Electrics for Rolling Stock

CVB15, CVB25 Series
Switchgear for
Traction
AC Vacuum Circuit Breaker

Catalogue C30.en
AC vacuum circuit breaker, CVB15, CVB25 Series

CVB Series vacuum circuit breaker: State-of-the-art main switch for electric locomotives and multiple units

Mode of operation: The energy required to switch on the CVB is stored by a spring. As soon as the switch-on signal is applied, the main spring release latch is unlocked and the switching operation is triggered. After that the spring gets recharged in less than 10 s. The signal “Hold” will keep the CVB in its switched-on position. The vacuum circuit breaker is switched off when the signal “Hold” is cancelled or the control voltage supply is lost – the spring remains charged and ready for the next switching operation.

Features, applications

Features:
- Electrically operated AC vacuum circuit breaker
- Reduced life cycle costs: no pneumatics, no risk of icing up
- Versions for 15 kV and 25 kV to UIC 550 available
- Long service life
- Almost maintenance-free, visual inspections will suffice
- Reduced noise emission when switching on and off
- High reliability and availability: Spring actuator ensures reliable functioning of the vacuum circuit breaker even when battery is low
- Diagnosis and optional monitoring/recording of operating states
- Following the fail safe principle

Applications:
- Main switch for electric locomotives and multiple units (EMUs)
- Main switch to be designed into new or retrofitted rail vehicles

Orders code

Example: CVB 15/08 X 110E-00 xxx

<table>
<thead>
<tr>
<th>Series</th>
<th>Nominal voltage/current</th>
<th>Terminal earthing switch</th>
<th>Control voltage</th>
<th>Tolerance</th>
<th>Aux. contacts, type and number of</th>
<th>Special design</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVB</td>
<td>15/08 15 kV AC / 16Hz / 800 A</td>
<td>X: None</td>
<td>24 / 50 / 72 / 110 V DC</td>
<td>-40 % … + 25 %</td>
<td>00 8x NO / 2x NC: S826 (SPDT)</td>
<td>001 Retrofit: For mounting in roof with round cut-out</td>
</tr>
<tr>
<td>CVB</td>
<td>25/08 25 kV AC, 50/60 Hz / 800 A</td>
<td>R: Right</td>
<td>L: Left</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specifications

<table>
<thead>
<tr>
<th>Series</th>
<th>CVB 15/08</th>
<th>CVB 25/08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage $U_{N}$ / Frequency</td>
<td>15 kV AC / 16Hz</td>
<td>25 kV AC / 50Hz</td>
</tr>
<tr>
<td>Rated operating voltage $U_{o}$</td>
<td>19 kV AC</td>
<td>30 kV AC</td>
</tr>
<tr>
<td>Rated operating current $I_{o}$</td>
<td>750 A</td>
<td>450 A</td>
</tr>
<tr>
<td>Conventional thermal current $I_{th}$</td>
<td>750 A</td>
<td>750 A</td>
</tr>
<tr>
<td>Short-circuit breaking capacity</td>
<td>25 kA</td>
<td>20 kA</td>
</tr>
<tr>
<td>Rated holding current</td>
<td>40 kA / 100 ms</td>
<td>40 kA / 100 ms</td>
</tr>
<tr>
<td>Main contact</td>
<td>Vacuum interrupter</td>
<td></td>
</tr>
<tr>
<td>Control contacts</td>
<td>Snap switch S826, SPDT*</td>
<td></td>
</tr>
<tr>
<td>Pollution degree</td>
<td>High-voltage component PD4 Drive PD3</td>
<td></td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>OV4</td>
<td></td>
</tr>
<tr>
<td>Equipment category</td>
<td>C3</td>
<td></td>
</tr>
<tr>
<td>Control voltage $U_{a}$</td>
<td>24 / 50 / 72 / 110 V DC</td>
<td></td>
</tr>
<tr>
<td>Tolerance $U_{a}$</td>
<td>-40 % … + 25 %</td>
<td></td>
</tr>
<tr>
<td>Shock, vibration</td>
<td>Category 1, class A</td>
<td></td>
</tr>
<tr>
<td>Mechanical endurance</td>
<td>250,000 operating cycles min.</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>≤ 134 kg</td>
<td>≤ 148 kg</td>
</tr>
<tr>
<td>Mounting position</td>
<td>Horizontal, roof mounting lengthwise or crosswise</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-50°C ... + 70°C</td>
<td></td>
</tr>
<tr>
<td>Environmental conditions for equipment</td>
<td>AX / TX or SK3 / S81 / SC1 / SS2 / SF1</td>
<td></td>
</tr>
</tbody>
</table>

Note:
This catalogue shows only stock items. For some variants minimum quantities apply. Please ask for the conditions.

Special variant: If you need a special variant, please do not hesitate to contact us. Maybe the type of AC vacuum circuit breaker you are looking for is available as a special design. If not, we can also supply a customized design.

* refer to catalogue D26

Specifications are subject to alteration without prior notice.
**CVB 15/08** Dimension diagram, version 15 kV AC, 16½ Hz / 800 A

**CVB 25/08** Dimension diagram, version 25 kV AC, 50/60 Hz / 800 A

**CVB 15/08** Dimension diagram, special version for mounting in roof with round cut-out, 15 kV AC, 16½ Hz / 800 A

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Specifications are subject to alteration without prior notice / Dimensions in mm
### Connectors
- Connectors manufactured to industry standards
- Connectors to suit the special requirements of communications engineering (MIL connectors)
- Charging connectors for battery-powered machines and systems
- Connectors for railway engineering, including UIC connectors
- Special connectors to suit customer requirements

### Snap-action switches
- Snap-action switches with positive opening operation
- Snap-action switches with self-cleaning contacts
- Enabling switches
- Special switches to suit customer requirements

### Contactors
- Single and multi-pole DC contactors
- High-voltage AC/DC contactors
- Contactors for battery powered vehicles and power supplies
- Contactors for railway applications
- Terminal bolts and fuse holders
- DC emergency disconnect switches
- Special contactors to suit customer requirements

### Electrics for rolling stock
- Equipment for driver’s cab
- Equipment for passenger use
- High-voltage switchgear
- High-voltage heaters
- High-voltage roof equipment
- Equipment for electric brakes
- Design and engineering of train electrics to customer requirements