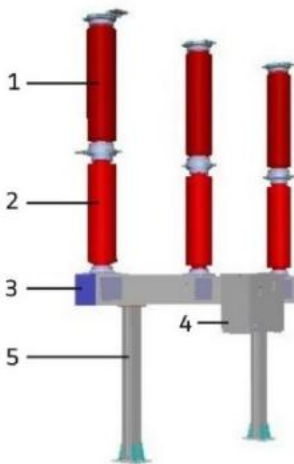


GL 310/311/312

Live tank circuit breaker from 100 kV up to 145 kV

Live tank circuit breakers for outdoor installation, designed for temperatures down to -55°C and provided with the latest technology of interrupter chambers and FK3 spring-operated mechanism. Using the latest double motion technology, we effectively reduced the opening energy by approximately 65%.



Product description

- 1 Porcelain interrupter chamber
- 2 Porcelain post insulator
- 3 Base frame
- 4 Spring-operated mechanism
- 5 Supports



Components

- Interrupter chamber with integral double motion technology and self-blast system
- Pressure relief system for passive protection of both substation and personnel
- Field-proven, temperature-compensated density monitor with two-stage transducer and three-colour dial
- Easy access to the SF₆ filling connection (type DIL0)
- SF₆ non-return (check) valve on each pole column
- Protected opening springs inside each pole column
- Hot-dip galvanised steel parts
- Mechanism housing completely made of aluminium
- Reliable spring-operated mechanism with position indicator clearly visible from outside

Installation and maintenance

- Preset at factory before shipping; no adjustments necessary during installation and commissioning
- Pole units pre-filled with SF₆ at factory before shipping
- Separate disassembly of the interrupter chamber without having to remove the entire pole column
- Single-pole operated circuit breakers partially pre-assembled delivered (base frame with mounted and wired mechanisms)

Testing

Live tank circuit breakers meet the requirements of national and international standards. This has been confirmed by comprehensive type tests according to the latest IEC and ANSI standards.

Proven quality

Our quality (ISO 9001:2000), environmental (ISO 14001) and occupational health and safety (OHSAS 18001) management systems determine the development and production procedures for our high voltage circuit breakers. These systems ensure the high quality standards of our products and services which are confirmed by regular audits.

Customer Benefits

- Temperatures down to
 - -40°C with pure SF₆
 - -55°C with gas mixture
- Quick and easy installation and commissioning (partially pre-assembled delivered)
- Long maintenance intervals

Technical characteristics

- **Spring-operated mechanism:**
FK3
- **Rated operating sequence:**
O-0.3s-CO-3 min-CO resp. CO-15s-CO
- **Rated supply voltage:**
24 up to 250 V dc/ac
- **Ambient temperature:**
-30°C up to +40°C

Further data is available on request.

Product options

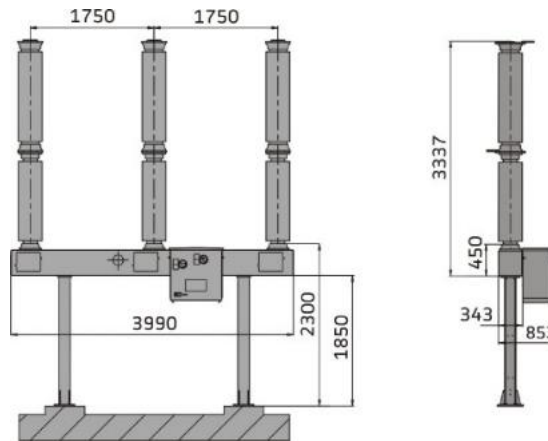
- **Lowest temperatures down to -55°C**
- **Composite insulators**
- **Further phase centre distances on request**
- **CBWatch-2 monitoring system:**
Add-on monitoring (automatic diagnosis) for conventional control of the switchgear



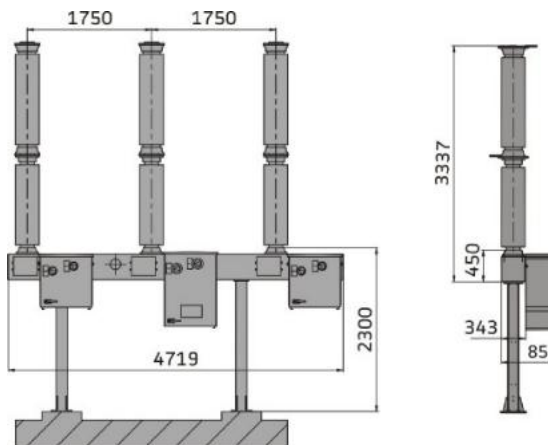
- **SynCR3 (F3):**
Point-on-wave closing relays for capacitor bank switching



- **RPH2 controller (F3):**
Point-on-wave tripping and closing relays for all point-on-wave switching tasks



GL 311/312 F1/4031 P



GL 311/312 F3/4031 P

Ratings				
Breaker type		GL 310 F1/4031 P	GL 311 F1/F3 4031 P	GL 312 F1/F3 4031 P
Rated voltage	kV	100	123	145
Rated frequency	Hz	50/60		
Rated power frequency withstand voltage	kV	185	230	275
Rated lightning impulse withstand voltage	kV	450	550	650
Rated normal current	A	3150		
Rated short-circuit breaking current	kA	40		
Rated short-circuit making current	kA	104		
Rated duration of short-circuit	s	3		
Opening time	ms	28		
Break time	ms	50		
Closing time	ms	≤70		

Alstom Grid Worldwide Contact Centre

www.grid.alstom.com/contactcentre/
Tel: +44 (0) 1785 250 070
www.grid.alstom.com

GRID



Grid-Products-L3-GL_310_312-72220-2010_10-EN © - Alstom, the Alstom logo and any alternative version thereof are trademarks and service marks of Alstom. The other names mentioned, registered or not, are the property of their respective companies. The technical and other data contained in this document are provided for information only. Neither Alstom, its officers nor employees accept responsibility for or should be taken as making any representation or warranty (whether express or implied) as to the accuracy or completeness of such data or the achievements of any projected performance criteria where these are indicated. No liability is accepted for any reliance placed upon the information contained in this brochure. Alstom reserves the right to revise or change these data at any time without further notice. Printed on paper made with pure ECF (Elemental Chlorine Free) ecological cellulose produced from trees grown in production forests under responsible management, and selected recycled three-layer fibres.