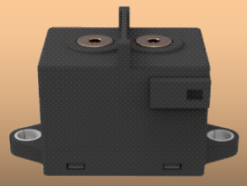
尼普顿电器 Neptune Electric

高压直流接触器 NVR6V-60D



一、产品型号命名规则 Product Names and Type Rules

	NVR6V	-	60	D	/	1000	-	12	-	H	C	5	( )
产品类型 Product Type	**NVR6V**：陶瓷 Ceramic												
负载电流 Load Current	**60**：60A												
系列细分 Series Indicator	**D**：D 系列												
负载电压 Load Voltage	**450**：450V **750**：750V **1000**：1000V												
线圈电压 Coil Voltage	**12**：12VDC **24**：24VDC												
触点形式 Contact Form	**H**：1 组常开主触点 1 Form A of Main Contact												
线圈引出形式 Coil Terminal Form	**C**：连接器 Connector												
负载引出形式 Load Terminal Form	**5**：内螺纹 Internal Thread												
特殊代码 Special Code	客户特殊需求 Customer's special requirements												

二、线圈参数 Coil Data

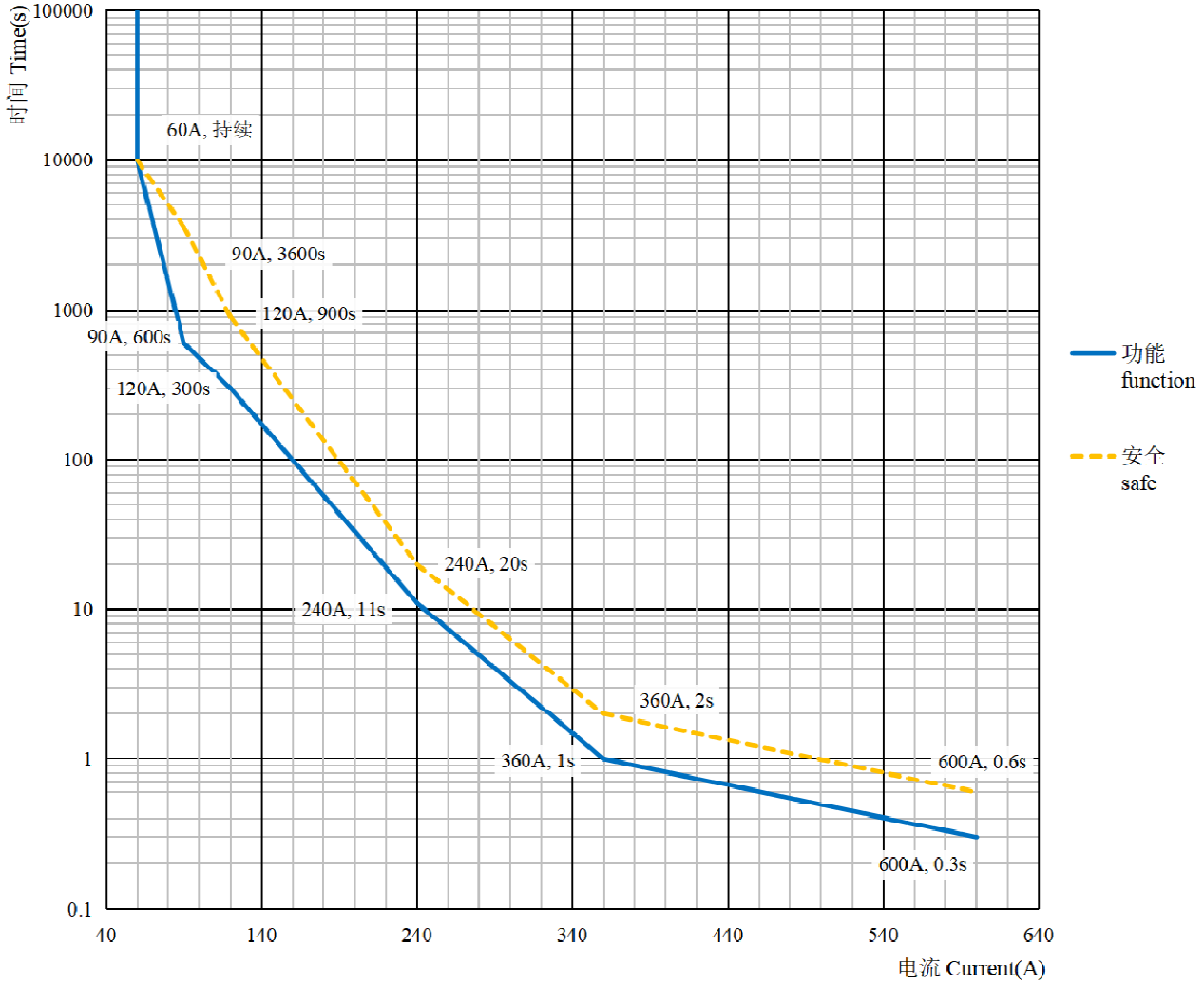
@-40 ℃～85 ℃

额定电压 Rated Voltage Vd.c.	线圈形式 Coil Type	吸合电压 Operate Voltage Vd.c.	释放电压 Release Voltage Vd.c.	线圈电阻 Coil Resistance Ω(@23℃)	线圈功耗（大约） Coil Power (Approx.) W
12	单线圈 Single Coil	≤9	≥1.2	48×(1±7%)	3
24		≤18	≥2.4	192×(1±7%)	3

三、触点参数 Contact Data

主触点 Main Contact	触点形式 Contact Form	1 组常开 1 Form A
	触点材料 Contact Material	铜合金 Copper Alloy
	接触电阻 Contact Resistance	≤3 mΩ (@60 A)
	触点额定负载 Contact Rating	60A（@16 mm^2 wire）
	最大分断电流 Max. Breaking Current	600A/450Vd.c. (1 op)
	最大切换电压 Max. Switching Voltage	1000 Vd.c.
	最小适用负载 Min. Applicable Load	6Vd.c./1A
	吸合时间 Operate Time	≤30ms
	回跳时间 Bounce Time	≤5ms
	释放时间 Release Time	≤10ms
	电流耐受 Current Endurance	60A 持续/ Cont. 90A 10min 120A 300s 240A 11s 360A 1s 600A 0.3s

电流耐受曲线 Current Endurance Curve



注 Notes:

1) 环境温度为85℃，导线截面积≥16mm²，线圈使用额定电压；
   The ambient temperature is 85℃, and the cross-sectional area of the wire is ≥16mm². Supply rated voltage to coil;
2) 该曲线设定功能温度上限为130℃，适合于长时工作制；安全温度上限为180℃，适合于短时工作制，如果温度超过180℃，接触器可能失效；
   The upper limit of the function temperature is 130℃, which is suitable for long-time working; and the upper limit of the safe temperature is 180℃, which is suitable for short-time working; If the temperature exceeds 180℃,the contactor may fail;

四、耐久性 Endurance

电寿命（阻性） Electrical Life(Resistivity)	接通 Making: 1000Vd.c/50A 1×10^4 次(ops) 分断 Breaking: 800Vd.c./60A 1×10^3 次(ops)
机械寿命 Mechanical Life	200,000 次(ops)

注 Notes:

1) 电寿命测试条件：常温，线圈使用额定电压，通断比为0.6s:5.4s；
   Electrical Life tests are conducted in room temperature. Supply rated voltage to coil. On/off ratio is 0.6s:5.4s;
2) 机械寿命测试条件：常温，线圈使用额定电压，通断比为0.5s:0.5s。
   Mechanical Life tests are conducted in room temperature. Supply rated voltage to coil. On/off ratio is 0.5s:0.5s.

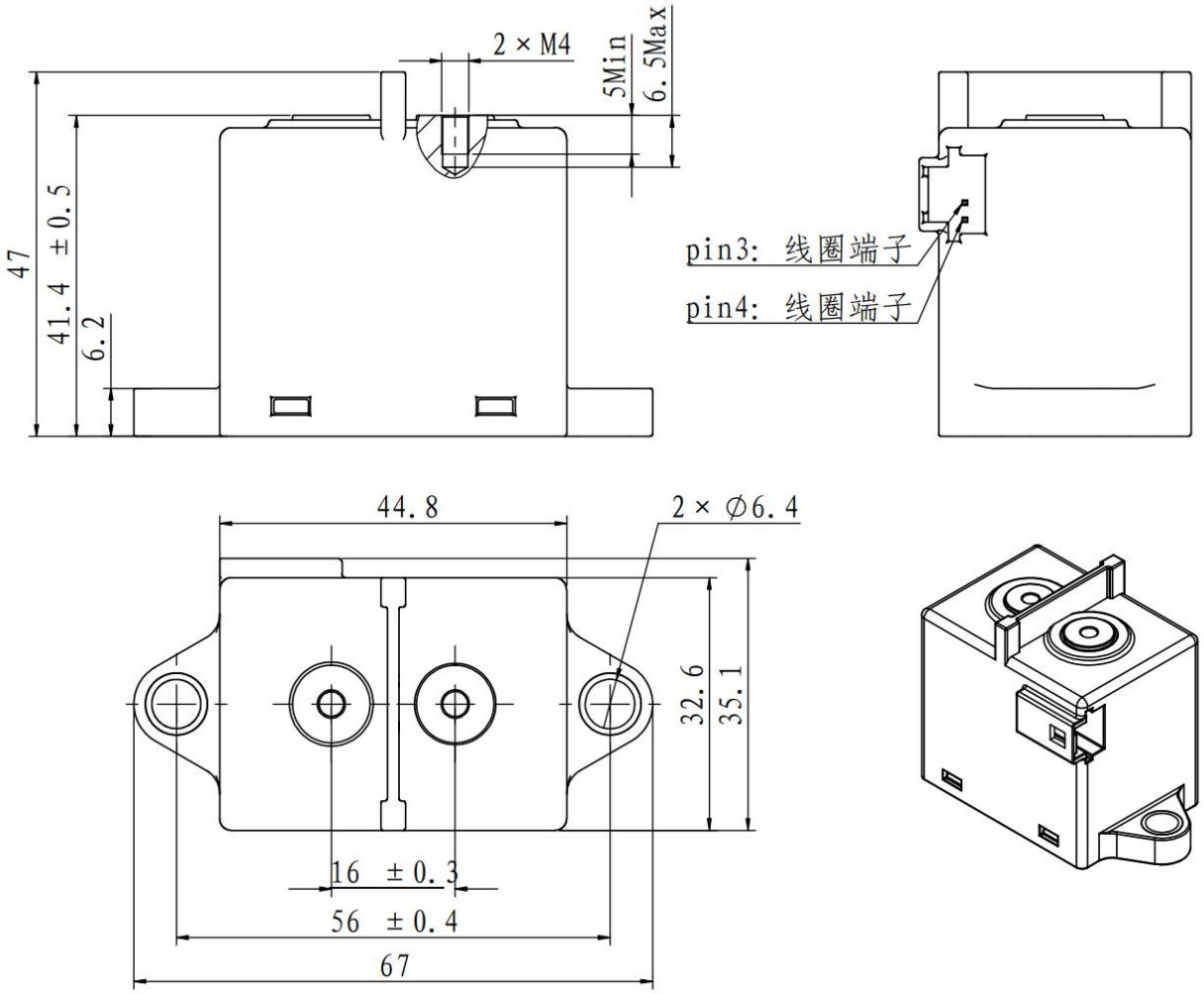
五、其他性能 Other Properties

绝缘电阻 Insulation Resistance	断开触点间 Between Open Contacts	试验前 Before Test: ≥1000MΩ(@1000Vd.c.) 试验后 After Test: ≥50MΩ (@1000Vd.c.)
	线圈引出端与触点引出端之间 Between contact and coil	试验前 Before Test: ≥1000MΩ(@1000Vd.c.) 试验后 After Test: ≥50MΩ(@1000Vd.c.)
介质耐压 Dielectric Strength	断开触点间 （漏电流≤1mA） Between Open Contacts (Leak Current≤1 mA)	试验前 Before Test: ≥3000Va.c.，(50/60 Hz 1min) 试验后 After Test: ≥2250Va.c.，(50/60 Hz 1min)
	线圈引出端与触点引出端之间 （漏电流≤1mA） Between contact and coil (Leak Current≤1 mA)	试验前 Before Test: ≥2500Va.c.，(50/60 Hz 1min) 试验后 After Test: ≥1875Va.c.，(50/60 Hz 1min)
机械冲击-强度 Mechanical Shock-Destructive		50G
机械冲击-稳定性 Mechanical Shock-Functional		20G
随机振动 Vibration		10-500Hz，5G

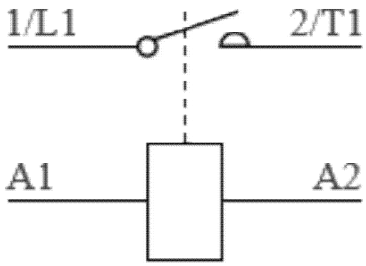
六、产品结构 Configuration

1. 产品型号 Product Model：NVR6V-60D/xxx-xx-HC5

1.1. 外形尺寸 Outline Dimensions



1.2. 接线图 Wiring Diagram



负载、线圈均无极性
No polarity on the load and coil

1.3. 产品重量 Product Weight

规格 Specification	重量 Weight
12V	约 Approx.134g
24V	约 Approx.140g

注 Notes：

1）产品外形尺寸未注公差参照下表：

All unspecified tolerance please refer to the following table:

尺寸 Dimension(mm)	＜10	10~50	＞50
公差 Tolerance(mm)	±0.3	±0.5	±0.8

2）推荐的连接器 Recommended connector:

TE 1379658-1

3）产品默认出货不含连接器线束、螺钉、垫片、弹垫等安装配件。

The default product is shipped without connector harness,screws,washers,spring washers and other installation accessories.

七、应用条件 Application Condition

应用条件 Application Condition	标准测试条件 Standards Test Condition	使用条件 Operating Condition	贮存条件 Storage Condition
温度 Temperature	23 ℃±5 ℃	-40℃～+85℃	-40℃～+85℃
湿度 Humidity	25%～75%RH	5%～85%RH	5%～85%RH
海拔 Altitude	≤2000m	≤4000m	≤4000m
方向 Direction	同安装方向 Same as Installation Direction	立式 Vertical	包装正向放置 Forward Packing

注 Notes：

1) 由于本产品静触头为纯铜材质，如贮存时间较长，使用前应检查触点表面氧化程度，如已发生氧化变色，应当对触点表面进行打磨去除氧化层再使用。贮存环境应避免凝露、结冰。

Since the fixed contact of this product is made of pure copper, if the storage time is longer, the oxidation degree of the contact surface should be checked before use. If oxidation discoloration has occurred, the surface of the contact should be polished to remove the oxide layer before use.The storage environment should avoid condensation and icing.

2) 如贮存时间超过3个月，使用前应重新对接触器进行参数检测。

If the storage time exceeds 3 months, the parameters of the contactor should be tested again before use.

3) 当海拔超过2000m时，应根据《IEC 60947-1》要求降容使用。

When the altitude exceeds 2000m, it should be used with reduced capacity according to the requirements of IEC 60947-1.

八、其他说明 Others

1. 请避免触点附着异物、油脂类及腐蚀性液体，否则会导致发热异常。
   Please avoid foreign bodies, grease or corrosive liquids in the terminal, otherwise it will lead to abnormal heating at contact terminals.
2. 请避免在强磁界（变压器、磁铁的周围）和发热物体的附近安装。

Please avoid installation in strong magnetic field (around the transformers, the magnet) and the heating objects nearby.

3. 防止出现松动，接触器安装时请使用垫圈。接触器安装处请使用 M5螺钉，螺钉锁紧扭矩请控制在 3 N • m～4 N • m；在超过范围的情况下，可能会造成破损。
   In order to prevent loosening, please use the washer when installing the relay. Please use the M5 screws to install relay, screw locking torque within 3 N • m～4N • m; Damage may occur when it is beyond the range.
4. 注意连接铜排的厚度和扭矩大小，若超出下表建议的数值，会造成螺纹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。
   Please pay attention to the thickness of copper bars and the value of the torque. If it goes beyond the recommended values in the below table , it will cause thread slide or installation is not tight. To avoid short circuit or fire,it's not suggest fix two copper bus bar at same side.

负载端螺钉大小 Screw on the load terminal	建议铜排厚度 Recommended thickness of copper bus bar	建议铜排开孔尺寸Recommended hole dimension of copper bus bar	建议铜排平面度 Recommended Flatness of copper bus bar	扭矩 Torque
M4	1～2mm	Φ4.0mm～ Φ4.5 mm	0.1	3N • m～ 4N • m

5. 触点额定值均为阻性负载时的数值，使用 L/R≥1 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。
   The rating load of contact is resistive load. Please assure the surge absorption device together with inductive load when using the L/R≥1 ms inductive load (L Load),otherwise it may lead to the decrease of electrical endurance and defective switch.
6. 本继电器的内部触点使用了气体保护，伴随着触点温度变化（环境温度+通电致使温度上升）而存在内部气体穿透，严禁将继电器长时间置于超过产品温度使用范围（-40℃～85℃）环境中。
   The relay contacts are sealed and filled with gas. When the contact temperature changes, there is internal gas penetrating characteristic.Neputune relays are forbidden to be used at the temperature beyond our suggestion -40 ℃～85 ℃ for long time.
7. 在继电器坠落的情况下，原则上请不要再使用。
   In principle, please do not use it when the relay has fallen down.
8. 尼普顿产品均符合RoHS2.0要求。
   Neptune products are all RoHS2.0 compliant.
9. 尼普顿保留对产品更改的权利，顾客购买产品前请确认规格书版本。
   Neptune reserves the right to change the product. Customers should confirm the version of the specification before purchasing the product.
10. 如需获取更多信息与支持，请联系尼普顿电器（昆山）有限公司。
    Please contact Neptune Electric (Kunshan) Co., Ltd for more information or support.