Parts Dept Vat Pasteurizer





Parts Dept
58 Modley Rd
Sharon CT 06069
800-245-8222
www.PartsDeptOnline.com

24-03

Model MPP100

Instruction Manual

Introduction

Thank you for choosing our vat pasteurizer. This operation manual is designed to assist you in safely and effectively operating the pasteurizer while ensuring the quality and safety of your products. Please read this manual carefully before operating the equipment.

Table of Contents:

Specifications
Overview
Safety Precautions
Process and Control Records
Operation
Cleaning

Specifications

Capacity	100 Gallon
Tank Lid	Removable domed covers
Tank Bottom	Slope to outlet. Outlet sloped to exit
Tank Interior	304 Stainless Steel Better than Number 4 Food Grade, <.8µm
Tank Exterior	304 Stainless Steel Better than Number 4 Food Grade, <.8µm
Water Jacket	304 Stainless steel vertical side and bottom. Max pressure 70PSI, Max flow 50GPM
Insulation	Polyurethane expanding foam
Outlet	2” Leak detect valve ready
Agitation	Variable speed 0-100RPM Max speed for pasteurization is 25RPM
Inlets	2” and 3” Tri clamp ports on one lid
Legs	3A Adjustable stainless steel
Control Voltage	240V Single Phase
Air Space Heater Voltage	240V Single Phase

Overview

The vat pasteurizer is designed to heat and cool milk to eliminate harmful bacteria and extend shelf life while preserving flavor and nutritional quality.

The MPP100 pasteurizer is 3A certified and consists of a 100 gallon stainless steel vat, electronic control cabinet, air space heating element and controller, it is of the water jacket type and utilizes hot and cold water to heat and cool the vat jacket.

The pasteurizer conforms to 3A Sanitary Standard 24-03 for safe and effective pasteurization.

Temperature and time are critical factors required to achieve pasteurization. Failure to achieve pasteurization could result in a microbiological hazard in the dairy product. We recommend using a 3A certified recording device for record keeping. The following pasteurization schedule must be adhered to for milk to be pasteurized.

PMO Guidelines
For Milk less than 10% milk fat heat to 145 Degrees Fahrenheit and hold for 30 minutes with an airspace temperature greater than 5 degrees of the product.

For Cream or milk greater than 10% milk fat heat to 150 Degrees Fahrenheit and hold for 30 minutes with an airspace temperature greater than 5 degrees of the product.

For Dairy products greater than 18% milk fat heat to 150 Degrees Fahrenheit and hold for 30 minutes with an airspace temperature greater than 5 degrees of the product.

For Cream or Butter heat to 165 Degrees Fahrenheit and hold for 30 minutes with an airspace temperature greater than 5 degrees of the product.

For Frozen Dessert Mixes and Egg Nog heat to 155 Degrees Fahrenheit and hold for 30 minutes with an airspace temperature greater than 5 degrees of the product.

Outlet Valve
The MPP100 vat pasteurizer is designed for use with a leak detect valve.

Safety Precautions

When operating the pasteurizer please observe the following safety precautions.

Read the manual: Carefully read and understand all instructions before operating the pasteurizer. If you have any questions regarding the safety or use of this pasteurizer please call Customer service at 800-245-8222 Monday - Friday 8am - 4pm EST

Qualified Personnel: Only trained and qualified personnel should operate the pasteurizer.

Protective Gear: Wear appropriate protective gear, including gloves and goggles, when operating the equipment. This pasteurizer uses an air space heater which is very hot, great care should be used when handling the heater and lid.

Electricity Safety: This pasteurizer must be installed by a licensed electrician only.

Temperature Safety: Avoid direct contact with the air space heater. Avoid contact with all hot Surfaces. Use caution when installing and removing the lids.

Agitator: Never touch the agitator shaft or paddle during operation.

Emergency Stop: Know the location of the emergency stop button and how to use it.

Process Control & Records

Process control records

The process control record is the legal record of the pasteurization process and therefore it is very important that it adequately and accurately reflects the heating process. Process control records also assist in showing quality and identifying safety problems.

It is important to use a 3A certified chart recorder such as the Anderson AJ300 which will provide and accurate record of the pasteurization process.

- Record process control information in a hard copy which will provide a permanent record
- Replace the process control record (chart) daily
- Review the process control record(s) on a timely basis to ensure correct pasteurization
- Indicate on the record any follow-up for out of specification findings and the actions taken
- Ensure the process control records provide the following data:
  - Plant name and address or license number
  - Date, shift and batch number (where applicable)
  - Vat serial number
  - Operator`s signature or initials of operator

Verification of temperature and time

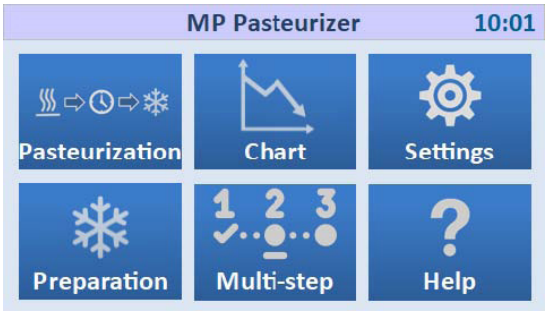
Process control records should substantiate that the minimum holding time is achieved by observing the batch pasteurization cycle.

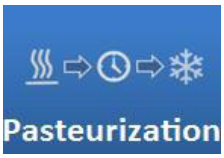
- Verify that the required minimum holding time and temperatures (product and air space) are met.
- Verify that the holding time does not start until the indicating thermometer reading has reached the pasteurization temperature, and the air space thermometer reads at least 3°C (5°F) higher than the minimum pasteurization temperature for the product
- Do not add milk or product to the vat after the start of the holding period

Operation

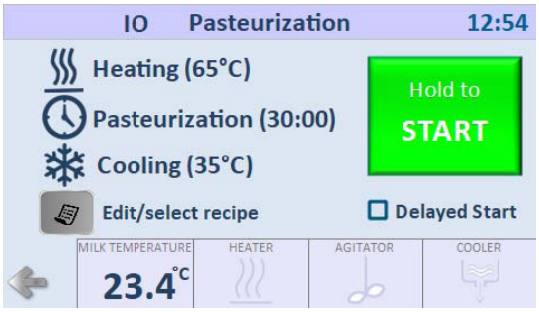
Installation of the electrical and plumbing components should only be done by a qualified and licensed electrician and plumber.

How to use the control panel. Turn on the power switch located on the left of the control panel, allow the panel to run through the self checks during power up (1 minute) once all self checks have been passed the main menu screen will appear.





By pressing this icon you will enter the pasteurization menu where you can program the times for heating, holding & cooling as well as observing, starting & stopping the pasteurization process.

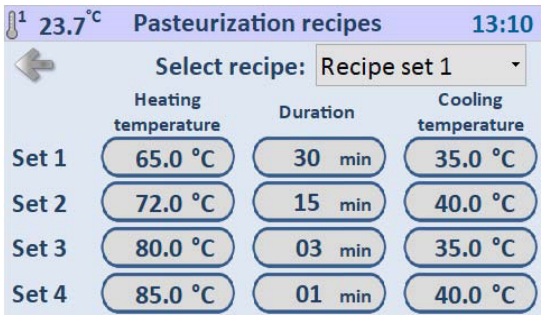


This screen shows the 3 steps of the pasteurization process.

At the bottom, you will see your current Milk Temperature displayed as well as the functions of the Pasteurizer. When the icon is greyed out (as shown) that function is inactive, but when the icon is filled in that function is currently active.

To start pasteurization move the Agitation knob to “Auto”, press and hold the green icon on the screen for 3 seconds, and then press the blue “Reset” button. Your agitator motor will start running and the pasteurization process will begin.

NOTE: Below the start icon there is a “Delayed Start” option.
When selected, you will choose a time for the Pasteurization to start and run through the normal start process as explained above.

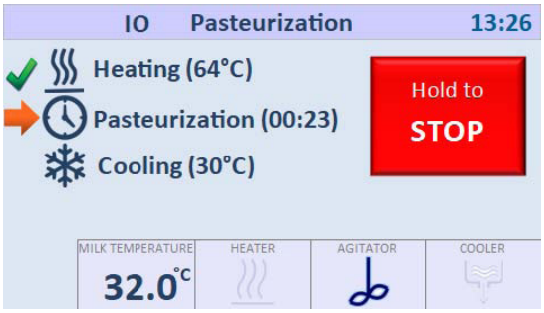


Within the Pasteurization screen, if you push the icon next to “Edit/select recipe” a screen will appear showing 4 customizable pasteurization recipes.

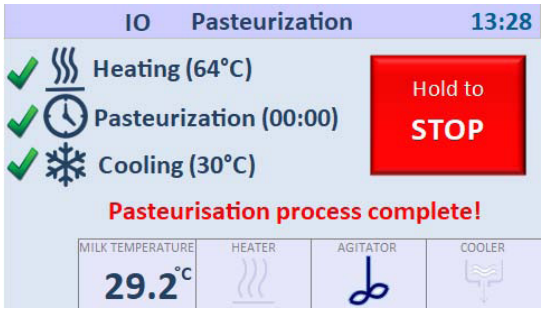
These recipes let you adjust what temperature the product will be heated to, how long it will be held at that temperature and then how cold you would like the final product to be.

Use the drop-down box at the top of the screen to switch between recipes as needed.

Operation



During pasteurization process the active phase is marked with a orange arrow icon and completed phases with a green check icon. The active process will be shown in dark blue.



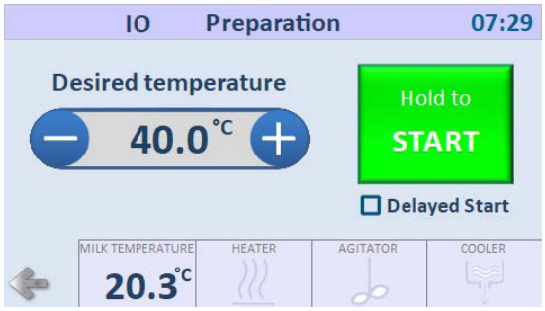
At the end of the pasteurization process the pasteurizer enters conservation mode and milk agitation continues to operate in cyclic mode (default 3 min ON – 15 min OFF).

While in conservation mode if the product goes above or below the set point, the pasteurizer will react by heating or cooling to maintain that set point. Agitation will be continuous during heating or cooling and will return to cyclic mode once the set point is reached.

To complete pasteurization and stop all functions, press and hold the red icon for 3 seconds.



The preparation function allows the user to heat or cool the product without running an entire pasteurization cycle.



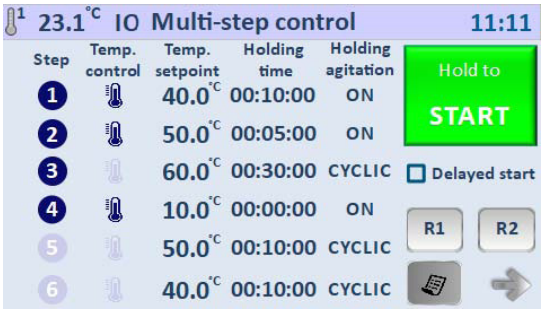
In the Preparation menu you can use the – and + buttons to adjust the desired temperature.

Once you are ready to start, press and hold the green icon for 3 seconds, the pasteurizer will heat or cool to achieve the desired temperature. Once at that set point it will enter cyclic mode (agitation 3mins ON – 15mins OFF) until the large red icon is pressed for 3 seconds, stopping the unit.

Operation



The Multi-step controller can be used to custom pasteurization or heating/cooling program that could include up to 6 steps/phases.



Using the Picture to the left as a reference:

Step 1 – Product will be heated to 40°C, held at that temperature for 10 mins with the agitation running full time.

Step 2 – Product will be heated to 50°C, held at that temperature for 5 mins with the agitation running full time.

Step 3 – Product will not be heated and will remain in this condition for 30 mins with the agitations running in cyclic mode (3 mins ON, 15mins OFF).

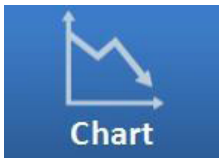
Step 4 – Product will be cooled to 10°C and then the pasteurizer will enter milk conservation mode until the red stop button is pressed.
Step 5 & 6 – Both of these steps are grayed out and are not being used in this example.



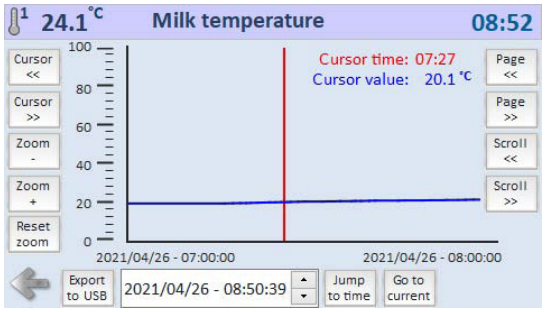
Located on the right of the screen you will see 2 icons labeled R1 and R2. These are saved recipes that you can modify for your own preference.

To modify these recipes push the recipe icon located below the R1 icon. This will take you into the recipe where you can fully customize the temperatures and times to suit your needs.

Operation



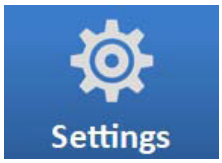
In “Chart” menu the user can inspect the digital temperature chart and export the recorded data to a USB flash drive as a .csv file. The system records temperature every 60 seconds and can store up to 80,000 temperature records.



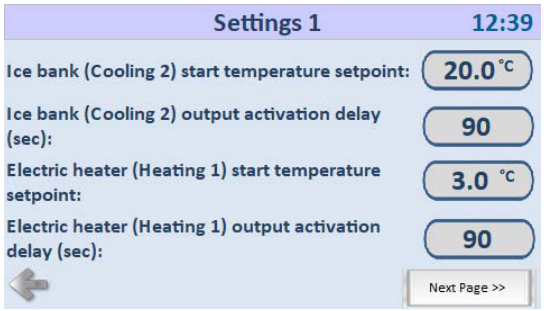
By using the navigation buttons the user can scroll through the last 1,000 recorded temperature values displayed on the temperature chart.

To export the recorded data to USB flash drive:
1. Insert the USB flash drive formatted to FAT32 into the external USB port, located on the left side of stainless-steel control panel.
2. Press “Export to USB” button to export the .csv file.
3. Wait for 30 seconds and remove the USB flash drive.

Operation

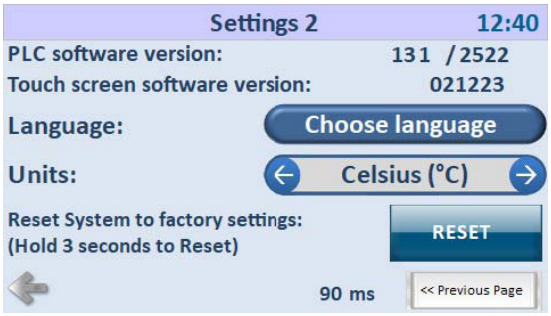


In the menu “Settings” the user can set options for the process of pasteurization as well as the language menu and the unit of temperature measurement.
From the main menu of the touch screen, press the button “Settings”.



The “Settings 1” menu appears and the user can set ice bank (cooling output 2) parameters as well as the language and the temperature unit.

Ice bank start temperature set point: The control panel has with two independent cooling outputs. Cooling output 1 turns on as soon as cooling starts and the milk temperature is higher than the temperature set point in the aforementioned parameter. In case the milk temperature is lower than the ice bank start set point cooling output 2 turns on after a delay. It’s possible to use the cooling output 1 to control a water valve and cooling output 2 to control an ice bank.
Ice bank output activation delay (sec): In case there a 3-way valves installed in the cooling circuit with motorized actuators a time delay is needed so the water valve is closed before the ice bank valves change position and no water can leak out of the ice bank.
Electric heater (Heating 1) start temperature set point: The control panel has just one heating output (Heating 1) wired to terminal blocks. Since the controller has programmable outputs the second heating output (Heating 2) can be wired to one of the not used relay outputs. The first heating output (Heating 1) is active when the milk temperature is higher than the temperature set point in the aforementioned parameter. The second heating while the temperature is lower than the set point.
Electric heater (Heating 1) activation delay (sec): In case there a 3-way valves installed in the heating circuit with motorized actuators a time delay is needed so the “Heating 2” heating source circuit is isolated before the “Heating 1” signal becomes active and no water can leak out of the first circuit into the electric heater circuit.

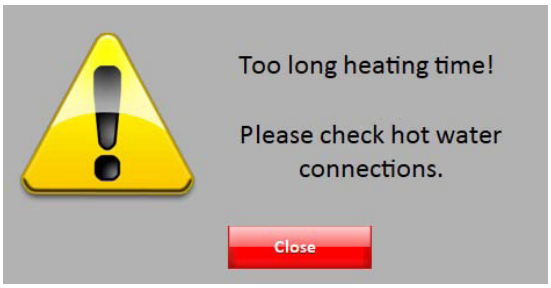


In “Settings 2” menu the PLC and touch screen software version as well as a factory reset button.

It also possible to change the menu language and select the temperature units between Celsius and Fahrenheit.

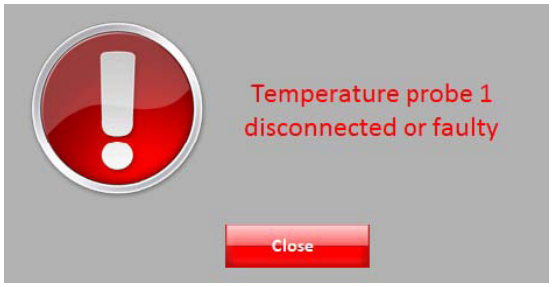
Press and hold the “Reset” button for 3 seconds to load factory settings for all the parameters of the system.

Operation



This alarm is activated if the temperature does not increase or if the increase in temperature is too slow.

There could be many causes for the aforementioned alarm including. Hot water failure, circuit breaker trip, improper connection of the water hoses as well as leaks in the water circuit. For more information check the Service Manual.



This alarm is activated in case of a faulty or disconnected temperature probe, or if the temperature of the milk is outside of the operating range. Check the wiring and replace the temperature probe if needed.

Cleaning

Gaskets and ports. All gaskets provided are of food grade, these should be cleaned and inspected for damaged, cracked or worn areas. Any unsuitable gaskets should be replaced immediately and all gaskets should be replaced annually regardless of condition or usage.

Leak Detect valves. The MPP100 Vat pasteurizer is Leak detect valve ready. Leak detect valves are designed that any liquid escaping from the vat is directed downward and exits the valve avoiding any chance of contamination. The leak detect valve is a specialized valve and should be looked after with great care and inspected for damage before every use.

To install the valve:

1. Clean the gasket and gasket matting area,
2. Apply Petro Gel to both sides of the gasket.
3. Push the body of the valve onto the gasket and tighten the securing nuts.
4. Apply an even coat of Petro Jell directly to the plug of the valve and install into the body.
5. Secure the plug with the provided plate and hand nut, take caution to only tighten the nut **HAND TIGHT** there is no need to use tools to tighten the plug hand nut as it can cause damage to the plug or valve body.

Cleaning with Steam. This method can be used successfully only in confined areas. All parts of equipment must be exposed to a temperature of at least 170°F for at least 5 minutes.

Cleaning with Chemicals. An approved chemical sanitizing solution, such as acid base cleaner is circulated through assembled equipment. Equipment may also be immersed in a solution to expose all the surfaces. After the equipment is rinsed with potable water, an acid-base sanitizer is applied, then drained and air dried according to the manufacturers instructions.