Operation Manual

(Version 2.0.0)

VWR Vacuum Oven

10752-398, 10752-400, 10752-402

10752-404, 10752-354, 10752-356

"10752-402" VWR Vacuum Oven, 30Lit.

Man. V205 (10 Nov. 2015)

Contents

1 Safety Instructions

Please read this manual carefully before using this product for optimal use. The indicated cautions are related to safety and you should observe all safety and warning instructions to avoid potential damage to product and injury to operators. Keep this manual for future reference.

Also, carefully observe the safety markings on the product. These safety markings are shown in Section 4 'Description of Key Parts and Functions' in this manual and are located on the left side of the unit.

Note: Use this product only in the way described in the product literature and this manual. Before using the product, verify that this product is suitable for its intended use.

Do not modify the system components or use unauthorized parts as this will void the product warranty.

Symbols (Pictograms) and the meaning

	This symbol indicates caution.		This symbol indicates prohibition.
	This symbol indicates prohibition regarding modification.		This symbol indicates caution regarding heat.
	This symbol indicates risk of explosion or fire.		This symbol indicates the user must be kept away while in operation.
	This symbol indicates Protective earth (ground).	N	This symbol indicates the connection point of the neutral conductor on the installed unit.
	This symbol indicates power "OFF" on the power on/off switch.	I	This symbol indicates power "ON" on the power on/off switch.
~	This symbol indicates alternating current Voltage.		

Please read below following warnings regarding Safety and Proper Use.

 **WARNING**	
	Do not use a power supply other than the one the unit is designed to operate on. Inappropriate power supply may result in damage to the equipment. Adhere to all electrical codes.
	Please do not touch with wet hands. It may cause an electric shock.

	Do not mishandle the power cord. Disconnection or a short circuit may occur if power cord is bent or a heavy object is placed on the cord.
	Insert the plug securely into an appropriate wall socket. Loose connections result in excessive heat generation to the device and may cause arcing to occur at the connection.
	Unplug the unit from the wall socket if the unit is not going to be used for an extended period of time.

Installing the Product (Refer to Section 5 for Installation Instructions)

 **WARNING**	
	Place the product on a level, horizontal surface to support the weight of the product without vibration.
	Do not operate the product in the presence of flammables. It could cause explosion or fire.
	Do not operate the product outdoors. Avoid areas where the sun shines directly on the product. It could cause an overheating condition or a short circuit.
	Do not install the product where it can get damp or in a dusty environment. It may cause overheating or short circuit. – Pollution Degree 2
	Do not use this product in a location where the ambient room temperature falls below 5°C and rises above 40°C.
	Do not install the product in a location at an altitude of over 2,000 meters (6,562 feet).
	Do not operate this product near a heater or an air-conditioner.
	The device should be located in a well ventilated location. Be sure the ventilation holes on the side or rear surface of the body are not blocked by a wall or an object. It may cause fire or damage if the product is not to able to properly reject heat or insufficient ventilation may result.
	The fluctuation of main power voltage should be lower than +/-10% of the nominal voltage..
	The maximum relative humidity is 80% at 31°C and 50% at 40°C .
	Use only a power outlet which has a ground (earth) terminal. Do not earth to gas pipe, plastic tap water pipe or phone line. It may cause an electrical shock, a fire, breakdown or explosion of the unit.
	The product should be connected to the rated power supply as specified on the label on the rear side of the unit, AC 120V/60Hz, 15A. If the product is connected to incorrect power source or electricity, it may cause overheating, an electrical shock or shortage of a component.

	If a product was transported or stored in high humidity condition, please check packaging condition before use. If the carton or wooden box is waterlogged, please contact the deliverer or our technical service engineer. Do not operate the unit before checking with an engineer, otherwise it may cause an electrical shock or a fire.
	Do not put any object in the space between the outer and inner chamber. When an object like stone, metal or paper which is easily combusted is inserted in the space, it may cause a fire, an electrical shock or breakdown of the unit. If this happens, pull the main plug out from the socket immediately and contact Equipment & Instrument Services 1-888-897-5463

Operating the device (Refer to Section 7 for Operation Instructions)

 **WARNING**	
	Clean the bottom of inner chamber and install the shelves properly before use.
	The inner chamber is hot during operation, do not touch the inner chamber without proper hand protection during operation as burns may occur.
	Place only metal, glass or ceramic material in the chamber. Do not place plastic ware in the chamber.
	Do not close your face, hands or body into a chamber. It may cause an injury or burn by high temperature.
	Only operate unit after checking the safety of the unit. If a slight shock or poisonous gas from a sample is generated use proper safety precautions.
	If unexpected sound, smell or smog is generated, pull the main plug out from the wall socket and contact VWR Equipment & Instrument Services 1-888-897-5463

 **CAUTION**	
	This product must be connected to a properly grounded power supply.
	If irradiated or contaminated samples are placed in the chamber, the warranty is voided. Do not use this product to sterilize or disinfect objects or samples.
	The Sound Level of the buzzer is maximum 60dB in 1 meter distance when an error is detected.

2 Introduction

VWR Vacuum Ovens combine microprocessor controlled temperature with a state-of-the art design that delivers a true naturally-occurring gravity convection.
VWR Vacuum Ovens are designed for convenient and safe use in many applications such as Drying, Baking, Conditioning, Curing, Out-Gassing Solids and Liquids, Vacuum Embedding, Moisture Testing, Plating and Aging Test.

Key features include;

- Two independent tubing of Vent line and Vacuum line is separately connected to the outer ports. This structure optimizes the gas exchange in the chamber.
- The unique High Heat Conduction Mechanism realizes the best performance of Heat Transfer in the vacuum environment that has no heat transfer by air.
- The brackets attached on the sides of chamber, are tightly assembled to the shelves. This structure enhances heat transfer to samples placed on shelves. The shelves can be detached from the chamber for using various sizes of beakers/flasks.
- The high-qualified molding gasket ensures the complete door sealing.
- Tempered Glass and PC Window enhance the Safety while observing samples in the chamber.
- Easy to set temperature, time, locking mode using Rotary Knob and Mode Buttons.
- High-quality LCD display with Back-light function.
- The necessary matters during the experiment can be conveniently used by the support of SUB MENU.
- Over Temperature & Over Current Protection, Short Circuit Protection.
- RS232 communication is applicable for Monitoring and Controlling with PC.
- UL/CUL Approved
- 2-year Warranty

3 Package Contents

	Q'ty
Vacuum Oven	[1]
Power Cord	[1]
Aluminum Shelves	[2]
Operation Manual	[1]

Models

(a) 10752-398 : Vacuum Oven, 20L(0.7cuft), 120V, 60Hz
(b) 10752-400* : Vacuum Oven, 20L(0.7cuft), 230V, 50/60Hz
(c) 10752-402 : Vacuum Oven, 30L(1.1cuft), 120V, 60Hz
(d) 10752-404* : Vacuum Oven, 30L(1.1cuft), 230V, 50/60Hz
(e) 10752-354 : Vacuum Oven, 70L(2.45cuft), 120V, 60Hz
(f) 10752-356* : Vacuum Oven, 70L(2.45cuft), 230V, 50/60Hz
* 230V models are not UL certified.

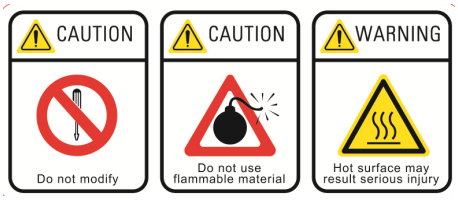
4 Description of Key Parts and Functions

<Figure 1> 10752-398, 400, 402, 404 (20Lit,30Lit)

<Figure 2> 10752-354, 356 (70Lit)

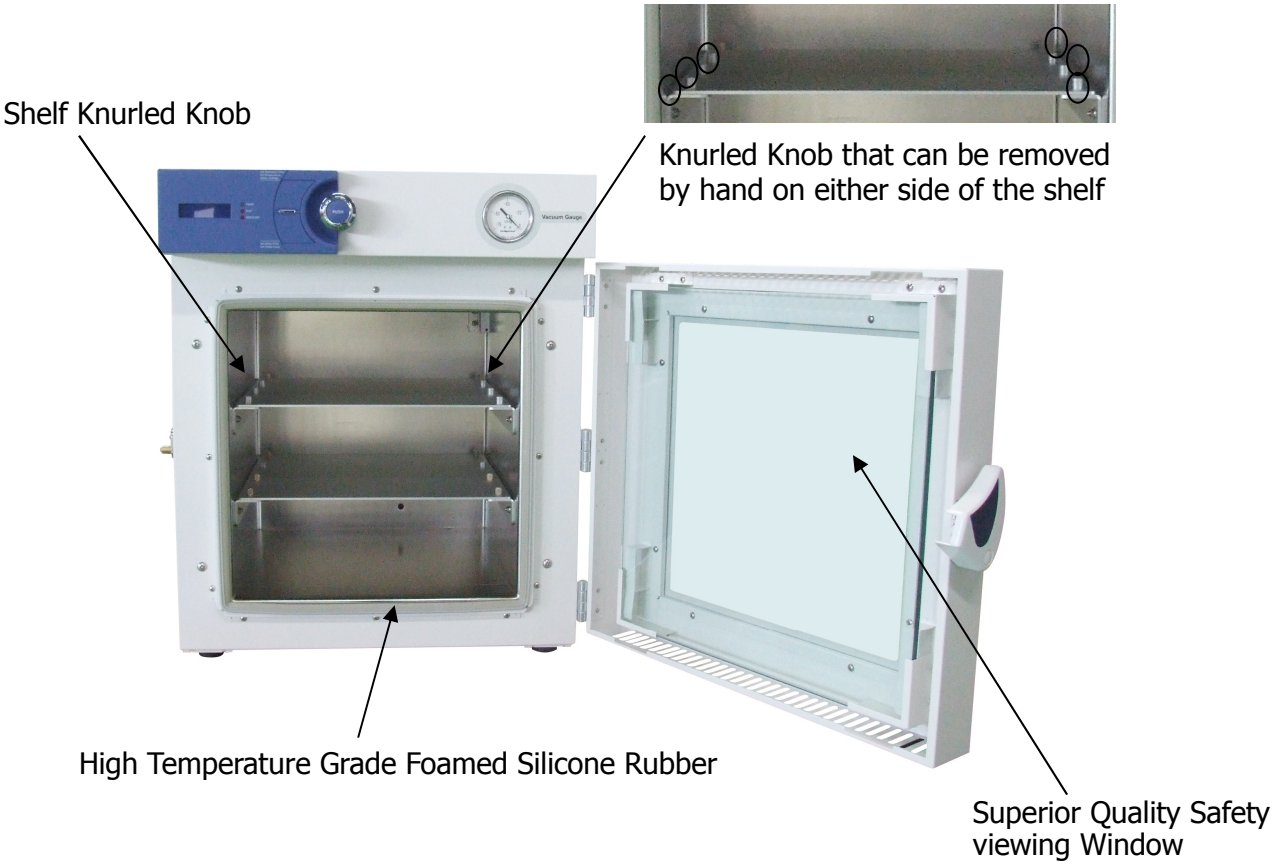
* Safety Symbols on a product

- For meaning of each symbol, please refer to Section 1, Safety Instructions.



Safety symbols on units, for further description of each symbol, please refer to Section 1, Safety Instructions.

<Figure 3> Safety Symbol Label on a product



<Figure 4> Feature of VWR Vacuum Oven

5 Installation

1. Please read Section 1 Safety Instructions carefully for your safety before use.
2. After receiving the unit and locating it in the specified location, remove the packaging.
3. Check the unit for any transport damages. If any such damages are found, please contact the deliverer of the product.
4. Movement and placement method of the product
   - VWR Vacuum Ovens are not equipped with casters. Units should be moved using a cart. Ensure that no damage is sustained by the units during transport.
   It is recommended that units are moved by at least 2 people and by lifting units up holding the indicated positions in the figure below.

5. The product should be positioned in a location where it has enough space for ventilation and prevention from fire. The recommended distance of each side is minimum 20cm from the back wall, 100cm from the side walls and ceiling respectively.
6. Place the device on a level, horizontal surface to support the capacity of the device without vibration.
7. Once the unit is placed in its installation location, let the unit stand for 15-30 minutes so that all the internal parts of the unit stabilize.
8. Connect the power cord to the wall socket.
9. When installing the device, insure the wall socket is easily accessible.

*** Grounding**

This product must be connected to a proper grounded power supply.

You should connect to the power socket having the ground and over 15A for all models. Do not earth to gas pipe, plastic tap water pipe or phone line. It may cause an electrical shock, a fire, breakdown or explosion of the unit.

* Connection of Vacuum Pump, and Connecting Method of Cold Trap Bath

- The size of the Vacuum Nozzle and Vent Nozzle located on the right side of the Vacuum Oven are OD Φ10mm, so these nozzles should be connected to the Cord Trap Bath or the Vacuum Pump by using the hose with ID Φ8~9mm (Recommending to use a silicone-based hose).

* Connection of Cold Trap Bath

- The Cold Trap Bath can economically and effectively shut off that the harmful gas and the vapor of organic solvent which has a fetal influence on the vacuum device are flowed into the mechanism, so it can extend the life of the vacuum pump and enable the recovery of the organic solvent.

- If the gas removed from the inside of Oven has many heat when setting the vacuum, the Vacuum oil in the Vacuum Pump can be often scattered together the heat of the de-saturated gas. For this reason, because the life of Vacuum Pump can be shortened, user must protect the Vacuum Pump by cooling the de-saturated gas with the Cold trap.

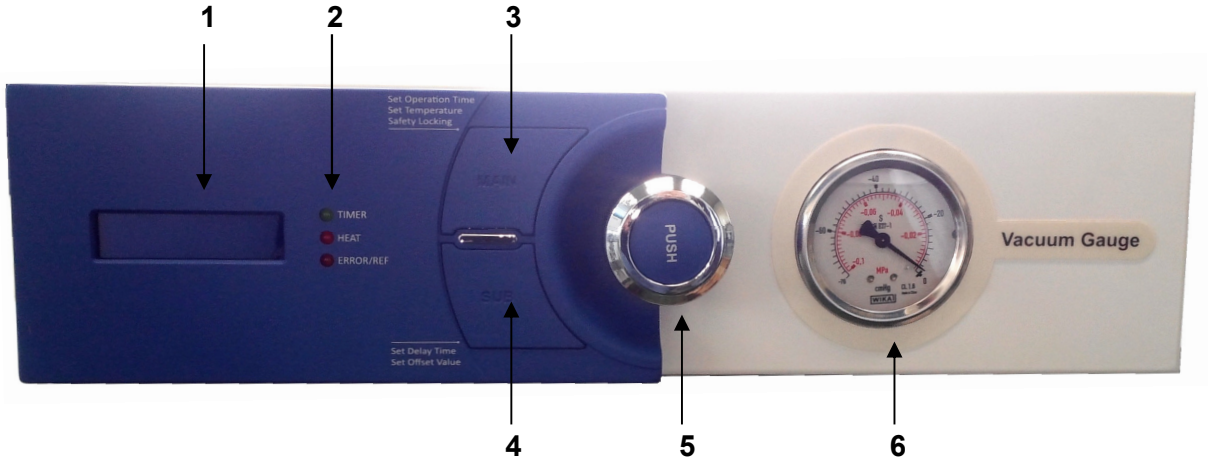
- When air is injected into the Chamber of the vacuum condition at the time of vent setting, the samples of the vacuum condition should be protected from other components contained in the air.

* Connection of Vacuum Pump

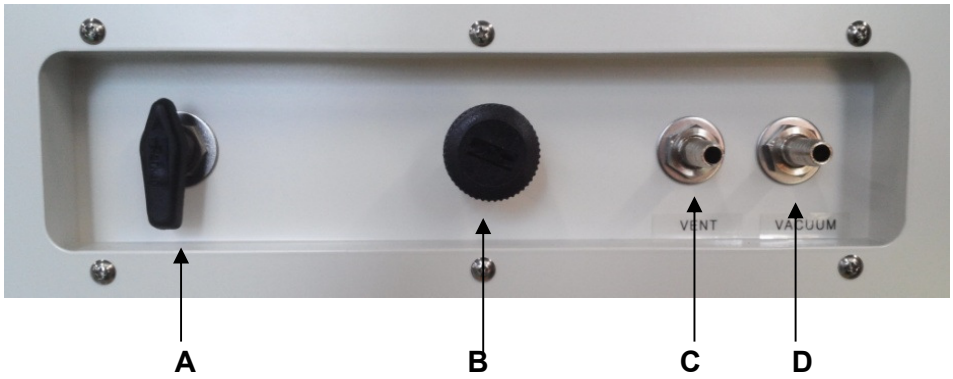
- The Vacuum Pump makes the inside of chamber of the Vacuum oven to the vacuum state, and the vacuum pump model can be selected according to the desired exhaust speed (L/min).

- The vacuum pump should be installed in the place where is easy to install or remove it and to perform the work, such as checking and cleaning, and please install this device with attention to the ambient temperature if fixing it. In addition, please install using the vibration-proof and rubber, etc. so that the vibration is not transferred to the vacuum pump.

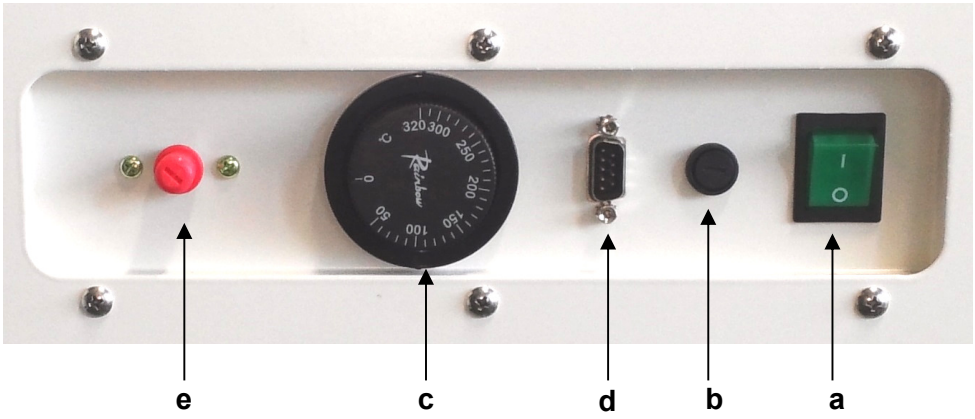
6 Controller Details



1. **Digital LCD Display** – Indicate SV (Set Value) and PV (Present Value) of temperature and/or timer.
2. **TIMER, HEAT, ERROR** Indicators – Indicate operation of Timer/Heater, Current Status and Error, respectively
3. **MAIN** Button – Used to change MODE to Temperature Setting and for the Timer Setting
4. **SUB** Button – Used to change the Sub Mode to Setting Delay Time, or Compensate Temperature Value (Set Buzzer Type not active in this model)
5. **JOG Dial** Knob – Used to set Temperature and Time by turning and then START/STOP by Pushing in the knob
6. **Pressure Gauge** – Used to indicate current pressure value



A. **Vacuum Control Valve** – Open/Close for Vacuum State using Vacuum Pump Connection.
B. **Vent Control Valve** – Air Inflow Controller within Chamber when releasing Vacuum.
C. **Vent Nozzle** – Air Inflow Nozzle when releasing Vacuum (OD Φ10mm)
D. **Vacuum Nozzle** – Connection Nozzle with the Vacuum Pump when set up Vacuum (OD Φ10mm)

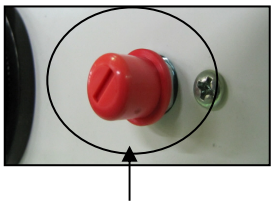


a. **Main POWER Switch** – Used to turn the unit on and off
b. **Fuse** - Protect unit from High Current
c. **SAFETY** Knob – Safety device which protects against uncontrolled overheating of the unit
d. **RS232C Connector** : Port for cable connection to PC.
Monitoring and Controlling with PC by connecting RS232C cable

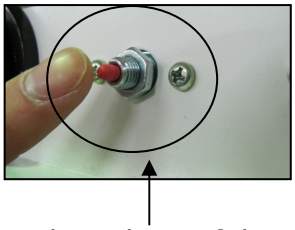
e. **SAFETY Protector**

Protects the product by cutting the power to the heater when the unit operates abnormally and overheats (over 230°C). If the SAFETY Protector has been activated, the heater will not auto-recover, and must be reset manually to recover.

- To reset the SAFETY Protector



1) Check the location of the SAFETY Protector



2) Remove the red cap of the Protector by turning it to the left and press the switch once. Then, you should hear the 'click' sound, the protection will be released and the unit will work.

Caution !
If the SAFETY Protection is activated, it means that the product was run over the temperature limit, please contact Equipment & Instrument Service 1-888-897-5463.

7 Operation

1. Preparation for Use

- Connect the power cord to the proper power socket.
- Set the SAFETY knob to 30~40°C higher than operation temperature.
- Turn on the Main Power Switch.
- To pull a vacuum in the chamber:

Vacuuming

1. **Close the Vent Control Valve by completely turning clockwise.**
2. **Open the Vacuum Control Valve by turning lengthways.**
3. **Connecting a vacuum hose to the Vacuum Nozzle.**
4. **Operating the vacuum pump.**
5. **Check the vacuum state of pressure gauge.**
6. **Complete vacuum setup.**
7. **Close the Vacuum valve by horizontally.**
8. **Stop the pump. (At this time, first, must close the Valve and stop the pump.)**

Release vacuum

1. **Open the Vent Valve slowly by turning it counterclockwise.**
2. **Open the door when reach certain pressure level.**

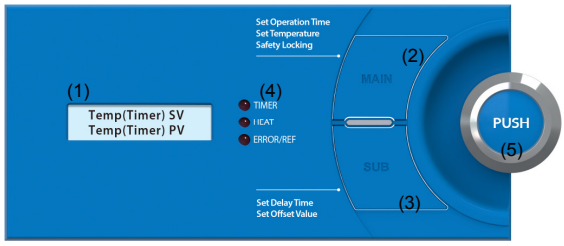
Note: Please allow 2 hours for chamber temperature to stabilize after start of heating operation for the temperature PV to be accurate.

2. Setting the Timer

2.1 Set Operation Timer

- The initial mode after power up is "Set Operation Timer" mode, the TIMER indicator flashes.
- "Tim SV" on the LCD display indicates the set value of the timer and "Tim PV" indicates the present value (remaining time) of the timer.
- Initial value (SV) of the time is 00:00, which means infinite time. That means this unit will operate (heat) continuously once the operation is started.
- Turn the Rotary Knob, the SV and PV change together. SV can be set in 1 minute increments and the maximum value is 99:59 (99 hours and 59 minutes).
- Set the required time using the Rotary Knob and push it to complete the timer setting. Then timer is started. The unit continues to operate (heat) until the SV of the timer has expired.

❖ When Operation Timer ends, Alarm beeps three times.
❖ When the Timer activates, Timer Indicator is lit on Temperature Mode or Locking Mode. In Timer Mode, the Timer Indicator flashes regardless the Timer activation.



(1) Digital LCD Display

(2) MAIN Button

(3) SUB Button

(4) TIMER, HEAT, ERROR LED Indicators

(5) Rotary Knob

2.2 Set Delay Timer

- Go to "Set Delay Timer" mode by pushing the SUB button while in the Set Operation Timer mode. TIMER indicator flashes.
- "DTim SV" on the LCD display indicates set value of the delay timer and "DTim PV" indicates the present value (remaining time) of the timer.
- Set required delay time using the Rotary Knob and push it in to complete the timer setting. The timer is started and the TIMER lamp indicator is lit. The unit starts operation (heating) after the delay time has expired.
- Return to the Set Operation Timer mode by pushing the MAIN button.

❖ After setting Operation Timer and/or Delay Timer, push the Rotary Knob to operation of the Timers.

❖ To change the Delay Timer Setting during operation, push the Rotary once to stop operation and set Timer accordingly. After completion of setting, push the Rotary Knob once to restart operation. Operation Timer can be set during operation without stopping the unit.

3. Set Temperature

3.1 Set Temperature

- Go to "Set Temperature" mode by pushing the MAIN button while in the Set Operation Timer mode.
- "Temp SV" on the LCD display indicates the set value of the operation temperature and "Temp PV" indicates the present value (measured value by temperature sensor in the chamber) of the chamber temperature.
- Turn the Rotary Knob, the SV changes. The SV can be set in 1°C increments. The maximum value is 200°C.
- Set the required operating temperature using the Rotary Knob and push it in to complete the temperature setting. The controller starts operation of the heater to reach the set temperature.

❖ To change the Set Temperature during operation, push the Rotary Knob once to stop operation and set Temperature accordingly. After completion of setting, push the Rotary Knob once to restart operation.

❖ During heating, HEAT Indicator is flickering upon the heater operation.

❖ During operation, PV Temp and Running are shown on the lower line by turns.

3.2 Temperature Offset (Calibration)

VWR Vacuum Ovens intelligently and precisely control the temperature inside the chamber by Advanced, Adaptive Microprocessor Control, so high precision with low over/undershoot is assured. Some users may want to 'synchronize' the PV temperature of the unit to the temperature value measured by a thermometer that is used as a reference point for the process. To accomplish this, the VWR Vacuum Ovens offer a function to adjust the PV temperature within –10.0 ~ +10.0°C ⇒ User's self-compensation function.

- Go to "Set Offset Value" mode by pushing the SUB button while in the Set Temperature mode.
- "Temp PV" on the LCD display indicates current temperature and "Offset" indicates the value to be added to the PV temperature (compensation value).
- Turn the Rotary Knob, the Offset and the Temp PV change together. Offset can be set in 0.1°C increments, and the input range is –10.0 to +10.0°C. Temp PV, now shows the temperature value with the added or subtracted offset value.
- Return to the Set Temperature mode by pushing the MAIN button.
- If Set Temperature Offset is accessed during operation (heating), heating will be stopped. Operation can be restarted by pushing the Main Button then the Rotary Knob.

❖ After the adjustment, hold the Rotary Knob for 1 second to save the set value and see the LCD display flickers twice (refer to 5. Storage Function). We recommend to store the offset value when you used a calibrated validator/thermometer or the unit is used for the personal application only. But, if the unit is for public use or the adjustment is for temporary application, do not save the value. Otherwise, it may affect to other applications.

4. Locking Mode

- It is recommended that while unit is in operation (heating) that the unit is set to Locking Mode.
- Go to "Locking" mode by pushing the MAIN button while in the Set Temperature mode. In this mode, turning or pushing the Rotary Knob has no effect on the unit, to avoid any unintended changes.
- Operation Timer PV and Temp PV are shown on the LCD display.
- Return to Set Operation Timer mode by pushing MAIN button.
- If you need to set Temperature, push the MAIN button again while in the Set Operation Timer mode.

5. Storage Function

In each setting mode (Set Operation Timer mode, Set Delay Timer mode, Set Temperature mode, and Set Offset Value mode), you can store the set values by simply pushing and holding the Rotary Knob for 1 second. To show the value is successfully stored, the set value on the LCD display flashes twice. Even though the unit is turned off, the set values are stored permanently, so you can reuse the values for the next operation.

❖ If you need to set Temperature during running the unit, push the Rotary Knob once to stop running and then adjust the temperature. Push the Rotary Knob once to restart the unit.

6. Function of Auto Recovery at Power Failure

In the event of an unexpected disruption of the power supply to the product caused by power loss or by accidental removal of the power cord from the power socket when power is restored to the unit, VWR Vacuum Ovens have a function to automatically recover the status of the last operation as follows:

- **Activating the function**: If you save the currently operating Temp SV value, to a non-zero value as set in "5. Storage Function" above, the unit will start operation with the saved Temp SV automatically without manually setting/starting again at the next power up of the unit. If you want the unit to start operation automatically again after sudden power loss situation, save the current Temp SV by pushing in the Rotary Knob for 1 second while operating.

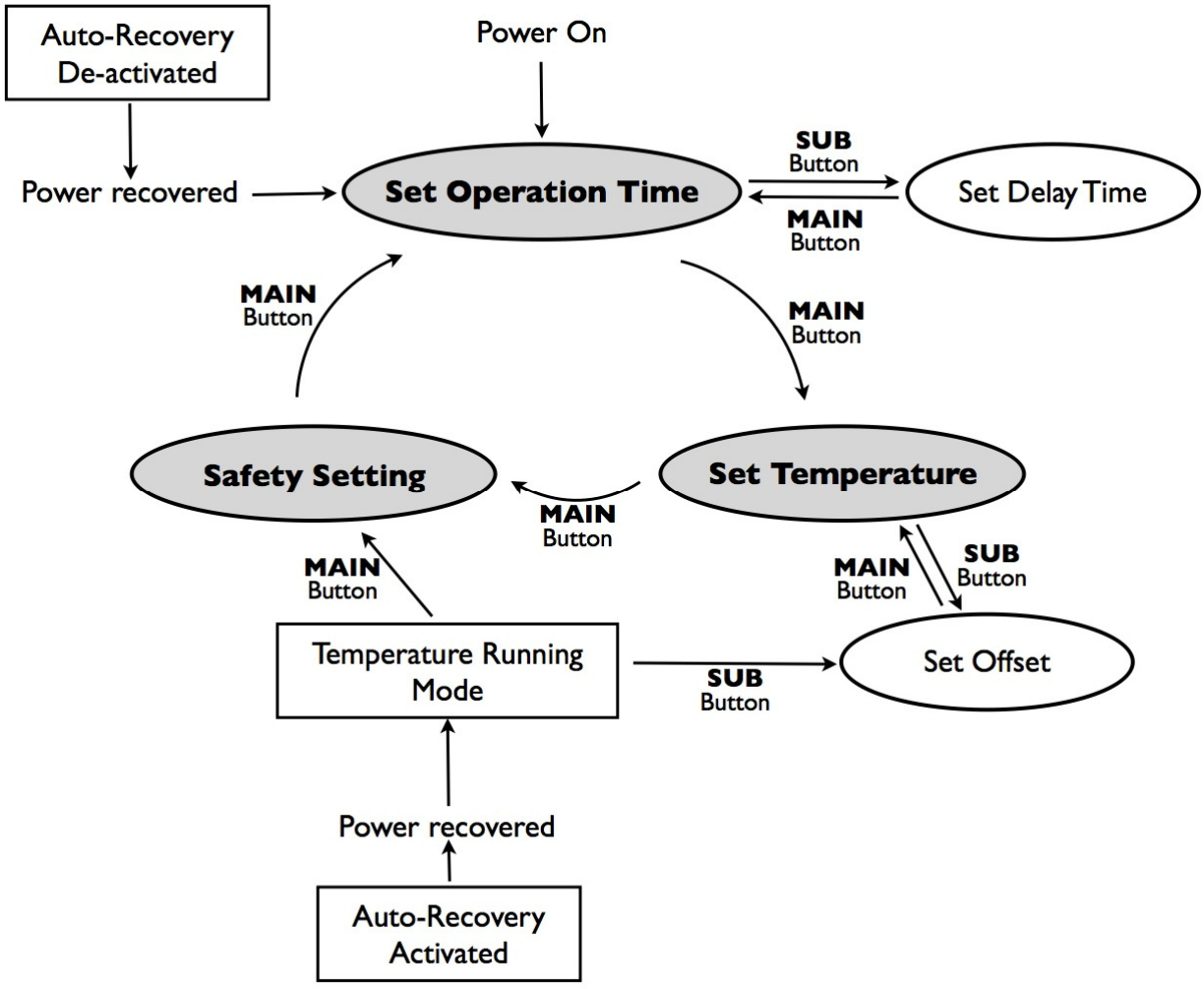
* Timer and Delay Timer values are not activated after auto recovery.
* Once power recovered, the display automatically shows the Temperature Running mode.

- **Deactivating the function**: If you turn the Rotary Knob counterclockwise maximally in Set Temperature mode, 0°C will be displayed after 25°C. If you save this 0 value of Temp SV by pushing the Rotary Knob for 1 second, the unit will stay at the initial status without operating automatically at the next power up of the unit. Please use this mode only when you don't need automatic recovery of operation after power loss.
  * After power recovered, the LCD Display automatically goes into the Timer Setting Mode for adjustment.

7. Summarization of Mode Transition

By the simple combination of MAIN, SUB buttons and Rotary Knob, VWR Vacuum Ovens offer outstanding user-interface with maximum efficiency and convenience for controlling overall functions of the unit.

The following diagram briefly shows the overall mode transition mechanism.



8 Specifications

Model Name		10752-398, 400	10752-402, 404	10752-354, 356
Capacity		18.6L (0.7cuft)	30L (1.1cuft)	70L (2.45cuft)
Vacuum Range		10 ~ 750 mmHg		
Temp.	Range	Ambient +10℃ to 200℃		
	Fluctuation	±0.6℃ at 100℃ & 150℃		
	Variation	±2.2℃ at 100℃ & ±3.5℃ at 150℃	±2.5℃ at 100℃ & ±3.5℃ at 150℃	±3.0℃ at 100℃ & ±4.0℃ at 150℃
	Sensor	PT 100		
Heating Power		600W (170W X 2 + 130W X 2)		1,600W (350W X 2 + 450W X 2)
Heating-up Time		75 min. to 100℃ 105 min. to 150℃	85 min. to 100℃ 115 min. to 150℃	95 min. to 100℃ 125 min. to 150℃
Achievable vacuum level		1.0 mbar		
Leakage rate		< 1.0 mbar/hr		
Timer & Alarm		99hr 59min (with delay / Continuous run.), Error status & timer-end		
Display		Digital LCD Display with Back Light		
Controller		Digital PID Controller with Jog-Dial knob (Turn + Push)		
Resolution		Control : ±1.0℃, Display : ±1.0℃		
Shelves		2ea of Aluminum Shelves Included(detachable)		
Shelves Size (W x D)		260 X 245mm	290 X 285mm	340 X 390mm
Height between shelves		87mm	98mm	133mm
Safety Circuit		Over. Temp. and Over Current Protector, Sensor Error Detector		
Material	Internal	Stainless Steel (#304)		
	External	Powder Coated Steel		
	Window	Tempered Safety Glass, 12T, Poly Carbonate 5T for Safety		
	Insulation	Ceramic Wool		
Others		RS232C Interface for Monitoring and Controlling with PC Storage Function (Temp. and Time) Locking Mode (Jog-Shuttle Input Disabled), Alarm (Error Status and Timer-end)		
Dimension (w×d×h)	Internal(inch)	10.4 x 11.4 x 10.4	11.8 × 13.0 × 11.8	15.7 × 17.1 × 15.7
	External(inch)	18.9 × 18.7 × 21.7	20.3 × 20.3 × 23.1	24.3 × 24.4 × 27.1
Vacuum & Vent line Size		o.d 10mm		
Net Weight		105.8 lb	121.2 lb	187.3 lb
Packing Dimension (w×d×h) inch		23.0 x 22.8 x 31.3	24.4 × 24.4 × 32.7	28.5 × 28.3 × 36.6
Gross Weight		130 lb	147.7 lb	220.4 lb
Power Consumption		600W	600W	1,700W
Power Supply		1 Phase, AC 120V, 60Hz or 230V, 50/60Hz*, with Cord/Plug		

* 230V models are not UL certified.

9 Maintenance

1. If the unit is not to be used for an extended period of time, disconnect the power cord from the wall socket.
2. If service is needed please contact VWR Equipment and Instrument Services 1-888-897-5463.
3. VWR is not responsible for damage to the unit caused by abnormal use or by not heeding warnings and cautions in the manual or unauthorized modifications of the unit.

CLEANING

1. Before cleaning the unit, disconnect the power cord from the wall socket. Otherwise, it may cause an electric shock or fire.
2. To clean the unit, a neutral detergent and soft cloth is recommended. Do not use coarse cloth, strong chemicals or organic solutions.
3. Do not use water, Benzene, Thinner or any alcohol for cleaning the product. It may cause discoloration, damage, an electric shock or fire.
4. If you expect damage by a chemical during cleaning, call VWR technical support team.
5. Do not pour water directly into the unit. It may cause an electric shock or fire.
6. During cleaning of the chamber, be careful cleaning the corners to avoid injury.

- Cleaning Method of the Inner Chamber

- Remove the shelves equipped in the chamber. Clean the contaminated part using a neutral detergent and soft cloth.
- After cleaning, reassemble the shelves properly.
- Do not clean the unit aggressively. Otherwise, the coating or painting of the product could be damaged.

- Cleaning Method of the Exterior

- Clean the exterior using a neutral detergent and soft cloth.
- Do not clean the display or JOG-SHUTTLE Knob aggressively as they may be damaged.
- Do not clean the unit aggressively. Otherwise, the coating or painting could be damaged.

- Cleaning Method of the Parts

- Clean the parts using a neutral detergent and soft cloth.
- Do not clean the unit aggressively. Otherwise, the coating or painting could be damaged.

Troubleshooting Guide 10

Situation	Confirmations and Solutions
Unit Not Heating	Check the Temp SV and confirm operation by pushing in the Rotary Knob. Check the MAIN Power Switch is on. Check the SAFETY Knob is set to a value higher than the operating temperature. Check the Safety Protector is not activated.
Power Failure	Check the power cord is plugged into wall socket. Check the supplied voltage is proper and regulated.
Heating, but unit not reaching temperature	Check the Set Temperature is higher than ambient temperature (recommended min set temp: 10C higher than ambient temp). Problem in the sensor or main controller. Please contact VWR Equipment & Instrument Services 1-888-897-5463.
Heating, but temperature is fluctuated	Check the SAFETY Knob is set to a value higher than the operating temperature.
Fuse is blown OR circuit breaker is flickered.	Check power source of wall socket and see what other loads are on wall circuit.
Error 1	Temperature Sensor Reading Error. Check whether the unit is heating properly or not when the Error 1 develops. Please contact VWR Equipment & Instrument services 1-888-897-5463.

※ If you have any problem other than above, please contact VWR Equipment & Instrument Services 1-888-897-5463.