Electrification

Co-funded by the European Union

GL315c, GL316c

SF_6-free Live Tank Circuit Breakers From 300 kV to 420 kV down to -50 °C

A SF_6-free Solution to Reduce Carbon Footprint

More and more electrical grid operators are acting against climate change and are setting ambitious goals to cut their greenhouse gas emissions. As one of the major grid original equipment manufacturers, GE Vernova's Grid Solutions business is in the best position to support them in moving a step closer to reaching their carbon reduction targets by building the transmission infrastructure necessary to connect and transport renewable energy, while avoiding the addition of tons of CO_2 equivalent to their grid. Benefiting from more than 60 years of expertise in SF_6 and ten years in SF_6-free technology, GL315c and GL316c are designed for outdoor installation. They work under extreme climate conditions including temperatures down to -50°C, and in highly active seismic areas.

GL315c and GL316c belong to our SF_6-free live tank circuit-breaker portfolio for applications within networks at 300 kV, 362 kV and 420 kV rated voltages. They have the same dimensions as SF_6 solutions, which means that they can be installed in place of SF_6 circuit breakers. Their composite insulators allow higher dielectric withstand under pollution and provide higher safety for employees at substation. GL315c and GL316c feature also the latest double-motion interrupting technology.

Digital Native Solution

Factory-testing: Like on our entire digital-native solution portfolio, CSD100 point-on-wave controller is integrated and tested in our factories. This minimizes onsite activities and ensures reliable and consistent performance at commissioning. Learn more about digital-native live tank circuit breakers with our dedicated brochure.

Monitoring of circuit-breaker: Unlike competing controlled-switching solutions, CSD100 also provides essential monitoring functions, including advanced tracking of the CO_2-O_2 interrupting medium.

Shunt Reactor Switching

The GL315c and GL316c will enable smooth shunt reactor switching by combining the CSD100 point-on-wave controller with CO_2-O_2 gas technology, effectively eliminating the risk of multiple high-frequency re-ignitions.

Quality and Testing

Our live tank circuit breakers meet the latest versions of national and international standards, such as IEC 62271-100.

The entire development and production procedures are fully compliant with the latest ISO 9001, ISO 14001 and OHSAS 18001 quality standards.

GE VERNOVA

Decarbonization Through Innovation

- GL SF_6-free Live Tank circuit breakers are part of our GRiDEA portfolio of solutions designed to accelerate the decarbonization of the grid
- SF_6-free products enable considerable reduction in carbon footprint over the complete life cycle compared to the equivalent SF_6 range

High Safety Level

- Pressure relief device prevents injuries and damage in case of over-pressure within the circuit breaker
- Spring mechanism direct coupling to the pole ensures personnel cannot be injured by motion of parts
- Dedicated tools available to assemble and disassemble circuit breaker parts in safe condition
- No X-Ray emissions in open position

Easy Installation and Light Maintenance

- Transportation and handling as easy as SF_6 circuit breakers
- Spring-operated mechanism preset at factory - no adjustments necessary during installation and commissioning
- Fill-in and top-up procedures similar to SF_6 circuit-breaker
- Specific fill-in valve design to avoid mis-operations
- Two-stage transducer densimeters are within easy reach, on the front side of the circuit breaker, for periodic/ regular check

Specifications

BREAKER TYPE	GL315c - GL316c
Switching and insulating medium	CO_2-O_2
Rated voltages	From 300 to 420 kV
Rated frequency	50 Hz
Rated normal current	up to 4,000 A
Rated short-circuit breaking current	up to 63 kA
Rated short-circuit making current	170 kA
Rated duration of short-circuit	3 s
First pole to clear factor	1.3
Opening time	22 - 24 ms
Break time	40 ms
Closing time	<100 ms
Average ambient temperature	-50 °C up to +40 °C
Pollution level*	25-31 mm/kV
Design altitude*	1,000 m.a.s.l.

**Standard values according to IEC; Higher altitudes available on request*

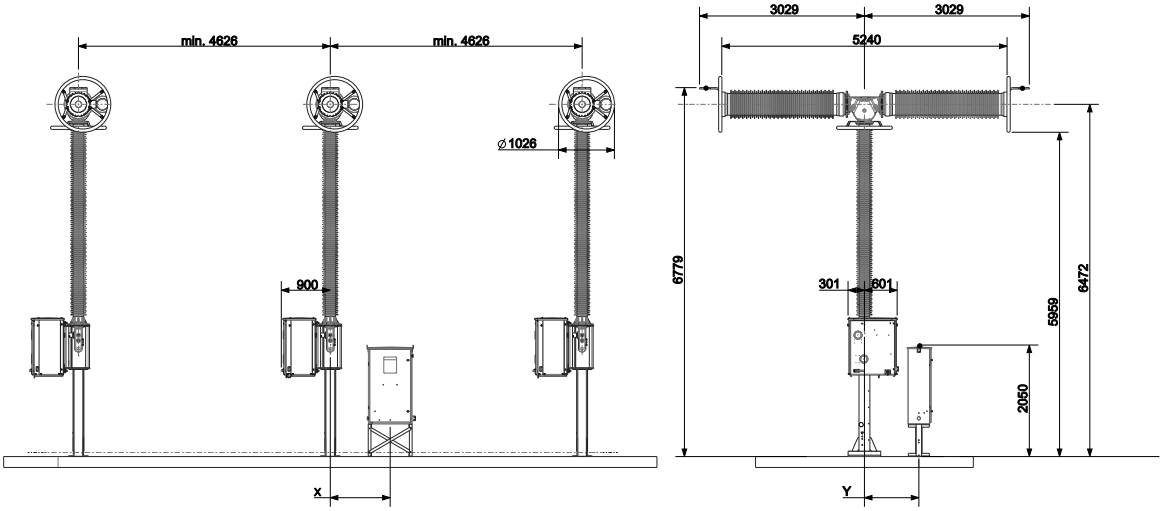
Components

- Interrupter chamber with self-blast system and reliable double motion technology
- Reliable spring-operated mechanism with position indicator clearly visible from outside
- Pressure relief system for passive protection of substation and staff
- Field-proven, temperature-compensated density monitor with two-stage transducer and three-color dial
- Easy access to the filling connection
- Non-return (check) valve on each pole column
- Opening and closing spring in drive
- Steel support frame design prevents corrosion issues
- Direct coupling between spring mechanism and pole prevents any ice ingress and provides high safety
- Optimum designed kinematics between mechanism and interrupting chamber to increase mechanical energy efficiency and mechanical moving parts reliability

Options

- Digital native version (see dedicated brochure)

Dimensions



** For other values, please contact Grid Solutions at GE Vernova.*

Technical Characteristics

- **Spring-operated mechanism / degree of protection:**
  One FK 3-6 mechanism/ IP 55 per pole
- **Rated operating sequence:**
  O-0.3s-CO-3min-CO and CO-15s-CO
- **Rated supply voltage:**
  From 24 V up to 250 V dc/ac

STANDARD CABLE LENGTH IN mm	X	Y
GL 315c	1,100	1,000
GL 316c	1,100	1,000

** Standard values. Other dimensions depends on configuration.*

For more information, visit
gevernova.com/electrification

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English
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