MITSUBISHI ELECTRIC
POWER PRODUCTS, INC.

Generator Main Circuit Breakers

Mitsubishi Electric offers SF6 gas insulated Generator Main Circuit Breakers (GMCB) for applications in combustion turbine, combined cycle and other types of power plants. A GMCB is used to electrically disconnect a generator from the associated power transmission system, and sometimes is used to connect the generator to the static thyristor or other starting system in a combustion turbine plant. A GMCB is also common in a hydroelectric pumped-storage power plant.

Mitsubishi Electric supplied the world's first SF6 gas insulated generator circuit breaker in 1977 and has continued to develop innovative designs and new products that offer the latest technology and increased performance, while maintaining high quality and reliability. We now offer a hybrid type GMCB that incorporates a circuit breaker, disconnect switches, ground switches, starting disconnect switches, current transformers, potential transformers, surge capacitors, and surge arresters all in a common cubicle type assembly. This space-saving design drastically decreases the required space and time required for the installation process. This assembly is shipped from our factory completely assembled and tested, thus reducing the installation time required at the job site.

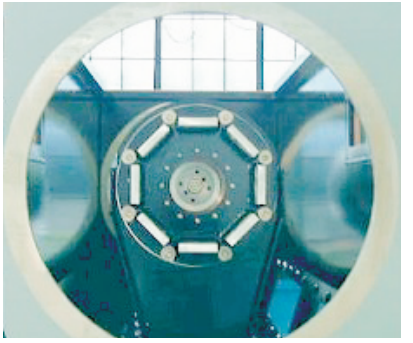
This hybrid type GMCB is available for applications requiring ratings up to 27.5 kV rated voltage, 100 kA rated breaking current, 11,000 A continuous current naturally cooled rating or 20,000 A continuous current force-cooled rating.

The *Mitsubishi Electric* hybrid type GMCB uses "Mini-flux" construction, which is designed to carry the induced current in the circuit breaker enclosure that flows in the opposite direction of the current that is carried on the isolated phase bus conductor. This design minimizes the magnetic fields external to the equipment, reducing the interference put upon its surrounding equipment.

The hybrid type GMCB is ideal for applications in combined cycle power plants, combustion turbine power plants, and hydroelectric pumped-storage power plants. Some advantages of applying a GMCB in a new power plant design are:

- A GMCB can be used to connect 2 or 3 generators to one transformer, centralizing the equipment required on the high-voltage side.
- A GMCB eliminates the need for high voltage start-up transformers and associated switchgear.
- A GMCB eliminates the need for switching of buses in the plant, thus increasing plant reliability.
- A GMCB eliminates the possibility of transformer over excitation, because the transformer is isolated while the generator speed is raised during starting.

We are continually applying new technology to increase performance and reliability of our products, and are currently developing additional GMCB models that will extend the range of applications in order further fulfill the needs of our customers. *Mitsubishi Electric* will continue to be a leader in the supply of GMCB's now and far into the future.



MITSUBISHI ELECTRIC
POWER PRODUCTS, INC.

512 Keystone Drive, Warrendale, PA 15086 • Phone: 724-772-2555 Fax: 724-722-2146