

## VSM-12 SERIES PERMANENT MAGNETIC OPERATING MECHANISM



### Outline

VSM-12 series permanent magnetic operating mechanism is a three-phase AC 50Hz, rated voltage of 12kV indoor switchgear. It loaded the company with its own research and development of permanent magnetic actuator for industrial and mining enterprises, power generation and substation facilities as electrical control and protection purposes. The product has high reliability and long life characteristics, especially suitable for frequent operation, repeatedly breaking conditions, such as short-circuit current of the place.

### The use of environmental conditions

- ◇ Ambient temperature: not higher than +40°C, not less than -15°C (at -30 °C to allow storage and transportation).
- ◇ Altitude: not exceed 1000m.
- ◇ Relative humidity: daily average of not more than 90%, saturated vapor pressure on the average of not more than  $2.2 \times 10^{-3}$ MPa, On average not more than  $1.8 \times 10^{-3}$ MPa. The temperature dropped rapidly during the period of high humidity is that it may Gel.
- ◇ Earthquake intensity: not more than eight.
- ◇ No fire, explosion hazard, serious filthy, chemical corrosion, as well as places of intense vibration.

### Main Features

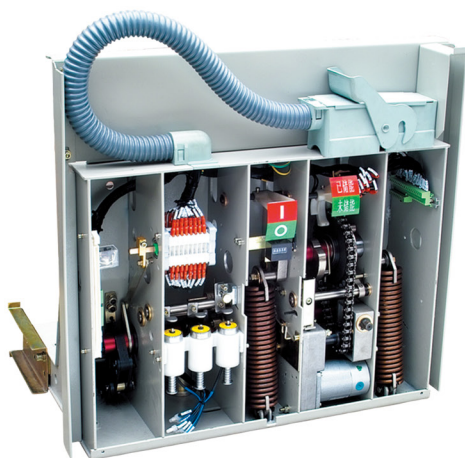
- ◇ High reliability, long life, maintenance-free.
- ◇ China's first permanent magnetic actuator mechanical life of up to 100,000 times.
- ◇ With the traditional actuator compared without mechanical removal, locking devices, parts and components significantly reduced the number of hours worked with only one moving parts, low failure rate.
- ◇ Actuator performance and interrupter breaking. Closing the features needed for a very consistent.
- ◇ All sub-reliable operation of the bistable gate.
- ◇ With anti-skip function.
- ◇ With controlling power low-voltage alarm refuse to close.
- ◇ Mechanical manual sub-sub-gate and electric gate at the same rate, in the secondary power supply fault conditions, the application of an emergency sub-gate.
- ◇ AC and DC energy storage operation type, operating current is less than 2A, can be done o-co-o operation within 2 hours after the blackout.
- ◇ Highly reliable operation of control circuit module that can be tolerated in the run-time lightning, surge and other harsh conditions.
- ◇ Versatility, installation size and ZN63 VS1 compatible with other products.

### Mainly technical parameters

Name	Voltage	Item	Units	CDY- I		CDY- II	CDY- III	
				20kA	25kA	31.5kA	40kA	50kA
Closing coil	DC220V	Working current peak	A	52			88	
		Resistance	Ω	4.25 ± 0.18			2.5 ± 0.18	
Opening coil	DC220V	Working current peak	A	2			3.5	
		Resistance	Ω	120 ± 15			60 ± 5	
Closing coil	AC220V	Input current	A	≤ 2			≤ 2	
Opening coil	AC220V	Working current peak	A	2			3.5	
		Resistance	Ω	120 ± 15			60 ± 5	

Note: For operating power with particular requested, the consumer must mark on the order.

## VS1-12 SERIES SPRING OPERATING MECHANISM



### Outline

VS1-12 (ZN63A-12) series spring operating mechanism is a three-phase AC 50Hz, rated voltage 12kV indoor high voltage switch, the product is introduction of Xian Senyuan company technology, the product is for industrial and mining enterprises, power plants and substation facilities to do electrical protection and control purposes. The agency specifically with VS1-12 vacuum circuit breakers.

### The use of environmental conditions

- ◇ Ambient temperature: not higher than +40 °C , not less than -15°C (at -30 °C to allow storage and transportation).
- ◇ Altitude: not exceed 1000m.
- ◇ Relative humidity: daily average of not more than 95%, month average of not more than 90%.saturated vapor pressure daily average of not more than 2.2 kPa, month average not more than 1.8 kPa.
- ◇ Earthquake intensity: not more than eight.
- ◇ No fire, explosion hazard, serious filthy, chemical corrosion, as well as places of intense vibration.

### Mainly technical parameters

Operating mechanism of circuit breaker with permanent magnet single phase DC motor storage energy, storage energy with follow technical data sheet:

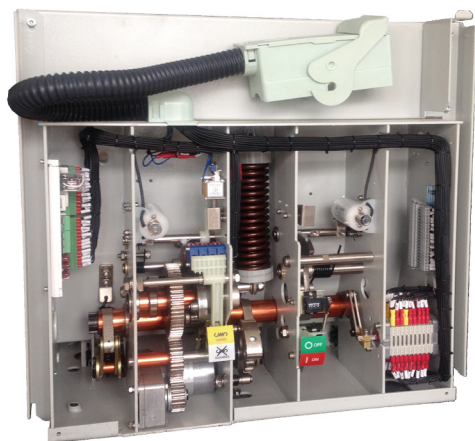
Type	Rated Voltage(V)	Power (W)	Normal working range (V)	Storage energy times of rated voltage (S)
ZY55-1	DC 110 DC 220	70(80)	85% ~ 110%	≤ 10

\* Operating voltage adopt AC DC power. ( ) with 40kA parameter.

Technical data for operating mechanism magnet and tripper

Name	Power(W)	Voltage operating voltage	Normal working voltage range	Remark
Closing magnet	368	DC220 DC110	85%~110%Rated voltage	
Opening magnet	368		Rated voltage	< 30% rated voltage shouldn't opening
Locking magnet	4.8	DC110	Rated voltage	
Y7(Y8,Y9)Over-current tripper Y7 (Y8,Y9)	—		5A~3.5ACurrent 5A~3.5A	

## VBI-12 SERIES SINGLE-SPRING OPERATING MECHANISM



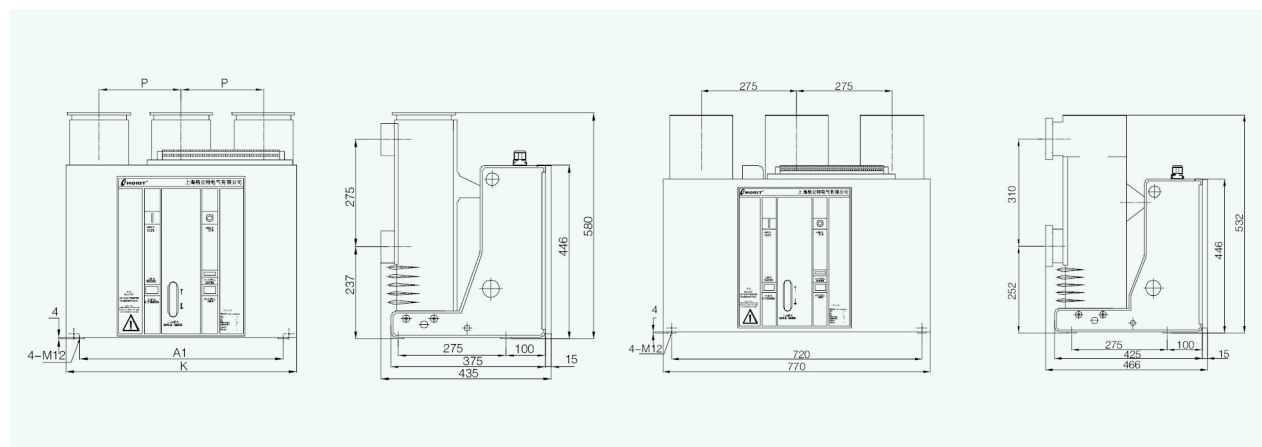
### ▮ The use of environmental conditions

VBI-12 single-spring operating mechanism is a integrated product with modular functional unit design, compact simple and reliable operation structure , for three-phase AC 50HZ, rated voltage of 12KV indoor high voltage vacuum circuit breaker. Optimization closing functional unit reduced the closing power, solved not remain, not opening and other faults after closing, but also reduced the opening tripping power, motor energy storage unit with gear drive, compact structure, reducing the mechanical failure because the chains and other quality problems caused. thus greatly improving the mechanical life (30,000 times). 80% parts of mechanism surface treatment with a special process that provides corrosion resistance, to ensure that machinery the quality and stability

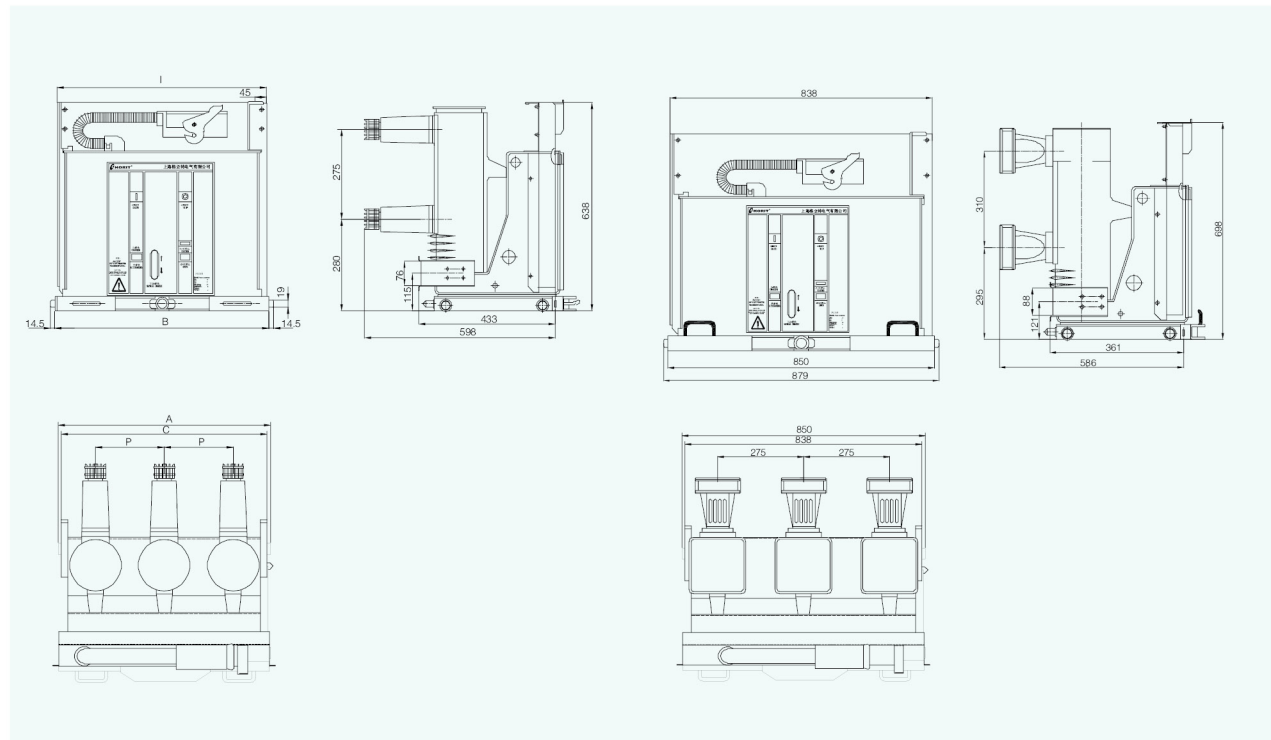
### ▮ The use of environmental conditions

- ◇ Ambient temperature: not higher than +40℃ , not less than -15℃ (at -30 ℃ to allow storage and transportation).
- ◇ Altitude: not exceed 1000m.
- ◇ Relative humidity: daily average of not more than 90%, saturated vapor pressure on the average of not more than  $2.2 \times 10^{-3}$ MPa, On average not more than  $1.8 \times 10^{-3}$ MPa. The temperature dropped rapidly during the period of high humidity is that it may Gel.
- ◇ Earthquake intensity: not more than eight.
- ◇ No fire, explosion hazard, serious filthy, chemical corrosion, as well as places of intense vibration.

### ▮ Outline and intallation dimensions



Items		P	A1	K	weight (kg)
Rated Current	Rated short-circuit breaking current				
630A、1250A	20kA、25kA、31.5kA	150	385	440	130
		210	520	588	150
		275	650	770	170



Items		P (mm)	A (mm)	B (mm)	C (mm)	I (mm)	Cabinet size (mm)	concator size	Rated Current (A)	plum contactor	static contactor size
Rated Current(A)	Rated short-circuit breaking current(kA)										
630-1250	20-31.5	150	502	502	492	490	650	size	630	CT-24	Φ35
630-1600	20-40	210	650	652	640	638	800		1250	CT-30	Φ49
630-1600	20-40	275	850	852	838	838	1000		1600	CT-36	Φ55

Items		Cabinet size(mm)	concator size	Rated Current(A)	plum contactor	static contactor size
Rated Current(A)	Rated short-circuit breaking current(kA)					
1600-2000	31.5-50	1000	size	1600-2000	CT-48	Φ79
2500-3150		1000		2500-3150	CT-62	Φ109
4000-5000		1000		4000-5000	CT-82	

## Mainly technical parameters

The operating mechanism uses a single-phase permanent magnet DC motor energy storage, technical Parameters in the below table

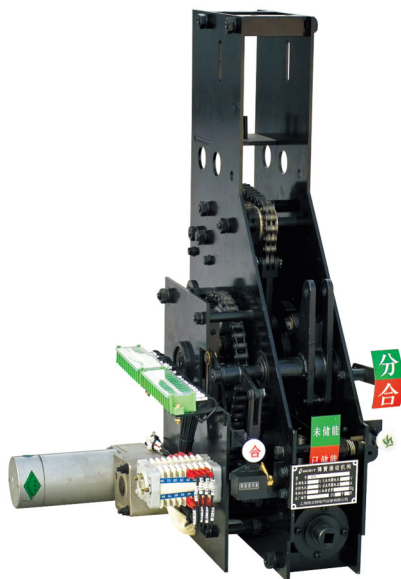
Model	Rated Voltage(V)	Power(W)	Normal working range(V)	Storage time at rated voltage(S)
ZY55-1	DC 110 DC 220	70(80)	85% ~ 110%	≤ 10

Operating voltage could be both AC and DC, 40KA parameters in "(I)"

Operating mechanism solenoid and tripping technical parameters

Item	Power(W)	Rated operating voltage(V)	Normal working voltage range	Remark
Closing solenoid	368	DC220 DC110	85%~110%Rated Voltage	Can't opening when rated voltage below 30%
Opening solenoid	368		65%~120%Rated Voltage	
Locking solenoid	4.8	DC110	85%~110%Rated Voltage	
Over current tripping Y7(Y8,Y9)	—		Current5A-3.5A 5A-3.5A	

## CT-40.5(3AV3) SERIES SPRING OPERATING MECHANISM



### Outline

The agency specifically for Operating ZN85-40.5 series indoor high voltage vacuum circuit breaker type used, its performance in line with GB1984-89 《AC High Voltage Circuit Breaker》; and the product technical requirements; The main index has reached or exceeded "IEC" standard. The organization department is indoor type, storage methods are two kinds of manual storage and electric energy storage ,opening operation have three kinds of brake solenoid, over-current tripping device solenoid and manual button operation. Closing operations have two kinds are closing solenoid and manual operation. institutions surface dealing by anodic electrophoretic paint with high corrosion resistance.

### Mainly technical parameters

Technical data for storage energy motor:

Type	Rated Voltage		Rated output power (W)	Normal work range (V)
ZYJ-66	-110V	-220V	-230W	85% ~ 110% Rated voltage

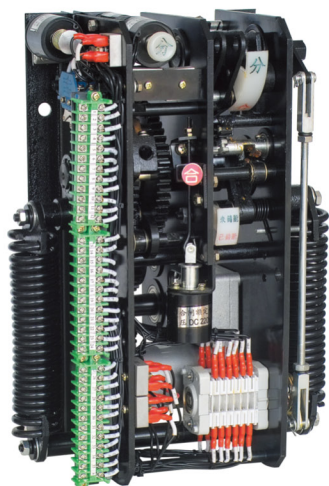
Technical data for closing and opening magnet:

Rated working voltage(V)	Rated working current (A)	Rated power (W)	Coil resistance value on 20 °C (Ω)	Opening work voltage range	Closing work voltage range
-110	1.05	< 115	105 ± 3	65%~120% rated working voltage to be reliable for opening when less than 30% rated working voltage, continuous 3 times shouldn't be open	Rated working voltage
-220	0.96	< 210	230 ± 5		

Output angle approximate 51.5 ° for mechanism



## CT19A/CT19B SERIES SPRING OPERATING MECHANISM



### Outline

CT19-series spring operating mechanism use for actuator all kinds of type ZN28 breaking current 20KA, 31.5KA, 40KA indoor high voltage vacuum circuit breaker or other vacuum circuit breakers type that equivalent Operating closing function.

Our produces CT19 have two kinds, match with a fixed counter (CT19B) and match with handcarts (CT19A). CT19B model is based on the type CT19A small improvement after that more stable and reliable mechanical properties.

The actuator storage methods are two kinds of manual storage and electric energy storage, opening operation have four kinds of brake solenoid, over-current tripping device solenoid and manual button operation and undervoltage tripping device solenoid.

### Mainly technical parameters

Technical data for storage energy motor with permanent magnet motor :

Type	Rated working voltage(V)	Motor rated input power (W)	Normal working voltage range	Rated working voltage for storage energy times
66ZY-CJ01	110	70-150	85% ~ 110% Rated voltage	≤ 12s
66ZY-CJ11	220			

\* If consumer requested adopt AC power storage energy, should enhance full wave rectifier power supply storage energy motor for working .

When adopt 400mm length storage energy operating handle for manual storage energy, it' s operate force at least 140N.

Closing magnet adopt screw type magnet , technical data as follow sheet.

Rated working voltage(V)	Rated working current (A)	Rated power (W)	Coil resistance value on 20℃ (Ω)	Opening working voltage range	Closing working voltage range
~ 110	5	550	7.2 ± 1	665-120% rated working voltage ,when less than 30% rated working voltage ,continuous 3times shouldn't open	85% -110% Rated working voltage
~ 220	3	660	20.7 ± 2.05		
~ 380					
-48	3.78	181.4	12.7 ± 2.5		
-110	2.3	253	47 ± 2.5		
-220	1.77	390	124 ± 5		

Opening magnet with independence power supply and over-current tripping magnet, which adopt screw magnet.

- ◇ Overcurrent tripping electromagnet powered by a current transformer, the circuit closing action depend on the dividing device over-current relay contact, action value setting by the current relay, over current relay solenoid rated current 5A, pure resistance  $2.6 \pm 0.5 (\Omega)$
- ◇ By an independent sub-gate solenoid power supply technical data see table above, consistent with the closing solenoid parameters.
- ◇ Tripper combination and code:

Tripper combined code	Tripper name and code	
	Over-current tripper magnet (piece)	Opening magnet (piece)
100	1	0
110	2	0
111	3	0
104	1	1
114	2	1
400	0	1