DRUM HEATER

PAULISTA HEATERS

ELECTRIC HEATING SYSTEM

Summary

DRUM HEATER

1- Product Specifications

- ✓ Voltage: 110V, 220V, 380V, 440V or other.
- ✓ Operating temperature: up to 250ºC (482ºF).
- ✓ It is suitable for metal drums, plastic containers, cylindrical and rectangular tanks, cardboard or plastic cylinders and octabins .
- ✓ Standard sizes: 20L, 50L, 100L, 200L - We also manufacture for large or small tanks.
- ✓ It may come with an insulating cover.
- ✓ Controller Types: analog thermostat, digital thermostat, or digital panel.
- ✓ We have options for classified EX areas.

2- General description of the product structure

Description	Technical Details
The drum heater is manufactured from silicone reinforced with fiberglass fabric, resistive wire, a spring and hook fixing system, with internal and external cabling according to the electric current, temperature control, a male power plug, and may or may not include a thermal insulation jacket.	Working temperature: From -40ºC (-104ºF) to +250ºC (482ºF) (suports peaks of -90ºC (-194ºF) and +300ºC (+572ºF) for short periods of time)
	Weight capacity: 1kg/cm²
	Electrical insulation: 20KV
	Hardness: Standard 30 + 5 Shore, with other hardnesses available according to the customer's needs
	Fixing System: Made with stainless steel springs and hooks, the springs have a 100mm body and stretch up to 150mm
	Internal Cabling: Teflon - supports up to 260ºC (500ºF) - Voltage: up to 600V *Cables for internal electrical connection are used to connect the drum heater to the controller. External silicone cable – withstands up to 200ºC (392ºF) – Voltage: up to 500V External PP cabling – withstands up to 90ºC (194ºF) – Voltage: up to 500V *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.
	Power Supply: AC and DC

Power plug:

We offer a power plug according to the project current and voltage, as well as the model the client needs for their process. The two standard options are:

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

Industrial power plug 16A, 32A, 63A, and 125A for 110V, 220V, 380V, or 440V

Fixing system:

In general, the spring leaves a minimal gap for fixing, which is not detrimental due to lack of heating in that area on large containers, but on small containers, we position it recessed to minimize this gap as much as possible. Alternatively, it is possible to add a jacket and close it only with velcro so there is no gap. As indicated in the following illustrative photos:

Closure with jacket and velcro without a gap

Closure with hooks and springs with a gap

Temperature controller:

These are the available options:

Analog Thermostat

Easy to operate and excellent cost-benefit. Recommended for low-power heaters (up to 0.5 w/cm²) and heating systems that do not require precise temperature control. Variation of +10ºC (50ºF). Controller used: IMIT.

Digital Thermostat

Recommended for low and medium-power heaters (up to 0.7 w/cm²). Variation of +5ºC (41ºF). Comes with a temperature sensor (PT100, J, K, NI120, PTC, or other) for drum heater temperature control. More than one controller can be coupled to control the product's temperature. Controller used: NOVUS 321.

Digital Panel

Recommended for high-power heaters (above 0.7 w/cm²) and heating systems that require precise temperature control, as it has a PID function. Comes with a sensor (PT100, J, K, NI120, PTC, or other) for drum heater temperature control. More than one controller can be coupled to control the product's temperature. Controller used: NOVUS 1030 or NOVUS 1050 (for ramp-soak, ideal for processes that need to follow a heating cycle where the temperature varies over time). Can come coupled to the product (direct connection) or mounted on a pedestal (interconnected to the heater by a multipolar socket).Manufactured according to NR10 (can be customized according to the customer's needs to meet their process specifications).We also manufacture panels for classified EX areas. Digital controllers have various quality certifications, such as: ISO 9001, REACH Compliance,

RoHS, CE, RU, EX, among others, ensuring excellence in operation and reliability for your process.

Only with temperature sensor

If the customer already has a temperature controller, we can offer the heater with only the sensor. The temperature sensors normally used are: J, K, PT100, NI 120, and PTC (we can include another model as needed). We offer sensors already installed on the heater to control its temperature or with a bulb to control the product's temperature.

Without temperature control

We can also offer the heater without any type of controller (not recommended for high-dissipation heaters or more technically complex processes).

Insulation jacket :

It is the external covering that serves both to protect the heater and to insulate it to ensure that the heater does not lose heat to the environment, also protecting the operator from the risk of burns. The jacket is made of cordura fabric, nomex, and insulating blanket, which offers high mechanical resistance and withstands high temperatures. Furthermore, it provides safety in use because it does not propagate flames. Being waterproof, it allows working in outdoor environments. The velcro positioned at the ends allows for modular assembly, enabling the expansion of the heating area according to the application need. Cleaning is simple, as it is done dry using a cloth and alcohol since the fabric does not adhere to dirt.

3- Instruction manual:

How to use

1. Install the product by positioning the silicone side (red) towards the container to be heated and the temperature controller on the outside.
2. Fix the piece using the heater's springs and hooks. Pull the springs only horizontally (flat).
3. In the case of an analog thermostat, position it at zero.
4. Check the voltage of the electrical grid where the drum heater will be connected.
5. If connected to a lower voltage, it will heat little, and if connected to a higher voltage, it will burn out.
6. Connect the drum heater to the electrical grid.
7. Adjust the desired temperature. In the case of a digital controller, check the supplier's instructions to program it according to your process.
8. Wait for the drum heater to heat up to the desired temperature.
9. Leave it heating until the product stored in the drum is at the appropriate temperature.
10. The heating time varies according to the specific heat of the product to be heated, the power of your heater, and the volume of your container.
11. Afterward, unplug the heater from the socket and wait 1 minute for it to cool down.
12. Remove the heater from the drum and store it properly.

Recommendations:

- Do not use the drum heater above the design temperature.
- The drum heater can work continuously up to 250ºC (482ºF) with peaks of 300ºC (572ºF).
- Metal drums or tanks withstand high temperatures, but plastic containers or drums withstand a maximum of 90ºC (194ºF) (if you put it above that, they will puncture) and cardboard octabins withstand up to 50ºC (122ºF) (if you put it above that, they will melt).
- Use the drum heater only with a container full of product (at least above the heater level).
- Store and transport the drum heater correctly, without bending, stretching, kicking, or throwing, as this can damage the resistive elements and the internal components of the controllers.
- Use rubber gloves to avoid static electricity shock; this shock does not pose a danger to humans, only discomfort.
- Do not move the heater while it is hot or heating, as there is a risk of damaging the resistive elements.
- Do not puncture, cut, or immerse the blanket in liquid, risk of electrical short circuit.
- The drum heater may release gases from its internal components during the first few heating cycles (especially at high temperatures, above 150ºC (302ºF).
- Cleaning must only be done with the blanket de-energized, using a clean cloth and alcohol.
- If there is damage to the drum heater or the panel, stop using it and notify Paulista Heaters to check if it is safe to continue using the product, as there may be a risk of electric shock.

- Do not make any modifications to the drum heater without prior notification and authorization from Paulista Heaters, as failure to inform or approve violates the product's legal warranty.
- Store the drum heater by rolling it, do not fold it or crease it with weight, as this may damage the internal resistive element.

Safety Items:

- The drum heater is fully electrically insulating, resistant to fungi and chemical products.
- To avoid the risk of burns, it is recommended to use a thermal insulation jacket.
- The thermal insulation jacket isolates around 70%, allowing the operator to work close to the container being heated.
- The insulation jacket is waterproof, made with fabrics that do not propagate flames and are resistant to cutting and high temperatures.
- Cleaning the drum heater or the jacket should be done dry, with a cloth and alcohol.
- Neither the heater nor the jacket easily adhere to dirt.
- The digital panel can be made in accordance with NR10.
- The drum heater has no risk for working in classified EX areas since the resistive element is completely sealed.
- For use in classified EX areas, we work with certified panels and appropriate cabling (inform your classification so the technical department can analyze it).
- When the drum heater comes with a panel mounted on a pedestal, it is grounded.

- However, the grounding of the equipment to be heated is the customer's responsibility.
- The low or medium-dissipation drum heater (up to 0.7 w/cm²) does not burn out if connected without heat exchange at a temperature up to 250ºC (482ºF).
- However, the high-dissipation drum heater cannot be connected without proper heat exchange, risk of burning out.
- Do not use the drum heater if it has bubbles, is punctured, cut, has an exposed or burned resistive element, as there is a risk of electric shock.
- The drum heater does not come into contact with the product being heated.
- It provides a safe heating process for operators, with minimal risk of work accidents.

4- Application :

The drum heater is ideal for heating products stored in:

Metal drums, plastic containers and cans

Metal or plastic tanks, cylindrical or rectangular, small or large, or cylinders

Cardboard or plastic Octabins

Ideal for use in areas such as:

- ✓ Pharmaceutical industry,
- ✓ Food industry,
- ✓ Chemical industry,
- ✓ Metallurgical industry,
- ✓ Mechanical workshop,
- ✓ Laboratory.

We offer our products throughout Brazil and abroad. We manufacture customized, tailor-made products to best meet your needs. Contact us for a quote!

Registration Data

Company Name

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Trade Name

Paulista Heaters

CNPJ

44.493.049/0001-07

State Registration

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