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# Instruction Manual For Digital Vacuum Oven 1407/1408 DIG



**PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION**

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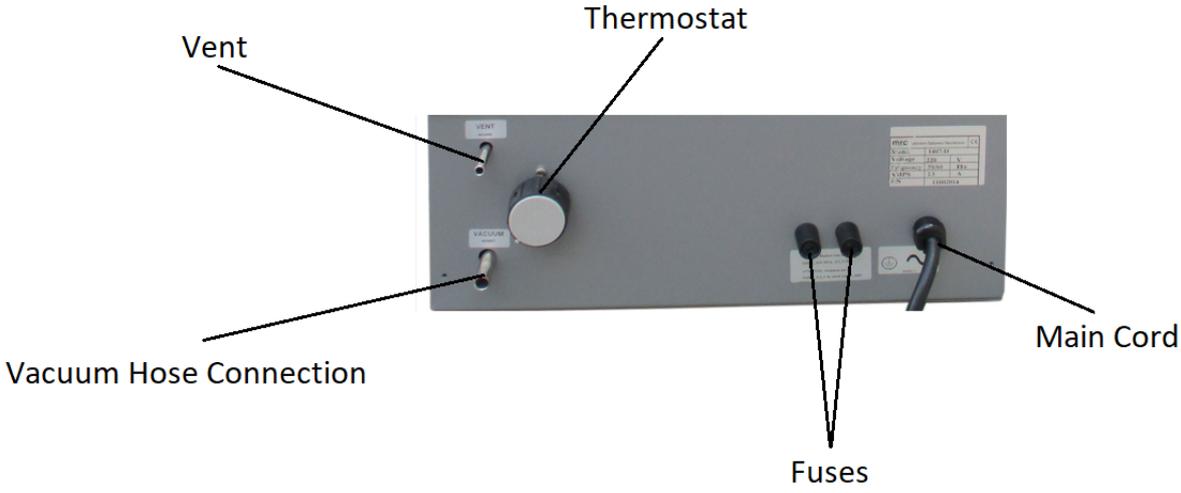
## **CONTROL PANEL OVERVIEW**

- 4.1 **POWER:** The main power I/O (ON / OFF) switch must be in the I/On position before any electrical systems are optional.
- 4.2 **HEATING :** This pilot lamp is on when the temperature controller has activated the heating elements to reach and maintain set point.
- 4.3 **TEMPERATURE CONTROLLER:** This is the manually adjustable temperature controller marked SET TEMPERATURE. Its dial is marked from 0 to 10 and is adjustable across this scale. A clockwise adjustment raises the temperature.
- 4.4 **VACUUM:** This adjustment valve, located on the right of the panel, allows opening and closing of the piping system to an external vacuum pump or system.
- 4.5 **VENT :** This adjustment valve, located on the left of the panel, controls the vacuum release to return the chamber to atmospheric pressure.
- 4.6 **VACUUM GAUGE :** This component, indicates the chamber operating pressure in inches of mercury

# Front View



# Rear View



## **PRECAUTIONS**

### **THIS IS NOT AN EXPLOSION PROOF OVEN**

- 5.1 Do not place or use explosive, combustible, or flammable materials in the oven.
- 5.2 Do not use sealed containers in the oven chamber.
- 5.3 Do not cut or remove the ground prong from the power cord or use an ungrounded 2- prong adapter plug.
- 5.4 Disconnect the unit from the electrical power source before attempting to make any repairs or component replacements.
- 5.6 THIS OVEN IS NOT SUITABLE FOR USE IN CLASS 1,2 OR 3 LOCATIONS AS DEFINED BY THE NATIONAL ELECTRICAL CODE NFPA 70.**
- 5.7 This oven is not intended, nor can it be used, as a patient connected device.

## VACUUM OPERATION

**IT IS IMPORTANT TO USE VACUUM TUBING FOR ALL VACUUM HOOKUPS. OTHER TYPES OF TUBING MAY COLLAPSE AND PREVENT COMPLETE EVACUATION.**

- 6.2 A pump with a pumping capacity four times greater than the chamber volume is advisable. For example a 1410 has a chamber volume of one (1) cubic foot so a pump with a pumping capacity of four (4) cubic feet per minute is recommended. When working below 1mm, a diffusion type pump will be needed. See unit specifications for chamber capacities.
- 6.3 **Vacuum** : To apply vacuum to the chamber attach the hose from the vacuum pump to the larger 3/8" hose connection on top of the oven. Close the VENT valve and open the VACUUM valve. Latch the door shut and start the vacuum pump. Be certain the vacuum valve is open and the VENT valve is closed. This action will hold the door shut and against the gasket until the pump creates a vacuum in the chamber. Once a good vacuum seal is accomplished, the door will hold itself shut and sealed until the chamber is returned to atmospheric pressure.
- 6.4 Watch the VACUUM GAUGE and when the required vacuum is obtained, close the VACUUM valve and turn the pump off. The VACUUM GAUGE is calibrated from zero to 30 inches of Hg (762mm of Hg) with zero representing atmospheric pressure. The oven can be evacuated to pressures as low as 10 microns.
- 6.5 **Vacuum Release** : To return the chamber to atmospheric pressure, open the VENT valve very slowly and allow the chamber to re-pressurize. The speed of pressurizing can be controlled by how much the valve is opened.

## OPERATION

**NOTE: Slight vapor or smoke may occur in the initial heat-up. This is the dissipation of protective coatings that have been applied to the oven elements.**

**7.1 Power Supply :** Connect the service cord to a grounded outlet and push the power switch to the I/ON position. If supplied with a detachable cordset, plug the female end into the inlet of the unit and the male plug into the supply. Assure that units requiring a fuse have a fuse installed. This fuse may be at the inlet or part of the cordset male plug.

**7.2 Setting Temperature:** Press the upper or the lower button to rise or lower the temperature setpoint (SV). The new setpoint is entered when the button is released and indicated by a brief flash of the display. The actual temperature measured at the process (PV) is connected to the input of the controller. This is compared with a setpoint (or required) temperature (SP). If there is an error between the set and measured temperature the controller calculates an output value to call for heating. The calculation depends on the process being controlled but normally uses a PID algorithm. The output from the controller are connected to devices on the plant which cause the heating demand to be adjusted which in turn is detected by the temperature sensor. This is referred to as the control loop or closed loop control.



**7.3** Allow the unit to stabilize for several hours. Temperature stability is obtained when the HEATING light circulates on and off to maintain set point and the temperature value in the chamber remains consistent.

## MAINTENANCE

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

- 8.1 Cleaning :** Disinfect the oven interior on a regular basis. To prepare the oven for cleaning remove the shelves and door gasket. The shelves and door gasket are autoclavable.
- A. First clean removed parts and interior with soap and water. To decontaminate use a disinfectant that is suitable to your Application. **DO NOT** use chlorine based bleaches or abrasives as this will damage stainless steel surfaces.
  - B. When washing the gasket, handle carefully so as not to impair the positive seal.
- 8.2 If the oven is to be shut down for storage or transporting, remove shelves and latch the door closed. Screw the leveling feet in on the 1430. See Section 3.3 for transport procedures.
- 8.3 There is no maintenance required on the electrical components. If the oven fails to operate as specified, see Troubleshooting before calling for service.