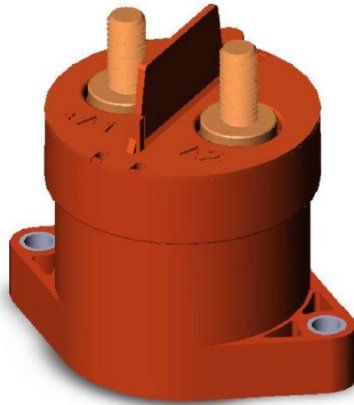


EVC Series High Voltage DC contactor—EVC-250CP (250A Round Type)

Ceramic seal



Application information

EVC series square contactor is applicable to DC systems with working voltage up to DC1000V, mainly used in new energy vehicles, charging piles, photovoltaic, energy storage and other fields. It has the characteristics of long service life, high reliability, small size and low power consumption, as well as electromagnetic compatibility, flame retardancy and rapid response.

Summarize

- Complete sealing – The contacts are in a sealed environment with low contact resistance and good stability, which can be used in harsh environments.
- Auxiliary contact – Can be configured with auxiliary contacts to accurately feedback the main contact state.
- Filling gas – The gas filled in the ceramic cavity helps to quickly extinguish the arc and ensure that the contact is not oxidized. The protection grade of the contact can reach IP67.
- Fully RoHS compliant – More environmentally friendly.

Part number designation

EVC	-	H		B	-	250		CP		A		N
Series		Contact form		Coil struc.		Current rating		Sub series		Coil line		Coil outlet connector
		A : 1NO		A: PWM				Blank: Standard		A: 390mm		K: With
		H : 1NO+AUX		B : 12VDC				CP: 1000VDC		B: 150mm		N: Without
				C : 24VDC						T:		
										Customized		
										N: None		

Contact Specification

Contact Arrangement	1NO
Contact Material	Copper Alloy
Operation Voltage	12~1000VDC
Continue Current	250A 150mm ²
Initial Contact Resistance	< 0.4mΩ (@150A)
Current Durability (150mm ² 85°C) Refer to the current carrying curve	320A 600s 480A 60s 1600A 1s
Max. Breaking Current	1600A 320V 1ops
Auxiliary contact load rating	2A 24VDC
Min. load of auxiliary contact	0.1A 8VDC

Coil Specification

Coil Type	A	B	C
Rated voltage (23°C)	9~36VDC	12VDC	24VDC
Max operating voltage (23°C)	36VDC	16VDC	32VDC
Pick-up voltage (-40~85°C)	Max. 8.5VDC	Max. 8.5VDC	Max. 17VDC
Drop-out voltage (-40~85°C)	Min. 4.5VDC	Min. 0.6VDC	Min. 1.2VDC
Startup power loss (23°C)	≈27W	≈46W	≈37.6W
Maintain power loss (23°C)	≈2W	≈2.8W	≈2.8W
Driving mode	PWM	Dual coil	Dual coil
Initial flashy flow value	3.6A	4.3A	1.6A
Holding current	0.13A @ 12V 0.07A @ 24V	0.24A	0.09A

- The contactor has a built-in one shot pulse generation circuit. Please drive the coil through the fast rising edge (pulse power supply mode), otherwise the contactor may not work normally.
- The coil current will automatically switch after the contactor dual coil is closed for about 300ms. Repeated switching operation less than 300ms may cause contactor failure.

Electric Performance

Operate time	25ms (At rated coil voltage, 23°C)
Release time	10ms (At rated coil voltage, 23°C)
Bounce time	5ms (At rated coil voltage, 23°C)
Insulation Resistance (Between open contact)	Before test: ≥ 1000MΩ After test: ≥ 50MΩ
Insulation Resistance (Between contact and coil)	Before test: ≥ 1000MΩ After test: ≥ 50MΩ
Dielectric Strength Leakage current ≤ 1mA (Between open contact)	Before test: 2500VAC, 50/60Hz, 1min After test: 2500VAC, 50/60Hz, 1min
Dielectric Strength Leakage current ≤ 1mA (Between contact and coil)	Before test: 2500VAC, 50/60Hz, 1min After test: 2500VAC, 50/60Hz, 1min

Durability

Electric Durability	250A 450VDC 1000 ops (Making & Breaking)
	250A 750VDC 1000 ops (Making & Breaking)
	250A 1000VDC 1000 ops (Making & Breaking)
	300A 750VDC 50 ops (Breaking)
	-250A 320VDC 12 ops (Breaking)

Mechanical Durability 300,000 ops

Note:

1. Electric durability tests are conducted in room temperature, operating frequency : 0.6s : 5.4s
2. Mechanical durability tests are conducted in room temperature, operating frequency 0.3s : 0.3s

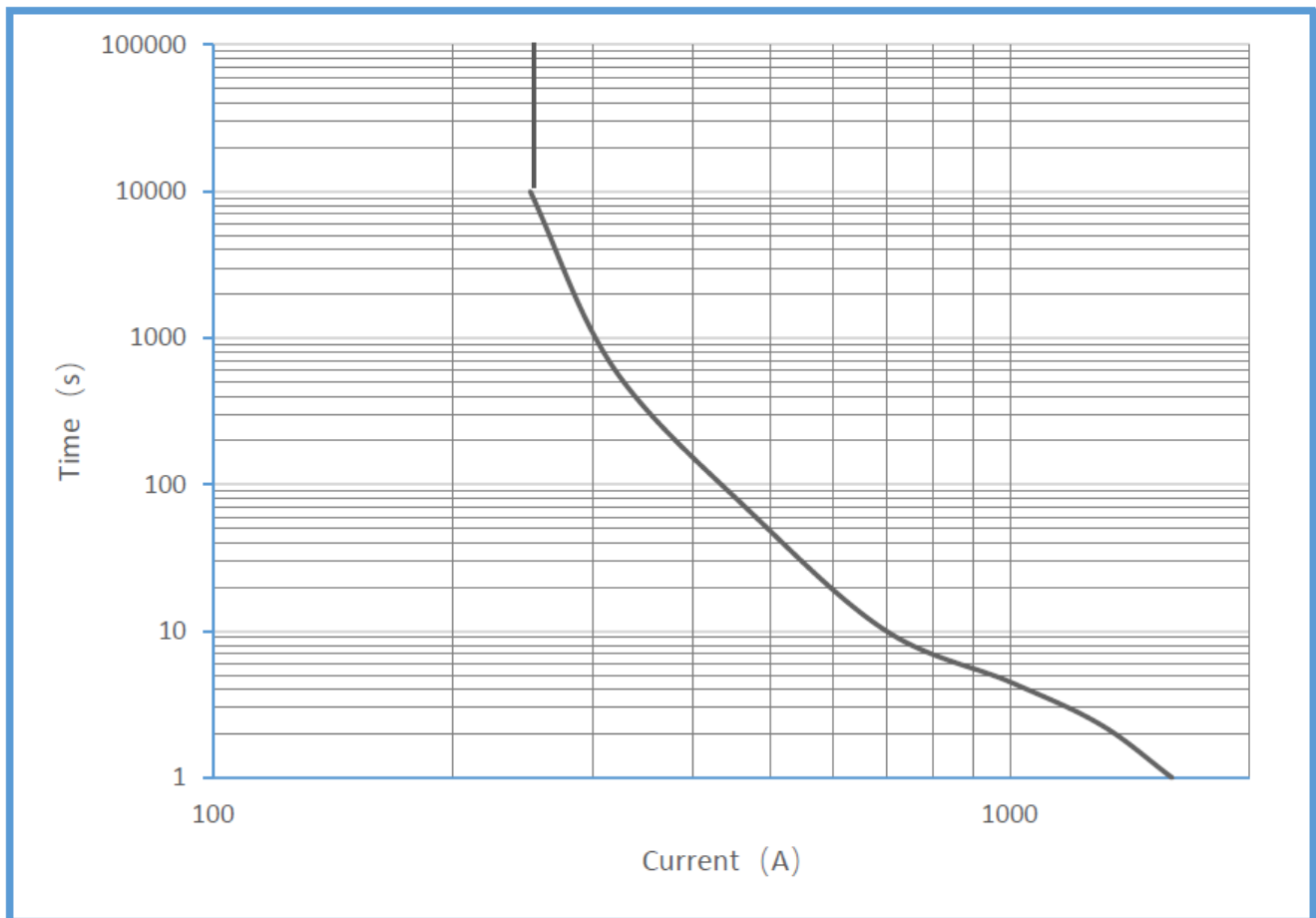
Mechanical Performance

Shock-Function	1/2 sine, 11ms, 196m/s ² (20G)
Shock-Destructive	1/2 sine, 11ms, 490m/s ² (50G)
Vibration	10-2000Hz, 57.9m/s ² (6G)

Application Condition

Operating Temperature	-40~85°C
Operating Humidity	5%~95%RH
Storage Temperature	10~75°C
Storage Humidity	5%~95%RH
Mounting Direction	Random
Weight	About 380g

Current Carrying Curve



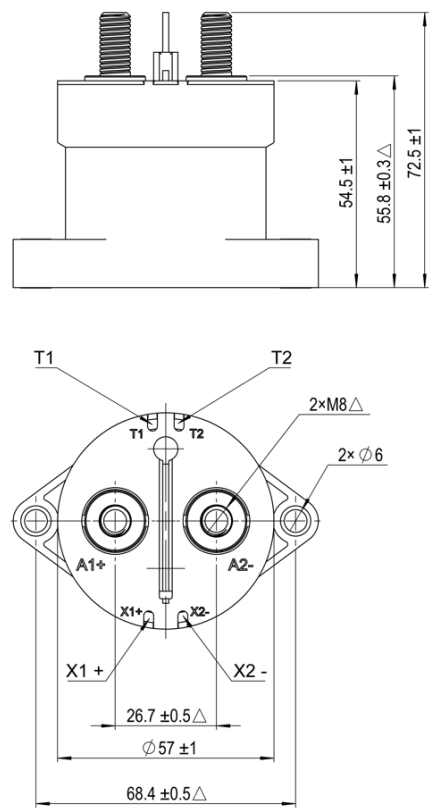
Note

- The curve is based on the ambient temperature of 85°C, the cross-sectional area of conductor is 150 mm².

Order information

Order Part Number	Coil Type	Mounting Type	Other information
EVC-HA-250CPAN	PWM	Bottom Mounting	-
EVC-HB-250CPAN	12VDC	Bottom Mounting	-
EVC-HC-250CPAN	24VDC	Bottom Mounting	-

Dimension



Wiring Diagram



Note:

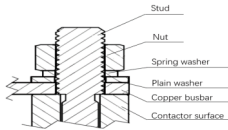
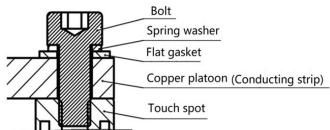
- Δ marked as important control dimension
- No tolerance marked, refer to:

Dimension (mm)	< 10	10~50	> 50
Tolerance (mm)	± 0.25	± 0.5	± 0.8

- The products are shipped with standard installation screws, gaskets, spring washers and other accessories.
- The low-voltage end of the product is led out by wire, and the default wire specification is 0.35mm², the outgoing line of coil is black, and the outgoing line of auxiliary contact is white. (If has)

Application considerations

- When the contactor is connected by one or more conductive copper bars, please ensure that the conductive copper bars are closely connected with the contact end surfaces (multiple copper bars need to ensure that the conductive copper bars with large current are closest to the contact end surfaces, followed by the conductive copper bars with small current), and then the flat washers, spring washers and nuts. Improper connection sequence can cause severe overheating.

Product type	Connection diagram	Product type	Connection diagram
Stud lead out		Internal thread	

- Please avoid adhering foreign matters, grease and corrosive liquid during installation, otherwise it will cause abnormal heating at the contact end of the contactor.
- The locking torque of contactor installation shall be controlled within the range specified in the table below, which may cause thread damage. Mounting screw at the load end is an option. Please refer to the following table for installation method and other information.

Product type	Installation part of load end			Body installation part	
	Installation	Torque	Recommended	Installation	Torque
External thread	M8 nut	9N·m~10N·m	Copper bar thickness $\leq 4\text{mm}$	M5 bolt	3N·m~4N·m
Internal thread	1/4 bolt	6N·m~8N·m	Thread engagement length $\geq 7\text{mm}$	/	/

- Please avoid installation near strong magnetic fields (around transformers, magnets, etc.) and heating objects.
- The main contact of the contactor is polarity. Please connect the load according to the wiring diagram in the outline drawing. The reverse connection of the load will lead to the decrease of the breaking capacity of the contactor. For the reverse breaking capacity, please refer to the reverse durability of the contact.
- The coil the contactor has polarity. Please connect it according to the wiring diagram. Wrong connection may cause no action of the contactor.
- The driving end of the internal coil built-in anti peak voltage suppression element.
- When the contactor is used in capacitive load circuit, please pay attention to taking pre charging and other measures, and it is recommended that the closing differential pressure of the contactor be controlled within 20V. Contact adhesion may be caused if pre charging measures are not taken.
- When the contactor is applied in the inductive load circuit, it is recommended to install surge absorption device in parallel with the inductive load. If no measures are taken, the cut-off performance of the contactor may be reduced.
- Please avoid collision or falling of the contactor during use, installation or transportation. In order to maintain the performance of the contactor, it is not recommended to use the contactor after impact or falling.
- The contact cavity of the contactor is filled with protective gas, and there is internal gas penetration along with the change of contact temperature. It is strictly prohibited to put the relay in the use temperature range (-40 ~ +85 °C) exceeding the product for a long time.
- For information on matching application of contactors and fuses, please contact Bussmann technical support team.

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