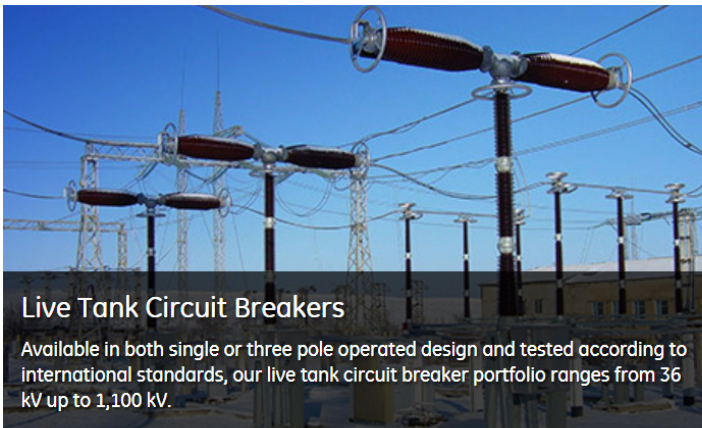


HV/MV Equipment

Circuit Breakers

Circuit Breakers

GE is one of the top circuit breaker suppliers in the world. Our products include a range of live tank circuit breakers (up to 800 kV), dead tank circuit breakers (up to 550 kV), as well as hybrid and compact switchgear assemblies. We also provide solutions for power generation applications with our generator circuit breakers for installations up to 1,500 MW.



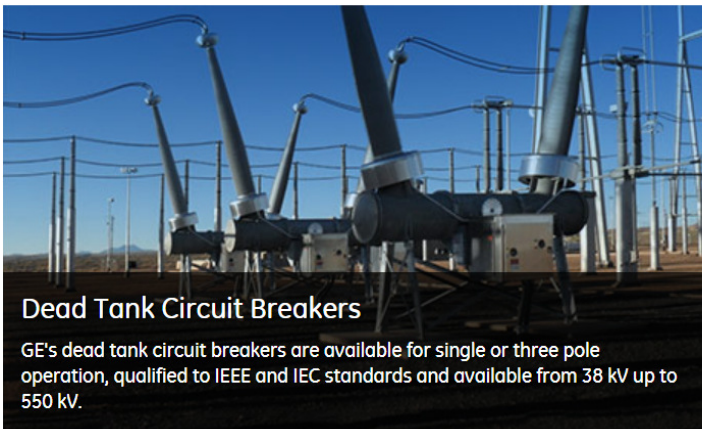
Live Tank Circuit Breakers

Available in both single or three pole operated design and tested according to international standards, our live tank circuit breaker portfolio ranges from 36 kV up to 1,100 kV.



HVDC Switches

GE's offers fast switches developed based on the highest standards of performance, ratings, user convenience and reliability for all HVDC applications up to 800 kV.



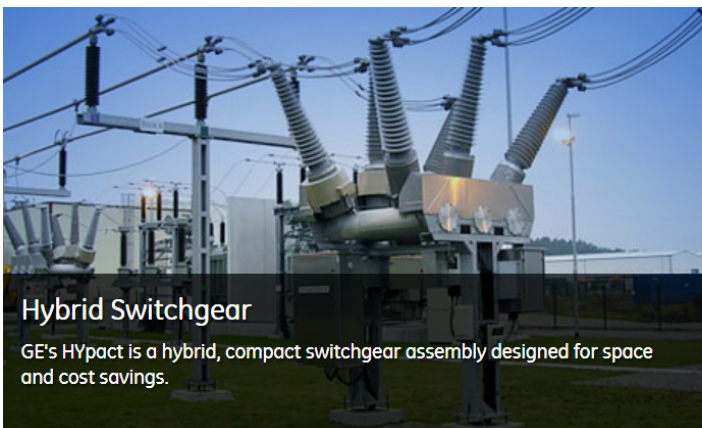
Dead Tank Circuit Breakers

GE's dead tank circuit breakers are available for single or three pole operation, qualified to IEEE and IEC standards and available from 38 kV up to 550 kV.



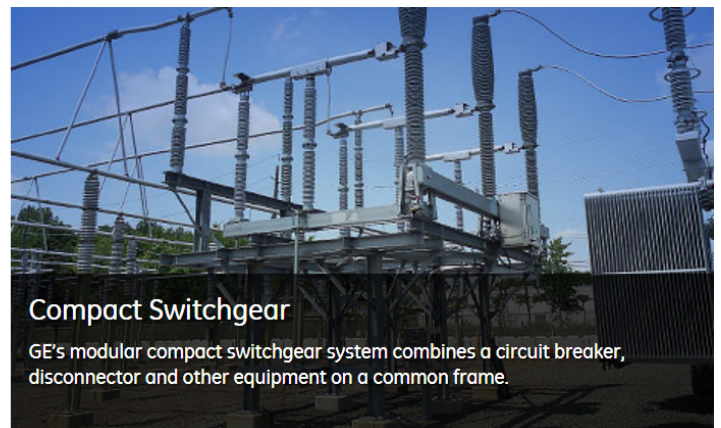
Generator Circuit Breakers

Flexible generator circuit breaker solutions for new and refurbished power plants up to 50,000 A and 1,500 MW.



Hybrid Switchgear

GE's HYPact is a hybrid, compact switchgear assembly designed for space and cost savings.



Compact Switchgear

GE's modular compact switchgear system combines a circuit breaker, disconnector and other equipment on a common frame.

Live Tank Circuit Breakers up to 800 kV

The GL series is safer and more reliable than previous circuit breaker designs. It offers a new generation of spring-spring operating mechanism that enables quick and easy onsite installation. The improved GL series is safer and more reliable. It offers a new generation spring-spring operating mechanism that enables quick and easy onsite installation.

This range of Live Tank Circuit Breakers can be used everywhere in the energy field even in highly seismic, highly polluted and low temperature environments. The breakers benefit from single and three pole application and their low energy operation makes them a cost-effective option.

The GL Live Tank Circuit Breaker range includes breakers using single or double motion technology and reduced chamber size. Both, porcelain and composite insulators are available.



GL 107X

Live Tank Circuit Breaker from 36 kV up to 40.5 kV

[More Info](#)



GL 308 and GL 309

Live Tank Circuit Breakers for 52 kV and 72.5 kV

[More Info](#)



GL 310 S, GL 311 S and GL 312 S

Live Tank Circuit Breakers from 100 kV to 145 kV
Down to -30 °C with pure SF₆

[More Info](#)



GL 310, GL 311 and GL 312

Live Tank Circuit Breakers from 100 kV to 145 kV
Down to -40 °C with pure SF₆ and -60 °C with gas mixture

[More Info](#)



GL 313

Live Tank Circuit Breaker from 145 kV up to 170 kV

[▶ More Info](#)



GL 314 and GL 314X

Live Tank Circuit Breakers up to 245 kV and 300 kV

[▶ More Info](#)



GL 314 BPS

Live Tank Circuit Breaker By-Pass-Switch up to 245 kV

[▶ More Info](#)



GL 315 and GL 315X

Live Tank Circuit Breakers up to 362 kV

[▶ More Info](#)



GL 316 and GL 316X

Live Tank Circuit Breakers up to 420 kV

[▶ More Info](#)



GL 317 and GL 317X

Live Tank Circuit Breakers up to 550 kV

[▶ More Info](#)



GL 318 and GL 318X

Live Tank Circuit Breakers up to 800 kV

[More Info](#)

XD/GE Live Tank Circuit Breakers



Supporting voltage ratings up to 550kV, XD|GE high voltage Live Tank Circuit Breakers have been engineered to handle the demanding switching duties and environmental conditions required to operate and maintain reliable transmission systems.

[More Info](#)

Compact Switchgear

Compact Air-Insulated Breaker Assembly CABA

Compact switchgear

GE's Compact Air-Insulated Breaker Assembly (CABA) is a modular, compact switchgear system combining a live tank circuit breaker, double sided disconnect switch and other AIS equipment mounted on a common frame. It can be installed in greenfield substations or retrofit into an existing substation. CABA can be installed on existing foundations and is designed for space savings due to its compactness.

This flexible, compact breaker assembly is well suited for a variety of applications including transformer protection, line and cable switching, capacitor bank and back-to-back switching, reactor switching and circuit switching.



CIRCUIT BREAKER

Three (3) phase either gang or independent pole operated circuit breaker with spring-spring mechanism and one free sanding control cabinet and 300 feet of control cable on one spool. Spring-spring mechanism cabinet(s) will be connecting with control cable(s) to the free standing control cabinet.



DISCONNECT SWITCH

Double side break disconnect switch Type S3CD: Three (3) phases gang operated, includes interphase piping and operating drive pipe, single phases fully assembled, adjusted and factory tested, with live parts and arcing horns and insulators mounted on bases. Manual operator by worm gear hand crank Optional motor operator available.



CUSTOMER BENEFITS

- Modular design for green field or retrofit
- Improved substation protection
- CABA will not require new foundation for retrofits on standardised modules
- Easy site installation and commissioning
- Circuit Breaker performance in a Circuit Switcher footprint

Dead Tank Circuit Breakers

Advanced Switchgear Technology for Reliable Performance

GE offers a comprehensive range of dead tank circuit breakers that support a voltage rating up to 550 kV, and are capable of carrying a continuous current up to 5,000 A. GE's circuit breakers meet or exceed the latest IEEE/ANSI and IEC standards, including C2 and M2. They can be gang operated up to 245 kV, and Independent Pole Operation (IPO) is available at all voltage levels.

The DT Series from GE is characterized by advanced self-blast interrupters, leak resistant cast aluminum enclosures and durable low energy mechanisms. More than 100,000 circuit breakers with self-blast interrupters and spring-spring operated mechanism have been in service since 1989, including more than 25,000 dead tank circuit breakers.

The SF₆ dead tank circuit breakers assure a high level of reliability on a daily basis, even under extreme conditions such as low temperatures, highly active seismic areas, regions with high pollution levels, and a corrosive atmosphere.

GE's Dead Tank Circuit Breakers, the DT Series, supports system voltages from 38 kV to 550 kV and are designed for reliable performance, maximized safety and lower cost of ownership. The DT Series is designed to operate within extreme environmental conditions including high elevation, very low and high temperatures (-60 °C to +60 °C), seismic zones, polluted areas and corrosive atmospheres.



DT1-38

Dead Tank Circuit Breaker for 38 kV / 40 kA

[More Info](#)



DT1-72.5

Dead Tank Circuit Breaker for 72.5 kV / 40 kA

[More Info](#)



DT1-145 and DT1-170

Dead Tank Circuit Breakers for 123 kV, 145 kV and 170 kV / 40 kA

[More Info](#)



DT1-145 63

Dead Tank Circuit Breaker for 123 kV and 145 kV / 63 kA

[More Info](#)



DT1-245P

Dead Tank Circuit Breaker for 245 kV / 40 kA

[More Info](#)



DT1-245P 63

Dead Tank Circuit Breaker for 245 kV / 63 kA

[More Info](#)



DT1-245 F3 for Independent Pole Operation (IPO)

Dead Tank Circuit Breaker for 245 kV / 63 kA

[More Info](#)



DT1-362

Dead Tank Circuit Breaker for 362 kV / 63 kA

[More Info](#)



DT2-550

Dead Tank Circuit Breaker for 550 kV / 63 kA

[More Info](#)

XD/GE Dead Tank Circuit Breakers



XD|GE offers a comprehensive range of Dead Tank Circuit Breakers that support a voltage rating up to 800 kV and are capable of carrying a continuous current up to 5000A. For circuit breakers rated 363kV and above, the design features a fully integrated, maintenance free, hydro-mechanical operating mechanism, maximizing device stability and long-term reliability.

[More Info](#)

HYpact

Hybrid compact switchgear assembly

HYpact is a hybrid compact switchgear assembly that typically consists of circuit breakers, disconnectors, and earthing switches located in a common gas tank. Current and voltage transformers can be added and the standard SF₆ to air bushings can be replaced with cable connectors. Its modular design allows for a large variety of different layout configurations and enables a more economical substation design.

HYpact is well suited for heavily polluted environments and is the high-performing choice in regions exposed to seismic activity. Its compact design with low center-of-gravity is ideal for withstanding seismic acceleration, as proven by shaking table tests and finite elements method simulations. HYpact customers also benefit from long maintenance-free periods with reduced exposure to environmental influences and a low number of bushings and moveable contacts.



HVDC Switches

Switches for HVDC applications are designed to close and open very rapidly in case of fault or for maintenance purposes. The switches may have to commutate load current while maintaining the flow of power within DC substation and its availability.

All HVDC switches are activated by the highly reliable spring-spring mechanism and benefit of a huge experience and installed base of AC circuit-breaker technology delivered worldwide in regards to design technology, to quality in terms of supplier qualification, assembly processes and ISO conformity.



HVDC Switches

Where more than one HVDC Pole share a common transmission conductor (typically the neutral) it is advantageous to be able to commutate the DC current between transmission paths without interrupting the DC power flow.

NBGS – Neutral Bus Ground Switch

This switch is normally open but when closed it solidly connects the converter neutral to the station earth mat. Operation with this switch can normally be maintained if the converter can be operated in a bipole mode with balanced currents between the poles, that is, the DC current to earth is very small. The switch is also able to open, commutating a small DC unbalance current out of the switch and into the DC circuit.

NBS – Neutral Bus Switch

A NBS is in series with the neutral connection of each pole. In the event of an earth fault on one pole, that pole will be blocked. However, the pole remaining in service will continue to feed DC current into the fault via the common neutral connection. The NBS is used to divert the DC current away from the blocked pole to ground.

GRTS – Ground Return Transfer Switch

The connection between the HVDC conductor and the neutral point includes both a high voltage disconnector and a GRTS and is used as part of the switching operation to configure the HVDC scheme as either a ground return monopole or a metallic return monopole. The disconnector is maintained open if the HV conductor is energized in order to isolate the medium voltage GRTS from the high voltage.

The GRTS is closed, following the closing of the disconnector in order to put the HV conductor in parallel with the earth path. The GRTS is also used to commutate the load current from the HV conductor transferring the path to the earth (or ground return) path. Once current flow through the HV conductor is detected as having stopped, the disconnector can be opened, allowing the HV conductor to be re-energised at high voltage.

MRTB – Metallic Return Transfer Breaker

The MRTB is used in conjunction with the GRTS to commutate the DC load current between the earth (ground return) and a parallel, otherwise unused, HV conductor (metallic return).

The MRTB closes in order to put the low impedance earth return path in parallel with the metallic return path. The MRTB must also be able to open, causing current flowing through the earth return to commutate into the much higher impedance metallic return path.

Bypass Switch (BPS) and Fast Acting Discharge Switch (FADS)

This switching device can be used either as a HVDC by-pass or a fast discharge switch.

As a by-pass switch, it is connected across each converter valve group in HVDC schemes using more than one independent converter per pole. It shall close rapidly to by-pass a converter group that is being taken out of service and commutate the current back into a valve group that is being taken back into service.

As a fast acting discharge switch, it is connected between one pole and a resistance connected to the ground. It remains opened until a fault occurs in AC network. AC circuit-breaker clears the fault, but a trapped charge remains in the HVDC line and shall be discharged before the AC circuit-breaker re-close and re-energize the poles 300 ms later: for it, fast acting discharge switch shall perform a fast CO within these 300 ms to discharge and re-isolate the pole from the ground.



DC Switch in Champa India



High Speed Switch

High speed switches can be used either as a line paralleling switch or either as converter paralleling switch.

As a line paralleling switch, it is connected in series to one or more high voltage pole conductors allowing one or more line to be connected in parallel or to revert to a single line operation while maintaining the flow of HVDC power.

As a converter paralleling switch, it is connected in series to each converter at the high voltage DC terminal where 2 or more converters are connected in parallel onto a common pole conductor. It is designed to allow additional converter(s) to be connected in parallel or to disconnect some of them while conducting the load current.



Generator Circuit Breakers

Increased Availability, Enhanced Protection and Simplified Operations for Power Plants

GE's Generator Circuit Breakers (GCBs) are ideally suited for new and refurbished power plants from 50 MW to 1,500 MW and feature advanced technology with spring-spring-operated mechanisms. The comprehensive GCB portfolio provides solutions from generator circuit breakers without enclosure to customized solutions including disconnect, earthing switch, starting switch and instrument transformers.

Key Features:

- GCB ranges FKG1, FKG2 and FKGA
- Spring-spring operated mechanism for utmost reliability
- Optimized, preventive maintenance with monitoring system
- Breaker natural cooling up to 30,000 A and enhanced cooling up to 40,000 A
- 3,000+ GCB installations and 40+ years of expertise

