



YOUR **ELECTRIFICATION** PARTNER



**38kV Metal-Clad
Medium Voltage Switchgear**

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General Description:

38kV Metal-Clad Switchgear:

Our Metal Clad switchgear is designed for use in applications with distribution voltages up to 38kV maximum. Typical applications include not only new construction but also replacement for older air-break, minimum oil or SF6 switchgear. The circuit breaker and switchgear will meet industry requirements for greater safety, quality, superior reliability and minimal maintenance while providing higher insulation levels in less space than other breaker types, thus reducing overall switchgear size for significant space savings.

Ratings:

- Maximum rated voltage: 38kV rms
- BIL withstand: 150kV peak
- Maximum symmetrical interrupting with K = 1: 16kA, 25kA, 31.5kA, 40kA, 50kA, 63kA
- Continuous current:
Circuit breakers - up to 3000A
Switchgear main bus - up to 3000A

Features:

38kV Vacuum Circuit Breaker:

- Corona-free design increases circuit breaker reliability and in-service life by maintaining insulation integrity.

- Superior cycloaliphatic epoxy insulation—a void-free insulating material with outstanding electrical and mechanical characteristics, such as track resistance, dielectric strength, and fungus resistance, even in harsh industrial environment—is used throughout the circuit breaker as primary phase-to-phase and phase-to-ground insulation.
- Axial-magnetic, copper-chrome contacts are used in 38kV vacuum interrupters to provide superior dielectric strength, better performance characteristics, and lower chop current.
- High power laboratory tests prove ADVAC breakers are capable of 50 to 200 full fault current interruptions
- Easy inspection and accessibility is afforded by front mounted stored energy operating mechanism. The same basic mechanism is used on all ratings, which requires a minimum investment in spare parts.
- All 38kV circuit breakers are horizontal Draw-out design, which provide connect, test and disconnect position. A latch secures the breaker in the connected and disconnected/test position. The circuit breaker is designed to roll directly on the floor.
- Circuit breaker compartment is designed to interface with type ADVAC 38kV circuit breaker. It includes floor-mounted breaker pan assembly (levering assembly) with all safety interlocks required by the metal-clad design. Cell mounted guide rails accurately guide the breaker into the cell during levering, and ensure correct alignment of the circuit breaker primary disconnects with the cell primary contacts when breaker reaches connected position.
- Coding plates are provided to ensure only correct breaker rating can be installed in the cell.
- Automatic steel shutters cover cell primary contacts when circuit breaker is withdrawn from its connected position, to prevent persons from accidentally touching the stationary primary cell contacts. Each shutter can be padlocked in the closed or open position. It can also be manually latched open as required for maintenance.
- A separate control compartment is provided for installation of protection, metering and control devices. No devices are located on circuit breaker compartment door.
- Rear of the switchgear is divided in main bus and cable compartments, isolated from each other by grounded metal barriers. Sufficient space is available for customer's top or bottom entry power cables. Bus duct terminations can also be supplied. A bare copper ground bus is provided along the entire lineup, with an extension in each cable compartment for termination of power cable shields.

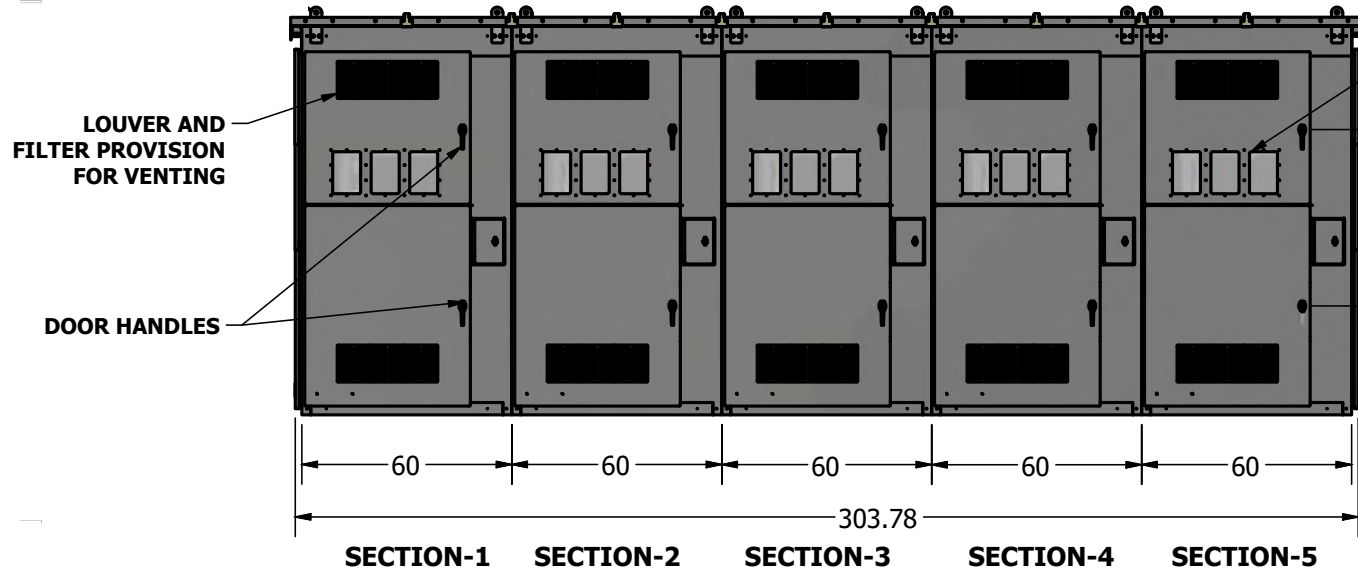
38kV Switchgear Assembly:

- The 38kV switchgear assembly is a corona-free, metal-clad design. It integrates many features and advantages from the 5, and 15kV Metal-Clad designs, with additional modifications necessary for 38kV applications.
- Industry-leading cycloaliphatic epoxy supports are used for primary phase-to-phase and phase-to-ground insulation throughout, providing 150kV BIL and 80kV (1 minute) power frequency withstand capability.
- All primary bus conductors are insulated for full 38kV by fluidized epoxy coating. All buses are fabricated from 100% conductivity copper. Bus joints are silver-or tin-plated as required, and covered with pre-formed insulating boots to maintain metal-clad integrity.

Features Cont:

- Ampacity: 1200A, 2000A, 3000A
- Basic Insulation Level (BIL): 150kV (Breaker 170kV BIL)
- Advanced ABB vacuum circuit breaker technology.
- Indoor/outdoor compatibility.
- Metal-clad Switchgear, compartmentalized structure.
- Rear connection access.
- Main-tie-main automatic transfer configurations available.
- Breaker & Drawout PT integration in feeder sections.
- 38kV voltage, 1200A - 3000 Ampacity.
- Breaker interrupter up to 63kA.

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COMPLIANCES:

ANSI/IEEE C37.20.2
Metal-Clad Switchgear

ANSI/IEEE C37.04
Rating Structure for High Voltage Circuit Breakers

ANSI/IEEE C37.54
Indoor HV Breakers in Metal Enclosure Conformance Test

ANSI/IEEE C37.55
Medium Voltage Metal-Clad Assemblies

ANSI/IEEE C37.09
Test Procedure for AC HV Breakers on Sym Current basis

ASCE7-10 Standards
Compliance for structural design.

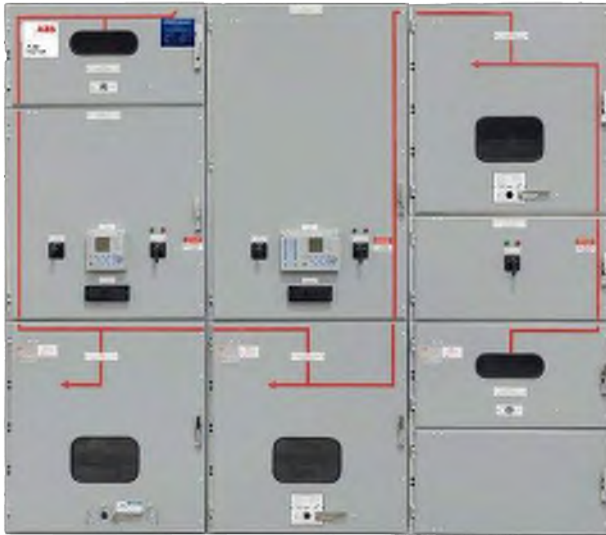
IBC & CBC
Compliance with building codes.

Buy American Act
Certification available upon request.
CSA Certified

Optional Accessories and Features:

- UL / cUL listing
- Copper tin-plated bus
- Insulated bus and bus boots over joints
- 80kA momentary bus rating
- Automatic transfer switch
- Weather resistant
- Dust resistant
- NEMA 2 drip-proof enclosure
- Rear doors (full height or double)
- Vertical barriers
- Rodent barriers
- Bottom closure plates
- Seismic Zone 4 bracing
- Tamper resistant hardware
- Auxiliary switches (2NO-2NC)
- Thermostat
- Space heater (standard on outdoor, optional on indoor)
- Porcelain insulators
- Customer metering
- Surge arresters
- Mimic bus
- Space heater switch
- Ground studs
- Convenience light
- Duplex receptacle
- Top hat
- Run back bus
- And more!





Construction Doors:

Switchgear's front doors consist of the breaker compartment, auxiliary unit compartments and LV compartments. These doors are provided with a single handle, multi-point latch (MPL) as standard. Bolted doors are available as an option. All doors are hinged on the left as standard (when facing the front door). Right-hand hinged doors are available as an option.

Rear doors on the Switchgear product are used to access the high voltage cable compartments. These doors are available in the following configurations:

- Full height hinged and bolted
- Split doors (top compartment/bottom compartment) hinged and bolted
- Full height hinged with multi-point latch (MPL) is optional
- Bolted, non-hinged full height or split doors are also available as an option.
- All front and rear doors are constructed using 12-gauge painted steel.

Padlock provisions are available on all front and rear doors. These padlock provisions are used to lock the door closed to prevent access to the compartment interiors. On breaker compartment doors, padlock provisions are also supplied on the racking release lever, to prevent unintended racking of the breaker.

Breaker and auxiliary compartment unit doors include a viewing window used for observing the position and status of the components inside the compartment with the door closed. These doors can also be provided with the SmartRack mounting provisions for remote racking applications.

Due to the small footprint design, installation of protection and control devices on the breaker and auxiliary unit doors are not possible without adding the optional 10-inch front extension to the front of the frame. With the 10-inch front extension, protection and control relaying can be installed on these doors.

Compartment Types Circuit Breaker Compartment

Circuit Breaker Compartments:

Circuit breaker compartments are designed for operator safety by providing one large viewing window and automatic latching, three-position, closed door racking. As an option, mechanical breaker position indicators, viewable from outside the compartment, with the door closed are available. The circuit breakers have self-aligning, fully automatic primary and secondary contacts allowing operators to keep the door closed throughout the racking operation.

Unique Racking System & Interlocks:

The racking system is unique and features a three-position closed door system for all circuit breakers. The racking mechanism is integral to the circuit breaker, so moving parts can be inspected and maintained outside the circuit breaker compartment and away from energized primary parts.

A solid stationary ground contact engages the grounding contact of the circuit breaker prior to the coupling of the primary or secondary contacts and is continuous during the racking operation

The three racking positions are defined as follows:

- Connected: Primary and secondary (control) contacts are engaged
- Disconnected: Primary and secondary (control) contacts are disengaged
- Test: Primary contacts are disengaged. Secondary (control) contacts are engaged for in cell breaker testing.



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Technical Data

Rated voltage class	kV	38					
Maximum tested voltage, Ur	kV	40.5					
Rated frequency	Hz	50/60					
Short-circuit breaking current, isc	kA	16			31.5		
		25			40		
		1000			1000		
C2 Class capacitive switching	A	1000			1000		
Rated current, Ir FAC*	A	1200	2000	3000 FAC*	1200	2000	3000 FAC*
Short-time withstand current	kA	16	16	16	31.5	31.5	31.5
		25	25	25			
		31.5	31.5	31.5			
Short circuit withstand	s	3	3	3	3	3	3
Close and latching capability		42	42	42	82	82	82
		65	65	65			
		82	82	82			
% DC component (Idc)	%	46	46	46	46	46	46
Interrupting time	MS	<50	<50	<50	<50	<50	<50
Closing time	MS	50-80	50-80	50-80	50-80	50-80	50-80
Mechanical endurance class	M2	10,000	10,000	10,000	10,000	10,000	10,000
Lighting impulse withstand voltage Drawout/fixed	kV	150/190	150/190	150/190	150/190	150/190	150
Power frequency withstand voltage, Ud	kV	80	80	80	80	80	80

*Forced air cooled (FAC)

Dimensions and weight



Overall dimensions of withdrawable version	Height	1126 mm	44.3 in
Maximum weight of withdrawable ROF version	Width	897 mm	35.3 in
	Depth	906 mm	35.7 in
	Phase distance	280 mm	11 in
	Weight	299 kg	661 lbs

PHASE BARRIERS

SURGE ARRESTORS

38KV SWITCH (FUSED)

