

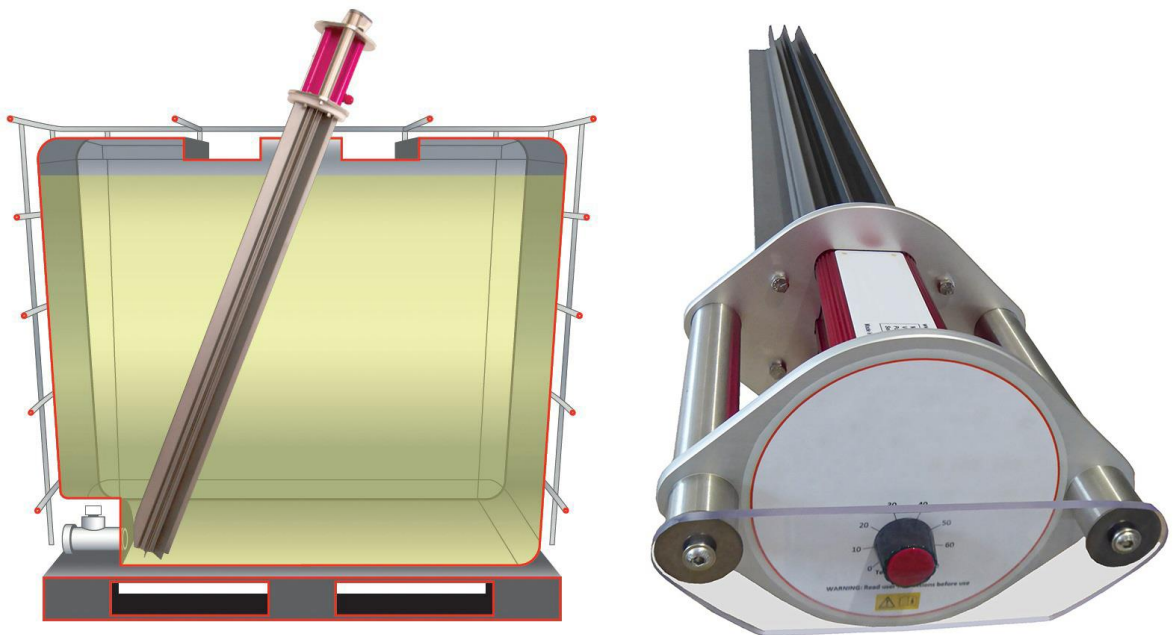
# Internal IBC Heater

For plastic containers with  
fluids between PH4 and PH8

Sensitive Product Protection  
2.4kW

## USER MANUAL

For products:  
20-2904a (0-90°C)  
20-2904c (Cleaning Tube)



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In no event is the manufacturer liable to anyone for any indirect, special, or consequential damages. The information and specifications in this document are subject to change without notice.

# OVERVIEW

## 1.1 Introduction

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This product manual describes the operation and use of the Internal IBC Heater.

There are no customer-serviceable parts in the this product. For any issues, the product must be returned back to the seller.

## 1.2 Acronyms

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IBC	Intermediate Bulk Container
TTS	Thermal Transfer System
PAT	Portable Appliance Testing

## 1.3 Authorised Use Permission

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This product must only be used by authorised and competent persons. Failure to observe this may void any warranty given by the seller.

Any user must read the user manual and observe all Health & Safety procedures. This product is electrical and will get hot. Failure to observe safety precautions will be at the user's risk.

The manufacturer own all the design rights, software and documentation information of this product. User manuals may be copied within the company for usage and operation but may not be used to develop other products.

The software within the product is under full ownership of the manufacturer and reverse engineering is strictly forbidden.

## 1.4 Points of Contact

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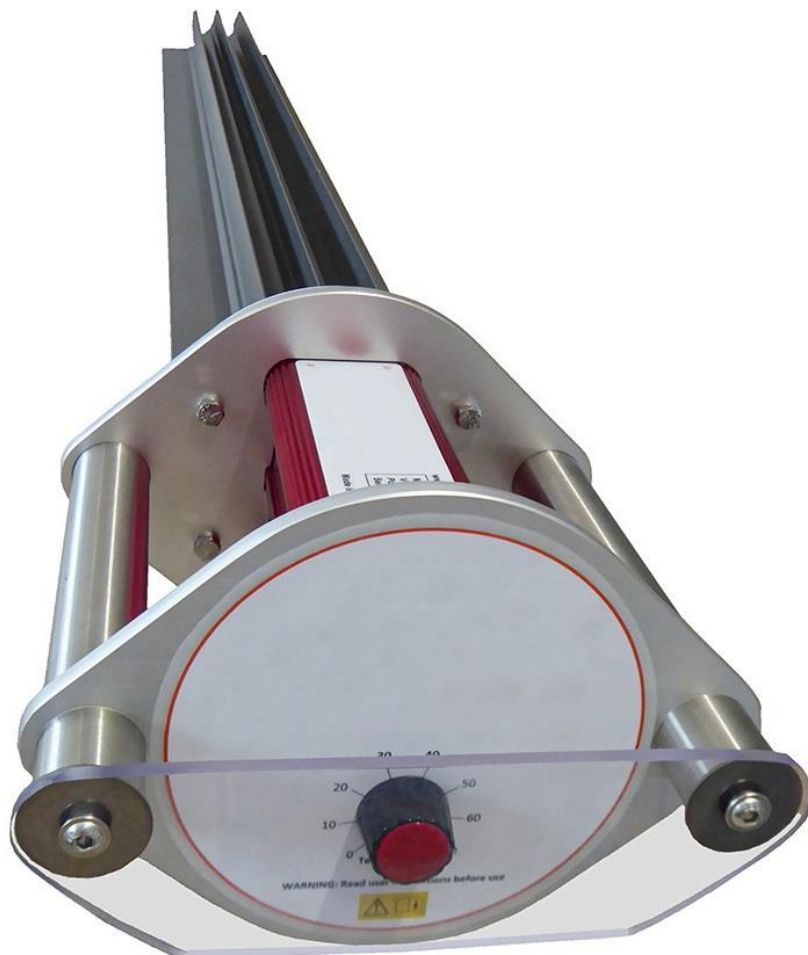
For all queries regarding operation, storage, repairs or other information, contact the seller of the product.

## 2 SYSTEM SUMMARY

### 2.1 Overview

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The product is an internal IBC<sup>1</sup> heating device which can be used to heat foodstuffs and chemicals<sup>2</sup> between 0°C and 90°C<sup>3</sup> in standard caged IBCs of approximately 1m<sup>3</sup> volume. It is possible to heat other types of IBC but please contact the seller for advice before doing so.



The device is powered by 240Vac and contains a unique heating system which uses a Thermal Transfer System (TTS) to ensure even distribution of heat across the product's heating surface, even when semi-submerged. This prevents the formation of hot spots across the heating surface as the IBC empties, ensuring no burning or discoloration of the fluid.<sup>4</sup>

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<sup>1</sup> Do not use metal IBCs without consulting us for advice. Metal IBCs can scratch off the coating on the fins.

<sup>2</sup> Do not use on foodstuffs or chemicals with a PH outside of the range of 4 to 8 as increased risk of corrosion can occur.

<sup>3</sup> The maximum product temperature may be governed by the IBC bottle construction materials. Contact your IBC supplier to determine the maximum temperature that the IBC you are using can safely withstand. Plastic bottled IBCs may distort and fail at elevated temperatures.

<sup>4</sup> Based upon a maximum heating of the fluid of 0.3W/cm<sup>2</sup>, which is sufficient to protect most sensitive products.

## 2.2 Preparation before first use

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Before first use, the Internal IBC Container Heater should be inspected when removed from the packaging.

### 2.2.1 Pre-use Checklist

- Ensure the product has not been damaged in transit.
- Check fins for breakages, splits, or bending.
- Check that the base area underneath is not damaged or cracked.
- Check that the cable is not damaged and is retained correctly at the point of entry into the device (no wires visible).
- Check the top section for damage.
- Ensure the knob rotates evenly from 0°C to 90°C (the knob will rotate below 0°C and above 90°C, by 15 angular degrees). This is normal and is the mechanical travel of the device.
- Whilst the device has been PAT tested before shipping, it is recommended that it is performed in-house before use and on a regular basis depending upon the use and the environment. It is the user's responsibility to ensure the product continues to comply with electrical safety standards and has not been damaged or abused.

## 2.3 Cleaning Checklist

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- Clean the fins and base with a damp cloth and if desired, a sterilizing agent. Wash down with hot water.
- If you have purchased a cleansing pod, place the Internal IBC Heater into the pod, fill to the top with water and run the system at maximum temperature for 20 minutes to perform a thorough clean.



***CAUTION hot water at 70°C can cause serious burns. Ensure the user is wearing adequate protection when using or handling the device.***

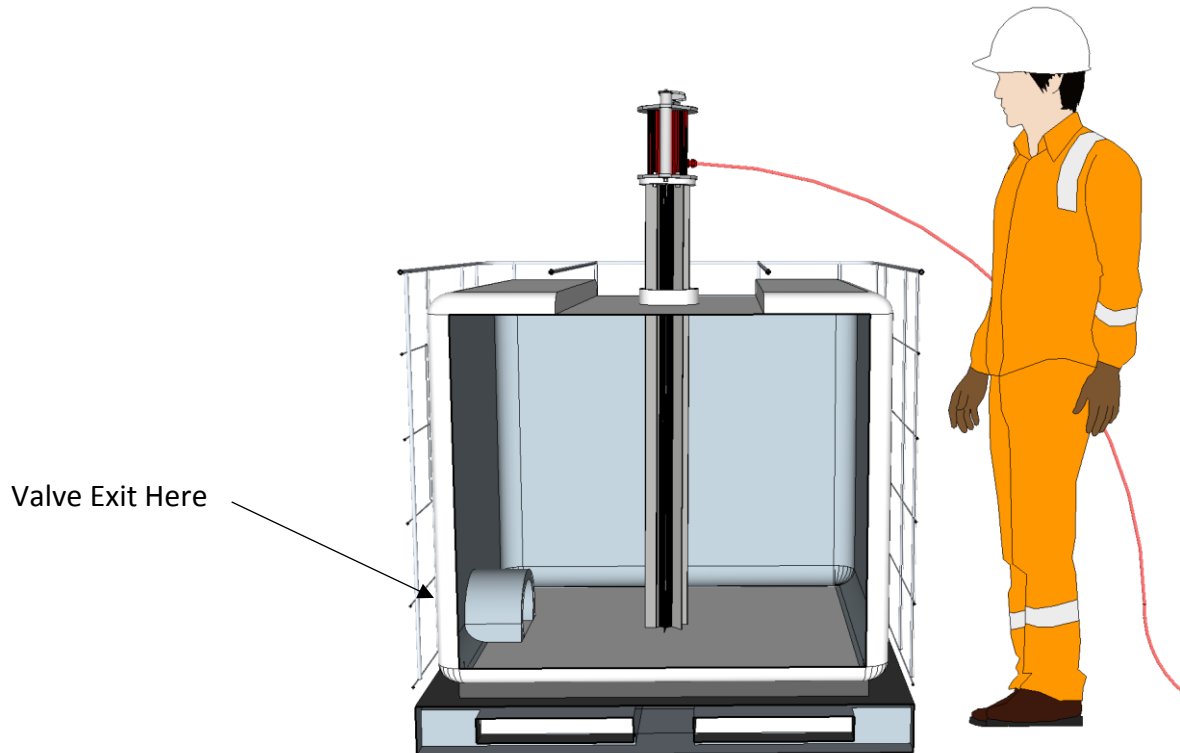
### 3 USING THE Internal IBC Heater

The Internal IBC Heater is simple to use. After performing the pre-use checks and any cleaning or sterilising required, follow the instructions below:

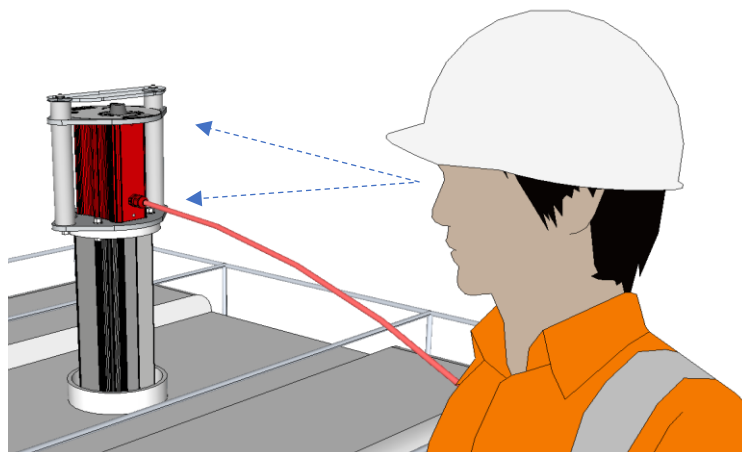
#### 3.1 Inserting the heater

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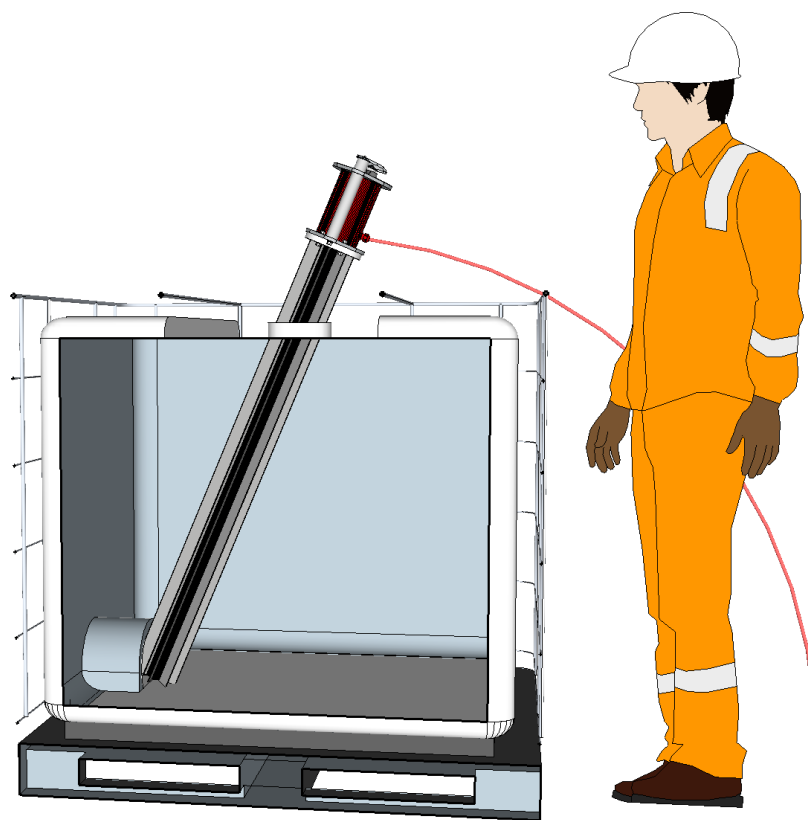
1. Stand at the side of the IBC *opposite* to the exit valve. Remove the top cover to the IBC.
2. Place the heater into the IBC vertically, through the centre hole.



3. Ensure the heater is oriented the correct way, with the cable nearest to you and the label writing on top the correct way to you when viewing.



4. Pull the handles towards you and start to push the end of the heater away from you, so that it slides into the exit valve. In most IBCs, there is a trough running along the bottom of the vessel that leads to the valve exit. Placing the heater's bottom fin into this trough will aid correct positioning.



### 3.2 Starting the Internal IBC Heater

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1. Set the temperature set-point to 0°C. This stops the inrush of current when plugging in the heater. Continuously using the plug as a power on/off device can lead to plug burning, so ensure this procedure is followed.
2. Plug in the heater to the power outlet and switch on at the wall. The small LED on the top of the heater will go through a starting sequence of green - orange - red - green.
3. Turn the temperature dial up to the desired temperature required to achieve easy flow of the product. The heater will begin its controlled heating cycle.
4. The LED status will show the following:

<b>GREEN:</b>	System ON and <i>NOT</i> HEATING
<b>ORANGE:</b>	System HEATING
<b>RED:</b>	Fault

During normal operation, the system will pulse power into the lower section. You will typically see the LED flicking between green & orange as it adjusts the power delivered to achieve the correct setpoint.

When close to setpoint, the LED may flick between green and orange every second or less.

When further away from setpoint, the LED may flick between green and orange every 30 or 40 seconds.

When very far away from the setpoint, the LED may be lit permanently as it puts a lot of power into the system.



***Note: If a fault occurs (Red LED), contact the seller. There are no parts that can be repaired without the unit being returned to the manufacturer.***

### **3.3 Disconnecting the Internal IBC Heater**

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When disconnecting the Internal IBC Heater (unplugging the unit):

1. Switch the power OFF.
2. If there is no power switch to turn off at the wall outlet, turn the heater's temperature control to 0°C. This will stop the current flow.
3. Disconnect the heater plug from the mains.

### **3.4 Removing the Internal IBC Heater**

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When removing the heater after use, be aware that the fins may be too hot to touch. Wear appropriate gloves and PPE.



## 4 Internal IBC Heater Cleaning Tube

The Cleaning Tube is an optional extra and is used for cleaning an Internal IBC Heater after use and before inserting into an IBC holding a different product:

*Main features:*

- A 1.3m x 160mm diameter black PVC tube with a watertight base into which the heater is inserted for cleaning
- A web harness with two straps that fit over the cleaning tube and enable it to be suspended from the frame of a standard IBC. The straps are fitted with Delrin buckles so that the tube can be attached or removed quickly.



### 4.1 User Instruction for cleaning tube

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- To prevent the risk of any cross-contamination, ensure that inside of the Cleaning Tube is cleaned thoroughly before use, using hot water. Make sure the tube is completely drained of any liquid.
- Attach the tube to the longer side of an IBC by looping the two web straps over the top steel rail of the IBC and connecting the Delrin buckles together. The assembly should sit at an angle of approximately 45° as shown in the photograph below.
- Once attached to the side of an IBC, the tube should be filled with approximately 22 litres of clean water. To accelerate the cleaning process, the water could be hot but this is not essential.

- Make sure that the heater is not connected to a power supply. Remove as much remaining product from the heater's fins as is practically possible using disposable paper towels or by spraying with hot water. **If using a water spray, avoid wetting the top section of the heater.**
- Insert the heater into the top of the cleaning tube. The top section should still sit at the top of the tube as shown below.
- Follow the heater start-up sequence in section 3.2 Starting the . OVERVIEW
- Then turn up the temperature of the heater to 70°C using the dial on the top. The LED should show amber after a few seconds.
- Leave the heater in the tube for several hours until the water in the tube is hot and the LED on the heater is flashing green-amber constantly.
- Once satisfied that the desired temperature has been reached, turn the temperature dial on the heater back to 0°C before switching off the mains supply.
- Using the two steel handles on the heater, remove the unit, taking care not to touch the fins. However, if this is necessary, wear a pair of sterile gloves and be aware that it may still be very hot.
- Stand the heater in a sterile place or insert into a new IBC, making sure that it is not too hot for the product in the IBC.
- Empty the water from the cleaning tube. There are several ways to do this, the best being to lift the bottom of the tube and tipping the water out into a suitable container (25 litres or more). Alternatively, the tube can be removed and then emptied but be aware that it will weigh around 25kg, so appropriate lifting precautions should be taken by the operator(s).
- Clean the inside of the tube using hot water. If desired, the heater can be stored in a tube until further use.