

XGN2-12(G) Fixed Type Metal-clad Switchgear

Summary

XGN2-12 High voltage AC switchgear fixed type metal-enclosed switchgear applied to the 3.6kV~12kV three phase AC 50/60Hz system to receive and distribution power energy, and suitable for continually operation and rebuilding the switchgear which install oil switch. The busbar is single busbar system and double busbar subsection system.

XGN2-12(G) is suitable for high altitude area which is developed on base of general switch.

The switchgear conforms to GB3906 "3~35kV AC Metal-enclosed Switchgear" and IEC62271-200 standard, and with function of five protections locking.

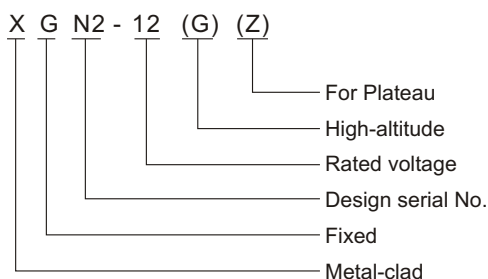
The main switch of panel is ZN28A-12 series vacuum circuit breaker, equip with CD10 series and CD17 electromagnetism, CT8, CT17/CT19 series spring operating mechanism.



Ambient condition

1. Ambient temperature: -25°C~+40°C;
2. Altitude: ≤1000m, high altitude type: ≤3000m;
3. Relative humidity: daily average ≤95%, monthly average ≤ 90%;
4. Vapour pressure: daily average ≤2.2X10Mpa, monthly average ≤1.8X10Mpa;
5. Earthquake intensity: ≤8 degree;
6. Applicable occasions should be free from inflammable, explosives and severe vibration.

Model



Product feature

XGN2-12 series fixed AC metal enclosed switchgear (short for panel as below) is a new product designed and developed by HEAG, based on the introduction of advanced foreign design and manufacturing technology. It applies to 3.6~12kV three phase AC 50Hz single busbar or single busbar sectional transport, transmission & distribution system, as for receiving and distributing power energy, and realize to control, monitor and protect power circuit. It is widely used for power plant, substation, petroleum, metallurgy, chemical, natural gas and other civil field.

Structure feature:

1. XGN2-12 series is metal enclosed fixed switchgear, the body is welded with angle steel and steel board, inner and outer coating is solid by static spray plastic powder.

6	Rated peak withstand current	kA	50	80	100
7	Rated short circuit making current(peak)	kA	50	80	100
8	Protection degree		IP2X		
9	Operating type		Electromagnet type, spring charging type		
10	Outline dimension(width × depth × height)	mm	1100 × 1200 × 2650		

1. Rated current of plateau altitude switchgear: 630/1000/1250A

2. Outline dimension of plateau altitude switchgear: 1200 × 1350 × 2900mm

Item	Unit	ZN28A-12/1000-20	ZN28A-12/1250-31.5 2000-31.5	ZN28A-12/2500-40 3150-40	
Rated voltage	kV	10			
Highest voltage	kV	12			
Rated frequency	Hz	50			
Rated current	A	1000	1250,2000	2500,3150	
Rated short circuit breaking current	kA	20	31.5	40	
Rated short circuit making peak current	kA	50	80	100	
Rated short time withstand current	kA	20	31.5	40	
Rated peak withstand current	kA	50	80	100	
Rated short time withstand current duration	s	4			
Mechanical endurance	Times	1000			
Rated STC breaking times	Times	30(50)			
Vacuum Interrupter vacuum degree	Pa	$\leq 6.6 \times 10^{-2}$			
Arcing time	ms	≤ 20			
	Type	CD10 I	CD10 II	CD10 III	
	Working voltage (V)	Open coil	110, 220		
		Open coil	24,48,110,220		
Working current (A)	Close	110	196	240	294
		220	98	120	147
	Close	24	37		
		48	18.5		
		110	5		
220	2.5				
		CT8- I	CTB- II		
Working voltage (V)	Storage motor	$\cong 110, \cong 220$			
	Shunt trip	-48, $\cong 110, \cong 220$			
	No-voltage trip	~110(110), ~220			
Storage time	s	$\cong 5$			
Over current trip	A	5			
Opening time	s	DC electromagnetism $\cong 0.20$ spring storage $\cong 0.15$			
Opening time		$\cong 0.06$			

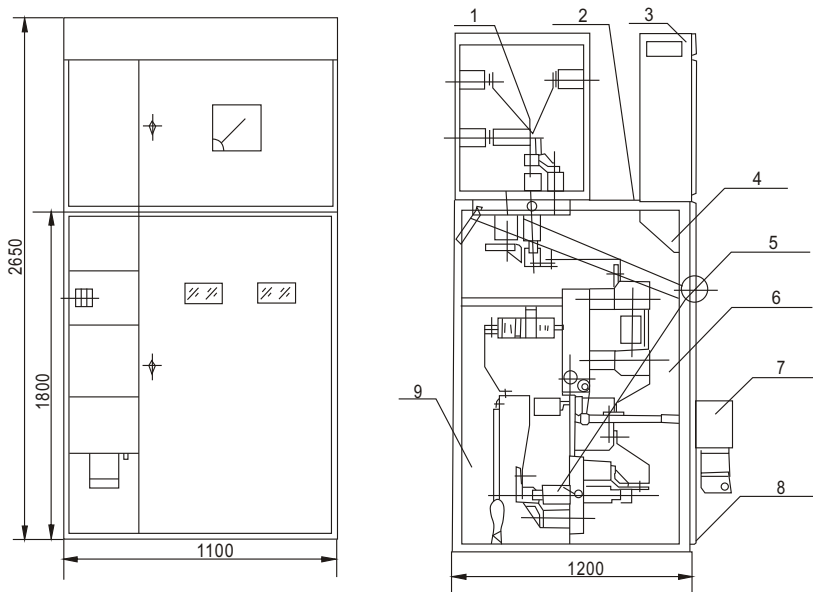
2. This panel conforms to GB3906 3-35kV AC Metal enclosed switchgear and international standard IEC62271-200 besides, prevent from opening and closing connecting switch with load, prevent from opening and closing circuit breaker, prevent from entering into interval with electricity, prevent from closing earthing switch with electricity (five protections adopt simple, reliable mechanical interlock device). The power indicator is installed in front of panel which reflect voltage in the side of circuit. When circuit side with electricity, lock the enclosed board and panel door.
3. Same type product and structure component can exchange each other.
4. Enclosure
 - 4.1 The inner structure of panel is divided into circuit breaker compartment, busbar compartment, cable compartment, relay compartment, use steel plate to separate panels. Use eddy current steel plate and epoxy resin busbar bushing to separate panel.
 - 4.2 The panel adopts cold roll steel sheet and angle steel to weld together, without reticulation fabric, non-flame-resisting materials. Outer insulating creeping distance of components and supporting insulator, pure porcelain insulation $\geq 1.8\text{cm/kV}$, organic insulation $\geq 2.0\text{cm/kV}$. The air distance of phase to phase, phase to earth $\geq 125\text{mm}$. There is an intelligent hygroscope to start or stop heater according to the humidity condition of circuit breaker compartment and cable compartment in panel, Prevent from forming moist and high temperature.
 - 4.3 There is a viewing port for observing of closed and open position of upper, down connecting switch without open the door. The panel is double maintenance, inspect relay compartment equipments, operating mechanism, mechanical interlock and transmission part in front, inspect main busbar, shunt circuit busbar, cable terminal, connecting switch and earthing switch.
 - 4.5 Circuit breaker: The circuit breaker is located in the middle part, disconnecting switch and earthing switch and interlock mechanism are above it, and with indicator device, describe open and closed position.
 - 4.6 Transformer: CT is mounted on the underpart of front side, connect with circuit breaker and connecting switch, main loop without electricity. It can carry out preventive test, inspection and exchange, the secondary wire of CT to earth reliably.
 - 4.7 Disconnect switch and earthing switch: connecting switch, disconnect switch and earthing switch can be seen through viewing port, controlled by a set of manual operating mechanism to assure of program and reliable locking for circuit breaker, disconnect switch and earthing switch, meet the requirement of five protection.
 - 4.8 Measuring instrument, relay protection, monitor device and auxiliary circuit.
 - 4.9 Earthing: It takes a consideration of $4 \times 40\text{mm}^2$ copper busbar as earthing body along with whole width of all panel extending.

Technical specification

1. Primary wiring scheme to see table 1, primary wiring scheme combination to see table 2;
2. If used for high altitude, choose high altitude components, such as ZN28A-12GD;
3. Technical specification of panel to see table 3;
4. Technical specification of circuit breaker and operating mechanism:

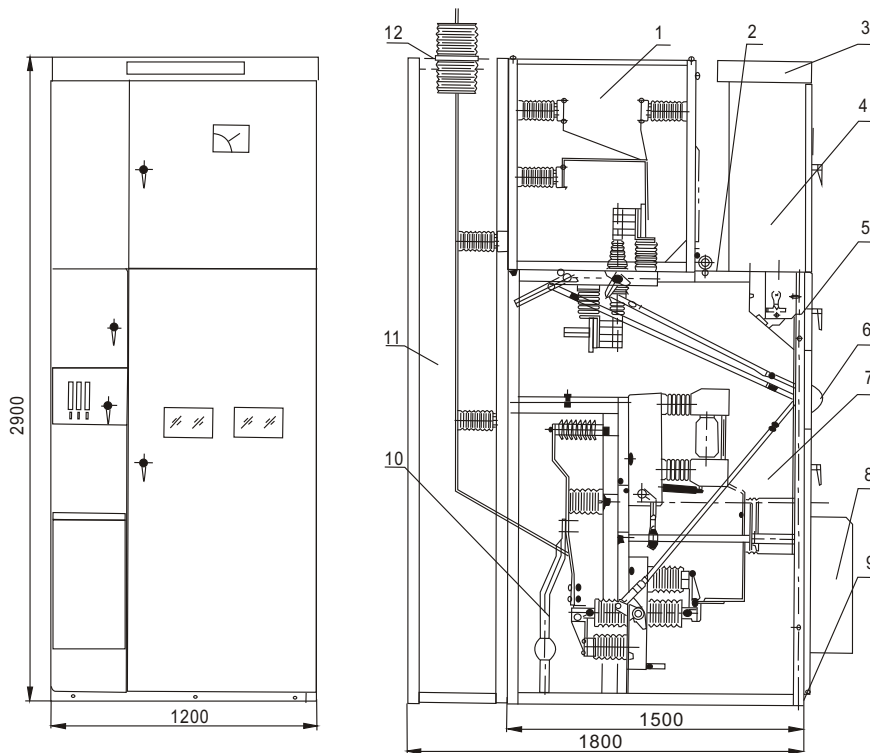
No.	Item	Unit	Data						
1	Rated voltage	kV	11						
2	Highest voltage	kV	12						
3	Rated current	A	630	1000	1000	1250	2000	2500	3150
4	Rated short circuit breaking current	kA	20		31.5			40	
5	Rated short time withstand current(4s)	kA	20		31.5			40	

Outline dimension



Drawing 1a XGN2-12-07D Outline Drawing

- 1. Busbar compartment 2. Pressure release channel 3. Metering compartment
- 4. Combination switch compartment 5. Manual operating and interlock mechanism
- 6. Main switch compartment 7. Electromagnet or spring mechanism
- 8. Earthing busbar 9. Cable compartment



Drawing 1b XGN2-12(G) Basic Reference Drawing

- 1. Busbar compartment 2. Pressure release channel 3. Small busbar compartment
- 4. Metering compartment 5. Transfer switch compartment
- 6. Disconnect switch operating and interlock mechanism
- 7. Circuit breaker compartment 8. Circuit breaker operating mechanism
- 9. Earthing busbar 10. Cable compartment 11. Overhead inlet-outlet extra panel 12. Busbar bushing