



JORVET IV FLUID & BLOOD INFUSION WARMER

J1448M | USER MANUAL



FEATURES

- ▶ Portable and Lightweight
- ▶ Warms IV Fluid and Blood Transfusion Fluids
- ▶ Convenient Strap to Hang on an IV Pole with an IV Pole Mount
- ▶ Fahrenheit or Celsius Temperature Display
- ▶ Overheating Temperature Protection

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Thank you for using our JorVet J1448M IV Fluid & Blood Infusion Warmer.

We want you to get the most out of the machine and to have your experience in using it proceed with ease. Detailed instructions are provided along with the product's introduction, usage and how to correctly use it, and how to take full advantage of all operations and functions.

GENERAL INFORMATION

The Jorvet IV Fluid and Blood Transfusion Warmer is a dry-heat device. This unit is designed to warm IV fluids safely through the heating plate. The Warmer does not control the fluid flow rate. Fluids can be warmed to temperatures between 95°-107.6° F (35°C-42°C) at flow rates 25ml/hr to 1000ml/hr.

PRECAUTIONS

▶ IMPORTANT

Before using the Jorvet IV Fluid and Blood Transfusion Warmer, please read and understand this User's Guide and the **SAFETY PRECAUTIONS** prior to use. If you have any questions, please contact Jorgensen Laboratories at 1.800.525.5614.

- ▶ Carry out the inspections and maintenance periodically according to the manual to avoid patient or user injury.
- ▶ This operation manual is only used by professional trained Veterinary Personnel.

WARNINGS

- ▶ This device is used for heating the infusion, blood transfusion and can be used only by the professional trained Veterinary Personnel.
- ▶ Securely attach the warmer to an IV Stand to prevent damage to the unit by sliding down or dropping to the floor.
- ▶ The unit should only be used with the power cord that came with the unit and is not shared during the use of the warmer.
- ▶ It is not allowed to use voltage other than that specified on the product label, or it could cause damage or a fire.
- ▶ Inspect the warmer and all accessories completely before use to verify it is working in a safe manner.
- ▶ **DO NOT** only rely on the warmer's alarm to notify of a problem, the warmer should be monitored throughout the infusion.
- ▶ Stop the use of the warmer during an alarm
- ▶ **DO NOT** connect other brand heating devices or other brand heating accessories to this warmer as it could lead to wrong heating temperature or dangerous infusion.
- ▶ Keep the infusion line straight and unfolded to prevent a long-term occlusion and heating to fluids/ blood for long period of time.
- ▶ **DO NOT** use the warmer where there is strong sunlight, cold & hot, wind or a dusty environment.
- ▶ Microwave will influence the function of the warmer. All other devices next to the warmer must meet the EMC standard. Mobile phone, X-Ray or MRI will be the cause of a malfunction due to its high frequency radiation.

- ▶ It is not allowed to dismantle or modify the warmer. Opening the shell may cause electrocution. Maintenance or upgrade to the warmer must be done by authorized staff from the manufacturer.
- ▶ Check the warmer daily and check all the functions to determine it is in good condition if it is not used for a long period.
- ▶ Turn off the warmer and contact **Jorgensen Laboratories 800.525.5614** when a malfunction has occurred.

INTRODUCTION

The use of room temperature (70°F/21°C) IV fluids in a patient suffering from shock, or susceptibility to hypothermia should be avoided. Ideally fluids should be administered as close to body temperature as possible for better therapeutic results. Blood products are refrigerated or frozen prior to administration.

APPLICATION

It is intended to provide continuous heating during the infusion and blood transfusion.

WORKING PRINCIPLE

The Jorvet IV Fluid and Blood Transfusion Warmer is an indirect heating device (dry warmer). The IV fluids are heated as the fluids pass through the channel of the warmer. The temperature can be set between 32°C ~ 42°C (89.6°F ~ 107.6°F). The heating control board will work upon the set temperature.

COMPONENTS & FUNCTION

The Jorvet IV Fluid and Blood Transfusion Warmer is made up of the following parts:

- ▶ **Main Control System**

This system controls the whole unit by managing and processing the system

- ▶ **Heating Device**

The heating device is made up of a heating sheet and heating exchanger; this allow the heat to move through the exchanger to heat the fluid

- ▶ **Detection Sensor**

This includes a temperature detection sensor

- ▶ **Alarm System**

The alarm includes an audio and visual alarm

- ▶ **Input and Display**

This allows for the input of the heating parameter, temperature, alarm message and other parameters.

SAFETY COMPLIANCE

▶ Protection Against

- ▶ Electric shocks, this includes the internal power supply
- ▶ Against leakage current
- ▶ Splashing of fluid

▶ Working Mode

Continuous working mode

▶ Input Voltage

100-240V

▶ Power

85VA

PHYSICAL SPECS

▶ Device Dimension

180mm x 70mm x 35mm

▶ Weight

~ 0.2KG (without knob); 0.4KG (with knob)

▶ Display Type

LED

MAIN TECHNICAL SPECS

Environment

The warmer must have a 5cm circumference around the unit to allow the warmer to have heat loss and provide air recycle. If the warmer is being moved to another location with temperature changes and has condensation do not use until the condensation is subsided.

Environmental Conditions of Transportation and Storage

▶ Temperature

-20°C-55°C

▶ Relative Humidity

10%~93%

Do Not Store in the Following Conditions

- ▶ Direct sunlight or strong light
- ▶ Near heating installation, furnace and/or humidifier
- ▶ Chemicals, dust, humidity, water, or shaking or unflat floor

TEMPERATURE CONTROLLING

- ▶ **Applicable IV Set**

Exclusive IV Set or standard single PVC IV Set
(20 and 60 cl/ml, with an outer diameter of 3.4 ~ 4.5mm)

- ▶ **Temperature Range**

95°-107.6° F (35°C-42°C)

- ▶ **Temperature Accuracy**

±1°C or ±1.8°F

- ▶ **Warming-Up Time**

≤ 2 minutes

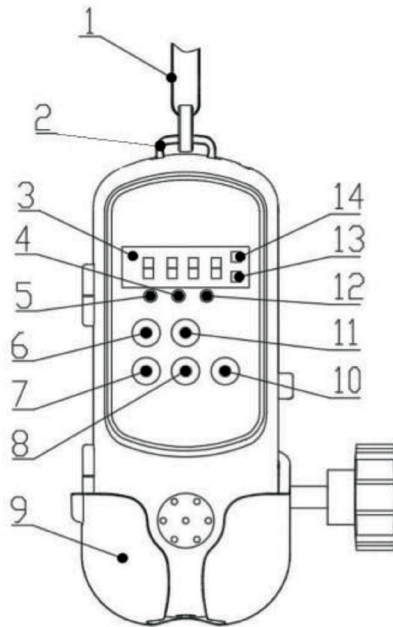
- ▶ **Overheat Protection**

48°C

- ▶ **Alarm**

Overheat, low temperature, system error, door open and heating alarm

OUTER STRUCTURE



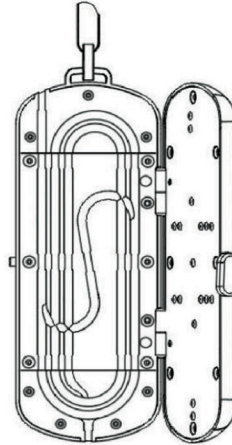
BUTTONS AND FUNCTIONS

- 1 Lanyard** To hang the Jorvet IV Fluid and Blood Transfusion Warmer
- 2 Lanyard Hole** To hang the lanyard
- 3 Display** To display the temperature and the alarm message
- 4 Running Light** Keep flashing during temperature rising and keep it on after reaching the set temperature
- 5 Low Temperature Alarm Light** Flashes during low temperature alarm
- 6 Temperature Unit Convert** (°C) and (°F) convert
- 7 Mute Button** Silence for 2 minutes by pressing the mute button after alarm
- 8 Minus Button** Decrease the temperature in increments of 0.1 °C
- 9 Knob** To attach the warmer to an IV stand
- 10 Stop/Start Button** Start or stop the warmer
- 11 Plus Button** Increase the temperature in increments of 0.1 °C
- 12 Overheat Alarm Light (High Temperature Alarm)** Flashing when high temperature alarms
- 13 °F Temperature** Select °F temperature unit when the light is on
- 14 °C Temperature** Select °C temperature unit when the light is on

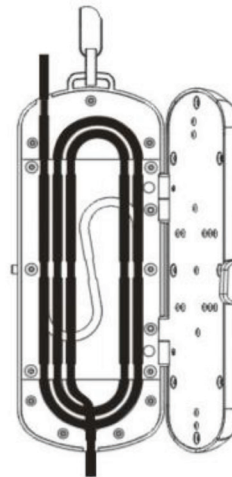
USER'S OPERATION

Operation Steps

- ▶ Hang the warmer on the IV pole, adjust the strap to the appropriate length.
Note: If the infusion pump is being used, the IV warmer should be placed slightly under the IV line's exit from the infusion pump.
- ▶ Use the knob to tighten to the IV Stand.
- ▶ Prime the IV set line removing all air bubbles.
- ▶ Open the door of the warmer.

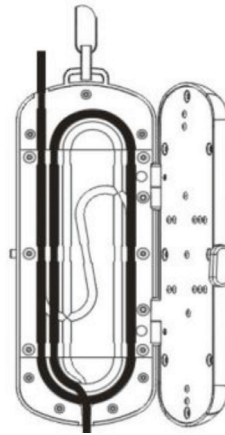


- ▶ Install the IV Set end from the top to down inside the heating path and select the path based on the IV set length and heating requirement.
 - ▶ **Long Heating Path**
Heating length approximately 52cm.



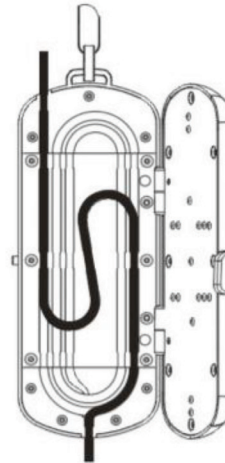
▶ **Middle Heating Path**

Heating length approximately 31cm.




▶ **Short Heating Path**

Heating length approximately 25cm.



- ▶ Connect the power cord to the warmer. The warmer will automatically start once the power cord is connected. Once the power cord is disconnected, the warmer will automatically turn off.
- ▶ **Adjusting the Temperature** In the standby mode, press **+** **-** buttons to set temperature in increments of 0.1 °C.
- ▶ **Adjusting the Temperature Unit Setting** In the standby mode, press **C/F** to set C or F unit. It will display once the unit is selected.
- ▶ Start the warmer after confirming the settings by pressing **Start/Stop** to start the warmer. It will start warming based on the temperature that has been set. The temperature will light up with the LED on the display.
- ▶ If the temperature needs to be readjusted, press **Start/Stop** again to the standby mode and reset the temperature.

- ▶ **Stopping the Warmer** Press  to the standby mode and take out the IV tubing from the warmer. Disconnect the power supply.

ALARM TYPES

Overheat Alarm

When the temperature increases 2 °C above the set temperature, the heating board will cause an alarm to sound intermittently and the overheat alarm light will keep flashing. Press stop the warmer and restart it. If this issue continues contact **Jorgensen Laboratories 800.525.5614**.

Low Temperature Alarm

When the temperature decreases 2 °C below the set temperature, the heating board will cause an alarm to sound intermittently and the overheat alarm light will keep flashing. Press stop the warmer and restart it. If this issue continues contact **Jorgensen Laboratories**.

System Error Alarm

When E001 is displayed on the LED, this indicates if the warmer was operated by mistake, or a fault with the unit. Restart the unit. If the alarm continues contact **Jorgensen Laboratories**.

Warming-Up Alarm

The running light will flash continuously as the warmer reaches the desired temperature. Once the desired temperature is reached the light will stop flashing.

Door Open Alarm

The display will show E002 on the LED if the door is open if the warmer is running. Once the door is closed the alarm will be clear and show the temperature that is set.

Alarm Level

High level alarm includes: System Error, Overheat and Low Temperature.
Low Level alarm are all other alarms.

Alarm System Stetting

Press mute button to silence the alarm for 2 minutes, but it will not stop clear the alarm.

Alarm Signal

The red flashing light is the alarm and can be seen up to 13 feet of the warmer. The audible alarm has an intensity of 45 decibels from 3 feet from the warmer.

Action for the Alarm

When the alarm sounds, do the following steps:

- ▶ Check the patient
- ▶ Confirm the cause of the alarm
- ▶ Turn off the unit
- ▶ Try again

ALARMS AND ERRORS

ALARM	POSSIBLE CAUSE	SOLUTION
Displays the room temperature after switching on the warmer	Door not closed	Close the door
	Did not press Start/Stop Button	Press Start/Stop button to start
	Detection sensor or heating system error	Call Support if the problem does not resolve
Overheat Alarm	Direct sunlight or infrared light leads to overheat temperature	Avoid the sunlight or infrared environment
	Electromagnetic interference	Avoid Electromagnetic interference environment
	Detection sensor or heating system error	Contact Support if the problem does not resolve
System Error Alarm	Hardware system error	Contact Support if the problem does not resolve

Daily Check

Test the unit completely before the first-time use, or 6-12 months continuous operation, or maintenance or upgrading to make sure the device is working appropriately.

Check the following:

- ▶ Environment and power standard
- ▶ AC Power cord is intact and functional
- ▶ Unit and accessory mechanically functional
- ▶ Alarms are functioning appropriately
- ▶ Accuracy with the Temperature in the standard range

Please contact Jorgensen Laboratories if any are abnormal!

Clean and Sterilize

- ▶ Use a low concentrated detergent or disinfectant
- ▶ Use a soft cloth to wipe clean
- ▶ **DO NOT** soak unit in fluid/water
- ▶ **DO NOT** pour cleaning solution onto the unit
- ▶ **AVOID** using abrasive material to clean or dimethyl benzene, acetone detergent as it will cause damage to the shell.

Prior to cleaning, please unplug the AC power from the socket.

Clean the device regularly.

List of optional detergent and disinfectants:

- ▶ Warm water
- ▶ Diluted soapy water
- ▶ Diluted ammonia water
- ▶ Sodium hypochlorite (clean bleaching powder)
- ▶ H₂O₂ (3%)
- ▶ Ethanol (70%)
- ▶ Isopropyl Alcohol (70%)

Do not Sterilize with ETO or Formaldehyde!

Action for the Alarm

When the alarm sounds, do the following steps:

- ▶ Check the patient
- ▶ Confirm the cause of the alarm
- ▶ Turn off the unit
- ▶ Try again

REGULAR MAINTENANCE

INTERVAL PERIOD	STEP
As per Hospital Cleaning Rules	Clean the surface completely before or after long-time storage
Check at least one time per year	<ul style="list-style-type: none">▶ Test the AC power socket and cable▶ Test the temperature accuracy before use

APPENDIX

Note:

- ▶ If adding other accessories, sensors or cable can increase the electromagnetic emission and lower the anti-electromagnetic interference.
- ▶ Do not place other equipment next to the Warmer or overlap equipment with the warmer. If it is required to do so, monitor the Warmer to ensure that it is working properly.
- ▶ The Warmer must be maintained and installed in the environment complied with the EMS Standard
- ▶ A void operating the Warmer during the operation of a MRI or similar devices, it will cause the unit to breakdown from the electromagnetic interference.
- ▶ CISPR Emission Standard equipment may also interface the Warmer
- ▶ The Temperature will become inaccurate if the input signal range is lower than the specified lowest range.
- ▶ Interference of RF communication Equipment may interfere with the performance of the warmer.



Professional Veterinary Equipment Supplier

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