DIXONS PORTABLE AUTOCLAVES

VARIO XX28

Stainless Steel
Time And Temperature Controlled Electric Model

Operators Manual

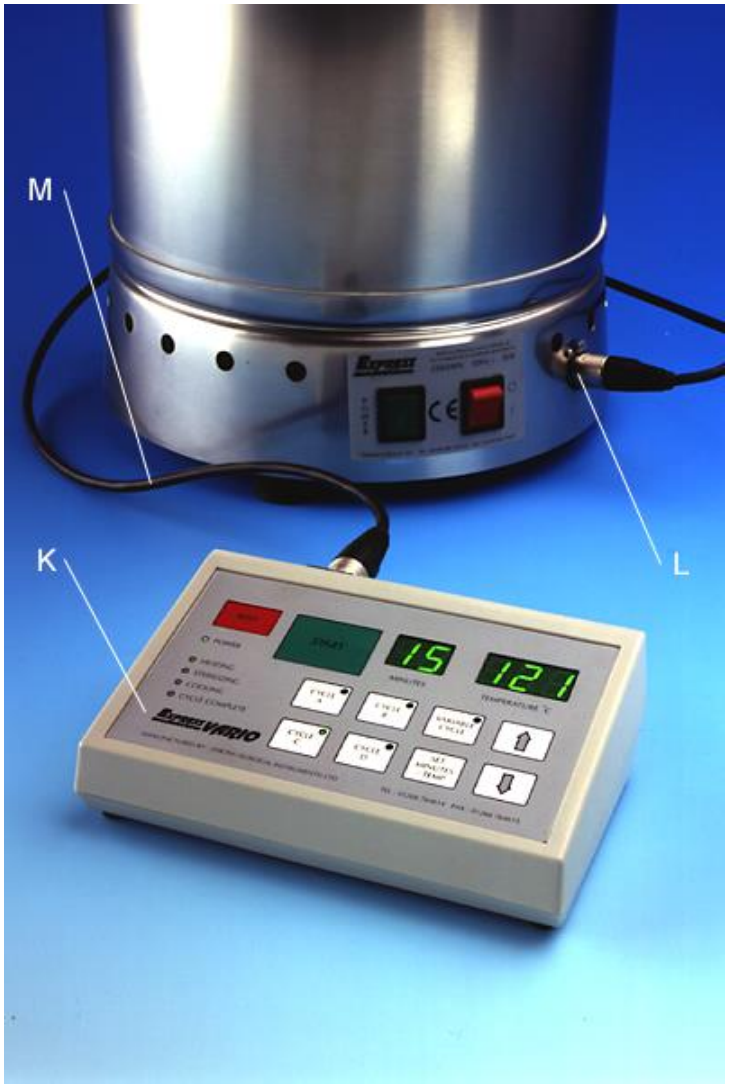
Issue 5

For correct operation of this autoclave it is essential that the chamber be filled with water up to the height of the studs before every use.

Warning - All external body and lid surfaces are hot during and immediately after sterilisation. Lift or move the autoclave by the top handle only.

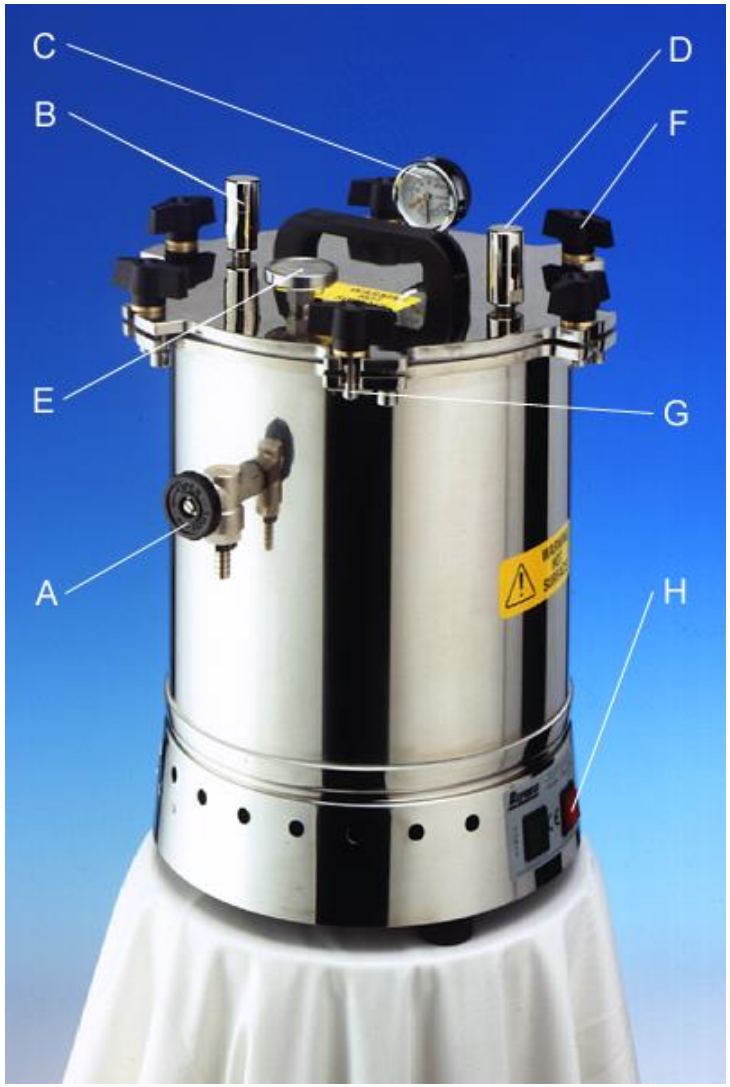
ISO 9000 REGISTERED FIRM

DIXONS SURGICAL INSTRUMENTS LTD, 1 ROMAN COURT
HURRICANE WAY, WICKFORD BUSINESS PARK
WICKFORD, ESSEX, SS11 8YB, UK
TEL: +44 (0)1268 764614 - FAX: +44 (0)1268 764615
EMAIL: info@dixons-uk.com - WEB: http://www.dixons-uk.com



K	VARIO Automatic Cycle Controler
L	VARIO Connection Socket
M	VARIO Connecting Lead

7. Illustration



A	Draw-off Cock	E	Thermometer
B	Self Seal Aircock	F	Wing Nut (6)
C	Pressure Gauge	G	Drop Bolt (6)
D	Safety Valve	H	Switch
E	Thermometer		

Foreword

Before using this Dixons Portable Autoclave please read this booklet carefully. Please ensure that all persons likely to use this product are correctly trained in its use in accordance with these instructions.

Your Dixons Portable Autoclave, operated in accordance with the manufacturers instructions, will give years of trouble free service without the need for any major servicing.

Every Dixons Portable Autoclave has been manufactured to the highest quality standards by a company complying with BS EN ISO 9000 and is fully tested and ready for immediate use.

Dixons Portable Autoclaves are suitable for sterilisation of:

- Laboratory equipment (glass and metal)
- Culture media
- Pharmaceutical preparations in sealed containers
- Surgical and Veterinary instruments
- Dressings and drapes

For the sterilisation of dressings and drapes it is recommended that a Dressing Drum or Wire Mesh Basket be used. These are available as a part of the range of accessories.

All Dixons Portable Autoclaves are particularly suitable for destructive sterilisation, as the operator is not restricted to a set cycle time. This can be adjusted to suit the application.

This users manual consists of seven sections:

1. Installation Procedure
2. Operation
3. Sterilising Periods
4. Maintenance
5. Specification
6. Record of Inspection
7. Illustration

1. Installation Procedure

1.1 On receiving the autoclave remove all the cardboard protective covers. Unscrew the Wing Nuts and swing down the Drop Bolts. Twist the lid anti-clockwise until the locking lugs disengage and remove the lid. Remove all other packaging materials from inside the autoclave.

1.2 Ensure that the following parts are included:

- Autoclave body and lid complete with all fittings as per the illustration in section 7.
- Inner liner.
- Pair of liner Carrying Handles.
- White silicone gasket in lid.
- Operators manual.
- Test certificate.
- Pack of TST indicator strips.
- Power lead with IEC connector.
- VARIO automatic cycle control.
- VARIO connecting lead.

1.3 Ensure that no damage has occurred to any of the fittings paying special attention to the Pressure Gauge and Thermometer.

1.4 The autoclave is now ready for use.

Notes

Notes

2. Operation

Please read these operating instructions before using the autoclave to avoid any chance of misuse.

The autoclave is factory set to run at a maximum of 121ºC. This is suitable for most purposes. A lower setting can be used if required.

Many materials can be autoclaved at 121ºC. These include most metals, glass, silicone rubber and many plastics. If in doubt, consult the manufacturer of the instrument or equipment concerned as the manufacturer of the autoclave does not accept liability for damage of this nature.

2.1 Remove the Inner Liner. Fill the chamber of the autoclave with water up to the height of the studs.

2.2 Articles to be sterilised should be placed into the Inner Liner, a Wire Mesh Basket or a Bottle Rack. To sterilise porous loads (i.e. dressings and drapes) it is recommended that a Dressing Drum be used. The container should not be packed tightly, especially when dressings are being sterilised. It is important that steam can circulate freely. Place the Inner Liner / Wire Mesh Basket / Bottle Rack / Dressing Drum inside the autoclave. It is advisable to use some form of sterilisation test e.g. the TST indicator strips supplied.

2.3 Check that the Lid Gasket is correctly seated in its groove on the underside of the lid. Place the lid on the autoclave and rotate clockwise until it hits the stops and the slots for the Drop Bolts line up in the lid and body ring. The 6 Wing Nuts and Drop Bolts should now be lifted up and lightly tightened in opposite pairs. This should be done - one in each hand - until the slack is taken up. Now tighten up in opposite pairs. Normal finger tightness is adequate.

2.4 Close the Draw-off Cock.

2.5 Plug the VARIO Connecting Lead into the Controller and into the Connection Socket in the autoclave. Plug the power lead into the autoclave. Plug the lead into the mains (the green light will show connection to the mains). Turn on the red Switch (the red light will show power on). The green light on the VARIO controller will show power to the controller.

2.6 Select one of the four preset cycles (A, B, C or D) or the variable cycle. Section 5 deals with cycle parameters. The display will show the parameters of the cycle chosen. If the variable cycle is chosen, the parameters from the last time the variable cycle was set will be shown. If you wish to change the parameters of the variable cycle press the 'Set Minutes / Temp' button. This will cause the display to flash. The setting can now be adjusted using the up and down buttons. Section 5 deals with upper and lower limits of adjustment.

2.7 Once the desired cycle is displayed press the green 'Start' button to begin the cycle. The display will show 'Heating' and will indicate the chamber temperature as it rises.

2.8 When the water begins to boil, steam will start to emit from the Self Seal Aircock. The Self Seal Aircock will freesteam until all the air is displaced from the chamber and will then seal itself.

2.9 The temperature will now continue to rise until it reaches the preset level. The display on the controller will now show 'Sterilising' and the minutes display will show a countdown of cycle time remaining.

2.10 It is at this time that the sterilisation period begins. Section 3 deals with sterilisation periods.

2.11 When the minutes display reaches zero the sterilisation period is complete. The display will now show 'Cooling'. At this point the controller will emit a beeping sound five times. Depending on the materials being sterilised, see section 2.12 or 2.13.

If the inspection revealed defects in the autoclave, specify below the necessary repairs or modifications which may be required:				
Inspection			Completed	
Date	Action Required	Sign	Date	Sign

6. Record Of Inspection

An annual safety check will normally be sufficient unless the autoclave is in very regular use. The date of the next examination should be clearly marked on the autoclave once the examination is completed.

The purpose of this form is to provide a written record of inspection. It is merely a guide as to what to look for. It does not remove the need to routinely inspect and maintain the autoclave as described in section 4.

Model Type: VARIO XX28 Serial No: _____	Insert ☑ or ☒ as applicable				
Date of Examination					
Is the autoclave free from all signs of physical damage and distortion?					
Are the internal surfaces free from major 'pitting' (up to 1.5mm is acceptable)?					
Is the Silicone Gasket flexible, unperished and undamaged?					
Is the Pressure Gauge undamaged and does it read zero at atmospheric pressure?					
Is the Safety Valve undamaged, free moving and in working order?					
Are all the Wing Nuts and Drop Bolts undamaged and in working order?					
Are the Aircock and Draw-off Cock undamaged and in working order?					
Is a written set of instructions available for reference by users of the autoclave?					
Inspectors Signature					

2.12 **Bottles or other sealed vessels containing liquid** - do not, under any circumstances, open the Draw-off Cock or the Aircock or release pressure from the autoclave in any manner. **To release pressure from the autoclave at this point could cause the containers to explode.** Allow the autoclave to cool until the controller emits a beeping sound ten times and the display shows 'Cycle Complete'. See section 2.14.

2.13 **Dressings, instruments and apparatus** - (providing the apparatus does not have sealed glass containers holding liquid). **Warning - The water and steam that is released from the autoclave at this stage is extremely hot. Wear suitable protective equipment at this stage.** Place a suitable receptacle beneath the Draw-off Cock and open the Draw-off Cock to release water and steam under pressure from the autoclave. When steam ceases to emit, close the Draw-off Cock. Allow the autoclave to continue cooling until the controller emits a beeping sound ten times and the display shows 'Cycle Complete'. If a quick cycle is required see section 2.14. To make use of a full vacuum cycle allow the autoclave to continue cooling until it is below 40ºC. At this point the temperature display will be flashing '040'. See section 2.14.

2.14 Check that the Pressure Gauge is reading zero or a vacuum figure. Open the Draw-off Cock. Unscrew the 6 Wing Nuts in opposite pairs - one in each hand - 2 full turns. This will allow the lid to rise to a safe position, where it is still held captive, but has enough clearance to release any residual pressure still in the autoclave. Unscrew the 6 Wing Nuts fully in opposite pairs - one in each hand - and swing down the Drop Bolts. Twist the lid anti-clockwise until the Locking Lugs disengage. Remove the lid.

2.15 Remove the sterilised contents.

3. Sterilising Periods

The following times apply to a loosely packed load. Dressings in particular should not be packed tightly as steam will not penetrate. Wire Mesh Baskets or Dressing Drums are recommended for this application.

When large packs of dressings or large volumes of liquid are being sterilised, it is advisable to allow a further 10 minutes sterilisation time. This ensures adequate penetration of the materials by steam and heat.

Use these times as a general guide only - always use a sterilisation test e.g. the TST indicator strips supplied.

Instruments and Equipment	121ºC	15 minutes
Dressings and Drapes	121ºC	30 minutes
Liquid in Sealed Containers (0ml - 50ml)	121ºC	20 minutes
Liquid in Sealed Containers (50ml - 100ml)	121ºC	20 minutes
Liquid in Sealed Containers (100ml - 200ml)	121ºC	20 minutes
Culture Media (up to 1 litre)	121ºC	15 minutes

Notes on sterilisation of Culture Media:

1. Always follow the manufacturer's instructions.
2. Use volumes up to 1 litre.
3. Use similar volumes in the same load.
4. After cycle test for sterility.
5. Check microbiological performance before use.

Cycle A:	30 minutes @ 115ºC
Cycle B:	15 minutes @ 121ºC
Cycle C:	30 minutes @ 121ºC
Cycle D:	60 minutes @ 115ºC
Min Variable Temperature:	100ºC
Max Variable Temperature:	121ºC
Min Variable Time:	1 minute
Max Variable Time:	99 minutes

General

Design Pressure:	1.3 bar (18 psi)
H T Pressure:	2.0 bar (30 psi)
S W Pressure:	1.3 bar (18 psi)
Complies With:	H&SE PM73 (Lid Locking) BS3456 : Part 101 : 1987 (Electrical Safety) PED - 97/23/EC EMC - 89/336/EEC

5. Specifications

Autoclave

Model Type:		VARIO XX28
Capacity:	VARIO 1528	15 litres
	VARIO 2228	22 litres
	VARIO 3028	30 litres
Internal Diameter:		280mm
Internal Height:	VARIO 1528	245mm
	VARIO 2228	360mm
	VARIO 3028	490mm
Overall Width:		380mm
Overall Depth:		390mm
Overall Height:	VARIO 1528	455mm
	VARIO 2228	570mm
	VARIO 3028	700mm
Net Weight:	VARIO 1528	19.0Kg
	VARIO 2228	21.0Kg
	VARIO 3028	23.0Kg
Chamber Material:		Stainless Steel 316
Heat Source:		Internal Electric Element 230V - AC 50Hz - 2.0kW VARIO Time And Temperature Control

VARIO Control

Overall Width:	195mm
Overall Depth:	120mm
Overall Height:	65mm
Net Weight:	0.75Kg

4. Maintenance

UK users - this autoclave comes within the scope of **'The Pressure Systems and Transportable Gas Containers Regulations 1989'** and should be inspected and maintained accordingly. General maintenance should be carried out by a **competent person** only, as and when deemed necessary.

4.1 **Lid Gasket** - Check the white silicone Lid Gasket for distortion or wear and tear. The Lid Gasket is located in the groove on the underside of the lid. Check that it has not become brittle. Replace the Lid Gasket with a new one if necessary.

4.2 **Body Rim** - Check the rim of the body where the Lid Gasket seats for damage to the metal rim which would cause the lid seal to leak. If the damage is only minor, then the rim can be repaired by filing and smoothing with emery cloth. Major damage should be referred to the manufacturer or a qualified service engineer.

4.3 **Draw-off Cock** - Check the Draw-off Cock for signs of leaking around the seals and from the valve. Replace the seals or complete Draw-off Cock with a new one if necessary.

4.4 **Cleaning** - Use normal household detergent to clean the interior of the autoclave.

4.5 **Safety Valve Adjustment and Maintenance** - The Safety Valve is factory set using a test rig to release pressure at 1.3 bar (18 psi).

Adjustment - The safety valve should be adjusted using a test rig. The maximum working pressure is 1.3 bar (18 psi).

Maintenance - Remove the top cap, undo the locking grub screw and unscrew the Slotted Adjuster. Remove the spring and spindle to expose the Silicone Seal. Clean all parts and check the Silicone Seal for wear. Replace if necessary. Reassemble using a small smear of Autoclave Grease on the spindle and threads. Set a gap of about 4mm between the Slotted Adjuster and the top of the Safety Valve body. Set the Safety Valve to the desired setting using a test rig.

4.6 **Electrical Maintenance (by a qualified Electrician only)** - One element is internally fitted - 2.0kW - requiring a minimum 10A fuse. Check that the terminals on the elements are tight and that the elements are securely mounted in the base.

Check the Switch and light for damage. Replace if necessary. See that the IEC connector fits firmly in the socket.

4.7 **Overheat Cutout** - To avoid damage to the element, should the autoclave boil dry, it is fitted with an automatic overheat cutout. This is clamped to the base of the chamber. If the device should cutout it must be manually reset. Before doing this switch off the mains to the autoclave and remove the plug. Allow the autoclave to cool down. To reset the cutout turn the autoclave upside down and remove the perforated protection plate from the bottom. The cutout will now be visible. It is a round black unit approximately 15mm in diameter with a red button protruding from the middle. To reset the cutout press this red button. You should hear an audible 'click' as the cutout is reset. Refit the protection plate and turn the autoclave the right way up. The autoclave will now work as before.

Notes