东莞市天瑞电子有限公司	技术规格书 Technical specification	文件编号 File No	TR-BH-A(B)-SM.000
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	BH 系列热保护器 BH series thermal protector	页 码 Page	1/5

1 用途 Application

BH 系列热保护器是一种过热、过载保护装置， 主要适用于交流 50Hz、电压 220V 的单相电机由 于过载、堵转等非正常工作状态而引起的热过载保护，也可用作电热器具、荧光灯整流器、变压器、 集成电路等一般电气设备的过热保护和温度控制。

BH series thermal protectors are devices for protecting against overload and over temperature. They are usually used for AC 220v /50Hz one phase motors to protect motor from over temperature caused by unusual state such as overload, blocked up. They are also used for protecting against over temperature & temperature control in heater, fluorescent ballast, IC etc.

2 结构特点 Characters

BH 系列热保护器是采用一定几何形状的双金属片，无需辅助机构，仅靠双金属片的自身感温和 电流热效应，使双金属元件的状态发生快速变化，直接带动触点实现自动切断和接通电路，起到过 热、过载保护作用，解决了电流突增，感温滞后的问题。具有内阻小、体积小、密封牢固、比通常保护器更安全更灵敏等优点。

The bimetal with its own small geometrical form is one of the most important parts. There are no other assistant parts in BH series thermal protector. The bimetal is also sensitive to temperature and current, if it is be place in circuitry in series. When it is reach the acting temperature in circuitry, the bimetal will rapidly act then cutting off or connecting the circle.

3 产品分类、型号及外形结构：Type & Configuration

3.1 产品分类及型号 Type

BH—X X X— XXX —K (常开产品标示，未标识默认为常闭)

- XXX：额定动作温度：规格详见附表 Rated Open Temp: the specification refers to additional table
- X：双金属阻值代号：高阻 G、中阻 Z、低阻 D Symbol of bimetal resistance: High resistance G, Middle resistance Z, Low resistance D
- X：外形尺寸：1.15×6.6×3.2 Dimension: 2.15×7.3×3.9, 3.18×8×4, 4.21×8×4
- X：外壳材料：金属外壳 A、塑料壳 B Case material: Metal Case A, Plastic Case B
- BH：设计代号 Design symbol

3.2 外形及结构 Configuration

热保护器的外形及结构见总装图。Configuration refers to assembly drawing

4. 触点最大电容量 Contact Capacity ：AC250V/6A、AC125V/8A、DC24V/10A、DC12V/10A

5. 技术性能 Technique Ability

5.1 外观性能 Appearance Performance

5.1.1 热保护器的外壳不得有毛刺、裂纹、变形、锈蚀等现象。

There is no burr, crack, distortion and rust on case.

5.1.2 标志应正确、端正、清晰、经久耐擦。

Marks should be correct ,clear and durability.

5.2 引线（端子）抗拉性能 Pull Endure Ability of leads with terminal

热保护器的引线（端子）应能承受不低于 30N 轴向静拉力，历时 5 秒，应无断裂、松动、脱落 现象。

Terminals & leads should endure more than 30N axes direction pull lasting for 5 seconds. And terminals should be no loose and leads have no rupture and slipping.

5.3 动作特性 Action Character

5.3.1 额定动作温度 Rated Open Temp.

热保护器的额定动作温度见附表。Rated open temperature refer to table below

5.3.2．热保护器临界脱扣电流温度曲线见附图(仅供参考)

Curve of Ultimate Trip current VS temperature refers to picture below (Only for reference)

5.4 介电性能 Electricity Performance

5.4.1 热保护器在分断后的引出线应能承受交流 50Hz， 660VAC 试验电压历时 1min 而无击穿闪络现 象（泄漏电流整定值 1mA）

After thermal protector's opening the leads should endure AC 660VAC/50Hz with 1Ma leak current lasting for 1 minute. After the trial there is no flashover.

5.4.2 热保护器端子引线与绝缘套管能承受交流 50Hz，4000VAC 试验电压历时 1min 而无击穿闪络现 象（泄漏电流整定值 1mA）

After thermal protector's opening, the leads and insulation sleeve should endure AC 4000VAC/50Hz with 1Ma leak current lasting for 1 minute. After the trial there is no flashover.

5.5 绝缘性能 Insulation performance

在正常条件下，引出线（端子）与绝缘套管之间绝缘电阻大于 100MΩ（DC500V 兆欧表测量）

Under normal condition, resistance between leads and insulation sleeve should be more than 100MΩ by ohmmeter of DC500V.

5.6 耐久性能 Endurance Capacity

5.6.1电寿命 Electric service life

在常温下，热保护器在接交流 50Hz、电压 220V、功率因数 COS ϕ=0.7 的额定负载条件下试验 2000 次后，额定动作温度应在初期值的±5℃或±5%(二者取最大者)以内，且触点不发生熔焊，继 续试验 4000 次后热保护器仍应可靠工作。

The trail condition is under AC220/50Hz with rated load that its power factor is 0.7. Under the trail condition and 2000 cycles, the opening temperature should be in ±5℃ or±5% (the larger is the best choice) of its own rated temperature and there is no melt in product. Under same condition and after 4000 cycles the product should be dependable in its function.

5.6.2 耐湿性能 Damp endurance

热保护器应能承受恒定湿热试验方法（GB2423.3Ca）的考核，其严酷等级为 48h，湿热试验 后的绝缘电阻应不低于 2MΩ，试验后性能应满足下列要求：

The thermal protector shall endure constant heat and humidity test (GB2423.3Ca) of grade 48h, after which the insulation resistance shall be no less than 2MΩ. The performance of the protector after test shall meet the following requirements:

a．试品应无变形破损。

a. No distortion or damage to the tested product.

b. 额定动作温度变化应在初期值的±5℃或±5%(二者取最大者)以内。

b. The change of rated temperature should be in ±5℃ or±5% (the larger is the best choice) of its own rated temperature and there is no melt in product.

c. 介电强度应符合 5.4.1 条，试验电压为原试验电压的 75%。

c. The testing voltage shall be 75% of the original testing voltage. The Electricity Performance should be to 5.4.1 .

5.6.3 耐高温性能 High temperature Endurance

将热保护器置于 150℃的空气环境中保持 24h，试验后性能应满足下列要求：

Keep the thermal protector in the temperature of 150℃ for 24 hours, and after the test, the performance of the thermal protector shall meet the following requirements:

a. 试品应无变形破损

a. No distortion or damage to the tested product.

b. 额定动作温度变化应在初期值的±5℃或±5%(二者取最大者)以内。

b. The change of rated temperature should be in ±5℃ or±5% (the larger is the best choice) of its own rated temperature and there is no melt in product.

c. 介电强度应符合 5.4.1 条，试验电压为原试验电压的 75%。

c. The testing voltage shall be 75% of the original testing voltage. The Electricity

c. Performance should be meet to 5.4.1 .

5.6.4 耐低温性能 Low temperature Endurance

将热保护器置于-20℃的空气环境中保持 48h，试验后性能应满足下列要求：

Keep the thermal protector in the temperature of -20℃ for 48 hours, and after the test, the performance of the thermal protector shall meet the following requirements:

a. 试品应无变形破损

a. No distortion or damage to the tested product.

b. 额定动作温度变化应在初期值的±5℃或±5%(二者取最大者)以内。

b. The change of rated temperature should be in ±5℃ or±5% (the larger is the best choice) of its own rated temperature and there is no melt in product.

c. 介电强度应符合 5.4.1 条，试验电压为原试验电压的 75%。

c. The testing voltage shall be 75% of the original testing voltage. The Electricity Performance should be meet to 5.4.1

5.6.5 耐热冲击性能 Heat & shocking Endurance

将热保护器置于 150℃，历时 30min，-20℃，历时 30min，交变放置 5 个周期，试验后性能应 满足下列要求：

Put the thermal protector in the 150℃ constant temperature box for 30min, and transfer it into the -20℃ constant temperature box for 30min, and then put it again into the 150℃ constant temperature box for 30min. After five consecutive cycles, the performance of the protector shall meet the following requirements:

a. 试品应无变形破损。

a. No distortion or damage to the tested product.

b. 额定动作温度变化应在初期值的±5℃或±5%(二者取最大者)以内。

b. The change of rated temperature should be in ±5℃ or±5% (the larger is the best choice) of its own rated temperature and there is no melt in product.

c. 介电强度应符合 5.4.1 条，试验电压为原试验电压的 75%。

c. The testing voltage shall be 75% of the original testing voltage. The Electricity Performance should met to 5.4.1 .

5.6.6 耐振动性能 Anti-viBHation Endurance

热保护器应能承受振幅 0.35mm,频率变化 10~50Hz，变化周期 3~5 次/ min，装夹方向为 X、Y、Z 各试验 1.5h 后，性能应满足下列要求：

After the 1.5h test with viBHation amplitude of 0.35mm, frequency change of 10~50Hz, change period of 3~5 times/ min, installation directions of X, Y and Z, the performance of the thermal protector shall meet the following requirements:

a.额定动作温度变化应在初期值的±5℃或±5%(二者取最大者)以内。

a. The change of rated temperature should be in ±5℃ or±5% (the larger is the best choice) of its own rated temperature and there is no melt in product.

a. 试品应无变形破损，端子不应松动脱落。

b. No distortion or damage to the tested product and no loose or desquamation to terminal

6. 使用注意事项 Attention

6.1 温度测试 Temperature test

将热保护器置于恒温精度为±1℃的试验箱内进行试验。测温方法采用热电偶或温度计，热电偶 或温度计应置于热保护器试样上或尽可能靠近试样，在试验升温过程中，从低于额定动作温度 10℃ 开始，温度变化速率不超过 0.5℃/min。通过保护器的测试电流不应超过 0.1A。

Testing be done in the oven that the precision of constant temp is ±1℃. When testing ,the thermocouple or thermometer should be place nearest to samples. During temperature rising ,when the temperature reaches 10℃ less than rated temperature, the temperature rising rate should be less than 0.5℃ per minute and the testing current should be no more than 0.1A.

6. 2 使用环境 Employed Conditions

6.2.1 保护器不得长期用于 180℃以上的高温环境，以防止造成塑料的变形使得保护器失效。

Do not place thermal protector in the condition of 180℃ for long time, it would damage the plastic case and make the product unuseful.

6.2.2 不得在强酸、强碱及其它强腐蚀环境下长期使用。

Do not place thermal protector under condition of alkali and acid for a long time.

6.3 安装与连接 Installation & Connection

6.3.1 保护器应安装于被保护对象温升的敏感点，其感温面应与被保护部件有效地紧密接触或直接面 向被保护区域。保护器的感温面有三角凹点作标记

Do place correct side of thermal protector in sensitivity point of being protected object closely. The correct side of thermal protector is marked with triangle concave.

6.3.2 保护器在安装过程中，以防止超成外壳变形或破损而使保护器性能改变，应注意以下几点： During installation, do notice the following to prevent the case from damaging: a.不得使用尖锐的工具对保护器抵压；

a. Do not press the protector with sharp tool. b.不得用重力捶压保护器；

b. Do not hammer the protector.

6.3.3 连接采用电弧法焊接工艺时，焊接电流不得通过热保护器，否则过强电流直接通过热保护器触 点会造成破坏作用。

When doing some welding, do not let the strong current through the product or that will damage the thermal protector.

7. 储藏条件 Storage Condition

包装箱及部品在运输、贮存过程中均不得遭受雨雪侵袭，挤压与破损，空气相对湿度不大于 90%。

During the transport and storage, the packaging cases shall not be invaded by snows or rains, extruded or damaged, and the relative humidity of air shall be no more than 90%.

附表：额定动作温度对照表：

Additional Table: Rated open temperature table

规格 Type	动作温度 Open Temp.	复位温度 Rest Temp.		规格 Type	动作温度 Open Temp.	复位温度 Rest Temp.
45℃	45±5℃	35±8℃		100℃	100±5℃	65±15℃
50℃	50±5℃	35±8℃		105℃	105±5℃	70±15℃
55℃	55±5℃	35±10℃		110℃	110±5℃	75±15℃
60℃	60±5℃	40±10℃		115℃	115±5℃	75±15℃
65℃	65±5℃	45±12℃		120℃	120±5℃	80±15℃
70℃	70±5℃	45±15℃		125℃	125±5℃	85±15℃
75℃	75±5℃	50±15℃		130℃	130±5℃	85±15℃
80℃	80±5℃	55±15℃		135℃	135±5℃	90±15℃
85℃	85±5℃	55±15℃		140℃	140±5℃	95±15℃
90℃	90±5℃	60±15℃		145℃	145±5℃	95±15℃
95℃	95±5℃	65±15℃		150℃	150±5℃	100±15℃

temperature vs current curve for BH series thermal protector