

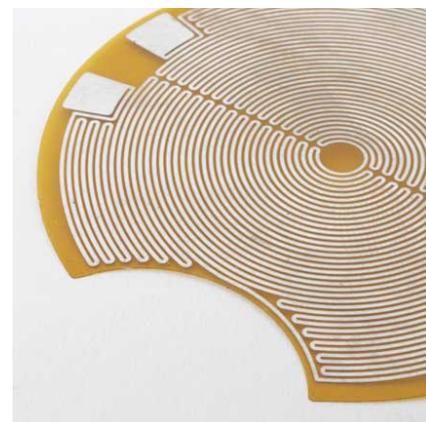
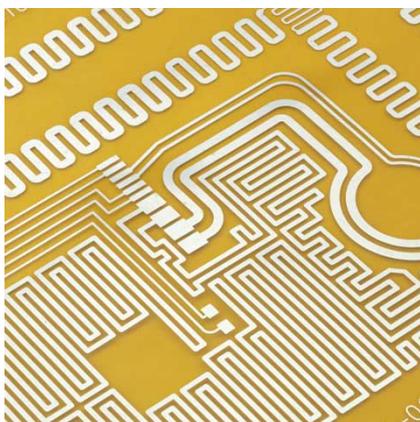


## Frequently Asked Questions- Kapton and Silicone Rubber Heaters... Kapton (Polyimide) and Silicone Flexible Heaters FAQ's

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### **Q. What is the difference between foil and wire?**

A. Wire Wound element uses a round resistance wire and is ideally suited for small quantities and low cost sampling. It also lends itself to larger sizes to a maximum of 900mm x 3000mm not only can it be used in adhesive static applications but also where repeated flexing is required.

Etch Foil uses a chemically etched stainless steel track (see pic above) much like a printed circuit board suited to high power densities and medium to large quantities. Used mainly in static applications. Maximum size 600mm x 2500mm.

**Q. What temperatures can heater mats be used at?**

A. Silicone rubber remains flexible from -60°C to 180°C. Specialist high temperature silicones are available for applications in excess of 250°C.

**Q. What is a silicone rubber insulated heating element?**

A. Comprising of a wire or etched resistor laminated between sheets of silicone rubber compound. These heaters are ideally suited for the heating of surfaces in a multitude of applications. Being of low thermal mass their heat transference is exceptional and being resistant to moisture do not suffer moisture ingress associated with mineral insulated heating elements. Their thin lightweight construction and ease of installation make them a cost effective, reliable heating solution.

**Q. What shapes can I have?**

A. Practically any shape, size or profile is available along with holes, cut-outs and slots (pic) within the maximum sizes of 900mm x 3000mm for wire and 600mm x 2500mm for etch foil.

**Q. Can I cut the heater to size?**

A. No, all the heaters are designed with a border between the edge of the heater and the resistor wire of approximately 5mm and therefore any cutting may damage the internal element.

**Q. Can I have a 1 off?**

A. Of course you can. NPH are pleased to produce 1 of heaters be it for a problem solving application or prototypes for OEM (original equipment manufacturers) projects.

**Q. How much will my 1 off be and how quickly can I have it?**

A. Delivery on small quantities is normally 7-10 days including design. Cost is dependent upon the size of heater, but set up charges are minimal for wire wound heaters. Etch foil prototypes are available within 2-3 weeks and still only incur tooling charges of a few hundred dollars.

### **Q. What voltage supply can I have?**

A. The heaters are a pure resistor and therefore can be designed to suit any supply voltage, AC or DC, single or three phase.

### **Q. What power will I need and how long will it take to heat up?**

A. NPH can provide detailed power calculations and offer advice for individual applications. Heat up times will depend on many variables such as ambient temp, mass & specific heat value of product and whether thermal insulation is utilized. Please contact us for application assistance.

### **Q. Do NPH have any third party approvals?**

A. Yes, our manufacturing partner(s) meet all the relevant European directives and are CE marked accordingly. VDE approval as well as UL/CSA recognized products are available on request.

### **Q. What quality system do NPH operate?**

A. Our manufacturing partner has ISO 9001:2008 approval which is audited by Underwriter Laboratories.

### **Q. How are the heaters fixed?**

A. For static applications a self-adhesive backing is a simple, quick method of installation. Where removal is requested hooks, eyelets and springs, Velcro, magnetic bindings are available.

### **Q. How can I control the temperature?**

A. Heaters can be supplied with thermal limiting devices hard wired directly to the heater. Temperature sensors such as thermocouples, PT100's and thermistors can be fitted to the heater mat for connection to external process controllers.

### **Q. What IP rating are the heaters manufactured to?**

A. IP ratings as high as IP67 can be achieved in special circumstances. IP65 is the highest standard rating when using a moulded silicone cable termination.

**Q. What standards relate to the product?**

A. See standards datasheet.

**Q. Are the heaters CE marked?**

A. See CE statement.

**Q. Does NPH produce heaters other than Silicone?**

A. Polyester and Polyimide (Kapton) are used in a variety of applications. Contact our technical sales for further details.

**Q. Applications- Where can the heater be used?**

A. Anywhere a surface is required to be heated to 200c (click her to see just a few of the applications).

**Q. What is a high power density?**

A. This is dependent on the application and type of control used.



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