Medium voltage switchgear

SafeGear® HD

63 kA arc resistant metal-clad switchgear
SafeGear® HD arc resistant switchgear

- 63 kA arc resistant metal-clad air insulated switchgear
- Tested to IEEE C37.20.2-1999 and C37.20.7-2007
- Seismic certified to IBC Region D
- Quoted and built in Lake Mary, FL
- Ratings:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>5-15 kV</td>
</tr>
<tr>
<td>Rated continuous current</td>
<td>1200, 2000, 3000, 4000 A*</td>
</tr>
<tr>
<td>Rated symmetrical current</td>
<td>63 kA</td>
</tr>
<tr>
<td>Rated short-time</td>
<td>2 sec</td>
</tr>
<tr>
<td>Rated peak current</td>
<td>164 kA</td>
</tr>
<tr>
<td>Close &amp; latch capability</td>
<td>164 kA</td>
</tr>
<tr>
<td>Rated lightning impulse (BIL) voltage</td>
<td>95 kV</td>
</tr>
<tr>
<td>Rated power frequency voltage</td>
<td>36 kV</td>
</tr>
<tr>
<td>Arc resistance type</td>
<td>2 B</td>
</tr>
<tr>
<td>Arc resistance duration</td>
<td>30 cycle (0.5s)</td>
</tr>
</tbody>
</table>

* Force air cooled
SafeGear® HD arc resistant switchgear

- With more than 25 years experience in arc resistant switchgear, ABB offers enhanced safety designs for personnel and equipment
  - Flap/vent system to relieve pressure
  - Patented arc chamber
  - Gases are safely expelled out the roof and through the plenum
- Multi-point latch front doors
- Two-high breaker configuration
- Separate, isolated low voltage compartment
- Closed door rackable PT/CPT/fuse compartments
- Compatible with the ABB SmartRack remote racking system
SafeGear® HD layout

- 36” wide
- 95” high (w/o plenum)
- 112” deep
SafeGear ® HD features

- Standard Features
  - Galvanized construction
  - Hem bending
  - Modular design
    - Bolted frame
    - Instrument compartment
    - Breaker compartment
    - PT/CPT/Fuse compartment
    - Bus and cable compartment

- Additional safety features
  - Closed door racking
  - Snuffer contact design – PT’s/CPT’s
Galvanized construction

- Resistant to rust, corrosion and scratches
- No paint required
- Highly reflective

Hem bending

- No sharp edges for increased safety
- Improved rigidity
- Reduces arc propagation
- Forms a self-supporting structure

(Side view with covers removed)

Hem bending creates a rigid structure and sturdy construction in metal-clad switchgear
Modular design

- Bolted construction enables faster replacement and modification in the field
- Allows for easy replacements, repairs, and specialized configurations
- Maintains the smallest, compact product
Instrument compartment

- Total isolation from medium voltage components
  - No instruments on breaker doors
- Galvanized interiors provide superior visibility inside compartments
- Available in two sizes
  - 19”, 57”
- Multi-point latch, gasketed doors
- Easy accessibility for operators
- Truck operated cell switches located in the breaker compartment
Breaker compartment

- Dual safety shutter actuators
  - Interlock prevents manual operation
  - Mechanically forced by breaker movement
  - Shutters grounded by cable
  - Clear Lexan shutters available

- Position indicator
  - Connected
  - Test
  - Disconnected
Breaker compartment

- Automatic dual plug secondary disconnect
- Interference block
- Grounding contact
- Isolated terminal blocks
PT and CPT compartments

- One to three potential transformers (PTs)
  - Wye and open-delta configurations available
- Closed door racking in and out adds element of safety
- Delrin® snuffer contact technology
- Drawout construction with extension rails makes the compartment easily accessible for fuse replacement.
  - Lift truck not required to replace fuses

Delrin® is an acetal homopolymer resin with exceptional electrical resistance and strength properties produced by Dupont.

SafeGear HD®: All PT Compartments are 38” high.
CPT compartments

- 15 kVA, single-phase, truck mounted
  - Larger size CPT’s are fixed mounted in the rear compartment
  - Fuse truck with fixed mounted CPT
- Closed door racking adds element of safety
- Drawout construction with extension rails makes the compartment easily accessible for fuse replacement.
  - Lift truck not required to replace fuses
- Delrin snuffer contact technology
Bus & cable compartments

- Copper bus
- Epoxy coated bus insulation system
  - No sleeve insulation
- Silver plated primary bus
  - Tin plating optional
- Tin plated ground bus
- Glass polyester standoff insulators
- Molded vinyl boots with re-useable hardware
  - Catalog number embossed on each boot
  - Cable lug boots provided
  - No tape used
SafeGear® HD Door construction

- Breaker doors secured with single handle, heavy duty, multi-point latches
- Double thickness of steel
- Gasketed construction
  - Seals gases inside
- Dual Lexan arc resistant windows
- Available with externally mounted manual trip button
SafeGear® HD plenum design

- Sealed duct across top of switchgear, covering all vent flaps
- Externally bolted for ease of installation
- Sized and shaped to minimize turbulence and back-pressure
- Allows room for cable trays and conduit entry
- Channels gases safely out of building, through end flap
  - Flaps normally closed, opens with pressure in case of arc fault
Plenum benefits

- Channels gases out of PDC
- Provides room for flap operation
- Allows gases to expand
- Protects cable trays
- Maintains weather protection
- Allows lower building height
63 kA ADVAC drawout circuit breaker

- ABB classic spring charge mechanism
- Fully tested and compliant with C37.04, C37.06 and C37.09, UL Listed
- Integral breaker auxiliary contacts (9) 52a and (6) 52b and (1) early "B" for customer use
- Manual charging with removable handle
- Rugged, reliable, 3-position racking truck
- Racking padlock provisions
- ABB vacuum interrupters and encapsulated poles
- Self aligning primary contacts
- Self-aligning, auto-engaging secondary disconnects
- Self-aligning and auto engaging ground contact
63 kA ADVAC drawout circuit breaker

Ratings

- Rated voltage: 5-15 kV
- Rated continuous current: 1200, 2000, 3000 A
- Rated interruption: 63 kA
- Interruption time rating: 50ms (3-cycle)
- %DC componentry: 49%
- Rated no-load op. Endurance: 2000
- Rated reclosing sequence: O-0.3s-CO-15s-CO
- Cap switch rating: C1, BtB, 1770 A
- Width: 750 mm
- Height: 712 mm
- Depth: 698 mm
- 1200 A weight: 445 lbs
- 2000 A weight: 445 lbs
- 3000 A weight: 490 lbs
Accessories

- Racking crank
- Test cabinet
- Test jumper
- Ground & test device
- SmartRack electric racking device
- Lift truck
- Breaker release handle
- IR viewing ports
Power and productivity for a better world™