

# Silicone Heating Blanket



**PAULISTA HEATERS**  
ELECTRIC HEATING SYSTEM

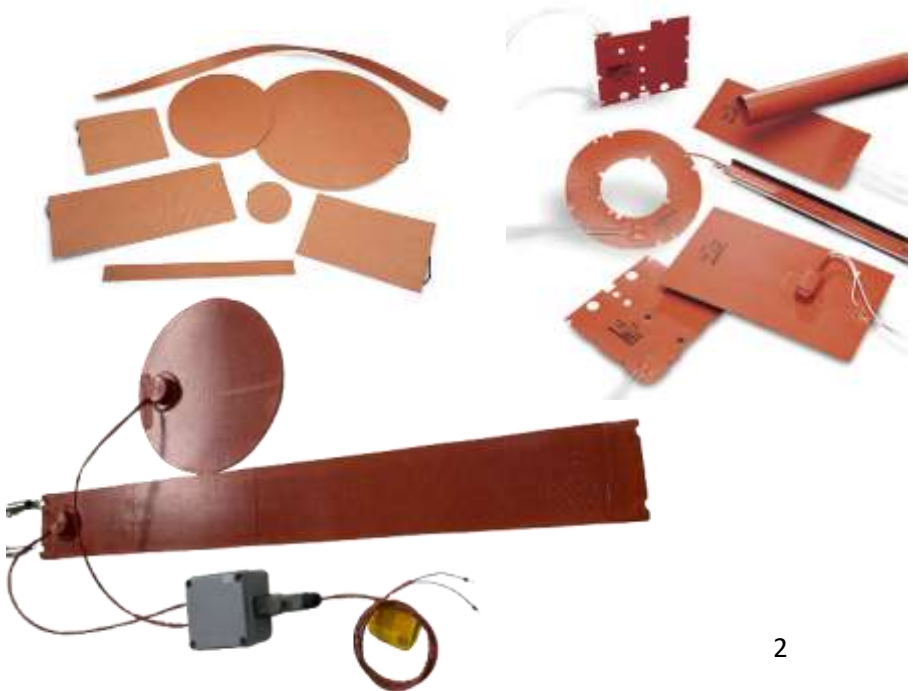
# Summary

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# SILICONE THERMAL BLANKET

## 1- Product Specifications

- ✓ Voltage: 110V, 220V, 380V, 440V or other.
- ✓ Operating temperature: up to 250°C (482°F).
- ✓ It is used to heat metal, plastic, glass, or cardboard containers of various sizes and shapes.
- ✓ We manufacture heating solutions for both small and large containers and surfaces.
- ✓ Types of controllers: bimetallic thermostat , analog thermostat, digital thermostat, digital panel, or sensor-only.
- ✓ We have options for classified EX areas.



## 2- description of the product structure

Description	Technical Details
<p>The heating blanket is made of silicone reinforced with fiberglass fabric, resistive wire, with internal and external wiring according to the electrical current, temperature control, male plug, and may contain different types of fastening systems and may include a thermal insulation cover sewn in cordura fabric, with internal insulation in ceramic fiber fabric and external in nomex fabric .</p>	<p>Operating temperature: From -40°C (-104°F) to +250°C (+482°F) (withstands peaks of -90°C (194°F) and +300°C (572°F) for short periods of time)</p>
	<p>Weight capacity: 1kg/cm<sup>2</sup></p>
	<p>Electrical insulation: 20KV</p>
	<p>Hardness: Standard 30 + 5 Shore , other hardness levels may apply according to customer requirements.</p>
	<p>Varied fastening system, with the solution that best suits the customer's process.</p>
	<p>Internal Teflon cabling – withstands temperatures up to 260°C (500°F) – Voltage: up to 600V</p>
	<p>*Internal electrical connection cables are used to connect the thermal blanket to the controller.</p>
	<p>External silicone cable – withstands up to 200°C (392°F) – Voltage: up to 500V</p>
<p>External PP cabling – withstands up to 90°C (194°F) – Voltage: up to 500V</p>	
<p>*Cables for external electrical connections do not have direct contact with the thermal blanket; they are used to connect the temperature controller to the power outlet.</p>	
<p>Direct or alternating current power supply</p>	

### Power plug:

We offer plug sockets according to the current and voltage specifications of the design, as well as the model that the customer needs for their process. The two product line options are:



Brazilian standard 3-pin power plug  
10A or 20A for 110V or 220V



Industrial Power Plug 16A, 32A, 63A  
and 125A for 110V, 220V, 380V or  
440V

### Fastening system:

Silicone heating blankets are available with various fastening systems:

- 1- Silicone adhesive glue,
- 2- Holes for screw mounting,
- 3- Between sheets (sandwich assembly),
- 4- Cover with velcro closures.
- 5- Cape with buckles,
- 6- Cape with drawstring,
- 7- Hooks,

## 8- Hooks and springs.

For other types of attachment, a technical assessment is required to adapt the heating blanket.

### Temperature controller:

These are the available options:

#### Analog Thermostat

Easy to operate and with excellent cost-benefit ratio, recommended for low-power heating blankets (up to  $0.5\text{W}/\text{cm}^2$ ) and heating systems that do not require precise temperature control. Variation of  $+10^\circ\text{C}$ . Controller used: IMIT.



#### Bimetallic thermostat

It consists of a thermostat that is placed internally in the thermal tape to lock in a fixed temperature. It works through mechanical activation via expansion. This type of solution is quite imprecise, recommended only for low temperatures, however, it is much cheaper than other models. It is perfectly suited for simple applications where temperature maintenance is required.



### Digital Thermostat

Recommended for low and medium power heating blankets (up to  $0.7W/CM^2$ ). Variation of  $+5^{\circ}C$ . Comes with a temperature sensor (PT100, J, K, NI120, PTC or other) for blanket temperature control. More than one controller can be attached to control the product temperature. Controller used: NOVUS 321.



### Digital Panel

Recommended for high-power heating blankets (above  $0.7W/cm^2$ ) and heating systems requiring precise temperature control, as it has a PID function. It comes with a sensor (PT100, J, K, NI120, PTC or other) for blanket temperature control. More than one controller can be coupled to control the product temperature. Controller used: NOVUS 1030 or NOVUS 1050 (for ramp-plateau, ideal for

processes that need to follow a heating cycle where the temperature varies over time). It can be coupled to the product (direct connection) or mounted on a pedestal (interconnected to the blanket via a multi-pole socket). Made according to NR10 (can be customized according to customer needs to meet the specifications of their process). We also manufacture panels for classified EX areas.



Digital controllers have several quality certifications, such as: ISO 9001, REACH Compliance , RoHS , CE, RU, EX, among others, which ensure operational excellence and reliability for your process.

#### Only with temperature sensor

If the customer already has a temperature controller, we can offer the heating element with just the sensor. The temperature sensors commonly used are: J, K, PT100, NI 120 and PTC (we can use other models as needed). We offer sensors already installed in the heating element to control its temperature or with a bulb to control the product temperature.

No temperature control

We can also offer the heating blanket without any type of controller (not recommended for heating blankets with high heat dissipation or processes with greater technical complexity).

Insulation layer:

This is the outer covering that serves both to protect the heating element and to insulate it, ensuring that the element does not lose heat to the environment, also protecting the operator from the risk of burns. The cover is made of Cordura fabric , Nomex , and insulating material, which offers high mechanical resistance and withstands high temperatures. Furthermore, it provides safety in use because it does not propagate flames. And, being waterproof, it allows for use in outdoor environments. The Velcro fasteners positioned at the ends allow for modular assembly, enabling the expansion of the heating area as needed. Cleaning is simple, as it is done dry using a cloth and alcohol since the fabric does not attract dirt. It also has a removable cover (without heating).



### **3- Instruction manual:**

#### How to use

1. Install the heating blanket by positioning the silicone side (red) towards the container to be heated and the temperature controller towards the outside.
2. Secure the part using its fastening system.
3. If using an analog thermostat, set it to zero.
4. Check the voltage of the electrical network where the heating pad will be connected. If connected to a lower voltage, it will heat up little, and if connected to a higher voltage, it will burn out.
5. Connect the heating blanket to the electrical outlet.
6. In the case of a digital panel, especially during first use, do not change the temperature on the controller; wait for the controller to complete its learning period. At the end, the TUNE light will turn off and the green lights will flash; this is normal for the product. Only after the learning process is complete, set the temperature up to 100°C, and if necessary, increase it by 20°C every 20 minutes to allow for proper heating.
7. Adjust to the desired temperature. If using a digital controller, check the supplier's instructions to program it according to your process.
8. Wait for heating pad to heat up to the desired temperature.
9. Allow to heat until the product stored in the reaches the appropriate temperature. Heating time varies depending on the specific heat of the product being heated, the power of your heating mantle, and the volume of your container.
10. Next, unplug the heating blanket pad and wait 1 minute for it to cool down.
11. Remove the heater blanket and store it properly.

### Recommendations:

- Do not use the heating blanket above its design temperature. It can operate continuously up to 250°C with peaks of 300°C.
- Metal containers can withstand high temperatures, but plastic containers can only withstand a maximum of 90°C, and cardboard containers can only withstand a maximum of 50°C (if placed above that, they will puncture).
- For high-dissipation heating blankets (above 0.7 W/cm<sup>2</sup>), it is always recommended to use them with heat exchange, otherwise there is a risk of burning.
- Store and transport the heating blanket correctly: do not fold, stretch, kick or throw it, as this may damage the resistive elements and internal components of the controllers.
- Use rubber gloves to avoid static electricity shock; this shock does not pose a danger to humans, only a discomfort.
- Do not move the heating blanket while it is heated or heating up, as this may damage the resistive elements.
- Do not puncture, cut, or immerse the heating pad in liquid; this may cause a short circuit.
- The heating blanket may release gases from its internal components during the initial heating cycles (especially at high temperatures, above 150°C).
- Cleaning should only be done with the heating pad de-energized, using a clean cloth and alcohol.
- If the heating pad or controller is damaged, discontinue use and notify Resistências Paulista to verify if it is safe to continue using the product, as there may be a risk of electric shock in this case.

- Do not make any modifications to the heating blanket without prior notification and authorization from Resistências Paulista, as failure to inform or approve this will violate the product's legal warranty.

### Safety Items:

- ✓ The thermal blanket is fully electrically insulating, resistant to fungi and chemicals.
- ✓ The thermal insulation cover provides approximately 70% insulation, allowing the operator to work close to the container being heated.
- ✓ The insulation cover is waterproof, made with flame-retardant fabrics that are resistant to cutting and high temperatures.
- ✓ The thermal blanket or cover should be cleaned dry, using a cloth and alcohol.
- ✓ Both the heating blanket and the cover do not attract dirt easily.
- ✓ The digital panel can be made in accordance with NR10.
- ✓ The heating blanket poses no risk for use in EX-classified areas, as the resistive element is completely sealed.
- ✓ For use in EX-classified areas, we work with certified panels and appropriate cabling (please inform us of your classification so that our technical department can analyze it).
- ✓ When the heating blanket comes with a pedestal-mounted panel, the pedestal is grounded. However, grounding the equipment to be heated is the customer's responsibility.
- ✓ Low or medium dissipation heating blanket (up to 0.7 W/cm<sup>2</sup>) will not burn out if switched on without heat exchange at temperatures up to 150°C.

However, high dissipation heating pads cannot be switched on without proper heat exchange, as there is a risk of burning out.

- ✓ Do not use the heating blanket if it has bubbles, is punctured, cut, has an exposed resistive element, or is burnt, as there is a risk of electric shock.
- ✓ The heater blanket does not come into contact with the product being heated.
- ✓ It provides a safe heating process for operators, with minimal risk of workplace accidents.

#### 4- Application :

Thermal blankets are ideal for heating surfaces and containers in various types of processes, the most common being:

**Heating of Rectangular Tanks**



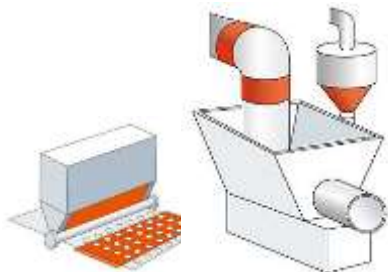
**Heating of Cylindrical Tanks**



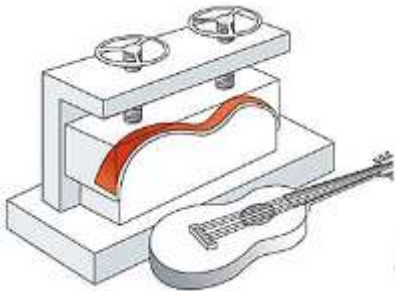
**Heating for Composite Material Repair**



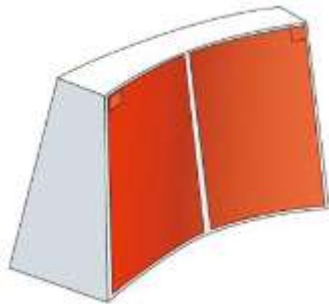
**Heating of Machine and Table Surfaces**



**Heating for the Manufacture  
of Musical Instruments and  
Wooden Furniture**



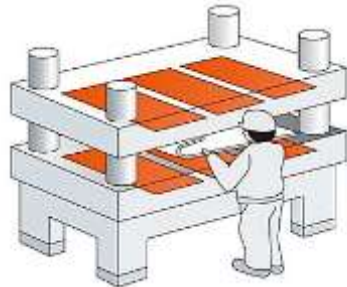
**Heating for Curing Concrete  
and Resins**



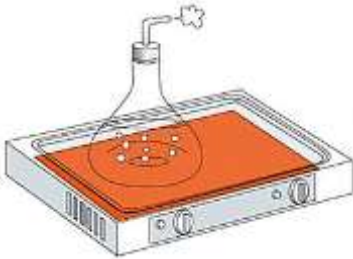
**Heating for Wind Turbine  
Blade Repair**



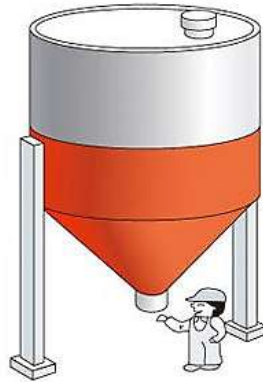
**Heating of Presses**



### Heating of Glass Flasks in Laboratories



### Heating of Silos



#### Ideal for use in areas such as:

- ✓ Pharmaceutical industry,
- ✓ Food industry,
- ✓ Chemical industry,
- ✓ Metallurgical industry,
- ✓ Auto repair shop,
- ✓ Laboratory.

**We manufacture custom-sized, customized products to best meet your needs.**

# Registration Data

## Company Name

Paulista Heaters co.

## Trade Name

Paulista Heaters

## CNPJ

44.493.049/0001-07

## State Registration

125,354,590,111

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