



**Laboratory Equipment Pty Ltd**

# **INSTRUCTION MANUAL**

**Autoclave Floor Model +135°C**  
**MODELS: AA13, AA16, AA18, AA20**



## Introduction

Congratulations on the choice of an Australian made quality product. Labec products are manufactured, tested and calibrated to meet published standard specifications under our strict quality assurance guidelines.

This Instruction Manual is for the guidance of operators of Labec Autoclaves and should be read before the autoclave is connected to the electricity supply.

It is hoped that this manual will supply all the information that the customer should require for satisfactory operation of this product. If, however, there are any questions that remain unanswered please contact the Service Department via the website enquiry page and include the serial number of the unit.

## Unpacking

Remove all packing and protective wrapping from both interior and exterior of the autoclave. Check the autoclave for any possible transit damage. Ensure all ordered accessories are present. If any physical damage or shortages are evident, do not discard the packaging material until the autoclave is inspected by the distributor, agent or manufacturer.

*NOTE: All claims for shortage or damage must be made within fourteen days (14) from delivery.*

Subject to our standard published conditions of sale, we have reasonable grounds to believe that we have ensured, so far as is reasonably practical, that the products listed in our catalogue and brochures have been designed and constructed so as to be safe and without risk to health when properly installed and used in their environment by appropriate and trained personnel, and where applicable, in accordance with our published instructions.

## Installation

### Electrical

**This equipment must be tagged and tested according to AS/NZS3760:2010 prior to use and thereafter every 6 months dependent upon the environment.**

A qualified electrician should connect the power supply through the conduit at the back of the autoclave. Access to the terminal block is obtained by removing the right hand side panel of the autoclave. **The frame of the autoclave must be sufficiently earthed using the earth terminal located adjacent to the terminal block.**

Ensure Autoclave is screwed to bench at rear using attaching lugs to prevent pulling or tipping Autoclave off bench when in use.

It is preferable to locate the autoclave close to a power point and recommended that double adaptors are not used. Check the total wattage if connecting to multipoint outlets. Check the rating plate for power requirements. Installation is to be carried out by a qualified electrician in accordance with the power requirements of the product specifications.

See Appendix B attached.

### Plumbing

Connect all plumbing in accordance with local authority's regulations.

See Appendix C attached

## Location

Select a location free from draught and away from direct sunlight or other heat source. Proximity to a drain for:

1. Waste from the manually operated drain.
2. The outlets servicing the pressure release valve and air vent
3. Adjustable steam release valve at the bottom right hand rear of cabinet.

## General

The LABEC Automatic Autoclave is designed and constructed to meet the requirements of AS1210 of the Pressure Vessel Code and has been approved by N.S.W. Workcover Authority, to operate at pressures up to 215 K.P.A. Regulations require that on installation the autoclave be examined by a "Competent Person" or licensed boiler inspector and this certificate of inspection be displayed near the autoclave and renewed and inspected annually. For more details contact your local equivalent of Workcover NSW or contact Labec for more information.

## Approval Numbers

	NSW	QLD	SA	WA	TAS
AA9	6766-P-87			WA94	
AA13/AA16	674-P-90	BV18716	PV86636/7	WA9489	TA4946
AA18/AA20	673-P-90	BV18717	PV86636/7	WA9490	TA4947

## Heating

Heating of the autoclave is by means of stainless tubular element located in the base of the autoclave vessel.

## Description of Controls

See Appendix A Attached

## Temperature Control

Labec autoclaves are fitted with solid state proportional action temperature controllers which operate from a sensitive thermocouple or Rtd inserted in the working space of the chamber. The controller has been calibrated at 121°C and before any adjustments to temperature settings are made allow the autoclave temperature to stabilise for at least one half hour. For the digital controller fitted please read the enclosed operating instructions when setting the controller temperature. **The timer will automatically start the countdown process once the temperature reaches the set value. (OP4 indicates the timer has initiated).**

## Important Safety Instructions

### Caution

Please observe the following safety measures before using your LABEC equipment.

1. Ensure pressure inside the autoclave is reading zero KPA on the pressure gauge before opening the lid.
2. These autoclaves are **NOT FLAME PROOF** and under no circumstances should inflammable, combustible or explosive material be placed in the autoclave.
3. Low ignition temperature materials and those materials which give off inflammable or explosive vapors should not be placed in the autoclave.
4. Avoid heating substances which give off corrosive vapor.
5. Users are advised of the dangers of heating combustible materials. The manufacturer can recommend special types of elements which will prohibit the autoclaves temperature
6. Observe those rules pertaining to wiring and installation of electrical appliances as recommended by

the local supply authority.

### **Safety Instructions**

1. Use full face shield protection when loading and unloading the chamber.
2. Fill only with hose or bucket – do not connect to water mains.
3. Load or unload with gloves which cover forearms or wear long sleeve shirt.
4. If contents are harmful wear an appropriate respirator and filter to prevent inhaling hazardous vapors.
5. Ensure both hands hold lid handles when opening autoclave and ensure no body parts extend over the autoclave.
6. Ensure the baskets are not too heavy when loading and unloading and use correct lifting methods.
7. Keep hands and body away from autoclave when in use to prevent burning and/or scalding.

### **Operation**

1. Connect the chamber to an alternating current supply of voltage specified on the rating plate mounted on the side or rear of the chamber.

### **DANGER: THIS AUTOCLAVE MUST NOT BE CONNECTED TO DIRECT CURRENT SUPPLY**

1. Ensure the drain 1 is closed, and then manually fill the boiler with clean water to a level just below the top of basket stand. **Note: YOU MAY USE DISTILLED WATER.**
2. Load the autoclave.
3. Close the lid following the “closing the lid” instructions.
4. Switch the mains power on. Turn the temperature controller to the required temperature.
5. Set the timer to the required sterilisation period. The timer has multiple time autoclave selections which are displayed in the window i.e. 0.1 seconds, 0.1 minutes, 0.1 hours, hours, 10’s of hours. The time may be selected in any mode from 001 to 300hrs.
6. Press the ‘start’ button.
7. The autoclave will switch on and will heat up until the preset temperature is reached.
8. When the preset temperature is reached the timing cycle will start. The red alarm light will illuminate on the temperature controller. Constant pressure/temperature will be maintained in the autoclave until the pre-set time has elapsed, at which time the heaters will switch off and the dump valve 5 will automatically release the steam if it is open.
9. Open the lid following the “opening the lid” instructions. **BE SURE ALL STEAM IS RELEASED FIRST.**

### **Indicators**

1. An indicating lamp adjacent to the controller will illuminate when the heaters are operating.
2. An amber pilot light will illuminate if the water level is too low.
3. An automatic digital reset timer with multiple time modes will be activated once temperature reaches the set temperature, the timer will then flash “off” until the time has elapsed, then the autoclave will cool until the ‘start’ button is pressed again.
4. If you wish to change the temperature you are using the autoclave at and therefore the temperature at which the timer will begin its timing cycle please call the manufacturers technical department.
5. It is advisable to check the water level after each cycle.

### **Chart Recorder (Optional - not on all models)**

Please read the chart recorder manual before use of the autoclave.

The recorder is programmed to record the autoclave temperature on Channel 1. If the recorder is remote it should be mounted/placed adjacent to the autoclave and then using the leads from the recorder, connected to the matching sockets on the rear of the autoclave body. When positioned and connected to the autoclave, open the door of the recorder, place the chart paper in position and remove the white caps from the pens(the internal door can be opened to access the pens), press the button to switch the recorder ON. Connect the recorder to the MAINS supply and turn ON.

## External Steam Fittings

1. Spring loaded safety valve pre-set to operate at 215 K.P.A. (Safety valve 4 on diagram).
2. Automatic air vent (air vent 2).
3. Manually operated pressure release valve connected with opening/closing mechanism (exhaust valve).
4. Manually operated drain valve (drain 1).
5. Adjustable steam release valve. If autoclaving sealed items, the adjustable steam release valve may be closed to prevent the items exploding or blowing off lids or seals when the autoclave has completed its cycle. In this case it is desirable to allow the autoclave to depressurise gradually before attempting to open the lid. The valve may be partially opened to permit a gradual release of steam (dump valve 5).
6. Pressure gauge.

## Opening the lid

### Step 1.

Pushes handle 'A' towards the rear of the autoclave and hold firmly in open position to release steam through the steam release valve. **Note: As this handle is operated it contacts an electric micro-switch and turns the heaters in the autoclave off, therefore to begin a new cycle remember to repress the start button.**

### Step 2.

Turn the handles 'BB' clockwise approximately 60 degrees to release the lid from the gasket.

### Step 3.

Turn the handles 'CC' anti-clockwise approximately 20 degrees to release the lid from the locating lugs.

### Step 4.

Hold the lid and slightly lift upwards as the springs bring open the lid using handles 'CC'.

## Closing the lid

### Step 1.

Close the lid using handles 'CC' and turn clockwise.

### Step 2.

Turn handles 'BB' anti-clockwise compressing the gasket. It may be necessary to hold 'CC' when commencing to turn 'BB'

### Step 3.

Pull the handle 'A' until the locking pin is in position and the micro-switch is activated. This action will also close the pressure release valve.

## Internal Temperature Probes (Optional- not on all models)

If the autoclave is fitted with two internal temperature probes. To change these probes you must remove the side panel and unscrew the glands in which they enter the chamber. The probes are 'K' type thermocouple autoclave type and are connected to an external plug for monitoring by chart recorder or computer or P.L.C. Included is two blank plugs which you can screw into the vessel if you do not wish to use the internal probes- be sure you use plumbers tape before screwing these into the vessel or replacing them in the vessel.

## Maintenance

Check the Safety Valve monthly by pulling the safety spring for 1 second to release steam whilst under pressure. Wear Full Face Mask, Gloves and full length clothing and other PPE as required. Ensure no product is inside the Autoclave during testing.

Clean drain and flush with boiling clean water regularly to prevent build up.

Ensure Pressure Gauge reads 105 KPA at 121°C when in use. If not switch off immediately and have the unit serviced.

Have the unit inspected by a registered boiler inspector annually. ( Ensure chamber is registered with the appropriate body for pressure vessels)

The cabinet is finished with stainless steel and to maintain appearance should be wiped over with a non abrasive cleanser. The chamber is manufactured from stainless steel and may be cleaned with a solvent and if grained stainless steel chamber a stainless steel scratch pad may be used. The pad should be rubbed in the same direction as the grain pattern of the stainless steel.

The silicone gasket should be cleaned with detergent only, ensuring it is dried completely after washing. To prolong life it may be stored at cool temperatures in a container of water. Gasket lubricant is available to provide prolonged life and better sealing on the gasket.

The locking pins should be regularly greased with high temperature grease to reduce binding in the guides.

**WARNING: THIS AUTOCLAVE SHOULD NEVER BE CONNECTED TO MAINS WATER SUPPLY**

## Troubleshooting

SYMPTOM	REMEDY
No Power  (Indicator Light is off)	<ol style="list-style-type: none"><li>1. Check autoclave is plugged in and power switched on.</li><li>2. Ensure mains power supply point is functioning by using a test appliance on power socket.</li><li>3. Check internal RCD has not tripped.</li></ol>
Failure to heat or maintain temperature  (Indicator light is on)	<ol style="list-style-type: none"><li>1. The temperature controller is on.</li><li>2. Handle 'A' is pulled forward activating the microswitch.</li><li>3. The water level is above the low water sensor and the low water indicating lamp is off.</li></ol>
The timer does not start	<ol style="list-style-type: none"><li>1. Check the AL4 value is equal to set value as this value activates the timer.</li></ol>

If the fault cannot be found call your distributor or the manufacturer quoting the serial number of the autoclave from the manufacturers label.

### **Declaration of Conformity**

Each product is thoroughly inspected and tested to not only ensure that it meets the specifications provided, but to also meet Australian Electrical Standard AS3820 and EMC Standard AS/NZ1044:1995, and therefore being accredited with a C Tick label. Labec Autoclaves are constructed in accordance with Australian Standard 1210 and are approved by Workcover Authority of NSW with reciprocal approval by equivalent bodies in all states of Australia.