

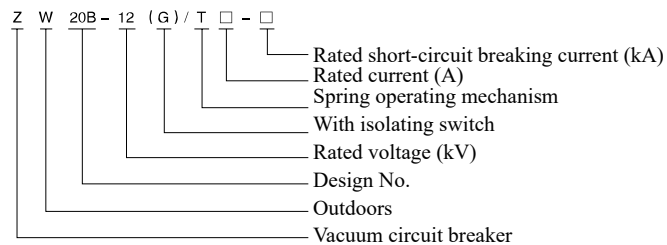
## ZW20B-12(G) Outdoor High-Voltage AC Vacuum Circuit Breaker



### 1 Product overview

- 1.1 Three-phase AC 50Hz outdoor high-voltage switchgear, used in the 10kV electrical power systems of rural power grid and urban power grid as opening and closing load current, overload current, and short circuit current, and in other similar applications.
- 1.2 Available standards  
 GB/T 1984-2014 High-voltage alternating-current circuit-breakers  
 GB/T 11022-2011 Common specifications for high-voltage switchgear and controlgear standards  
 DL/T 402-2016 High-voltage alternating-current circuit-breakers

### 2 Type designation



### 3 Product parameters

| No. | Parameter Name  |  |          | Unit  | Value  |    |
|-----|---|--|----------|-------|--|----|
| 1   | Rated voltage   |  |          | kV    | 12   |    |
| 2   | Rated current   |  |          | A     | 630、1250   |    |
| 3   | Rated frequency   |  |          | Hz    | 50   |    |
| 4   | Rated insulation level  | Power frequency withstand voltage for 1 minute | Dry test | kV    | Phases-phase voltage, Voltage to ground: 42<br>Break voltage: 48     |    |
|     |   |  | Wet test |       | 34   |    |
|     |   | Lightning impulse withstand voltage (peak)     |          |       | Phases-phase voltage, Voltage to the ground: 75<br>Break voltage: 85 |    |
| 5   | Rated circuit-breaker breaking current  |  |          | kA    | 20   | 25 |
| 6   | Rated short-circuit making current (peak)   |  |          | kA    | 50   | 63 |
| 7   | Rated peak withstand current  |  |          | kA    | 50   | 63 |
| 8   | 4s thermal stability current  |  |          | kA    | 20   | 25 |
| 9   | Rated operating sequence  |  |          |       | O-0.3s-CO-180s-CO  |    |
| 10  | Closing time  |  |          | ms    | ≤50  |    |
| 11  | Opening time  |  |          |       | ≤50  |    |
| 12  | Rated short-circuit breaking current ON/<br>OFF times                                 |  |          | Times | 30   |    |
| 13  | Mechanical life   |  |          |       | 10000  |    |
| 14  | Control circuit and auxiliary circuit, power frequency withstand voltage for 1 minute |  |          | V     | 2000   |    |
| 15  | Rated operating voltage and auxiliary voltage   |  |          |       | AC/DC220、DC110/48/24   |    |
| 16  | Rated current of overcurrent trip coil  |  |          | A     | 5  |    |
| 17  | Allowable wear thickness of dynamic and static contacts in arc extinguish chamber     |  |          | mm    | 3  |    |
| 18  | SF6 gas pressure in box (gauge pressure)  |  |          | MPa   | 0  |    |

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### 4 Working environment conditions

- 4.1 Ambient air temperature: Max. temperature: +45°C; Min. temperature: -40°C; Max. daily temperature difference: 25K;
- 4.2 Relative humidity: Daily mean is not greater than 95%, and monthly mean is not greater than 90%;
- 4.3 Altitude: Not higher than 2000m;
- 4.4 Wind: Not exceed 35m/s (equivalent to air pressure 700Pa);
- 4.5 Pollution grade: Grade IV;
- 4.6 Radial thickness of ice: 10mm;
- 4.7 Earthquake resistance: horizontal acceleration: 0.3g/s<sup>2</sup>; vertical acceleration: 0.2g/s<sup>2</sup>;
- 4.8 Installed in places free of fire, explosion, chemical corrosion and frequent severe vibration.

Please contact the manufacturer for customizing those failed to follow the normal working conditions.

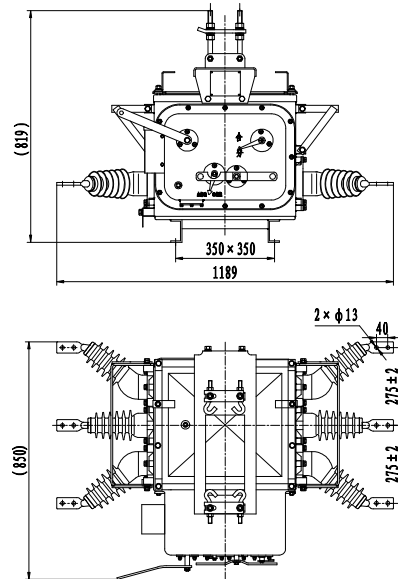
### 5 Technical features of product

- 5.1 The product mainly consists of spring operating mechanism, conducting loop, drive system, insulation system, control unit and housing (made of carbon steel or stainless steel). The overall structure is of the three-phase common-box type.
- 5.2 The vacuum extinction and SF<sub>6</sub> are used as insulating medium; with the full-closed structure and unique sealing technology, the circuit breaker has excellent performance, especially suitable for cold and severe environment areas.
- 5.3 The efficient and reliable small spring operating mechanism with low-power energy-storage motor and with low opening and closing energy consumption is used. The operating mechanism and components are sealed in the box fill with SF gas allowing that the components are not affected by external environment to guarantee the reliable operation of circuit breaker.
- 5.4 The full-sealed incoming and outgoing bushing type or cable type that is casted with imported epoxy resin and coated with excellent silicone rubber is used featuring with high temperature, low temperature, ultraviolet ray, and aging resistance.
- 5.5 The built-in two-phase or three-phase protective current transformer is provided to realize overcurrent protection and fault current quick-break protection together with inrush current, and the protection delay time can be adjustable;
- 5.6 The built-in two-phase or three-phase protection CT and zero-sequence CT integrated structure can be configured to realize parameter setting, single-phase grounding protection, three-section protection, reclosing, and fault accident memory together with the intelligent controller (the external power supply PT is used to supply the operating power); the controller has the corresponding communication module with data uploading to master station, fault feedback and “four-remote” functions to form an intelligent circuit breaker achieving distribution network automation;
- 5.7 The circuit breaker can be equipped with an isolating knife switch with three-phase linkage to form an obvious isolating distance at the incoming (outgoing) side; a reliable mechanical anti-misoperation interlock is provided between the main switch and the isolating switch to guarantee safe and reliable operation.
- 5.8 With simple and flexible installation, the pole seat-mounted or lift-mounted method can be used.

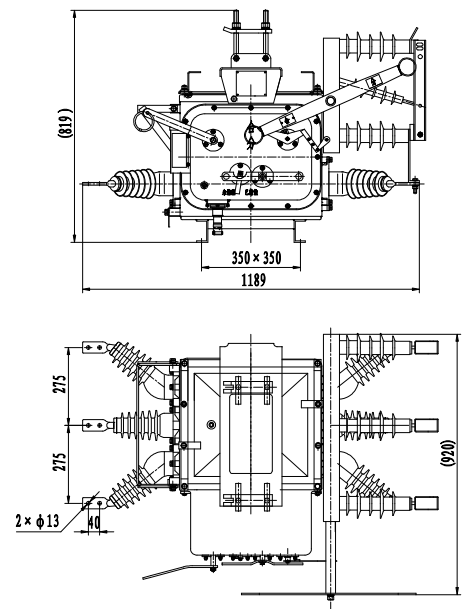
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### 6 Outline and installation dimensions

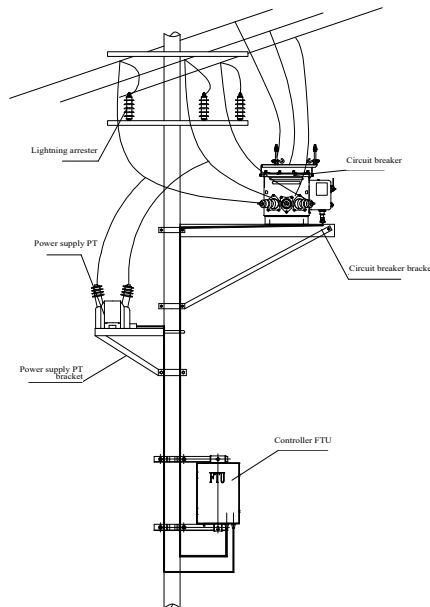
ZW20B-12 Outline and installation dimensions drawing



ZW20B-12G Outline and installation dimensions drawing



Single-pole seat-mounted installation diagram of circuit breaker



Single-pole lift-mounted installation diagram of circuit breaker

