Type V2-CA

Aluminum Vertical Break Switch

345 kV, 1300 kV BIL
2000 A.- 3000 A.
The Cleaveland/Price 345 kV V2-CA is an aluminum vertical break switch that carries on the Cleaveland/Price tradition of manufacturing reliable, low maintenance, non-cast switches.

Cleaveland/Price has a very basic approach to design . . . keep it simple. It is an approach that is employed from material selection to mechanical design.

V2-CA switches are of non-cast design for superior dependability of parts. Switch performance is not troubled by flaws that could occur in the casting process.

All Cleaveland/Price disconnect switch current carrying parts are manufactured from high strength, high conductivity aluminum or copper. To assure product quality, all incoming copper and aluminum material is tested for conductivity and every current carrying part is fabricated in the United States at the Cleaveland/Price manufacturing facility for maximum quality control.

Contacts are designed to take advantage of electromagnetic forces by using a reverse loop configuration at both the hinge and jaw of the switch. Current transfer points are kept to a minimum.

Operation of the V2-CA is smooth and low force. The blades of the pole units are counterbalanced throughout the entire blade travel. The counterbalance springs are made from stainless steel to ensure that the operating force will not change due to corrosion over the life of the switch. The springs are insulated from the current path as are the spring housings.

The V2-CA has been designed and tested to meet applicable NEMA and IEEE Standards and the rating requirements of applicable IEC Standards. Testing included short circuit, temperature rise, dielectric, mechanical endurance, ice, corona, and radio influence voltage.
Engineered for Performance

Cleaveland/Price Features for Outstanding Performance and Long Life

The V2-CA is made of the finest materials for dependable, trouble-free service. Knowledge gained from maintaining switches in the field for over 60 years has played a major part in refining the V2-CA. The 345 kV V2-CA design is based on the Cleaveland/Price 230 kV V2-CA, which has been in service for over twenty years. Significant design features include:

• Total non-cast copper, aluminum and steel construction resulting in the superior dependability of parts.
• Live parts constructed from hard-drawn, high conductivity copper and extruded aluminum, producing stronger, more conductive components than parts made of cast materials.
• Open construction of the hinge and smooth surfaces throughout, enabling the V2-CA to break ice with amazing ease.
• Wiping action on both the break-jaw and hinge that keeps contacts clean for years of reliable service.
• Open hinge contacts allow easy verification of contact condition without disassembly or infrared testing.
• Reverse-loop electromagnetic design at hinge and break-jaw on all ratings gives outstanding performance under fault conditions.
• Bolted connections are aluminum to tin-plated copper (tin-plating one mil thick). All bolted contact surfaces are prepared and treated with an oxide inhibitor. Moving contacts are silver-to-silver with hard-drawn, high-conductivity copper base material.

BLADE TURNOVER

THE TRADITIONAL PROBLEM

When the switch blade on a conventional switch rotates in the break-jaw to the final blade position, it does not consistently stop at the point of optimum contact pressure. The resulting inadequate contact pressure may cause contact pitting and burning.

Many switches use a stop on the rotating insulator to try to set proper blade position. This type of stop is too remote from the blade to accurately control the blade motion because of the cumulative play in the linkage joints. Variation in the speed of the operator can actually affect the amount of blade turnover.

THE INNOVATIVE SOLUTION

On the Cleaveland/Price V2-CA, the blade stop is on the blade itself instead of an intermediate linkage point (the rotating insulator). The V2-CA stop location ensures that blade rotation in the break-jaw will accurately and consistently stop at the point of maximum contact pressure.

The cutaway view shows how the unique Cleaveland/Price turnover stop allows the blade to rotate until the slot in the blade engages with the hinge pin. This sets the proper turnover angle.

The stop angle is factory-machined for built-in accuracy. No matter how fast or slow the blade moves, it doesn’t stop moving until it has fully turned over.
**Type V2-CA Aluminum Vertical Break Switch**

**Dimensions in Inches**

<table>
<thead>
<tr>
<th>Nom. kV</th>
<th>Max. kV</th>
<th>KV Bil</th>
<th>Insulator TR#</th>
<th>Amp</th>
<th>Mom. kA</th>
<th>Switch Style Number</th>
<th>Wt./Pole</th>
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</thead>
<tbody>
<tr>
<td>345</td>
<td>362</td>
<td>1300</td>
<td>324</td>
<td>2000</td>
<td>100</td>
<td>C06A803G01</td>
<td>1930 lbs.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>367</td>
<td>3000</td>
<td>120</td>
<td>C06A803G02</td>
<td>1970 lbs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2000</td>
<td>100</td>
<td>C06A1019G01</td>
<td>2140 lbs.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>3000</td>
<td>120</td>
<td>C06A1019G02</td>
<td>2180 lbs.</td>
</tr>
</tbody>
</table>
V2-CA Quality Construction

- Unbreakable non-cast hinge end terminal pads with NEMA standard hole pattern
- Unbreakable non-cast operating crank
- Insulating journal bearing for the operating crank
- Stainless steel counterbalance springs
- Tin-plated, high-conductivity copper hinge end contact fingers
- Reverse-loop, silver-to-silver contacts
- Stainless steel contact springs located outside of the current path
- Aluminum corona rings

- Unbreakable non-cast jaw end terminal pads with NEMA standard hole pattern
- Tin-plated, high-conductivity copper jaw end contact fingers
- Reverse-loop, silver-to-silver contacts
- Stainless steel contact springs located outside of the current path
- Aluminum corona rings
- Arc horns with corona spheres

Superior Bearing Assembly

- Maintenance-free, permanently lubricated construction
- High strength, non-cast, hot-dip galvanized steel shaft
- Special ozone and UV resistant seals that outlast conventional seals and contain no metal parts that typically corrode
- Individually sealed ball bearing assemblies in sealed, grease-packed housing
- Permanently adjusted bearing assembly

- Hot-dip galvanized double channel base
- Insulator leveling screws
- Heavy-duty bearing assembly
This brochure describes our standard product and does not show variations in design that may be available. Contact the factory for additional details.

Cleaveland/Price reserves the right to make changes or improvements to the product shown in this brochure without notice or obligation.