

Arc Resistant Switchgear

Introduction

Point Eight Power's arc resistant metal-clad switchgear channels the energy released during an internal arc fault away from personnel and adjacent equipment into a vertical isolation plenum (VIP) where it is contained and vented safely. For enhanced safety and security, our door designs feature a single action vault lock or slot lock system to provide automatic protection for the operator.

Point Eight Power's arc resistant metal-clad switchgear design undergoes thorough testing in order to meet the ANSI accredited IEEE C37.20.7 standard.

Testing standards for arc resistant switchgear fall into two categories: Type 2B and Type 2C. IEEE C37.20.7 defines type 2B equipment as that in which an arc event does not cause holes in the freely accessible front, sides, and rear of the enclosure or in the walls isolating the low-voltage control or instrument compartment(s).

Type 2C testing specifies that arcing does not cause holes in the freely accessible front, sides, and rear of the enclosure or in the walls separating the compartment in which the arc is initiated from all adjacent compartments.

Point Eight Power's arc resistant switchgear has been KEMA tested and complies with IEEE C37.20.2 and IEEE C37.20.7 type 2C testing between adjacent vertical sections and fully complies with IEEE C37.20.7 type 2B testing.



Our Design Testing by KEMA

The initial design was arc resistant tested by KEMA in 1996. All arc resistant type tests were conducted with an arc duration of 0.5 seconds, as recommended in IEEE C37.20.7. By utilizing the patented vertical isolation plenum (VIP), consisting of double wall 11 gauge metal with a 6 inch, minimum, air gap, all arc gases and energy is contained within the plenum and vented to the top without burning through to the adjacent cubicles.

Since C37.20.7 allows the use of equivalent volume dummy devices rather than the actual circuit breaker and other major components, the actual arc resistant enclosure being tested is independent of interior components. This allows for any brand of circuit breaker to be used.

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Controlling the Power You Generate

Vertical Isolation Plenum (VIP)

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Point Eight Power's arc resistant design features the vertical Isolation Plenum (VIP) which not only provides the most effective design for containing, channeling and venting arc fault energy, but it allows for optional instrument controls between isolated sections.

Instrument and control space is normally limited on two-high construction for arc resistant switchgear because the doors themselves must not be penetrated with instruments or controls. The unique construction of Point Eight Power's arc resistant switchgear addresses this challenge with our patented vertical isolation plenum (VIP). The VIP offers additional vertical control space of 6 inches minimum width, to 12 inches optional width.

The front portion of the of the VIP (where the controls are housed) is thoroughly sealed from the arc resistant sections. If additional space for relays or controls is required, the VIP can be widened to 12 inches and equipped with an access door. An optional draw-out low voltage compartment integrated into the VIP is available. (FIG 1 and FIG 2)



Available Options

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- For further arc flash containment where overhead clearance is less than 8 ft., consider a top horizontal collector plenum (HCP)
(Exits required every 3 to 4 sections)
- 12 inch vertical isolation plenum (VIP) for mounting additional controls
- Draw-out LV controls in 12 inch VIP
- Electrical breaker racking device
- Circuit breaker and door interlock system (when door is opened, the breaker is in withdrawn position)
- Optic and current sensors to mitigate arc and damage to the equipment
- Available in an interlocking building with direct access rear doors
- Viewing windows to confirm



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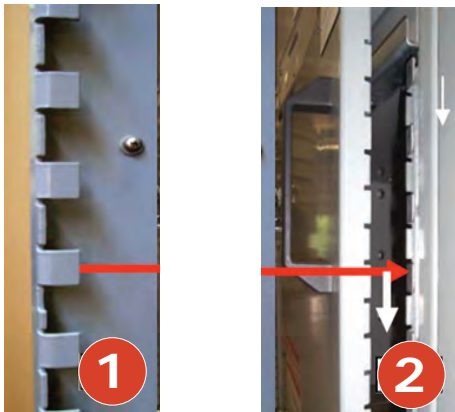
Door Locking Systems

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Point Eight Power offers two door styles for arc resistant switchgear. Both the slot lock system (40kA and below) and the vault lock system (50kA to 63kA) utilize single-handle operation to open and close the outer doors. These designs allow the doors to be solidly secured and eliminate the use of bolt type fasteners, which can prove a safety issue if not properly torqued.

Slot-Lock Style Locking System

In the slot lock style, door tabs (FIG1) match notches on the cubicle (FIG 2). The action of closing the door, positions the tabs behind the cubicle notches, locking the door into position (FIG 3).



Vault Style Locking System

Similar to a bank vault, the vault style locking system (FIG 4) is operated by means of a single handle that, when rotated, drives locking pins into position around the cubicle frame.



Vault style doors are available for the back of the cubicles, as well (pictured left).

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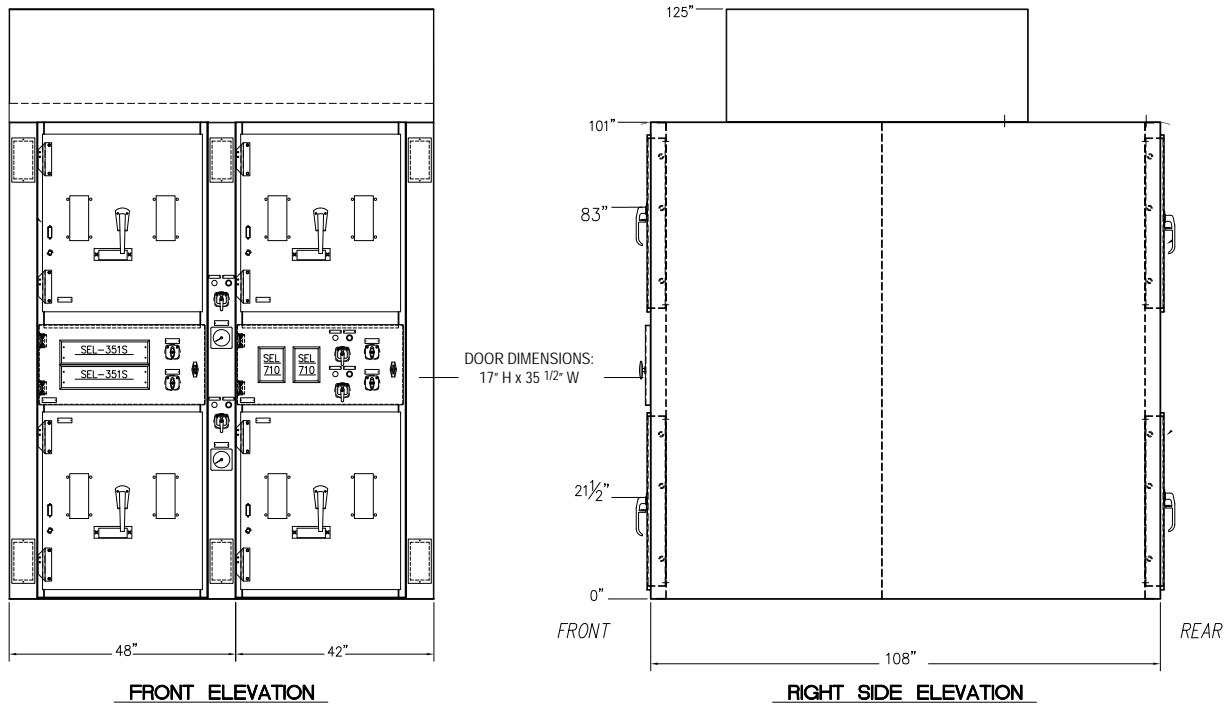


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Arc Resistant Ratings Table

Voltage Class (KV)	Maximum Voltage (KV)	Short Circuit Current (KA)	Arc Duration (mSec)	Maximum Continuous Current (Amps)	One High Construction	Two High Construction	Available
5	4.76	31.5	500	4000	X	X	Yes
5	4.76	40	500	4000	X	X	Yes
5	4.76	50	500	4000	X	X	Q1 2011
5	4.76	63	500	4000	X	X	Q1 2011
15	15	31.5	500	4000	X	X	Yes
15	15	40	500	4000	X	X	Yes
15	15	50	500	4000	X	X	Q1 2011
15	15	63	500	4000	X	X	Q1 2011
27	27	25	500	4000	X	X	Q3 2011
27	27	40	500	4000	X	X	Q3 2011
38	38	25	500	4000	X		Q2 2011
38	38	40	500	4000	X		Q2 2011

5/15kV up to 63kA Elevations



- Notes: 1. Above 2000A, only one circuit breaker or drawout PT is allowed per vertical cell.
 2. Contact Point Eight Power for 27kV and 38kV layouts.