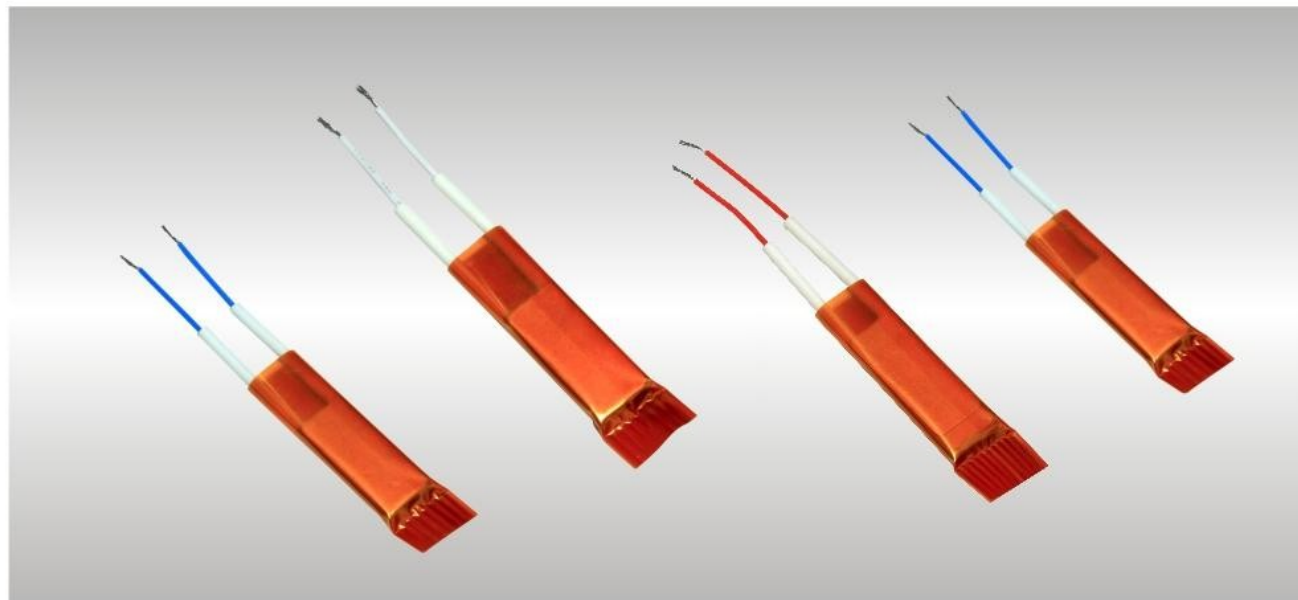


Product brief introduction

PTC standard heating devices, whose working is dependent on the PTC heating pyrogen, could maintain temperature control securely and reliably. We are able to develop different types of products to meet our customers' needs, such as hairdressing devices, electric barrette, massaging apparatus, wax-melting instruments, steam barrette, thermosol gun, electric iron etc.

產品簡介

PTC標準加熱件是利用PTC作為熱源的器件，具有自動控溫的特性，安全可靠。可用于美容器、電發夾、卷發器、按摩器、熔蠟器、蒸汽發梳、熱熔膠槍和電銲鐵等設備上，我們可根據客戶的要求開發各種型號的產品。



Product model 產品型號

TYII	/	250	+	550	/	070	/	020	D
1		2	3	4		5		6	7

1、產品品名：

2、產品表面溫度 – Surface temperature:

3、“+” 為粘膠，“-” 為不粘膠

4、長度 – Length: (X10–1mm)

5、寬度–Width: (X10–1mm)

6、厚度–Thickness: (X10–1mm)

7、使用電壓 – Rated Voltage

A: >240V B: 240V

C: 230V D: 220V

E: 120V F: 110V

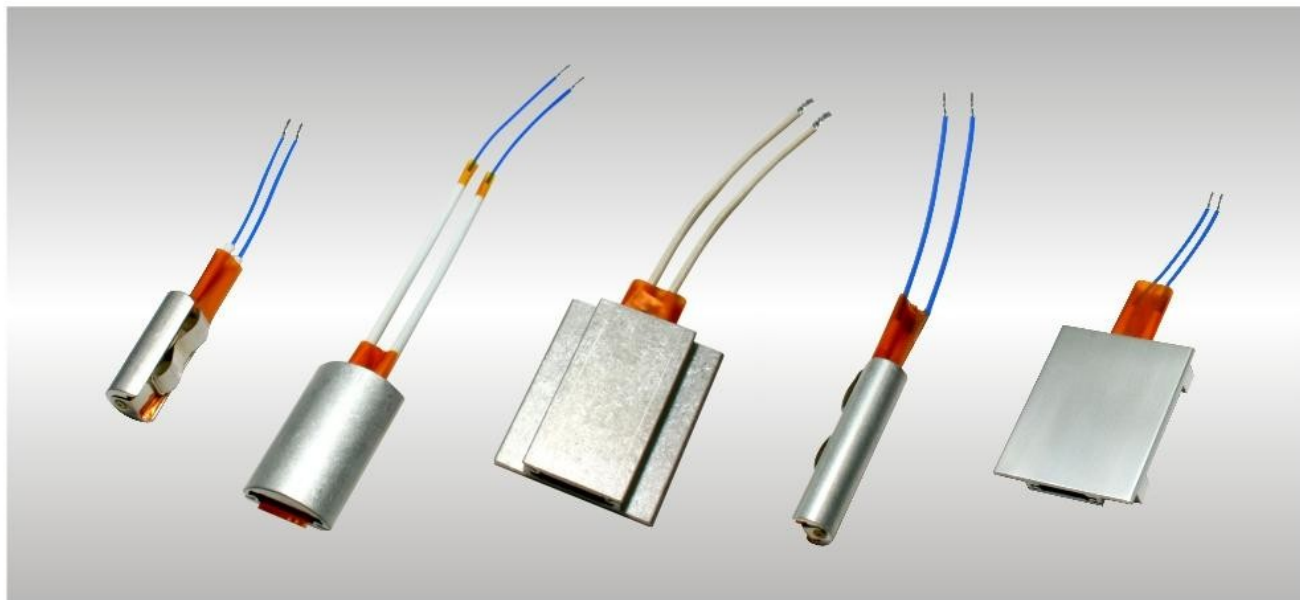
G: 100V K: <100V

Product brief introduction

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Product model 產品型號

RFT	008	D	250	25X25
1	2	3	4	5

1、RFT-標準件：HEATER

2、標準件型號：HEATER NO.

3、使用電壓：RATED VOLTAGE：B=240V C=230V D=220V E=120V F=110V G=100V k=<100V

4、表面溫度(°C)：SURFACE TEMP(°C) (50°C~290°C)

5、標準件規格：HEATER SPECIFICATION.

Product brief introduction

The water heater our company has developed by using PTC elements could be used to maintain constant temperature, without the traditional method of using temperature-controlling instruments to control the exterior temperature. It enjoys a low cost and is more enduring and will not be damaged when used without water. It is applicable to a wide range of voltages and we could devise them according to the requirements of different household electric appliances.

產品簡介

我公司利用PTC元件開發的液體加熱器，使用安全可靠，具有恒溫自控性，可改善傳統加熱，要用溫控器控制表面溫度的缺點。裝配簡便，節省工時，降低成本。壽命長，不容易老化，長時間無水幹燒，不會燒壞。使用電壓範圍廣，我們可以根據各種家庭電熱產品的要求設計。



Model : LKYW/500 型號: LKYW/500

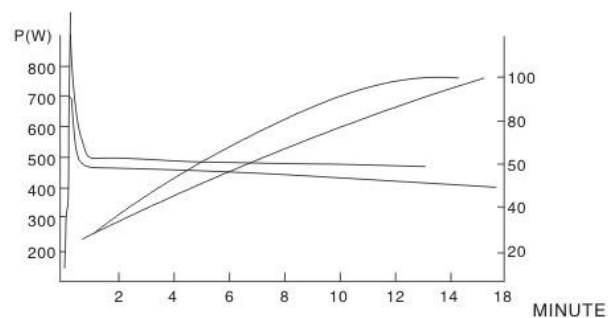
項目 Items	參數 Parameter
使用電壓 Applicable voltage	100-240V
消耗功率(水沸時ATBOILL) Consumed power(boiling ATBOILL)	550W+10%
消耗功率(在1分鐘水冷時) Consumed power(after one minute of cooling)	595W+10%
絕緣耐壓 Insulation and compression resistance	1500V/S
泄漏電流 Current leakage	Max. 0.5mA
幹燒表面溫度 The exterior temperature during dry combustion	Max. 255°C

The characteristics of water heating

水中加熱特性

測試條件(test condition)

- 1、水量(water):800cc
- 2、水溫(water temperature):25°C
- 3、電壓(voltage)100v-240v

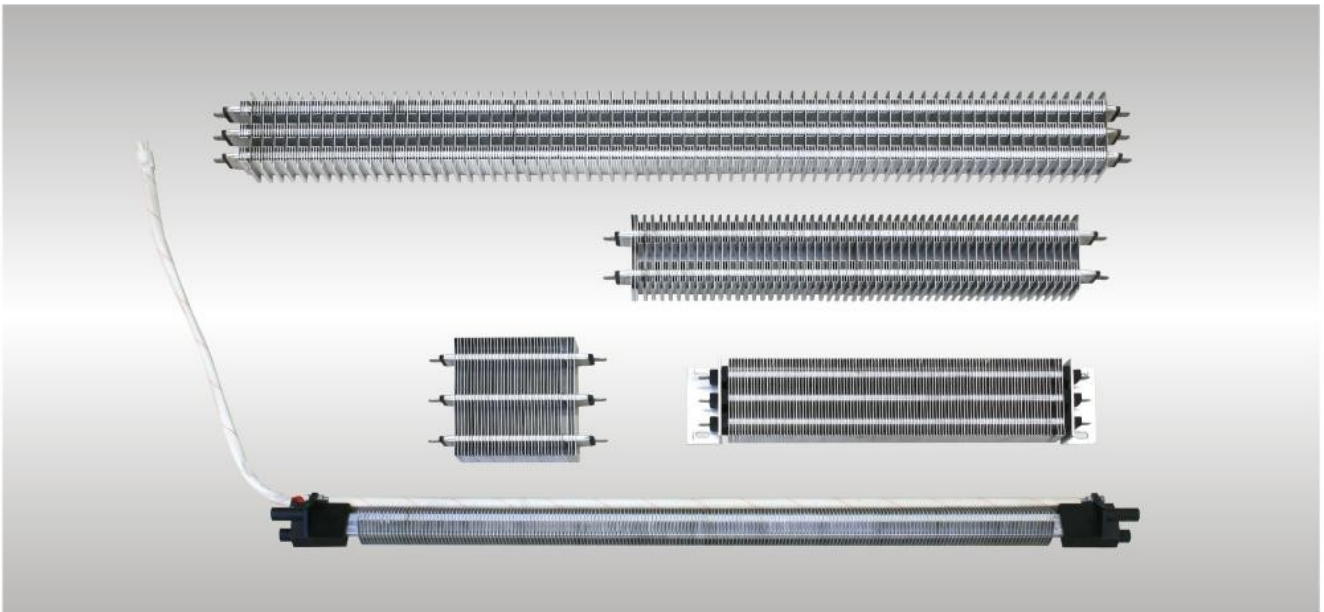


Application scope

The auxiliary electric heating for air-conditioners and all-purpose heating machines, this product has passed UL,CQC,SEK.

適用範圍

我司的PTC空調輔助加熱器適用於分體式空調、窗式空調、中央空調、移動空調、干衣機、洗碗機等各類高要求產品中，本產品具有良好防潮、絕緣性能，產品通過UL、CQC等安全認證。



電氣參數/Electric parameter:Electric parameter:

額定電壓/Rated voltage: AC110-380V

額定功率/Rated power: 100-6000W(誤差+5~10%)

冷態絕緣電阻/state insulating resistance-Cold: $\geq 100M\Omega$

電氣強度/Electric intensity: AC1800V2 sec

潮態電氣強度/Damp electric intensity: AC1250V2 sec

工作溫度下泄露電流/Current leakage during working temperatures: $\leq 0.5mA$

工作壽命/Working life: 5000小時

特性/Features:

表面不帶電、自動恆溫、快速加熱、壽命長、無噪音、防潮性能高、凝露少、機械强度高、密封。

Surface insulated; Auto constant temperature; Quick heating up; Long using life;

Noise free; dampproof; waterproof; Mechanised production;

Good sealing performance

A Concept of Glass Heating Pipe

Electric heating film – glass heating pipe adopts different kinds of nonmetal conductive materials such as inorganic ceramic and glass to form an inorganic conductive resistance film on its surface, through different techniques such as printing, high temperature sintering. When it is electrified, the unit heats itself through transmission and convection.

玻璃發熱管概述

電熱膜玻璃發熱管是將無機陶瓷、玻璃和多種非金屬導電材料經過印刷、高溫燒結等工藝復合在玻璃管的外表面而形成一層無機導電電阻膜層，電阻膜層通過電流後經傳導、對流方式進行加熱。

B Performance Features of Glass Heating Pipe

1. The element produces no open flame and oxygenation when it works. The using life is 50 times more than ordinary electric heating wire element.
2. The element adopts a special high-tempered temperature resistant glass as heating pipe's carrier to make water and electricity separate (heating film forms on the outer surface of glass pipe and the heating water goes inside the pipe), safety, reliable, never creepage.
3. The heating film and the glass pipe perpetually become a whole unit. It heat itself immediately, thermal efficiency reaches 97%.
4. The element equally heat in full area, low power density, low temperature film (surface temperature is just 180–200°C when working), which prolongs other accessories' using life.
5. The element possesses a good capacity of resistance to cold or heat impacting. To be directly placed into the water of 20°C ± 5°C when it is in the high temperature of 800°C, the element will still keep in good condition and not crack under three times of back and forth strike.
6. The element is a heater as well as a fuse. If the heating film is damaged suddenly, the glass pipe will be still in his normal condition (If the heating film burns out, the glass will not break, therefore no threat of creepage).

玻璃發熱管的性能特點

- 1、組件工作時無明火不氧化，比普通電熱絲等組件使用壽命長50倍；
- 2、組件採用高強度特種耐溫玻璃作為發熱管的載體，實現水電完全分離（發熱膜制備在玻璃管的外表面，加熱的水從管內循環通行），安全可靠，永不漏電；
- 3、組件的發熱膜與玻璃管永久制成一體，採用直接加熱方式，熱效率高達97%；
- 4、組件全面積加熱，功率密度小，膜溫低（工作時組件表面溫度僅為180–200°C，延長了其它附件的使用壽命；
- 5、組件耐冷熱衝擊性能好，800°C高溫直入20°C水中，來回衝擊3次不破裂；
- 6、組件的發熱膜既是一個發熱體又是一個安全保險絲，當發熱膜意外損壞時，發熱管自身無異常（當發熱膜燒壞時，玻璃不會破裂，所以不會產生漏電危險）。



C Application of Glass Heating Pipe

玻璃發熱管的應用

- Foot bathtub, electric water bed ●Onboard boiled water ●Instant water heater ●Heating pipe of washer, dishwasher
- 足浴盆、電熱水床 ●車載開水杯 ●速熱式電熱水器 ●小廚寶 ●洗衣機、洗碗機加熱管

D Specification of Glass Heating Pipe

玻璃發熱管的技術指標

1. Electricity Capacity: 3750V / 1min0.5mA, no phenomena of breakdown and flashover;
2. Long using life (≤220°C controlled dry burning) ≥20000 hours;
3. Power tolerance: +5–10%;
4. Power consistency (effective heating area of film, its power consistency is related to the thickness of glass pipe wall) ≤11.30W / CM²;
5. Supply voltage: AC or DC;
6. Element dimension: Non-standard element can be made according to the customer's requirement.

- 1、電氣強度：3750V/1min0.5mA，無擊穿閃絡現象；
- 2、使用壽命：220°C控溫幹燒≥20000小時；
- 3、功率偏差：+5–10%；
- 4、功率密度：膜有效發熱面積(其功率密度同玻璃管壁厚有關係) ≤11.30W/CM²；
- 5、電源電壓：交流/直流；
- 6、元件尺寸：可按客戶要求定制。

A Concept of Mica Heating Board/Panel

Electric heating film—mica heating board/panel adopts different kinds of nonmetal conductive materials and radiated materials such as inorganic ceramic and glass to form an inorganic conductive resistance film on its surface, through different techniques such as printing, high temperature sintering and envelopment. It comes into being a whole unit whose outer surface covered with mica insulated slice and hemmed with metal. When it is electrified, the electric resistance film gives out infrared heat to form heat radiant point and heat itself through convection.

雲母發熱板概述

電熱膜雲母發熱板是將無機陶瓷、玻璃等多種非金屬導電材料和輻射材料經過印刷、高溫燒結等工藝復合在雲母板的外表面而形成一層無機導電電阻膜層，表面加以雲母絕緣覆蓋片，周邊用金屬包邊，形成整體組件。電阻膜層通電發出紅外熱量形成熱輻射源及對流方式進行加熱。

B Performance Features of Mica Heating Board/Panel

1. The element produces no open flame and oxygenation when it works. The using life is 50 times more than ordinary electric heating wire element.
2. The element gives out high far-infrared radiation whose infrared wavelength is 2-15um, which is helpful to our health.
3. Made of inorganic material, the element can provide steady performance, low thermal inertia and fast increased temperature. And the electricity performance will not change under work state and reserve state.
4. The element is a kind of planar heat source which equally heat in full area and its degree of uniformity reaches 85%.
5. It is a kind of minus temperature coefficient electric heating element, no security threat from shock current.

雲母發熱板的性能特點

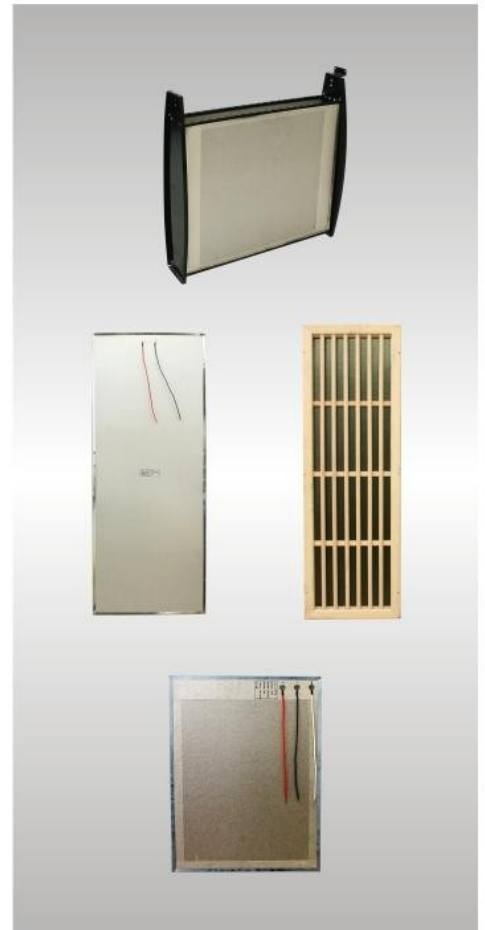
- 1、組件工作時無明火不氧化，比普通電熱絲等組件使用壽命長50倍；
- 2、組件工作時紅外輻射強，其遠紅外波長2-15um，有益人體健康；
- 3、組件由無機材料制成，性能穩定，熱惰性小，升溫速度快，在工作狀態和儲運狀態情況下，電器性能均無變化；
- 4、組件屬面狀熱源，全面積加熱、熱場均勻，發熱均勻度可達85%；
- 5、組件屬負溫度系數電熱組件，沒有衝擊電流帶來的安全隱患。

C Application of Mica Heating Board/Panel 雲母發熱板的應用

- Convectory heater ● Radiant heater ● far-infrared light wave room(sauna room)
- Glass, mica compound heater ● Physiatrics bed ● Wax melter
- 對流型電暖器 ● 輻射型電暖器 ● 遠紅外光波房（桑拿房） ● 玻璃、雲母復合型電暖器 ● 理療床 ● 熔蠟機

D Specification of Mica Heating Board/Panel 雲母發熱板的技術指標

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 1 Electricity Capacity: 1500V / 1min 5mA, no phenomena of breakdown and flashover; | 1、電氣強度：1500V/1min5mA，無擊穿閃絡現象； |
| 2. Long using life ($\leq 210^{\circ}\text{C}$ controlled dry burning) ≥ 20000 hours; | 2、使用壽命：210°C控溫幹燒 ≥ 20000 小時； |
| 3. Power tolerance: +5-10%; | 3、功率偏差：+5-10%； |
| 4. Power consistency (effective heating area of film, its power consistency is related to the structure of entire machine) $\leq 0.55\text{W} / \text{CM}^2$; | 4、功率密度：膜有效發熱面積（其功率密度同整體結構有關係） $\leq 0.55\text{W}/\text{CM}^2$ ； |
| 5. Supply voltage: AC or DC; | 5、電源電壓：交流/直流； |
| 6. Element dimension: Non-standard element can be made according to the customer's requirement. | 6、組件尺寸：可按客戶要求定制； |



A Concept of Glass Heating Board/Panel

Electric heating film—glass(tempered glass) heating board/panel adopts different kinds of nonmetal conductive materials and radiated materials such as inorganic ceramic and glass to form an inorganic conductive resistance film on its surface, which perpetually comes into being a whole unit with the tempered glass, through different techniques such as printing, high temperature sintering. When it is electrified, the electric resistance film gives out infrared heat to form heat radiant point and heat itself through convection.

鋼化玻璃發熱板概述

電熱膜鋼化玻璃發熱板是將無機陶瓷、玻璃、等多種非金屬導電材料和紅外輻射材料經過印刷、高溫燒結等工藝復合在鋼化玻璃的外表面，與玻璃板永久制成一個整體而形成一層無機導電電阻膜層，電阻膜層通電發熱後發出紅外熱量，形成熱輻射源和傳導、對流方式進行加熱。

B Performance Features of Glass Heating Board/Panel

1. The element produces no open flame and oxygenation when it works. The using life is 50 times more than ordinary electric heating wire element.
2. The element adopts high quality glass as carrier. It gives out high far-infrared radiation whose infrared wavelength is 2-15um, high efficient, energy-saving, safety and reliable.
3. The element is a kind of planar heat source which equally heat in full area, low power density, low temperature film, working maximum temperature of film $\leq 140^{\circ}\text{C}$.
4. The element possesses a good capacity of resistance to cold or heat impacting. It works until set up a stable state under 0.15 times larger than its rated input power. If pour 1 liter water(water temperature $15^{\circ}\text{C} \pm 5^{\circ}\text{C}$) into a pipe of 5mm diameter, then pour the water directly to the center of surface at a speed around 10ml/s, the element will not have traces of break or crack.
5. The element has an effect like colored glaze, colorful, unique, not fading.

玻璃發熱板的性能特點

- 1、組件工作時無明火不氧化，比普通電熱絲等組件使用壽命長50倍；
- 2、組件採用優質玻璃作為載體，紅外輻射強，其遠紅外波長2-15um,有益人體健康；
- 3、組件採用面狀加熱方式，全面積加熱，功率密度小，膜溫低，工作時最高膜溫 $\leq 140^{\circ}\text{C}$ ；
- 4、組件耐冷熱衝擊性能好，玻璃發熱板在1.15倍額定輸入功率下工作直到建立穩定狀態為止。
用1升水（水溫 $15^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ）倒入直徑5mm的管子裏，然後以大約10mL/S的速度直接倒向玻璃發熱板正表面中心部位，玻璃板也不會有破碎和炸裂的痕跡；
- 5、組件表面具有采釉玻璃效果，色彩豐富多樣，個性十足,永不褪色。

C Application of Glass Heating Board/Panel

玻璃發熱板的應用

- Glass heater ● Glass heating tabletop ● Heat preservation board/panel
- Drying stand ● Towel heater ● Electric heating fish bowl
- 玻璃電暖器 ● 電熱桌面 ● 保溫臺板 ● 烘衣架 ● 毛巾乾燥架 ● 電熱玻璃魚缸

D Specification of Glass Heating Board/Panel

玻璃發熱板的技術指標

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Electricity Capacity: 3750V / 1min0.5mA, no phenomena of breakdown and flashover; 2. Long using life ($\leq 140^{\circ}\text{C}$ controlled dry burning) ≥ 20000 hours; 3. Power tolerance: +5-10%; 4. Power consistency (effective heating area of film, its power consistency is related to the structure of entire machine and the using temperature) $\leq 0.30\text{W} / \text{CM}^2$; 5. Supply voltage: AC or DC; 6. The tortuosity, resistance to impacting, state of fragment and the impacting of shot-bag is in accordance with "GB/T9963-1998 Tempered Glass Standard". 7. Element dimension: Non-standard element can be made according to the customer's requirement. | <ol style="list-style-type: none"> 1、電氣強度：3750V/1min0.5mA，無擊穿閃絡現象； 2、使用壽命：140°C控溫幹燒≥ 20000小時； 3、功率偏差：+5-10%； 4、功率密度：膜有效發熱面積(其功率密度同整體結構和使用溫度有關係) $\leq 0.30\text{W}/\text{CM}^2$； 5、電源電壓：交流/直流； 6、組件的彎曲度、抗衝擊性、碎片狀態、霰彈袋衝擊等性能均符合《GB/T9963-1998鋼化玻璃標準》； 7、組件尺寸：可按客戶要求定制。 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



A Concept of Ceramic Heating Board/Panel and Ceramic Heating Pipe

On its tailor-made surface, ceramic heating board/panel, ceramic heating pipe (or insulated stainless steel board/panel) adopts ultrafine resistance alloy material added to peculiar and technical inorganic film-former to form zonal conductive resistance passages like printed circuit, through different techniques such as printing, sinter and envelopment. When it is electrified, the unit gives out infrared heat and heat itself through transmission.

陶瓷板、陶瓷管加熱器概述

電熱膜陶瓷板、陶瓷管發熱器是將超細的電阻合金材料加入特殊工藝配方製備的無機成膜劑通過印刷、燒結、包封等技術製備在特制的陶瓷板和陶瓷管上（或經絕緣處理的不銹鋼基板上），形成象印刷電路一樣的帶狀導電電阻通道，基體通過電流後發出紅外熱量和傳導方式進行加熱。

B Performance Features of Ceramic Heating Board Panel and Ceramic Heating Pipe

1. The element produces no open flame and oxygenation when it works. The using life is 50 times more than ordinary electric heating wire element.
2. The element adopts high quality ceramic board/panel or tub as carrier and possesses a good capacity to bear cold or heat impact, safe and reliable.
3. The element surface can provide good heat conductivity and high temperature which can reach 300°C
4. The element can provide high power density, fast increased temperature, small thermal capacity and high thermal efficiency.
5. The element possesses a good capacity of resistance to cold or heat impacting. To be directly placed into the water of 20°C ± 5°C when it is in the high temperature of 500°C, the element will still keep in good condition and not crack under three times of back and forth strike.

陶瓷發熱管、發熱板的性能特點

- 1、組件工作時無明火不氧化，比普通電熱絲等組件使用壽命長50倍；
- 2、組件採用優質陶瓷基板、陶瓷管作為組件的載體，耐冷熱衝擊性能好，安全可靠；
- 3、組件表面溫度高、傳熱快，工作時表面溫度≤300°C；
- 4、組件功率密度高，升溫快、熱容量小、熱效率高；
- 5、組件耐冷熱衝擊性能好，500°C高溫直入20°C ± 5°C的水中，來回衝擊3次不爆裂。

C Application of Ceramic Heating Board/Panel and Ceramic Heating Pipe

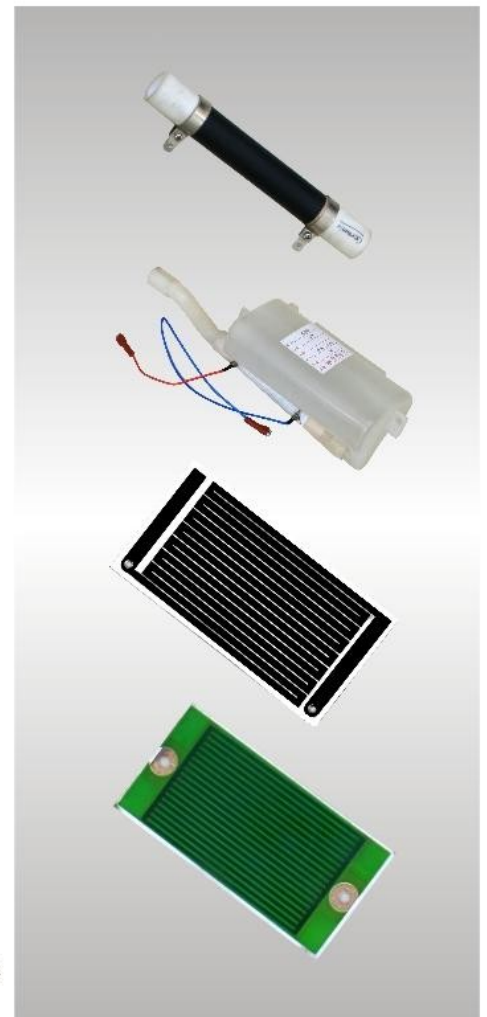
陶瓷發熱管、發熱板的應用

- Electric warmer humidifying pipe
- Physiatrics instrument heating slice, pipe
- Perming board/panel
- Assembled ceramic honeycomb
- Steam heater
- 電暖器加濕管
- 理療儀加熱片、加熱管
- 電燙板
- 組合式陶瓷蜂窩
- 蒸汽加熱器

D Specification of Ceramic Heating Board/Panel and Ceramic Heating Pipe

陶瓷發熱管、發熱板的技術指標

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Electricity Capacity: 3750V / 1min0.5mA, no phenomena of breakdown and flashover; 2. Long using life (≤300°C controlled dry burning) ≥20000 hours; 3. Power tolerance: ± 10%; 4. Power consistency (effective heating area of film, its power consistency is related to the structure of entire machine) ≤ 1.5W / CM²; forced cooling ≤ 15W/CM²; 5. Supply voltage: AC or DC; 6. Element dimension: Non-standard element can be made according to the customer's requirement. | <ol style="list-style-type: none"> 1、電氣強度：3750V/1min0.5mA，無擊穿閃絡現象； 2、使用壽命：300°C控溫幹燒≥20000小時； 3、功率偏差：± 10%； 4、功率密度：膜有效發熱面積（其功率密度同整體結構有關係）≤1.5W/CM²；強制冷卻≤15W/CM²； 5、電源電壓：交流/直流； 6、組件尺寸：可按客戶要求定製。 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



A Concept of Polyester Heating Slice/Piece

Polyester heating slice/piece is an electric heating film with a thickness about 0.26mm, which clamps conductive printing ink and special alloy current-carrying strip between two pieces of polyester film to form a special spec, through different techniques such as printing, sealing. When it is electrified, the electric resistance film gives out infrared heat to form heat radiant point. Its working temperature is $\leq 80^{\circ}\text{C}$, so that it is also called "Low Temperature Radiant Electric Heating Film or Light Wave Warm Card".

聚酯發熱片概述

電熱膜聚酯發熱片是在兩片聚酯膜中間夾以可導電的油墨及特殊合金載流條，通過印刷、熱合技術制備在一起，形成其特定的規格，厚度為0.26mm左右的電阻膜片，膜片通過電流後發出紅外熱量形成熱輻射源，且工作溫度 $\leq 80^{\circ}\text{C}$ 。故，又名為：“低溫輻射電熱膜和光波暖卡”。

B Performance Features of Polyester Heating Slice/Piece

1. The element adopts special high-tempered insulated material——polyester film as carrier, safety, reliable, never creepage.
2. The element gives out high far-infrared radiation whose infrared wavelength is 2-13um, which is warm as the sun.
3. The element is light and thin with a thickness about 0.26mm, which is 1/10 time thick as ordinary heating element.
4. The element has good pliability, which is applicable in various grotesques of heating appliance in shape.
5. The heat transformation rate of the element reaches 98%, which is more energy-saving than ordinary heating element.

聚酯發熱片的性能特點

- 1、組件採用高強度絕緣材料——聚酯薄膜作為載體，安全可靠，永不漏電；
- 2、組件遠紅外輻射強，其工作時有2-13um遠紅外波長產生，具有陽光般溫暖，有益人體健康；
- 3、組件自身重量輕而且薄，厚度僅為0.26mm左右，是常規電熱組件的1/10；
- 4、組件柔性好，適用於各種异形及任意凹凸面的加熱器具；
- 5、組件熱轉換率高達98%，比常規的加熱組件節能30%以上。



C Application of Polyester Heating Slice/Piece

聚酯發熱片的應用

- Pet pad ● Electric heating degreasing system of range hood
- Can/tin heat preservation device ● Electric heating physiatrics slice/piece
- Mirror demister ● Fish bowl heater
- 寵物墊 ● 抽油煙機電熱除油系統 ● 罐體保溫裝置 ● 電熱治療片 ● 除霧鏡 ● 魚缸加熱器

D Specification of Polyester Heating Slice/Piece

聚酯發熱片的技術指標

1. Electricity Capacity: 1500V / 1min5mA, no phenomena of breakdown and flashover;
 2. Long using life ($\leq 70^{\circ}\text{C}$ controlled dry burning) ≥ 8000 hours;
 3. Power tolerance: $\pm 10\%$;
 4. Power consistency (effective heating area of film, its power consistency is related to the application of product) $\leq 1.5\text{W} / \text{CM}^2$;
 5. Supply voltage: AC or DC;
 6. Element dimension: Non-standard element can be made according to the customer's requirement.
- 1、電氣強度：1500V/1min5mA，無擊穿閃絡現象；
 - 2、使用壽命：70℃控溫幹燒 ≥ 8000 小時；
 - 3、功率偏差： $\pm 10\%$ ；
 - 4、功率密度：膜有效發熱面積(其功率密度同產品用途有關係) $0.09\text{w} / \text{CM}^2$ ；強制冷卻 $\leq 1.5\text{W} / \text{CM}^2$ ；
 - 5、電源電壓：交流/直流；
 - 6、組件尺寸：可按客戶要求定制。

A. Concept of Electric Heating Alloy Slice/Piece

Electric heating alloy slice/piece adopts special alloy material to form thin slice or piece through different special techniques. Its thickness can reach 0.025mm. The resistance temperature coefficient is small and stable, because its material adopts mental heating material. As the power is stable, the power's resistance value can be controlled and adjusted by the thickness, width or the shape of the slice/piece.

According to the requirement of different temperature, the element can be clamped between the temperature resistance carrier----insulated slice/pieced of different materials such as mica slice/piece, polyester film and polyurethane film to form the required heating element.

電熱合金片組件的概述

電熱合金片組件是將特制的合金經特殊工藝軋制成薄片而成。它的厚度最薄可達0.025mm,由于材質采用的是金屬電熱材料,其電阻溫度係數小而平穩,因而功率穩定,而決定功率的電阻值可由薄片厚度、寬窄度、幾何形狀來加以調整和控制。組件可根據不同使用溫度的要求,將其夾制在不同材質的耐溫載體絕緣片(如:雲母片、聚脂膜、聚酰亞胺膜)之間組成所需的電熱組件。

B Performance Features of Electric Heating Alloy Slice/Piece

1. As the element possesses a good flexibility, it can be circled, bended and fixed on different heating unites of various shapes.
2. The quality of heat is equal. The element is compressed. The effective heating cover area is large (can reach 90%), Therefore, it is heated equally, small heat loss, electric energy-saving.
3. The element is safety, large radiation (heat transfer) area. It is covered with insulator, no open flame, super high temperature zone, safe using.
4. The element possesses good corroded and dampproof resistance, as its heating film slice/piece is covered with insulator.
5. The element is easy fixing. It can be stucked on special location, or can be fixed through clamping, pothook, snapper, eyelet; Furthermore, it can be conglutinated directly with the required heating parts.
6. The element is durable. Because it adopts heating alloy material as thermal resource, the using life is long.
7. The element possesses good temperature control. As its heat resistance and heat inertia is small, the temperature is easily controlled, able to be used in fine constant temperature control.
8. The thickness is small, good flexibility, low weight.

電熱合金片組件的性能特點

1. 柔韌性好,能進行環包、彎曲,可裝置在不同形狀的受熱體上;
2. 熱量均勻,組件呈扁平形,對受熱體的有效覆蓋面高(可達90%),因而受熱均勻,熱損失小,節約了電能;
3. 安全性好,組件散熱(傳熱)面積大,被絕緣物包覆,無明火及特高溫區,使用安全;
4. 耐蝕防潮,由于發熱膜片被耐溫的絕緣材料包覆,能避免受潮和受腐蝕;
5. 安裝方便,組件能粘結在特定場所,或用夾緊、掛鉤、揷鈕、小孔固定等方式固定;此外,還可直接與所需加熱部件作自身粘着;
6. 耐用性好,由于組件採用電熱合金材料作熱源體,所以使用壽命較長;
7. 控溫性好,由于組件的熱阻和熱慣性都比較小,溫度響應快,所以溫度容易控制,可用于精細的恒溫控制;
8. 厚度薄、柔性好、重量輕。

C Application of Electric Heating Alloy Slice/Piece

電熱合金片組件的應用

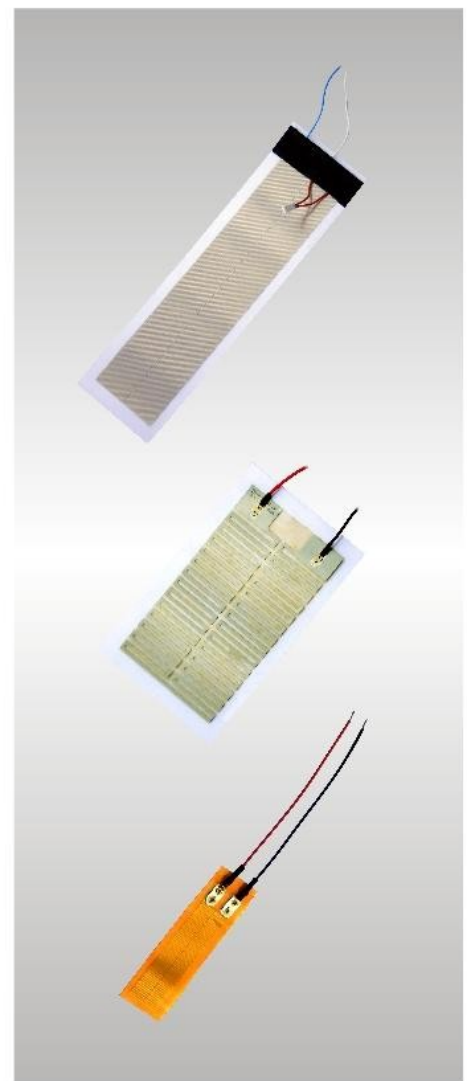
- Food heat preservation device ● Can/tin heat preservation device ● Electric foot warmer ● Bottle warmer
- Heated cup ● Pet pad ● Onboard heated cup ● Wax melter ● heating insole ● Drying stand
- Drying stand ● Heating clothes ● Mirror demister ● Electric heating degreasing device of range hood
- Hatcher/brooder ● mainframe-box heat preservation device ● Water bed heater
- 食物保溫器 ● 罐體保溫裝置 ● 暖腳板 ● 酸奶器 ● 車用保溫杯 ● 熔臘器 ● 電熱鞋墊乾衣架
- 排油煙機除油裝置 ● 機箱保溫裝置 ● 孵卵器 ● 水床加熱器寵物墊 ● 電熱服 ● 除霧鏡

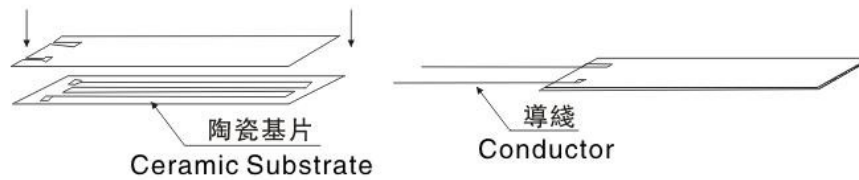
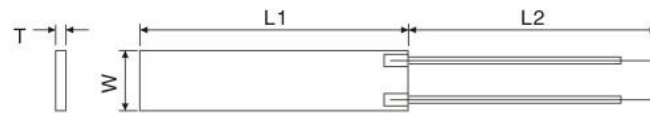
D Specification of Electric Heating Alloy Slice/Piece

電熱合金片組件的技術指標

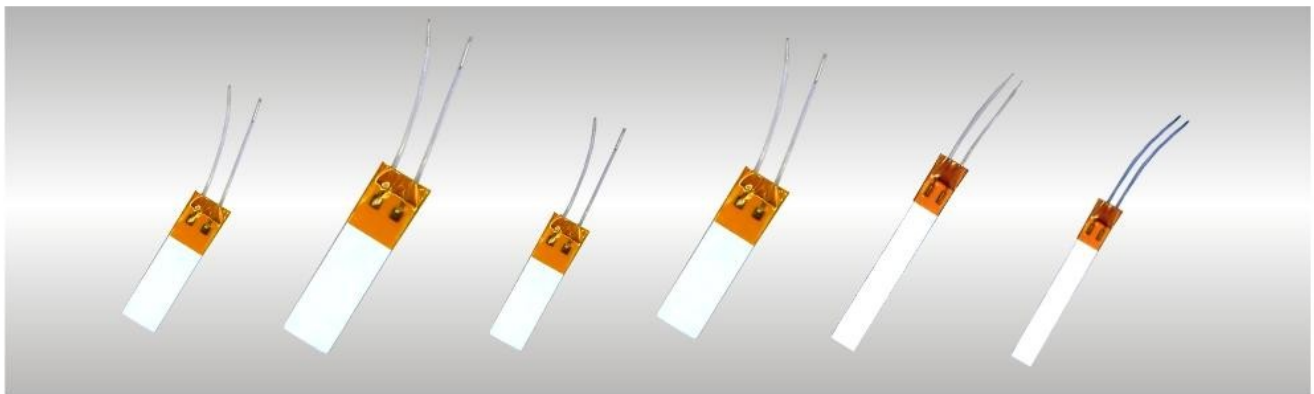
1. Electricity Capacity: 1500V / 1min5mA, no phenomena of breakdown and flashover;
2. Long using life: controlled dry burning ≥ 8000 hours;
3. Power tolerance: $\pm 10\%$;
4. Power consistency (effective heating area of film, its power consistency is related to the structure of product) $\leq 2.5W / CM^2$;
5. Supply voltage: AC or DC;
6. Element dimension: Non-standard element can be made according to the customer's requirement.

- 1、電氣強度：1500V/1min5mA，無擊穿閃絡現象；
- 2、使用壽命：控溫幹燒 ≥ 8000 小時；
- 3、功率偏差： $\pm 10\%$ ；
- 4、功率密度：膜有效發熱面積(其功率密度同產品結構有關係) $\leq 2.5W/CM^2$ ；
- 5、電源電壓：交流/直流；
- 6、組件尺寸：可按客戶要求定制。



A 結構/Structure

B 規格/Specification


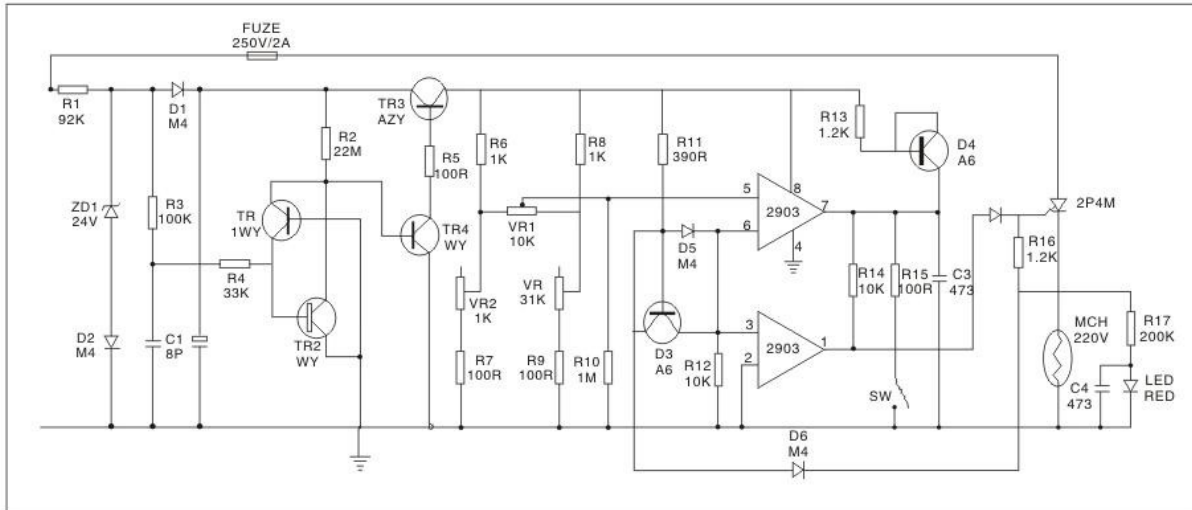
T ± 0.3	W ± 1	L1 ± 1	L2 ± 3	電阻 Resistibility	電壓 Voltage	其它 Others
1.4 2.2	10	70	65	0~260 Ω	0~36V 11V 220V	參考相 關要求 Refer to the related requirements
	15					
	20					


C MCH含義/Implication of MCH:
MCH II / 60-70 / 70X15X1.4

- M----- Metal, 即金屬
- C----- Ceramic, 即陶瓷
- H----- Heater, 即發熱器
- MCH----- 金屬陶瓷發熱器 Metal Ceramic Heater
- II ----- 第二代 Second Generation
- 60-70----- 電阻, 即60 Ω-70 Ω
- 70x15x1.4---- 尺寸大小, 即長70mm, 寬15mm, 厚1.4mm
Dimension, L70mm, W15mm, H1.4mm

MCH Temperature Control Circuit Diagram

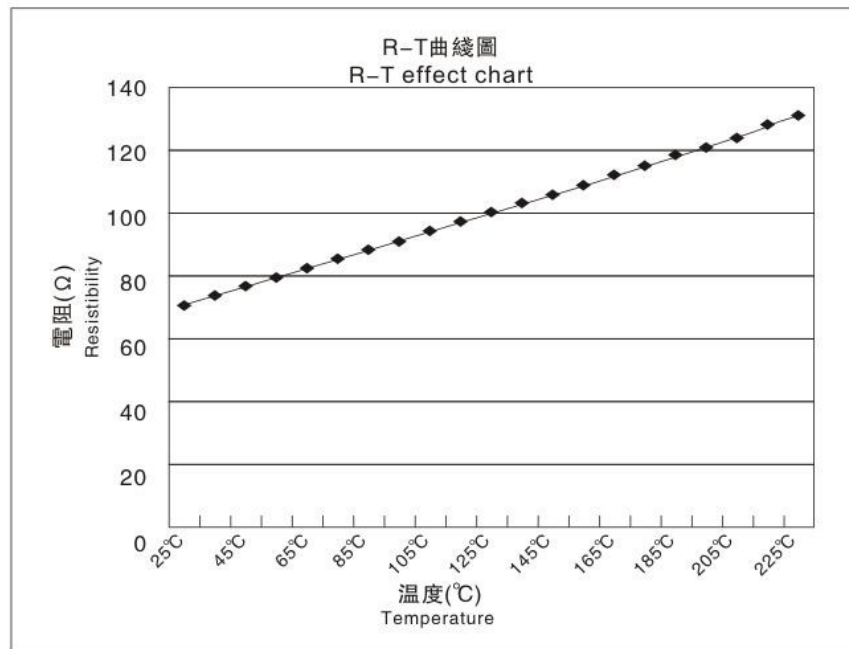
MCH 溫控電路圖



Resistibility – temperature effect chart

電阻——溫度曲綫圖

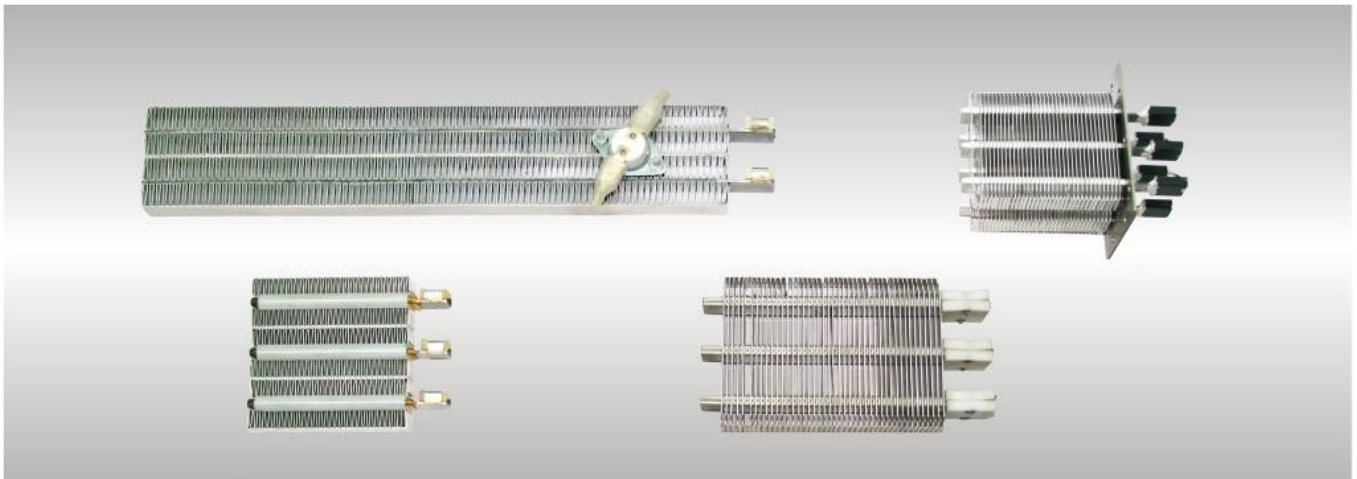
溫度(°C) Resistibility	電阻(Ω) Temperature
25°C	70Ω
35°C	73Ω
45°C	76Ω
55°C	79Ω
65°C	82Ω
75°C	85Ω
85°C	88Ω
95°C	91Ω
105°C	94Ω
115°C	97Ω
125°C	100Ω
135°C	103Ω
145°C	106Ω
155°C	109Ω
165°C	112Ω
175°C	115Ω
185°C	118Ω
195°C	121Ω
205°C	124Ω
215°C	128Ω
225°C	131Ω



僅供參考 For demonstration only

MMH波紋發熱體與傳統的PTC波紋發熱體相比具有以下優點

- 1、無鉛、鎘、汞、六價鉻等有毒物質，符合歐盟ROHS要求；
- 2、表面絕緣，不帶電；
- 3、熱效率高，高達90%以上；
- 4、具有遠紅外輻射功能；
- 5、無衝擊電流；
- 6、風溫比傳統的PTC波紋發熱器要高；
- 7、功率穩定，無老化現象；
- 8、功率與環境溫度無關，在0°C與25°C時功率沒有多大變化；
- 9、風速對功率也沒有多大影響；
- 10、有UL認證，UL file NO:E235058。

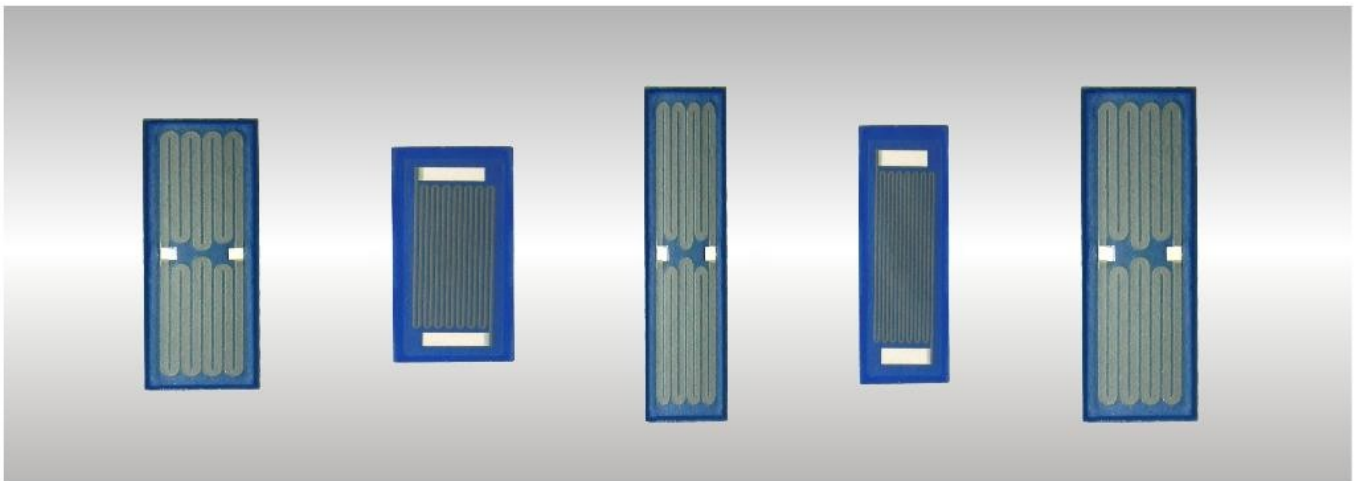


MMH Fan heat with the traditional corrugated PTC heating compared to the following advantages

- 1, Lead, cadmium, mercury, hexavalent chromium and other toxic substances in line with EU ROHS;
- 2, surface insulation, not charged;
3. High thermal efficiency as high as 90% above;
- 4, with far-infrared radiation functions;
- 5, no impact on current;
6. Wind temperature than traditional corrugated PTC heating devices to high;
- 7, power stability, without aging;
8. Power has nothing to do with the ambient temperature at 0 and 25 ° C power is not much change; °C
9. Power to wind speed will have little impact;
- 10, UL certification, the UL file NO: E235058

電燙發板簡介

採用不銹鋼厚膜MMH發熱器制作而成的燙發板比傳統的PTC及96氧化鋁陶瓷制成的MCH發熱器傳熱快了很多，由於傳統的PTC電燙發夾是通過PTC傳熱給絕緣黃紙，而且再傳熱給外圍的陶瓷板或鋁板，加之PTC升溫又比較慢，一般來說要120秒左右才能達到200℃，後來又出現了以96氧化鋁陶瓷高溫共燒而成的MCH陶瓷發熱體，此MCH發熱體升溫比PTC快了許多，但最後還是要通過它本身傳熱給外圍的陶瓷板或鋁板，且它本身又是非金屬，所以傳熱也慢，一般來說要60秒左右才能達到200℃。而龍基公司研發的新一代不銹鋼厚膜加熱元器件，是在不銹鋼表面上一層絕緣層，然後在其表面布置電路，通過電路直接發熱，不銹鋼的另一面直接與頭髮接觸，無須要外圍再加多一層陶瓷板或鋁板，傳熱速度比前二者快了許多，十多秒即可達到200℃，大大地為顧客節省了時間。另外無鉛無毒，有SGS及UL認證，在國內有專利，專利號：200620067407.7



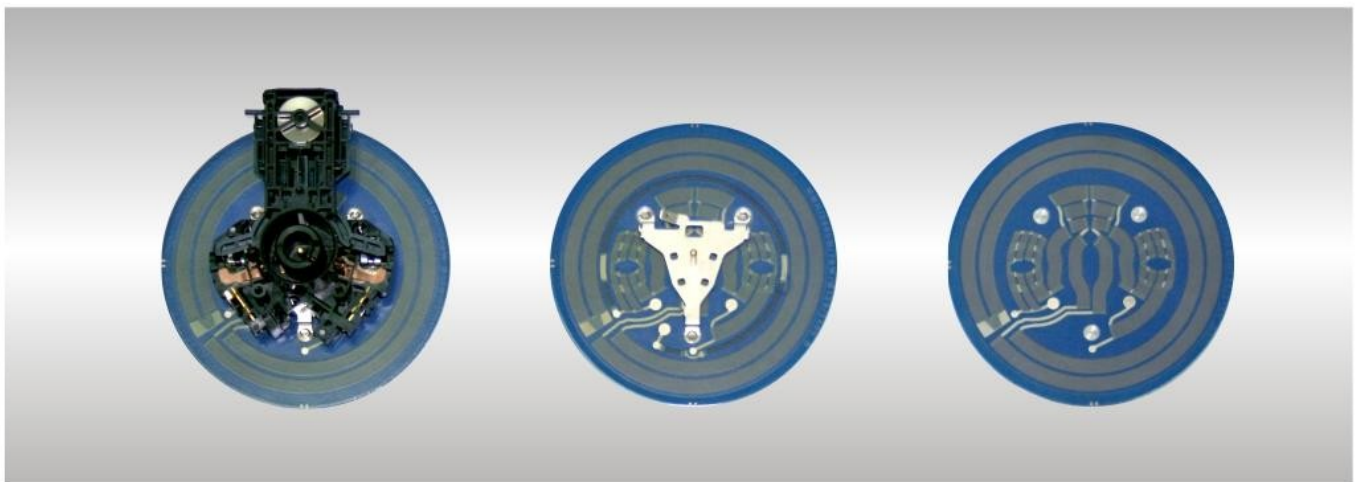
Main parameters

Thick-film MMH stainless steel used for the production of heat from the perming plate than the traditional PTC and 96 made of aluminum ceramic MCH heaters heat much faster, as the traditional PTC Perm hairpin through PTC to heat insulation sheets, but further heat to the external ceramic plate or aluminum, in addition to PTC warming has been slow, In general about 120 seconds to reach 20 °C Later there is a 96 aluminum ceramic high temperature co-fired ceramics from the MCH body heat, MCH this fever-warming faster than many of PTC, But in the end it is by its own heat to the external ceramic plate or aluminum, which itself is non-metallic, Therefore, heat transfer is slow, generally about 60 seconds to reach 200 °C. , LONGKEY and the development of a new generation of companies thick film of stainless steel heating components in stainless steel surface layer of insulation layer, then on the surface of circuit layout, circuit through direct heating, stainless steel on the other side of direct contact with the hair. Having to outlying top layer of ceramic plate or aluminum, heat transfer rate faster than the former two of many, 10 seconds can reach 200 °C, significant savings to customers of the time. UL: E235058

由于使用傳統的電阻絲發熱的電熱水壺熱效率低，可靠性差，容易斷路和漏電，發熱絲容易老化和易脆導致壽命短等缺點，新型厚膜加熱器件完全克服了以上缺點并已經成爲加熱類家電的首選。

厚膜加熱板與電加熱絲比較

	電爐絲加熱技術	厚膜加熱板技術
體積	體積大，占空間，笨重	小巧輕便，造型美觀
熱效率	間接式的反復加熱，熱效率很低	可浸沒直接加熱，即熱即飲，熱效率極高
衛生狀況	反復加熱，不易清潔，不衛生	即熱即飲，易清潔，很衛生
安全性	加熱絲易斷，開關易打火	特殊介質覆蓋，特別綫路設計，不會漏電
使用壽命	加熱絲易斷，實際壽命約一年	鋼板作加熱載體，壽命可達5-10年



Electric Kettle

Because the use tradition resistance wire gives off heat electric heating canteen thermal efficiency low, reliability bad, is easy to shut with the leakage, the filament is easy to get older and easy crisply to cause the life to be short and so on the shortcoming, new thick-film heated up the component completely to overcome above the shortcoming and already to become heats up kind of electrical appliances the first choice.