**Braced Line Post Assemblies**

The need to minimize tower size and visual impact of transmission lines has prompted increased interest in braced line posts, horizontal-V, and pivoting V assemblies. These insulating structures offer vastly improved vertical load capabilities over conventional line posts, while retaining the advantages of a fixed conductor position.

A **braced line post insulator** uses a conventional line post with a suspension string tied to the tower face. Some of the characteristics of a braced line post are:

- It uses a traditional fixed base line post.
- The longitudinal strength is limited to the RCL rating of the line post component.
- It generates high tower torque (Z-direction) under longitudinal loading.

A **horizontal-V insulator** uses a conventional line post with a suspension string at a fixed offset extending from the tower face, adding a stabilizing force to the assembly. Some of the characteristics of a horizontal-V assembly are:

- It uses a fixed base horizontal line post (zero degree upsweep).
- It has an inclined hinge axis to add resistance to longitudinal movement.
- It employs a suspension insulator ground end stub arm (vang).
- The longitudinal strength is limited to the RCL rating of the line post component.
- It generates high tower torque (Z-direction) under longitudinal loading.

A **pivoting horizontal-V insulator** uses a conventional suspension string with a line post insulator fastened to the structure with a hinged base. Some of the characteristics of a pivoting horizontal-V are:

- It pivots about an inclined axis.
- It employs a suspension insulator ground end stub arm (vang).
- It uses a universal joint or pivot base on the strut.
- It has high longitudinal strength.
- It generates low tower torque (Z-direction) under longitudinal loading.
- The assembly’s swing angle is a function of the vertical load and the tower offset pivot angle.
- The assembly’s maximum longitudinal loading is a function of the tensile rating of the strut.

The tables included on the following pages — and the images on the assembly drawings page — cover typical arrangements that provide an efficient means of withstanding unusual loads. For more information on these and numerous other variations of line post assemblies, contact your Hubbell Power Systems representative.
### Braced Line Post Assembly

<table>
<thead>
<tr>
<th>Typical System kV</th>
<th>Catalog Number Gain Base</th>
<th>Catalog Number Flat Base</th>
<th>Component Insulators</th>
<th>Maximum Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>A inches (mm)</td>
<td>Vertical lbs (kN)</td>
</tr>
<tr>
<td>115/138</td>
<td>BLP043G12000</td>
<td>BLP043F12000</td>
<td>55.9 (1420)</td>
<td>11130 (49.5)</td>
</tr>
<tr>
<td>230</td>
<td>BLP080G12000</td>
<td>BLP080F12000</td>
<td>80.8 (2052)</td>
<td>11350 (50.5)</td>
</tr>
<tr>
<td>161</td>
<td>BLP051G12000</td>
<td>BLP051F12000</td>
<td>60.0 (1500)</td>
<td>11393 (49.4)</td>
</tr>
</tbody>
</table>

### Horizontal-V Assembly

<table>
<thead>
<tr>
<th>Typical System kV</th>
<th>Catalog Number Gain Base</th>
<th>Catalog Number Flat Base</th>
<th>Component Insulators</th>
<th>Maximum Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>A inches (mm)</td>
<td>Vertical lbs (kN)</td>
</tr>
<tr>
<td>115/138</td>
<td>BLP041G00000</td>
<td>BLP041F00000</td>
<td>54.7 (1384)</td>
<td>10060 (44.7)</td>
</tr>
<tr>
<td>161</td>
<td>BLP046G00000</td>
<td>BLP046F00000</td>
<td>60.0 (1500)</td>
<td>11400 (49.4)</td>
</tr>
<tr>
<td></td>
<td>BLP053G00000</td>
<td>BLP053F00000</td>
<td>58.7 (1471)</td>
<td>10070 (44.7)</td>
</tr>
</tbody>
</table>

Notes:
- Corona rings are required and included for 220 kV and above.
- Base end fitting for posts is code “02” for a gain base or “03” for a flat base. Replace the “XX” with the appropriate code.
- Maximum loads are for single loads in the specified direction.
- Contact your Hubbell Power Systems representative to request combined load charts.
CATALOG NUMBER KEY

Due to the numerous variations available for braced line post assemblies, the following catalog number scheme is presented primarily for informational purposes. For custom-made braced line post assemblies, please refer to publication Insulator Selection Guide – Transmission (EF9091T), available via www.hubbellpowersystems.com under “Literature” > “Literature Brochures” > “Ohio Brass Insulators and Arresters.”

Please follow the instructions in the Insulator Selection Guide and return the filled-out form to your Hubbell Power Systems representative. Filling out the form with as much information as possible will ensure that our engineers receive all the critical dimensions and information needed to design your braced line post assembly. For information on braced line post assemblies not included in this catalog, please contact your HPS representative.

**Assembly Type**

The first three digits define the insulator type. In this example, we picked a Braced Line Post; therefore, we entered “BLP” in the boxes designated for “a.”

| B | L | P | a | a | a | b | b | b | c | d | d | d | e | e | e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Polymer Length**

Polymer length of the line post member (in inches). The nominal polymer length (in inches) of the line post insulator is specified to help define voltage rating of the braced line post assembly. Refer to the Horizontal Line Post Insulators table on page 21 for appropriate polymer lengths.

Fill in your selection in the boxes designated for section “b.” For example, if you want a Braced Line Post with a 75-inch polymer length, enter “075.”

| B | L | P | 0 | 7 | 5 | a | a | a | b | b | b | c | d | d | e | e | e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Type of Line Post Base**

A single letter is used to identify the type of base. Please refer to the base drawings for hole patterns and dimensions located on page 24 or page 31.

- F – Flat
- G – Gain
- P – Pivoting

Fill in your selection in the box designated for section “c.” For example, if you want a flat base, enter “F.”

| B | L | P | 0 | 7 | 5 | F | a | a | a | b | b | b | c | d | d | e | e | e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Upsweep Angle**

The upsweep angle of the assembly is defined to help identify the assembly. Typically, braced line post assemblies will have 12 degrees of upsweep angle, and horizontal-V and pivoting-V assemblies will have 0 degrees.

Fill in your selection in the box designated for section “d” for the upsweep angle. For example, if you chose a braced line post assembly, enter “12.”

| B | L | P | 0 | 7 | 5 | F | 1 | 2 | a | a | a | b | b | b | c | d | d | e | e | e |

**Internal Use**

000 – Sequential number to address each variation or model.

Fill in your selection in the box designated for section “e.” In this example, the braced line post is the first in a series, as designated by “001.”

| B | L | P | 0 | 7 | 5 | F | 1 | 2 | 0 | 0 | 1 | a | a | a | b | b | b | c | d | d | e | e | e |

Your complete part number will be BLP075F12001

Example:

Braced Line Post Insulator, 75” Line Post Polymer Length, Flat Base, 12 degrees of Upsweep Angle, Variation/Model 001 BLP075F12001
TECHNICAL TERMS REFERENCE GUIDE

ANSI – The American National Standards Institute verifies that the standard developers are complying with the consensus and all other approval criteria.

Boron-free E-Glass – Electrical grade fiberglass that has corrosion resistance greater than boron containing E-glass; it is environmentally friendly due to the lack of boron and fluorine.

Combined Load Charts – Also referred to as application curves; a graphical representation that shows how the maximum working loads interact for a given line post or braced line post assembly.

Corona – A luminous discharge resulting from ionization of the air surrounding a conductor around which a voltage gradient exceeding a certain critical value exists.

Dry Band Arcing – Electrical flashes that occur between wet and dry spots over the contaminated surface of an insulator.

E-Glass – Electrical grade fiberglass; the first glass used for high-voltage insulators.

Flashover – A disruptive discharge that is capable of breaking the insulation level provided by the air around the insulator, which creates an arc between parts of different potential or polarity.

IEC – The International Electrotechnical Commission develops and publishes international standards for all electrical technologies.

Leakage Distance – The distance between the conductive end fittings of the insulator across the insulator surface, moving in and out of the sheds; also commonly referred to as the creep or creepage distance.

RCL – Reference Cantilever Load is the maximum design cantilever load (MDCL), which is rated at 50 percent of the part’s SCL.

RIV – Radio-Interference Voltages are caused by electric currents that produce magnetic and electrostatic fields that are capable of inducing high-frequency voltage pulses in nearby radio antennas. The RIV of an insulator is measured under conditions specified by industry standards.

RTV – Room Temperature Vulcanate (elastomer sealant) is a silicone rubber that cures at room temperature.

RTL – Routine Test Load is the maximum design tension load, which is rated at 50 percent of the part’s SML. All parts are tested at this rating prior to being shipped.

Section Length – The straight-line distance between the coupling points of the insulator’s end fittings.

SCL – Specified Cantilever Load is the minimum ultimate cantilever strength of the part.

SML – Specified Mechanical Load is the minimum ultimate tensile strength of the part.

Strike Distance – The shortest distance across the insulator surface, between the end fittings of the insulator; also commonly referred to as the dry arc distance or tight string distance.