Grid Solutions

# FKG1XP

## Generator Circuit Breaker System for Power Plants from 600 to 750 MW*

Power plant owners are concerned with the availability and reliability of their plants. That is why it is crucial to rely on equipment capable of safely interrupting fault conditions while protecting connected equipment and reduce outage periods.

### Higher Reliability

FKG Generator circuit breakers are equipped with a fully spring-operated mechanism for high reliability, maximum energy stability and low maintenance requirements. This model is equipped with additional fans and a smart cooling system to optimize thermal exchanges.

### Keep an Eye on Your Generator Circuit-Breaker

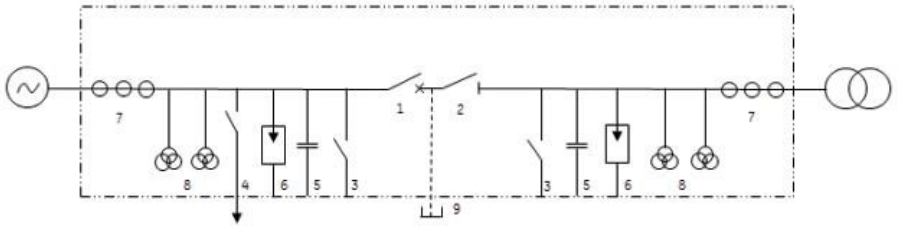
The FKG1XP includes a smart cooling digital solution to optimize in real time the ventilation system and retrieve main GCB information through industrial network communication or local Human Machine Interface.

In addition: The FKG1XP figures out optional add-on CBWatch monitoring system (automatic diagnosis) for maintenance based on real status of the switchgear.

### Higher Safety

A true electro-mechanical sequential interlocking system assures a reliable mechanical and electrical coordination for higher safety..

### Components and Single Line Diagram




*1 - Circuit breaker*
*2 - Disconnector*
*3 - Earthing switch*
*4 - Starting switch*
*5 - Capacitors*
*6 - ZnO surge arresters*
*7 - Current transformers*
*8 - Voltage transformers*
*9 - Manual Short-Circuiting bar*

### Technical Data

- 21,000 A - 160 kA - 50 Hz
- 20,450 A - 160 kA - 60 Hz

### Key Benefits

- Utmost reliability of the full spring mechanism
- CBWatch makes proactive maintenance possible
- Interrupting chambers with natural cooling system
- Ideal for large & very large turbines or generators

### Testing and Quality

- Product in full compliance with IEC/IEEE 62271-37-013 GCB standard
- Manufacturing ISO 9001 and ISO 14001 certified
- S.E.I. - S.N.E. and national packing procedures

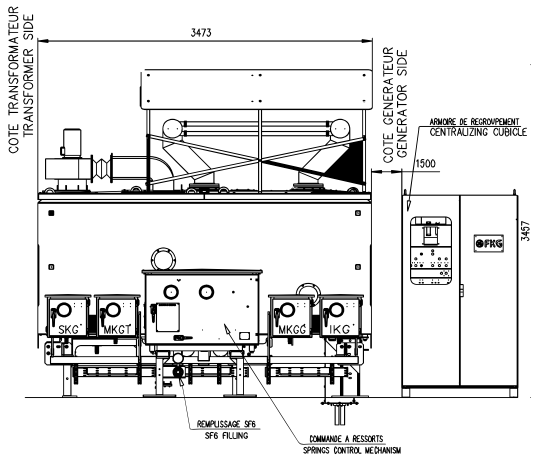
GE VERNOVA

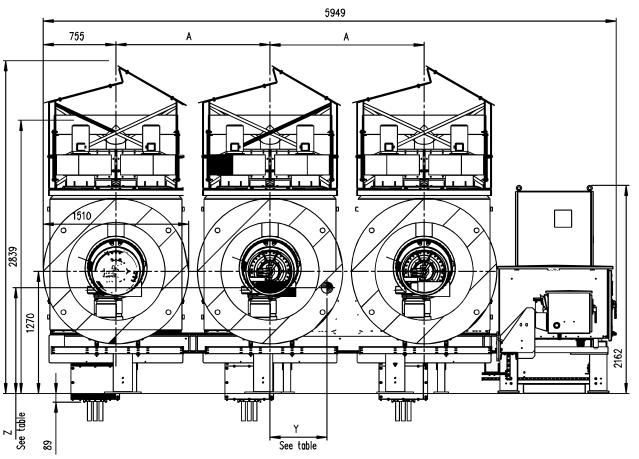
** Depending upon the power station's specifications, GE Vernova may propose an alternative GCB power rating.*

## Technical Specifications

| | | FKG1XP | | | |
|---|---|---|---|---|---|
| Rated maximum voltage | kV | 32.4 | | | |
| Short-circuit breaking current | kA | up to 160 | | | |
| Rated out-of-phase breaking current | kA | 80 | | | |
| Rated breaking time | ms | 75 | | | |
| Rated closing time | ms | 100 | | | |
| Insulating gas | | $SF_6$ | | | |
| Rated absolute pressure at 20°C | kPa | 950 | | | |
| Minimum absolute pressure at 20°C | kPa | 800 | | | |
| Location | | Indoor/Outdoor (protected) | | | |
| Breaker cooling type | | Natural | | | |
| Ambient air temperature limits | °C | -20°C(-25°C)/+40°C | | | |
| Busbar temperature limit/Enclosure temperature limit | °C | 90/70°C | | 105/80°C | |
| Frequency | Hz | 50 | 60 | 50 | 60 |
| Maximum rated normal current (natural cooling)<br>- Indoor with ambient air 40°C<br>- Outdoor with ambient air 40°C | <br>A<br>A | <br>21,000<br>20,300 | <br>20,450<br>19,700 | <br>20,000<br>19,300 | <br>19,450<br>18,700 |
| Phase spacing A with 100 mm step | mm | 1,600 to 2,000 | | | |
| Protection degrees (enclosure/cubicles) | | IP65 / IP55 | | | |
| $SF_6$ monitoring by densimeter | | 3-phase | | | |
| Pressure reading | | Yes | | | |
| | | **FKG1X Circuit Breaker** | **SKG1X Disconnector** | **MKG1X Earthing Switch** | **IKG1 Starting Switch** |
| Rated peak withstand current | kApeak | 440 | 440 | 440 | 330 |
| Rated short time withstand current | kA | 160 | 160 | 160 | 100 |
| Rated duration of short-circuit | s | 3 | 3 | 2 | 1 |
| Rated insulation level (at sea level) - Phase to earth<br>- Rated power frequency withstand voltage<br>- Rated lightning impulse withstand voltage: wave 1,2/50 µs | <br>kV<br>kVpeak | <br>80<br>150 | <br>80<br>150 | | <br>30<br>60 |
| Rated insulation level (at sea level) - Across terminals<br>- Rated power frequency withstand voltage<br>- Rated lightning impulse withstand voltage: wave 1,2/50 µs | <br>kV<br>kVpeak | <br>80<br>150 | <br>90<br>165 | <br>80<br>150 | <br>80<br>150 |

## Dimensions



For more information, visit
**gevernova.com/grid-solutions**



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