

IBC HEATING BLANKET

1000 LITERS



PAULISTA HEATERS
ELECTRIC HEATING SYSTEM

Summary

- 1- Product Specifications2
- 2- General description of the product structure
5
- 3- Instruction manual: 13
- 4- Application: 18

IBC heating blanket

1- Product Specifications

- ✓ Voltage: 110V, 220V, 380V, 440V or other.
- ✓ Working temperature: up to 200°C (392°F).
- ✓ It works for both metal and plastic IBCs, with or without a grid.
- ✓ Standard size: 1000L - We also manufacture for smaller tanks or containers.
- ✓ It has a thermal insulation cover.
- ✓ Types of controllers: analog thermostat, digital thermostat, or digital panel.
- ✓ We have options for classified EX areas.

For 1000 liters IBCs , which are standard in the market, we work with three lines of IBC heating blankets:

<p>I- Low Power IBC Heating Blanket</p> <p>It has 3000W with side heating (reaches up to 90°C (194°F) - ideal for products such as oil, grease, fat, and alcohol (which have a specific heat lower than that of water).</p>	
<p>II- Medium Power IBC Heating Blanket</p> <p>It has 6000W with side heating (reaches up to 120°C (248°F)) - ideal for products such as oil, grease, fat, alcohol and water (which have a specific heat lower than or equal to that of water), having greater power which guarantees a shorter heating time compared to the other solution.</p>	
<p>III- High-Power IBC Heating Blanket</p> <p>It has 9000W with side and bottom heating (covers temperatures up to 150°C (302°F)) - ideal for chemical products (which have a higher specific heat than water), having higher power that guarantees a shorter time compared to other solutions.</p>	

Remember that plastic IBCs can withstand temperatures up to 90°C (194°F) (if the liquid inside the IBC exceeds this temperature). The temperature can be punctured, but the

heating element can pass through to speed up the heating process because it's mounted on the IBC grid, thus promoting heating through a greenhouse effect (i.e., indirectly). Metal IBCs , on the other hand , don't have this problem and can withstand high temperatures.

For other container sizes, the heating blanket is custom-made according to the customer's needs.

2- General description of the product structure

Description	Technical Details
<p>The IBC heating blanket consists of silicone straps reinforced with fiberglass fabric, a resistive wire, a fastening system using hooks, springs, and Velcro, with internal and external cabling according to electrical current, temperature control, male power plug, containing a thermal insulation cover sewn in Cordura fabric, with internal insulation in ceramic fiber fabric and external insulation in Nomex fabric.</p>	<p>Operating temperature: From -40°C (-140°F) to +200°C (392°F) (withstands peaks of -90°C (194°F) and +230°C (446°F) for short periods of time)</p>
	<p>Weight capacity: 1kg/cm²</p>
	<p>Electrical insulation: 20KV</p>
	<p>Hardness: Standard 30 + 5 Shore , other hardness levels may apply according to customer requirements.</p>
	<p>The fastening system consists of stainless steel springs and hooks for the straps and Velcro for the insulation cover. The springs have a 100mm body and stretch up to 150mm. The silicone straps are glued to the insulation fabric.</p>
	<p>Internal Teflon cable – withstands temperatures up to 260°C (500°F) – Voltage: up to 600V</p>
	<p>*Internal electrical connection cables are used to connect the heating element to the controller.</p> <p>External silicone cable – withstands up to 200°C (392°F) – Voltage: up to 500V</p> <p>External PP cable – withstands up to 90°C (194°F) – Voltage: up to 500V</p> <p>*Cables for external electrical connection do not have direct contact with the heating element; 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 a power plug according to the project current and voltage, as well as the model the customer needs in their process. The two line options are:



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



Industrial plug 16A, 32A, 63A, and 125A for 110v, 220v, 380v, 440v

Fastening system:

The attachment is made using 5 aluminum metal hooks on the IBC grid, springs designed to secure the thermal straps, and Velcro fasteners to close the thermal insulation cover. In the case of IBCs without a grid, the upper metal hooks are absent; only Velcro reinforcement is used.



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.



Digital Thermostat

Recommended for low and medium power heating blankets (up to $0.7\text{W}/\text{CM}^2$). Variation of $+5^\circ\text{C}$. Comes with a temperature sensor (PT100, J, K, NI120, PTC or other) for temperature control of the heating element. 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 belt temperature control. More than one controller can be coupled to control the product temperature. Controller used: NOVUS 1030 or NOVUS 1050 (for ramp-plateau heating, 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 belt 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.

Insulation cover :

This is the outer covering that serves both to protect the belt and to insulate it, ensuring that the belt does not lose heat to the environment and 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.

The cover has a removable lid (without heating), has a free area for the IBC lid and drain, and leaves the bottom free for inserting the forklift forks.



Underfloor heating system :

It comes only with high-power heating pads (9000 W), consisting of 2 independent pads that are inserted under the IBC and secured to the grid by silicone fiberglass handles and buttons. There is no need to lift the IBC to attach them or remove it from the grid. It is very simple and practical to attach.



fabric to see the level:

Although the product level can be checked simply by opening the Velcro fasteners on the front of the IBC heating blanket, we can include a translucent fabric section so that the operator can see the product level without having to open the heating blanket.



Lid Heating:

Although top heating is not common in IBCs, since the product is dispensed from the bottom, it is possible to heat it if the customer's process requires it. In this case, we are talking about a product that is difficult to heat, with a specific heat well above that of water (usually 2 times or more). Therefore, using a high-power IBC heating mantle (13000W) is ideal.



3- Instruction manual:

How to use

1. Install the IBC Heater by positioning the silicone side (red) towards the container to be heated and the temperature controller towards the outside.
2. During assembly, place the metal hooks on the metal grid of the IBC to facilitate assembly (ideally, assembly should be done with two operators).
3. Secure the part using the springs and hooks on the strap. Pull the springs only in the horizontal direction (lying down).
4. Close the horizontal and vertical Velcro fasteners and attach the lid or not, depending on the intended use.
5. If using an analog thermostat, set it to zero.
6. Check the voltage of the electrical network where the drum 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.
7. Connect the drum heating blanket to the electrical outlet.
8. 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.
9. Adjust to the desired temperature. If using a digital controller, check the supplier's instructions to program it according to your process.

10. Wait for the drum heating pad to heat up to the desired temperature.
11. Allow to heat until the product stored in the drum 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.
12. Next, unplug the IBC heating pad and wait 1 minute for it to cool down.
13. Remove the IBC heating pad and store it properly.

Recommendations:

- Do not use the IBC heating blanket above its design temperature. It can operate continuously up to 200°C (392°F) with peaks of 230°C (446°F).
- IBCs can withstand high temperatures, but plastic IBCs can only withstand a maximum of 90°C (194°F) (if placed above this, they will puncture). Remember that it's the liquid inside the container that, if it reaches above 90°C (194°F), will puncture the IBC. Because the thermal blanket is mounted on the grid and therefore doesn't have direct contact with the container, the temperature can exceed 90°C (194°F) without problems (which facilitates faster heating due to heat loss, since in an IBC with a grid the heating occurs indirectly, through the greenhouse effect).
- Use the IBC heating mantle only when the container is filled with product (at least above the level of the heater).
- Store and transport the IBC heating pad correctly, holding it by the fabric and avoiding folding, stretching, kicking, or throwing it, as these can 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 IBC heating mantle while it is heated or heating up, as this may damage the resistive elements.
- Do not puncture, cut, or immerse the drum heating mantle in liquid; risk of short circuit.
- The IBC heating mantle may release gases from its internal components during initial heating cycles (especially at high temperatures, above 150°C (302°F)).
- Cleaning should only be done with the IBC heating pad de-energized, using a clean cloth and alcohol.
- If there is damage to the heating blanket or the panel, 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 IBC heating blanket without prior notification and authorization from Resistências Paulista, as failure to inform or approve this will violate the product's legal warranty.
- Store the IBC heating blanket by folding the end straps over the middle strap and then rolling it up . Do not fold or crease it under weight, as this may damage the internal heating element.

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 strap and the cover do not easily attract dirt.
- ✓ The digital panel can be made in accordance with NR10.
- ✓ The IBC 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 IBC 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 IBC heating blankets (up to 0.7 W/cm²) will not burn out if switched on without heat exchange at temperatures up to 150°C. However, high dissipation heating blankets cannot be switched on without proper heat exchange, as there is a risk of burning out.
- ✓ Do not use the IBC heating blanket if it is blistered, punctured, cut, has an exposed resistive element, or is burnt, as there is a risk of electric shock.
- ✓ For medium and high-power IBC heating mantles, it is recommended to remove any plastic plates attached to the container grid, as they may melt upon heating.
- ✓ The IBC heating jacket does not come into contact with the product being heated inside the container.

- ✓ It provides a safe heating process for operators, with minimal risk of workplace accidents.

4- Application :

The IBC heating blanket is ideal for heating products stored in:

Metal IBC or plastic IBC with or without a grid.



Ideal for use in areas such as:

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

**We manufacture custom-made products to best meet your needs.
Contact us for a quote!**

Registration Data

Company Name

Paulista Resistance Ltd.

Trade Name

Paulista Resistance

CNPJ

44.493.049/0001-07

State Registration

125,354,590,111

DUNS® Number

819171629

Address

Joaquim de Paula Street, No. 1011 – Morumbi City – São José dos Campos – SP - Brazil – Postal Code: 12236-450

Contact Commercial Department: Alefe Luís Pinto

Phone: +55 (12) 98217-1580 (Whatsapp)

Email: contact@paulistaheaters.com

Technical Department Contact: Vinicius Roberto de Moraes

Phone: +55 (12) 99669-5243 (Whatsapp)

Email: project@paulistaheaters.com

Website: <https://paulistahetaters.com>

