When busway is operated at loadings less than full rated current, or lengths less than 100 feet, the voltage drop will be reduced accordingly. Example—find the voltage drop at the end of a 70-foot run of 1600A copper busway carrying 1100A at 60% PE:
   \[ \frac{2.74 \times 100}{1600} \times \frac{70}{100} = 1.32 \text{V Drop} \]
3. To determine the line-to-neutral voltage drop, multiply line-to-line voltage drop by \( \frac{\sqrt{3}}{2} \).

Resistance, Reactance And Impedance Values For Copper Conductors

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<th>Ampere Rating</th>
<th>Leg Resistance</th>
<th>Leg Reactance</th>
<th>Leg Impedance</th>
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<td>3.06</td>
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</table>
Copper Bus Bars Temperature Rise Curves

Amperes
8000
7000
6000
5000
4000
3000
2000
1000

Busway Nameplate Ratings
Number of Bus Bars
Bus Bar Size
5000A (3 - .25 x 6.00)
4000A (2 - .25 x 6.50)
3000A (2 - .25 x 5.00)
2500A (2 - .25 x 4.25)
2000A (1 - .25 x 6.50)
1600A (1 - .25 x 5.00)
1350A (1 - .25 x 4.25)
1200A (1 - .25 x 4.00)
1000A (1 - .25 x 3.00)
800A (1 - .25 x 2.50)
600A (1 - .25 x 2.00)
400A (1 - .25 x 1.50)
225A (1 - .25 x 1.00)

Temperature Rise °C
XL-X busway aluminum bus bars provide cool operation, excellent conduction, and operating economy for the purchaser and installer. Tough and durable, you can count on them for years of dependable performance, as described below:

### Short Circuit Ratings—RMS Amperes For Aluminum Conduits

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<td>25 x 6.50</td>
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### Voltage Drop, Concentrated Loading 3 Phase, Line-To-Line Per 100 Feet Of Busway At Rated Current For Aluminum Conductors

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<th>Ampere Rating</th>
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<th>80</th>
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Notes:
1. To determine voltage drop based on uniformly distributed loading, divide above values by 2.
2. When busway is operated at loadings less than full rated current, or lengths less than 100 feet, the voltage drop will be reduced accordingly. Example—find the voltage drop at the end of a 70-foot run of 1600A aluminum busway carrying 1100A at 60% PF:

   \[ 2.91 \times \frac{1100}{1600} \times 70 = 1.40 \text{v Drop} \]

3. To determine voltage drop, line to neutral, multiply line-to-line voltage drop by .866.

### Resistance, Reactance And Impedance Values For Aluminum Conductors

<table>
<thead>
<tr>
<th>Ampere Rating</th>
<th>Leg Resistance</th>
<th>Leg Reactance</th>
<th>Leg Impedance</th>
<th>Line-to-Line Impedance</th>
<th>% Power Factor</th>
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</table>
Aluminum Bus Bars Temperature Rise Curves

Amperes

8000

7000

6000

5000

4000

3000

2000

1000

0

20

40

60

80

100

Temperature Rise °C

Busway Nameplate Ratings

Number of Bus Bars

Bus Bar Size

4000A

(3 – 0.25 x 4.50)

3000A

(2 – 0.25 x 5.00)

2500A

(2 – 0.25 x 4.25)

2000A

(2 – 0.25 x 3.00)

1600A

(1 – 0.25 x 5.00)

1350A

(1 – 0.25 x 4.25)

1200A

(1 – 0.25 x 4.00)

1000A

(1 – 0.25 x 3.00)

800A

(1 – 0.25 x 2.50)

600A

(1 – 0.25 x 2.00)

400A

(1 – 0.25 x 1.50)

225A

(1 – 0.25 x 1.00)
These Job-Planning Tips
Will Help You Get The Most
Out Of Your XL-X Busway System.

Because XL-X busway is compatible—
inside and out, the interchangeability
of sections gives you planning flexibility.
Choose the system you need from the
wide range of components in this
bulletin; then consider the following tips
to avoid planning pitfalls:

- Get as much information at the
  beginning of the job as possible.
The more up-front planning you do,
the better.
- Get accurate measurements.
- Coordinate planning between
  trade to avoid conflicts after the job
  has begun.

**Layout—A Few Points to Consider**

1. Determine busway elevation
   requirements, horizontal and vertical
   offsets, etc. When positioning XL-X
   busway, leave a minimum clearance
   of four inches between the busway
   and walls or other interference
   for easy installation. See table
   (page 25) for clearance require-
   ments for various components and
   accessories.

2. Consider moving an end cable tap
   box or the end of a run to avoid
   the cost of purchasing a non-
   standard straight section. Delivery
   time is shorter when standard length
   pieces are used.

3. If the system is 277/480 Volts,
   3 phase, 4 wire, consider using the
   plug-in busway for the entire run,
   since the lighting system could be
   fed from the run coming directly
   from the switchboard. One
   advantage: there may be a need
   for tapping-off power in that area
   for other reasons in the future.
   Plug-in busway costs very little
   more than feeder, but offers 10
   times the tap-off ability.

4. If there is minimal lead time,
   save time by using an end cable tap
   box and conduit instead of a switch-
   board connection.

5. Start at the power source to get
dimensions or to layout a run
of busway.

6. All busway measurements must be
   referenced from some fixed point
   such as a wall or column.

7. Careful planning of the busway
   run can save costly offsets to get
   around objects.

8. Consider placement of tap-off
devices, bus plugs and special
connections when doing the layout.
A little planning can make it easier
later for the installing contractor—
ensuring that he will not have to
work with these devices in difficult
locations.

9. Remember to determine these
   important points when planning riser
   busway installation:
   a. floor-to-floor dimensions
   b. floor thickness
   c. number of tap-off devices or
      plug needed per floor
   d. standard floor supports or
      optional spring floor supports
   e. where the busway
      you will need tap-off devices
   f. busway joint connections should
      be 14 inches above floor.
Critical Dimensions For Riser Layout***

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Figure Number</th>
<th>“B”</th>
<th>“L”</th>
<th>“R”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor Flanges</td>
<td>1</td>
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<tr>
<td>End Tap Box</td>
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<td>6.5</td>
<td>5.0</td>
<td>5.0</td>
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<tr>
<td>Center Tap Box**</td>
<td>1</td>
<td>3.0</td>
<td>3.0</td>
<td>13.5</td>
</tr>
<tr>
<td>Joint Mounted** Panelboard or Safety Switch</td>
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<td>3.0</td>
<td>3.0</td>
<td>13.5</td>
</tr>
<tr>
<td>Joint Mounted** Modular Metering</td>
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<td>3.0</td>
<td>3.0</td>
<td>As Req.</td>
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<tr>
<td>30-225A Bus Plug</td>
<td>2</td>
<td>8.0</td>
<td>5.0</td>
<td></td>
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<tr>
<td>400A Bus Plug</td>
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</tr>
<tr>
<td>600-800A Bus Plug</td>
<td>2</td>
<td>9.0</td>
<td>7.0</td>
<td></td>
</tr>
</tbody>
</table>

*3 inch dimension may be too small for certain panels mounted on low emperger busway. Consult factory.
**Left and right dimensions may be reversed.
***Dimensions in table are physical minimums. See NEC article 110-16 for working space and access requirements.

Note: Three plug-in openings per side.
XL-X Busway Performance Begins With Fast, Labor-Saving Installation.

With XL-X busway you get all the performance benefits that state-of-the-art design offers, including easy installation features.

For example, when hanging busway, the hanger supplied with each section should be mounted first. Only one installer and a few minutes are required to complete this first step.

The sections are then lifted into position and placed across the hanger brackets, ready for connection. Sections should be positioned so the joint stack (attached at the factory) connects with the free end of the next section. Then the splice plate screws are fastened.

The connection is completed with the tightening of the joint bolt. Only 45 ft.-lbs. torque is required to tighten each bolt—a real energy and timesaver for the installer.

For installing riser busway, simply attach the floor support to the section of busway which passes through the floor and lower it into position. Leveling bolts provide up to three inches of adjustment. Connections are made the same way as with hanging busway.

Plugs are easily installed with minimum labor. When the switch is "OFF," the slide door covering the plug opening on the busway should be opened. The load end clamp of the plug should then be attached to the busway.

The bus plug fingers and the interlock keys should be aligned with the windows in the plug-in opening on the busway. When these are in place, the plug can be pushed directly onto the busway for a secure connection. The left- and right-hand clamps should then be tightened.

The timesaving XL-X busway system is clearly the top choice in busway applications today.
# XL-X Busway Catalog Numbering System

<table>
<thead>
<tr>
<th>Position</th>
<th>Character and Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&quot;RL&quot; — 225-400A Aluminum</td>
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<tr>
<td></td>
<td>&quot;R&quot; — 225-600A Copper</td>
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<tr>
<td></td>
<td>600-4000A Aluminum</td>
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<tr>
<td></td>
<td>800-5000A Copper</td>
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<td>2</td>
<td>System</td>
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<tr>
<td></td>
<td>&quot;3&quot; — 303W or 103W</td>
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<tr>
<td></td>
<td>&quot;5&quot; — 304W Full Neutral</td>
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<tr>
<td>3 and 4</td>
<td>Ampere Rating — hundred amp</td>
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<td></td>
<td>02, 04, 06, 08, 10, 12, 13, 16, 20, 25, 30, 40, 50, (last 2 digits of rating)</td>
</tr>
<tr>
<td>5</td>
<td>Conductor Material</td>
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<td>&quot;A&quot; — Aluminum</td>
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<td></td>
<td>&quot;C&quot; — Copper</td>
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<tr>
<td>6</td>
<td>&quot;F&quot; — Plug-In Busway</td>
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<tr>
<td></td>
<td>&quot;I&quot; — Feeder Busway</td>
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<tr>
<td></td>
<td>&quot;T&quot; — Tee</td>
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<tr>
<td></td>
<td>&quot;X&quot; — Cross</td>
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<tr>
<td></td>
<td>&quot;S&quot; — Switchboard Connection</td>
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<td></td>
<td>&quot;B&quot; — End Tap Box</td>
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<tr>
<td></td>
<td>&quot;M&quot; — Center Tap Box</td>
</tr>
<tr>
<td></td>
<td>&quot;J&quot; — Expansion Joint</td>
</tr>
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<td>7</td>
<td>Features*</td>
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<td>&quot;W&quot; — Outdoor (Feeder Only)</td>
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<tr>
<td>8</td>
<td>Option*</td>
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<tr>
<td></td>
<td>&quot;G&quot; — Aluminum Internal Ground Bus</td>
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<tr>
<td></td>
<td>&quot;GX&quot; — Copper Internal Ground Bus</td>
</tr>
</tbody>
</table>

### Suffixes

- "-1" — Right-Hand Flatwise Elbow or Tee
- "-2" — Right-Hand Edgewise Elbow or Tee
- "-3" — Left-Hand Flatwise Elbow or Tee
- "-4" — Left-Hand Edgewise Elbow or Tee

*May not appear in Catalog Number.

### Typical Catalog Number

![Diagram of typical catalog number]

### Examples:

- **Catalog Number R316APG**
  - R — XL-X Busway
  - 3 — 303W or 103W
  - 16 — 1600 Amperes
  - A — Aluminum Material
  - P — Straight Section, Plug-In Type
  - G — Aluminum Internal Ground Bus

- **Catalog Number R513CLW-2**
  - R — XL-X Busway
  - 5 — 304W Full Neutral
  - 13 — 1350 Amperes
  - C — Copper Material
  - L — Elbow
  - W — Outdoor
  - 2 — Right-Hand Edgewise
XL-X Busway—
Typical Specifications

Electrical contractor shall furnish and install a complete system of interconnected feeder and/or plug-in busway runs of the ratings shown on the plans. Busway shall be designed for use on a ___________phase ___________wire ___________volt system. All work shall be in accordance with local and NEC regulations. Busway sections shall bear the Underwriters Laboratories label.

Housing
Busway shall consist of factory assembled sections which are rigid in construction and symmetrical in appearance. Casing ends shall be identical (A). Splice plates shall be furnished at each joint to connect adjacent sections mechanically. Splice plates and busway construction shall form a combined structure rigid enough to permit supporting on 10 foot centers (B). Joint integrity shall not be compromised by deforming the busway casing. Busway casing shall have no ventilating openings. Horizontal or vertical hangers shall be provided as required. Feeder and plug-in sections shall be interchangeable (C). Plug-in opening shall be sliding type, one each side, located every 24 inches throughout the plug-in portion of the run. This spacing shall be maintained across joints (D).

Expansion sections shall be included in each busway run (copper or aluminum) where building expansion joints are located. The expansion sections shall be so constructed as to permit expansion and contraction of the section casing and internal bussing.

(A) This is a desirable feature since it minimizes contractor lost time. Either end can be the "correct" and to join the next section. It also permits maximum flexibility of fittings.

(B) This is the maximum horizontal span permitted in article 364 of the NEC, and ensures that the busway may be hung from any reasonably spaced overhead purline.

(C) While the location of feeder and plug-in areas can be planned during the original installation, future changes cannot be predicted. At first glance, the solution might seem to be to use all plug-in busways, but, on further reflection, it is seen that there are many public areas, or areas that could become public, where this would not be desirable.

(D) 600 or 800A plugs require two plug-in openings. If 24 inch spacing is not maintained across its joint, these larger plugs cannot be mounted at that location.

Joint Connections
Joint connection shall be accomplished by means of an insulated bolt passing through the conductors (E). Joint bolt shall provide an easily detected visual indication (from a distance of 25 feet) that the bolt has been tightened (F). Inspection plates shall be provided to permit periodic joint examination without disturbing joint pressure or reducing the busway's ability to be supported on 10 foot centers (G). It shall be possible to test joint tightness without resorting to insulated wrenches. Joint design shall permit the addition of tap-off devices, such as center tap boxes, meter modules, enclosed disconnect switches, and panels, at the joint without replacing a section of busway (H). It shall be possible to remove a section of busway from the right side, left side, front, or rear without disturbing adjacent sections (I). Belleville washers shall be used at the joint to uniformly distribute pressure (J). On two and three bar phase, like phase bars shall be tied together by means of interphase tie straps being assembled in a single joint stack for easy removal at each joint (K).

(E) This terminology implies the "single bolt" type of joint and rules out individually bolted bars.

(F) A visual indicator provides a simple means of detecting those joints which have never been tightened.

(G) Without the ability to inspect the joint, the contractor is forced to work blindly and has no way to ascertain that the joint is correctly made up.

(H) Most jobs require some changes in location of cubicles or tap boxes as the job progresses. This feature accommodates such changes during installation and at any time in the future.

(I) There is no way of predicting which side of a busway run is or will remain free and accessible. It is therefore wise to have the ability to remove a piece from any direction should it ever be necessary.

(J) Belleville washers provide 4000 pounds of uniform pressure at each joint.

(K) Joint stack with a bridge type joint will tie like phase bars together at each joint.

Bus Bars
Bus bars shall be fabricated from electrical grade (aluminum) (copper) and shall be capable of withstanding the stress of a 3 cycle duration (L). Bars shall be insulated with a (105°C) material but shall be bare at plug-in points and joints (M). Bar spacing shall be held to a minimum to reduce reactance. Optional—a 3500 ground conductor shall be provided inside the casing and shall be contacted by a finger on the bus plug.

(L) Note that no distinction is made between plug-in or feeder busway. Since these sections are interchangeable, the weakest one determines the short circuit rating of the combined busway system, also the arrangement of sections may be altered in the future to include plug-in lengths in a feeder run.

(M) Busways are limited to a 55°C rise above ambient by UL standards. The difference between 55°C and the insulation rating therefore defines the maximum allowable ambient plus the safety factor. For example, a 105°C insulation offers a 55°C rise above a 40°C ambient plus a 10° safety factor.

Bus Plugs
Bus plugs shall be of the (circuit breaker) (fusible) type of the sizes and ratings shown on the plans. Plugs shall be designed so that all accessories required to attach the plug to the bus are captive (N). Plugs shall be of the safety type, so interlocked with the busway that they cannot be added or removed unless the switching mechanism is "OFF" (O). The operating handle shall retain control of the switching mechanism at all times, and shall be padlocked "OFF" (P). A voidable cover interlock shall be furnished (Q). Plugs shall be equipped with a red/green indicator flag which is visible from a distance of 25 feet to indicate the "ON" or "OFF" position of the switching mechanism (R). It shall be possible to install up to ten 400A plugs in a 10 foot busway section (S). Fusible plugs shall be quick make/quick break and shall have provisions for class J fuses (T). They shall meet automotive industry PT standards and shall be suitable for use on a circuit having an available fault level of 100,000A.

(N) Captive hardware is essential to the installing electrician who has quite enough to do without searching for lost bolts while on a ladder 10 feet in the air.

(O) Plugging in with the switch "ON" could result in the formation of an arc at the plug-in fingers if the plug were connected to a load with a high inrush or a short circuit.

(P) Opening the door should have no effect on the switching mechanism.

(Q) Voidable cover interlocks permit access to the plug's interior without turning the plug "OFF" so that fuses may be checked.

(R) The need for positive "OFF," "ON" indication of a ceiling mounted plug to a floor located observer is apparent.

(S) It is clearly unlikely that anyone would wish to do so, but the need for two or three large plugs in a row is common.

(T) 600V XL-X plugs are designed so that the fuse bases of 30-400A sizes may be relocated to suit J fuses, or class H, as required.
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