Food Industry | Equipment SOP

The following Operation Manual is for the operation of a custom 300L kettle equipment designed for a food manufacturing plant. This document is based off a project from a previous client. All proprietary information and system screenshots have been redacted or replaced with generic terms and placeholder icons.

Company Logo Here	**MFG-SOP-001**	Operation of the 300L Kettle		
	Effective	[DD/MM/YYYY]	**Revision**	1.0

Section A. Introduction

Part 1. Equipment Specifications

Refer to the images and table below for equipment specifications.

NOTE: The original images have been redacted due to client confidentiality.

Operation Pressure	Ordinary pressure in the tank
Operation Temperature	Temperature in the tank should be controlled between ##–###°C
Total Volume	300L
Scraped Mixer Speed	# to ## RPM
Scraped Mixer Motor Power	#. ## KW
Electric Heating Power	## KW
Voltage Supply	### V
Electric Control	Automatic temperature control

Part 2. Control Panel Diagrams

Refer to the images and corresponding table below for the parts of the equipment.

NOTE: The original images have been redacted due to client confidentiality.

1	**Heating 1**	ON / OFF switch for Heating Rod 1
2	**Heating 2**	ON / OFF switch for Heating Rod 2
3	**Frequency**	ON / OFF switch to start mixer
4	**Power Indication**	Red light will turn on when the equipment is energized
5	**Emergency Stop**	In the event of any emergency or issue, press this button to stop the equipment immediately.
6	**Left Display**	Use the up and down arrows for setting the temperature, such as setting the temperature to 80°C **NOTE:** temperature rises to 80°C, the heating rods will be automatically turn off.
7	**Mixer Speed Control**	• Use the dial to control the desired speed of the mixer. • Turn the dial clockwise to increase the mixer speed, and counterclockwise to decrease the mixer speed.
8	**Right Display**	Shows the temperature inside of the tank (product temperature). **NOTE:** There are no settings on this display, it only displays the temperature.
9	**Temperature Probe (A)**	• There are two (2) temperature probes installed in the equipment. • One is connected to the left display, within the tank jacket layer – contact heating medium (thermal oil)
10	**Temperature Probe (B)**	The other temperature probe is connected to the right display, and is installed in the inner layer (contact product)
11	**Vent Valve**	Used to allow for thermal expansion and to prevent pressure build-up in the jacket.

Section B. Safety

- This manual should be read, and all instructions followed carefully before using the equipment.
- Keep the appliance area free and clear from combustibles.
- Do not obstruct the flow of ventilation air.
- Adequate clearances must be maintained for servicing and proper operation.
- Use the Emergency Stop button on the Control Panel in the event of any emergency or issue with the equipment.
- Notify the Supervisor of any safety concerns.

⚠ **WARNING:** Improper operation, adjustment, alteration, service, or maintenance can cause property damage, injury or death. Read the operating and maintenance instructions thoroughly before operating or serving this equipment.

Section C. Operation Instructions

Part 1. Preparation

NOTE: Do NOT run the equipment without thermal oil inside the jacket layer of the kettle.

1. Ensure the wire connections from the control panel to the equipment and power supply are stable.
2. Pour 70 L of thermal oil inside the tank jacket layer.

⚠ **DO NOT MIX OIL AND WATER FOR THE HEATING MEDIUM; THIS WILL CAUSE AN EXPLOSION. IF THERMAL OIL IS NOT AVAILABLE, NOTIFY THE SUPERVISOR.**

Part 2. Operation

The purpose of this section is to establish the opening dialogue for an incoming customer call. Follow the steps below to best serve the customer and verify their information before proceeding with their request.

1. Switch electric Heating 1 and Heating 2 knobs in the ON position to begin heating the kettle.
   a. The Power Indication light will turn RED, indicating that the electric heating of the kettle has begun.

⚠ **DO NOT TOUCH THE JACKET WHEN THE KETTLE IS HEATING.**

2. Switch the Frequency knob in the ON position. The mixer will begin to turn in a clockwise rotation.

NOTE: Reversing the direction of the mix is strictly prohibited.

3. Navigate to the temperature displays on the Control Panel.

4. Set the working temperature of the kettle on the Left Display.

NOTE: Do NOT exceed 100°C.

When the temperature drops below the set temperature, the heating rods will automatically turn on to reach the set temperature. When the temperature exceeds the set temperature, the electric heating rods will automatically turn off to match the set temperature.

The Right Display will show the temperature inside the tank. This screen is not used to set the temperature (use the Left Display).

5. Crack open the vent valve on the jacket once the heat is turned on to allow for thermal expansion and to prevent pressure build-up in the jacket.

6. Once the temperature of the kettle has been pre-heated, add the food to be cooked into the kettle.

7. Adjust the temperature on the Left Display to the required temperature for the process in place.

NOTE: Do NOT exceed 100°C.

8. Switch the Frequency knob in the ON position. The mixer will begin to turn in a clockwise rotation.

9. Adjust the speed control of the mixer to the desired frequency/speed for the process in place.

10. When the food is done cooking, switch the following knobs in the OFF position to stop the heating and mixing:

- Heating 1
- Heating 2
- Frequency

11. Carefully pour out the finished product from the kettle by using the handwheel (refer to Part 1. Equipment Specifications for the position of the handwheel).

NOTE: Avoid splashing, wear appropriate safety glasses or face shield if there is going to splashing involved.

Section D. Cleaning Instructions

Follow the steps below for the disassembly and cleaning of the industrial kettle. The kettle must be cleaned immediately after each use to prevent food residue from drying and adhering to the kettle bowl and other surfaces. Food adhering excessively to bowl surface may be loosened by allowing water to soak in a bowl at a low temperature setting.

⚠ **NEVER SPRAY WATER INTO ELECTRIC CONTROLS. DO NOT USE CLEANING AGENTS THAT ARE CORROSIVE.**

1. Turn the kettle power supply OFF.
2. Remove the lid covering the top of the kettle and place them in the sink.
3. Combine a mild detergent with water and soak the lids (follow the 3-sink method).
4. Allow the soap and water solution to drain.
5. Remove the mixer paddle by manually raising the connecting nipple in the middle of the kettle.
6. Disengage each mixer paddle, remove, and place them in the sink.

7. Combine a mild detergent with water and soak the mixing paddles.
8. Allow the soap and water solution to drain, then rinse all other kettle parts.
9. Let the parts air dry by laying them out on a surface.
10. Add water inside the kettle and let it soak for 10 minutes.
11. Ensure all the food particles are removed by tilting and draining the kettle.
12. Scrub the kettle using a nylon brush and a solution of mild detergent and warm water.
13. Rinse the inside of the kettle thoroughly.
14. Once all the parts are washed and dried, reassemble the paddles, lids and close all the drains.
15. Wipe down the exterior of the kettle with a clean, damp cloth.

NOTE: Never use steel wool or scouring powder while cleaning the kettle. They will scratch the stainless steel.

Section E. Troubleshooting

No general maintenance is required other than adhering to Section D. Cleaning Instructions.

Section F. Reference Documents

Redacted: XX Equipment User Manual

Section G. Revision History

Revision and Date	Author	Description of Changes	Justification of Changes
1.0 [MM/DD/YYYY]	Kendra Johng	New manufacturing equipment document	New document written for the operation and cleaning of the “300L Kettle – Part No. ####”.