High Power Switches

Very High Power Disconnectors

PBD (Plain Bars Disconnectors)
2000 V DC - 20 kA to 160 kA
Single pole / Double pole / Change-over
Aluminum Terminals

- Visible break
- Absorb dimensional variations due to expansions (Flexible joints are not necessary)
- Low and constant voltage drop
- Supported by busbars (no frame required)
- Possibility of covering up totally one side of the disconnector (for protection & isolation)
- Easy connections by welding to high section aluminum busbars
- Large customization possible with:
  - Actuators (motor, pneumatic, manual)
  - Auxiliaries (limit switches, locks, control boxes)
  - Adaptation to the connecting busbars.
- According to IEC 60947-3 / IEC 60077-1

Main technical characteristics

Electrical Data
- Temperature rise at nominal current (with 40°C max. Ambient temperature) less than : 65°C
- Voltage drop at nominal current less than : 60 mV
- Peak short-circuit current withstand (upon circuit configuration) : 8 x (Nominal current)
- Dielectric withstand strength
  - Between live parts in open position : 10 kV - 50 Hz - 1 min
  - Between live parts and earth : 10 kV - 50 Hz - 1 min
  - Between auxiliary contacts and earth : 2.5 kV - 50 Hz - 1 min
  - Between motor (AC) and earth : 2 kV - 50 Hz - 1 min

Mechanical Data
- Built-in deformability (longitudinally (dL) / transversally (dT) / axially (dA)) : 20 / 20 / 20 mm (higher values available upon request)
- Mechanical endurance (with respect to maintenance instructions). Higher endurance upon : 1000 Cycles
- Typical duration of opening or dosing operation
  - With motor operation : Less than 20 seconds
  - With pneumatic operation : Less than 1 second
- Punctual contact temperature on live parts withstand without equipment damages : 140°C

Technology
- Copper terminals or mixt optionnal
- All contacts are fitted with solid silver, high temperature brazed (special process)
- Mechanically independant mobile contact arms with high-pressure springs
- Electrical contact with solid pure silver, point to point, contact tips.
- Operation mechanism by a toggle closed system
- Upon request, two poles or change-over design by side association of two disconnectors
High Power Switches

Main dimensions

Single Assembly:

![Image of Single Assembly diagram]

Double Assembly:

![Image of Double Assembly diagram]

<table>
<thead>
<tr>
<th>Ir (kA)</th>
<th>Nb. of blades</th>
<th>Ø blade (A/mm²)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>E (mm)</th>
<th>L (mm)</th>
<th>Weight (kg)</th>
<th>A=500</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>2x7</td>
<td>0.45</td>
<td>290</td>
<td>830</td>
<td>90</td>
<td>530</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>2x9</td>
<td>0.43</td>
<td>350</td>
<td>890</td>
<td>90</td>
<td>530</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>2x10</td>
<td>0.47</td>
<td>380</td>
<td>920</td>
<td>90</td>
<td>530</td>
<td>235</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>2x12</td>
<td>0.46</td>
<td>440</td>
<td>1000</td>
<td>90</td>
<td>530</td>
<td>270</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>2x14</td>
<td>0.45</td>
<td>500</td>
<td>1060</td>
<td>90</td>
<td>530</td>
<td>305</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>2x16</td>
<td>0.44</td>
<td>560</td>
<td>1120</td>
<td>90</td>
<td>530</td>
<td>340</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>2x18</td>
<td>0.43</td>
<td>620</td>
<td>1180</td>
<td>90</td>
<td>530</td>
<td>375</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>2x20</td>
<td>0.45</td>
<td>680</td>
<td>1240</td>
<td>90</td>
<td>530</td>
<td>410</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>2x22</td>
<td>0.47</td>
<td>740</td>
<td>1300</td>
<td>90</td>
<td>530</td>
<td>445</td>
<td></td>
</tr>
<tr>
<td>70</td>
<td>2x24</td>
<td>0.46</td>
<td>800</td>
<td>1350</td>
<td>120</td>
<td>560</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>4x14</td>
<td>0.45</td>
<td>1120</td>
<td>1660</td>
<td>120</td>
<td>560</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>4x16</td>
<td>0.44</td>
<td>1240</td>
<td>1790</td>
<td>120</td>
<td>560</td>
<td>830</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>4x17</td>
<td>0.46</td>
<td>1300</td>
<td>1850</td>
<td>120</td>
<td>560</td>
<td>880</td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>4x19</td>
<td>0.45</td>
<td>1420</td>
<td>1970</td>
<td>120</td>
<td>560</td>
<td>1080</td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>4x20</td>
<td>0.47</td>
<td>1480</td>
<td>2030</td>
<td>120</td>
<td>560</td>
<td>1120</td>
<td></td>
</tr>
<tr>
<td>130</td>
<td>4x22</td>
<td>0.46</td>
<td>1600</td>
<td>2150</td>
<td>120</td>
<td>560</td>
<td>1200</td>
<td></td>
</tr>
<tr>
<td>140</td>
<td>4x24</td>
<td>0.46</td>
<td>1720</td>
<td>2210</td>
<td>120</td>
<td>560</td>
<td>1290</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>4x26</td>
<td>0.45</td>
<td>1840</td>
<td>2390</td>
<td>120</td>
<td>560</td>
<td>1370</td>
<td></td>
</tr>
<tr>
<td>160</td>
<td>4x27</td>
<td>0.46</td>
<td>1900</td>
<td>2450</td>
<td>120</td>
<td>560</td>
<td>1500</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions:
- A: standard = 500 mm (600 or 700 mm as option)
- F: standard = 250 mm
- Blade section = 160 x 20 mm

Ferraz Shawmut has it all for defining and offering customized solutions to meet your most specific requirements:
- Adapted drives or control units
- Adapted technical performances (short-circuit current capability, endurance, small load make / break capacity)