

高压直流接触器

EVD1200**PA6 系列

High Voltage DC Contactor

EVD1200*PA6 SERIES



产品特点

- 环氧密封，氮气绝缘。
- 符合 GB/T 14048.4 及 EN60947-4-1 标准中 DC-1 的使用类别。
- 可承受高电压大电流切换。
- 主触点无极性配置。
- 可选辅助触点配置。

FEATURES

- Epoxy sealed,nitrogen insulation.
- Compliant with DC-1 usage category in standard GB/T 14048.4 & EN60947-4-1.
- Bear high voltage and high current switching.
- Bi-directional load for main contacts.
- Auxiliary contact version available.

产品应用

- 储能系统
- 直流充电桩
- 工业车辆
- 电动叉车，AGV
- 直流检测设备
- 锂电池 PACK

APPLICATIONS

- Energy storage system
- DC charging station
- Industrial vehicles
- Electric forklift, AGV
- DC detection equipments
- Lithium battery PACK

主触点参数

MAIN CONTACT DATA

触点配置	Contact Arrangement	一组常开, 无极性 SPST-NO, non-polarity
负载电压	Load Voltage	1500VDC
连续电流	Continuous Current	1200A
触点电阻	Contact Resistance	$\leq 0.2\text{m}\Omega$ (@1200A)(初始值 initial value)
吸合时间	Close Time	$\leq 100\text{ms}$ (at 20°C)
弹跳时间	Bounce Time	$\leq 7\text{ms}$ (at 20°C)
释放时间	Release Time	$\leq 50\text{ms}$ (at 20°C)
机械寿命	Mechanical Life	1×10^5 次 cycles (0.5s : 0.5s)

辅助触点参数

AUXILIARY CONTACT DATA

触点形式	Contact Form	一组常开, 无极性 SPST-NO, non-polarity
最大电流	Contact Current Max.	2A, 30VDC
最小电流	Contact Current Min.	100mA, 8VDC
触点电阻	Contact Resistance	$\leq 100\text{m}\Omega$ (初始值 initial)

线圈参数

COIL DATA

线圈类型	Coil Type	双线圈 Dual coil
线圈额定电压	Nominal Voltage	12VDC 24VDC
工作电压范围	Operating Voltage Range	0.85-1.1Us
吸合电压(at 20°C)	Pick-up Voltage	$\leq 0.75\text{Us}$
释放电压(at 20°C)	Drop-out Voltage	$\geq 0.1\text{Us}$
额定启动电流	Rated Starting current	5.0A 2.8A
保持功耗(at 20°C)	Holding Power approx.	约 9.2W 约 11.9W

注 Notes:

1. 外部连接线圈导线单根应 $\leq 200\text{m}\Omega$, 否则可能因连接导线分压造成接触器无法吸合到位! The resistance value of the external connection coil wire should be $\leq 200\text{m}\Omega$ per wire, otherwise the contactor may not be able to close in place due to voltage division of the connection wire!

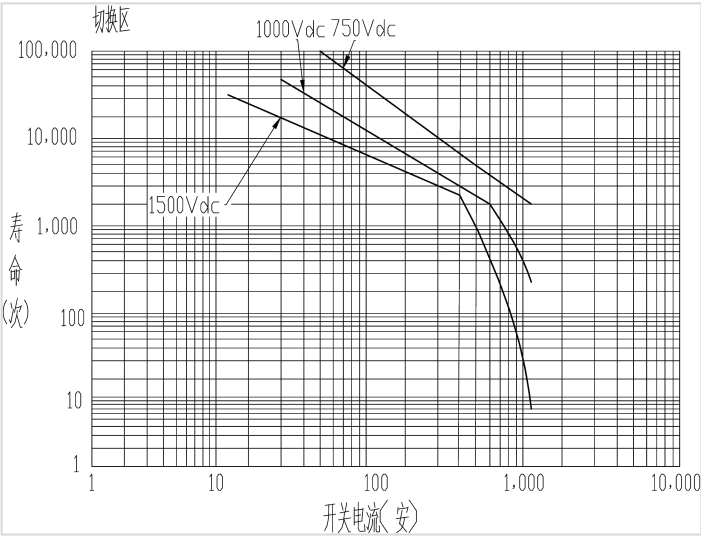
2. 双线圈产品需要采用电压直升的方式去吸合产品, 不得使用缓慢升高电压方式。The double coil product needs to use the voltage direct way to absorb the product, and the slow voltage increase method is not allowed.

其他参数

OTHER DATA

绝缘电阻	Insulation Resistance	1000M Ω @1000VDC (initial) ; 50M Ω @1000VDC(after test)
绝缘耐压 海平面, 初始值	Impulse withstand voltage at sea level, initial value	主触点间: Between open main Contacts: AC 3500 Vrms/1mA/1min. 主触点与线圈间: Between Contacts & Coil: AC 3500 Vrms/1mA/1min.
冲击	Shock	11ms 1/2 Sine, Peak 10G
振动	Vibration	Sine, 10Hz-500Hz, 10G
温度范围	Temperature range	-40°C to +85°C
湿度范围	Humidity range	5% to 95% RH.
海拔高度	Altitude	$\leq 4000\text{m}$
重量	Weight approx.	约 3050g

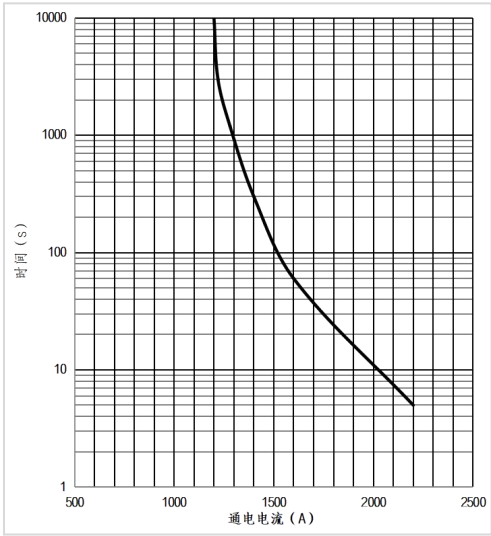
预估接通/分断曲线 ESTIMATED MAKE/BREAK CURVE



负载条件 Condition	次数 Cycles
1200A,750VDC,切换 Make/Break	800
1200A,1000VDC,切换 Make/Break	200
1200A,1500VDC,切换 Make/Break	4
4000A,320VDC,分断 Break only	1

纯阻性负载
Resistive load,L/R≤1ms

带电能力曲线 CURRENT CARRY CURVE



电流 Current	时间 Time
1200A	Continue
1280A	20min
1400A	5min
2200A	5s

连接铜排截面积≥600mm²
conductor sectional area ≥600mm²

产品型号规则

PRODUCT CODE INFORMATION

EVD	<u>1200</u>	<u>G</u>	<u>12</u>	<u>PA</u>	<u>6</u>	<u>H</u>
Series	(1)	(2)	(3)	(4)	(5)	(6)

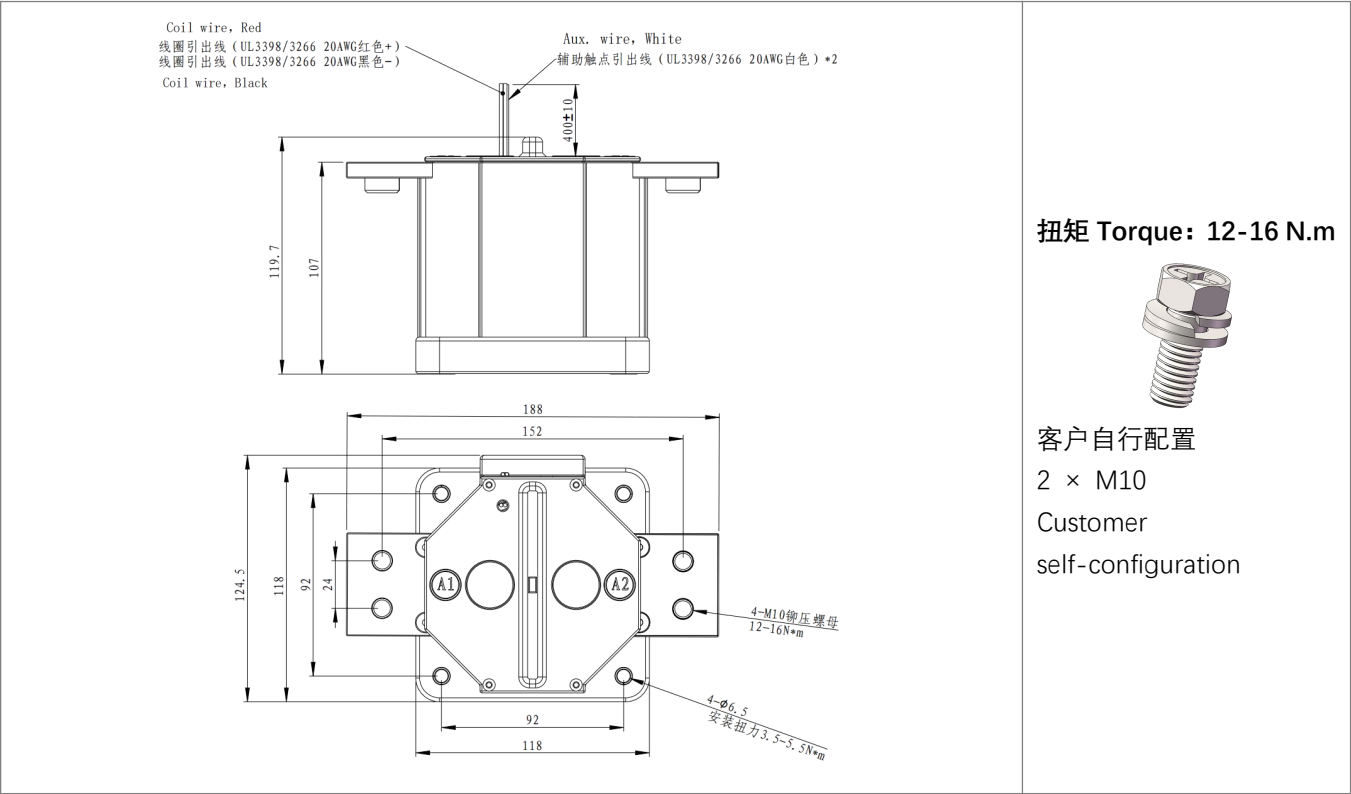
(1)	负载电流	Load Current:	1200=1200A	
(2)	触点形式	Contact Form:	E=一组常开, 无辅助触点;	Normally Open;
			G=一组常开, 带辅助触点	Normally Open with Aux. Contacts.
(3)	线圈电压	Coil Voltage:	12=12VDC	24=24VDC
(4)	负载电压	Load Voltage:	PA=12-1500VDC	
(5)	壳架号	Shell Number:	6=1000 Shell	
(6)	特殊代码	Special code:	空 = 标准型号;	Blank = Typical specific;
			H=辅助触点一组常闭;	SPST-NC for Aux. Contacts.

注: 其他特殊要求可定制, 如有需要请与东科联系。
Note: Other special requirement could be customized, please contact with DONGKE if you need.

产品尺寸

单位 Unit: mm 视角 Viewing angle: 

DIMENSIONS



未注公差 Undeclared Tolerance

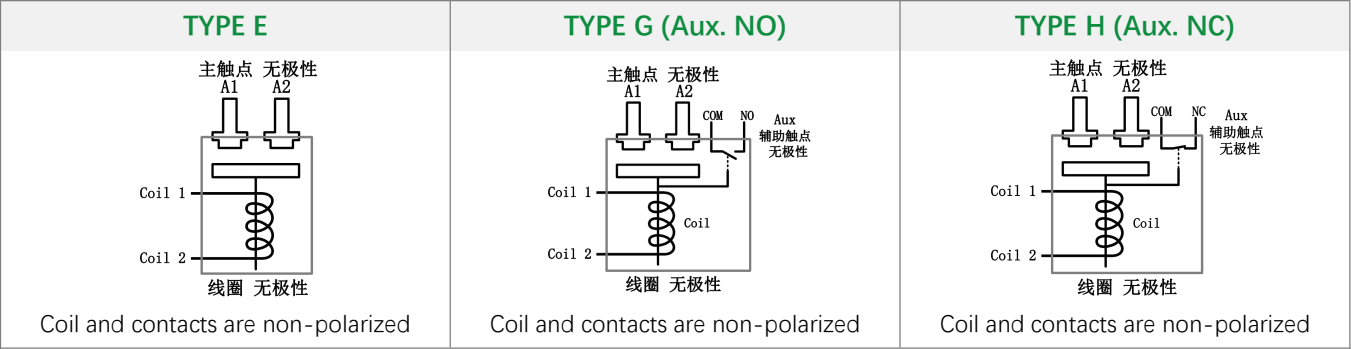
标称值	Values:	≤10	10~50	50~100	≥100
公差	Tolerance:	±0.3	±0.6	±1.0	±1.6

产品安装 Mounting :

螺钉规格	Specific:	M5 screw
扭矩	Torque:	3.5-5.5 N.m

接线图

WIRING DIAGRAM



使用注意事项

CAUTIONS

1. 凡安装接触器时均要使用防松垫圈以防止螺纹紧固件松脱。拧紧紧固件的扭矩范围应在规定的范围内，超出扭矩最大值可能会导致产品螺丝柱滑丝或者产品破裂。

2. 触点额定值均为阻性负载时的数值，使用 $L/R \geq 1\text{ms}$ 的感性负载（L 负载）的情况下，请与感性负载并行采取浪涌吸收措施。未采取措施的情况下，可能会造成电气寿命下降、发生切断不良。

3. 对于单线圈产品，优先推荐使用小继电器控制接触器线圈的通断（见下图）。如需设计电路来抑制接触器线圈的反向电动势，建议选用 TVS 管（钳位电压为接触器额定电压 1.6 倍以上）并联在接触器线圈两端。避免使用续流二极管，二极管并联在线圈上，将使接触器释放时间大大加长，降低产品的使用寿命。



4. 请避免在强磁场（变压器、磁铁的周围）和发热物体的附近安装。

5. 注意连接铜排的厚度和扭矩大小，若超出建议的数值，会造成螺纹滑牙或安装不紧的问题。不建议将两铜排安装在同一侧，避免高压短路或打火。

6. 请确保在接触器周围不存在硅系物质（如硅橡胶、硅油、硅系涂料剂、硅填充剂等），因为它们会产生含硅挥发气体，可能导致硅附着于接触器触点上，引起触点接触不良。

7. 如果线圈电压，触点电流，使用寿命超过额定参数，会引发接触器温度高于正常温度的风险。

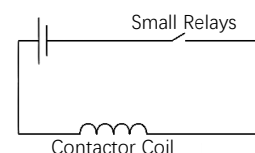
8. 如果多个接触器安装位置比较近，需要考虑散热和绝缘是否满足要求。

9. 安装过程中，连接铜排时优先锁紧接触器端铜排，这样可以避免接触不良现象。

1. When installing contactors, anti loose washers should be used to prevent threaded fasteners from loosening. The torque range for tightening the fasteners should be within the specified range. Exceeding the maximum torque value may cause screw slippage or product breakage.

2. The rated values of the contacts are all values under resistive load. When using inductive load (L load) with $L/R \geq 1\text{ms}$, please take surge absorption measures in parallel with the inductive load. Without taking measures, it may lead to a decrease in electrical lifespan and poor disconnection.

3. For single-coil products, it is recommended to use a small relay to control the on-off state of the contactor coil (see the figure below). To design a circuit that suppresses the reverse electromotive force of the contactor coil, it is advisable to use a TVS diode (with a clamping voltage more than 1.6 times the rated voltage of the contactor) in parallel across the contactor coil. Avoid using a freewheeling diode, cause it will significantly increase the contactor's release time and reduce the product's lifespan.



4. Please avoid installing near strong magnetic boundaries (transformers, magnets) and heating objects.

5. Pay attention to the thickness and torque of the connecting copper bars. If the recommended values are exceeded, it may cause thread slippage or loose installation. It is not recommended to install two copper bars on the same side to avoid high-voltage short circuits or sparks.

6. Please ensure that there are no silicone substances (such as silicone rubber, silicone oil, silicone coating agents, silicone fillers, etc.) around the contactor, as they can generate volatile gases containing silicon, which may cause silicon to adhere to the contactor contacts and cause poor contact.

7. If the coil voltage, contact current, and service life exceed the rated parameters, there is a risk of the contactor temperature being higher than normal.

8. If multiple contactors are installed in close proximity, it is necessary to consider whether the heat dissipation and insulation meet the requirements.

9. During the installation process, when connecting the copper bars, priority should be given to locking the copper bars at the contactor end to avoid poor contact.

使用注意事项

CAUTIONS

- | | |
|---|---|
| 10. 根据电流大小，选择合适的线缆或者铜排。接触器连接有高热量器件，如熔断器，分流器等，会影响接触器散热，导致温度叠加，需要根据实际温升选择合适铜排和增加散热措施。禁止接触器直接连接熔断器和分流器。 | 10. Select appropriate cables or copper bars based on the current level. Contactors connected with high heat components, such as fuses, diverters, etc., can affect the heat dissipation of the contactor, resulting in temperature superposition. It is necessary to select appropriate copper bars and increase heat dissipation measures based on the actual temperature rise. It is prohibited to directly connect the contactor to the fuse and shunt. |
| 11. 直流接触器触点如果有损伤，触点阻值会有所变化，增大和降低都有可能。 | 11. If there is damage to the contact of a DC contactor, the contact resistance value may change, increasing or decreasing. |
| 12. 该产品螺杆部分镀银，需要密封保存，长期暴露在空气中，螺杆会氧化和硫化，导致螺杆发黄变黑，如长期不安装使用，密封环境下，保存期限为 1 年。 | 12. The screw of this product is partially silver plated and needs to be sealed for storage. If exposed to air for a long time, the screw will oxidize and sulfurize, causing the screw to turn yellow and black. If not installed and used for a long time, the storage period in a sealed environment is 1 year. |
| 13. 内部气体的扩散寿命：本接触器采用密封仓触点，仓内充有气体，气体的扩散寿命由触点仓内的温度（即环境温度 + 触点通电产生的温升）所决定，因此应确保环境温度温度为 -40 至 +85℃。 | 13. Diffusion life of internal gas: This contactor adopts sealed chamber contacts, which are filled with gas. The diffusion life of gas is determined by the temperature inside the contact chamber (i.e. ambient temperature+temperature rise generated by contact electrification), so the ambient temperature should be ensured to be -40 to +85 °C. |
| 14. 如果接触器的线圈和触点连续通以额定电压（或电流），电源被切断后又马上接通，此时由于线圈的温度增加，线圈的电阻会增大，从而使得产品的吸合电压升高，有可能导致超出额定吸合电压与释放电压，在这种情况下，应采取以下措施：如降低负载电流，限制持续通电时间或采用比额定吸合电压高的线圈电压。 | 14. If the coil and contact of the contactor are continuously connected to the rated voltage (or current), and the power is cut off and immediately connected, the resistance of the coil will increase due to the increase in coil temperature, which may lead to an increase in the product's pull-in voltage and release voltage. In this case, the following measures should be taken: such as reducing the load current, Limit the continuous power on time or use a coil voltage higher than the rated pull-in voltage. |
| 15. 产品线圈的驱动电路功率必须大于产品线圈功率，否则会降低产品的切断能力，或发生直流接触器无法吸合、导致接触器控制板受损等情况。 | 15. The driving circuit power of the product coil must be greater than the power of the product coil, otherwise it will reduce the cutting capacity of the product, or there may be situations where the DC contactor cannot be closed, resulting in damage to the contactor control board. |
| 16. 使用电容负载(C 负载)时，请对电容负载采取预充电等措施，使冲击电流控制在接触器的额定电流以下，如未采取措施，可能会造成触点粘连。 | 16. When using capacitive load (C load), please take measures such as pre charging the capacitive load to control the impact current below the rated current of the contactor. If no measures are taken, it may cause contact adhesion. |

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