ZW7-40.5 Outdoor Medium-voltage AC Vacuum Circuit Breaker

1 Overview

The three-phase AC 50Hz outdoor switchgear is suitable for 35kV power system used in urban network and rural network for making and breaking load current, overcurrent and short-circuit current, and for other similar applications.

2 Type Designation

Z W 7 – 40.5 / T □ – □

- Rated short-circuit breaking current (kA)
- Rated current (A)
- Spring operating mechanism
- Rated voltage (kV)
- Design code
- Outdoor
- Vacuum circuit breaker

3 Technical Parameters

No.	Name			Unit	Value		
1	Rated voltage			kV	40.5		
2	Rated current			A	1250, 1600		
3	Rated frequency			Hz	50		
4	Rated insulation level	1 minute power frequency withstand voltage	Dry test	kV	Phase to phase, phase to earth 95 open contacts 118		
			Wet test		80		
		Lighting impulse withstand voltage (peak)			Phase to phase, phase to earth 185 / open contacts 215		
5	Rated short-circuit breaking current			kA	20	25	31.5
6	Rated short-circuit making current (peak)			kA	50	63	80
7	Rated peak withstand current			kA	50	63	80
8	4s thermal stability current			kA	20	25	31.5
9	Rated operation sequence				O-0.3s-CO-180s-CO		
10	Closing time			ms	40~100		
11	Opening time				25~60		
12	Rated short circuit breaking current breaking times Times			Times	30		
13	Mechanical life				10000		
14	1 min power frequency withstand voltage of control circuit and auxiliary circuit			V	2000		
15	Rated operating voltage and auxiliary voltage				AC/DC220, DCI10		
16	Rated current of the overcurrent trip coil			A	5		
17	Allowable wear thickness of the moving and stationary contacts of arc extinguishing chamber			mm	3		

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4 Operating Conditions

4.1 Ambient air temperature: The maximum temperature is +55°C, the minimum temperature is -40°C, and the maximum daily temperature difference is 25K;

4.2 Relative humidity: The daily mean is not greater than 95%, and the monthly mean is not greater than 90%;

4.3 Altitude: ≤2,000 meters;

4.4 Wind speed: Not exceed 35m/s (equivalent to wind pressure 700 Pa);

4.5 Pollution degree: 3, 4;

4.6 Icing thickness: 10mm;

4.7 Installed in places where there is no fire, explosion, chemical corrosion and frequent severe vibration.

When out of the normal working conditions, please contact the manufacturer.

5 Structure And Working Principle

5.1 The overall structure is of the three-phase porcelain pillar type, and the product is primarily composed of a three-phase porcelain pillar, a spring operating mechanism and drive system, conductive circuit, control unit, and shell (common carton steel plastic-sprayed or stainless steel);

5.2 The vacuum interrupter is installed in a high-strength porcelain pillar, and high-strength insulation silicone is filled between the interrupter and the porcelain pillar, providing Medium voltage resistance, aging resistance, and excellent sealing capacity;

5.2 The reliable spring operating mechanism (manual or electric; with manual function available for electric mode) is used, the energy-storing motor has small power with low opening and closing energy consumption, and the operating mechanism is sealed in a box; there are temperature and humidity controllers and a heater with automatic switching function in the box to effectively prevent rust to the parts due to condensation, thus guaranteeing the reliability of the operations under the low temperature and at high-altitude areas;

5.3 The porcelain pillar is made of high-strength porcelain (epoxy glass tube coated with silicone rubber), featuring with high and low temperature resistance, resistance to ultraviolet, and aging resistance;

5.4 The internal (external) two-phase or three-phase current transformer (metering, measurement, and protection) works with the surge controller to realize overcurrent protection and fault current quick-off protection. The intelligent controller can be provided as required by user to realize the automatic control function.

5.6 There are side-mounted, central, CT internal or external modes according to the layout of operating mechanism for selection by user.

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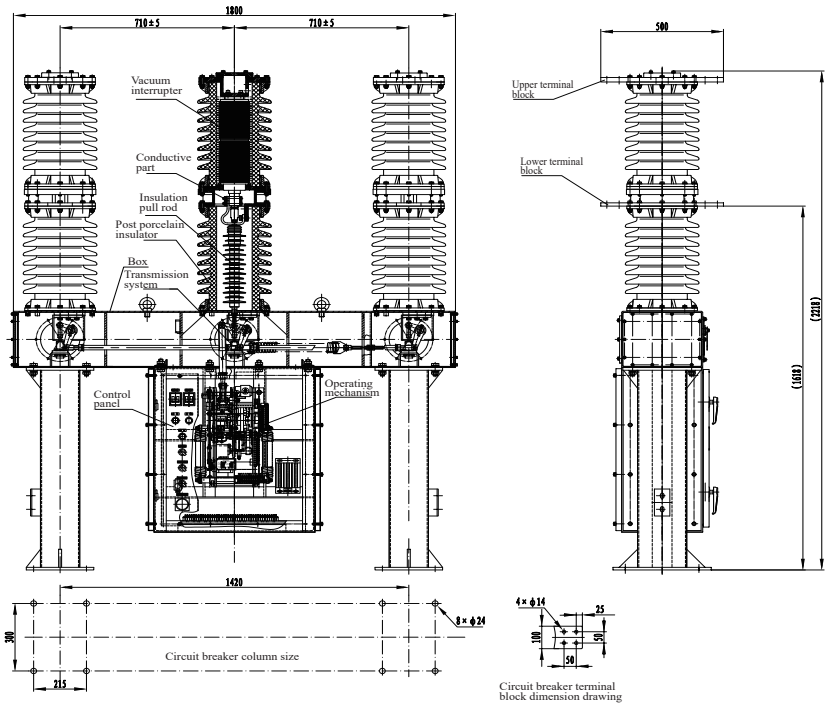
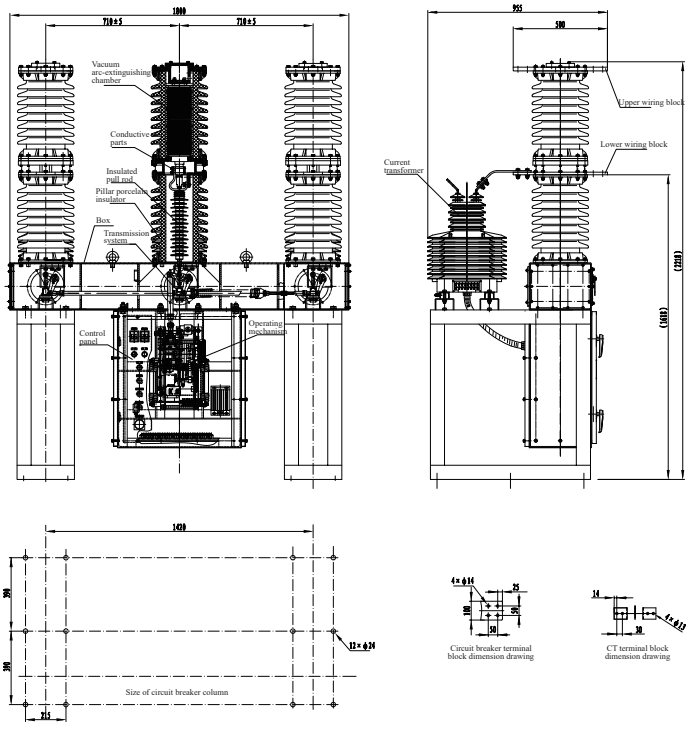
6 Outline and Installation Dimensions

6.1 Outline and installation dimensions of circuit breaker (small middle-mounted type without CT)



6.2 Circuit breaker outline and installation dimensions (small central type with CT)



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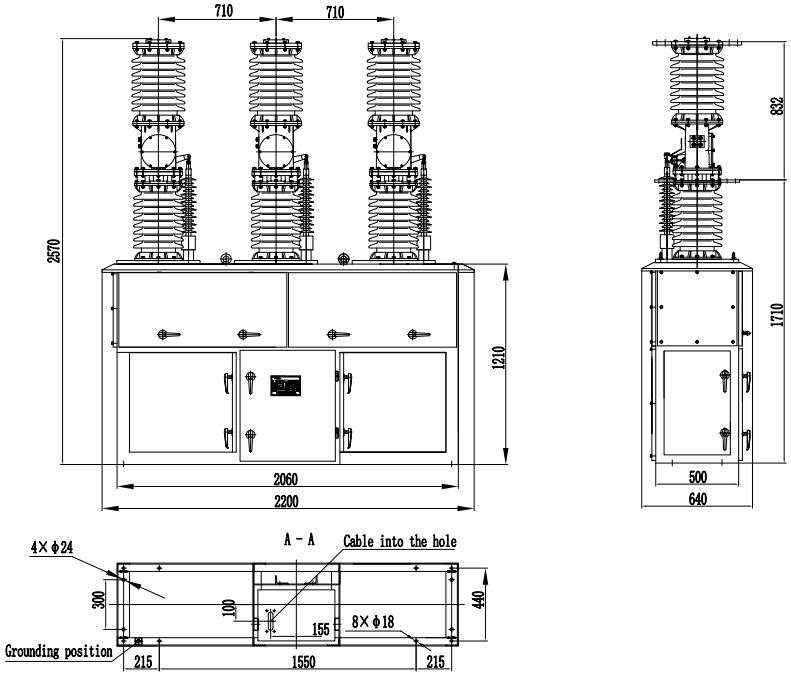
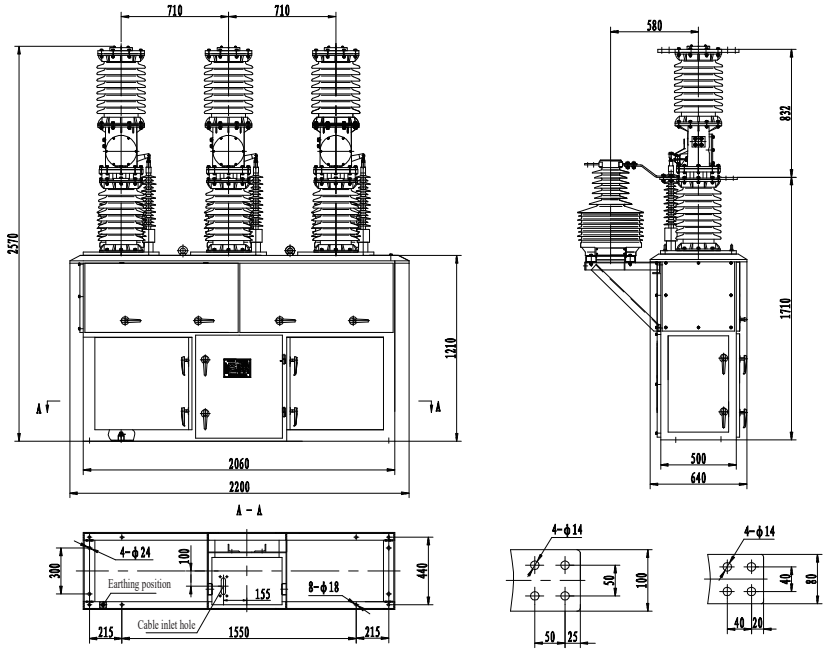
6.3 Outline dimensions of ZW7-40.5 circuit breaker (general central-mounted type, and embedded CT)



6.4 Circuit breaker outline dimension diagram (general central-mounted type, with external CT)



Circuit breaker base dimension drawing

Circuit breaker terminal block dimension drawing

CT terminal block dimension drawing

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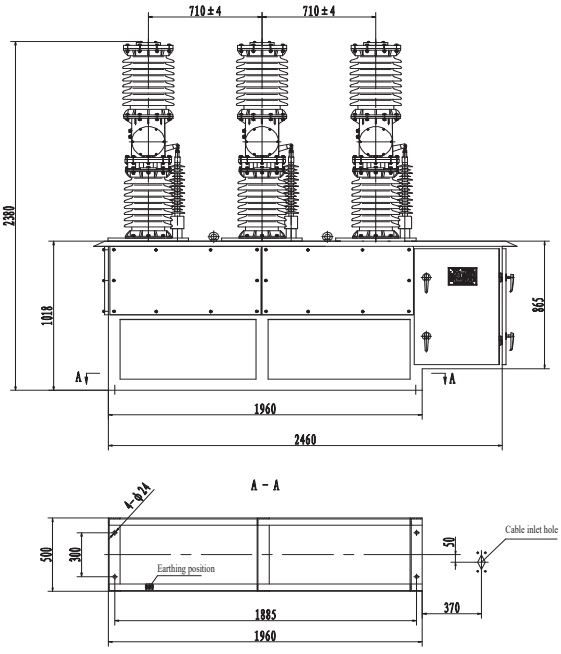
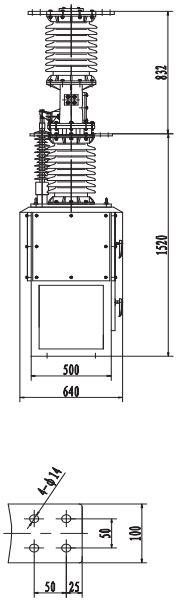
6.5 Dimensions drawings of circuit breaker (side-mounted, built-in CT)

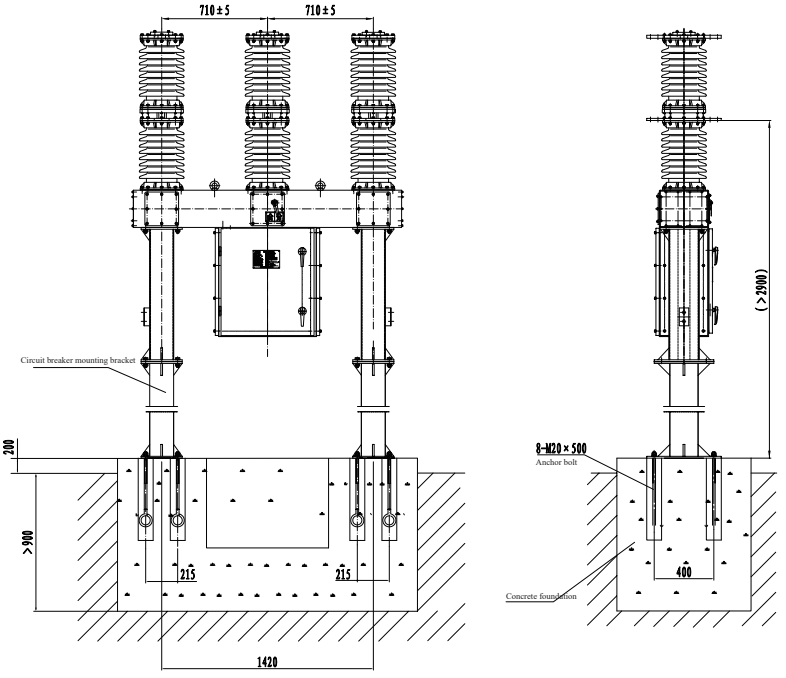


Circuit breaker base dimensions drawing



Dimensions drawings of terminal block of circuit breaker

6.6 Circuit breaker installation diagram (small central type without CT)



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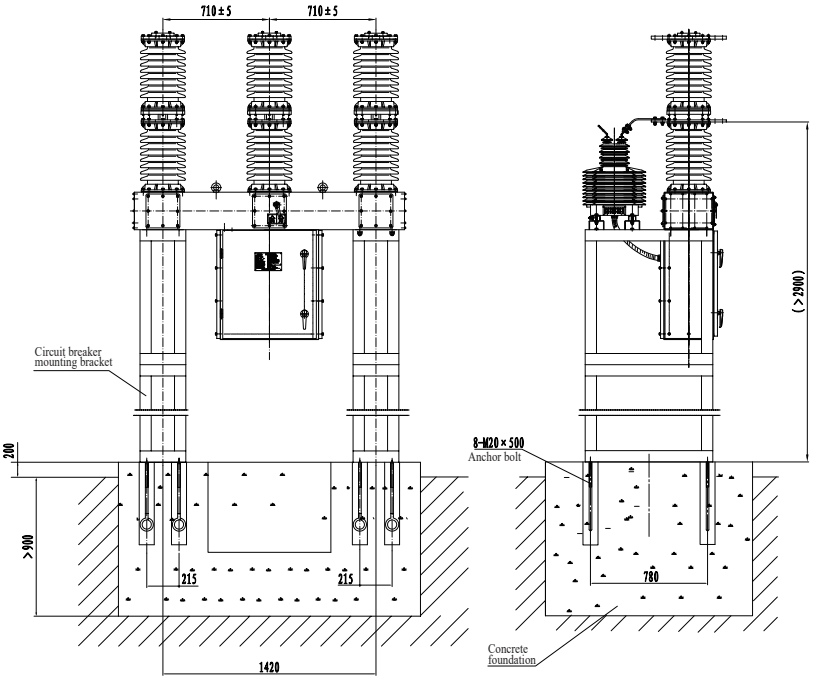
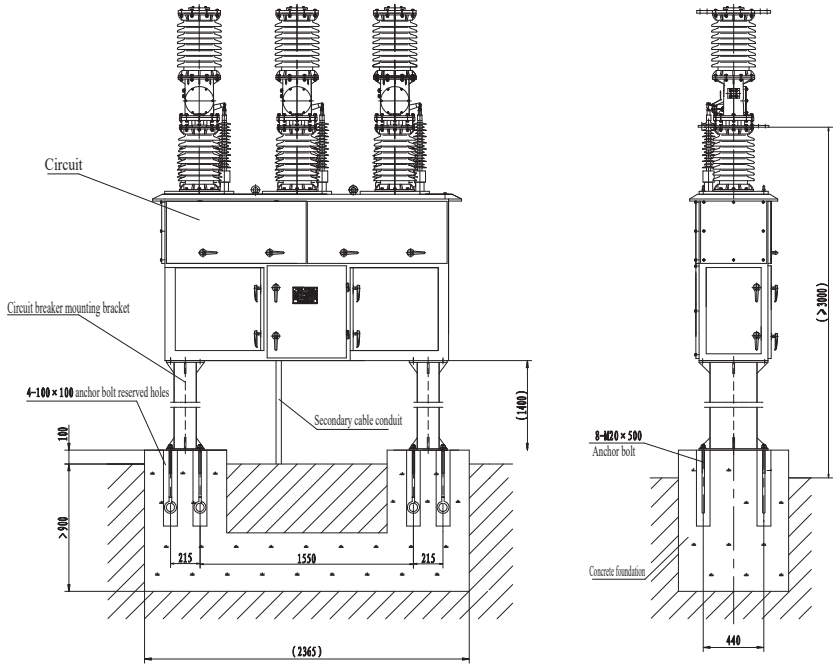
6.7 Circuit breaker installation diagram (small central type with CT)



6.8 Circuit breaker installation diagram (general central-mounted type, built-in CT)



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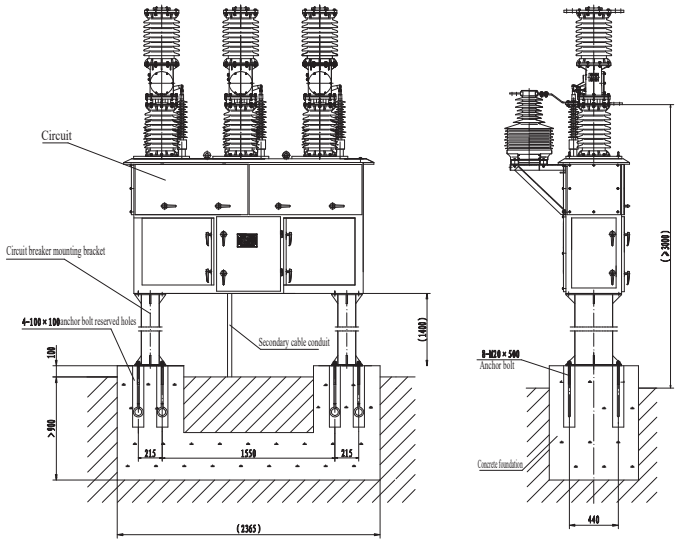
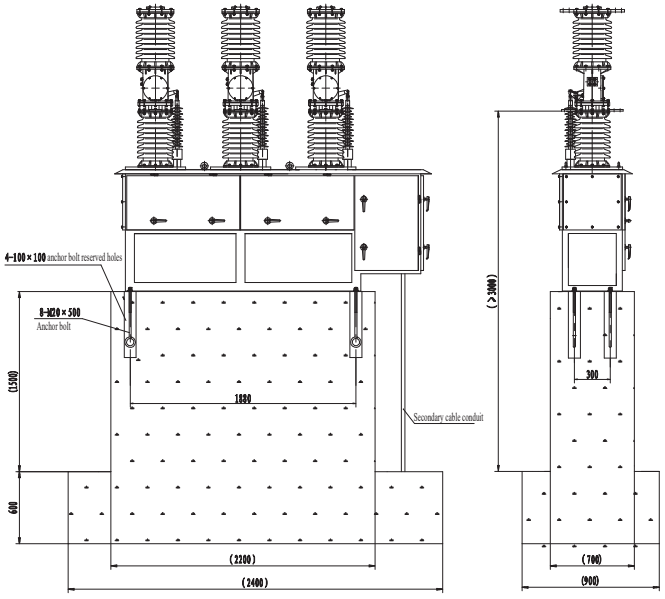
6.9 ZW7-40.5 Circuit breaker installation diagram (general central-mounted type, external CT)



6.10 Circuit breaker installation diagram (side-mounted type, built-in CT)



7 Ordering Notice

7.1 Product model, name, spec. and qty.

7.2 Structure type (side-mount type or central type or small type);

7.3 Rated current, rated short circuit breaking current;

7.4 Three-phase or two-phase current transformer and transformation ratio and accuracy;

7.5 Current transformer configuration mode (built-in or external)

7.6 Operating mechanism operating voltage;

7.6 Names and quantity of accessories or spare parts

7.7 For special requirements, please contact our company, and sign a technical agreement.

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8 Ordering Technical Confirmation Form

Technical Confirmation Form for Ordering ZW7-40.5 Outdoor Medium-voltage AC Vacuum Circuit Breaker

Please determine your requirements according to the items listed in table below:

Current	Rated current (A): □1250 □1600 □2000 Others:_____	
	Rated short-circuit breaking current (kA): □20 □25 □31.5	
Qty. (unit)		
Shell	□Stainless steel polishing (standard) □Carton steel plastic sprayed □Others: _____	
Outline structure	□Small central type □General central type □Side-mounted type	
Operating mechanism position and operating voltage	OFF, ON: □AC/DC220 (standard) □Others_____	
	Stored energy: □AC/DC220 (standard) □Others_____	
Configuration requirements for current transformer	□No □Two-phase (embedded External) Note: Two-phase embedded type is available as standard mode □Three-phase (embedded External)	
	□Standard: Ratio 200-400-600/5, Accuracy 0.2s/0.5/10P10/10P10 □Others: _____	
Altitude	□≤1500m (Standard) □Others:_____	
Pollution degree	□3 (standard) □ 4	
Controller requirements (No controller for standard configuraiton)	Shield-type: □Common type □Intelligent type (with GPRS) Box-type: □Common type □Intelligent type (with GPRS) Others:_____	
Mounting bracket	□No (standard configuration) □With bracket (including anchor bolts) Bracket height: Note: The surface of bracket is hot-galvanized, with standard height 1400mm.	
Other special requirements		Ordering unit (seal) Signatu re:_____ Confirmation date:_____ Tel:_____ –

Note: If not ticked, all options shall be manufactured according to TENGEN's standard configurations.