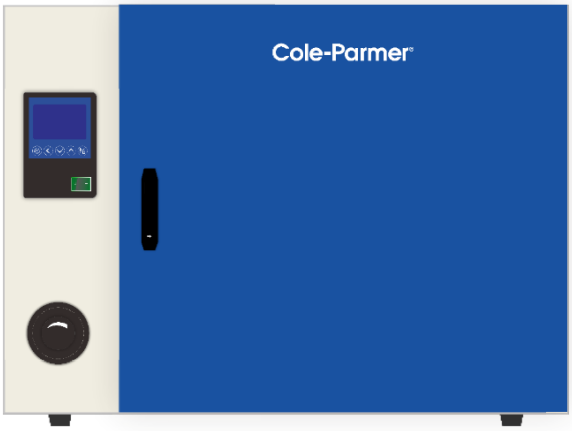
Cole-Parmer®

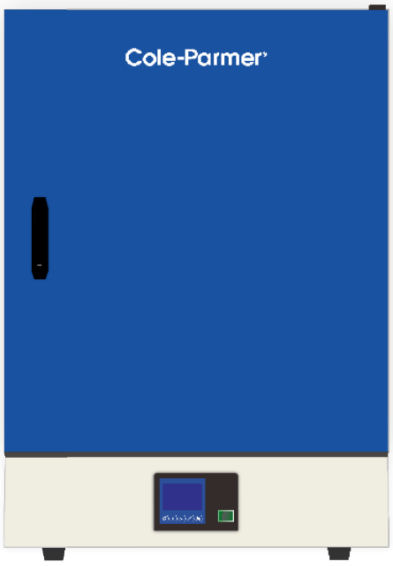
Forced Air Oven

Natural Convection Oven

User Manual

52411-series





1 Warranty

Thank you for purchasing a Cole-Parmer instrument. In normal use conditions, the instrument is guaranteed for a period of 24 months started from the date of purchase.
The warranty is valid only if the product is original. It does not apply to any product or parts of it that have been damaged due to incorrect installation, improper connections, improper use, accident or abnormal conditions of operation.
The manufacturer declines all responsibility for damage caused by failure to follow instructions, lack of maintenance and any unauthorized modification

2 Contents of package

The instrument is delivered complete with the following parts:

- Drying Oven (main unit)
- 2 stainless steel wire shelves
- 4 brackets for shelves
- Power supply cable
- 2 cores of fuse
- User manual

3 Installation requirements and safety tips

3.1 Installation requirements

The Oven should be installed in the following conditions:

1. Dry, clean and flat horizontal surface.
2. Respect minimum spaces about 80cm around the instrument.
3. Ambient temperature between 41°F（5°C）and 104 °F（40°C）, and relative humidity maximum of 85%.
4. Power supply socket with earth connection.
5. Power feed between 110V-120V – 60Hz, 220V – 50/60Hz

3.2 Electrical Installation

THIS EQUIPMENT MUST BE EARTHED

Before connection please ensure that the line supply corresponds to that shown on the rating plate located on the back of the unit.

Power requirements

Model	Wattage	Model	Wattage	Model	Wattage
52411-09,10	600W	52411-17,18	2050W	52411-00,01	850W
52411-11,12	850W	52411-19	2450W	52411-02,03	1000W
52411-13,14	1100W	52411-20	3100W	52411-04,05	1400W
524511-15,16	1550	52411-21	1550W	52411-06,07	2000W
				52411-08	2200W

Cord Connected Models

The unit will be supplied with a mains lead fitted with either US, EU, UK or Indian plug. Should the lead not be suitable for connecting to the mains power supply, replace the plug with a suitable alternative.

THIS OPERATION SHOULD ONLY BE UNDERTAKEN BY A QUALIFIED ELECTRICIAN

NOTE: Refer to the equipment rating plate to ensure that the plug and fusing are suitable for the voltage and wattage stated

UK / EU mains cable wiring is colored as follows:
Brown – Live
Blue – Neutral
Green/Yellow - Earth

US mains cable wiring is colored as follows:
Black – Live
White – Neutral
Green – Earth

Should the mains lead require replacement, cable of 1 mm^2 /18 AWG, 1.5 mm^2 /14 AWG or 2.5mm^2 /12 AWG of harmonized code HO5VV-F should be selected. This is dependent upon the power rating of the unit, see Section 4.3.

Hard Wired Models

The unit is fitted with a suitable cable which should be directly connected to a suitable rated supply terminal. (See wire colors above).

IF IN DOUBT CONSULT A QUALIFIED ELECTRICIAN

3.3 Instruction for Safety 

3.3.1 Danger!

(The improper use of this unit may cause property damage and/or personnel injury)

1. The product must be safely grounded (The Hot line or the Neutral line should not be the grounded before using the instrument).
2. Before use, make sure that the power supply has the voltage in compliance with the products' requirements. The fluctuations of supply voltage should not exceed 10% of nominal supply voltage.
3. The product should be connected to a separate power supply outlet and both the plug and outlet are properly earthed.
4. The power switch **MUST** be turned off when cable is connected or disconnected from the unit.
5. It is not allowed to pull out and plug in the power plug without turning off the switch.
6. Unauthorized extending, cutting, or changing the product's power cable or line is prohibited.
7. Do not touch the chamber door and take care of the chamber body and surrounding surface when the set temperature is over 176°F（80°C）!
8. Do not put hands or objects into the air inlet or air outlet.
9. Unauthorized repair is not allowed. The unit should have routine inspections and should be serviced by a qualified service technician when needed.

3.3.2 Warning!

(Possible to cause losses to properties or injuries to personages)

1. Please use the socket connecting with the ground connection to prevent electric shock. If the socket does not have the ground connection, the earth wire must be installed by a qualified electrician; Be sure not to conduct the ground connection through the gas pipe, water pipe, telephone line or lightning rod, or it may cause electric shock due to the incomplete loops.
2. 304 stainless steel is not acid-proof, so please note the anti-corrosion measures. Never place corrosive materials inside the unit to prevent damage.
3. Carefully pulling the power table when taking out the power plug.
4. The power cord must be removed from receptacle when any of the following occur:

- Replacement of fuse.
- When the product is waiting for overhaul due to repair
- The product will not be used for a long period of time.
- In movement.

3.3.3 Caution!

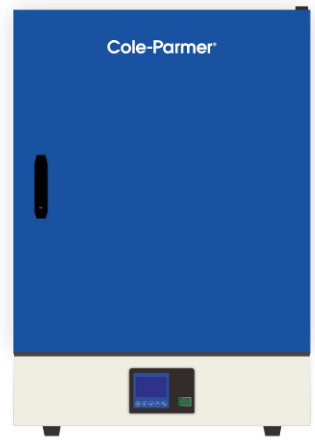
(Abnormal operation may influence the product lifespan.)

1. The product should be placed on solid surface to keep it horizontal.
2. Aggressively opening or closing the door may cause damage to the door, oven or injury to users.

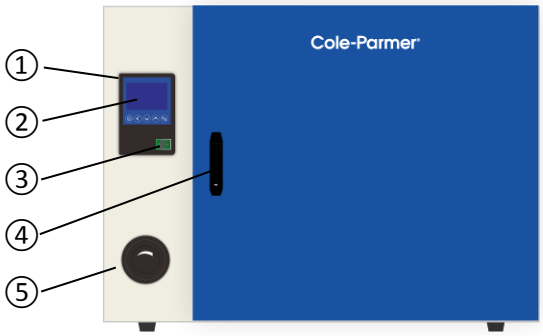
4. Product introductions

4.1 Function introduction

Natural Convection Oven



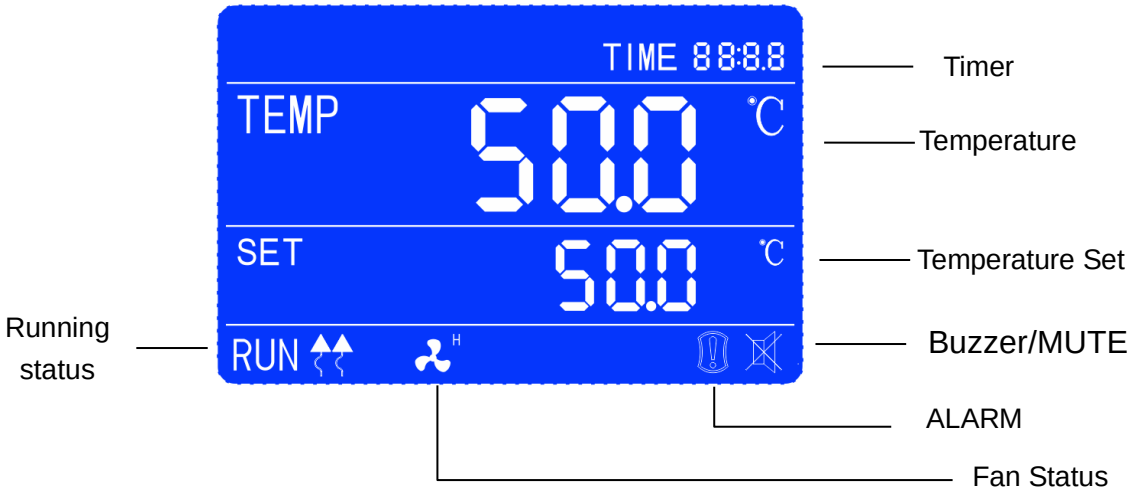
Forced Air Oven



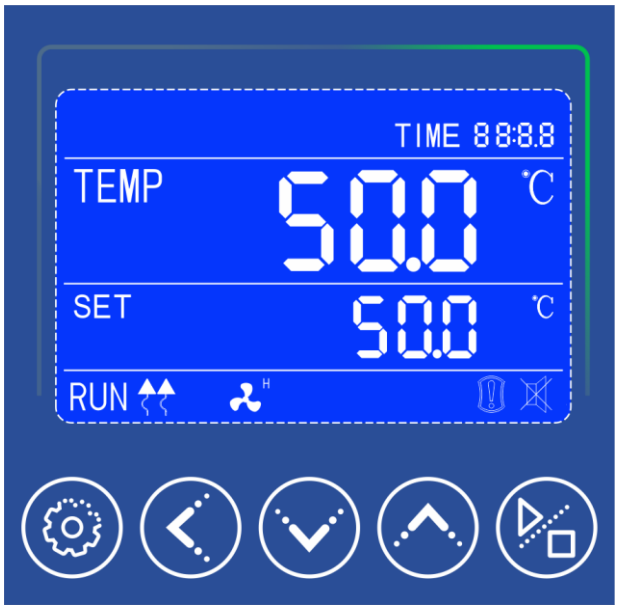
① Control system
② Screen display
③ ON / OFF button
④ Opening / Closing handle
⑤ Air change(Forced air series only)

4.2 Display and commands

4.2.1 Display introduction



4.2.2 COMMANDS and DESCRIPTION



1.The button permits the working parameters setting and to enter/escape from the programs (PRO version only).

2.The button permits to quickly change the digit (Program, units, tens, etc.) of the value of the parameter you are editing.

3. In combination with the key allows access to menus with password.

4. and adjustment buttons allow users to increase or decrease the value of the operating parameter being edited.

5. The button permits to start / stop a cycle operation or a program (PRO version only).

6. The ON/OFF button allows to turn on and turn off the instrument

4.3 Specifications

Forced Air Drying Oven

Model	52411-09 52411-10	52411-11 52411-12	52411-13 52411-14	52411-15 52411-16
Electrical Requirement	120V 60Hz,220-240V 50-60Hz			
Temperature range	RT+10~250℃			
Temperature fluctuation	±1℃			
Power consumed	600W	850W	1100W	1550W
Cable Replacement	120V – 16AWG, 220V – 1mm^2/18AWG			120V – 14AWG, 220V - 1mm^2/18AWG
Volume	16L	30L	50L	80L
Fuse / Circuit breaker	120V-10A Circuit Breaker, 220V - 5A, 5 x 20 mm, glass fast blow		120V-10A Circuit Breaker, 220V - 7A, 5 x 20 mm, glass fast blow	120V-16A Circuit Breaker, 220V - 10A, 5 x 20 mm, glass fast blow
Interior Dimensions (W x D x H)	250x260x250mm	340x320x320mm	420x395x350mm	450x400x450mm

Model	52411-17 52411-18	52411-19	52411-20	52411-21
Electrical Requirement	120V 60Hz 220V 50/60Hz	220-240V 50/60Hz		
Temperature range	RT+10~250℃			
Temperature stability	±1℃			
Power consumed	2050W	2450W	3100W	4000W
Cable Replacement	120V – 12AWG 220V – 1.5mm^2/14AWG	1.5mm^2/14AWG		2.5mm^2/12AWG
Volume	136L	220L	400L	620L
Fuse / Circuit breaker	120V-20A Circuit Breaker, 220V - 15A, 6 x 32 mm, ceramic fast blow	16A Circuit breaker		20A Circuit Breaker
Interior Dimensions (W x D x H)	550x450x550mm	600x500x750mm	1000x510x800	840x600x1355mm

Model	52411-00 52411-01	52411-02 52411-03	52411-04 52411-05	52411-06 52411-07	52411-08
Electrical Requirement	120V 60Hz,220-240V 50-60Hz				220-240V 50/60Hz
Temperature range	RT+10℃～200℃				
Temperature stability	±0.5°C				
Power consumed	850W	1000W	1400W	2000W	2200W
Cable Replacement	120V – 16AWG 220V – 1mm²/18AWG	120V – 14AWG 220V – 1mm²/18AWG	120V – 12AWG 220V – 1mm²/18AWG	120V – 12AWG 220V – 1.5mm²/14AWG	1.5mm²/14AWG
Volume	27L	56L	96L	140L	200L
Fuse / Circuit breaker	120V-10A Circuit Breaker, 220V - 5A, 5 x 20 mm, glass fast blow	120V-15A, 6 x 32 mm, ceramic fast blow, 220V - 7A, 5 x 20 mm, glass fast blow	120V-20A, 6 x 32 mm, ceramic fast blow, 220V - 10A, 5 x 20 mm, glass fast blow	120V-20A Circuit Breaker, 220V - 15A, 6 x 32 mm, glass fast blow	16A Circuit breaker
Interior Dimensions (W x D x H)	320x300x355mm	400x330x415mm	450x430x505mm	520x500x575mm	570x560x640mm

5 Temperature Controller Detailed Operation

5.1 Switch on

1. Connect the power according to the power outlet with a protective ground connection.
2. Turn on the instrument by pressing the ON/OFF Button and the screen will light up. The display shows the initialization sequence before the instrument is ready to use.

NOTE: Every time you turn on the instrument it beeps intermittently, the icon of visual alarm and the word “end” will appear on the display, indicating that a heating cycle had been done before. Press any button to silence the audible signal and the icon appears.

5.2 Setting of parameters

5.2.1 Time Settings

1. After confirming the temperature, the last value of the set time (timer) will start to flash. Set the desired value (hh:mm) by pressing  or  keys. It’s possible for a quick movement between the digits by using  button.

2. Confirm the set value with another press of  button.

NOTE: the value “00:00” indicates the operating mode is "continuous", that means once you start operating cycle by the START / STOP button, the system will continues maintaining the set temperature until it is stopped manually.

3. If you set the timer, such as one hour, the instrument will reach the set temperature and maintain it for one hour.

5.2.2 Temperature Setting

1. When the instrument is switched on, press the button one time, and the set temperature value will start to blink. Set the desired temperature value (in Celsius degrees) by pressing keys.

2. The button works for a quick movement between the digits.

3. Confirm the set value with another press of button.

5.3 Start / Stop Operation

1. After setting the operating parameters, press button for (about 4-5 seconds) to start the heating cycle/cooling process with defined time in hh:mm or continue the process for (00:00). When the word “END” disappears on the right corner of the screen, the message “RUN” will appear in the left bottom and the system will display issues like contemporary, timer, temperature measured inside the chamber.

2. At any time, you can always manually stop the cycle by pressing the button for (4-5 seconds).

3. Once timer runs out or after manual stop, the instrument beeps intermittently, the icon of visual alarm and the word **"end"** appear on the display. Pressing any button will silence the audible signal and the icon appears.

NOTE: the acoustic signal will not end until it is stopped by the operator, but the heating cycle will be terminated so the samples inside the instrument will remain exposed to the internal temperature of the chamber.

5.4 Delay of heating cycle start

It's possible to set a delay (hour and minutes) of heating cycle start.

Simultaneously Press  and  for few seconds until the time position shows "LK 0000" confirm the"0000" password pressing shortly one time  .

On the top right part of display the parameter "dy" (delay) appears close to value 00:00.

2. Set the desired delay value (hh:mm) pressing  or  keys. It's possible a quick movement between the digits using the  button. Confirm the set value with another press of  button.

The display comes back to the standby screen.

3. Pressing the  button with long pressure (4-5 seconds) the instrument starts the work cycle but it doesn't immediately heat: the word "end" and the set delay time alternately blink on the top right part of display, counting the wait time until the real starting of heating.

Once the delayed time is passed the instrument starts to heat and the regular timer appears on display.

5.5. Alarm / Faults

The oven has a built-in overtemperature protection circuit. If the oven's temperature overshoots, the controller will enter an Alarm Mode that disables all heating elements to protect your samples.

When in Alarm Mode, a red alarm indicator will display on the screen. The oven will automatically resume operation when the temperature has dropped back below the overshoot threshold.

Setting the temperature setpoint higher will also resume heating function.

If your oven alarm is sounding due to an elapsed timer, press the Any key to mute!

6.Calibration

6.1 Probe Calibration

Follow the instructions below to adjust the temperature readout. These steps are only necessary in the event there is a discrepancy between the display and measurements taken with an alternate device.

For example: a thermometer placed inside the oven with a different measurement than the controller.

Please note: laser probe measurements will be inaccurate without compensating for emissivity. Refer to your laser probe's user manual.

1. Simultaneously Press  and  for few seconds until the time position shows "LK 0000"

Press  to set LK 0003

Press  three times, you can see Pb, this is Temperature offset on single point.

After set the Pb value，Press  to exit

6.2 Other parameters function in Menu

Here are the passwords and access sequence to various parameters/ functions:

PASSWORD	FUNCTION / PARAMETER	**DESCRIPTION**
0000	dy	Delay of heating cycle start
0003	tm	Safety temperature limiter for samples protection
	Po	Restart mode after absence of power supply
	AL	Temperature range for over temperature alarm
	Pb	Temperature offset on single point
	PK	Temperature offset on the entire ramp
	PA	Temperature offset of the room temperature probe

While the oven arrives pre-calibrated from the factory, certain adjustments may be necessary for optimal performance. Please note these adjustments will affect your oven settings! We recommend writing down any factory settings prior to adjustment so they may be reset in the event of undesirable operation.

7 Clean and maintenance

1. Make sure to take proper maintenance and cleaning of the instrument to guarantee its conditions.
2. The inner chamber of the instrument is made of stainless steel, so it can be cleaned with any detergent provided which is not aggressive and/or corrosive.
3. User should clean the inside and outside surfaces with a standard all-purpose cleaner sprayed on a soft cloth.
4. Before proceeding with any cleaning or decontamination, the user must ensure that the cleaning method will not damage the instrument.

IMPORTANT

If the instrument must be returned for service, it is necessary to provide for proper cleaning and possible decontamination for pathogens.

The original package is recommended for the product if it needs to be sent it in for repairs. If the original package is missing, it is necessary to provide another proper cover pack for transportation.

Any damage caused from the incorrect shipping will not be covered by warranty.

7.1 Air Change (Forced air series only)

In forced air ovens, there is a knob on the top of the unit to open/close the air flap. Opening the air flap on the back of chamber serves to adjust air change.

- If the air flap is open, fresh air comes in via aeration vent.
- If the air flap is completely open, the internal temperature accuracy and stability can be negatively influenced.

8 Troubleshooting Guide

Symptoms	Possible causes	Remedies
No power after startup (pilot lamp is not on)	Power socket is not energized or plug is in poor contact.	Repair socket
	Chamber power line broken or plug is not inserted properly.	Reinsert plug.
	Power switch is broken (or is not turned on)	Have professional technician fix.
	Fuse blown	If the fuse is still burned out after replacement, check if the switch, heater or temperature controller are short-circuited and restart after repairing.
Abnormal temperature display	Sensor is out or wiring is broken	Repair or replace Pt100
No temperature rise	Check if timing is set up and time i up.	Refer to the operation of timing function.
	The controller does not work	When ***OUT*** light doesn't shine or 3061 is broken, replace it.
	Set temperature is lower than the internal temperature	Open door until internal temperature is lower than the set temperature.
Temperature control is inaccurate	The difference between room temperature and set temperature is less than 5 degrees Celsius.	Minimum temperature under control: Ambient+5℃
Abnormal noise	The fan is broken or lack of lubricating oil	Replace fan or add lubricating oil
	Friction on rear air duct plate	Repair or add washer

WolfLabs

Pricing on any accessories shown can be found by keying the part number into the search box on our website.

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct.
If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

www.wolflabs.co.uk

Tel : 01759 301142

Fax : 01759 301143

sales@wolflabs.co.uk

Please contact us if this literature doesn't answer all your questions.