



SafeGear® HD 63 kA arc resistant metal-clad switchgear

Medium voltage 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 Mebane, NC
- Ratings:

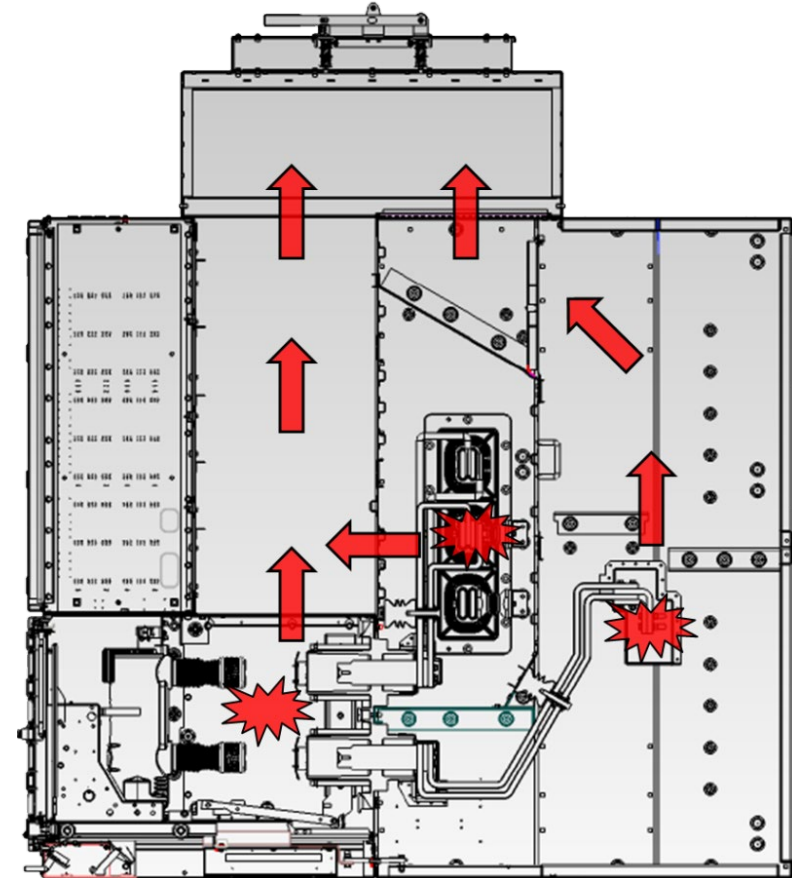
Rated voltage	5-15 kV
Rated continuous current	1200, 2000, 3000, 4000 A ¹
Rated symmetrical current	63 kA
Rated short-time	2 sec
Rated peak current	164 kA
Close & latch capability	164 kA
Rated lightning impulse (BIL)voltage	95 kV
Rated power frequency voltage	36 kV
Arc resistance type	2 B
Arc resistance duration	30 cycle (0.5s)

1. Force air cooled



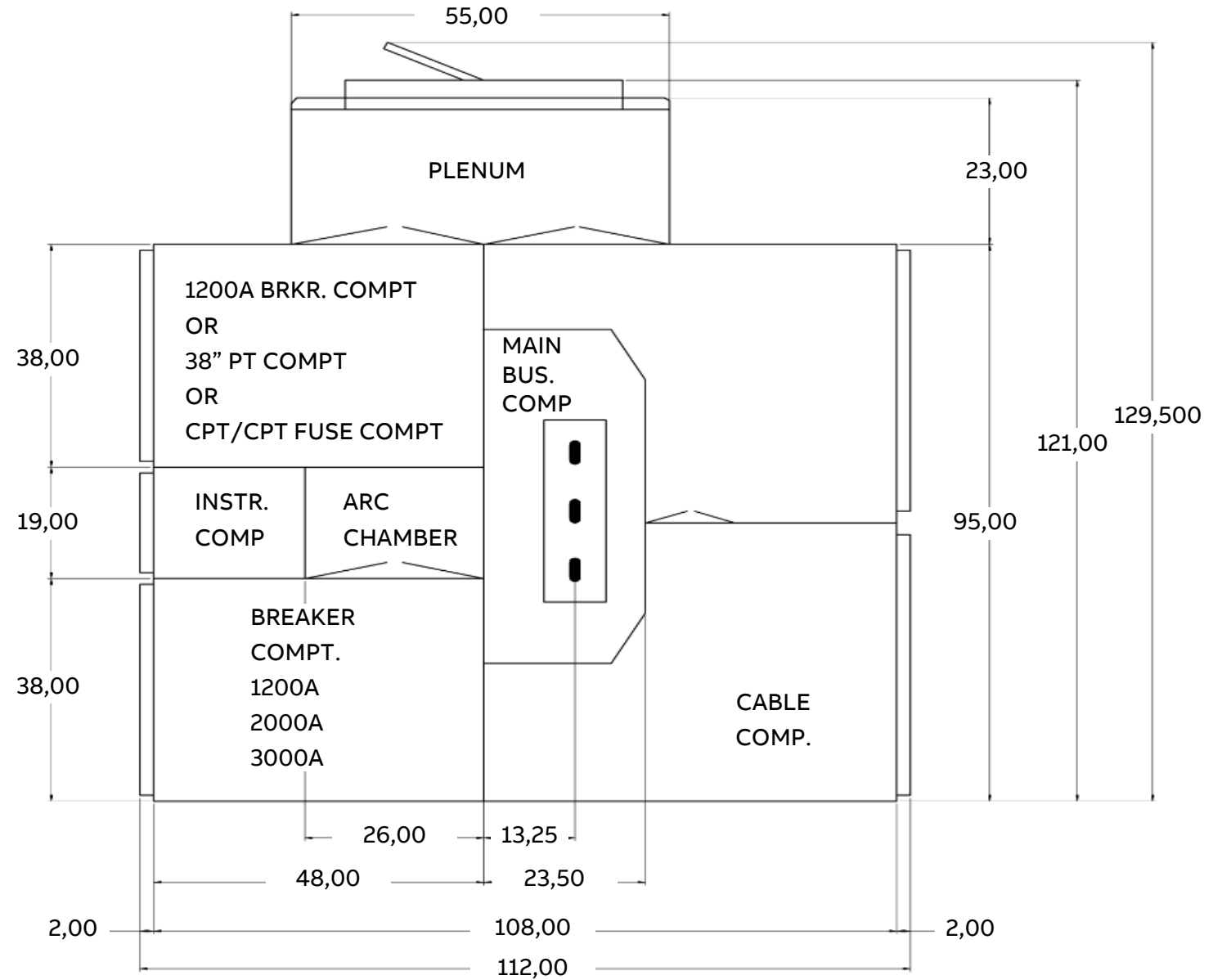
SafeGear® HD arc resistant switchgear

- 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 inches wide
- 95 inches high (w/o plenum)
- 112 inches 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



Construction

Galvanized construction

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

Hem bending

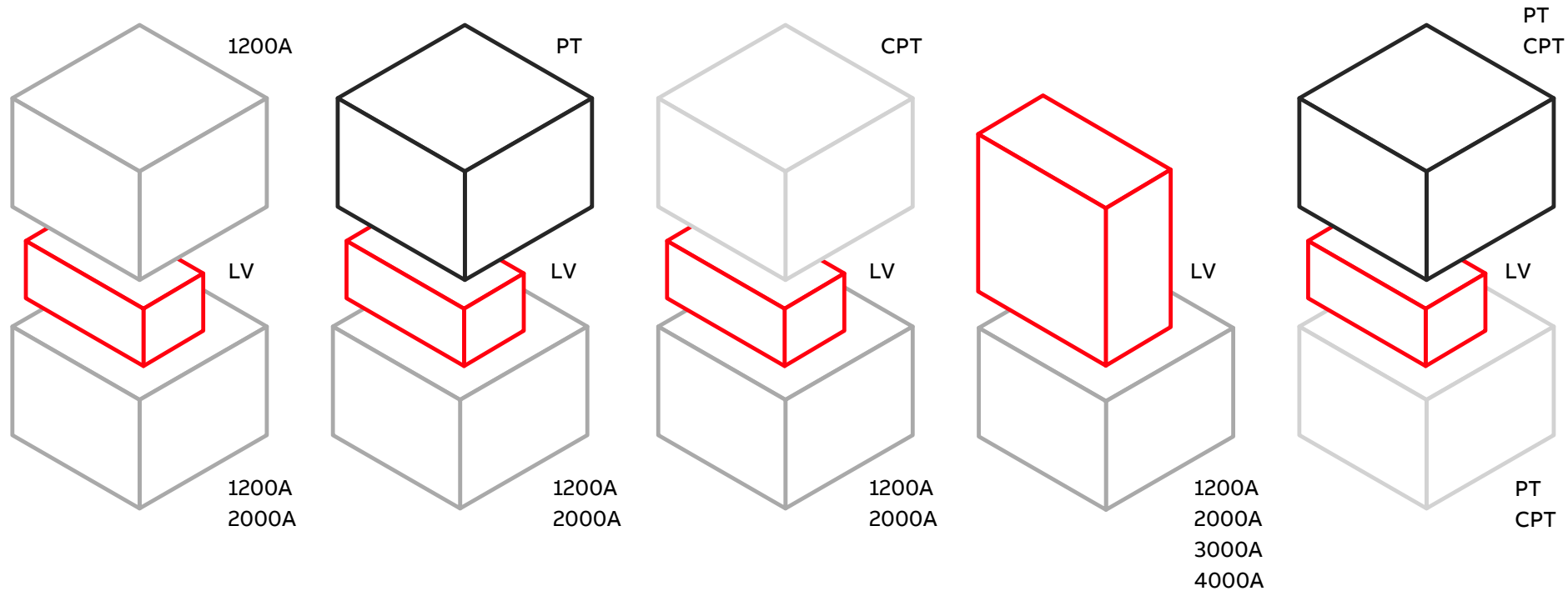
- No sharp edges for increased safety
- Improved rigidity
- Reduces arc propagation
- Forms a self-supporting structure



(Side view with covers removed)

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

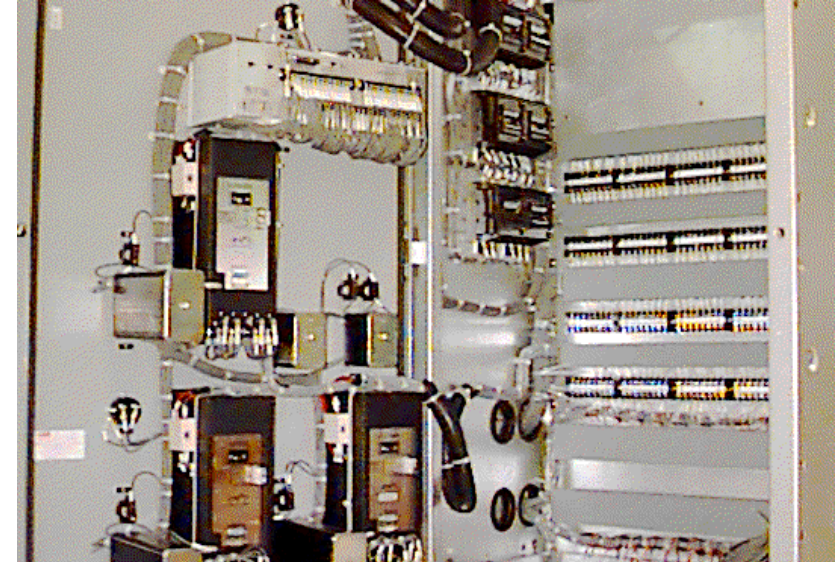
Modular design



- 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-inch and 57-inch
- 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

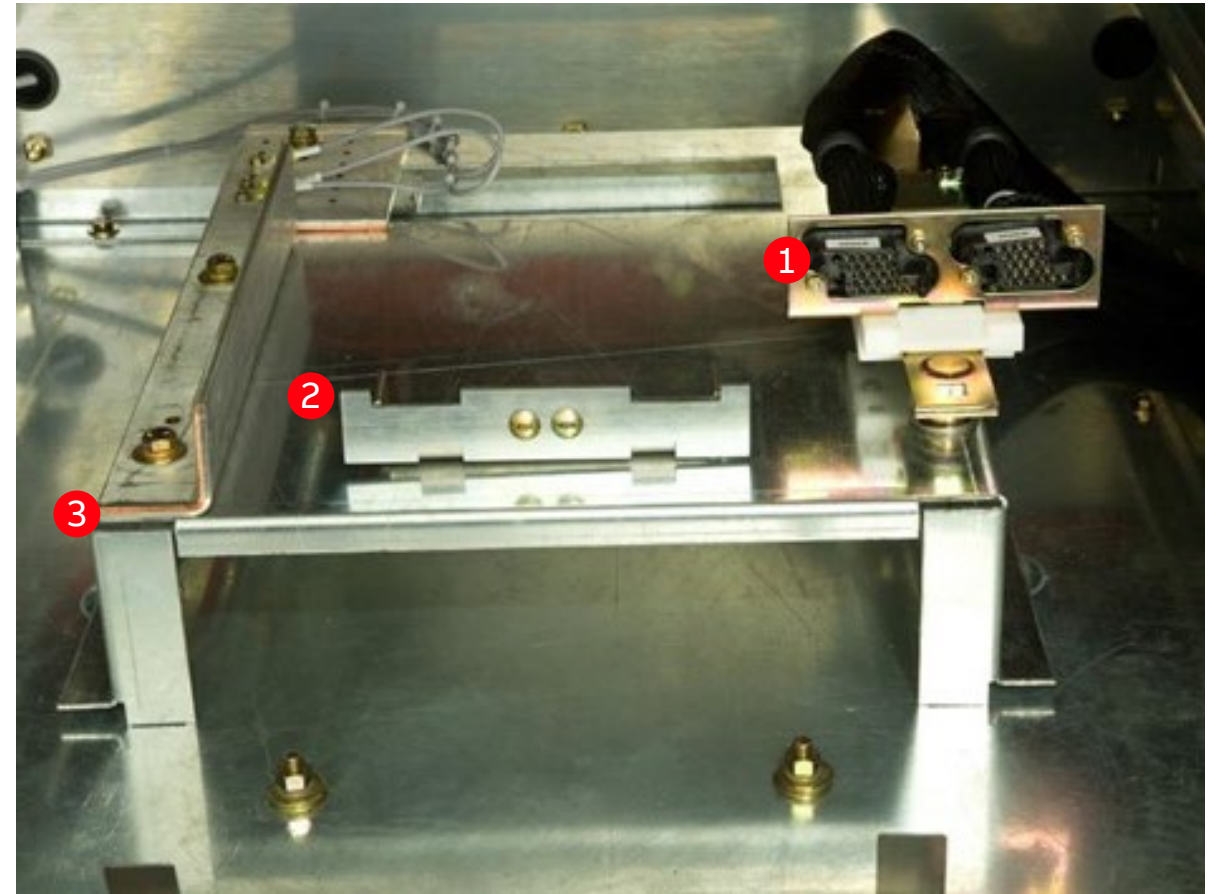
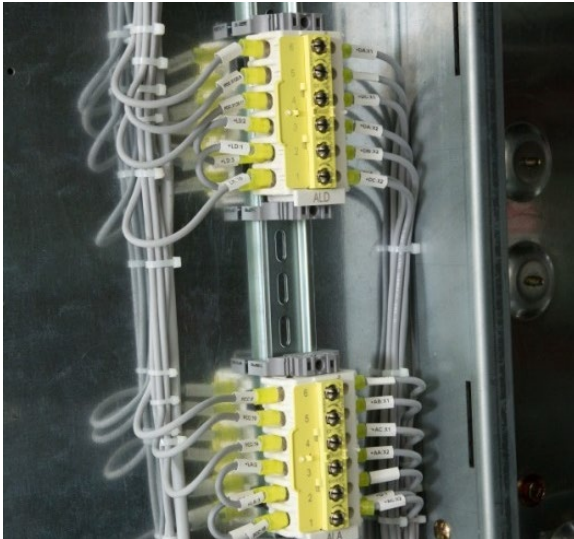
Position indicator

- Connected
- Test
- Disconnected



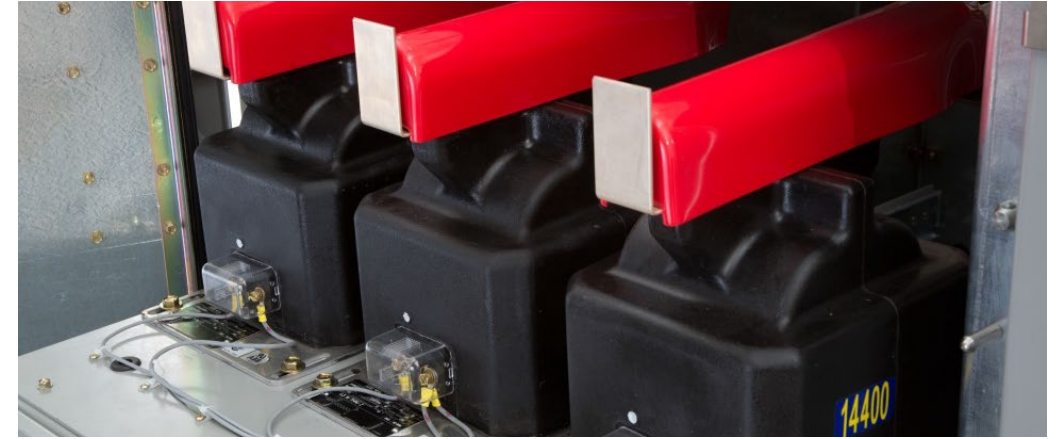
Breaker compartment

- 1 • Automatic dual plug secondary disconnect
- 2 • Interference block
- 3 • Grounding contact
- Isolated terminal blocks

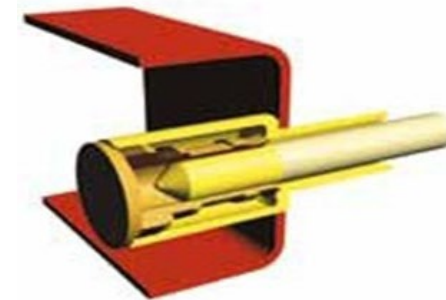


PT and CPT compartments

- 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



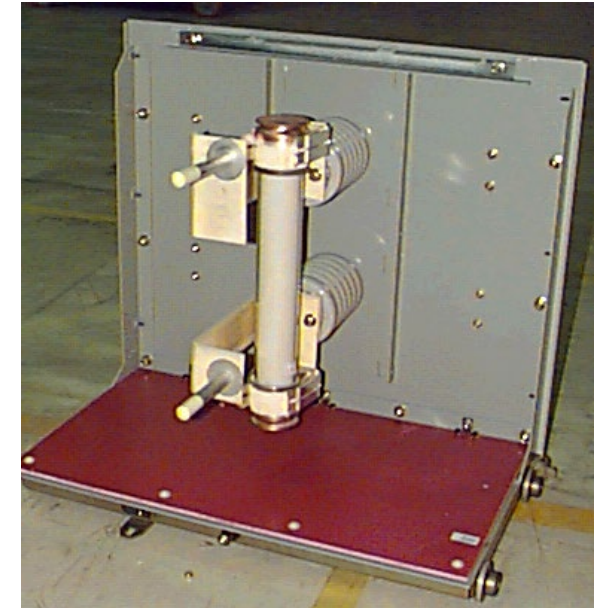
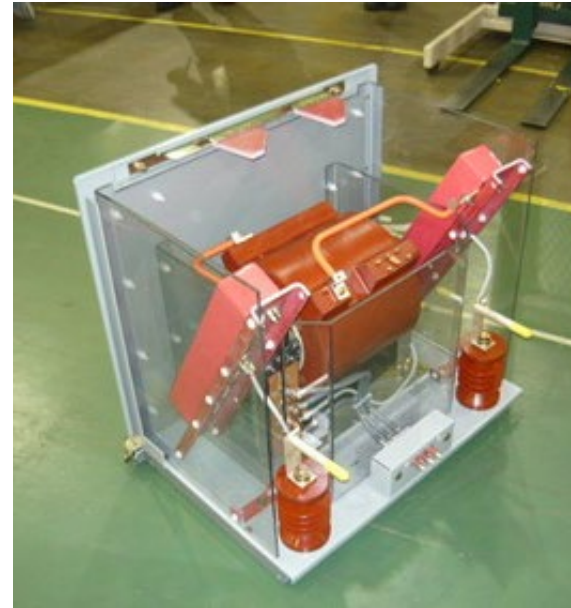
SafeGear® HD: All PT Compartments are 38 inches high



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

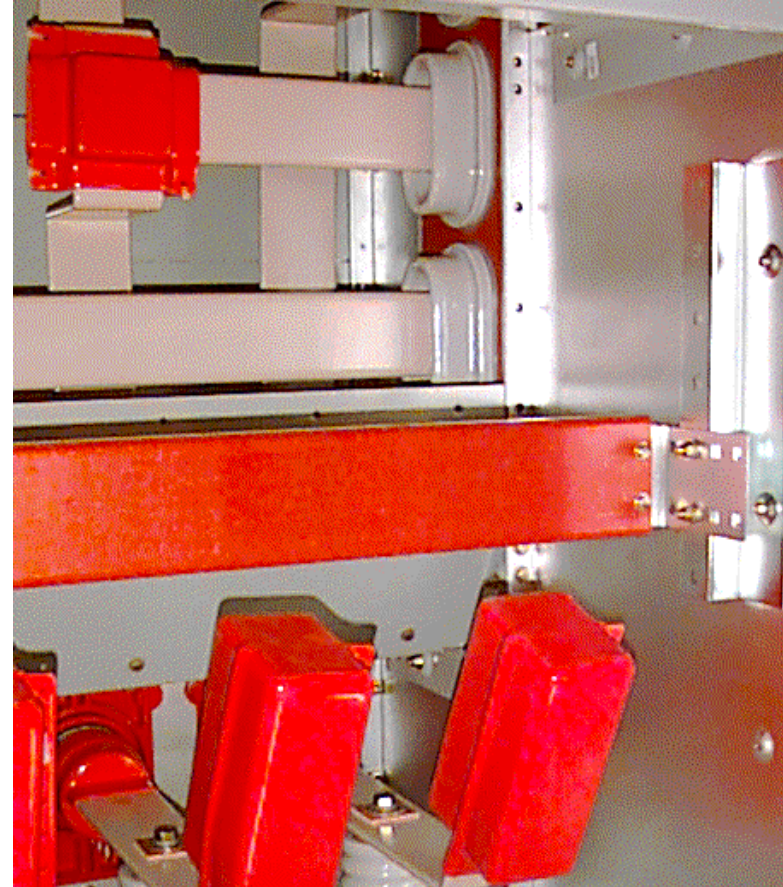
CPT compartments

- 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



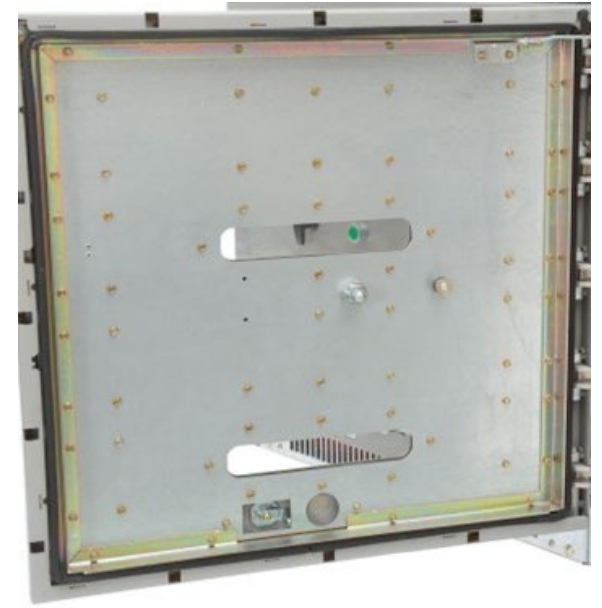
Bus and cable compartments

- 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



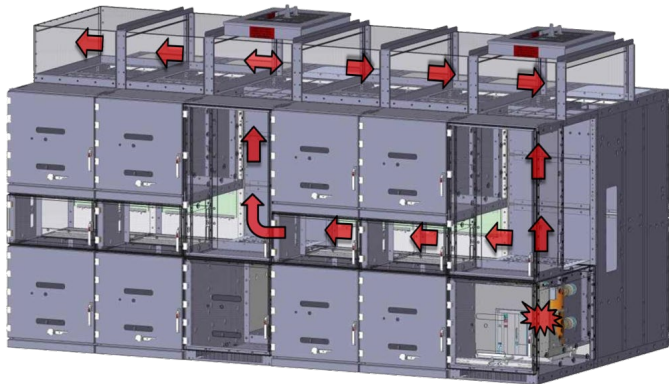
SafeGear® HD door construction

- 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

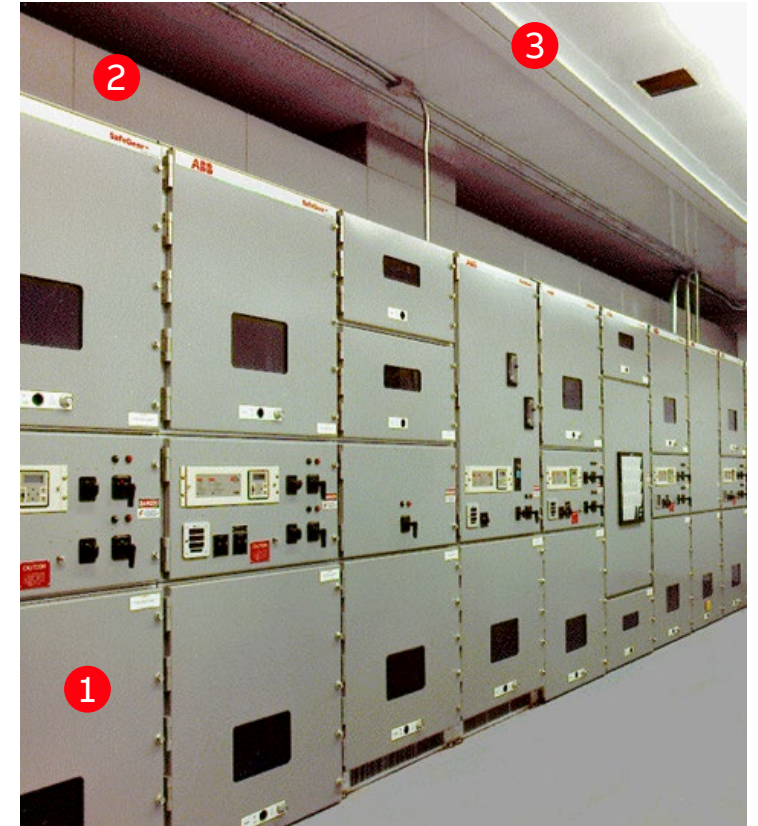
- Sealed duct across top of switchgear, covering all vent flaps
- Externally bolted for ease of installation
- Sized and shaped to minimize turbulence and back-pressure
- Allows room for cable trays and conduit entry
- Channels gases safely out of building, through end flap
 - Flaps normally closed,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

- ① Two-high SafeGear
- ② Plenum
- ③ PDC ceiling



PDC Aisle

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

- ① Manual charging with removable handle
- ② Rugged, reliable, 3-position racking truck
- ③ Racking padlock provisions
- ④ ABB vacuum interrupters and encapsulated poles
- ⑤ Self aligning primary contacts
- ⑥ Self-aligning, auto-engaging secondary disconnects
- ⑦ 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



ABB