

## Product overview

EVC1 series single pole high voltage vacuum contactors (hereinafter referred to as: contactor), is suitable for AC 50HZ, rated voltage of the main circuit 12KV, rated current from 160A to 630A power network system for remote making and breaking and frequent starting and controlling AC motors, transformers and capacitor banks and other occasions.



## The use of the environment conditions

1. Ambient temperature -25°C~+40°C.
2. Installation site altitude does not exceed 2000m.
3. The relative humidity of the air, the wettest month average monthly maximum relative humidity of 90%, monthly average minimum temperature of 25°C, and taking into account the cream of temperature changes on the surface of the product.
4. Environment: Anhydrous invasion, non-corrosive and flammable gas and excessive vibration occasions.

## Use requirements

1. Properly select the contactor technology parameters, including auxiliary switch contacts are not overloaded.
2. Around and above contactor to leave enough space for insulation, to ensure the safety of use.
3. When you power up the control but there is no response, the power should be immediately cut off and check the reasons of control power, to avoid burnt out solenoid.
4. When the contactor is used to control inductive loads, recommended the RC protection or varistor protection of overvoltage absorption protection device to protect the load security
5. When the electromagnetic system have strong magnetic attraction when it's in working, we should keep the things with ferromagnetic material away from the machine.
6. The contact device is not suitable carries on the series joining-up work.
7. Main circuit connection principle : the upper end (quiet side) into the line side, the lower end (moving end) is the outlet end.
8. Specifications for the rated voltage :12KV(10KV), rated current of 160A, 250A, 400A, 630A.

## Product structure and working principle

### Structure:

This series contactor separated by insulating electric frame, drive crank arm, electromagnetic system, auxiliary switch, vacuum switch parts, split up and down the structure of high-voltage circuit and low voltage control structure. Layout is beautiful, safe, reliable, easy to install and maintain. Independent insulating frame of each phase, the phase-to-phase insulation is very reliable, reliable work.

### Working principle:

1. Electrical mechanism

One-phase vacuum tube through the insulator and conductive Rod lever, the contact connected to the cantilever Springs, cantilevers and armature are fixed on the shaft. During closing, solenoid armature coil snap-keep, inward movement, the upward motion of the cantilever, vacuum tube through the contact spring contact is closed and provides a contact

pressure to ensure reliable closed. When opening, the electromagnetic coil power lose suction opening, moving the armature in the sub-gate under the action of the spring, the outward movement of the cantilever downward movement, downward movement by pulling the lever, pull the insulator, moving conducting rod, contact separation requirements distance to achieve a reliable sub-gate. Due to electromagnetic systems require larger power in armature snap and snap in place maintain power greatly reduced, in order to save electricity, synchronized by the auxiliary switch snap, maintain conversion. Auxiliary switch also provides user external control you need. With DC excitation of electromagnetic system, auto-control circuits with rectifiers, so users can be controlled directly from the AC power. As the vacuum switch main contacts score is conducted in a vacuum, which has a good breaking characteristics, long life, safe and reliable 4.

### 2. Vacuum switch tube (vacuum interrupter)

Vacuum interrupter is the heart of the contactor member, the upper and lower cover plate, glass or ceramic housing, bellows, moving, fixed conductive rod composed of closed cavities, and pumped into the high vacuum, and movable, fixed conductive rod electric terminal welding a pair of wear-resistant Closure material Composition contacts, well-formed of the breaking contacts, bellows plays against atmosphere, so that contact can the function of the movement up and down. Due to the vacuum chamber, the tube can not subject to external shock, the bellows can not be twisted by rotation, otherwise they will leak damage.

### Maintenance

1. Recommends that users establish a regular maintenance of the system, to ensure the good condition of the load switch. Insulating frame, vacuum tubes, circuit system on a regular basis for cleaning, guarantee normal work insulation and action.
2. Check the fasteners are loose, whether there are abnormalities in the structural parts.
3. The auxiliary switch for normal operation, a good contact.
4. Check the open away from the the over travel compliance requirements.
5. Open pitch: i.e. the distance separating the main contacts, the actual distance measured by the movement distance of a certain point of the conductive rod. Tripping reliability by impact pressure, impact generally adjusted at the factory.
6. Over travel: Over-travel. Closing, has been closed in the movement contact, the movable guide rod not in the case of the movements, the boom also the upward movement. The compression contact spring, this distance is the over travel. Over-travel is an important guarantee for the use of the main contact reliable. Has been adjusted in the factory. But in the process of closing burning, to cause over travel change, need to be checked regularly. The method is as follows, the cantilever need Rod at below a universal circle or universal ball. In closing, check the distance between the universal circle with cantilever is actual over travel. Generally available template check.
7. Electrical wiring is loose? Should be connected separately.
8. Vacuum tube vacuum degree examination, commonly used frequency withstand voltage method for detecting the pressure value should not be less than 1/2 of the rated value.

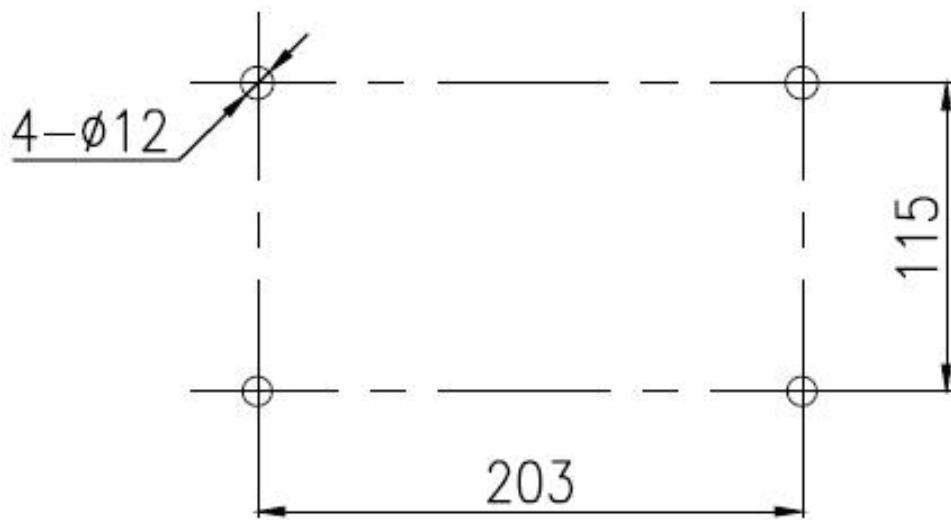
### Transportation & conservation

1. Contactor vacuum tube shell, proportion or ceramic, is a fragile device, must be treated with care. Handling not throw throw, collision, during transport shall not upside down, tumbling, severe vibration, transportation nor sleet invasive.
2. The product should be stored in water invasion, non- corrosive and flammable gases, air circulation, drying temperature -30°C~ +40 °C coffers.
3. The product is not a long time placed on the ground. Stored sets of good plastic bag.

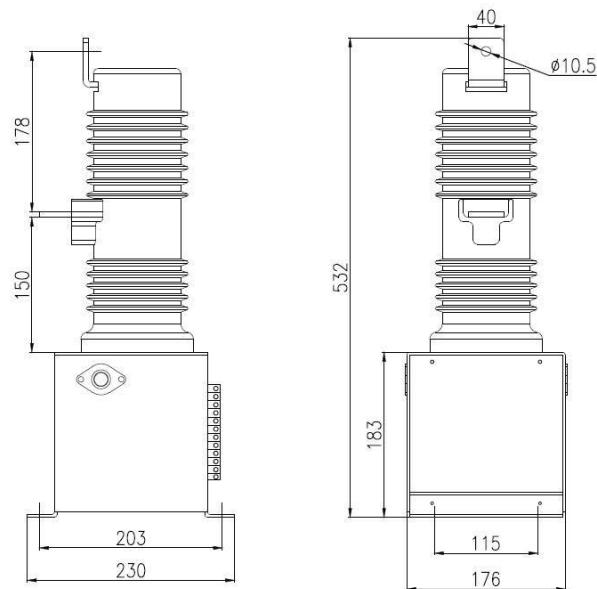
### EVC1 Series Tech-parameter

Model Tech parameter	160/12	250/12	400/12	630/12
Main circuit rated voltage (KV)	12	12	12	12
Main circuit rated current (A)	160	250	400	630
Main circuit making capacity (A/100times)	1600	2500	4000	6300
Main circuit break-make ability (A/25times)	1280	2000	3200	5000
Maximum break ability (A/3times)	3200	4000	4500	6300
Mechanical life (million times)	100	100	100	100
Electricity life AC3 (million times)	25	25	25	25
Power-frequency withstand voltage for main circuit (KV)	32	32	32	32
Power-frequency withstand voltage for control circuit (KV)	2	2	2	2
Lightning impulse withstand voltage (KV)	75	75	75	75
Rated operate frequency (times/h)	300	300	300	300
Terminal Pressure ( N )	>100	>100	>150	>150
Clearance between open contacts (mm)	6±0.5	6±0.5	6±0.5	6±0.5
Over travel (mm)	1.5±0.5	1.5±0.5	1.5±0.5	1.5±0.5
Main circuit electric resistance( $\mu\Omega$ )	≤ 200	≤ 200	≤ 200	≤ 200

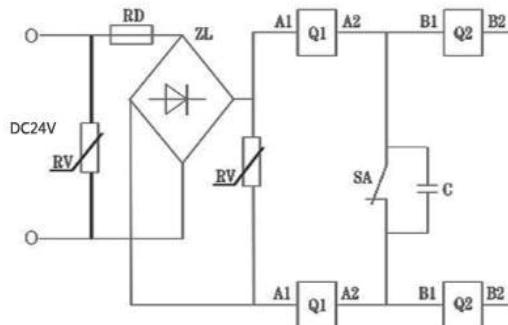
### EVC1 Series Installation size



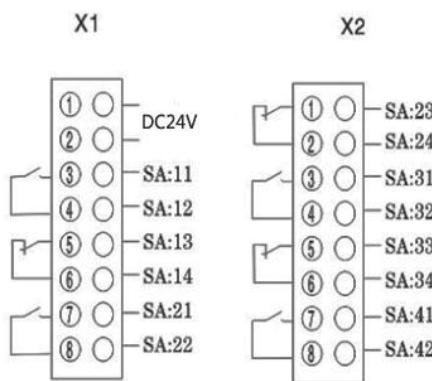
## EVC1 series outline dimension drawing



## Electrical mechanism secondary circuit working principle



## Electrical mechanism secondary circuit wiring diagram



SA: auxiliary switch C1C2: absorption capacitor RD: Fuses  
 Q1: close coil Q2 : opening coil X1 X2: block terminal

### Common fault and method for correction

Failure phenomenon	Reason	Solutions
1. After electrify no reaction or electro magnetic acoustic out (this phenomenon should immediately break electricity)	1. No power supply or ac/dc wrong or voltage is too low. 2. Control circuit has broken line. 3. Auxiliary switch to convert the normally closed contact have open circuit. 4. Rectifier damage.	1. Check the coil and connection. 2. Check the wiring, row, power supply terminals, switch terminal. 3. Adjusting switch play in place or more bad burn out point. 4. Replace the power supply plate.
2. Can't keep switching a combo state	1. Power panel has a problem. 2. Coil has a problem. 3. Core have foreign body. 4. Auxiliary switch installed in strange position. 5. Mechanical-lock undeserved	1. Particularly power panel. 2. Replace coil. 3. Remove foreign bodies. 4. Adjusting switch move later. 5. Adjustment
3. Action slow	1. A power supply voltage is too low. 2. Jamming. 3. Inappropriate efforts to spring opening	1. Improve the power supply voltage. 2. Insulators, pipe semicircle ball catching, plus a small amount of oil, respectively, the action look. 3. Adjustment.
4. Have Noise	1. Mounting surface is not level, deformation. 2. The inlet and outlet conductive row big rally, causing the machine deformation. 3. Electromagnetic pull uneven.	1. Gasket pad level. 2. Access conductive row size should be in place, not bolt deadlift. 3. Need leveling.
5. The coil hot or burn out	1. Supply voltage is too high. 2. Auxiliary switch conversion point did not open normally closed. 3. Coils breakdown	1. Check the operating voltage. 2. Adjustment or replacement of the auxiliary switch. 3. Require replacement

### Installations

Horizontal to installation this machine only, does not have a slope when it is in installing, angle must not exceed 15° The install holes must be in the same plane. To avoid forcing contactor and become deformation, affecting its normal work.

When joins the main circuit the electric conduction row of or the electric cable line, we cannot have the obvious pulling force to the contactor device, the wiring place must contract.

Carries on the electrical joint correctly, the control voltage of access must be consistent with the contactor control voltage, after the wiring, checks.

This contactor device may provide the auxiliary contact for you: The electrical mechanism (4NO+3NC.)

Control supply part of this contactor device, the electrical mechanism disposes two rectifier unit, one set is spare, such as the rectifier unit breaks down, may the control supply line access spare, then normally works.