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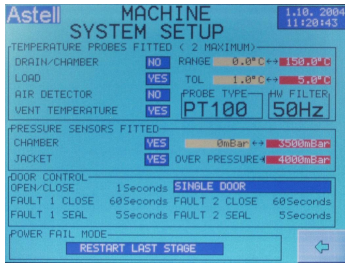
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# Product Specification

**Model Ref.**

**AMA270BT + AVC002**



**Astell AMA270BT + AVC002– 130 litre Top Loading Autoclave WITH VACUUM**

**Logi - Touch Screen Controller**

**Ideal for Instruments, Fluids (Air Ballast is required), Fabrics, Wrapped Instruments (External Heated Chamber is required), Mixed Discard, Empty Glassware etc.**

**Standard Features**

**All the following are Value - Added Features Included AS STANDARD**

- **Full Colour Touch Screen Controller**
- 5 Programs (optional 10)
- Integral Steam Generator
- Pre-Vacuum
- Cool Lock Protection (fluid Cycles)
- Vacuum Pulsing
- Vacuum Drying
- Swiftlock rapid access safety closure
- Over temperature water cut out on Steam Generator
- Thermocouple entry port
- Low Water Alarm on Integral Steam Generator
- Pressure gauge
- Electro Polished Stainless Steel Pressure Vessel
- Safety Valve Testing



**Options**

- Integral **Data printer**
- 10 Program Controller**
- Datalogger**
- Load Sensed Process Timing**
- Blow Down Vessel**

**Accessories**

- External Vessel Heating**
- Ethernet**
- Full Heated Jacket**
- CAT III Compliance**
- Water Softener**
- ½ Depth Stainless Steel **Basket**
- Full Depth Stainless Steel **Basket**
- ½ Depth Morrison Discard **Container**
- Full Depth Morrison Discard **Container**
- Load Support Plate**

*See options & Accessory pages for full details*

Overall Capacity	Chamber Diameter	Working Depth	Overall Dimensions	Operating Range
130 Litres	456mm	680mm	660x1150x1200 mm (wxhxd)	100 -138°C (0.2-2.4 bar)

<b>Power Requirements</b>	<b>3 phase 15A 10kW</b>
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<b>Water &amp; Drainage Requirements</b>	Water: 15mm bsp; 2-6 Bar; 4L/min. Drainage: Floor level, 35mm, ideally non-manifolded, to withstand free flowing steam Vent: DN5 Outside x 2 Compressed Air – Dry, Oil free, 2 to 6bar on site, otherwise option AAQ500 is essential
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<b>Approx. Nett Weight:</b>	<b>Shipping Weight</b>	<b>Shipping Dimensions</b>
<b>280 Kg</b>	<b>320 Kg</b>	<b>140x71x151cm (wxdxh)</b>

## Options & Accessories

The basic model quoted above is manufactured to the highest standards. It will be fully calibrated and tested prior to dispatch, and will be suitable for a wide range of sterilization procedures.

Please note however, that the following factory-fitted options are available for the above model. For certain applications, these options can provide increased flexibility and improved performance. If purchased with the autoclave, there would be no additional freight/FOB costs incurred.

**AAP800 Multi Program Controller:** A multi-program controller which allows storage of up to 10 programs for added speed and versatility in sterilization procedures. Additional features on this option include a digital pressure display and a "menu" allowing the user to display and cross check all programs at the press of a button. If the optional data printer (AAR100) is fitted, this may be printed out.

**AAQ500 Integral Air Compressor.** A supply of compressed air is essential on all units fitted with the Logi Controller. The Air supply is required to operate the pneumatic valves used in conjunction with the touch screen controller. This option is therefore essential where such a supply is not available

### Essential options if Porous loads / Fabrics etc are being processed

**AJP150 External Vessel Heating:** Provides improved temperature distribution during sterilization. Drying efficiency is also enhanced. This option is therefore essential in situations where fabrics/porous loads and wrapped instruments are being sterilized on a regular basis.

**AJP100 Full Heated Jacket:** A stainless steel jacket which provides improved temperature distribution during sterilization. Drying efficiency is also enhanced. This option is therefore essential in situations where fabrics/porous loads and wrapped instruments are being sterilized on a regular basis.

### Data Monitoring & Recording Options

**AAR100 Integral Data Printer:** This printer provides a permanent and traceable record of: "Time "Temperature "Pressure "Batch No. "Cycle Name. There is also provision for operator signature; the printer also provides reports of cycle settings and servicing information.

**AAR120 RS232 Interface:** This allows cycle progress to be monitored on an external computer equipped with suitable software.

**AAR122 Ethernet Interface:** Via VNC Viewer. Allows visual display of autoclave touch screen

### Important option to be considered if fluids are being processed

**AAN014 Load Sensed Process Timing:** Load Sensed Process Timing allows the sterilization cycle to be controlled via the temperature achieved in the centre of the load. The operation of load sensed process timing is controlled via the 'Secure' programmer. A 'wandering' probe, situated within the chamber is inserted into the load, or load simulator, and initiates the sterilization period once the probe reaches the programmed threshold temperature. A selectable 'Profiled Overshoot Boost' speeds up the cycle and minimises over-processing of media loads.

**AVC004E External Air Ballast:** Especially useful for fluid cycles. Provides controlled reduction of chamber pressure during the cooling phase, effectively preventing the 'boiling over' of bottled fluids that is frequently associated with rapid cooling systems.

**NB – This option must be ordered with AAN014.**

### Cooling Options

**AAP080 Advanced water cooling** Water is circulated through cooling coils in contact with chamber, resulting in rapid decrease of temperature – advanced water cooling offers substantial time saving and is ideal for the busy Laboratory.

## Additional Options

**AVC100 Exhaust Heat Exchange System:** An option to significantly reduce the temperature of the exhaust/waste in situations where heat resistant drains are not present. N.B. This option requires a mains water supply.

**AVC005 Option for CATIII Compliance:** Steam enters the chamber through the drain which is sealed during the cycle ensuring all condensate is sterilized. A bacterial retentive filter fitted onto the exhaust ensures nothing leaves the chamber without being sterilized. The positioning of the filter ensures that it is sterilized during every cycle

### **IQ/OQ Documentation Pack**

#### **IQ Documentation**

Details of calibration equipment \* Order Acknowledgement \* PED (Pressure Equipment Directive) Compliance \* Declaration of Conformity \* FAT (Factory Acceptance Test) \* Drawing Schedule \* ISO 9001:2000 Certification \* Pressure vessel specification \* Door safety checks

#### **OQ Documentation**

Chamber temperature distribution (per cycle) \* Automatic control test (per cycle)

***Please note: This is our standard IQ/OQ Documentation package. If other documents are required, please contact us with details of your specific requirements.***

## Chart Recorders

**Astell are able to offer a comprehensive range of Chart Recorders.** Please either contact us or visit our website ([www.astell.com](http://www.astell.com)) for further information

## Steam Generator Related Options

**AAW001 Water Softener - Single Unit** Recommended to reduce the build up of limescale on heaters, pipework etc, and particularly recommended for units with steam generators. Requires salt. (Full details, including service requirements, available upon request)

**AAW002 Water Softener** As AAW001, but this unit includes a separate brine tank, allowing installation in difficult or restricted positions. Requires salt. (Full details, including service requirements, available upon request)

**SPL285 Blow-Down Vessel** (REQUIRED if customer does not have the facility to accept Blow Down of up to 6bar) This option allows the operator to blow, at high pressure, the contents of the Steam Generator into this specially designed tank. The regular action of blow-down reduces the built up dissolved solids, elongating the life span of the generator and it's heaters. In the absence of a blow down vessel, adequate, safe provision should be made for blowing down the steam generator as part of a planned preventative maintenance schedule.

## Accessories

**AAN036** Stainless steel wire basket(400dx400hmm) Top loading models

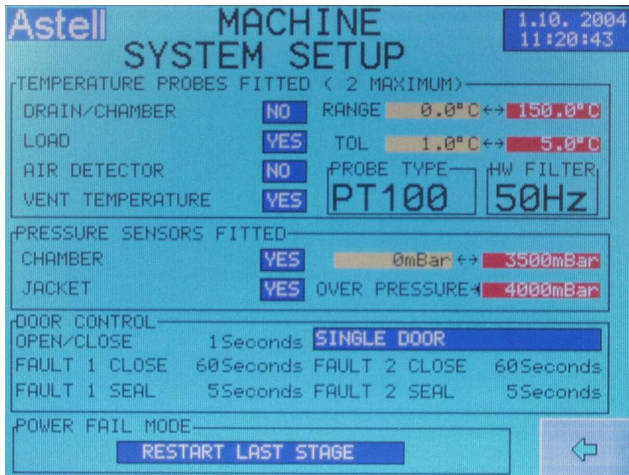
**AAN042** Stainless steel wire basket(400dx210hmm) Top loading models

**AAN048** Container with perforated base (380dx400hmm) Top loading models

**AAN056** Morrison discard container (390dx500h mm) Top loading models

**AAN058** Morrison discard container (390dx355h mm) Top loading models

## Control System – Logi – Touch Screen Controller



- Full Colour Touch Screen
- Data Archiving
- 5 Selectable security operating levels with Password Protected Security
- Easy Fingertip Operation even when wearing Lab Gloves
- Easy selection of program by Name and Settings
- Audible confirmation of key presses
- Simple Cycle Selection
- RS232 Interface / Port - Allowing connection to other peripheral devices such as a printer
- Operator Interface

- Built-in provision for mandatory Safety valve tests etc
- Enables continual monitoring
- Audible warnings of Faults
- Onscreen Display of Program Info, Times, Temperatures, Pressure, Cycle stage, Cycle Counter etc
- Internal Fault Detection with automatic fault diagnosis and complete fault history for easy servicing
- Simple to use Controls set out on the large illuminated Touch Screen display with menus for all operations
- Optional Communications including Ethernet and RS232

This control system is an advance in sterilization control technology, bringing together years of unrivalled experience, to produce a user friendly, fully automatic control system, to meet and exceed the expectations of even the most demanding laboratories and centres of sterilization.

The controller consists of a wipe clean touch screen based on an industrial PLC controller, combined with a number of analogue and digital input/output modules.

The controller software has been developed by Astell for the precision control of autoclaves.

The code is split into well-defined blocks, each of which performs a specific function and has been written in high level language to allow maximum clarity.

### Safety Features:

#### Design to PD97/23/EC

#### Overheat protection

#### Insulated safety door

#### Cooling locks

(in accordance with H.S.E. PM73) preventing opening of autoclave above 80°C. (for fluid & discard cycles)

#### Audible & Visual Alarms

for Cycle Fault - Cycle Interruption - Sterilize Failure - Water Low - Door Unlocked

#### Door Seal

Self Energising / Service independent

#### Door

The door release is interlocked by both temperature and pressure to ensure all residual pressure has completely and effectively vented to atmosphere before the doors can be opened. The door will retain its positions in the event of failure of any service. The door is thermally insulated to prevent the surface temperature presenting a hazard to operators. The surface temperature will not exceed IEC 61010 requirements. A cycle cannot start until the door is closed and locked.

Steam cannot be applied to the chamber unless the door is closed and locked.

## Interlocks

Safety interlocks are provided, and are achieved by hardware, separate from and additional to the control system. All interlocks are configured to fail-safe and to provide a signal to the control system to indicate that normal operation has been prevented, and to terminate the current cycle. The interlock system is designed so that its function can be tested during routine maintenance. Safety related interlocks are either hard wired or piped. The following safety interlocks are provided: ♦If the door is not closed, the steam supply to the chamber will be isolated ♦If the pressure in the chamber exceeds 0.15 bar the door will remain locked.

## Performance Tests

All electrical equipment is Safety Tested in accordance with the Low Voltage Directive. Astell shall perform the following standard Factory Acceptance Tests. The tests are included in the machine costs as per the quotation prior to despatch:

**All Astell autoclaves are fully tested and calibrated before despatch in line with our ISO9001-2000 procedures.**

Connect and check all supplies	Produce printout for each cycle tested (When printer option fitted)
Check software version	Check door interlocks
Power up controller and check door open/close operation	Carry out sterilize monitor timer test on each cycle
Install relevant cycle data as required by client	Run cycle and check for any leaks
Calibrate all temperatures and pressures	Check all safety valves
Check rotation of all pumps and motors (if applicable)	Run each cycle and check conforms with applicable standards
Check and document safety devices	Document in Astell procedures

## Applicable Standards

PED EN/97/23/EC /

ISO9001-2000 / UKAS / IEC 61010

Medical Devices Directive 93/42/EEC

Medical Devices Quality Management System - BS EN ISO 13485:2003

### Autoclave Safety

N.B. Please note that all Astell autoclaves are manufactured to the highest standards and in full compliance with the Pressure Equipment Directive – i.e. PD5500/PED/97/23EC. Whilst all units have the necessary safety features to minimise user risk, and help ensure long term reliability, it is recommended that:

- a) Routine safety checks are carried out in accordance with Astell manuals and in compliance with current pressure regulations and/or insurance requirements.
- b) Autoclaves are serviced regularly by Astell or Astell trained/recommended engineers. *(UK only: Please contact us for further information and costs on our range of Preventative Maintenance contracts).*