STERILMATIC

DIGITAL ELECTRIC STERILIZER

INSTALLATION - OPERATION - MAINTENANCE

MODELS

- ❑ STM-ED
- ❑ STM-EDX

MARKET FORGE

Telephone: (802) 658-6600 Fax: (802) 864-0183

www.marketforge.com

PN 14-0413 Rev E (11/17)

Your Service Agency's Address:

Model

Serial number

Sterilizer 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.

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 sterilizer. 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

PRODUCT DESCRIPTION

The Market Forge Sterilmatic Sterilizer with Digital Controller (model STM-ED) is a compact, automatic, low cost steam pressure sterilizer (autoclave).

The sterilizing cylinder is a 3/16" (4.8mm) thick wall, welded aluminum. The exterior is made of polished stainless steel. Interior dimensions of 16" (406mm) diameter and 26" (660mm) long with a cubic content of 5,220 cubic inches (0.085 cubic meters) and has a door opening of 13-1/2" (343mm) wide and 11" (279mm) high. The sterilizing compartment has a pan capacity of:

- (3) 12" x 20" x 2 ½" (305mm x 508mm x 64mm) or,
- (2) 12" x 20" x 4" (305mm x 508mm x 102mm) or,
- (1) 12" x 20" x 6" (305mm x 508mm x 152mm)

The sterilizer door is a self-sealing type that cannot be opened until the steam pressure is completely exhausted from the chamber. The door is 12 gauge stainless steel and removable for cleaning without tools. The door gasket is one-piece molded, also replaceable without tools or cement.

The sterilizing cycle is fully automatic with the time, temperature and venting controlled by the microprocessor based, digital controller.

The sterilizing temperature can be set anywhere in a range from 225°F (107°C) and 250°F (121°C). There is an on-board data logger/printer. The data logger records the time, temperature and pressure for each sterilization cycle. This data can be stored for future printing or printed out following each cycle.

OPERATING ENVIRONMENTAL CONDITIONS

This unit is designed for commercial use and to be safe at least under the following conditions:

- For indoor use only.
- For use at altitudes up to 6500ft (2000m)
- For use at temperatures from 41°F (5°C) to 104°F (40°C).
- Maximum relative humidity 80% for temperatures up to 88°F (31°C) decreasing linearly to 50% relative humidity at 104°F (40°C).
- Main supply voltage fluctuations not to exceed ± 10% of nominal voltage.
- Transient overvoltages according to Installation Categories II (in accordance with IEC 664).
- Pollution Degree 2 (in accordance with IEC 664).

SERVICE & TECHNICAL INFORMATION CONTACT

WARNING

This unit should be serviced by qualified service personnel only.

Your Sterilmatic Sterilizer has been developed to answer the need for a compact, automatic, low-cost steam pressure sterilizer. The following instructions cover installation. Should service be required, it is readily available by contacting our authorized service agency located nearest to you. The name of your local service company can be obtained on our website, www.mfii.com.

INTENDED USE - STERILIZATION CYCLE

This unit is intended to be operated intermittently. After a pre-heat cycle, the longest period of sterilization (heating) should be a maximum of 60 minutes. The digital timer allows up to 99 minutes, but it should be kept at no more than 60 minutes. After each use the unit should be opened for removal and reloading of product. The water level should be checked after each use and refilled when necessary.

WATER CONDITIONS

When sterilizing culture mediums that generate sulfide gas or chlorine gas, the inside of the chamber must be cleaned and rinsed thoroughly without fail

Market Forge from time to time is asked the question about using distilled or deionized water for use with our Sterilizer models STM-ED and STM-EDX. We are always asked why these water choices are not allowed for use with our units and what would be recommended. To address this situation, we have complied the following as a means of satisfying these questions:

1. We have found that the use of distilled or deionized water will aggressively attack the pure coat of Aluminum Alclad, which protects the bottom surface from oxidizing and then eventually pitting (reference: Operating and Maintenance Instructions).
2. In addition pitting can also be caused by several other external environmental factors. Few examples are as follows. These conditions have been highlighted in our documentation.
    - Grains of hardness in the water supply should be as follows (.25 to 2).
    - A pH imbalance in the water supply can greatly affect the life to the aluminum cylinder. The pH range that would be recommended is between 7.0-8.5.

- The lack of a positive electrical ground can cause an electrolytic reaction that will accelerate pitting.
- Another contribution to accelerate pitting is the type of cleaning solutions used or the abrasive scrubbing pads. If a low pH is present with the detergents being used or an abrasive pad, the protective Alclad coating will be removed during the cleaning process.
- Spillage of media being sterilized can also contribute to the accelerated pitting if it is corrosive.
- CHLORINE LEVEL ≤ 1 PPM.

IMPORTANT

Market Forge will not be responsible for damage resulting from the use of hard or corrosive water, from failure to drain the unit daily, or from inadequate cleaning procedures.

Service Connections

ELECTRICAL SPECIFICATIONS

Domestic Model	kW	Hz	1 Phase		3 Phase	
			208V	240V	208V	240V
STM-ED	9.3	60	45A	-	26A	-
	12.4	60	-	52A	-	30A

Export Model	kW	Hz	1 Phase		3 Phase	
			220V	240V	220/380V	240/415V
STM-EDX	10.4	50	48A	-	16A	-
	12.4	50	-	52A	-	18A

Unit must be grounded. Main supply voltage fluctuations are not to exceel ± 10% nominal supply voltage.

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.

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

SERVICE CONNECTIONS

A	**Drain** - 1/2" (13mm) N.P.T. of 3/8" (10mm) OD copper (see note 1)
B	**Steam Exhaust Connection** - 5/8" (16mm) (see note 2)
C	**Electrical Connection** - (*see electrical specifications table)
D	**Power Supply**

NOTES:

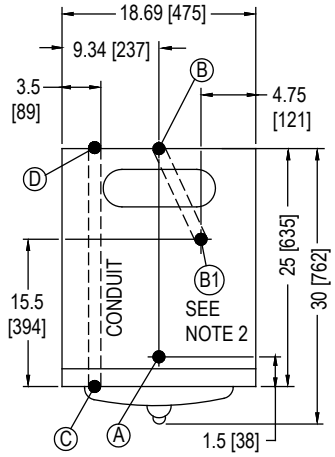
1. An air break must be provided if a unit drain line is run.
2. Vent exhaust to atmosphere. B1 is actual connection, but must exit casing at B.
3. Heat of Rejection (Heat Loss Into the Room) 6,000 BTU'S.

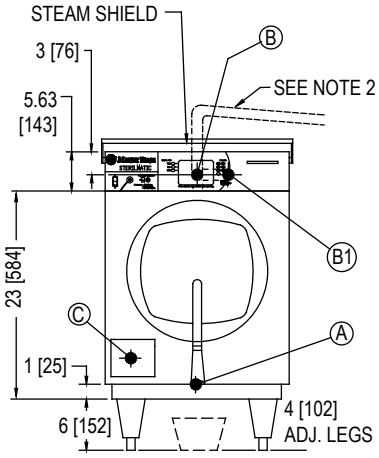
IMPORTANT: Exhaust line must be vented to the outside to eliminate the exhaust steam and the accompanying noise from entering the room. Use 1/2" (13mm) copper tubing or suitable alternate. The overall height and length of the line should not rise more then 4' (1.2 meters) above the unit and exceed 15' (4.5 meters) with a minimum of bends. The line should slope downward after leaving the sterilizer in order to ensure condensate drainage.

IMPORTANT: Failure to comply with this outline will affect the sterilization process.

When an exhaust condenser is supplied; the following services must be provided: 1/2" (13mm) cold water: 1" (25mm) waste: 115V electrical line.

DIMENSIONS ARE IN INCHES [MM]





Customer provided Drain Catch Pan
Approx. 4-6 quarts (3.8-5.7 liters)

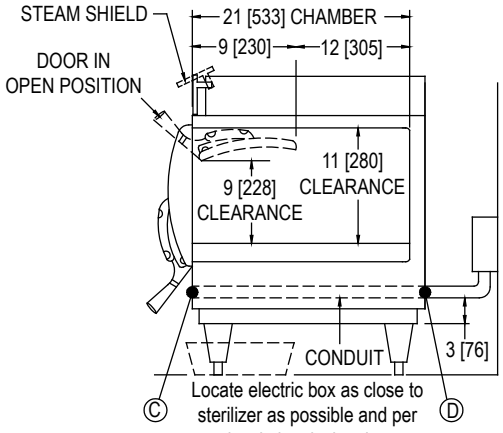


Figure 1

INSTALLATION

Set sterilizer on counter, using the 6" (*152mm*) legs provided or assemble the optional stainless steel stand with under-shelf. If your Sterilmatic includes a water-cooled exhaust condenser, we recommend the use of the Sterilmatic stand, part number 95-6060. First, level unit in place, then adjust rear legs to pitch the unit forward 1/4" (*6mm*) to insure positive drainage of the cylinder.

ELECTRICAL

Connect to proper electrical supply box and disconnect switch as shown on one of the following schematic diagrams - 208 or 240 volts, single or three phase. Connection is made from the rear of the unit, through the conduit to the terminal box located at the front of the unit.

Electric supply connection for STM-ED

Connect to proper electrical supply as indicated on nameplate on top of unit. The power supply cord is brought in from the rear of the unit, through the conduit and the connection is made at the terminal box located at the front of the unit.

Electric supply connection for STM-EDX (export models)

Connect to proper electrical supply as indicated on nameplate on top of unit. Connection is made from the rear of the unit, through the conduit to the terminal box located at the front of the unit. All control circuits are 220 volts.

In order to accomplish this, a current-carrying grounded neutral must be provided.

Thus, a three phase system must be 4-wires. Most electrical codes require, and we recommend, that a separate switch be located within sight of the sterilizer.

OUTSIDE VENTING

Connect 1/2" (13mm) nominal tubing exhaust to outside vent connection located on top of unit, within the control housing.

IMPORTANT: Exhaust line must be vented to the outside to eliminate the exhausted steam and the accompanying noise from entering the room.

Use 1/2" (13mm) copper tubing or suitable alternate. The overall height and length of the line should not rise more then 4 feet (1.2 meters) above the unit and exceed 15 feet (4.5 meters) with a minimum of bends. The line should slope downward after leaving the sterilizer in order to insure condensate drainage.

WATER-COOLED EXHAUST CONDENSER

If outside venting is not possible, an optional water-cooled condenser is available for connection to an open drain. If required order part no. 95-0436 kit.

TRAY SUPPORTS

Install side tray supports. Tray supports are attached by means of key-hole clearance slots which are slipped over studs located on the sides of the Sterilmatic chamber.

BAFFLE INSTALLATION

To insure maximum drying of packs, a baffle is supplied with your Sterilmatic. Place perforated splash baffle in bottom of the sterilizing chamber. Install small baffle with no perforation at the rear of the upper tray support channel.

NOTE: The perforated baffle is not to be used as a shelf to place media or other items. It is intended to eliminate splashing.

OPERATION CHECK

To check for proper operation of unit:

1. Close drain valve by turning handle clockwise.

⚠ WARNING

DO NOT OPEN DRAIN VALVE WHILE UNIT IS OPERATING. PREMATURE OPENING MAY RESULT IN SCALDING OF OPERATOR.

2. Fill chamber with 4 to 5 quarts (3.8 to 4.7 liters) of ordinary tap water. DO NOT USE DISTILLED OR DEIONIZED WATER.
3. Close chamber door.
4. Set exhaust selector to INSTRUMENTS AND PACKS (fast exhaust) or LIQUIDS (slow exhaust).
5. Set timer to 15 minutes. Cycle will go to completion automatically.

Optional Cold Water Condenser

Item	Part No.	Description	Qty
1	95-2119	Steam condensing unit	1
2	95-2219	Thermostat Box Assy.	1
3	95-0086	Exhaust line	1
5	15-7057	Copper tubing 3/8 OD	22.25”
6	10-1775	Rd. Hd. Mach. Screw, 1/4-20	2
7	10-2500	Lockwasher, 1/4	2
8	10-2308	Hex Nut, 1/4-20	2
9	10-1812	Rd. Hd. Mach. Screw, 10-32	2
10	10-2505	Lockwasher, 10	2
11	10-2340	Hex Nut, 10-32	2
12	95-4009	Front Template (7” Lg)	1
13	95-4010	Back Template (11” Lg)	1

SERVICE CONNECTIONS REQUIRED	
A	1/2” IPS Cold Water Connection
B	1” IPS Drain Connection (*See Note 3*)
C	115V Elec. Connection 7/8 Ø knockout (*cond. unit*)
D	Electrical Connection

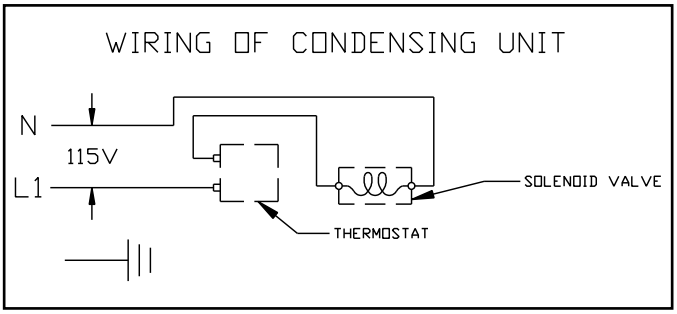


Figure 2

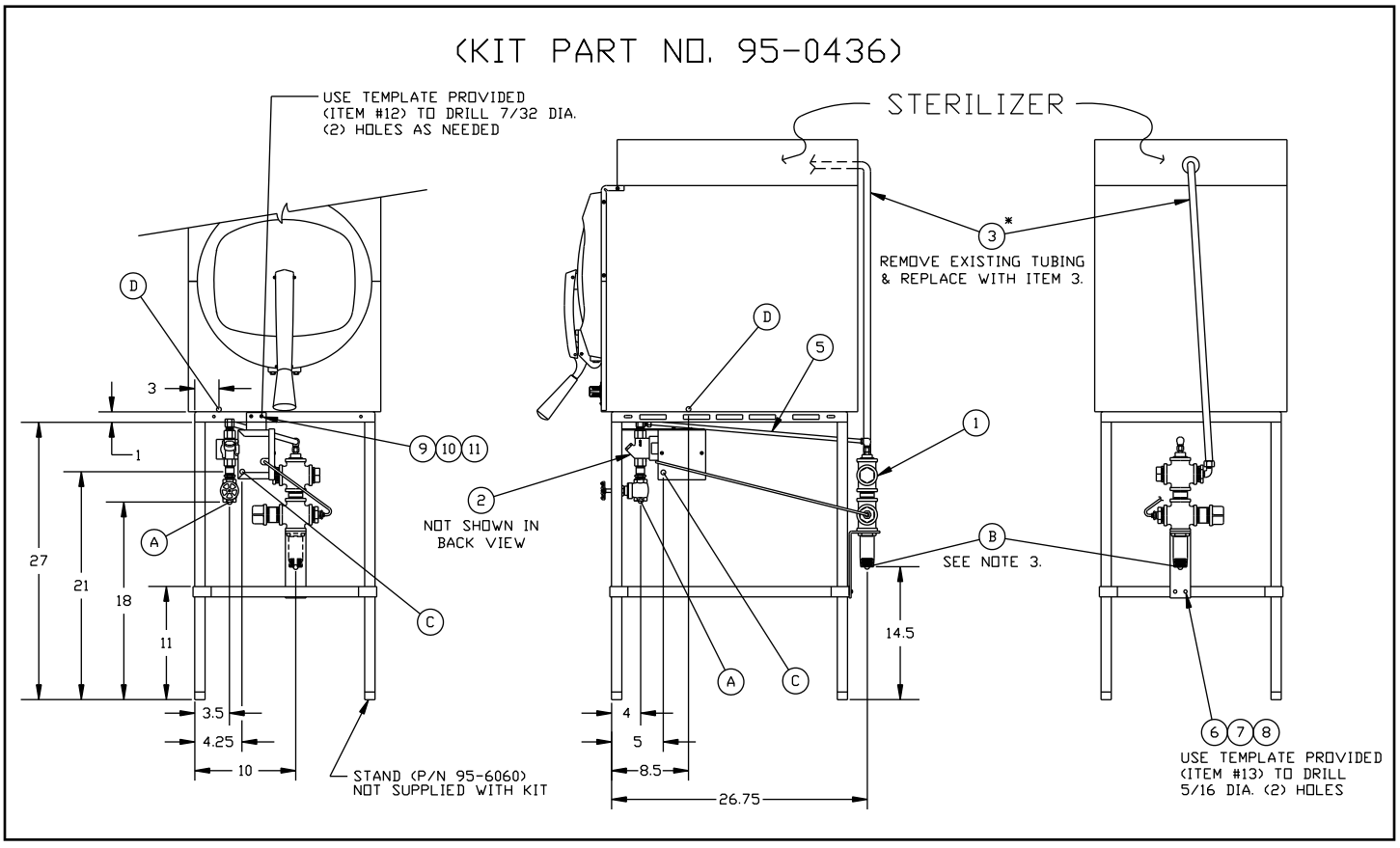


Figure 3

1. Locate the mounting studs on the inside of the chamber. There are two rack mounting studs on each side.

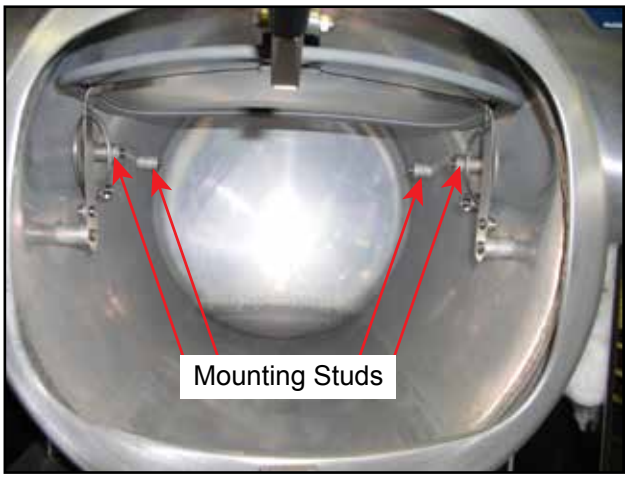


Figure 4

2. Taking one pan support and positioning rack so that the pan stop is facing the rear of the unit and the wires are facing toward the center of the unit. The pan stop is a piece of sheet metal welded to the rack with a 65° bend.

3. Begin to hang the pan support by placing the rear key-way slot onto the rear mounting stud and slide the rack until the slot sits on the mounting stud. When this is done correctly the front mounting stud will be in position to place the front key-way slot. Slide the rack down into its correct position.

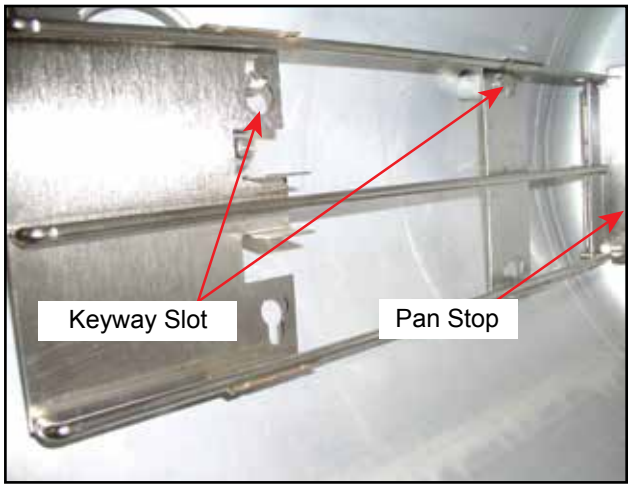


Figure 5

4. After installing one pan support rack correctly, you can install the upper baffle. Position the baffle so that the 45° bend is facing up towards the front of the unit (see “Figure 6”). Slide the mounting tab onto the flat bend on the pan stop bracket. The baffle should now stay in place by itself, but in a tilted state (see “Figure 7”).

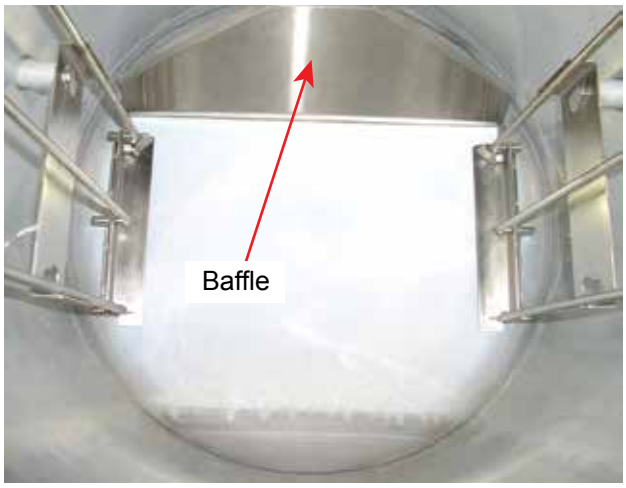


Figure 6

Figure 7

5. Position the second pan support rack into the cavity and slide the other mounting tab onto the rack flat bend while the pan support rack is not on the mounting studs. Hang the pan support by placing the rear key-way slot onto the rear mounting stud and slide the rack until the slot sits on the mounting stud. When this is done correctly the front mounting stud will be in position to place the front key-way slot. Slide the rack down into its correct position.
6. Place the Perforated Water Baffle so that it sits on the bottom of the inside of the sterilizer chamber.

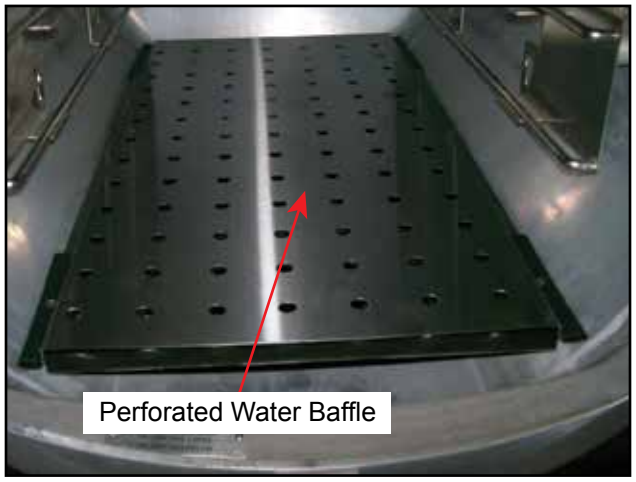


Figure 8

CAUTION

Do not cover the holes in the Perforated Water Baffle by using it as a shelf. This will result in a disrupted flow of steam.

STERILMATIC OPEN STAND:

Market Forge Sterilmatic Stand can be supplemented with an Optional Stand for utility use where maximum compactness is desired.

The sturdy, stainless steel unit is equipped with adjustable leg extensions which allow the unit to be installed and leveled over existing contours in the floor.

The open design lends itself to maximum sanitary conditions because of the ease with which periodic cleaning can be done.

Though simple in design and appearance, the sterilmatic stand is the ideal arrangement for mounting in that it allows secondary air to circulate.

STERILMATIC OPEN STAND WITH CONDENSER

Market Forge can provide the open stand with an optional steam condenser system for use where steam exhaustion into the room is undesirable.

The condenser is automatically controlled by the thermostat. The normal factory thermostat setting is 130°F (54°C). The open under-shelf of the stand gives added utility providing a handy tabouret for utensils and access for drainage of water from the sterilizing chamber.

Part No.	50 Hz	Description
10-4653	10-4653	Thermostat
10-4035	10-7074	3/8” Solenoid
10-5731	10-5731	1/2” Water Stop Valve
95-2106	95-2106	Water Injection Assy.
95-1680	95-1680	Shelf

General Operating Instructions

IMPORTANT

Make sure the drain valve is closed. Fill bottom of the sterilizer chamber with approximately six quarts of water or just below ledge at bottom of door opening. (If water supply is known to be hard or corrosive, a source of treated water should be used.) DO NOT USE DISTILLED OR deionized WATER.

1. **LOAD STERILIZER:** Use proper sterilizer loading procedures when placing materials in sterilizer chamber. All solid containers or instruments must be placed so that water or air will not be trapped in them.
2. **CLOSE DOOR:** Grasp handle, and holding it in vertical position, pull door down until bottom of door rests in the bottom of door opening. Then rotate handle forward, engaging the lower curved portion under the horizontal rod in the casting at the bottom of the door opening. Push handle all the way down and back until door is locked securely in position.
3. **DETERMINE CORRECT STERILIZATION TIMES:** Refer to the table on the following page for minimum sterilization times table.

   NOTE: In no case should the timer be set to less than 15 minutes. Sterilization will not be accomplished in less than 15 minutes exposure time.
4. When the sterilizer chamber reaches the selected temperature, the timed Heating/Sterilization cycle will begin. When the Heating/Sterilization cycle is completed, the electric supply to the heating elements will be opened (shut off) automatically. When the chamber pressure reaches 0 (zero) the door may be opened.

   NOTE: Before opening the chamber door be sure to have the Control Panel Flip Cover in the 'DOWN' position. This protects the LCD screen from coming into contact with too much steam. At this point you may release the handle and let go to avoid possible contact with the remaining escaping steam. When opening the door allow a few seconds for steam to escape from the chamber before opening completely.

   NOTE: For more detailed Operating Instructions please refer to "Detailed Operating Instructions" on page 13.
5. To assist in drying racks, release door handle after pressure has been attained at start of cycle. Pressure in chamber will keep door closed. The use of a wire basket will provide better drying for dressings. At end of sterilizing cycle, release door handle and open slightly. Do not lift door to open position. This will allow steam and moisture to escape. Allow door to remain in this position for 15 to 20 minutes before removing load. Small packs can be dried successfully with this procedure. We do not recommend the sterilization of large packs, such as linens. Be sure condensate baffles are in position in the chamber.
6. Remove load and check water level for next operation.

STERILIZATION GUIDE

- **PACKS (Linens, gloves, etc.):** Use wire basket to facilitate drying. Be sure condensate baffles are in place. Place packs on edge and arrange load in chamber, so that only minimal resistant to passage of steam through the load will exist.

  NOTE: Place gloves in upper two-thirds of chamber.
- **JARS, CANISTERS (etc.):** Place containers on side to allow for displacement of air and complete contact of steam to surfaces. Drying is also facilitated.
- **PETRI DISHES, PIPETTES, DESICCATORS (etc.):** Should be inverted.
- **UTENSILS, TREATMENT TRAYS:** Placed on edges to facilitate drying.
- **INSTRUMENT SETS:** Place instruments set in trays having mesh or perforated bottoms. Place trays flat on shelves.
- **COMBINING FABRICS & HARD GOODS:** Place hard goods on lowest shelves.
- **PLASTIC UTENSILS:** DO NOT stack or nest plastic items.
- **LIQUIDS:** Sterilize liquids separately from other supplies or materials. Set vent to slow.
- **SMALL ITEMS:** Sterilize small items in baskets, or trays.

IMPORTANT

IF THE EQUIPMENT IS USED IN A MANNER NOT SPECIFIED BY THE MANUFACTURER, THE PROTECTION PROVIDED BY THE EQUIPMENT MAY BE IMPAIRED.

TIME (Minutes)	ARTICLES
15	• Glassware, empty, inverted. • Instruments, metal in covered or open tray, padded or unpadded. • Needles, unwrapped. • Pipettes, blood diluting, serological, volumetric, etc • Tubing glass (6mm), (10mm) inverted
20	• Flasked solutions 75-250 ml. • Instruments, metal combined with other materials in covered and/or padded tray. • Instruments wrapped in double thickness muslin. • Rubber gloves, catheters, drains, tubing, etc. Unwrapped or wrapped in muslin or paper.
30	• Brushes in dispensers, in cans of individually wrapped. • Dressings, wrapped in paper or muslin, small packs only. • Flasked solutions 500-1000 ml. • Syringes, unassembled, individually packaged in muslin or paper. • Needles, luer, individually packaged in glass tubes or paper.
45	• Flasked solutions 1500-2000 ml.

Digital Control Panel

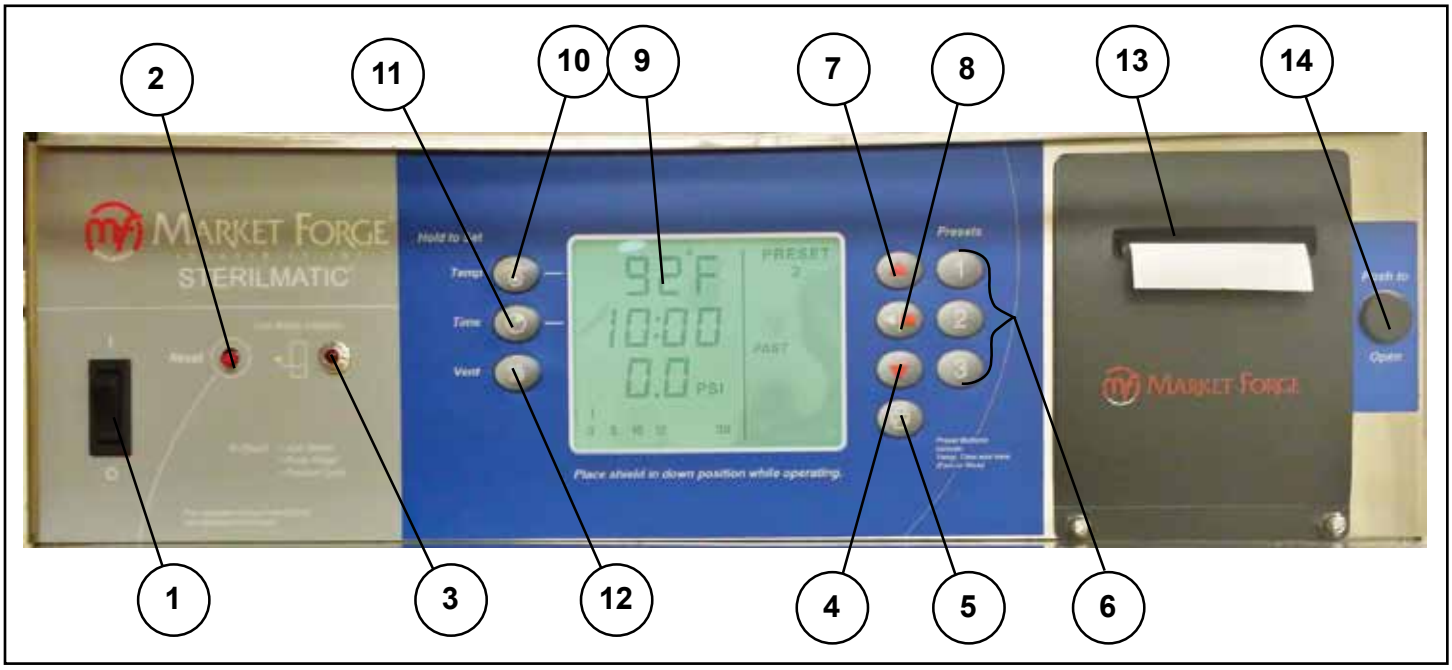


Figure 9

Before operating this unit be sure to have read the Owner's manual for proper setup, service connections and installation. In addition, the Owner's manual will cover sterilization recommendations, daily cleaning procedures and parts lists.

ITEM	DESCRIPTION
1	Control Panel Power - ON (I), OFF (0)
2	Reset Button
3	Low Water Indicator Light
4	Down Key
5	Printer Key
6	Preset Keys
7	Up Key
8	Start / Cancel Key
9	Digital LCD Display
10	Temperature Key
11	Time Key
12	Vent Key
13	Print out
14	Printer Door Button

The Digital Controller is made up of the Operational Keys, Digital LCD Display and the Data Logger/Printer. The operator can set the controller to display in either degrees Fahrenheit (°F) with pressure in PSI or in degrees Celcius (°C) with pressure in kPa.

During operation the Digital LCD Display will show the actual temperature within the sterilizer chamber, the time remaining for the sterilizer cycle and the vessel pressure in digital form and bar form. It will also display the current cycle state, Heating up, Timing (sterilizing) or Venting.

The three operating parameters that can be set by the operator are sterilizing Temperature, sterilizing Time and Venting mode.

The sterilizing temperature can be set in a range from 225°F (107°C) to 250°F (121°C).

The sterilizing Time can be set in Minutes and Seconds (if desired).

The Venting mode can be set to FAST (approximately 3 minutes) or SLOW (approximately 11 minutes).

To initiate a sterilizing cycle you need to set three parameters, Temp, Time and Venting. Or you can set commonly used values for these parameters into three 'Preset' keys. Each Preset key can store a value for all three parameters. The parameter values stored in the Preset keys can easily be selected before running a sterilization cycle. This avoids you having to set all three parameters every time you run the unit.

Each sterilization cycle records the temperature, time and pressure at one minute intervals during the heat-up cycle, the sterilization cycle and the venting cycle. These cycles are described in more detail below. The recorded data can be printed out after each complete run or printed out later, on an as-needed basis.

SETUP

Make sure unit is connected to its electrical source. Make sure unit has recommended amount of water in its chamber. Make sure unit drain is closed. If a ventilation hood is required, make sure unit is placed accordingly under the hood.

Be sure that the unit's door is closed and locked before operating!

Once the unit has power, push the black Control Panel Power switch to On (I). This will bring power to the control panel and illuminate the Digital LCD Display screen.

You are now ready to use the unit.

MANUAL PROGRAMMING

The first step is to decide what form of temperature and pressure measurement you want to use, Fahrenheit and PSI or Celsius and kPa. This can be changed at any point during operation.

Setting units (°F & PSI) or (°C & kPa);

1. Press and hold the UP key and the DOWN key while simultaneously pressing and releasing the TEMP key will toggle between (°F/PSI) and (°C/kPa).

Setting Temperature

1. While the unit is powered up but not in use, considered the 'Idle State', the temperature being displayed is the current temperature within the sterilizer chamber.
2. Pressing and releasing the TEMP key will display the current set-point temperature for three seconds.
3. To set the target sterilization temperature set-point;
    a. Press and hold the TEMP key until the display goes blank and shows only the temperature. Now press the appropriate UP or DOWN key to get to desired set-point.
    b. When the full display returns the target set-point has been set.

Setting Time

1. While in the 'Idle State' the Time being displayed is the current time set-point.
2. To set the target sterilization time set-point;
    a. Press and hold the TIME key until the display goes blank except for the minutes. Now press the appropriate UP or DOWN key to reach the desired sterilization set-time minutes.
    b. After three seconds the minutes will blank and the seconds set-point will be displayed. If you need to set the desired seconds, again, use the appropriate UP or DOWN keys.
    c. If seconds are not required than either don't touch any key and after three seconds the full display will come back and the TIME is now set or immediately press the TIME key again and that will also set the time.

Setting VENT mode

1. While in the 'Idle State' the VENT mode will be displayed as either FAST or SLOW, whichever is active.
2. To set the desired VENT mode (SLOW or FAST);
    a. At any point during any cycle the **VENT** mode can be toggled simply by pressing and releasing the **VENT** key.

Starting the unit

1. Once you have set your desired **TEMP**, **TIME** and **VENT** type you can now proceed in starting the unit.
2. To start unit;
    a. Press the **START/CANCEL** key

Stopping the unit

1. Once the unit is started it will run through all 3 cycles automatically (cycles are described below) and finish in the DONE state (also described below).
2. If at any time throughout the cycle you have to stop or cancel the cycle just press and hold (for 3 seconds) the START/CANCEL key.
3. After stopping the unit in this manner the unit will still have to go through the VENT cycle to release the pressure within the chamber before you can open the unit door.

Detailed Operating Instructions

Description of cycles

1. HEATING cycle – Once the START/CANCEL key is pressed the unit will flash the HEATING icon while the sterilizer is heating up to the sterilization temperature set-point. While it is heating the set-point TIME is displayed and will not change.

2. TIMING (sterilizing) cycle – When the unit reaches its set-point temperature the unit will enter the sterilization or TIMING cycle. At this point the unit will display and count down the sterilization time.

3. VENTING cycle – When the timing (sterilization) cycle time reaches zero the set VENTING cycle begins. The FAST VENT is programmed to vent for 3 minutes through the solenoid valve. The SLOW VENT is programmed to vent for 11 minutes through a bleeder orifice.

    a. DONE state – At the completion of the VENTING cycle the unit will display DONE and a beeper will sound. The beeper sequence will be ON for 1 second and OFF for 9 seconds. This sequence will repeat until any key on the control panel is pressed or 3 minutes have passed.

    b. Once in the DONE state it is safe to open the chamber door. Before opening the chamber door be sure to have the Control Panel Flip Cover in the 'Down' position. This protects the LCD screen from coming into contact with too much escaping steam from the chamber. When the door is left in the closed position you may notice a rise in the temperature and pressure on the LCD screen. You should open the chamber door to allow the chamber to cool.

    NOTE: There is never any harm in releasing the chamber door latch. If there is pressure inside the chamber the door cannot open due to its design which does not allow the door to open under pressure.

PRESET KEYS

There are three **PRESET** keys numbered **1**, **2** & **3**. In each key you can save set-point values for the Temperature, Time and Vent mode. For example, if you commonly need to sterilize a media that requires specific set-point values, you can save these specific values into a **PRESET** key. This way you don't need to keep setting the Temp, Time and Venting info before each running of a sterilization cycle.

Programming PRESET Keys

To save values into a PRESET key;

1. Press and hold the desired PRESET key (1, 2 or 3). The display shows the values currently stored in that preset key. When the "PRESET" icon and the preset "number" icon in the display start to flash, the values are now ready to re-program. At this point you can change any or all of the parameters, Temp, Time, Vent as described previously.

2. Every three seconds without an UP or DOWN key press the display will proceed from TEMP, MINUTES, then to SECONDS waiting for new preset set-points then exits the program preset state.

3. During this programming state you can advance from the Temp menu to the Time menu simply by pressing the TIME key.

4. Likewise, while in the Time menu you can advance from Time-minutes to Time-seconds simply by pressing the TIME key.

5. In addition, while in the Time menu you can go back to the Temp menu by pressing the TEMP key.

6. At any point during this programming state you can press the appropriate PRESET number key and that will store the new values and exit the programming state.

Using PRESET Keys

1. While the unit is in the 'Idle State' simply press the appropriate PRESET key (1, 2 or 3) to use the values previously stored into that PRESET key. At this point you just need to press the START/CANCEL key.

#841-00003

HEATING

TIME	°F	PSI
0:00	72	0.0
1:00	72	0.0
2:00	168	0.0
3:00	201	0.0
4:00	214	0.7
5:00	246	12.9
5:26	250	15.1

STERILIZING

TIME	°F	PSI
0:00	250	15.1
1:00	251	15.6
2:00	251	15.6
3:00	251	15.6
4:00	251	15.7
5:00	251	15.6
6:00	251	15.6
7:00	251	15.6
8:00	251	15.6
9:00	251	15.6
10:00	251	15.6
11:00	251	15.6
12:00	251	15.6
13:00	251	15.6
14:00	251	15.6
15:00	251	15.6
16:00	251	15.6
17:00	251	15.6
18:00	251	15.6
19:00	251	15.6
20:00	251	15.6
21:00	251	15.6
22:00	251	15.6
23:00	251	15.6
24:00	251	15.6
25:00	251	15.6
26:00	251	15.6
27:00	251	15.6
28:00	251	15.6
29:00	251	15.6
30:00	251	15.6

VENTING

TIME	°F	PSI
0:00	251	15.6
1:00	212	0.0
2:00	212	0.0
3:00	212	0.1

TOTAL
38:26

DATE:_____

OPERATOR:_____

COMMENTS:_____

_____

_____

Figure 10

Printing/Data Logger

This unit is set up to record the Time, Temperature and Pressure during all phases of the full sterilization cycle. All three of these parameters are recorded at one-minute intervals. The data logging clearly labels the printed output with headers separating the three cycles, HEATING, STERILIZING and VENTING.

Each run is assigned a unique ID number that is printed at the top of the printout.

Each unique ID number is made up of two numbers separated by a dash (-). (Example; #237-00053)

The first 3 digit number is a number that never changes. It is a unique number that identifies the sterilizer unit itself. The last five digits are incremented by one for every time the unit is run.

Also included at the end of each printout is the following;

DATE:_____

OPERATOR: _____

COMMENTS: _____

_____

_____

The DATE, OPERATOR and COMMENTS fields can be hand written in if required.

PRINT Key

In the LCD Display, if the word PRINT is displayed then the recorded data will be automatically printed at the end of the full sterilization cycle. Likewise, if the word PRINT is not displayed then the recorded data will not be printed automatically after the full sterilization cycle completes.

1. To toggle between PRINT enable and PRINT disable just press and release the PRINT key. This can be performed at any time during the Heating, Timing (Sterilization) or Venting cycles.

Printing previously run cycles

The data logger will store approximately 20 full sterilization cycles. This number may vary slightly depending on how long each cycle runs. For example, the data logger can store more cycles set at 30 minutes versus cycles all set at 60 minutes.

As stated before each full cycle is assigned a unique ID number. This number can be used to scroll back through the data logger and print out the exact cycle you want to print out. There is also an option to print out ALL the previous cycles.

To print out selected cycles;

1. Press and hold the PRINT key. The display will show the ID of the last run cycle. To scroll back through the cycles just press the DOWN key. Likewise, during

the scrolling, you can hit the UP key to scroll forward through the cycles. At your selected cycle ID number just press and release the PRINT key.

To print out all the cycles;

1. Press and hold the PRINT key. When the display shows the last run ID number keep hitting the DOWN key until the word 'ALL' is displayed. Now press and release the PRINT key.

Printer Paper cutting

The paper will be cut automatically at the end of each single print or printing ALL.

Printer Paper Changing

Follow these steps to re-load the printing paper;

1. Push the printer door "open" button. Two doors will open, the inner door and outer door.
2. Remove paper roll spool from printer. Remove black plastic spindle from center of spent paper roll. DO NOT DISCARD BLACK PLASTIC SPINDLE!
3. Insert black plastic spindle into new paper roll. Insert new paper roll into printer. (Note: paper exits from top of roll)
4. Hold paper tip with one hand and close the inner door by pressing on the yellow strip.
5. Close black outer door making sure that paper protrudes through the slot.

Figure 11

Low Water Reset

If the water inside the chamber is allowed to run dry it will trigger the Low Water Cut-off. At this point the unit will;

- Shut down all three heating elements
- Light the red Low Water indicator light.
- Start the Venting cycle
- The Data Logger will record the error code

  Note The sterilizer's LCD display may show the temperature and pressure rising slightly during this venting period but that is normal.)

- Once the unit completes the VENTING cycle the screen will flash 'DONE' and display 'SERVICE' and the Beeper will sound.

Steps to Reset the unit

1. The LCD display now shows 'ERR 06' and beeper changes to a constant tone.

   Note: An explanation of Error Codes is shown below in the Appendix

Recommended steps but not required:

1. Shut off 'ON/OFF' power switch to controller.
2. Wait until unit cools down. Opening the unit door will help the unit to cool down quicker.
3. When power is restored the buzzer tone will continue and 'ERR 06' will be displayed again.
4. Open the door and add water to the chamber.
5. Once the chamber has cooled enough you can press the Low Water Cutoff RESET button. Listen for the 'click' sound.

   If constant tone continues press any menu key to turn off.
6. The unit is now back in the 'Idle State' and ready to be run again.

Cleaning

DAILY CLEANING PROCEDURE (*AT THE END OF EACH DAY*):

When sterilizing culture mediums that generate sulfide gas or chlorine gas, the inside of the chamber must be cleaned and rinsed thoroughly without fail.

1. Remove bottom splash baffle.

⚠ **IMPORTANT**

STERILIZING CHAMBER MUST BE CLEANED AND DRAINED DAILY USING THE FOLLOWING PROCEDURE. WASH WETTED PORTION OF THE CYLINDER THOROUGHLY BY ADDING A MILD DETERGENT TO WATER IN CYLINDER.

2. If a soft cloth or brush is used with the detergent and does not completely remove the surface film, a nylon soap pad should be used. After washing thoroughly rinse with clean water. Dry cylinder* and leave door open overnight.

* The Sterilmatic cylinder is constructed of corrosion resistant Alclad aluminum alloy. The protective properties of this material afforded to the interior portion of the cylinder which is exposed to water may be destroyed by allowing a film to form. Such a film can be caused by salts or other contaminants in the water. Corrosion may also occur if water is not drained daily.

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.

STERILIZER (AUTOCLAVE) WARRANTY

MODELS: STM-ED, STM-EDX*

We warrant to the original purchaser that the sterilizers manufactured by Market Forge will be free from defects in material and factory workmanship if properly installed and operated under normal conditions. Within one year from date of original installation, or within 15 months from date of shipment from factory, whichever is sooner, we will repair or replace that part of any such machine that becomes defective at no cost to the customer.

This warranty is effective for One (1) Year Parts and 90 Days Labor, Travel and Mileage.

This warranty does not apply to damage resulting from use of hard or corrosive water, from failure to drain and dry cylinder daily or from inadequate cleaning procedures. Nor does it cover any part or assembly, which has been subjected to accident, alteration, or is from a machine where the serial number has been removed or altered. Normal service adjustments are not covered by this warranty.

Any defect during the warranty period shall be brought to the attention of a factory authorized service agency or the dealer from whom the equipment was purchased. He will be authorized to furnish or arrange for repairs or replacements within the terms of the warranty.

NOTE: This warranty only applies to the USA and Canada. Elsewhere, warranty covers parts only for one year as described above.

** Export Model.*

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