



HYBRIDIZATION CHAMBER

MODEL: 1012

INSTALLATION AND OPERATIONAL MANUAL



LAB Online Exhibition

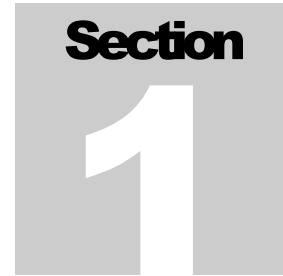


TABLE OF CONTENTS

| | |
|--------------------|--------------------------|
| SECTION 1.0 | RECEIVING AND INSPECTION |
| SECTION 2.0 | GRAPHIC SYMBOLS |
| SECTION 3.0 | INSTALLATION |
| SECTION 4.0 | CONTROL OVERVIEW |
| SECTION 5.0 | OPERATION |
| SECTION 6.0 | MAINTENANCE |
| SECTION 7.0 | TROUBLESHOOTING |
| SECTION 8.0 | PARTS LIST |
| | UNIT SPECIFICATIONS |
| | SCHEMATICS |

REV. 12/99
4861309

This unit is for professional, industrial or educational use where the preparation or testing of materials is done at approximately atmospheric pressure and no flammable, volatile or combustible materials are being heated. This unit is not intended for hazardous or household locations or use.





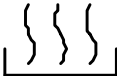





RECEIVING AND INSPECTION

Your satisfaction and safety require a complete understanding of this unit. Read the instructions thoroughly and be sure all operators are given adequate training before attempting to put the unit in service. **NOTE: This equipment must be used only for its intended application; any alterations or modifications will void your warranty.**

- 1.1 Inspection:** The carrier, when accepting shipment, also accepts responsibility for safe delivery and is liable for loss or damage. On delivery, inspect for visible exterior damage, note and describe on the freight bill any damage found, and enter your claim on the form supplied by the carrier.
- 1.2** Inspect for concealed loss or damage on the unit itself, both interior and exterior. If necessary, the carrier will arrange for official inspection to substantiate your claim.
- 1.3 Return Shipment:** Save the shipping crate until you are sure all is well. If for any reason you must return the unit, first contact your customer representative for authorization. Supply nameplate data, including model number and serial number. Please see the manual cover for information on where to contact customer service.
- 1.4** Verify that all of the equipment indicated on the packing slip is included with the unit. Carefully check all packaging before discarding. Each unit comes equipped with a cord set, drip tray, 4 adjustable feet, brass locking pin, and rotisserie assembly that needs to be installed.

GRAPHIC SYMBOLS

Your incubator has been provided with a display of graphic symbols, which is designed to help in identifying the use and function of the available user adjustable components.

- 2.1  Indicates that you should consult your manual for further description or discussion of a control or user item.
- 2.2  Indicates “AC Power ON”.
- 2.3  Indicates “Heating”.
- 2.4  Indicates “Carousel Rotating”.
- 2.5 $^{\circ}\text{C}$ Indicates “Degrees Centigrade”.
- 2.6  Indicates “Temperature”.
- 2.7  Indicates “Carousel Adjustment”.
- 2.8  Indicates “Protective Earthground”.
- 2.9  Indicates “Potential Shock Hazard” behind this partition.

INSTALLATION

Local city, county or other ordinances may govern the use of this equipment. If you have any questions about local requirements, please contact the appropriate local agency. Installation may be performed by the end user. It is unnecessary for this unit to be installed by a technician.

Under normal circumstances this unit is intended for use indoors, at room temperatures between 5° and 40°C, at no greater than 80% Relative Humidity (at 25°C) and with a supply voltage that does not vary by more than 10%. Customer service should be contacted for operating conditions outside of these limits.

- 3.1 Power Source:** The electrical supply circuit to the oven must conform to all national and local electrical codes. Consult the oven's serial data plate for the voltage, cycle wattage and ampere requirements before making connection. VOLTAGE SHOULD NOT VARY MORE THAN 10% FROM THE SERIAL PLATE RATING. This unit is intended for 50/60 Hz application. A separate circuit is recommended to prevent possible loss of product due to overloading or failure of other equipment on the same circuit.
- 3.2 Location:** In selecting a location, consider all conditions which might effect performance, such as heat from radiators, ovens, autoclaves, etc. Avoid direct sun, fast moving air currents, heating/cooling ducts and high-traffic areas. Allow a minimum of 5cm between the unit and walls or partitions which might obstruct free air flow.
- 3.3 Lifting / Handling:** This unit maybe heavy for some people and care should be taken to use appropriate lifting devices that are sufficiently rated for these loads. Units should only be lifted from their bottom surfaces. Doors, handles and knobs are not adequate for lifting or stabilization. The unit should be completely restrained from tipping during lifting or transport. All moving parts, such as shelves and trays should be removed and doors need to be positively locked in the closed position during transfer to prevent shifting and damage.
- 3.4 Leveling:** The unit must sit level and solidly. Leveling feet are supplied and must be installed in the four holes in the bottom corners of the unit. With the feet installed and the unit standing upright, each foot can be raised by

turning it in a counterclockwise direction. Adjust the foot at each corner until the unit stands level and solid without rocking. If the unit must be moved, turn the leveling feet all the way clockwise to prevent damage while moving.

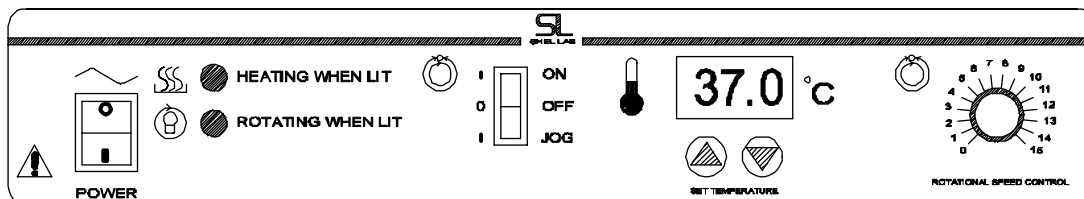
- 3.5 Cleaning:** The unit chamber should be cleaned and disinfected prior to use. Remove all of the interior parts, if assembled, and clean thoroughly, including all corners using a suitable disinfectant that is appropriate to your application. Regular periodic cleaning is required. Special care should be taken when cleaning around sensing heads to prevent damage. **DO NOT** use chlorine-based bleaches or abrasive cleaners as this will damage the stainless steel interior.

CONTROL PANEL OVERVIEW

(See Figure 1)

- 4.1 **Power Switch:** The main power I/O (on/off) switch controls all power to the unit and must be in the I/ON position before any systems are operational.
- 4.2 **Main Temperature Controller:** This control consists of the digital display and Up/Down arrow pads for inputting set point temperature and calibration.
- 4.3 **Heating When Lit:** This pilot light is on continuously when the unit is heating to reach set point and is blinking when the temperature is at or near set point.
- 4.4 **Rotate Switch:** This is a three way switch labeled ROTATE and controls the carousel.
- 4.5 **Rotating When Lit:** This pilot light is on when the rotate switch is in the on position and the carousel is turning.
- 4.6 **Rotational Speed Control:** This manually adjustable control maintains the carousel speed from 0 to 15 RPM.

Figure 1



46007784

OPERATION

WARNING: Hybridization bottles can develop a pressure considerably different than ambient when the contents are heated or allowed to cool. **DO NOT** open bottles at different temperatures, hotter or colder, than when the bottles were filled and sealed. **DO NOT** take the bottles higher than 70°C without opening and retightening the lid to relieve pressure. Temperatures in excess of 70°C can cause breakage of hybridization bottles. **DO not** run this chamber at temperatures rises above 70°C when bottles are in use. If the chamber temperature rises above 70°C and bottles are in chamber, **DO NOT OPEN THE OVEN DOOR.** Turn the chamber power switch off and allow the chamber and bottles to cool below 70°C before opening the door.

- 5.1 Check power supply against unit serial plate. They must match.
- 5.2 Plug service cord into the grounded electrical outlet.
- 5.3 **Set Main Temperature Controller:** Enter desired set point temperature. To enter set point mode on the controller, press either the Up or Down arrow pad one time. The digital display will start to blink, going from bright to dim. While blinking, the digital display is showing the set point. To change the set point, use the Up and Down arrow pads. If the arrow pads are not pressed for five (5) seconds, the display will stop blinking and will read the temperature in the chamber. Allow the incubator at least 24 hours to stabilize.
- 5.4 **Calibration:** It is recommended that calibration is done once the unit is installed in its working environment and has been stable at set point for several hours. Place a certified reference thermometer in the chamber where it is at near the sample area. Allow the temperature to stabilize again until the thermometer reads a constant value for one hour. Compare the digital display with the reference thermometer. If there is an unacceptable difference, put the display into calibration mode by pressing both the Up and Down arrow pads at the same time until the two outside decimal points begin to flash. While the decimal points are flashing the display can be calibrated to match the reference thermometer by pressing the Up or Down arrow pads until the display reads the correct value. Allow the incubator temperature to stabilize again, and recalibrate if necessary.

- 5.5 Rotisserie Operations:** The ROTATE switch is a three position switch which controls the carousel. The carousel is ON when the switch is in the up position; the carousel is OFF when the switch is in the center position. The lower position of the switch allows the user to incrementally rotate (JOG) the carousel.
- 5.6 Rotational Speed Control:** This control allows the user to change the speed of the carousel. Turning the knob clockwise increases the carousel speed. The range of this control is from 0 to 15 RPM (rotation Per Minute).

MAINTENANCE

NOTE: prior to any maintenance or service on this unit, disconnect the service cord from the power supply.

- 6.1 Cleaning:** cleaning and decontamination are recommended on a regular basis. to prepare the unit for cleaning remove the carousel and drip tray.
- A.** First clean the chamber with soap and water, rinse and let dry. To decontaminate use a disinfectant that is appropriate and effective to your application. Do not use chlorine-based bleach or abrasives as this will damage the chamber interior.
 - B.** Clean the carousel and drip tray with the same solution used for the chamber, or they can be autoclaved.
- 6.2 Storage:** if the unit is to be turned off for any length of time, dry the chamber and drip tray thoroughly and leave at room temperature. Failure to do this may cause the interior to become contaminated. No adjustment to controls should be required when restarting the unit. If the unit is shut down for transport, follow the above mentioned directions, disconnect the power supply and turn the leveling feet in all the way. See Section 3.3, Lifting/Handling for further instruction.
- 6.3** There is no maintenance necessary on electrical components. If the unit fails to operate as specified, review Section 7.0 Troubleshooting before calling for service.

TROUBLESHOOTING

TEMPERATURE

Temperature too high

- 1/ controller set too high-see section 5.3
- 2/ controller failed on – call Customer Service
- 3/ wiring error – call Customer Service

Display reads "HI" or "400"+

probe is unplugged, is broken or wire to sensor is broken – trace wire from display to probe; move wire and watch display to see intermittent problems

Chamber temp goes way over set point and then settles to set point

For Hybridization units, ± 1 may be normal; recalibrate to see if this eliminates the problem, see section 5.4

Temperature too low –

- 1/ Internal non-adjustable high limit failure – call Customer Service
- 2/ controller set too low – see Section 5.3
- 3/ unit not recovered from door opening – wait for display to stop changing
- 4/ unit not recovered from power failure or being turned off – incubators will need 24 hours to warm up and stabilize
- 5/ element failure – see if heating light is on; compare current draw to data plate
- 6/ controller failure – confirm with front panel lights that controller is calling for heat
- 7/ wiring problem – check all functions and compare wiring to owners manual - especially around any areas recently worked on
- 8/ loose connection – check shadow box for loose connections

Display reads "LO"

- 1/ sensor is plugged in backwards – reverse sensor wires to controller
- 2/ if ambient temperature is lower than range of unit – compare set points and ambient temperature to rated specifications in Section 9.0, Unit Specifications

Unit will not heat over a temperature that is below set point

- 1/ confirm that fan is moving and that amperage and voltage match data plate – check fan motor motion and feel for air movement in chamber
- 2/ confirm that set point is set high enough
- 3/ check connections to sensor
- 4/ check calibration – using independent thermometer, follow instructions in section 5.4

Unit will not heat up at all

- 1/ verify that controller is asking for heat by looking for controller heating light – if pilot light is not on continuously during initial start up, there is a problem with the controller
- 2/ check amperage – amperage should be virtually at maximum rated (data plate) amperage
- 3/ do all controller functions work?
- 4/ HAS THE FUSE/CIRCUIT BREAKER BLOWN?

Indicated chamber temperature unstable

- 1/ ± 0.1 may be normal
- 2/ is fan working? –verify movement of cooling fan in back of chamber
- 3/ is ambient room temperature radically changing – either door opening or room airflow from heaters or air conditioning ? – stabilize ambient conditions
- 4/ sensor miss-located, damaged or wires may be damaged - check mounts for control, then trace wires between sensor and control
- 5/ calibration sensitivity – call Customer Service
- 6/ electrical noise – remove nearby sources of RFI including motors, arcing relays or radio transmitters
- 7/ BAD CONNECTION ON TEMPERATURE SENSOR OR FAULTY SENSOR – CHECK CONNECTORS FOR CONTINUITY AND MECHANICAL SOUNDNESS WHILE WATCHING DISPLAY FOR ERRATIC BEHAVIOR; CHECK SENSOR AND WIRING FOR MECHANICAL DAMAGE

Will not maintain set point

- 1/ assure that set point is at least 5 degrees over ambient room temperature
- 2/ see if ambient room temperature is fluctuating

Display and reference thermometer don't match

- 1/ calibration error – see section 5.4
- 2/ temperature sensor failure – evaluate if heating light is operating correctly
- 3/ controller failure – evaluate if heating light is operating correctly
- 4/ allow at least two hours to stabilize
- 5/ see if reference thermometer is certified

Can't adjust set points or calibration

- 1/ turn entire unit off and on to reset
- 2/ if repeatedly happens, call Customer Service

Calibrated at one temperature, but not at another

This can be a normal condition when operating temperature varies widely. For maximum accuracy, calibration should be done at or as close to the set point temperature.

PARTS LIST

| Description | 115V | 220V |
|----------------------------------|---------|---------|
| Adjustable Feet | 200129 | 200129 |
| Blower Motor | 4880527 | 4880528 |
| Carousel Assembly | 9670511 | 9670511 |
| Carousel Clips | 1250500 | 1250500 |
| Cordset w/ inlet 15 amp | 104189 | 104192 |
| Element | 2350503 | 120071 |
| European Cordset w/ inlet 10 Amp | NA | 1800500 |
| Fan Blade, 3 inch | 104073 | 104073 |
| Fan Blade, 4.75 inch | 2600502 | 2600502 |
| Fuse 6.3 Amp | NA | 3300515 |
| Fuse, 10. Amp | 103558 | NA |
| Gasket, Chamber | 104071 | 104071 |
| Gear Motor | 210009 | 210009 |
| I/O Switch (On/Off) | 103351 | 103351 |
| Locking pin | 0370008 | 0370008 |
| Pilot Light, Heating | 200021 | 200021 |
| Pilot Light, Rotating | 200021 | 200021 |
| Power Inlet w/ fuse buss | 4200505 | 4200505 |
| Rotate Switch | 104109 | 104109 |
| Speed Control 0-15 RPM | 104191 | 104176 |
| Temperature Controller | 1750504 | 1750505 |
| Thermal Limit | 1750513 | 1750513 |
| Timing Belt | 0500503 | 0500503 |

UNIT SPECIFICATIONS

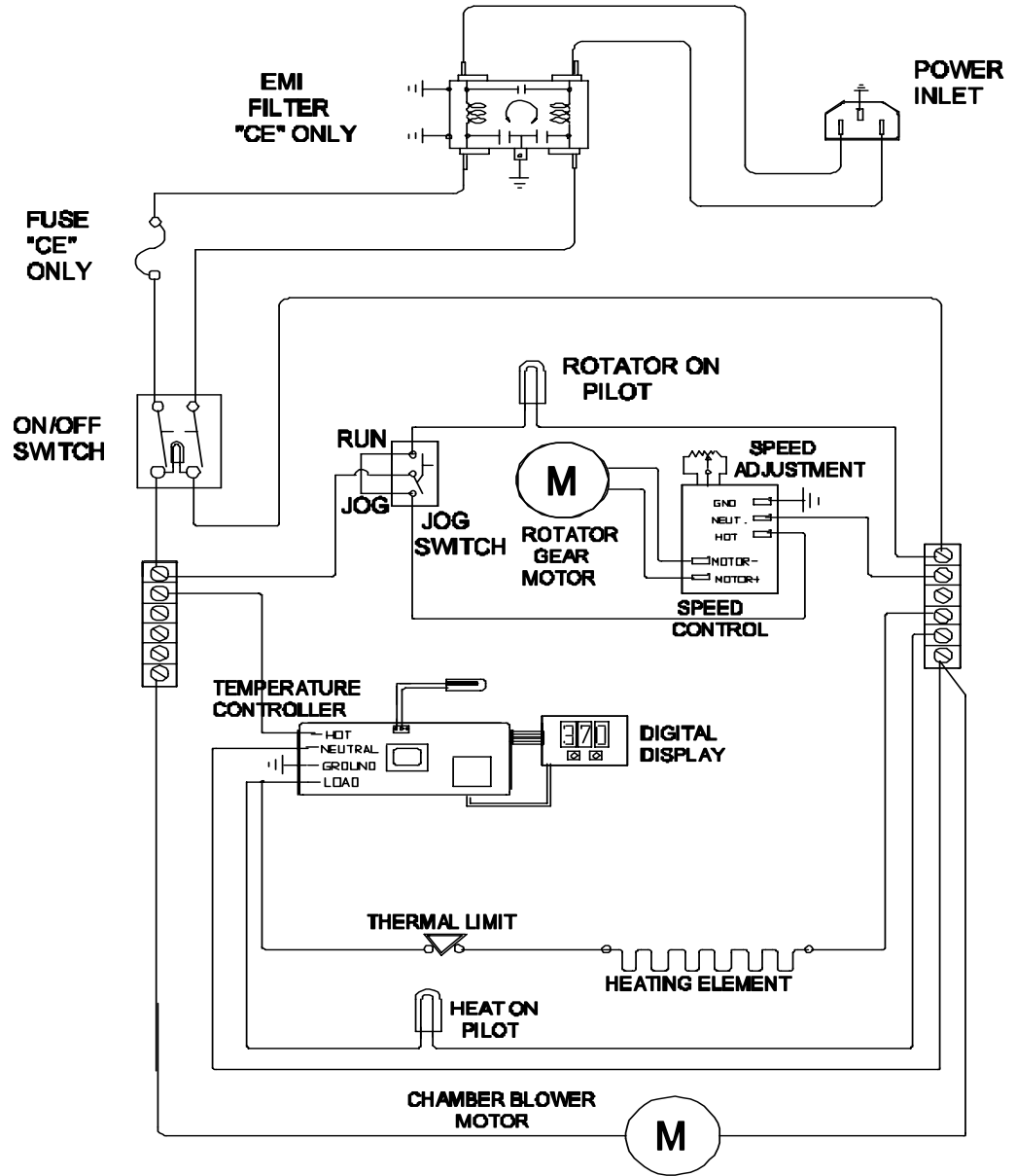
| Weight | Shipping | Net |
|--------|----------|---------|
| | 70 lbs. | 59 lbs. |

| Dimensions | Exterior WxDxH (in.) | Interior WxDxH (in.) |
|------------|----------------------|----------------------|
| | 18X12X21 | 12.5X12X14.5 |

| Capacity | Bottles |
|----------|---------------------|
| | 12x300mm or 24x75mm |

| Temperature | Range | Uniformity | Precision |
|-------------|----------------------------|------------|-----------|
| | Amb. +5 °to 65°C in 7 min. | ± 0.25° C | 0.1° C |

WIRE DIAGRAM



9850588
REV B. 12/ 16 /99