

ST-10 SERIES

10 PAN CONVECTION STEAMERS

INSTALLATION - OPERATION - MAINTENANCE



MODELS

- ST-10M24E
- ST-10M36E
- ST-10M24G
- ST-10M36G
- ST-10M24D
- ST-10M36D



MARKET FORGE



Telephone: (802) 658-6600 Fax: (802) 864-0183
www.marketforge.com

PN 14-0272 Rev F (11/17)

Your Service Agency's Address:

Model

Serial number

Steamer installed by

Installation checked by

IMPORTANT

WARNING: Improper installation, adjustment, alternation, service or maintenance can cause property damage, injury or death. Read the installation, operation and maintenance instructions thoroughly before installing or servicing this equipment.

INSTRUCTIONS TO BE FOLLOWED IN THE EVENT THE USER SMELLS GAS MUST BE POSTED IN A PROMINENT LOCATION. This information may be obtained by contacting your local gas supplier.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

The information contained in this manual is important for the proper installation, use, and maintenance of this steamer. Adherence to these procedures and instructions will result in satisfactory baking results and long, trouble free service. Please read this manual carefully and retain it for future reference.

ERRORS: Descriptive, typographic or pictorial errors are subject to correction. Specifications are subject to change without notice.

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Introduction

DESCRIPTION

The ST-10 is a pressureless steam cooker consisting of two independently controlled compartments enclosed in a single cabinet. Each compartment is equipped with a separate three-piece door with inner gasket plate isolated from the exterior surface. Door latches operate by slam action for positive sealing of inner door. Steam and steam-condensing circuits are electrically controlled. Operating controls are displayed on a single front-mounted panel and include separate timers with indicator lights for selection of constant steam or 60-minute-long duration cooking.

A separate steam source required for operation of the Pressureless Cooker is normally purchased with it, please refer to the respective manual for guidance.

BASIC FUNCTIONING

The Model ST-10 may be operated with only one compartment in use; or both may be used simultaneously. Each compartment is equipped with identical controls, allowing selection of constant steam or 60-minute timer operation. The cooker becomes operational when it is set to constant steam, or the timer is set at the desired cooking time and the compartment door is closed. The indicator light comes on and the steam solenoid valve opens, allowing steam to flow into the compartment.

When steam flowing inside the compartment has raised the interior temperature to 195°F, the contacts of a thermostatic switch automatically close, completing the circuit to the timer motor and starting the cooking time period. At the end of the set interval, timer contacts switch to shut off the cooking operation and sound a signal buzzer. The buzzer is silenced by returning the timer dial to the OFF position. In the constant steam mode, operation will be continuous.

Steam emitted from the compartment along with liquid cooking drainage is directed through a drain screen inside the compartment into the cooker drain line. A cold water solenoid valve connected into the cooker drain line is automatically actuated by a thermostatic switch in the boiler drain to condense the steam to water prior to discharge into the boiler drain.

SERVICE

Required service, both preventive and corrective, is explained in Section 6. Should repairs be required, a network of authorized agencies is available to assist with prompt service. A current Directory of Authorized Service Agencies may be obtained by contacting:

Market Forge

802-658-6600, www.marketforge.com

The model and serial numbers must be referenced when corresponding with Market Forge. The data plate containing the serial number pertaining to the equipment is located on the lower front trim of the cabinet.

ELECTRICAL REQUIREMENTS

	24kW 3pH	36kW 3pH	42kW 3pH	48kW 3pH
208 (197-219)	66	100	117	--
240 (220-240)	58	87	--	116
480 (360-500)	29	44	--	58

Details of other electrical systems available upon request.

SERVICE CONNECTIONS

EP	Electrical Connection - Use wire suitable for at least 90°C. Nominal amp per line wire.
CW1	Cold Water - 3/8" (10mm) NPT for cold water to boiler. Cold water lines will have a maximum of 50 PSI (3.5kg/cw2) and a minimum of 25 PSI (1.8 kg/cw2) water pressure
CW2	Cold Water - 3/8" (10mm) NPT for cold water to condenser. Cold water lines will have a maximum of 50 PSI (3.5kg/cw2) and a minimum of 25 PSI (1.8 kg/cw2) water pressure.
D	Drain - Pipe full 2" (50mm) NPT to flush floor drain capable of receiving water flowing at a maximum rate of 5 gallons (19 liters) per minute. DO NOT MAKE SOLID CONNECTION TO FLOOR DRAIN.
ST	Steam Take-off - Connection for operation of adjacent steam powered equipment.

OPERATION WILL BE BY:

Electrically powered, A.S.M.E. constructed and National Board Registered, 15 PSI (1 kg/cm²) steam boiler rated at 24kW, additional ratings available as an option

NOTE: The only available space to supply utilities to the boiler is the 6" (152mm) space between the floor and the cabinet base. PVC & CPVC Pipe are not acceptable materials for drains.

CAUTION: REMOTE KETTLE OPERATION If this boiler is feeding a remote kettle that will be more than 5 feet (1.5 meters) away, consult factory before ordering.

The drain piping must consist of temperature resistant material, greater than 160°F, and be of adequate diameter not to cause flow restriction. Improper materials may deform and cause restrictions, thus affecting performance.

WATER SUPPLY

Good quality water feed is the responsibility of the owner. Water quality must be within the following general guidelines.

TDS: 40-125 ppm Hardness: 35-100 ppm Chlorine: <0.2 ppm
 Silica: <13 ppm Chlorides: <25 ppm
 Chloramine: <0.2 ppm pH: 7.0 - 8.5

The best defense against poor water quality is a water treatment system designed to meet your water quality conditions.

ST-10M24E

DIMENSIONS ARE IN INCHES [MM]

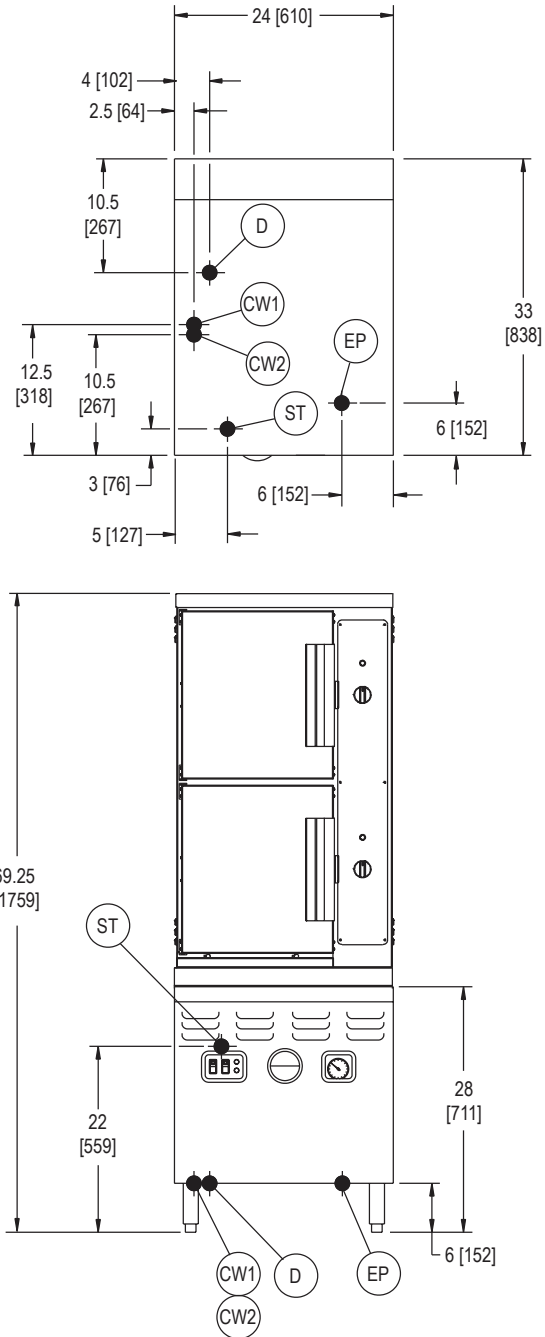


Figure 1

Service Connections

ST-10M36E

ELECTRICAL REQUIREMENTS

	24kW 3pH	36kW 3pH	42kW 3pH	48kW 3pH
208 (197-219)	66	100	117	--
240 (220-240)	58	87	--	116
480 (360-500)	29	44	--	58

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CW2	Cold Water - 3/8" (10mm) NPT for cold water to condenser. Cold water lines will have a maximum of 50 PSI (3.5kg/cw2) and a minimum of 25 PSI (1.8 kg/cw2) water pressure.
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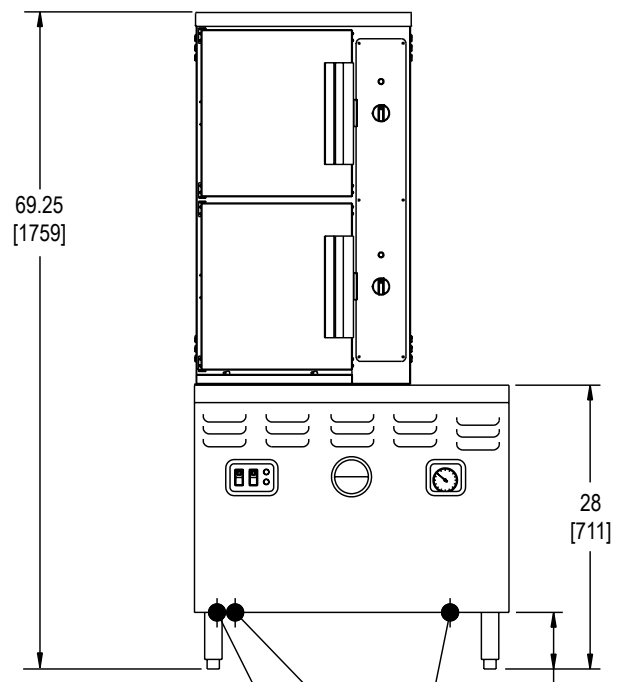
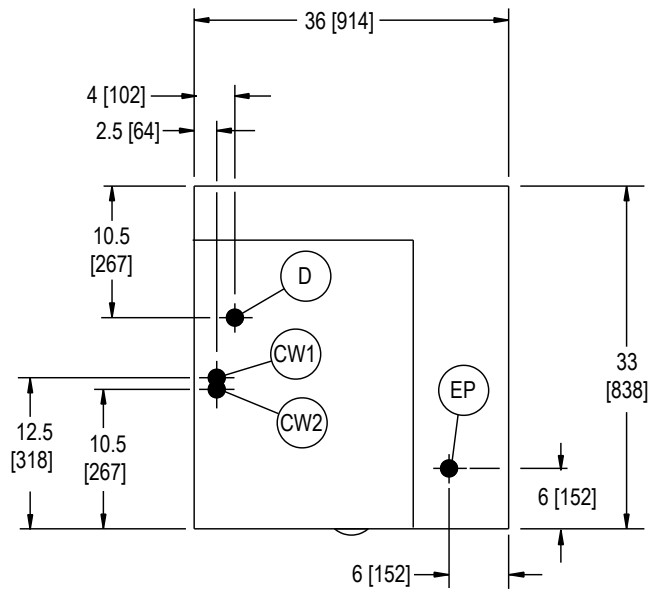


Figure 2

ST-10M24G

SERVICE CONNECTIONS

G	Gas Connection - 3/4" (19mm) NPT, 200,000 BTU
CW1	Cold Water - 3/8" (10mm) NPT for cold water to boiler. Cold water lines will have a maximum of 50 PSI (3.5kg/cw2) and a minimum of 25 PSI (1.8 kg/cw2) water pressure.
CW2	Cold Water - 3/8" (10mm) NPT for cold water to condenser. Cold water lines will have a maximum of 50 PSI (3.5kg/cw2) and a minimum of 25 PSI (1.8 kg/cw2) water pressure.
D	Drain - Pipe full 2" (50mm) NPT to flush floor drain capable of receiving water flowing at a maximum rate of 5 gallons (19 liters) per minute. DO NOT MAKE SOLID CONNECTION TO FLOOR DRAIN.
EC	Electrical Connection - 120 Volts AC, 60 Hz, single phase, and a 9 foot Power Cord/NEMA 5-15.
ST	Steam Take-off - Connection for operations of adjacent steam powered equipment. Requires steam take-off kit (optional at extra cost).

OPERATION WILL BE BY

Gas fired, A.S.M.E. constructed and National Board Registered, 15PSI (1 kg/cm²) steam boiler rated at 200,000 BTU

Notes: If equipment is installed where elevation exceeds 2,000 feet (609.6 meters) above sea level, specify installation altitude so that proper gas orifices can be provided.

The only available space to supply utilities to the gas boiler is the 6" (152mm) space between the floor and the cabinet.

Allow 3" (76mm) space from side wall and 6" (152mm) from rear wall if adjoining walls are combustible.

PVC & CPVC PIPE ARE NOT ACCEPTABLE MATERIALS FOR DRAINS.

The drain piping must consist of temperature resistant material, greater than 160°F, and be of adequate diameter not to cause flow restriction. Improper materials may deform and cause restrictions, thus affecting performance.

CAUTION: REMOTE KETTLE OPERATION If this boiler is feeding a remote kettle that will be more than 5 feet (1.5 meters) away, consult factory before ordering.

WATER SUPPLY

Good quality water feed is the responsibility of the owner. Water quality must be within the following general guidelines.

TDS: 40-125 ppm Hardness: 35-100 ppm Chlorine: <0.2 ppm
 Silica: <13 ppm Chlorides: <25 ppm
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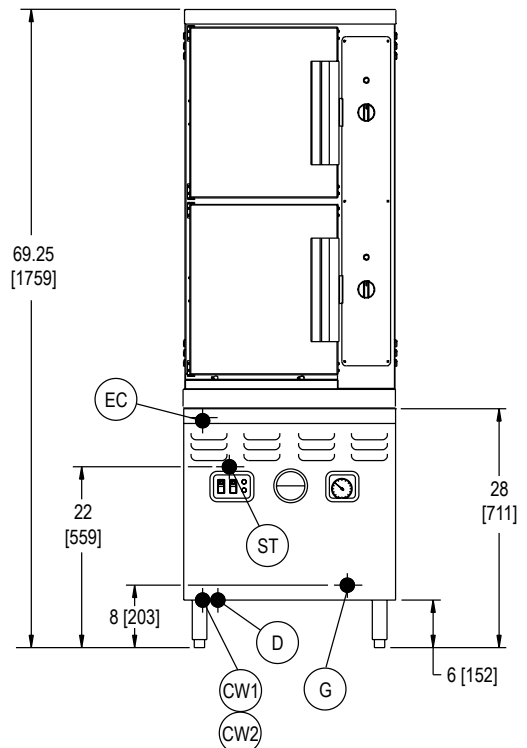
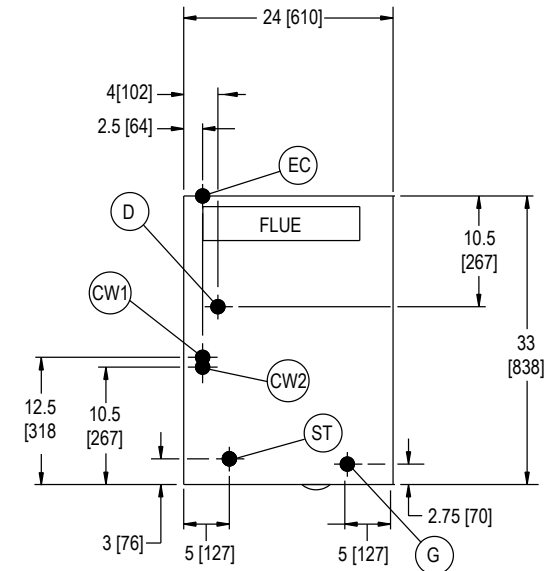


Figure 3

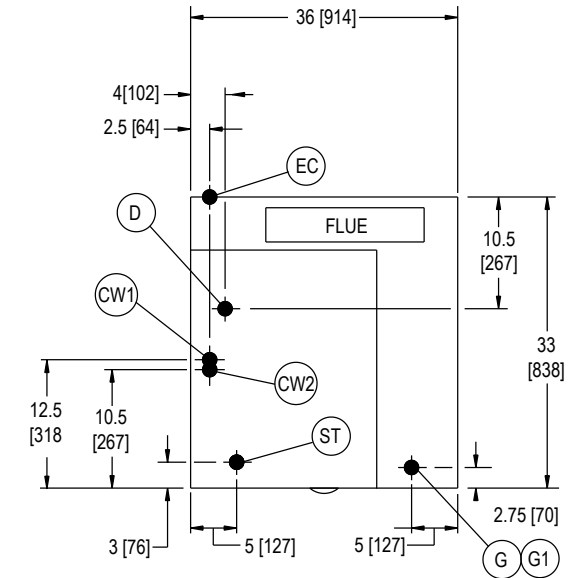
Service Connections

ST-10M36G

SERVICE CONNECTIONS

G	Gas Connection - 3/4" (19mm) N.P.T. female for 200,000 BTU boiler.
G1	Gas Connection - 1" (25mm) N.P.T. female for 300,000 BTU boiler.
CW1	Cold Water - 3/8" (10mm) NPT for cold water to boiler. Cold water lines will have a maximum of 50 PSI (3.5kg/cw2) and a minimum of 25 PSI (1.8 kg/cw2) water pressure.
CW2	Cold Water - 3/8" (10mm) NPT for cold water to condenser. Cold water lines will have a maximum of 50 PSI (3.5kg/cw2) and a minimum of 25 PSI (1.8 kg/cw2) water pressure.
D	Drain - Pipe full 2" (50mm) NPT to flush floor drain capable of receiving water flowing at a maximum rate of 5 gallons (19 liters) per minute. DO NOT MAKE SOLID CONNECTION TO FLOOR DRAIN.
EC	Electrical Connection - 120 Volts AC, 60 Hz, single phase, and a 9 foot Power Cord/NEMA 5-15.
ST	Steam Take-off - Connection for operations of adjacent steam powered equipment. Requires steam take-off kit (optional at extra cost).

DIMENSIONS ARE IN INCHES [MM]



OPERATION WILL BE BY

Gas fired, A.S.M.E. constructed and National Board Registered, 15 PSI (1 kg/cm²) steam boiler rated at 200,000 BTU

Notes: If equipment is installed where elevation exceeds 2,000 feet (609.6 meters) above sea level, specify installation altitude so that proper gas orifices can be provided.

The only available space to supply utilities to the gas boiler is the 6" (152mm) space between the floor and the cabinet.

Allow 3" (76mm) space from side wall and 6" (152mm) from rear wall if adjoining walls are combustible.

PVC & CPVC PIPE ARE NOT ACCEPTABLE MATERIALS FOR DRAINS.

The drain piping must consist of temperature resistant material, greater than 160°F, and be of adequate diameter not to cause flow restriction. Improper materials may deform and cause restrictions, thus affecting performance.

CAUTION: REMOTE KETTLE OPERATION If this boiler is feeding a remote kettle that will be more than 5 feet (1.5 meters) away, consult factory before ordering.

WATER SUPPLY

Good quality water feed is the responsibility of the owner. Water quality must be within the following general guidelines.

TDS: 40-125 ppm Hardness: 35-100 ppm Chlorine: <0.2 ppm
 Silica: <13 ppm Chlorides: <25 ppm
 Chloramine: <0.2 ppm pH: 7.0 - 8.5

The best defense against poor water quality is a water treatment system designed to meet your water quality conditions.

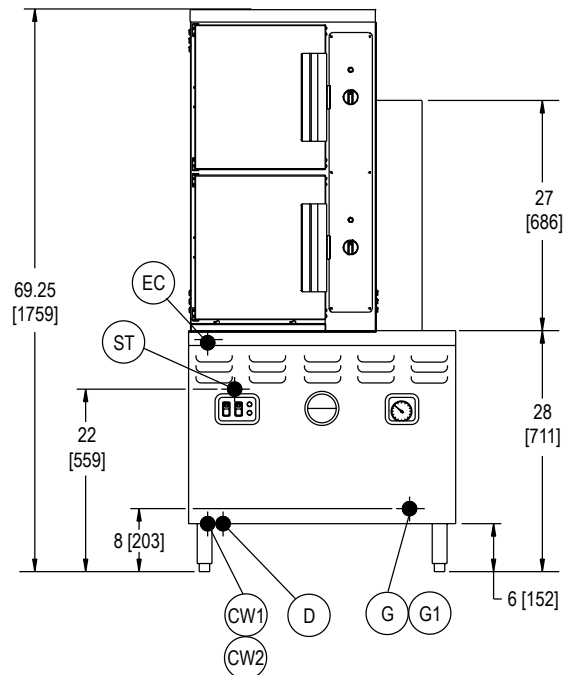


Figure 4

ST-10M24D

SERVICE CONNECTIONS

EC	Electrical Connection - 120 Volts AC, 60 Hz, single phase, and a 9 foot Power Cord/NEMA 5-15.
CR	Condensate Return - 1/2" (13mm) N.P.T. female from ball float trap may be connected to condensate return line (optional at extra cost).
CW	Cold Water - 3/8" (10mm) NPT for cold water to condenser. Cold water line will have a maximum of 50 PSI (3.5kg/cw2) and a minimum of 25 PSI (1.8 kg/cw2) water pressure.
D	Drain - Pipe full 2" (50mm) NPT to flush floor drain capable of receiving water flowing at a maximum rate of 5 gallons (19 liters) per minute. DO NOT MAKE SOLID CONNECTION TO FLOOR DRAIN.
S	Steam Supply - Minimum BHP required: 3.0 BHP at a minimum pressure of 15 PSI (1.0 kg/cm2). 3/4" (19mm) NPT pressure reducing valve will reduce incoming pressure of 20 to 50 PSI (1.3 to 3.5 kg/cm2) to required 15 PSI (1.0 kg/cm2).

NOTES: The only available space to supply utilities is the 6" (152mm) height between the floor and the cabinet.

PVC & CPVC are not acceptable materials for drain lines.

The drain piping must consist of temperature resistant material, greater than 160°F, and be of adequate diameter not to cause flow restriction. Improper materials may deform and cause restrictions, thus affecting performance.

WATER SUPPLY

Good quality water feed is the responsibility of the owner. Water quality must be within the following general guidelines.

- TDS: 40-125 ppm
- Chlorides: <25 ppm
- Silica: <13 ppm
- pH: 7.0 - 8.5
- Chloramine: <0.2 ppm
- Chlorine: <0.2 ppm
- Hardness: 35-100 ppm

The best defense against poor water quality is a water treatment system designed to meet your water quality conditions.

Appliance to be installed with backflow protection according to federal, state or local codes.

DIMENSIONS ARE IN INCHES [MM]

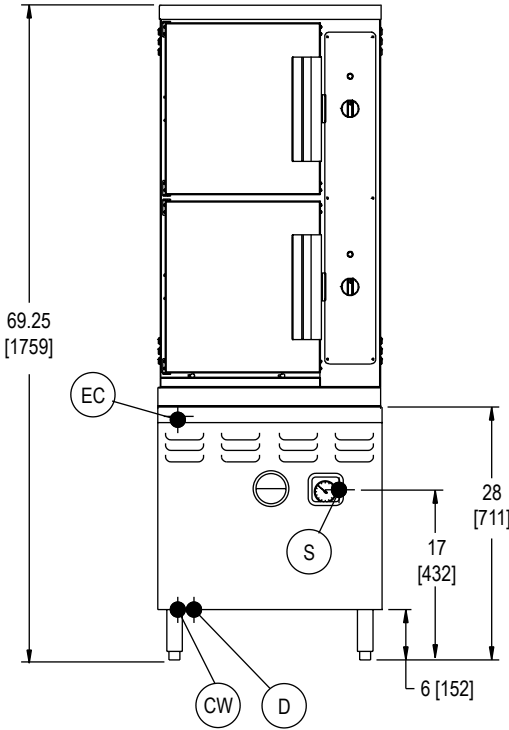
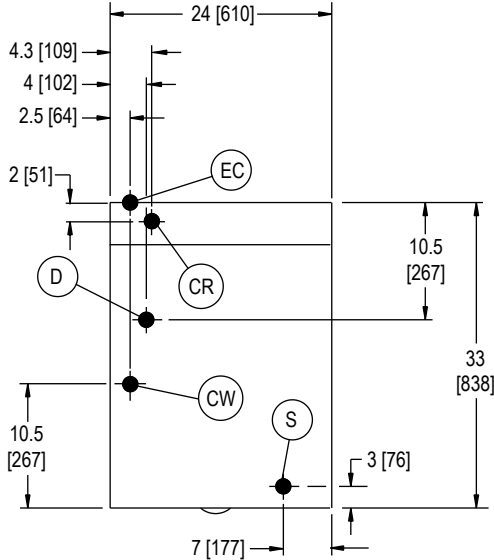


Figure 5

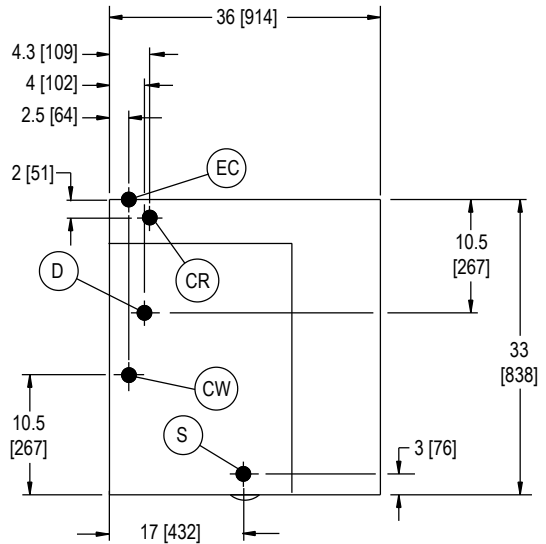
Service Connections

ST-10M36D

SERVICE CONNECTIONS

EC	Electrical Connection - 120 Volts AC, 60 Hz, single phase, and a 9 foot Power Cord/NEMA 5-15.
CW	Cold Water - 3/8" (10mm) NPT for cold water to condenser. Cold water lines will have a maximum of 50 PSI (3.5kg/cw2) and a minimum of 25 PSI (1.8 kg/cw2) water pressure.
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DIMENSIONS ARE IN INCHES [MM]



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Appliance to be installed with backflow protection according to federal, state or local codes.

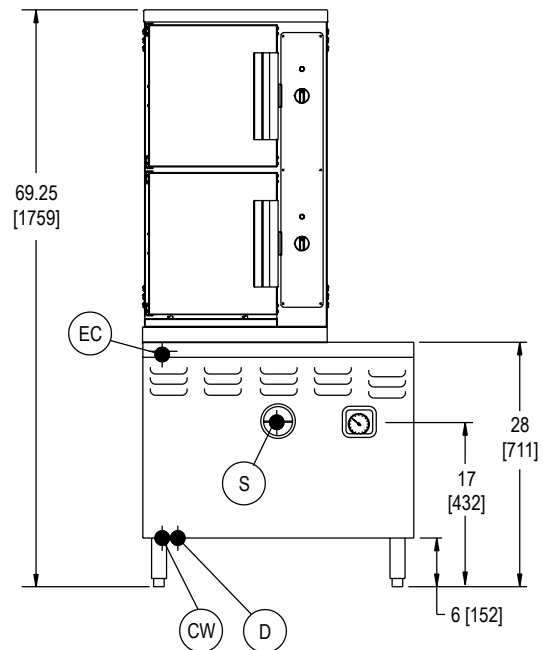


Figure 6

ASSEMBLY

The Pressureless Cooker is factory-mounted on a cabinet base containing either a steam boiler or direct steam connection controls for the cooker. The assembled unit is shipped bolted to a skid, with cabinet feet in a separate container. Steps required for assembly are as follows:

1. Remove the four bolts that fasten the equipment frame to the skid.
2. Install feet in threaded mounting locations of the cabinet frame.
3. Mount the two baffles on studs located on the right-side of the cooking compartments.
4. Mount the four pan support racks in brackets inside control compartments.
5. Attach panels to lower cabinet. Detailed instructions are enclosed with the panels.

SETTING IN PLACE

Installation must be under an exhaust hood, which will remove small amounts of water vapor emitted when the cooker doors are opened, and exhaust fumes from the air. Level the unit in final location by turning the adjustable feet. Using the cabinet top as a reference, obtain level adjustment left-to-right and front-to-back.

MECHANICAL CONNECTIONS

Since the Pressureless Cooker is interconnected at the factory to the steam boiler or direct steam plumbing, no field connections to the cooker are required. All electrical and plumbing connections are routed to the steam boiler cabinet through the 6-inch-high space between the floor and the bottom edge of the cabinet frame.

WATER CONNECTIONS

Before connecting water to this unit, have water supply analyzed to make sure that hardness is no greater than 2.0 grains per gallon and pH level is within the range of 7.0–8.5. Water that fails to meet these standards should be treated by the installation of a water conditioner.



WARNING

EQUIPMENT FAILURE CAUSED BY INADEQUATE WATER QUALITY IS NOT COVERED UNDER WARRANTY.



CAUTION

PVC or CPVC are not acceptable materials for drains.

The drain piping must consist of temperature resistant material, greater than 160°F, and be of adequate diameter not to cause flow restriction. Improper materials may deform and cause restrictions, thus affecting performance.

INSTALLATION CHECKOUT

If the cooker fails to perform as described, consult the Trouble-Shooting Guide for corrective action. If difficulty arises with the boiler, reference the separate service and parts manual for that equipment.

Before making this check-out, the operator must be thoroughly familiar with the operating procedures in this manual and with the function of each control described.

INITIAL CONTROL SETTINGS

Before beginning the start-up procedures for the cooker, the instruction plate and service manual for the steam boiler must be consulted and all start-up procedures completed to supply 15 PSI steam to the steam inlet line for the cooker.

1. All steam boiler controls are in the operating mode and 15 PSI steam is applied to the cooker inlet plumbing.
2. Cooker timers for both compartments are in the OFF position.
3. Cooker compartments are empty of all information materials, pan supports are mounted in place, and doors are open.

Installation

COOKER CHECKOUT

The cooker check-out procedures are as follows:

1. With the doors open set timers to about the "4-minute" position. Observe that indicator lights are off and steam does not enter compartments.
2. Close cooker compartment doors. Observe that indicator lights turn on, and steam can be heard rushing into the compartment simultaneously with the door closing.
3. Observe the boiler drain line for passage of steam into the open floor drain. Correct steam condenser operation is evidenced by presence of water flowing from the drain line.
4. Observe cooker operation for several minutes. Operation is correct if timer dials begin to rotate after a short delay period required for preheating. After the delay period plus the "4-minute" initial setting, the timer dials will return to the "0-Minute" position, at which a buzzer sounds. The buzzer is silenced by turning the dial to the OFF position.

SHUT DOWN PROCEDURE

No shut-down procedure is required for the Pressureless Cooker except to check that all timer dials (2) are in the OFF position and the compartment doors are open. Consult the steam boiler instruction plate and complete the shut-down procedures for the boiler.

REVERSING THE DOORS

The Pressureless Steam Cooker has a reversible cooking compartment door. This section contains instructions for reversing this door.

1. Turn off power to the unit.
2. Open the cooking compartment door
3. Remove the two screws that attach the top hinge to the front of the unit.
4. Slide the door upwards, off the bottom hinge.
5. Remove the two screws that attach the bottom hinge to the front of the units.
6. Remove the right and left side panels by unscrewing the 1 screw on each panel and sliding the panel down.
7. Remove the door interlock assembly by unscrewing the two nuts that hold it in place (assembly is attached to the screws in the top right hinge mounting holes).

8. Remove the four screws in the right side hinge mounting holes and install them in the left side hinge mounting holes (where the hinges were originally mounted).
9. Using the nuts removed in step #6, reinstall the door interlock assembly onto the 2 screws in the lower left hinge mounting holes with by moving the assembly over the cooking cavity to the other side of the unit. Rotate the door interlock assembly 180° for installation, so that the switch is now facing up.
10. Reinstall the top hinge and screws into the right lower hinge mounting holes. Rotate the hinge 180° for installation, so that the pin which the door rides on is now facing up. The hinge must be rotated because it will now function as the bottom hinge. **DO NOT COMPLETELY TIGHTEN THE HINGE MOUNTING SCREWS YET.** These will be used later for adjusting the door.
11. Remove the door latch assembly from the face of the unit. The 2 nuts mounting the door latch are located behind the face of the unit and must be accessed where the right side panel was removed.
12. Remove the two white hole plugs from the left door latch mounting holes, and insert them into the right door latch mounting holes (where the door latch assembly was originally mounted).
13. Rotate the door latch assembly 180°, and install into the left door latch mounting holes. **NOTE:** Each stud on the latch assembly should have a plastic washer, a spring, a plastic washer and a Nyloc type nut.
14. To adjust the tension of the door latch, tighten both nuts down until the springs are fully compressed, then back each nut off -1/2 turn.
15. Rotate the door 180° for mounting.
16. Slide the remaining hinge into the top door bearing.
17. Slide the door and hinge assembly down onto the hinge which you have already mounted to the front of the unit. Use the two screws to mount the top hinge into the right upper hinge mounting holes. **DO NOT COMPLETELY TIGHTEN THE HINGE MOUNTING SCREWS YET.**
18. Slowly push the cooking compartment door closed until it is latched.
19. The cooking compartment door can now be raised, lowered, and/or rotated into position by bumping it with the palm of your hand or by using a small rubber mallet.

Installation

20. First, check the alignment at the front of the door by making sure that the striker in the door is centered with the latch mechanism on the front of the unit.
21. Square the door to the unit by raising or lowering the hinge side of the door, keeping the latch centered with the striker.
22. Visually inspect the door. Be sure that the door is square to the unit, the striker is centered with the latch, and the gasket is in contact with the entire lip of the cooking compartment.
23. Gently open the cooking compartment door, taking care not to move it out of position.
24. Tighten all 4 door hinge bracket mounting screws.
25. Close and visually inspect the door again, as described in step 22.
26. Reinstall the left and right side panels, using the screws for each panel.

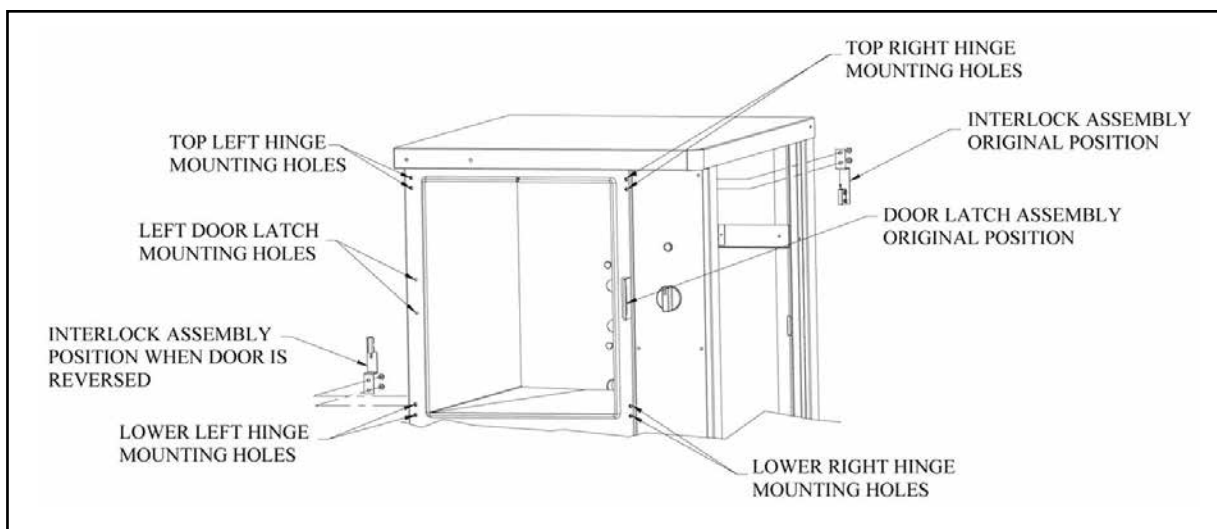


Figure 7

PRV – Pressure Reducing Valve Maintenance and Adjustments

WATTS PRESSURE REDUCING VALVE – MARKET FORGE PART NUMBER 10 - 1033

To provide adequate steam pressure regulation, your cooker / steamer may be equipped with a Watts Pressure Reducing Valve (PRV). The ¾” PRV is designed to regulate an incoming Maximum pressure of 200 PSI down to Operating pressures between 5 – 20 PSI. The PRV will safely regulate the incoming steam to your type of unit. The chart below indicates the required Incoming Pressure for the following Market Forge Models.

Model	Max. Operation Pressure	Max. Incoming Pressure
ST-10 - All models	5 PSI	200 PSI

ADJUSTING WATTS ¾” PRESSURE REDUCING VALVE

1. Release the locking wing nut (Item 1) and loosen the adjusting screw spring (Item 2)
2. Turn the inlet steam supply to full open. Then turn adjusting screw (Item 2) clockwise just enough to allow the valve to open slightly. Allow cooker / steamer to operate in this manner for several minutes by pulling out the steam operating handle or turning on the timer.
3. Turn adjusting screw (Item 2) down slowly at intervals until reduced pressure reaches the desired set-point per the chart below.
4. Tighten locking wing nut (Item 1)
5. If a chattering noise should occur, move adjusting lever or screw (Item 3 as shown) located in bottom half of the valve body, clockwise or counter-clockwise, until chattering stops.

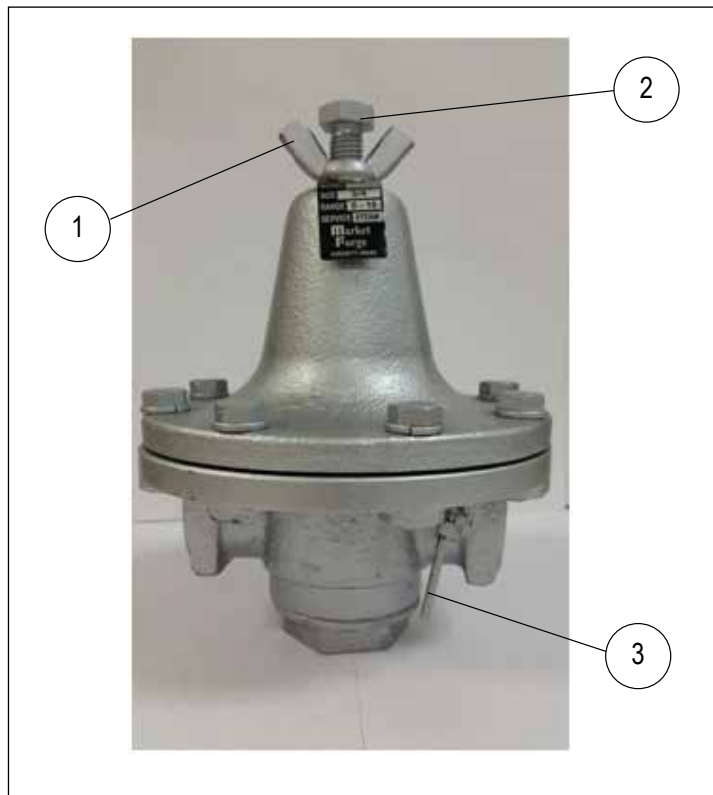


Figure 8

The ST-10 Pressureless Steam Cooker defrosts frozen foods and cooks fresh and defrosted foods. Each cooking compartment permits selection of continuous (*constant steam*) cooking or timed (*0–60 minutes*) cooking. Instructions for operation are included in this section. Consult Test Kitchen Bulletin for detailed cooking information.

STEAM SOURCE OPERATION

The Pressureless Cooker is supplied mounted on a cabinet containing either a steam boiler or controls for direct-connected steam. Manual controls are accessed by opening the cabinet door. The start-up procedure for the steam source is completed once before each daily operating period of the cooker. (For steam boilers, see instruction plate.)

PREHEATING

Before each initial operation of the cooker, and at any other time when the cooking compartment is cold, a 1-minute preheating period is required. To preheat the cooker, put steam source into operation and proceed as follows:

1. Close cooking compartment door.
2. Set 60-Minute Timer Dial (1) to “1-minute” setting. NOTE Total elapsed preheating time equals the timer setting plus a short delay period needed to activate a thermostatic switch included in the controls.
3. Turn off buzzer, which sounds to indicate cooking is complete, by setting the Timer Dial (1) to OFF position.

COOKING

Before loading the cooker, be sure compartment is hot. See preheating for instructions.

1. Slide pans of food into cooking compartment pan supports.
2. Close cooking compartment door.
3. Set timer cooking time:
4. CONSTANT STEAM—for continuous cooking.
5. 60-MINUTE TIMER—for timed cooking.
6. Set appropriate timer to the required cooking time.
7. Turn off buzzer, which sounds to indicate cooking is complete, by setting timer dial (1) to the OFF position.
8. Open door slightly at first letting most of the steam out of the compartment and then fully open the door.
9. Unload by sliding pans of food from pan supports, taking care to avoid hitting compartment opening.

SHUTDOWN PROCEDURE

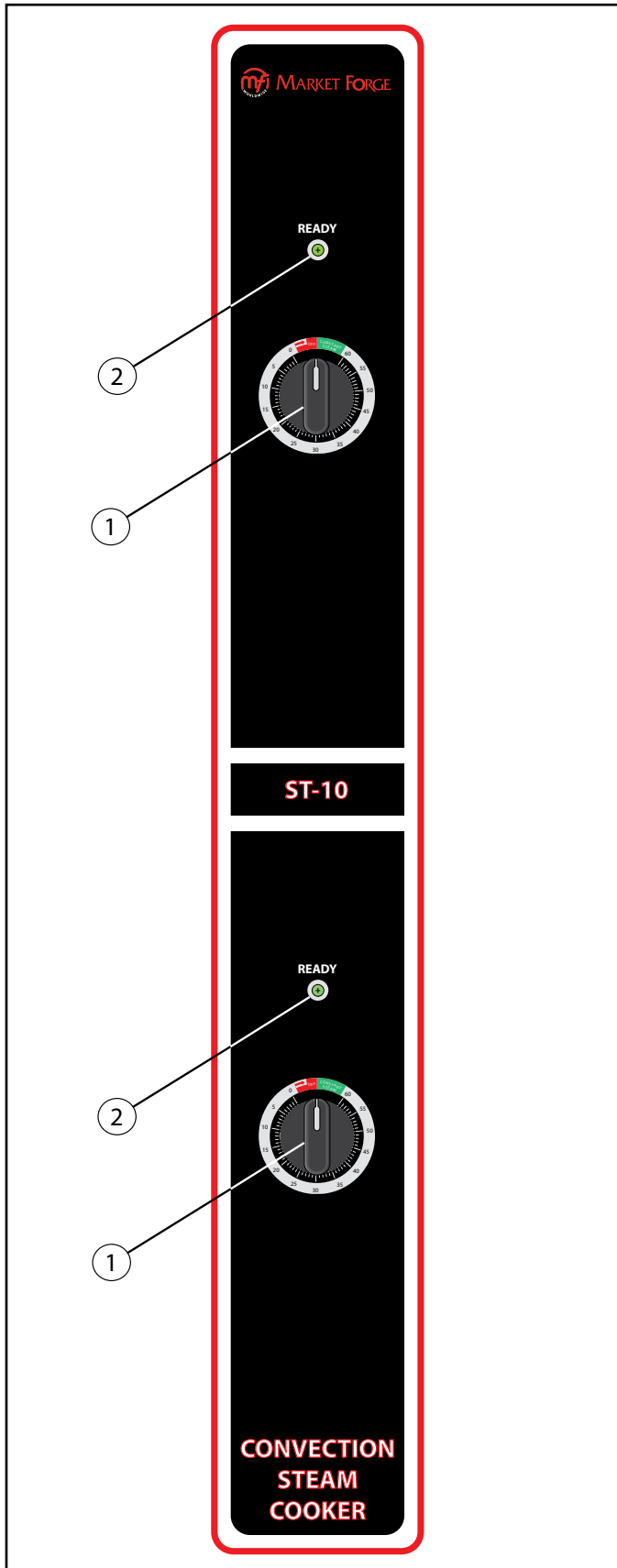
No shut-down procedure is required for the cooker except to check that both timer dials (1) are in the OFF position and that both compartment doors are open. When all cooking has been completed for the day, the steam source must be shut off. (For steam boilers, see instruction plate.)



CAUTION

When the unit is not in use, leave the cooking compartment door slightly ajar to prolong the life of the door gasket.

Manual Control Panel



Control Description

1. **Timer/Constant Steam** - Controls cooking up to 60 minutes or uses constant operation.
2. **Indicator Light (Red)** - Indicates when lit that cooker is in operation.
3. **Buzzer** - Signals end of cooking period (not shown).

Figure 9

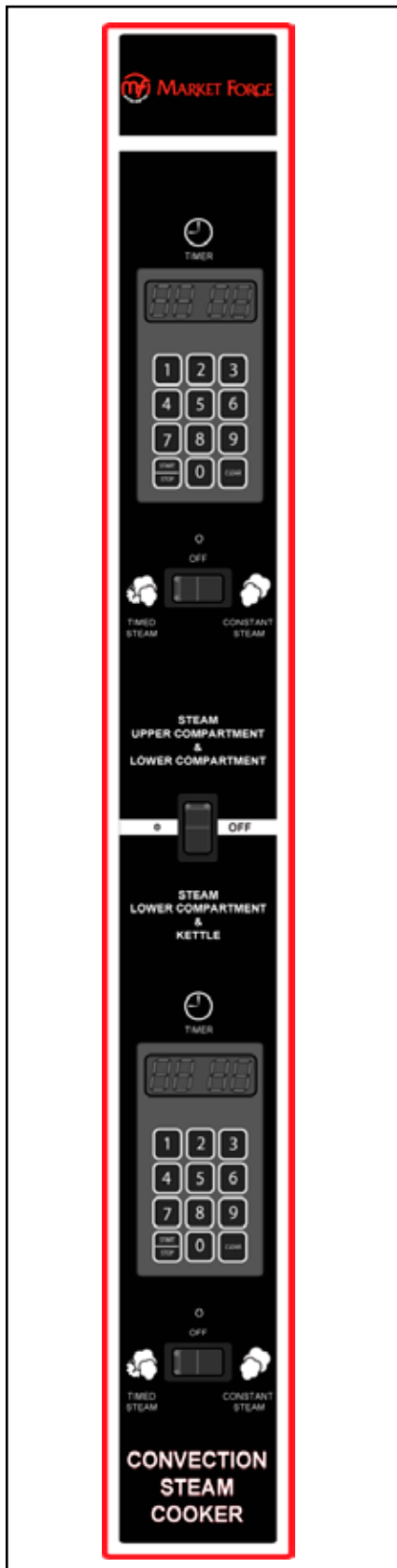


Figure 10

NOTE: USER PROGRAMING OF THE TIMER CYCLE IS EASILY ACCOMPLISHED VIA A (12) BUTTON NUMERIC KEYPAD AND A (4) DIGIT NUMERIC LED DISPLA

START PROGRAMING

FIRST - Make sure doors are shut on both compartments.

SECOND - Flip on POWER SWITCH, located in the middle of control panel to the ON position.

THIRD - Press the CLEAR button and HOLD for two (2) seconds. This should clear the timer display to 00:00.

THE TIMER IS NOW READY FOR PROGRAMING. The timers are programmable from one second to 99 minutes and 99 seconds.

PLEASE NOTE - TIMER WILL NOT START COUNTING DOWN UNLESS:

1. DOOR IS SHUT.
2. THE THERMOSTAT REACHES 193oF INSIDE THE COMPARTMENT.

When the timer reaches "0" the word "END" will flash on the display. The AUTO-ALARM will sound and continue until the START/STOP button is pressed.

When you press STOP, the existing program remains in the system. It is necessary to press CLEAR, then REPROGRAM the new time as needed.

NOTE: To STOP the TIMER in MID-COUNT DOWN, PRESS and HOLD the STOP button for a few seconds.

The word "PAUSE" will appear on the screen every time the door is opened. When the door is closed, the timer will resume the count down.

FEATURES

1. FOUR DIGIT DISPLAY – Example 00:00

NOTE: To save energy, remember to always return the TIMER to the OFF position after it has been used in the CONSTANT STEAM MODE.

2. AUTO ALERT = End of cycle sound.
3. "END" = Displayed at the end of cycle.
4. "PAUSE" = Displayed when doors are opened.
5. START/STOP = Control Button for start and stopping.
6. POWER SWITCH = Turn power ON and OFF.

NOTE: Unit is equipped with MANUAL OVERRIDE in the event of a TIMER FAILURE (CONSTANT STEAM).

Test Kitchen Bulletin

1. Frozen vegetables should always be cooked in perforated 12" x 20" x 2-1/2" pans 7-1/2 lbs (34kg) maximum per pan.
2. Frozen entrees should be underlined with a perforated pan for best results. If they are defrosted first, the heating time will be decreased.
3. Fresh foods may also be cooked in this unit. Vegetables and other foods where the stock is not to be retained should be cooked in perforated 12" x 20" x 2-1/2" pans for the most nutritious results.
4. There is a thermostatic time delay built into this unit which adapts the unit to the proper cooking time. This means that the total time will usually be longer than the time setting.
5. There is a safety microswitch on the door which shuts off the steam each time the door is opened if the unit is in the cooking cycle.
6. Both compartments may be filled and timers set simultaneously.
7. Total cooking time will vary depending on the load, even though the timer setting is the same.
8. All foods, except cakes and pastry, can be cooked in a steam cooking unit.
9. Steam cooked meals have greater nutritional value since they retain most of their vitamins and minerals.
10. Because foods are cooked faster by the higher temperatures of steam cooking, they can be prepared closer to serving time, insuring maximum freshness.
11. Steam cooked foods have a higher percent yield more portions per dollar spent.
12. Food may be served from the same pan in which it is steam cooked, thus reducing food breakage since there is no extra handling or transferring of food from cooking pans to serving pans. It also reduces pot washing tasks.
13. Some important advantages of steam cooking are labor saving, reduced operating costs, space saving, and the lifting of heavy stock pots is eliminated.
14. Rice and spaghetti products, if thoroughly wet at the start of the cooking process, are very easily prepared.
15. Food such as potatoes, poultry, seafood, and some meats may be blanched in the steam cooker, thus reducing the total cooking time and grease absorption.
16. Energy is used only when the steam cooking unit is in operation.
NOTE: To save energy, remember to always return the TIMER to the OFF position after it has been used in the CONSTANT STEAM MODE.
17. The steam cooker will loosen foods burned on pans making washing easier.
18. Solid pans are recommended when liquid is to be retained and perforated pans when the liquid is not to be retained.
19. Eggs may be cooked out of the shell if they are to be chopped which eliminates peeling after steaming.
20. The steam cooker can be opened during the cooking period to add or remove items. If any time is lost while the door is open, an adjustment may be made on the timer.
21. Steam cooking information, including recommended pan size and type, weight per pan, cooking times and pan yields are given on the following pages of this bulletin.

Suggested Steam Times

The ST-10 Pressureless Cooker is a two compartment unit. Each compartment holds five 12" x 20" x 2-1/2" or three 12" x 20" x 4" pans. This unit enables the cook to prepare foods close to the time of service. The cooking times given are timer settings and should be set on a preheated compartment. There is a thermostatic time delay in each compartment that adjusts the total time depending on the temperature and amount of the food. Therefore the total time will be greater than the timer setting. At the end of the timer cooking cycle the bell will ring, steam will stop flowing and the food can be removed.

ITEM	FROZEN WEIGHT PER PAN	RECOMMENDED 12" x 20" (1/1) PERF. PAN	NO. OF PANS	TIMER SETTINGS IN MINUTES	APPROX. NO. COOKED SERVINGS PER PAN
FROZEN VEGETABLES					
Asparagus, Spears	7.5 lbs (3.4 kg)	2.5" (65mm)	1-5	12-15	30 - 3 oz (85g)
Beans, Green Regular	6 lbs (2.7kg)	2.5" (65mm)	1-5	10-15	25 - 3 oz (85g)
Beans, Green French Cut	6 lbs (2.7kg)	2.5" (65mm)	1-5	5-7	25 - 3 oz (85g)
Beans, Lima	7.5 lbs (3.4 kg)	2.5" (65mm)	1-5	12-15	30 - 3 oz (85g)
Broccoli	6 lbs (2.7kg)	2.5" (65mm)	1-5	4-6	25
Brussel Sprouts	7.5 lbs (3.4 kg)	2.5" (65mm)	1-5	10-15	30 - 3 oz (85g)
Carrots	6 lbs (2.7kg)	2.5" (65mm)	1-5	10-15	25 - 3 oz (85g)
Cauliflower	6 lbs (2.7kg)	2.5" (65mm)	1-5	7-12	25 - 3 oz (85g)
Corn, Cut	7.5 lbs (3.4 kg)	2.5" (65mm)	1-5	8-12	30 - 3 oz (85g)
Mixed, Vegetables	7.5 lbs (3.4 kg)	2.5" (65mm)	1-5	8-12	30 - 3 oz (85g)
Peas, Loose	7.5 lbs (3.4 kg)	2.5" (65mm)	1-5	3-5	30 - 3 oz (85g)
Spinach	9 lbs (4 kg)	2.5" (65mm)	1-5	Must be Defrosted	30 - 4 oz (115g)
Squash	12 lbs (5.5 kg)	2.5" (65mm)	1-5	Must be Defrosted	50 - 3 oz (85g)
FROZEN PREPARED ENTREES					
Lobster Tails, 6-8oz. (170-255g)	7-8 lbs (3.2-3.6 kg)	2.5" (65mm)	1-5	15-25	15
Shrimp, C.D.P.	16-20 lbs (7-9 kg)	2.5" (65mm)	1-5	8-11	75
Shrimp, Green	16-20 lbs (7-9 kg)	2.5" (65mm)	1-5	11-15	50
Bulk Pack, Frozen	3.5-4 lbs (1.6-1.8 kg)	2.5" (65mm)	1-5	35-45	10
Bulk Pack, Defrosted	3.5-4	2.5" (65mm)	1-5	25-35	10
MISCELLANEOUS					
Eggs, in Shell	3 dozen	2.5" (65mm)	1-5	9-11	36 - 1 Egg each
Eggs, out of Shell	4 dozen	2.5" (65mm)	1-5	6-8	48 - 1 Egg each
Rice	4 lbs (1.8 kg)	2.5" (65mm)	1-5	18-22	60-65 - 3 oz (85g)
Spaghetti	3 lbs (1.4 kg)	2.5" (65mm)	1-5	18-22	40-45 - 4 oz (115g)

Suggested Steam Times

ITEM	FROZEN WEIGHT PER PAN	RECOMMENDED 12" x 20" (1/1) PERF. PAN	NO. OF PANS	TIMER SETTINGS IN MINUTES	APPROX. NO. COOKED SERVINGS PER PAN
VEGETABLES					
Beans, Snap Green or Wax	6 lbs (2.7 kg)	2.5" (65mm)	1-5	18-22	25-30 - 3 oz (85 g)
Beets, 2" (50mm) Diameter	7.5 lbs (3.4 kg)	2.5" (65mm)	1-5	40-50	30-35 - 3 oz (85 g)
Broccoli, 1/2-3/4" (12-20mm) Stalks	6 lbs (2.7 kg)	2.5" (65mm)	1-5	14-18	25-30 - 3 oz (85 g)
Carrots, Sliced	9 lbs (4 kg)	2.5" (65mm)	1-5	18-21	35-40 - 3 oz (85 g)
Cauliflower, 1.5-2" (38-50mm) Trimmed	6 lbs (2.7 kg)	2.5" (65mm)	1-5	12-16	30-35 - 3 oz (85 g)
Corn on the Cob, Husked	1 dozen	2.5" (65mm)	1-5	10-15	12
Cabbage, 1/4-1/6 of Head, Cored	5 lbs (2.25 kg)	2.5" (65mm)	1-5	14-18	15-20 - 4 oz (115 g)
Onions, 2" (50mm) Diameter	6 lbs (2.7 kg)	2.5" (65mm)	1-5	20-25	25-30 - 4 oz (115 g)
Peas, Shelled	5 lbs (2.25 kg)	2.5" (65mm)	1-5	5-6	25-30 - 3 oz (85 g)
Potatoes, French Fry Cut	10 lbs (4.5 kg)	2.5" (65mm)	1-5	18-21	50 - 3 oz (85 g)
Potatoes, 3" (75mm) Regular Cut	10 lbs (4.5 kg)	2.5" (65mm)	1-5	35-40	50 - 3 oz (85 g)
Spinach, Cleaned & Cut	3 lbs (1.4 kg)	2.5" (65mm)	1-5	3-5	10-12 - 3.75 oz (105 g)
Summer Squash, 1" (25mm) Sliced	7 lbs (3.2 kg)	2.5" (65mm)	1-5	7-10	30-35 - 3 oz (85 g)
Winter Squash, Peeled	9 lbs (4 kg)	2.5" (65mm)	1-5	10-15	25-30 - 3 oz (85 g)
Turnip, Diced	5 lbs (2.25 kg)	2.5" (65mm)	1-5	28-32	20-25 - 4 oz (115 g)
MEAT - POULTRY - FISH					
Chicken, Cut up	8 lbs (3.6 kg)	2.5" (65mm)	1-5	20-30	15-20 - 2 oz (55 g)
Chicken, 4 lbs. Whole	3 each	2.5" (65mm)	1-5	45-50	25-30 - 2 oz (55 g)
Fowl, 5 lbs.+ Whole	2 each	2.5" (65mm)	1-5	50-60	20-25 - 2 oz (55 g)
Fish, Fillets	3 lbs (1.4 kg)	2.5" (65mm)	1-5	10-15	12-15 - 2 oz (55 g)
Frankforts	5 lbs (2.3 kg)	2.5" (65mm)	1-5	3-5	35-40 - 2 oz (55 g)
Hamburgers, 3 oz. (85g)	5 lbs (2.3 kg)	2.5" (65mm)	1-5	18-22	20-25 - 2 oz (55 g)
Meatballs, 1 oz. (30g) size*	6 lbs (2.7 kg)	2.5" (65mm)	1-5	20-25	20-25 - 2 oz (55 g)
Meatloaf *	15 lbs (6.8 kg)	2.5" (65mm)	1-5	40-50	50-60 - 2 oz (55 g)
Pork Chops, Loin Bone, 4 oz. (115g)	6 lbs (2.7 kg)	2.5" (65mm)	1-5	25-30	24 - 2 oz (55 g)
Sausage, 1.5 oz. (45g)	6 lbs (2.7 kg)	2.5" (65mm)	1-5	18-21	18-20 - 2 oz (55 g)
Turkey, on Carcass	20-22 lbs (9-10 kg)	2.5" (65mm)	1-5	2-2.5 Hours	50-60 - 2 oz (55 g)
Turkey, off Carcass	10-12 lbs (4.5-5 kg)	2.5" (65mm)	1-5	1-1.25 Hours	55-65 - 2 oz (55 g)

* Raw weight for Meatballs and Meatloaf includes hamburger and extenders and yields 2 oz. (55g) protein plus extenders or 3 oz. (85g) total portion.

Cleaning & Preventative Maintenance

PREVENTATIVE MAINTENANCE

A good preventive maintenance program begins with the daily cleaning procedure. The following paragraphs set forth minimum preventive maintenance procedures that must be completed periodically.

CLEANING

After each period of daily operation (more frequently as required to maintain cleanliness), the cooker should be thoroughly cleaned by completing the following steps:

1. Remove left- and right-side pan supports, baffles, and drain screens by lifting up and off mounting studs. Wash with a mild detergent. Rinse and set aside for reassembly.
2. Wash cooking compartment interior using a mild detergent and water. Rinse and dry thoroughly.
3. Replace pan supports, baffles, and drain screens in compartment and leave door open.

Weekly Cleaning

In addition to the daily cleaning it is necessary to clean the air intakes on a weekly basis. Air intakes provide necessary cooling air to the internal components. They are generally located on the rear and sides of the equipment.

DRAINAGE

Cooking Compartment Drainage

The bottom of the cooking compartment is angled slightly toward the rear of the unit. This assures that any condensate build-up or spills will be directed toward the drain hole, which is located at the rear bottom center of the cooking compartment. Any liquid exiting the cooking compartment runs down the cooking compartment drain tube and into the drain line.

Drip/Spill Trough Drainage

The ST-10 Pressureless Steam Cooker has a drip/ spill trough below the cooking compartment door. It will catch any condensate gathering on the front of the unit when the door is opened.