

FKGA2

Generator Circuit Breaker for Power Plants from 200 to 450 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.

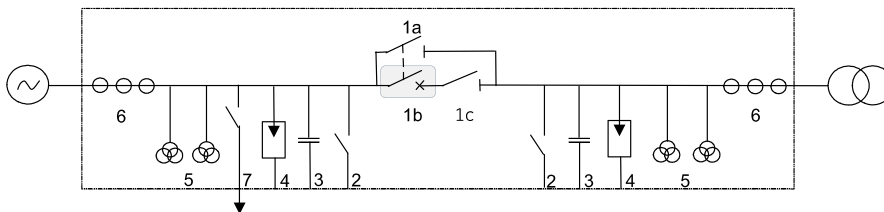
Advanced Architecture

Based on more than 40 years experience in providing Generator Circuits Breakers with performances up to 1,500 MW, GE Vernova offers the FKGA2 with well recognized and advanced architecture suitable for power plants from 200 to 450 MW. The circuit breaker's main contacts are in air, separated from the arcing SF_6 chamber. These contacts are therefore protected from the hot current breaking SF_6 gases including contaminated particles and associated by-products, reducing premature aging of the equipment. Additionally the combination of the circuit breaker and the disconnecter functions avoids energy losses caused by conventional in-line disconnecter. The FKGA2 is designed for new power plants, but is also highly suitable for retrofits or replacements of old GCBs or load break switch with air-blast technology providing low cost lifecycle with maximum availability and reliability.

Enhanced Inspection and Maintenance

This advanced architecture allows an easy observation of the main contacts throughout the GCB's periodic inspections. The value of having accessibility without dismantling of circuit breaker is enhanced by the fact that contact resistance measurement cannot alone be considered as reliable evidence (as notified by the latest IEC/IEEE 62271-37-013 GCB standard) of the contact health. By segregating the main contacts from the interrupting SF_6 gas, the FKGA2 provides simple access from outside the breaker during a short, normally scheduled power plant shutdown.

Components & Single Line Diagram



1. Circuit breaker with integrated air-disconnector

1a. Main contacts

1b. Arcing contacts in SF_6

1c. Safety Visual Switch (SVS) in air

1a + 1b = Circuit breaker / 1a + 1c = Air-Disconnector

2. Earthing switch

3. Capacitors

4. ZnO Surge arresters

5. Voltage/Current transformers

6. Starting switch



Technical Data

- 14,100 A - 100 kA - 50 Hz
- 13,450 A - 100 kA - 60 Hz

Key Benefits

- Advanced architecture of circuit breaker with main contacts in air with direct visual control and easy access
- Less energy losses thanks to the design of the circuit breaker with integrated air-disconnector
- SF_6 volume limited to arcing chamber for low environmental impact
- Utmost reliable full spring mechanisms per pole
- Compact breaker size both for retrofits and new installations
- Easier and faster inspection & maintenance

Additional Features

- Breaker in full compliance with IEEE C37013 and IEC standards
- Manufacturing certified to ISO 9001 & 14001
- Optional monitoring system CBWatch3 for preventive maintenance
- Interlocking system
- S.E.I – S.N.E and national packing procedures

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

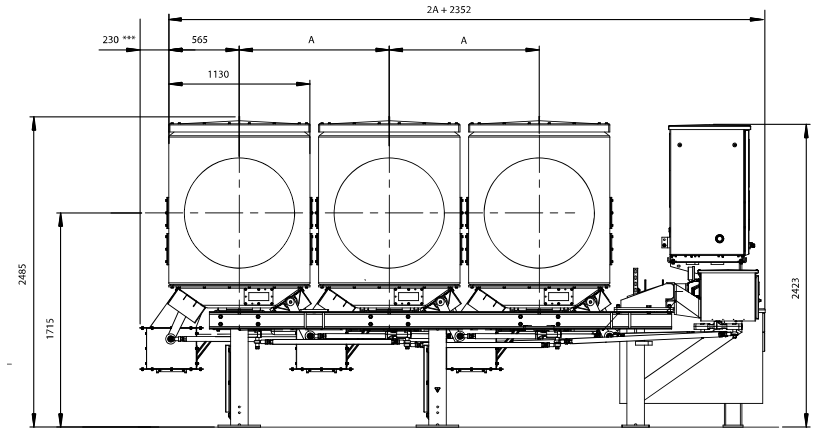
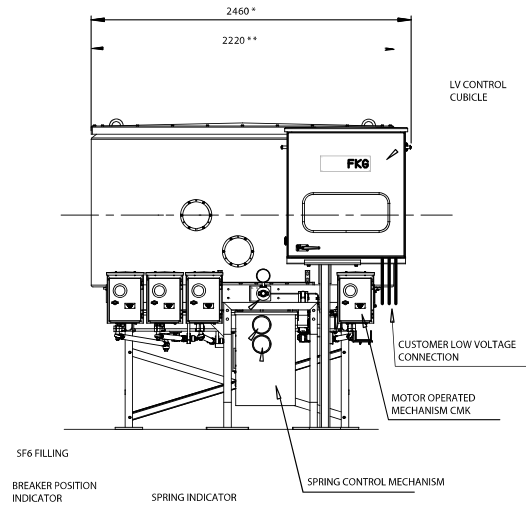


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Technical Specifications

RATINGS	UNIT	FKGA2			
Rated voltage	kV	27			
Short-circuit breaking current	kA	Up to 100			
Rated out-of-phase breaking current	kA	50			
Rated breaking time	ms	< 75			
Rated closing time	ms	< 120			
Insulating gas		SF ₆			
Ambient air temperature limits	°C	-25 to +40			
Busbar temperature limit/Enclosure temperature limit	°C	90 / 70		105 / 80	
Frequency	Hz	50	60	50	60
Maximum rated normal current (natural cooling)					
- Indoor with ambient air 40 °C	A	14,100	13,450	13,400	12,750
- Outdoor with ambient air 40 °C	A	13,300	12,650	12,600	11,950
Phase spacing A with 100 mm step	mm	1,200 (minimum) to 1,500			
		Circuit Breaker	Integrated Air-Disconnect	Earthing Switch	Starting Switch
Rated peak withstand current	kA _{peak}	274	274	274	274*
Rated short time withstand current	kA	100	100	100	100*
Rated duration of short-circuit	s	3	3	3	1*
Rated insulation level (at sea level) - Phase to earth					
- Rated power frequency withstand voltage	kV	60	60		20*
- Rated lightning impulse withstand voltage: wave 1,2/50 µs	kV _{peak}	125	125		60*
<i>* In closed position during starting sequence</i>					
Rated insulation level (at sea level) - Across isolating distance					
- Rated power frequency withstand voltage	kV	60	60	60	60
- Rated lightning impulse withstand voltage: wave 1,2/50 µs	kV _{peak}	145	145	125	125

Dimensions



* +100mm WITH 3CT'S ON ONE OR EACH SIDE
 ** +200mm WITH 3CT'S ON ONE OR EACH SIDE
 *** ONLY WITH STARTING SWITCH

STANDARD PHASE SPACING A = 1200
 OPTION : 1300 ; 1400 ; 1500

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

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