

Corning® LSE™ 71L Shaking Incubator

CORNING

INSTRUCTION MANUAL

Models

6753 (120V US)

6754 (230V EU)



(49L shown)

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1.0 GRAPHIC SYMBOLS

The Corning® 71L shaking incubator uses internationally accepted and recognized graphic symbols to help convey information to the user and to call the users' attention to important safety precautions and guides for using this equipment.



Indicates that user should consult manual for further description or discussion



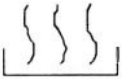
Indicates AC "Power On"



Indicates "Degrees Centigrade"



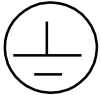
Indicates Potential "Shock Hazard"



Indicates "Heating"



Indicates "Temperature"



Indicates Protective "Earthground"

2.0 SAFETY PRECAUTIONS

Use of this product in any manner not specified by the manufacturer may impair the safety protection provided by the equipment and may result in physical damage and/or personal injury. Please read all operating instructions in this manual prior to use of this equipment.

1. Do not operate this unit in an explosive or flammable environment.
2. Do not incubate or shake flammable or explosive materials or highly reactive chemicals.
3. **Lifting/Handling:** These units are heavy and care should be taken to use appropriate lifting devices. Units should only be lifted from their bottom surfaces and not by doors, handles, or knobs.
4. **Leveling:** The unit must sit level and solidly on the four leveling feet.
5. **Load testing:** Test all loads to be shaken under observation to ensure load and unit stability.
6. **Units are not stackable.** Do not stack one unit on top of another unit.

3.0 INTRODUCTION

This manual covers the specifications, operation, and use of the Corning® 71L shaking incubator and its accessories. Please pay special attention to the **Safety Precautions** section in this manual.

The 71L shaking incubator provides an extremely stable temperature environment and an aggressive shaking motion for the mixing of materials for bacteria and cell culture growth at ambient and above ambient temperatures.

The 71L shaking incubator uses microprocessor controls and mechanical convection to maintain a stable temperature environment and to achieve fast chamber temperature recovery after a door opening. The incubator interior is constructed from stainless steel for corrosion resistance and easy clean-up of accidental spills. All incubator doors have an integral glass window and the incubator has a light to allow observation of samples without opening the door. Each door is fully thermal gasketed.

The 71L shaking incubator comes with one removable full shelf and four large, rubber-padded adjustable feet for leveling the unit. Additional half and full shelves may be purchased. The 71L shaking mechanism supports a wide range of optional rack and flask platforms which are user changeable.

4.0 SPECIFICATIONS

Chamber temperature range	Ambient 5°C to 80°C (Ambient +10°C with shaker on)
Temperature accuracy	+/-0.2°C
Temperature controller	Microprocessor – user calibratable
Over temperature safety	Independently settable
Shaker speed	20 to 300 rpm
Shaker orbit	19 mm
Shaker max load	7.4 kg*
Shaker timer	Continuous (Hld) or 30 seconds to 99 minutes 50 seconds
Timer increments	30 seconds to 9 minutes 59 seconds in 1-second steps 10 minutes to 99 minutes 50 seconds in 10-second increments
Interior electrical outlet	1 amp, 120V unit only
Chamber volume	2.5 cu. ft./71 liters
Exterior dimensions (W x D x H)	574 x 544 x 644 mm
Chamber dimensions (W x D x H)	442 x 396 x 40 mm

Electrical Ratings and Unit Size

Model No.	Description
6753	120V, 50/60Hz, 6 amps
6754	230V, 50/60Hz, 4 amps

*Maximum load is 4 x 2 liter flasks with 400 mL liquid in each flask.

5.0 UNPACKING

Upon receipt of your Corning® 71L shaking incubator, examine the carton and unit for damage. If shipping damage has occurred, a claim must be filed with the carrier. The carrier is responsible for correcting shipping damages. Save all packaging until the unit has been shown to operate properly to your satisfaction. Carefully remove the unit from the carton and shipping pallet.

The package should include:

- 71L Corning Shaking Incubator Instruction Manual
- Power cord (EU and UK cords in 230V)
- 1 full shelf
- 2 shelf brackets
- 4 adjustable feet

6.0 INSTALLATION

Install the four adjustable feet and locate the shaking incubator on a stable, flat, very solid surface near a grounded electrical outlet. The location selected should be out of direct sunlight and away from heat-producing sources or hot or cold air drafts. At least 5 cm ventilation clearance is required around all sides of the incubator. Level the incubator using the four adjustable feet. Clockwise rotation of a foot raises the incubator. Plug in the unit to a properly rated and grounded electrical outlet and the unit will be ready for use. Install the optional platform you have selected by plugging in the four bottom protrusions. Larger flask platforms may require being screw clamped to the shaking mechanism.

When installing the optional shelf, it is important to note that for sufficient clearance under the shelf, the largest flask size that can be used is the 1L flask. The shelf will also limit illumination from the chamber and may be prone to rattle under aggressive shaking.

7.0 CONTROLS AND CALIBRATION



The controls for the 71L shaker incubator include power to the oven, temperature setting, safety temperature overshoot setting, shaker speed, and shaking time. In addition there is a door-open shaker shut-off switch and a chamber light switch.

Main Power Switch: This switch (illuminated **GREEN** when on) turns the power to the unit **ON** or **OFF**.

Temperature Controller and Temperature Set: The controller has a 3-digit display for displaying chamber temperature or set point information. **UP** and **DOWN** arrow pads are used to change the set point and controller mode of operation. To enter the set point mode of operation, press either the **UP** or **DOWN** arrow pad one time. The display will start to blink, going from bright to dim. While blinking, the display is showing the set point. To change the set point, use the **UP** and **DOWN** arrow pads. If the arrow pads are not pressed for 5 seconds, the display will stop blinking and will read the chamber temperature. After setting temperature, allow at least one hour for the chamber temperature to stabilize and 24 hours for optimum stabilization.

Calibration: The 71L shaking incubator is calibrated at 37°C at the factory. The unit can be recalibrated after the chamber temperature has stabilized at the set point for several hours. Suspend a certified reference thermometer in the chamber. Compare the unit's display to the reference thermometer. If there is an unacceptable difference, put the controller into calibration mode by pressing both the **UP** and **DOWN** arrow pads at the same time until the two outside decimal points begin to flash. While the decimal points are flashing, the display can be calibrated to match the reference thermometer by pressing the **UP** or **DOWN** arrow pads until the display reads the correct value. Allow the shaker incubator to stabilize again and recalibrate if necessary.

Heating Indicator: This indicator will illuminate **GREEN** when the controller is calling for heat from the heater. This indicator will be on continuously while the oven heats up to the set temperature and will then cycle on and off at the set temperature.

Safety Thermostat: The safety thermostat located on the back of the unit is manually set and completely independent of the **Main Temperature Controller**. The safety guards against any failure of the **Main Controller** that would allow temperature to rise past the safety set point. If the temperature rises to the safety set point, the Safety takes control of the heating element and allows continued use of the incubator until the problem can be resolved or service can be arranged.

Safety Indicator: This indicator will illuminate **RED** when the **Safety Thermostat** is activated. Under normal operating conditions this indicator should never be on.

Chamber Light Switch: This switch turns the chamber light on and off when power is on.

SHAKER CONTROLS: The shaker controls are also microprocessor-based.

- **RUN lamp:** This lamp illuminates when the shaker is started and stays illuminated when the shaker is running.
- **Timer lamp:** This lamp illuminates when the shaker display is in the time display mode counting down the remaining run time or showing the set run time.
- **RPM lamp:** This lamp illuminates when the shaker display is speed display mode showing the current shaking speed or showing the set shaking speed.
- **STOP/START:** This pad starts and stops the shaking mechanism and causes the **RUN lamp** to be illuminated.

Push to Shift/Turn Set Knob: This encoder provides the following multiple functions:

- Increases and decreases the shaker speed setting in 1 rpm increments from 20 rpm to 300 rpm.
- Increases and decreases the run time setting from 30 seconds to 99 minutes and 50 seconds and HOLD (**Hld**) for continuous operation. Time is changed in 1-second increments to 10 minutes and then 10-second increments thereafter.
- It shifts the shaker display from time display to speed display and back.

Shaker Display: This three digit display shows the shaker speed setting, shaker time setting, or remaining shaker run time while counting down. It also shows:

- **Hld:** When the shaker is set for continuous un-timed running
- **Opn:** When the incubator door has been opened, automatically stopping the shaking motion
Note: the timer continues to count down but is not displayed
- **End:** When a timed shaking run has ended
- **F60/F50:** When the shaking incubator is first powered up indicating the line frequency of the power line

Door Open Switch: This senses when the incubator shaker door is open and sends a signal to the microprocessor which causes the shaker to stop running as a safety measure. However, in a timed run, the timer will continue to count down when the door is open. Closing the door restarts the shaking motion.

8.0 OPERATING THE CORNING 71L INCUBATOR SHAKER

As advised in the installation section, it is very important that the unit be level and placed on a very solid surface. When loading the platforms, it is also important to load these in a balanced manner or the unit can vibrate and possibly walk. Shaking unbalanced loads for extensive periods may also damage the shaker.

Before powering up the unit, you should first set the mechanical Safety Thermostat on the back of the unit to a temperature just above your intended operating temperature or at maximum (setting of 10) this safety is not needed.

After you first power up the unit you should notice the shaker display first showing dashes then the power input line frequency (F60 or F50 for 60 Hz or 50Hz) and the temperature controller display showing some random numbers and dots blinking.

The shaker display and temperature display should then settle down with the shaker display showing the last time that was set (or **Hld**) for continuous operation, and the temperature display showing the chamber temperature.

You may now set the desired operating temperature, the desired shaking speed, and the desired shaking time (see Controls section of this manual). It is recommended that you test all loads to be shaken at a slow speed under observation and then gradually raise the speed to ensure the load and unit is stable. The unit should also be allowed to equilibrate to the set temperature before using.

Once the temperature, shaking speed, and shaking time is set, use the **STOP/START** pad to initiate shaking. When shaking in the timed mode, the word **End** will be displayed on the shaker display when the shaking is done. In timed mode the word **Hld** (hold) will be displayed on the shaker display. The user may switch the shaker display to show the shaking speed by pressing the **Push to Shift** knob.

The user can observe the load being shaken through the glass window and can also turn on the chamber light for additional visibility. **The chamber light should not be left on for an extended period as it adds heat to the chamber and may cause the chamber temperature to rise above the set point.**

The user may open the chamber door at any time to gain access to the chamber. If the shaker is running when the door is open, the shaker power will be immediately cut causing the shaker to slow and stop. The shaker display will show **Opn** (open). Shaking will automatically resume when the door is closed if there is still time remaining on the shaker run. **Note:** The clock continues to count down when the door is open even though the shaker has stopped.

9.0 CARE AND MAINTENANCE

No routine maintenance is required for the electrical or mechanical components of the unit. The incubator exterior, interior, and shaking platform should be wiped down periodically with a soft damp cloth with mild soap. Do not use chlorine-based bleach or abrasives. Any spills in the incubator and/or on the shaking platforms should be cleaned up immediately. **Be sure to disconnect the power cord before cleaning or decontaminating the oven.**

10.0 TROUBLESHOOTING GUIDE

Symptom	Solution
Oven will not power up or not heat	Check power cord, outlet, and unit circuit breaker.
Shaking platform will not operate	Check timer set to Hld or a time setting. Check that nothing is blocking shaker platform. Press shaker STOP/START button.
Temperature too high	Check set point and re-adjust if necessary. Check calibration.
Chamber temperature goes above set door point and settles back to set point	Normal operation in initial heat up or if opened for a long period.
Temperature will not remain stable or display shows “LO”	Check that set point is at least 5°C above ambient (or 10°C above ambient when shaker is on) which is minimum operating point.
Indicated temperature is unstable	A slight variation of +/-0.1°C is normal. Larger fluctuations may be ambient variations from drafts, door opening and closing, a fan obstruction or failure, or electrical noise from RFI (motors, etc.).
Temperature is too low	If door has opened, unit may not have recovered yet. Confirm temperature set point. Safety thermostat set too low.
Unit will not heat above temperature chamber that is below set point	Confirm set point. Check temperature with a thermometer and recalibrate if needed.
Temperature display and reference for thermometer do not match	Be sure that unit has been allowed to stabilize for 1 hour. Thermometer should be suspended in the chamber and not touching any surface. Only certified reference thermometers should be used.
Cannot adjust set point, calibration problem, or continually displays call service	Turn unit off for 5 seconds to reset. If persists, contact Corning for service.
Unit calibrated at one temperature load and not at another	This can be a normal condition if temperatures vary widely. For best accuracy, calibrate at set point.

11.0 TECHNICAL SUPPORT/SERVICE

If you have a question about the Corning® LSE™ 71L Shaking Incubator or have a service inquiry, contact Corning Customer Service immediately at: 1.800.492.1110 (United States and Canada), 1.978.442.2200 (outside the United States), or Contact your local Corning sales office.

Before returning any unit for service, a Return Authorization (RA) number must first be obtained. Equipment sent in without our prior authorization will be returned at the customer's expense. When returning a unit to Corning for service, it should be sent in the original packaging. If this is not possible, be sure that the unit is sufficiently packed. Any damage resulting from improper packaging is the responsibility of the customer. A written explanation should accompany the unit along with the RA number.

12.0 SPARE PARTS AND ACCESSORIES

Description	Corning Cat. No.
Flat shaker platform with non-slip rubber mat (39 x 33 cm)	480160
Shaking platform pre-drilled for flask clamps, clamps sold separately	480159
Platform with 4 x 2L flask clamps	480161
Platform with 6 x 1L flask clamps	480162
Platform with 8 x 500 mL flask clamps	480163
Platform with 12 x 250 mL flask clamps	480164
Platform with 20 x 125 mL flask clamps	480165
Platform with 30 x 50 mL flask clamps	480166
Flask clamp, 25 mL (max. 16)	480110
Flask clamp, 50 mL (max. 16)	480111
Flask clamp, 125 mL (max. 16)	480112
Flask clamp, 250 mL (max. 9)	480113
Flask clamp, 500 mL (max. 5)	480114
Flask clamp, 1,000 mL (max. 6)	480115
Flask clamp, 2,000 mL (max. 4)	480167
Test tube rack holder (for 15 mL test tube racks), fits I-5330 platform	480168
Test tube rack holder (for 50 mL test tube racks)	480169
Shelf, full	480170

13.0 WARRANTY STATEMENT

Corning Incorporated (Corning) warrants that this product will be free from defects in material and workmanship for a period of two (2) years from date of purchase. CORNING DISCLAIMS ALL OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. Corning's sole obligation shall be to repair or replace, at its option, any product or part thereof that proves defective in material or workmanship within the warranty period, provided the purchaser notifies Corning of any such defect. Corning is not liable for any incidental or consequential damages, commercial loss or any other damages from the use of this product. This warranty is valid only if the product is used for its intended purpose and within the guidelines specified in the supplied instruction manual. This warranty does not cover damage caused by accident, neglect, misuse, improper service, natural forces, or other causes not arising from defects in original material or workmanship.

This warranty does not cover motor brushes, fuses, light bulbs, batteries, or damage to paint or finish. Claims for transit damage should be filed with the transportation carrier. In the event this product fails within the specified period of time because of a defect in material or workmanship, contact Corning Customer Service at the following numbers: USA: 1.800.492.1110; Canada: 1.978.442.2200. For other regions of the world, please visit www.corning.com/lifesciences or see the included instruction manual for a list of worldwide Support Offices.

Corning's Customer Service team will help arrange local service where available, coordinate a return authorization number, or provide a return authorization number and shipping instructions. Products received without proper authorization will be returned. All items returned for service should be sent postage prepaid in the original packaging or other suitable carton, padded to avoid damage. Corning will not be responsible for damage incurred by improper packaging. Corning may elect for onsite service for larger equipment.

Some states do not allow limitation on the length of implied warranties or the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights. You may have other rights which vary from state to state.

No individual may accept for, or on behalf of Corning, any other obligation of liability, or extend the period of this warranty.

For your reference, make a note of the serial number, date of purchase, and supplier here.

Serial No. _____ Date Purchased _____

Supplier _____

14.0 PRODUCT DISPOSAL



According to Directive 2012/19/EU of the European Parliament and Council of 4th July 2012 on waste and electronic equipment (WEEE) as amended, Corning® LSE™ 71L Shaking Incubator is marked with the crossed-out wheeled bin and must not be disposed of with domestic waste.

Consequently, the buyer shall follow the instructions for reuse and recycling of waste electronic and electrical equipment (WEEE) provided with the products and available at the following link: www.corning.com/weee.

For additional information, visit www.corning.com/lifesciences or call 1.800.492.1110. Outside the United States, call 978.442.2200.

For Corning technical information, e-mail us at: ScientificSupport@corning.com or call 1.800.492.1110. Outside the United States, call 978.442.2200.

For more specific information on claims, visit the Certificates page at www.corning.com/lifesciences.

Warranty/Disclaimer: Unless otherwise specified, all products are for research use only. Not intended for use in diagnostic or therapeutic procedures. Corning Life Sciences makes no claims regarding the performance of these products for clinical or diagnostic applications.

Corning Incorporated
Life Sciences
836 North St.
Building 300, Suite 3401
Tewksbury, MA 01876
t 800.492.1110
t 978.442.2200
f 978.442.2476
www.corning.com/lifesciences

Worldwide Support Offices

ASIA/PACIFIC

Australia/New Zealand
t 61 427286832

China
t 86 21 3338 4338
f 86 21 3338 4300

India
t 91 124 4604000
f 91 124 4604099

Japan
t 81 3-3586 1996
f 81 3-3586 1291

Korea
t 82 2-796-9500
f 82 2-796-9300

Singapore
t 65 6572-9740
f 65 6861-2913

Taiwan
t 886 2-2716-0338
f 886 2-2516-7500

EUROPE

France
t 0800 916 882
f 0800 918 636

Germany
t 0800 101 1153
f 0800 101 2427

The Netherlands
t 31 20 655 79 28
f 31 20 659 76 73

United Kingdom
t 0800 376 8660
f 0800 279 1117

All Other European Countries
t 31 (0) 20 659 60 51
f 31 (0) 20 659 76 73

LATIN AMERICA
grupoLA@corning.com

Brasil
t (55-11) 3089-7400

Mexico
t (52-81) 8158-8400

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