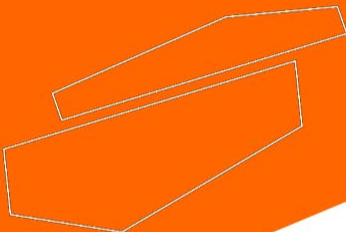




Please read the User Manual carefully before use, and follow all operating and safety instructions!



user manual

english

User Manual



LBX OVF Force Air Drying Oven

Preface

Users should read this Manual carefully, follow the instructions and procedures, and beware of all the cautions when using this instrument.

Service

If help is needed, you can always contact your dealer or Labbox via www.labbox.com (declare an incidence)

Please, provide the customer service representative with the following information:











- Serial number (on the back side)
- Description of the problem
- Your contact information

Warranty

This instrument is guaranteed to be free from defects in materials and workmanship under normal use and service, for a period of 12 months from the date of invoice. The warranty is extended only to the original purchaser. It shall not apply to any product or parts which have been damaged on account of improper installation, improper connections, misuse, accident or abnormal conditions of operation.

For claim under the warranty, please contact your supplier.

1. Safety Instructions

	Connect the device to an earthed power supply to ensure the safety of the machine and the experiment; connect the power as the machine requires it.
	The use of this instrument in inflammable, explosive, poisonous, or highly corrosive experiments is forbidden.
	Place the air drying oven on a horizontal, flat, stable table leaving 30 free cm on each side.
	This item must only be used by previously qualified staff that has read the instructions manual and knows how to operate it.
	Do not place the device near any heat source.
	During its functioning, dangerous materials such as flammable or pathological substances must be out of the device's safety area.
	An overfilling of the oven could cause some working parts to overheat, which could start a fire.
	While the machine is working, do not touch the device's surface; as well as the observation window in order to avoid burns.
	Non-professionals are not allowed to disassemble and repair this machine.
	Read the instructions manual before using this device.

- When working, wear the necessary personal protective equipment to avoid the risk of:
 - Burns caused by contact with hot surfaces or materials
 - Burns caused by splashing and evaporation of liquids
 - Intoxication caused by release of toxic or flammable gases
- Set up the instrument on a spacious, stable, clean, non-slippery, dry, and fireproof surface that can support the equipment's weight. Do not operate the instrument in explosive atmospheres or with hazardous substances.

- Beware of hazards due to:
 - Flammable materials or media with a low boiling temperature.
 - Oven overfilling
- The device and accessories shall be checked before handling prior to each use. Do not use damaged components.
- Pay attention to the setting temperature when dealing with inflammable matters.
- The instrument can only be disconnected from the main power supply by pulling the plug, not the wire.
- The voltage must correspond to the main power supply.
- Ensure that the main wire does not contact the surface. Do not cover the device.
- Keep away from high magnetic fields.

2. Instructions for use

The instrument has been designed for heating in schools, laboratories, industries and for research purposes. It is not suitable for domestic use or for use in environments that can be hazardous for either the user or the instrument.

3. Inspection

3.1 Unpacking

Unpack the equipment carefully and check for any damages that may have arisen during transportation. If necessary, contact your supplier for technical support.



Note:

If there is any apparent damage on the equipment, please do not plug it into the power line.

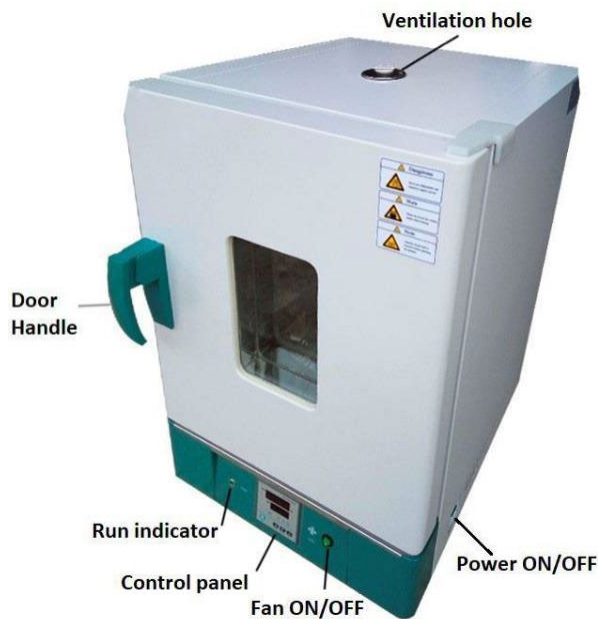
3.2 Items list

The package includes the following pieces:

Content	Quantity
Principal unit	1
Power cable	1
Tray	2
User manual	1

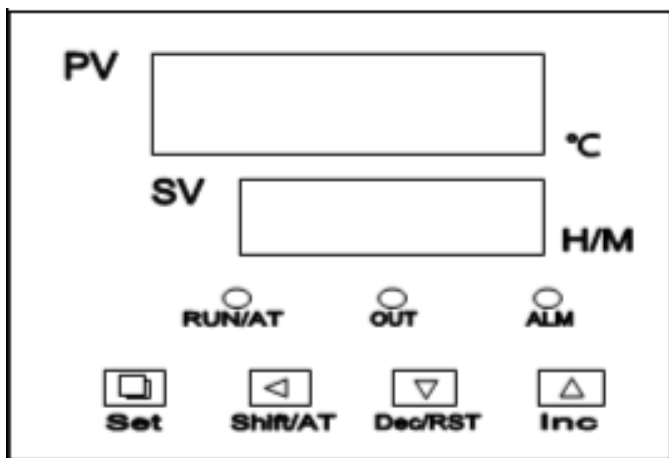
4. Control elements

4.1 LBX OVF Force Air Drying Oven



Note: The plug-in is in the back of the device.

4.2 Control panel



1. **PV screen:** current measurement value
2. **SV screen:** set parameter value
3. **RUN/AT:** work indicator
4. **OUT:** heat indicator
5. **ALM:** alarm indicator
6. **Set:** parameters confirmation
7. "◀" **Shift/AT:** shift to next digit
8. "▼" **Dec/RST:** decrease parameter value
9. "▲" **Inc:** increase parameter value

- The **PV screen** will display the real temperature of the working room while the **SV screen** displays the previously set temperature.
- **RUN/AT** indicator: This indicator lights when the controller is running, when the runtime is over, this indicator is not lighted.
- **OUT** indicator: This indicator lights if the heater is running; else, this indicator is not lighted.
- **ALM** indicator: When the over-temperature alarm occurs, this indicator lights.

5. Trial run

- Unwrap the equipment and, without connecting the equipment to the net, make sure that it does not present any damage. In case the equipment presents any damage, communicate it immediately your transport agent or dealer.
- Place the equipment on a flat, stable surface that can support the weight of the device leaving 30 free cm on each side.
- Make sure the required operating voltage and the power supply's voltage match.
- Make sure the socket is earthed.
- Switch the power button ON.
- The PV screen will display the real temperature of the working room. The SV screen will display the previously set temperature.
- Press the SET button and set a higher temperature (as shown in 6.1). If the temperature increases, the equipment is working properly.
- Switch the power button OFF to turn off the oven.

6. Operating

- Place the equipment on a flat, stable surface that can support the weight of the device leaving 30 free cm on each side.
- Place the sample in the container (advice: the size of the sample should not be over 2/3 of the shelf); then close the container door.
- Turn the power button ON and then turn the fan button ON.
- The PV screen will display the real temperature of the working room while the SV screen displays the previously set temperature.
- After usage, turn off the equipment by pressing the Power ON/OFF switch and unplug it.

6.1 Set the working temperature

The max working temperature is 300°C, set the temperature this way:

- Press the SET button. The controller will run into temperature setting state.
- In the temperature setting state, use the "▼" and "▲" buttons to select the desired temperature value. Use the "◀" button to go from one digit to the next. Press the SET button again twice, it will quit the setting state and the settings will be saved automatically.
- Temperature will start to rise until the working room reaches the desired temperature value.
- The PV screen will display the real temperature of the working room while the SV screen displays the previously set temperature.

Note: don't close the fan when the temperature is rising, or else it will accelerate the ageing of the heater.

6.2 Timer setting

By default, this feature will be OFF. Therefore, the equipment will keep working until it is manually switched OFF.

- Press the SET button. The controller will run into temperature setting state. Press the SET button again, the controller will run into time setting state.
- In the time setting state, use the "▼" and "▲" buttons to select the desired time value (1-9999 min). Use the "◀" button to go from one digit to the next. Press the SET button again, it will quit the setting state and the settings will be saved automatically.
- When the temperature reaches the value set at 6.1, the timer will start. When the run time is over, the SV window will display "End", the buzzer will make a sound for 30 seconds and the heating will be disconnected.
- In order to stop the buzzer sound, you can press any button from the controller.
- In order to switch OFF this feature, you can set the desired time value to 0000 min.

6.3 Temperature alarm

- The alarm is set by default at 5°C.
- This means that when the working temperature is 5°C higher than the desired temperature, the alarm will activate.
- When the temperature alarm activates, the buzzer sounds and "ALM" lights. To stop the sound, you can press any button.
- If a 5°C over-temperature is reached by changing manually the temperature value (6.1), "ALM" lights but the buzzer does not sound.

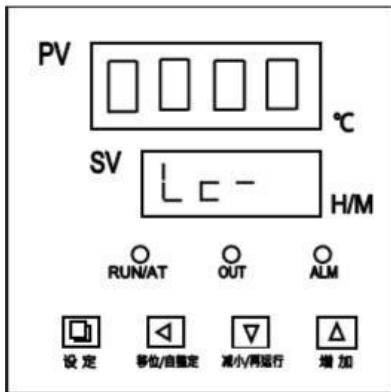
6.4 Other concerns

- In the setting state, the controller will return to run status if no key is pressed in one minute.
- If the display window shows "----", it indicates the fault of temperature.

6.5 Advanced settings

Internal parameters settings

- In order to change any of the internal parameters press the SET button for 3 seconds. The SV screen will display "Lc-", which will require a password in the PV screen in order to change the internal parameters.



- Adjust the password at the PV screen to the required value (0003 to change values from Parameter list-1 or 0009 to change values from Parameter list-2, the lists are below).
- Once you change the password in the PV screen, press the SET button again, it will run into the internal parameter setting state.
- To switch between parameters in the list, press the SET button, it will go one by one through all the parameters in the table.
- If the SET button is pressed for another 3 seconds, it will return to the running state.

Parameter list-1:

Parameter indicator	Name	Instruction of the Parameter's function	(Setting range) default set value
Lc-	Password	When Lc=0003 ,then we can see and modify parameters	0000
AL-	Alarming setting	When temperature is beyond "Temp+AL", the Alarm indicator turns on. The buzzer sounds and the heater output turns off.	^(0~100%) 5
T-	Control cycle	The heat control cycle of temperature	(1~60S)
P-	Proportional band	Adjustment of proportional parameter.	(1.0~rH) 30
I-	Integration time	Adjustment of integration parameter.	(1~1000S) 400
d-	Differential time	Adjustment of differential parameter.	(0~1000S) 200
Pb-	Zero point adjust	Adjustment of zero point parameter.	^(-50~50%) 0
PK-	Full point adjust	Adjustment of full point parameter.	(-999~999) 0
Et-	Timing function	When ET = 0, The timing function is removed When ET = 1, The timing function starts without the need of reaching the set temperature value When ET = 2, The timing function starts when the set temperature value is reached	(0~2) 2

Parameters Indicating	SP	St	Lc	AL	T	P	■	d
English Name	SP	St	Lc	AL	T	P	■	d
Parameters Indicating	Pb	Pk	Co	Hn	oP	rH	En	Lt
English Name	Pb	Pk	Co	Hn	oP	rH	En	Lt

Parameter list-2:

Parameter indicator	Name	Instruction of the Parameter's function	(Setting range) default set value
Lc-	Password	When Lc=0009, then we can see and modify parameters	0
Co-	Turn off the heat output deviation	When "PV ≥ SP + Co", Turn off the heating output	5.0
Hn-	Constant temperature time mode	0 : minutes time ; 1 : hours time	(0~1) 0
En-	End of operation temperature	When EN = 0, when the run time is over, the SV window will display "End", the buzzer will make a sound for 30 seconds and the heater is disconnected When EN = 1, when the run time is over, the SV window does not show "End", the buzzer will make a sound for 30 seconds and the heater will continue at constant temperature	(0~1) 0
Lt-	Maximum power output	The heating output maximum power percentage	(0~100) 100
oP-	Gate-control function	0: shut-off function of opening door to judge, 1: unlock function of opening door to judge	(0~1) 1

7. Fault resolution

- The equipment cannot be turned ON
 - Make sure the cable is rightly connected.
- The temperature cannot reach the set point
 - Check if the temperature is set too low and readjust it.
 - Check for apparent damages that may have arisen during transportation.
 - The heater and/or the electric system may be damaged.

If these faults are not resolved, contact your manufacturer/supplier

8. Maintenance

- Proper maintenance can keep instruments working properly and lengthen its lifetime.
- Do not spray cleanser into the instrument when cleaning. Avoid cleaning it with chemical solutions to prevent reaction damage.
- Unplug the power line while cleaning.
- Wear the proper protective gloves during cleaning procedures.
- The device needs to be cleaned and decontaminated before sending to repair.
- Must be sent with the original packing.
- Make sure the device is used on a clean and dry surface and that the ambient temperature is steady.

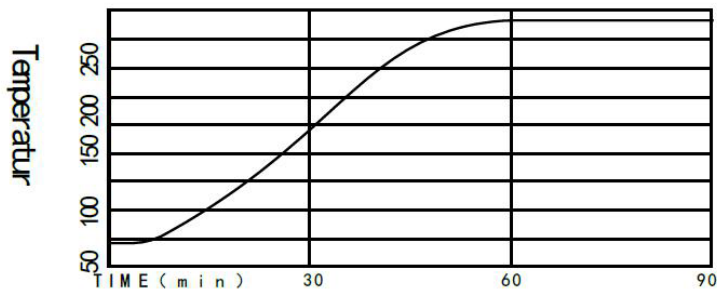
9. Transport and storage

- Keep the device on a dry and clean place with good airing and free of corrosive gases and flammable or corrosive atmospheres.
- Ensure that the device does not get wet or hit during transport.

10. Technical features

Model	DOVF-030-001	DOVF-045-001	DOVF-065-001	DOVF-125-001	DOVF-230-001
voltage	AC220V 50-60Hz				
power(w)	800W	1200W	1600W	2300W	3000W
Tem. range	RT+10~300°C				
Tem. fluctuation	±1.0°C				
Inner Chamber size W*L*H(mm)	310×310×310	350*×350×350	400×360×460	500×450×550	600×500×750
Exterior size W*L*H (mm)	450×500×690	490×540×730	590×625×885	640×630×930	730×680×1250
Shelf load	15kg				
Weight (kg)	39	42	47	56	85
Capacity (L)	30	45	65	125	230
Shelf Qty.	2				

Temperature profile



Note: The warm-up time is different according to each model type.

11. Working conditions

The drying oven works under the following conditions:

1. Ambient temperature ranges between 5~40°C
2. Relative humidity lower than 85% RH
3. Power: voltage 220v, frequency 50-60Hz
4. No succession and corrosive gas surrounding the oven.

