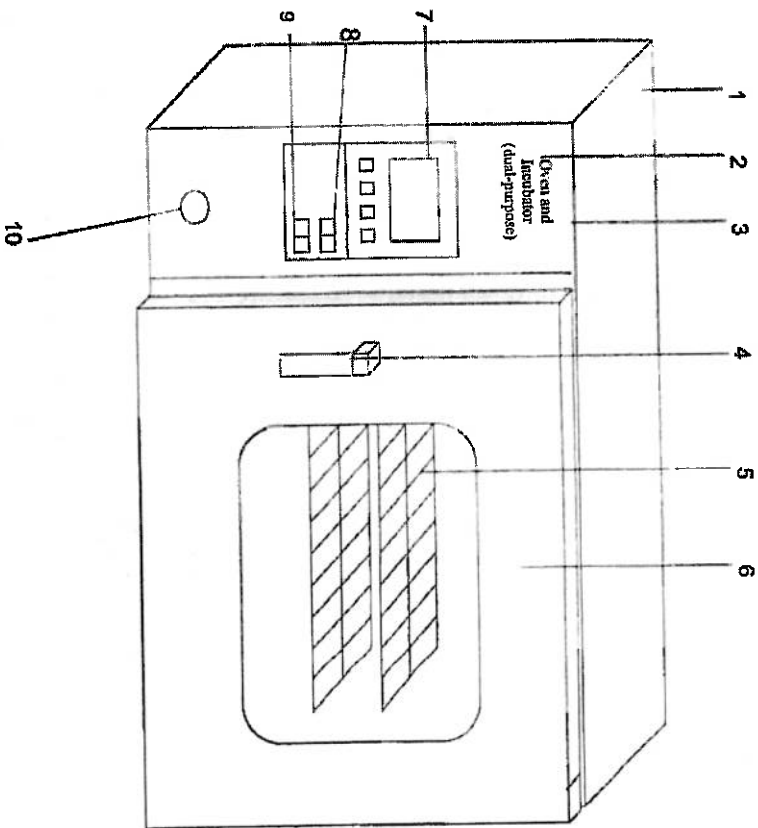


I. Diagrammatic Sketch:



- 1. Main Body
- 2. Nameplate
- 3. Panel of the controller
- 4. Door handle
- 5. Shelf
- 6. Door
- 7. Temperature controller
- 8. Drying/cultivating selection switch
- 9. Power switch
- 10. Air door adjusting knob

II. Applicable scopes

The new series drying /cultivating cases are made by introducing and digesting the German technology with the many years of production experiences of the company. They have the features of high quality, reliability and safety. The new drying/cultivating cases with forced air convection by blower fans are directly helpful to the colleges and universities, scientific research and production, and ensure the reliability.

III. The main technical indicators

Model no.	BOV-D35
Mains voltage	220-240V, 50-60Hz
The range of Control temperature	A. RT+5 -10°C B. 80-220°C
Temperature fluctuation	A. $\pm 0.5^{\circ}\text{C}$ B. $\pm 1^{\circ}\text{C}$
Consumed power	850W
Size of the working room	340×325×320mm

IV. Feature and function of the product

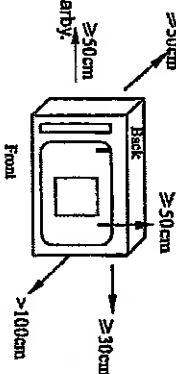
1. Adopt the silicone rubber seal tape and two-layer glass door to prevent leakage, convenient to watch, clear and without influence on the temperature inside the case.
2. The cultivating case adopts stainless steel vacuum bottle and four semi-arc shaped angles are easy to be cleaned and the distance of the shelves in the case can be adjusted.
3. The microcomputer temperature controller makes the temperature to be accurate and reliable.
4. Limited temperature control: when the temperature increases or decreases due to the failure of the temperature controlling system, the instrument will stop running with sound and light alarm.
5. The forceful warm air circulation design ensures the even distribution of the temperature in the working room.

V. The operation guide

4. Preparations before operation

The product should be operated in the following conditions:

- 1.1 Ambient temperature: 5°C~40°C,
Relative humidity not bigger than 85%.
- 1.2 No intense vibration source and strong magnetic field nearby.
- 1.3 The product should be placed steadily and horizontally in a room without dust, direct sunshine or corrosive gas.
- 1.4 Sufficient space should be left around the product as shown in the right figure above and not be placed below the fire alarm.



1.5 For power voltage of the product, refer to technical indicators (Table 1).

1.6 The product should be placed rationally with adjustment to the position and quantity of shelf unit, into which working articles are put. Sufficient space should be left up and down and all around. (>100mm)

The weight should be such as not to bend or deform the shelf unit.

2. Power on

- 2.1 Close the door of the box, the handle should be vertically downward.
- 2.2 Turn on the power and the Indicator light is on.
- 2.3 The controller enters the working mode after about 4 seconds of self-checking procedures. (Figure 1)

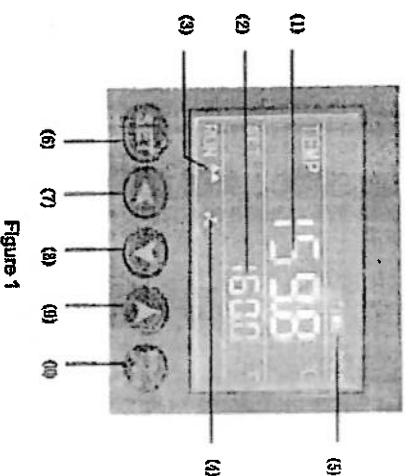


Figure 1

2.4 Indicator light description.

- 1) TEMP area (PV): display the measured temperature.
- 2) SET area (SV): display the set temperature.
- 3) Heating lamp: the lamp is on when there is heating output.
- 4) Fan indicator light: on when there is fan output.

5) TIME: Time display window, display running time or parameter value.

2.5 Button description.

- 6) SET button: used to modify the set value or enter the internal parameter setting. In the parameter setting state, long press the set button for more than 3 seconds to exit.
- 7) Shift key: used to shift the set value, internal parameters and view the ambient temperature.
- 8) Decrease key: used to modify the set value, various parameters, or start/stop auto-tuning.
- 9) Increase key: used to modify the set value, internal parameters, or view the remaining period (X)
- 10) RUN/STOP: Press for 3 seconds to run or stop the controller.

2.6 Check temperature control accuracy.

2.6.1 Select a digital thermometer with a resolution of 0.1°C that has passed the verification and is within the verification period as a standard and put it into the product work room, and ensure that the sensor temperature sensor is in the geometric center of the work room.

2.6.2 Choose a point within the temperature control range of the product and set the SV temperature control value. When the PV measurement value is equal to the set value, keep it at a constant temperature (1~2) hours or so (depending on the product specifications, the constant temperature time may vary). Observe that the difference between the actual measured temperature value of the standard thermometer and the measured value displayed by the controller PV should be $\leq \pm 0.5^\circ\text{C}$.

3. Operation steps

1) Temperature setting: Press the "SET" button once, the value of the SET window flashes, indicating that the temperature can be set as required, and the required temperature can be set through the "increase" and "shift" keys. Press the "SET" key again to return to the standard display mode.

2) Timing function: Press the "SET" button twice, when the time is set to 0, there is no timing function; when the time is set to 0, the controller has a timing function, press the "SET" button, the TIME value flashes, indicating the time can be set as required. Use the "increase" and "shift" keys to set the required time value. When the time is up, the TIME window displays the "END" buzzer, and you can press any key to silence it.

Note: (1) Each time you modify a parameter, you need to press the "SET" key to confirm and the modification is effective.

(2) After setting all the parameters, press the "RUN/STOP" key and wait for about 3 seconds to start running.

4. Ways to improve the accuracy of temperature control

4.1 After the product has been used for a period of time, the temperature control accuracy should be checked according to the method 2.6. If it exceeds $\pm 1^\circ\text{C}$, it can be corrected according to the following method:

4.1.1 Enter the parameter setting, find the "PL" symbol,

Press $Pk = 4000 \times \frac{\text{Standardable value} - \text{Measured value PV}}{\text{Measured value PV}}$

After the formula is calculated, it shall be modified on the basis of the original PK value at the time of delivery (Note: One correction is not accurate, and the correction can be repeated until it meets).

5. Function parameter table

In the standard state, press the SET key and the shift key at the same time for more than 3 seconds, the LCD screen displays the LK code, and you can enter the password setting level interface.

(1) When LK is displayed in the output area of the LCD screen, press the plus or minus key or the shift key to make LK=0000, and press the SET key to enter the user parameter level setting.

Sheet 5

Symbol	Name	Setting range	Description	Factory set value
Pa	Work group in operation	0~8	For program control only. To set up the work group for operation of meters. When GP is set as 8, Group 8 is for fixed value control.	Optional
Cy	Number of cycle in a period	0~99	Special parameter for program control. When CY is 0, the meter will run between the work group all the time. When CY is not 0, the meter will shut down automatically after CY in the group.	Optional
dy	Appointment boot selection	0-99; :59	0: No appointment, for other values, after pressing the run key to start, it will automatically delay the dy time and then start the machine.	
ut	UV time	0-200 minute	Turn off the UV lamp after ut time, ut=0, turn off the UV lamp manually.	Optional
us	UV switch	0-1	0: Turn off the UV light 1: Turn on the UV light.	Optional

(2) When LK is displayed in the output area of the LCD screen, set LK=0003, and press the SET key to enter the equipment manufacturer's parameter level setting.

Sheet 6

The parameter hierarchy menu of the equipment manufacturer is as follows:

Symbol	Name	Setting range	Description	Factory set value
tm	Setup of max temperature permissible by the instrument	full range	Stop heating beyond max temperature and give alarm.	200
Po	Boot mode	0~2	(1) When PO=0, after open the power, the controller in a stopped state, by long press start/stop key is up and running. (2) When PO=1, after open the power, the controller will be running. (3) When PO=2, running from last power began to run.	1

AL	Setup of alarm	0~100.0	When the temperature exceeds the value of SP+AL, the alarm light is on and the alarm is output (with HOLD function).	150
Pb	Zero adjustment (intercept)	-1000.0 ~ 100.0	When the zero error of the instrument is greater and the full scale error is smaller, the value should be adjusted. As a rule with Pt100 the value is seldom adjusted.	20
PK	Adjustment of full scale (slope)	-1000 ~ 1000 S	When the zero error of the instrument is smaller and the full scale error is greater, the value should be adjusted. PK=4000 x (specified value - actual display value)/actual display value and as a rule with Pt100 the value is adjusted first.	140
PA	On-board room temperature sensor correction	-30-30	When there is an error between the on-board room temperature sensor and the actual situation, adjust the value.	0
2b	The second zero correction	-100-100	When the second channel zero error is large and the full scale error is small, adjust this value. Generally, Pt100 rarely adjusts this value.	
2K	Second channel full scale adjustment	-1000 ~ 1000	When the zero error of the second channel is small and the full-scale error is large, adjust the value. PK=4000 x (mercury thermometer value-display value)/display value, generally Pt100 adjust this value first.	

*The products have been strictly tested before leaving the factory. When the technical indicators meet the requirements and work normally, no correction is generally required.

VI. Service and maintenance

1. The instrument is not suitable to be used in high voltage, big current and strong magnetic field in order to avoid the disturbance on the temperature controller and risk of electric shock.
2. Often keep the plated parts and surface finish paint clean and smear neutral grease or vasoline on the plated parts if they aren't to be used for long time in order to prevent corrosion. Cover the cultivating cases with plastic film dust proof cover and put the cultivating cases in the dry rooms to avoid damages of the temperature controller by wetting.

VII. Failure solutions

Problem	Cause	Solution
1. No supply	1. The plug is not inserted well or the wire is disconnected. 2. Fuse is open.	1. Insert the plug and connect the wire. 2. Replace the fuse.
2. The temperature in the oven does not rise.	1. The set temperature is low. 2. The electric heater does not work. 3. The temperature controller does not work. 4. Temperature sensor loosens.	1. Adjust the set temperature. 2. Replace the heater. 3. Replace temperature controller 4. Tighten the nut of sensor.
3. The set temperature has a big difference from the temperature in the oven.	1. The temperature sensor does not work. 2. The fine tuning potentiometer for set temperature is displaced.	1. Change sensor. 2. Adjust the potentiometer.

Packing list

No.	Type	Name	Unit	Qty.	Remarks
1	Document	Operating instructions		1	
2	Document	Packing list		1	
3	Spare parts	Shelves		2	
4	Spare parts	Fuse core		2	

The articles in this list conform to those loaded in the carton.

Packing worker: No.2