Medium Voltage Switchgear System

24kV ET1

Removable AC Metal-enclosed Switchgear

Powering Business Worldwide

Powering business worldwide

Eaton delivers the power inside hundreds of products that are answering the demands of today's fast changing world.

We help our customers worldwide manage the power they need for buildings, aircraft, trucks, cars, machinery and entire businesses. And we do it in a way that consumes fewer resources.

Next generation transportation

Eaton is driving the development of new technologies – from hybrid drivetrains and emission control systems to advanced engine components – that reduce fuel consumption and emissions in trucks and cars.

Higher expectations

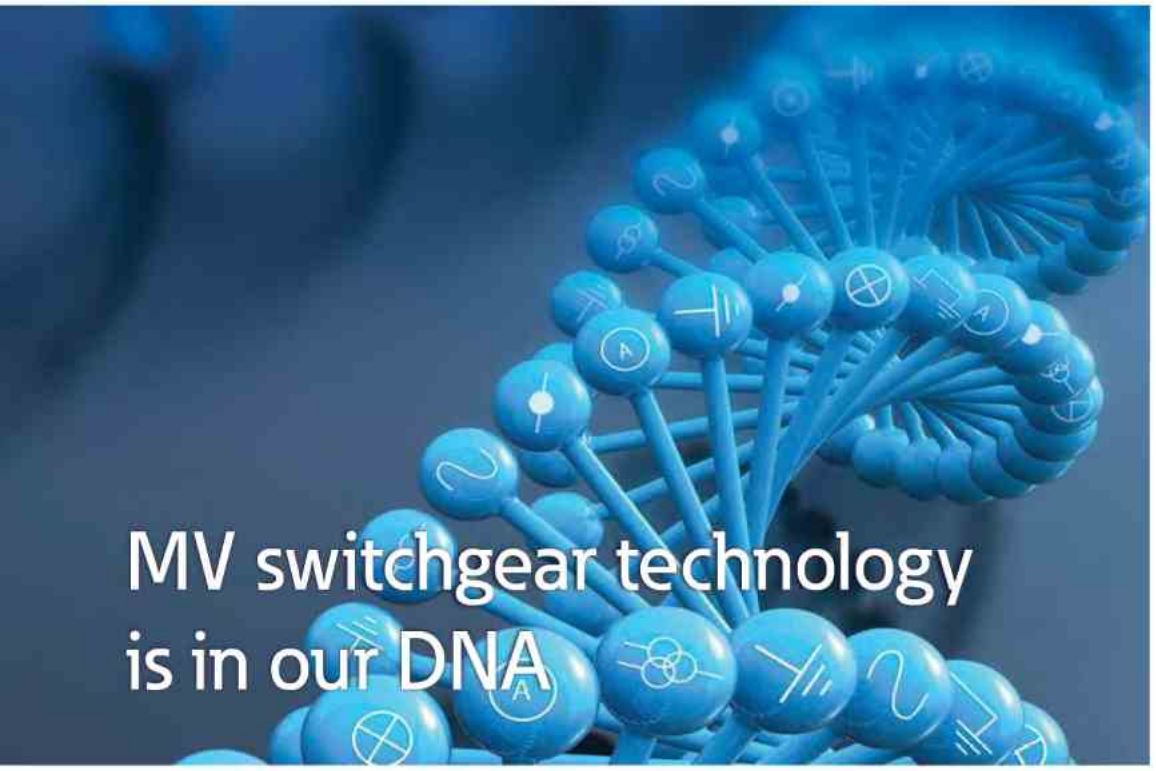
We continue to expand our aerospace solutions and services to meet the needs of new aviation platforms, including the high-flying light jet and very light jet markets.

Building on our strengths

Our hydraulics business combines localised service and support with an innovative portfolio of fluid power solutions to answer the needs of global infrastructure projects, including locks, canals and dams.

Powering Greener Buildings and Businesses

Eaton's Electrical Group is a leading provider of power quality, distribution and control solutions that increase energy efficiency and improve power quality, safety and reliability. Our solutions offer a growing portfolio of "green" products and services, such as energy audits and real-time energy consumption monitoring. Eaton's Uninterruptible Power Supplies (UPS), variable-speed drives and lighting controls help conserve energy and increase efficiency.



MV switchgear technology is in our DNA

Eaton Corporation is a worldwide leader in the design, manufacture, and sale of safe, reliable and high-performance medium voltage power distribution equipment in accordance with IEC, ANSI and GB / DL standards

Complete Global Medium Voltage Switchgear Solutions

Eaton, a premier leader in designing and manufacturing power distribution and protection equipment in the electrical industry, offers a comprehensive range of medium voltage (MV) solutions to meet the needs of virtually every application. From products that feature cutting-edge design that allow for easy access, maintenance and space savings, to arc-resistant products that enhance safety, Eaton's medium voltage solutions provide a variety of products for every need. Additionally, Eaton's global service network provides maximum customer support in all regions of the world.

As one of the few completely vertically integrated and diversified industrial manufacturers in the world, Eaton designs not only MV assemblies, but also the key components that comprise the MV solutions – from steel housing and circuit breaker compartments to vacuum interrupters, circuit breakers, bus systems and fuses.

Eaton's MV heritage, strengthened by acquisitions such as Westinghouse DCBU, Cutler Hammer, MEM and Holec, has resulted in breakthrough MV technologies and numerous international patents over the years.

Part of Eaton's complete electrical PowerChain Solutions – which help businesses minimize risks while realizing greater reliability, cost efficiencies, capital utilization and safety – Eaton's medium voltage equipment meets all applicable standards and certifications such as IEC, NEMA / ANSI, GB / DL, UL, IEEE, KEMA and CSA.

When it comes to medium voltage solutions, you can trust the one name with a long history of proven performance: Eaton.

Eaton's range of SF_6 free switchgear for Medium Voltage

An Eaton Green Solution

24kV ET1

Removable AC Metal-enclosed Switchgear

General

With more than 80 years of experience in the design, manufacture and application of Medium Voltage switchgear, Eaton pioneered the use of vacuum technology in the 1930s and introduced epoxy-resin insulation in the 1950s. Being at the forefront of technological advances, Eaton remains committed to product development, innovation, and improvement, while also striving to reduce size and cost.

The product is a 24kV metal-clad removable air-insulated switchgear installed indoors, suitable for a three-phase AC 50Hz single-bus sectional system, including 630–4000A specification series products. It is equipped with E-VAC series withdrawable vacuum circuit breakers, which are suitable for receiving and distributing electric energy in power grids, substations, industrial and mining enterprises and commercial buildings to realize the control, protection and monitoring of distribution lines.

Service Environment

Indoor installation and normal conditions:

- Ambient temperature -25°C~+40°C, daily average temperature does not exceed 35°C;
- Humidity conditions: daily average relative humidity ⩽95%, monthly average relative humidity ⩽90%;
- The surrounding air is not significantly polluted by dust, smoke, corrosive and flammable gas, steam or salt pollution;
- The altitude is not more than 1000m;
- The seismic intensity is not more than 8 degrees;
- The amplitude of electromagnetic interference induced in the secondary system should not exceed 1.6kV.

When the service conditions exceed GB/T11022 and the above regulations, please contact Eaton for confirmation.

Application segment

- Utility
- Commercial buildings
- Chemical
- Metallurgy
- Industries and corporations

Safe and Reliable

- Complete metal-enclosed structure to prevent the entry of dirt and small animals
- Each compartment is isolated from each other and has each pressure relief channel
- Earthing switch has capability of short-circuit making
- Anti-misoperation interlock effectively prevent misoperation and mistaken entry into the live compartment
- Operation only on completely closed-door condition protects the personal safety of operators.
- Internal arc protection up to AFLR 31.5kA 1s
- Comprehensive third-party test certification

Main standard adopted

- GB/T 3906 Alternating-current metal-enclosed switchgear and controlgear for rated voltages above 3.6kV and up to and including 40.5kV
- GB/T 11022 Common specifications for high-voltage switchgear and controlgear standards
- DL/T 404 Alternating-current metal-enclosed switchgear and controlgear for rated voltages above 3.6kV and up to and including 40.5kV
- DL/T 593 Common specifications for high-voltage switchgear and controlgear standards
- IEC 62271-200 High-voltage switchgear and controlgear-Part200

Easy to operate

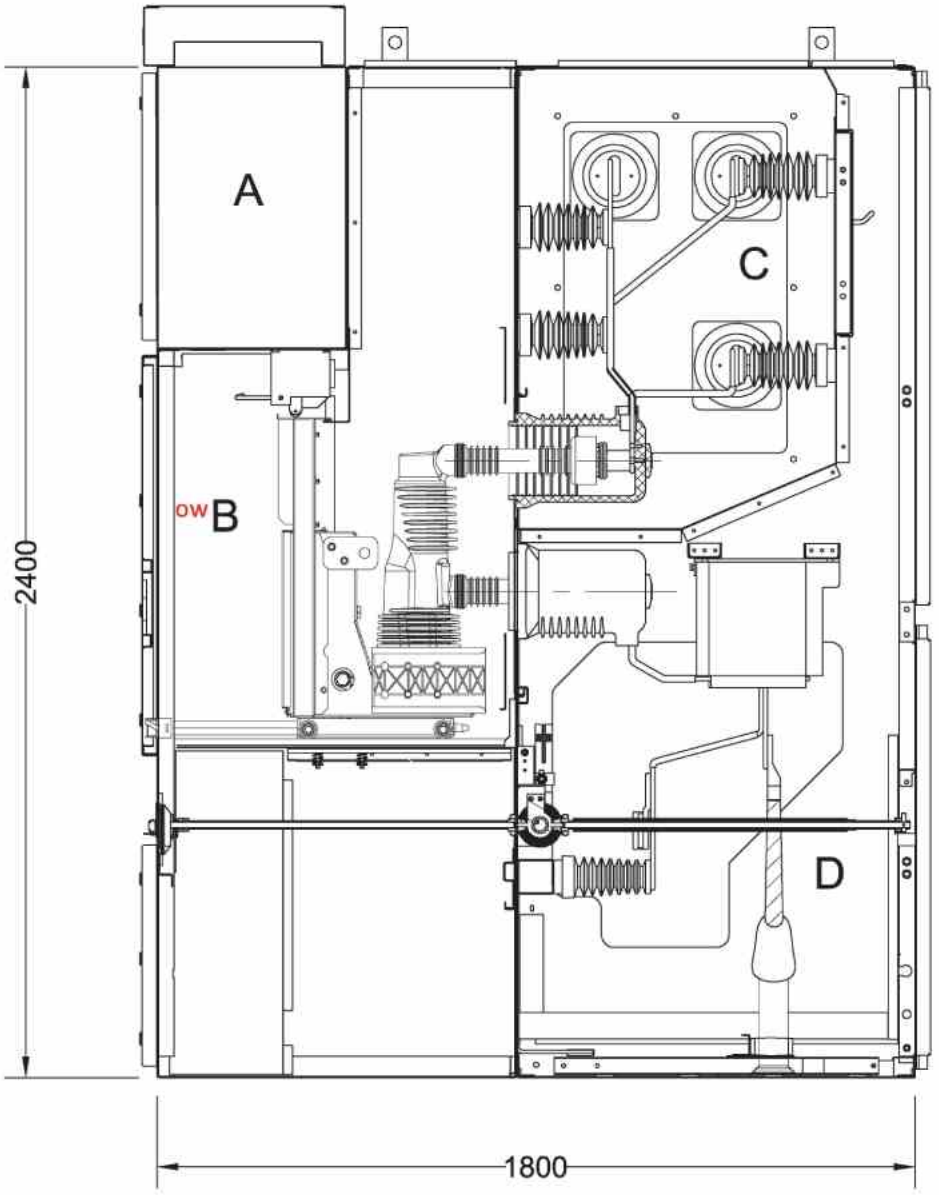
- The position of the circuit breaker and opening/closing/energy storage status can be checked through the window of the front door
- The VCB truck is maintenance-free, and the operating mechanism only needs a small amount of maintenance
- VCB truck adopts labor-saving lead screw mechanism
- Good interchangeability and easy to replace
- The secondary wiring is laid in a detachable metal wire slot for easy inspection

Wide applicability

- Suitable for three-core or single-core cable connection
- Suitable for cables or busbars entry and outgoing, also suitable for mixed entry way for cable and busbar
- Installing standard block current/voltage transformers
- Reserve interfaces on both sides of the switchboard for easy expansion

Basic Structure

The switchgear is divided into four compartments of busbar, circuit breaker, cable and low voltage components. The cabinet is a modular structure, which can ensure the strength and accuracy of the switchboard. The interfaces available on both sides of the panel for conveniently expansion of the existing system.



A—Low voltage compartment B—Circuit breaker compartment C—Busbar compartment D—Cable compartment

Switchgear Structure Diagram

Design overview

Avoid internal arc faults

The vacuum circuit breaker adopts a single-pole structure with epoxy encapsulated pole unit and a fully insulated busbar system to ensure that the high-voltage conductors of the primary circuit are insulated and isolated from each other, avoiding/minimizing possible occurrences to the greatest extent.

Internal Arc Rating:

The most serious potential threat for an operator is arcing fault inside the switchgear. The metal-enclosed design of the ET1, with its robust construction, has passed internal arc fault testing in all three high-voltage compartments, with an IAC rating of up to 31.5kA-1s.

According to the standard defined protection level of switchgear upon internal arc fault, the 24kV ET1 range's approval upon independent third-party testing proves that the IAC class it can offer is **AFLR**.

A = Protection for personnel (authorized personnel only)

F = Protection at the Front of the switchgear

L = Protection at the Lateral (sides) of the switchgear

R = Protection at the Rear of the switchgear

Accessibility of compartments

- Busbar compartment: Tool-based/non-accessible
- Circuit breaker compartment: Interlock controlled
- Cable compartment: Tool-based or optional interlock control

Partition Class: PM

The partitions and shutters employs only earthed metal sheets which has the highest level of partition classification of PM.

Protection Class

The standard external protection class of the switchgear design is IP4X. The internal protection class is IP2X.

Earthing

Every switchgear is provided with a main grounding bar which runs through an arrangement. The copper bar's cross-section is selected according to the system short circuit current, which ensures a simple and effective earthing between the switchgear and the grounding grid of the substation.

The earthing conductors are distributed vertically and horizontally in the panel. They are connected to the earthing switch or/and the main earthing bar. The earthing system passes the short-circuit fault test.

The circuit breaker truck and other function truck are connected to the main earthing bar through the copper bar at the bottom of VCB compartment.

There're dedicated grounding wires to ensure reliable earthing in the doors and low-voltage compartment.

Safety interlock

For personnel safety ET1 is designed with a series of "five safeguards" interlocks to prevent fundamentally against dangerous situations and wrongful operation that might give rise to serious consequences and accordingly protect the operators and the switchgear.

Basic interlocks

- Only when the circuit breaker compartment door is closed can the circuit breaker be moved in or out. Only when the circuit breaker is in the testing/isolated position can the circuit breaker compartment door be opened.
- The trolley can only be moved from the test/isolation position to the service position only when the circuit breaker is tripped. Vice versa (mechanical interlock).
- Only when the VCB truck is in a complete testing or working position can the circuit breaker be closed (mechanical interlock). When the truck is in the testing or service position but there is no controlled voltage, the circuit breaker cannot be closed; one can only open it manually (mechanical electrical interlock).
- When the truck is in the service position, the control plug is locked and hence cannot be pulled out.

- When the earthing switch is off, the truck cannot move from the testing/isolated position to the service position; when the truck is in the service position, the earthing switch cannot be turned off(mechanical interlock).
- Only when the earthing switch is closed, the rear door of the cable compartment may be opened (mechanical interlock). When the rear door is not closed, it is impossible to turn on the earthing switch.

Additional interlocks

- The additional electrical or mechanical lock realizes interlocking between the busbar earthing and the upstream incoming /downstream outgoing breaker.
- The additional interlock may be installed onto the truck and/or the earthing switch operation mechanism, such as the latching electromagnet.
- Once the truck moves away, the shutters may be locked with a padlock.
- The operation hole of the earthing switch may be locked by a padlock.
- Additional electrical compulsory latching device may be installed to the door of the cable compartment of the switchgear.

Anti-condensation measure

The space heaters are installed in the circuit breaker and cable compartment to prevent condensation that may occur when high humidity and temperature drop.

Surface protection

The switchgear frame is made of high-quality aluminum-zinc-clad sheet, which is formed by a flexible CNC machining center at one time, formed by multiple hemming processes, and fastened and assembled with high-strength bolts and rivets. It has high machining accuracy, good overall rigidity, and corrosion resistance.

The surfaces of exposed parts such as doors and cover plates are all sprayed with epoxy resin electrostatic powder. After electrostatic spraying, the coating is plasticized and cured at 180 ℃-190 ℃. The coating is well combined with the substrate with strong adhesion, impact resistance, corrosion resistance and beautiful appearance.

The standard color is RAL7035 gray, or according to the color code requirements provided by customers.

Auxiliary and control circuits

wire cross-section regulations:

current circuit $\geqslant$ 2.5mm^2

voltage circuit $\geqslant$ 1.5mm^2

withstand voltage level: 2000V/min

Wiring method: fixed terminal block, the number of terminals meets the wiring requirements, reserve 10% for backup with connecting pieces.

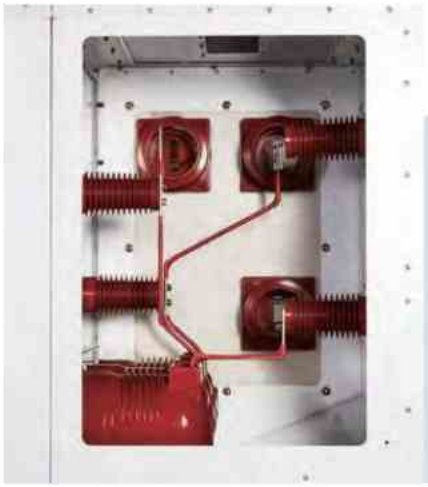
Low voltage compartment

The low-voltage compartment is composed of a grounded metal partition to form an independent compartment. There are a grid plate, terminal row and secondary earthing bar inside to provide sufficient space for LV control and protection components.

The low-voltage busbar can be flexible wire connected through a connector. Otherwise an independent low-voltage busbar channel can be set on the upper of the low-voltage compartment, which can be opened separately to facilitate the connection of LV busbars between adjacent panels.

Main busbar compartment

The main busbar compartment is isolated from each other by grounded metal partitions and insulating bushings, for which an independent pressure relief channel is provided. The entire busbar system is fully insulated, which can ensure the insulation level and reduce the possibility of arc faults. The busbar bushing is installed on the stainless steel plate to reduce the eddy current heating.



Busbar system

Both the main and the branch busbar are made of high-conductivity rectangular copper bars with rounded corners.

- Each busbar compartment is separated by a separate partition
- The copper bar is covered with heat-shrinkable sleeves, and the overlap is covered with an insulating boot.
- The fully insulated main busbar runs through the entire arrangement
- The busbar supported via long creepage insulators
- Pre-drilled copper bars are convenient for on-site connection
- The maximum rated current of the busbar system is 4000A and short-circuit withstand 31.5kA-4s

Circuit breaker compartment

The circuit breaker compartment is composed of grounded metal partitions, and there is an independent pressure relief channel on the upper part.

The circuit breaker truck is mechanically interlocked with the door. The door can only be opened when the circuit breaker is opened and returned to the test position.

With the door fully closed, the circuit breaker can be opened or closed from the front of the switchgear using a manual button or lever.

A set of guide rail is installed at the bottom of the circuit breaker compartment for the truck to be positioned and moved. The guide rail can automatically align the contacts when the VCB truck is racking in. An automatic shutter drive mechanism is set to ensure that the shutter is automatically opened when the truck moves from the "test" position to the "service" position; when it moves in the opposite direction, the shutter is automatically closed to achieve effective shielding of the contacts.

The earthing copper bar is installed at the bottom of the circuit breaker compartment to ensure that the truck is connected to the main earthing system as soon as it enters the "test" position. It is earthed continuously when the truck is racking in and out inside the panel.

Shutters

The metal shutters on the busbar and cable sides can be operated independently, and the shutters will automatically open or close as the truck is rolled in or out.

When the circuit breaker is in the test or isolation position, the shutter will be automatically closed to prevent expose of any live parts.

When the circuit breaker truck is moved out of the panel, a padlock can be added in the closed state of the shutter to ensure that the maintenance person will not touch the high-voltage live conductor.

Design overview

Cable compartment

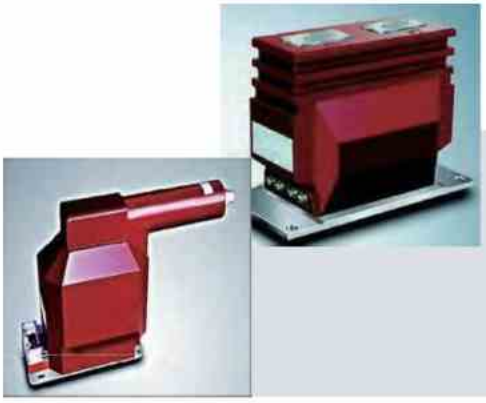
Components such as current transformers, voltage transformers, earthing switch and surge arresters can be installed in the cable compartment. Insulation partitions are installed to ensure the insulating strength between phases and to the ground.

The opening and closing status of the earthing switch can be observed behind the cable compartment door.

There is a mechanical interlock between the cable compartment door and the earthing switch. The door can only be opened when the earthing switch is closed; the earthing switch can be closed only when the door is completely closed and locked.

The cable connection terminal can be connected in parallel with maximum three single-core cables or three 400mm2 three-core cables and the connection height can reach 750mm, which is convenient for connection.

A horizontal main earthing busbar is installed at the rear and lower part of the cable compartment. After the installation is completed, the entire row of panels is connected and linked to the main grounding grid of the substation.



Current/voltage transformers

The switchgear is equipped with standard epoxy resin cast block current transformers.

Equipped with electromagnetic epoxy casting voltage transformers, they can be installed fixedly or withdrablely.

Earthing switch

The earthing switch is installed in the cable compartment. All the operation is performed in front of the panel. The status of the earthing switch can be directly observed through the door window and can be displayed through the indication on the low-voltage door.

There is a mechanical interlock between the earthing switch and the circuit breaker truck. The earthing switch can only be closed when the truck is in the test/isolation position.

The earthing switch and the cable compartment door are also provided with a mechanical interlock to ensure that the door can only be opened after the earthing switch is closed.

- The earthing switch has passed the comprehensive test
- Operated in front of the panel, reduced the operating torque by the bevel gear
- Auxiliary contacts can be added to indicate the opening/closed position
- Mechanical status indicator
- Mechanical and/or electrical interlocks with vacuum circuit breakers for operator safety

Main components

E-VAC vacuum circuit breaker

Eaton vacuum interrupter

- Eaton's latest vacuum interrupter, providing excellent performance using high-performance copper-chromium contact and excellent magnetic field design
- Strong erosion resistance, lifetime maintenance-free
- Ideal breaking for resistive, inductive and capacitive loads with extremely low re-strike
- Ideal contact material and shape to ensure low chopping current and contact resistance

Epoxy resin encapsulated pole unit

The encapsulated pole unit adopts mature APG technology to seal and cast the vacuum interrupter and the conduction into a whole unit. It has superior and reliable insulating performance, and is suitable for safe running in harsh environments.

- Excellent thermal conductivity
- High insulating performance
- Low moisture absorption
- Long creepage distance
- High mechanical strength

New-generation modular mechanism

It adopts Eaton's new-generation E-Legend modular spring mechanism with a number of Eaton core technologies. The mechanism adopts a direct-acting transmission design, which has low energy transmission loss and can provide better mechanical performance. Compared with the traditional spring mechanism, the number of parts and components is reduced by more than half, which further improves the reliability of the product, and makes the operation and maintenance easier.

- Electrically operation on AC/DC
- The spring energy reserve mechanism realizes mechanical and automatic electrical tripping
- The spring energy storage indicator has auxiliary contacts, which can display the spring status remotely
- Mechanical status indicator shows the closed/opened state
- The auxiliary contact shows the closed/opened state
- The service/testing position of the circuit breaker can be shown by the position indicator
- The auxiliary contact may be used for remote display of the position
- Mechanical interlock for operation only when door closing
- The mechanical interlock ensures that the circuit breaker may only be racking in or out when opened

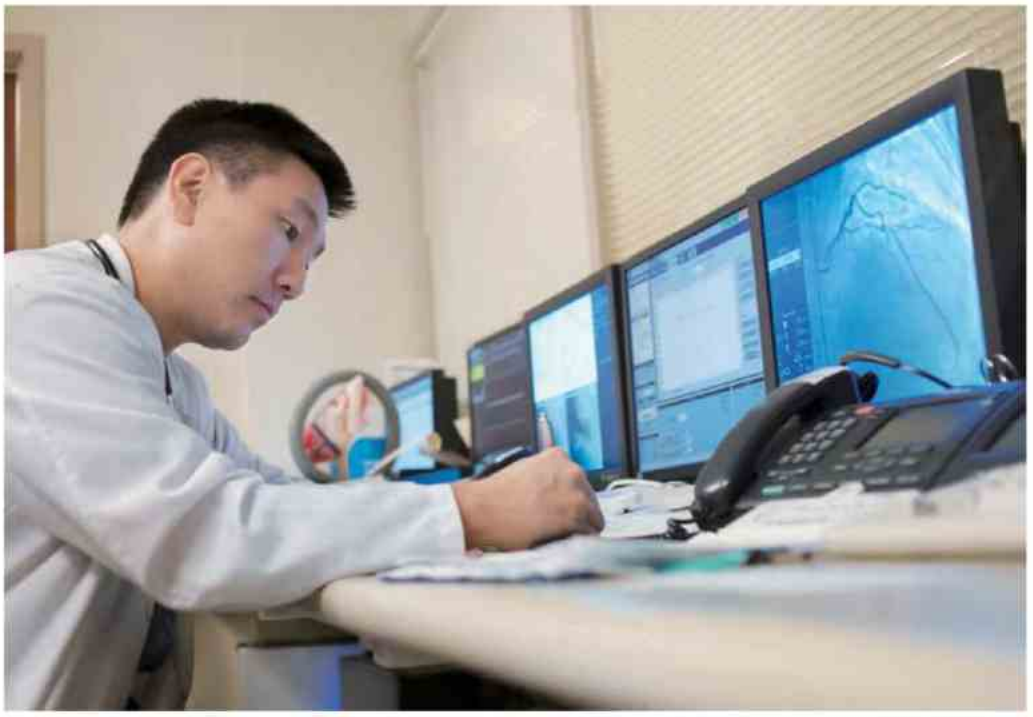
Quality and service warranty

Test Certifications

- All products have been certified through type-testing performed at a third-party test station

Factory Acceptance Test (FAT)

- According to the test items required by the customer to implement the FAT test
- Provide facilities and simulated on-site environment and equipment for testing, measurement and complete documentation as required
- The whole process is attended, witnessed and recorded by the customer's engineer



Routine test

- Strict factory inspections are performed on each vacuum interrupter, circuit breaker and switchgear. Upon completion of the overall installation, thorough appearance inspection and mechanical functional and electrical tests should be performed.
- Before being released from the factory, circuit breakers go through standard switchgear coordination tests to ensure product interchangeability and universality.
- Before being released from the factory, circuit breakers go through the run-in test for mechanical operation to ensure steadiness of the performance.
- All the ex-work inspection data of products are archived and traceable.

Quality control

- The R&D process is managed by the Prolaunch process
- The manufacturing plant follows the global unified Eaton quality, environment and safety system (EQS&EHS); has passed ISO14001/OHSAS18001 system certification
- The switchgear and circuit breakers are equipped with tooling to ensure dimensional consistency
- Quality test from raw material to finished product
  - Automatic triaxial image test
  - X-ray inspection
  - Circuit resistance test
  - Breaker mechanical characteristic test
  - Withstand voltage and partial discharge test
  - Mechanical and electrical function test

Service commitment

- Service outlets all over the country
- After-sales service team engineers have more than 10 years of work experience and good skills, can quickly and efficiently handle on-site faults, and cooperate with users on-site installation, commissioning and operation
- Respond to customer feedback and complaints within 8 hours
- After-sales service hotline: 400-828-0505

Technical data

Technical data for switchgear

Type Model		ET1-24
System		
Rated voltage	kV	24
Rated power frequency withstand voltage(1min)	kV	65(phase to phase, phase to earth)/79(isolation gap)
Rated impulse withstand voltage(BIL)	kV	125(phase to phase, phase to earth)/145(isolation gap)
Rated frequency	Hz	50
Busbar		
Main busbar rated current	A	1250;1600;2000;2500;3150/4000
Branch busbar rated current	A	630;1250;1600;2000;2500;3150/4000*(FC)
Rated short time withstand current(RMS)	kA/s	25;31.5/4
Rated peak withstand current(Peak)	kA	63; 80
Protection degree		IP4X for enclosurer, IP2X for compartments
Dimension		
Width W	mm	800/1000
Height H (LV busbar channel excluded)	mm	2400
Depth D	mm	1800/2200
Weight(VCB included)	kG	1000~1650

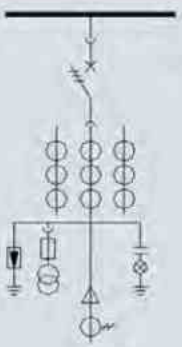
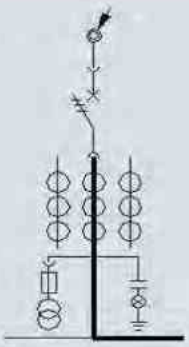
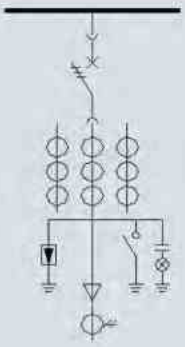
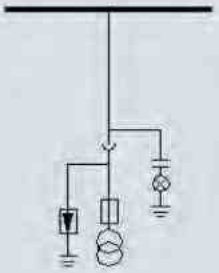
Note: *The cooling fan required when rated current up to 4000A

Technical data for circuit breaker

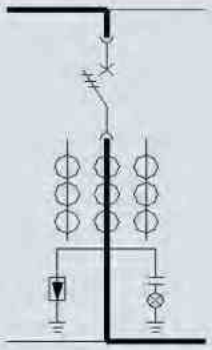
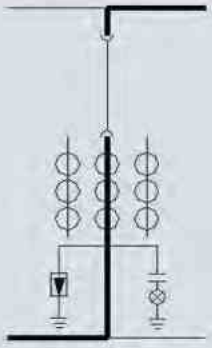
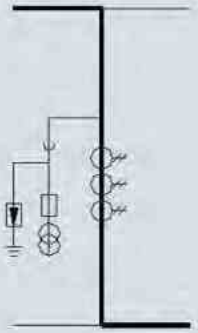
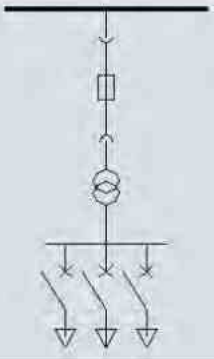
Type model		240E-VAC
Rated voltage	kV	24
Rated power frequency withstand voltage(1min)	kV	65
Rated impulse withstand voltage(BIL)	kV	125
Sencondary circuit power frequency withstand voltage(1min)	kV	2
Rated frequency	Hz	50/60
Rated current	A	630;1250;1600;2000;2500;3150/4000*
Rated short circuit breaking current(RMS)	kA	25;31.5
Rated short circuit making current(Peak)	kA	63;80
4s short time withstand current (RMS)	kA	25;31.5
Class		E2/M2/C2
Closing time	ms	25~50
Opening time	ms	20~60
mechanical life	times	10,000
Operating sequence		O-0.3s-CO-180s-CO
Motor power	W	90
Motor voltage	V	DC/AC110,DC/AC220
Motor charge time	s	≤15
Control voltage ofopening and closing coil	V	DC/AC110,DC/AC220

*Force cooling for 4000A.

SLD and configuration

		VCB Incomer		Top entry Incomer		VCB Feeder		Busbar VT	
									
Primary components	VCB	●	1	●	1	●	1		
	Disconnect truck								
	VT&Arrester truck							●	1
	Lower VT truck	○	0 or 1	○	0 or 1				
	Metering truck								
	Fuse truck								
	Current transformer	●	3 or 2	●	3 or 2	●	3 or 2		
	Voltage transformer	○	1~3	●	1~3			●	2~3
	Surge arrester	○	0 or 3	○	0 or 3	○	0 or 3	●	3
	Earthing switch					○	0 or 1		
	VT protection fuse	○	2 or 3	○	2 or 3			●	3
	OCT	○	0 or 1			○	0 or 1只		
	Voltage indicator	●	1~2	●	1~2	●	1~2	●	1~2
	Transformer								
Entry	Bottom cable in/out	●				●			
	Top cable in/out	○		○		○			
		○		●		○			
Rating	Rated current (A)	630~4000		630~4000		630~4000		<=3A	
Dimension	Width (mm)	800(630~1250A) 1000(1600~4000A)		800(630~1250A) 1000(1600~4000A)		800(630~1250A) 1000(1600~4000A)		800/1000	
	Depth (mm)	1800(Bottom cable entry) 2200(Top cable or busbar entry)				1800(Bottom cable entry) 2200(Top cable or busbar entry)		1800	

Note: ●Required ○Optional

		Bus-section		Disconnect		Measure		Transformer	
									
Primary components	VCB	●	1						
	Disconnect truck			●	1				
	VT&Arrester truck					●			
	Lower VT truck								
	Metering truck					○	0 or 1		
	Fuse truck							●	1
	Current transformer	●	3 or 2	○	3 or 2	●	3 or 2		
	Voltage transformer					●	2~3		
	Surge arrester	○	0 or 3			●	3		
	Earthing switch								
	VT protection fuse					●	3		
	OCT								
	Voltage indicator	●	1~2	●	1~2	●	0~1只	○	0~1
	Transformer							●	1
Entry	Bottom cable in/out								
	Top cable in/out								
	Top busbar in/out								
Rating	Rated current (A)	630~4000		630~4000		630~4000		<=3A	
Dimension	Width (mm)	800(630~1250A) 1000(1600~4000A)		800(630~1250A) 1000(1600~4000A)		800/1000		1000(width depends to transformer size)	
	Depth (mm)	1800		1800		1800		1800(depth depends to transformer size)	

Note: ●Required ○Optional

General requirements for switchgear installation

The switchgear installation site and channel settings should comply with the relevant provisions of "GB 50053 Design Specifications for 20kV and Below Substations".

The installation foundation for the switchgear should meet applicable requirements in the "Code of Erection and Acceptance of Electric Power Construction". The installation foundation for the switchgear usually requires two concrete pouring efforts. The first one is meant to install embedded parts of the switchgear and pave the underlying channel steel. The second concrete pouring effort is for the supplementary level on the ground; the general height is 60 mm. The height of the concrete should be below that of the surface of the channel steel by 3 to 6 mm when the supplementary level of concrete is poured.

The form of the primary and secondary cable trenches depends on the installation location and building conditions of the switchgear.

The deviation of the flatness of the installation foundation of the switchgear is not more than 1mm per meter. The overall length deviation does not exceed 3mm.

The switchgear should be transported to a specific location as indicated. if a row of panel is arranged (more than 10 units), it is recommended to start from the middle of the arrangement.

Appropriate means of transport such as cranes, forklifts, etc. should be used at the installation site, and the use of rollers and crowbars is strictly prohibited.

During installation, the VCB and truck should be pulled out from the switchgear and put in another place for safekeeping.

When installing, first level the first panel or the first connecting surface to ensure the horizontal and vertical requirements.

The unevenness of switchgear installation shall not exceed 2mm.

After calibrating the first panel, paying attention to the alignment of the side holes with the connection surface of the installed one.

Included documents

- Product Qualification Certificate
- Routine test report
- Packing list
- User manual
- List of spare parts and accessories
- Secondary wiring diagram
- Other relevant materials required by the customer

Ordering information

- It is required to provide the following information when placing an order:
- System wiring diagram, Sigle line diagram and floor plan
- Basic data including rated voltage, rated current, VCB breaking/making current , control voltage etc.
- Incoming and outgoing ways and the specification and quantity of cables
- Special requirements for component model, specification and quantity (if any, please list);
- For special service environments or requirements, please contact Eaton first.

Spare parts and accessories

The accessories of switchgear include:

- Transportation trolley
- VCB opening/closing operating handle
- Racking handle
- Earthing switch operating handle
- Door locking handle
- Specialized tools kit

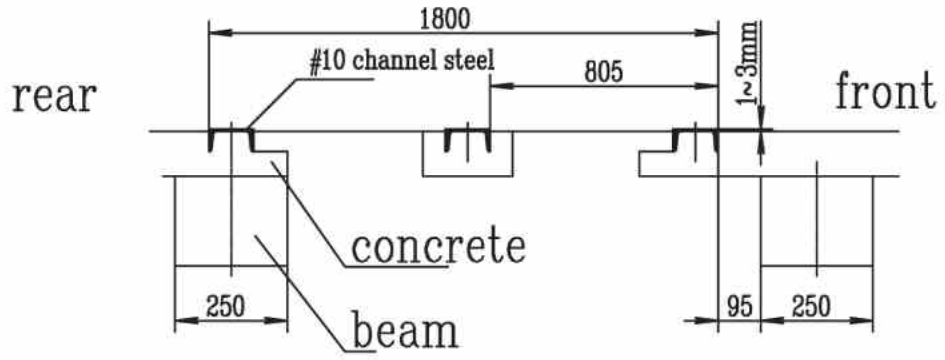
Spare parts include:

- PT protection fuse
- Opening coil
- Closing coil
- Voltage indicator
- Aux. switch
- Indication lamp
- Transfer switch
- Electromagnetic lock

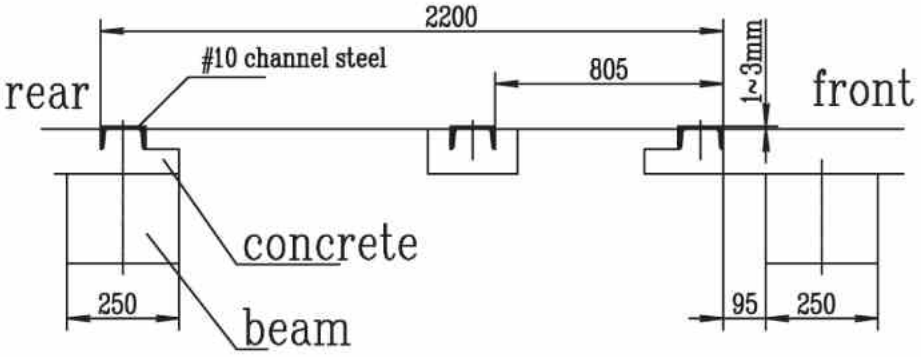
The spare parts list is ultimately determined by both the supplier and the buyer according to the customer's requirements.

Foundation and floor plan

ET1-24 ET1 installation foundation illustration



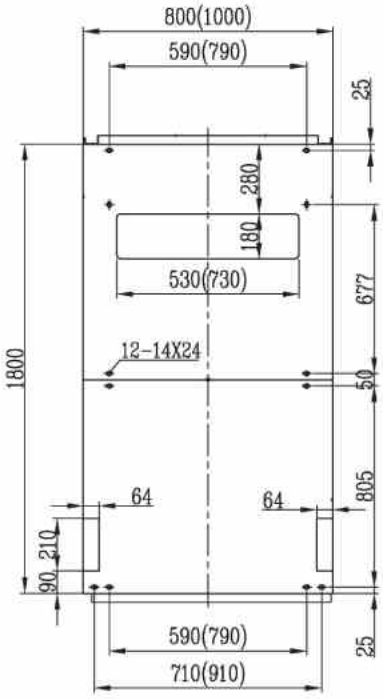
1800mm depth panel foundation



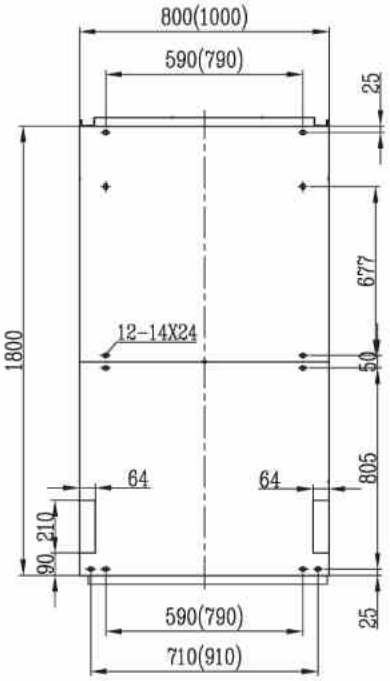
2200mm depth panel foundation

Note: The door dimension excluded for the depth

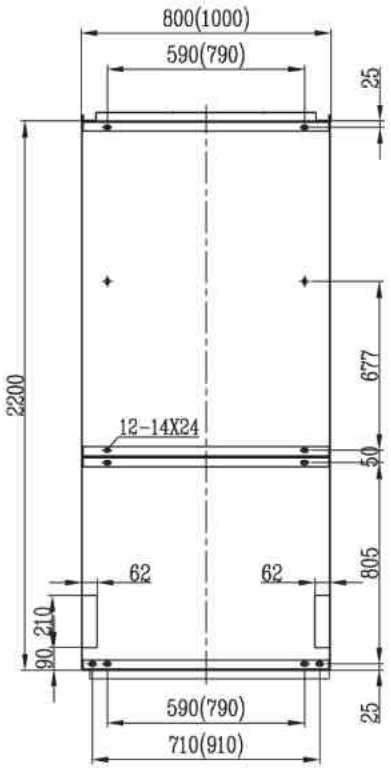
The panel floor plan



for feeder



for bus-section or riser



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Eaton entered the Chinese market in 1993, and has grown significantly since then. In 2004, Eaton moved its Asia-Pacific headquarters from Hong Kong to Shanghai. Today, Eaton has nearly 8,000 employees and 19 manufacturing facilities in China.

For more information about Eaton China, visit **www.eaton.com.cn**

Eaton Corporation
No.3, Lane 280, Linhong Road,
Changning District,
Shanghai, China 200335
www.eaton.com.cn

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