Astell

LEADERS IN STERILIZATION SINCE 1884

8 NEW MODELS INSIDE

AUTOCLAVE AND EDS PRODUCT GUIDE

Why choose Astell?

Leaders in sterilization since 1884

CUSTOM SOLUTIONS

Custom and standard solutions to meet your specification

Here at Astell we take pride in producing a comprehensive range of autoclaves and sterilizers, all of which can be found on the following pages. Together with a selection of options, we are confident we can supply the right equipment for your needs. However, there are often many considerations and sometimes what's shown in our product guide isn't suitable. As and where necessary, Astell can take the best elements and features to create a custom sterilization unit that fits your installation space, budget or process needs.

GLOBAL REACH

Our products are used in over 100 countries, worldwide

Having been in business for over a century, Astell can lay claim to a long list of satisfied customers. A large percentage of these are overseas customers who have either purchased from us directly or through an approved agent. A list of dealer partners can be found on our website. Can't see a dealer covering your location? Please contact us to discuss your requirements.

SERVICE AND MAINTENANCE

Quality maintenance and rapid after-sales support

We offer service support using experienced specialist engineers, OEM parts and with fast response times. Should you experience a technical problem, contact our dedicated team and it will be our priority to help rectify it. However be reassured, it's not uncommon for us to be contacted by customers that have Astell autoclaves more than 15 years old which are still working perfectly!

MADE IN THE UK SINCE 1884

Over 130 years experience goes into every unit we manufacture

Uniquely, Astell can trace its heritage back over 130 years to the early pioneering days of steam sterilization. Throughout this time our autoclaves have been manufactured in the UK using high quality components, to exceed current industry standards. Choose Astell Scientific and become part of our story!

Autoclave operating range: 100°C - 138°C (0.2 – 2.4 Bar)

Standards Compliance: In accordance with the requirements of Astell Scientific's notified bodies and continuous improvement Quality Management System we maintain accreditation to the following standards and directives:

ISO 9001:2015 ISO 17025:2005 IEC 61010 ASME "U" VIII EN285:2015 EMC EN 61326-1: 2013
BS 2646:1993 BS EN 13060:2014 Pressure Equipment Directive (PED 2014/68/EU)

Contents

Benchtop Autoclave Range

33, 43, 63 litre models

*Fitted with **heaters in chamber***

Astell's front loading 'Benchtop' autoclave range is available in three sizes and is totally self-contained. These units require no plumbing, and only a standard single phase power supply.

The range is available as either '**Classic**' or '**Ecofill**'.

Classic – The 'Classic' version requires manual water-fill and during the cycle condensate leaves the vessel via a silicone tube that can be connected to a heat-resistant bottle.

Ecofill – The 'Ecofill' version has an integral reservoir and an in-built water re-circulation system. Once the reservoir is filled, this provides water for up to 15 cycles, and also acts as a collection vessel for condensate and the water that is automatically returned from the chamber at the end of each cycle, minimising water usage.

Other features include:

- Media holdwarm and delayed start facility
- A 5.7" colour touchscreen with integrated USB data port
- Electropolished stainless steel chamber
- Simple pre-post vacuum option available
- Adjustable time and temperature

Specifications

Model no.	Classic/ Ecofill	Steam source	Volume (litres)	Power supply	Chamber diam. x depth (mm)	Usable chamber depth (mm)	Overall dimensions W x H x D (mm)	Required bench depth (mm)
AMB420	Classic	Heaters in Chamber	33	Single Phase, 230V, 13A, 50/60 Hz	346 x 355	294	520 x 600 x 805	670
AMB430			43		346 x 465	403	520 x 600 x 805	670
AMB440			63		346 x 668	600	520 x 600 x 1005	855
AMB220	Ecofill		33		346 x 355	294	520 x 600 x 805	670
AMB230			43		346 x 465	403	520 x 600 x 805	670
AMB240			63		346 x 668	600	520 x 600 x 1005	855

(Power consumption/dimensions may vary with the addition of certain options)

Bottle capacity

Below is a table identifying the number of Duran bottles it is possible to fit in to the chamber of each model using the standard base shelf.

Model no.	500ml	1000ml	2000ml
AMB420/AMB220	10	8	2
AMB430/AMB230	14	11	3
AMB440/AMB240	21	15	4

Advanced options *(Selection of this option alters the power supply requirements listed in the Specifications table)*

Simple Vacuum Option

The AVC002 vacuum utilises the standard heaters in the base of the chamber with simple pre-vacuum air removal and post vacuum cooling to effectively sterilize porous type loads and 'difficult' discard loads, but without any drying capability.

Astell Ref: AVC002

Additional options

Load Sensed Process Timing	Ref: AAR014
Pulsar Freesteaming	Ref: AAN009
Integral data printer	Ref: AAR130
FDA 21 CFR part 11 controller software	Ref: CFR021
Remote maintenance/diagnosis	Ref: RDM101
Ethernet interface	Ref: AAR122
IQ/OQ documentation	Ref: IQ/OQ
Assisted air cooling	Ref: AAP007
Condensate bottle (Classic models only)	Ref: AAN308
Morrison discard container (W:180 x H:200 x D:260mm)	Ref: AAN346

Category III (BSL-3) compliance (Classic model only)	Ref: AVQ009
Five position shelf rack (AMB420/AMB220) Two shelves supplied	Ref: AAN025
Five position shelf rack (AMB430/AMB230) Three shelves supplied	Ref: AAN530
Five position shelf rack (AMB440/AMB240) Three shelves supplied	Ref: AAN040
Spare shelf (AMB420/AMB220)	Ref: AAN022
Spare shelf (AMB430/AMB230)	Ref: AAN532
Spare shelf (AMB440/AMB240)	Ref: AAN043

See pages 20-25 for further information explaining options and accessories

Options capacity

Part name	Part ref.	Dimensions W x H x D (mm)	AMB420 & AMB220	AMB430 & AMB230	AMB440 & AMB240
Morrison discard container	AAN346	180 x 200 x 260	1	2	3
5 position shelf kit	Various	Fitted to chamber	2*	3*	3*

*(*indicates the number of moveable shelves provided with the 5 position shelf kit. Additional shelves available separately)*

Installation requirements

Power requirements:

The power requirements for the standard machines are listed in the Specifications table. Benchtop units require a standard single phase power supply. *N.B. A Neutral line and protective Earth are required for all electrically heated units.*

Drainage requirements (Classic models only):

A condensate bottle (Ref: AAN308) or a similar heat resistant receptacle.

Touchscreen controller

Ecofill reservoir

Pressure gauge

NEW

Closed Door Drying Benchtop Autoclave Range

33, 43, 63 litre models

*Fitted with **heaters in chamber***

The Astell Scientific range of 'Closed Door Drying' benchtop steam sterilizers is designed to offer convenience and flexibility in the sterilization of wrapped and unwrapped instruments.

Suitable for use in Dental and Veterinary clinics, these units offer sterilization for instruments and glassware with the added benefit of hot air drying.

This type of autoclave is also sometimes referred to as 'Class S' or 'Type S'.

Items requiring sterilization may include wrapped and unwrapped metal surgical instruments, unwrapped glassware and pouched hand tools.

It is recommended only such accessories as sterilization wraps, pouches, chemical indicators and biological indicators should be used with this autoclave.

The Closed Door Drying benchtop autoclave range is available in three sizes and is totally self-contained. These units require no plumbing, and only a standard single phase power supply.

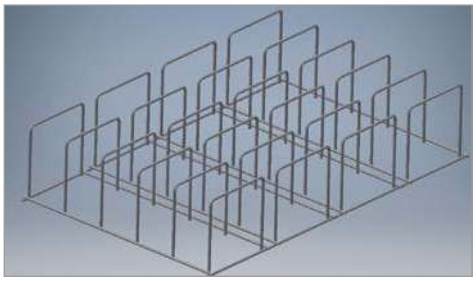
Ecofill – Every unit in the range features an integral water tank. Once filled, it will supply up to 15 cycles, and also act as a collection vessel for condensate and the water that is automatically returned from the chamber at the end of each cycle **(minimising water usage)**.

Other features include:

- Compliant with BS EN 13060:2014; ISO 9001:2015; PED 2014/68/EU; ANSI/AAMI ST55:2010 standard; FDA 510(k) approved; manufactured to the principles of Medical Devices Directive (93/42/EEC)
- Four programmed cycles suitable for solid metal instruments (unwrapped), solid metal instruments (wrapped), glassware (unwrapped), and hand pieces in surgical pouches
- Closed door drying – following sterilization, filtered air is circulated through the chamber by an efficient air pump rapidly drying each load
- Included furniture: chamber shelf rack, two wire shelves and one pouch rack
- 5.7" colour touchscreen with integrated USB data port and data archiving for up to 5,000 previously run cycles
- Create custom cycles – store up to 4 customized cycles in the touchscreen controller (edit, rename and personalise to your requirements)
- PED/ASME standard electropolished stainless steel chamber

4 position shelf rack

Wire shelf



Pouch rack

Specifications

Model no.	Volume (liters)	Power supply	Chamber diam. x depth (mm)	Usable chamber depth (mm)	Overall dimensions W x H x D (mm)	Required bench depth (mm)
UMB220	33	Single Phase, 230V, 13A, 50/60 Hz	350 x 360	294	520 x 600 x 805	670
UMB230	43		350 x 460	403	520 x 600 x 805	670
UMB240	63		350 x 660	600	520 x 600 x 1005	855

(Power consumption/dimensions may vary with the addition of certain options)

Additional options

General	Integral data printer	Ref: AAR130
	FDA 21 CFR part 11 controller software	Ref: CFR021
	Remote maintenance/diagnosis	Ref: RDM101
	Ethernet interface	Ref: AAR122
	IQ/OQ documentation	Ref: IQ/OQ
UMB220	Additional wire shelf	Ref: 389172
	Additional pouch rack	Ref: 389170
UMB230	Additional wire shelf	Ref: 389157
	Additional pouch rack	Ref: 389156
UMB240	Additional wire shelf	Ref: 389171
	Additional pouch rack	Ref: 389169

See pages 20-25 for further information explaining options and accessories

Chamber capacity

Part name	Part ref.	UMB220	UMB230	UMB240
Wire shelf	See Additional options	4	4	4
Pouch rack	See Additional options	2	2	2

Installation requirements

Power requirements:

The power requirements for the standard machines are listed in the Specifications table.

Touchscreen controller

Ecofill reservoir

Pressure gauge

Compact Autoclave Range

63 litre model

*Fitted with **heaters in chamber***

Astell's top loading 'Compact' autoclave range is available in two versions and each is totally self-contained. These units require no plumbing, and only a standard single phase power supply.

The range is available as either '**Classic**' or '**Ecofill**'.

Classic – The 'Classic' version requires manual water-fill and during the cycle condensate leaves the vessel via a silicone tube that can be connected to a heat-resistant bottle.

Ecofill – The 'Ecofill' version has an integral reservoir and an in-built water re-circulation system. Once the reservoir is filled, this provides water for up to 15 cycles, and also acts as a collection vessel for condensate and the water that is automatically returned from the chamber at the end of each cycle, minimising water usage.

Other features include:

- A 5.7" colour touchscreen with integrated USB data port
- Electropolished stainless steel chamber
- Castor mounted for easy movement
- Media holdwarm and delayed start facility

Specifications

Model no.	Classic/ Ecofill	Steam source	Volume (litres)	Power supply	Chamber diam. x depth (mm)	Usable chamber depth (mm)	Overall dimensions W x H x D (mm)
AMA440	Classic	Heaters in Chamber	63	Single Phase, 230V, 13A, 50/60 Hz	346 x 668	576	530 x 1070 x 705
AMA240	Ecofill		63		346 x 668	576	530 x 1070 x 705

Bottle capacity

Below is a table identifying the number of Duran bottles it is possible to fit in to the chamber of each model using the standard base shelf.

Model no.	500ml	1000ml	2000ml
AMA440	16	10	6*
AMA240	16	10	6*

**8 x 2000ml Durans can be accommodated without the use of baskets, but this requires an additional Load Support Plate. Astell Ref: AAN074.*

Additional options

Load Sensed Process Timing	Ref: AAR014
Pulsar Freesteaming	Ref: AAN009
Integral data printer	Ref: AAR130
FDA 21 CFR part 11 controller software	Ref: CFR021
Remote maintenance/diagnosis	Ref: RDM101
Ethernet interface	Ref: AAR122
IQ/OQ documentation	Ref: IQ/OQ
Assisted air cooling	Ref: AAP007

Condensate bottle (Classic model only)	Ref: AAN308
Category III (BSL-3) compliance (Classic model only)	Ref: AVQ009
Stainless steel basket (D:310 x H:270 mm)	Ref: AAN340
Morrison discard container (D:310 x H:270 mm)	Ref: AAN342
Load support plate	Ref: AAN074

See pages 20-25 for further information explaining options and accessories

Condensate bottle

The condensate bottle can be connected to any of the 'Classic' model autoclaves to allow up to 4 litres of water collection during and after the sterilization cycle. This option is useful in situations where no easy drainage is available, or as a lower cost alternative to the 'Ecofill' versions. Astell Ref: AAN308

Options capacity

Part name	Part ref.	Dimensions: Diameter x Height (mm)	AMA440 & AMA240
Morrison discard container	AAN342	310 x 270	2
Stainless steel basket	AAN340	310 x 270	2

Installation requirements

Power requirements:

The power requirements for the standard machines are listed in the Specifications table. Compact units require a standard single phase power supply. *N.B. A Neutral line and protective Earth are required for all electrically heated units.*

Drainage requirements (Classic models only):

A condensate bottle (Ref: AAN308) or a similar heat resistant receptacle.

Touchscreen controller

Data printer (optional)

Pressure gauge

Top Loading Autoclave Range

95, 120, 135 litre models

*Fitted with **heaters in chamber** as standard*

Astell's top loading autoclave range is available in three sizes and is factory fitted with a large number of features as standard, making it suitable for sterilizing liquids (media), discard, glassware and other instruments. These features include:

- A 5.7" colour touchscreen with integrated USB data port
- A delayed start and a media holdwarm feature for greater control over when you want to sterilize
- Safety: over-temperature protection, an external pressure gauge, a cooling lock, a safety valve test program and an emergency stop button
- A validation port, drain valve and an electropolished stainless steel chamber
- Castor mounted for easy movement
- Timed/Pulsed Freesteaming
- Full range of options and accessories *(see opposite page for details)*

Specifications

Model no.	Steam source	Volume (litres)	Power supply	Chamber diam. x depth (mm)	Usable chamber depth (mm)	Overall dimensions W x H x D (mm)
AMA250	Heaters in Chamber	95	3 Phase, 10kW	456 x 584	449	660 x 940 x 840
AMA260		120		456 x 736	601	660 x 1070 x 840
AMA270		135		456 x 817	682	660 x 1150 x 840
AMA260	Integral Steam Generator (option)	120	3 Phase, 14kW	456 x 736	601	660 x 1070 x 1200
AMA270		135		456 x 817	682	660 x 1150 x 1200

(Power consumption/dimensions may vary with the addition of certain options)

Bottle capacity

Below is a table identifying the number of Duran bottles it is possible to fit in to the chamber of each model. The number in brackets indicates the quantity of stainless steel baskets (Ref: AAN042) required to achieve this.

Model no.	500ml	1000ml	2000ml
AMA250	30 (2)	10 (1)	5 (1)
AMA260	30 (2)	20 (2)*	10 (2)*
AMA270	45 (3)	20 (2)*	10 (2)*

** (As the Duran bottle height exceeds the basket height, in this configuration the second basket would rest on top of the bottles in the lower basket).*

Advanced options *(Selection of these options alters the power supply requirements listed in the Specifications table)*

Integral Steam Generator Option

The standard heaters in chamber are replaced with a 12kW integral steam generator. This option helps to improve cycle times by increasing the efficiency of steam production (a mains water supply is required for this option). Astell Ref: 12KWSG

Advanced and Simple Vacuum Options

A vacuum option is essential for porous type loads (e.g. wrapped instruments and fabrics) or other cycles where air pockets could easily become trapped within the load. Available in 2 derivatives, the AVC001 option is Astell's advanced pulsar vacuum, which when used in conjunction with the integral steam generator and a heated jacket enables the dry output of all loads. Alternatively, the AVC002 vacuum utilises the standard heaters in the base of the chamber with simple pre-vacuum air removal and post vacuum cooling to effectively sterilize porous type loads and difficult 'discard' loads, but without any drying capability. Astell Ref: AVC001 or AVC002

External Jacket Option

Requiring the steam generator or direct steam option (and normally in conjunction with the AVC001 vacuum option), the external jacket option effectively adds an additional layer to the outside of the autoclave chamber. This can then be independently heated by the steam generator to enhance the drying process at the end of the cycle, or it can be flooded with water during cooling to aid faster cooling times. Astell Ref: AJP150

Additional options

Load Sensed Process Timing	Ref: AAR014	Drain Cooling (heaters in chamber model only)	Ref: AAN420
Pulsar Freesteaming	Ref: AAN009	Category III (BSL-3) compliance	Ref: AVQ006
Integral data printer	Ref: AAR130	Stainless steel basket (D:400 x H:220mm)	Ref: AAN042
FDA 21 CFR part 11 controller software	Ref: CFR021	Stainless steel basket (D:400 x H:400mm)	Ref: AAN036
Remote maintenance/diagnosis	Ref: RDM101	Morrison discard container (D:390 x H:355mm)	Ref: AAN058
Ethernet interface	Ref: AAR122	Morrison discard container (D:390 x H:500mm)	Ref: AAN056
IQ/OQ documentation	Ref: IQ/OQ	Water softener (compact)	Ref: AAW002
Assisted air cooling	Ref: AAP006	Load support plate	Ref: AAN002
Advanced water cooling	Ref: AAP080	Direct Steam model	Ref: Various
Autodrain (heaters in chamber models only)	Ref: AAP018	Blow down vessel	Ref: AAB001
Autofill (heaters in chamber models only)	Ref: AAP019	Air compressor	Ref: AAQ503/525
Air ballast (requires compressed air)	Ref: AVC004E	Lifting hoist	Ref: HST040

See pages 20-25 for further information explaining options and accessories

Options capacity

Part name	Part ref.	Dimensions: Diameter x Height (mm)	AMA250	AMA260	AMA270
Stainless steel basket	AAN042	400 x 220	2	2	3
Stainless steel basket	AAN036	400 x 400	1	1	1
Morrison discard container	AAN058	390 x 355	1	1	1
Morrison discard container	AAN056	390 x 500	–	1	1

Installation requirements

Power requirements:

The power requirements for the standard machines are listed in the Specifications table, however these can vary depending on the options selected. Options that affect the power requirement are **Integral Steam Generator** and **Advanced and Simple Vacuum**. For details on the exact power requirements on these options please contact us. *N.B. A Neutral line and protective Earth are required for all electrically heated units.*

Water and drainage requirements:

A cold water supply of 2-6 Bar minimum, 4 litres/min is required for the 'Autofill', vacuum and water cooling options. Max temperature 25°C, Max flow rate 20 litres/min. Requirements vary for RO/de-ionised/hard water. Drainage: Free venting, non-manifolded drain (35mm diameter) capable of withstanding temperatures up to 100°C.

Front Loading Autoclave Range

120, 153, 247, 290, 344 litre models

*Fitted with **heaters in chamber** as standard*

Low water and power consumption

Astell's front loading **'Swiftlock'** autoclave range is available in five sizes and is factory fitted with a large number of features as standard, making it suitable for sterilizing liquids (media), discard, glassware and other instruments. These features include:

- A 5.7" colour touchscreen with integrated USB data port
- A delayed start and a media holdwarm feature for greater control over when you want to sterilize
- Safety: over-temperature protection, an external pressure gauge, a cooling lock, a safety valve test program and an emergency stop button
- A validation port, drain valve and an electropolished stainless steel chamber
- Safe and easy loading, plus Astell's unique 'Swiftlock' door closure system
- Timed/Pulsed Freesteaming
- Full range of options and accessories *(see opposite page for details)*

Specifications

Model no.	Steam source	Volume (litres)	Power supply	Chamber diam. x depth (mm)	Usable chamber depth (mm)	Overall dimensions W x H x D (mm)
ASB260	Heaters in Chamber	120	Single or 3 Phase, 7/10kW	454 x 740	633	685 x 1320 x 1100
ASB270		153		454 x 945	862	685 x 1320 x 1310
ASB280		247	3 Phase, 13kW	600 x 876	734	900 x 1405 x 1370
ASB290		290	3 Phase, 16kW	600 x 1024	886	900 x 1405 x 1370
ASB300		344		600 x 1217	1086	900 x 1405 x 1570
ASB260	Integral Steam Generator (option)	120	3 Phase, 18kW	454 x 740	633	685 x 1320 x 1500
ASB270		153		454 x 945	862	685 x 1320 x 1500
ASB280		247	3 Phase, 28kW	600 x 876	734	900 x 1405 x 1750
ASB290		290		600 x 1024	886	900 x 1405 x 1750
ASB300		344		600 x 1217	1086	900 x 1405 x 1750

(Power consumption/dimensions may vary with the addition of certain options)

Bottle capacity

Below is a table identifying the number of Duran bottles it is possible to fit in to the chamber of each model using the standard base shelf. The number in brackets indicates quantity of extra bottles with the addition of a centre shelf (optional extra).

Model no.	500ml	1000ml	2000ml
ASB260	24	18	8
ASB270	33	23	11
ASB280	41 (+9)	28 (+4)	15
ASB290	50 (+11)	32 (+4)	18
ASB300	63 (+14)	42 (+6)	23

Advanced options *(Selection of these options alters the power supply requirements listed in the Specifications table)*

Integral Steam Generator Option

The standard heaters in chamber are replaced with a 16kW/24kW integral steam generator. This option helps to improve cycle times by increasing the efficiency of steam production and also includes automatic water filling as standard, removing the requirement of manually filling the machine with water between sterilization cycles (a mains water supply is therefore required for this option). Astell Ref: 16KWSG or 24KWSG

Advanced and Simple Vacuum Options

A vacuum option is essential for porous type loads (e.g. wrapped instruments and fabrics) or other cycles where air pockets could easily become trapped within the load. Available in 2 derivatives, the AVC001 option is Astell's advanced pulsar vacuum, which when used in conjunction with the integral steam generator and a heated jacket enables the dry output of all loads. Alternatively, the AVC002 vacuum utilises the standard heaters in the base of the chamber with simple pre-vacuum air removal and post vacuum cooling to effectively sterilize porous type loads and 'difficult' discard loads, but without any drying capability. Astell Ref: AVC001 or AVC002

External Jacket Option

Requiring a steam generator or direct steam option (and normally in conjunction with the AVC001 vacuum option), the external jacket option effectively adds an additional layer to the outside of the autoclave chamber. This can then be independently heated by the steam generator to enhance the drying process at the end of the cycle, or it can be flooded with water during cooling to aid faster cooling times. Astell Ref: AJP100 or AJP152

Additional options

Load Sensed Process Timing	Ref: AAR014
Pulsar Freesteaming	Ref: AAN009
Integral data printer	Ref: AAR130
FDA 21 CFR part 11 controller software	Ref: CFR021
Remote maintenance/diagnosis	Ref: RDM101
Ethernet interface	Ref: AAR122
IQ/OQ documentation	Ref: IQ/OQ
Assisted air cooling/non jacketed	Ref: AAP006
Advanced water cooling	Ref: AAP100
Autodrain (heaters in chamber models only)	Ref: AAP018
Autofill (heaters in chamber models only)	Ref: AAP019
Air ballast (requires compressed air)	Ref: AVC004

Internal convection cooling	Ref: AAP102
Drain Cooling (heaters in chamber model only)	Ref: AAN420
Category III (BSL-3) compliance	Ref: AVQ006
Morrison discard container (W:280 x H:290 x D:330mm)	Ref: AAN300
Container tray (W:279 x H:127 x D:279mm)	Ref: AAN080
Additional shelf kit (for ASB260/ASB270)	Ref: AAN316
Additional shelf kit (for ASB280/ASB290/ASB300)	Ref: AAN318
Water softener (compact)	Ref: AAW002
Integral air compressor (req. for Vacuum units)	Ref: AAQ503/525
Blow down vessel (steam gen. only)	Ref: AAB001
Direct Steam model	Ref: Various

See pages 20-25 for further information explaining options and accessories

Options capacity

Part name	Part ref.	Dimensions W x H x D (mm)	ASB260	ASB270	ASB280	ASB290	ASB300
Morrison discard container	AAN300	280 x 290 x 330	1	3	2	3	3
Container tray	AAN080	279 x 127 x 279	2	3	2	3	3
Container tray (capacity with middle shelf – optional extra)			4	6	6	9	9
Container tray (capacity with middle & upper shelf – extras)			–	–	6	12	12

Installation requirements

Power requirements:

The power requirements for the standard machines are listed in the Specifications table, however these can vary depending on the options selected. Options that affect the power requirement are **Integral Steam Generator** and **Advanced and Simple Vacuum**. For details on the exact power requirements on these options please contact us. *N.B. A Neutral line and protective Earth are required for all electrically heated units.*

Water and drainage requirements:

A cold water supply of 2-6 Bar minimum, 4 litres/min is required for the 'Autofill', vacuum and water cooling options. Max temperature 25°C, Max flow rate 20 litres/min. Requirements vary for RO/de-ionised/hard water. Drainage: Free venting, non-manifolded drain (35mm diameter) capable of withstanding temperatures up to 100°C.

NEW

Sliding Front Autoclave Range

120, 153, 247, 290, 344 litre models

*Fitted with **heaters in chamber** as standard*

Low water and power consumption

Astell's sliding front circular chamber autoclave range combines the easy access of a sliding door cabinet design with the value inherent in circular section machines. Available in five sizes, each unit is factory fitted with a large number of features as standard, making it suitable for sterilizing liquids (media), discard, glassware and other instruments. These features include:

- A 5.7" colour touchscreen with integrated USB data port
- Choice of manual or automatic door opening*
- Safety: over-temperature protection, an external pressure gauge, a cooling lock, a safety valve test program and an emergency stop button
- A validation port, drain valve and an electropolished stainless steel chamber

**requires air supply*

Specifications

Model no.	Steam source	Volume (litres)	Power supply	Chamber diam. x depth (mm)	Usable chamber depth (mm)	Overall dimensions W x H x D (mm)
MNS120C	Heaters in Chamber	120	Single or 3 Phase, 7/10kW	454 x 740	633	700 x 1630 x 1165
MNS153C		153		454 x 945	862	700 x 1630 x 1370
MNS247C		247	3 Phase, 13kW	600 x 876	734	915 x 1780 x 1455
MNS290C		290	3 Phase, 16kW	600 x 1024	886	915 x 1780 x 1455
MNS344C		344		600 x 1217	1086	915 x 1780 x 1650
MNS120C	Integral Steam Generator (option)	120	3 Phase, 18kW	454 x 740	633	700 x 1630 x 1510
MNS153C		153		454 x 945	862	700 x 1630 x 1510
MNS247C		247	3 Phase, 28kW	600 x 876	734	915 x 1780 x 1595
MNS290C		290		600 x 1024	886	915 x 1780 x 1595
MNS344C		344		600 x 1217	1086	915 x 1780 x 1790

(Power consumption/dimensions may vary with the addition of certain options)

Bottle capacity

Below is a table identifying the number of Duran bottles it is possible to fit in to the chamber of each model using the standard base shelf. The number in brackets indicates quantity of extra bottles with the addition of a centre shelf (optional extra).

Model no.	500ml	1000ml	2000ml
MNS120C	24	18	8
MNS153C	33	23	11
MNS247C	41 (+9)	28 (+4)	15
MNS290C	50 (+11)	32 (+4)	18
MNS344C	63 (+14)	42 (+6)	23

Advanced options *(Selection of these options alters the power supply requirements listed in the Specifications table)*

Integral Steam Generator Option

The standard heaters in chamber are replaced with a 16kW/24kW integral steam generator. This option helps to improve cycle times by increasing the efficiency of steam production and also includes automatic water filling as standard, removing the requirement of manually filling the machine with water between sterilization cycles (a mains water supply is therefore required for this option). Astell Ref: 16KWSG or 24KWSG

Advanced and Simple Vacuum Options

A vacuum option is essential for porous type loads (e.g. wrapped instruments and fabrics) or other cycles where air pockets could easily become trapped within the load. Available in 2 derivatives, the AVC001 option is Astell's advanced pulsar vacuum, which when used in conjunction with the integral steam generator and a heated jacket enables the dry output of all loads. Alternatively, the AVC002 vacuum utilises the standard heaters in the base of the chamber with simple pre-vacuum air removal and post vacuum cooling to effectively sterilize porous type loads, but without any drying capability. (Please note vacuum units require AAQ503 air compressor option). Astell Ref: AVC001 or AVC002

External Jacket Option

Requiring a steam generator or direct steam option (and normally in conjunction with the AVC001 vacuum option), the external jacket option effectively adds an additional layer to the outside of the autoclave chamber. This can then be independently heated by the steam generator to enhance the drying process at the end of the cycle, or it can be flooded with water during cooling to aid faster cooling times. Astell Ref: AJP100 or AJP152

Additional options

Load Sensed Process Timing	Ref: AAR014	Internal convection cooling	Ref: AAP102
Pulsar Freesteaming	Ref: AAN009	Drain Cooling (heaters in chamber model only)	Ref: AAN420
Integral data printer	Ref: AAR130	Category III (BSL-3) compliance	Ref: AVQ006
FDA 21 CFR part 11 controller software	Ref: CFR021	Morrison discard container (W:280 x H:290 x D:330mm)	Ref: AAN300
Remote maintenance/diagnosis	Ref: RDM101	Container tray (W:279 x H:127 x D:279mm)	Ref: AAN080
Ethernet interface	Ref: AAR122	Additional shelf kit (for MNS120C/MNS153C)	Ref: AAN316
IQ/OQ documentation	Ref: IQ/OQ	Additional shelf kit (for MNS247C/MNS290C/MNS344C)	Ref: AAN318
Assisted air cooling/non jacketed	Ref: AAP006	Water softener (compact)	Ref: AAW002
Advanced water cooling	Ref: AAP100	Integral air compressor (req. for Vacuum units)	Ref: AAQ503/525
Autodrain (heaters in chamber models only)	Ref: AAP018	Blow down vessel (Steam Generator only)	Ref: AAB001
Autofill (heaters in chamber models only)	Ref: AAP019	Automatic door (requires compressed air)	Ref: APD001
Air ballast (requires compressed air)	Ref: AVC004	Direct steam model	Ref: Various

See pages 20-25 for further information explaining options and accessories

Options capacity

Part name	Part ref.	Dimensions W x H x D (mm)	MNS120C	MNS153C	MNS247C	MNS290C	MNS344C
Morrison discard container	AAN300	280 x 290 x 330	1	3	2	3	3
Container tray	AAN080	279 x 127 x 279	2	3	2	3	3
Container tray (capacity with middle shelf – optional extra)			4	6	6	9	9
Container tray (capacity with middle & upper shelf – extras)			–	–	6	12	12

Installation requirements

Power requirements:

The power requirements for the standard machines are listed in the Specifications table, however these can vary depending on the options selected. Options that affect the power requirement are **Integral Steam Generator** and **Advanced and Simple Vacuum**. For details on the exact power requirements on these options please contact us. *N.B. A Neutral line and protective Earth are required for all electrically heated units.*

Water and drainage requirements:

A cold water supply of 2-6 Bar minimum, 4 litres/min is required for the 'Autofill', vacuum and water cooling options. Max temperature 25°C, Max flow rate 20 litres/min. Requirements vary for RO/de-ionised/hard water. Drainage: Free vented, non-manifolded drain (35mm diameter) capable of withstanding temperatures up to 100°C.

Duaclave Autoclave Range

66, 86, 126, 240, 306 litre models

*Fitted with **heaters in chamber***

The 'Duaclave' is the ideal autoclave where laboratory space is at a premium. The Duaclave features two identical chambers, stacked one directly above the other, giving double the capacity for the same footprint.

Combining two units within one frame, the two chambers operate completely independently – for example, allowing you to run a glassware cycle in one chamber whilst preparing your media with the other.

Duaclave models are only available with 'heaters in chamber'.

Features include:

- Media holdwarm and delayed start facility
- 5.7" colour touchscreens
- Electropolished stainless steel chambers
- External pressure gauges
- Versatile range of options and accessories *(see opposite page for details)*
- Over pressure/temperature protection
- Validation port

Specifications

Model no.	From range	Steam source	Volume (litres)	Power supply	Chamber diam. x depth (mm)	Usable chamber depth (mm)	Overall dimensions W x H x D (mm)
AMB420DV	Benchtop	Heaters in Chamber	33 (x2)	2 x Single Phase, 230V, 13A	346 x 355 (x2)	294	520 x 1200 x 780
AMB430DV			43 (x2)		346 x 465 (x2)	403	520 x 1200 x 780
AMB440DV			63 (x2)		346 x 668 (x2)	600	520 x 1200 x 980
ASB260DV	Swiftlock		120 (x2)	2 x Single/3Ph, 7/10kW	454 x 740 (x2)	633	685 x 1855 x 1310
ASB270DV			153 (x2)		454 x 945 (x2)	862	685 x 1855 x 1310

(Power consumption/dimensions may vary with the addition of certain options)

Bottle capacity

Below is a table identifying the total number of Duran bottles it is possible to fit in to each Duaclave chamber using the standard base shelf.

Model no.	500ml	1000ml	2000ml
AMB420DV	10	8	2
AMB430DV	14	11	3
AMB440DV	21	15	4
ASB260DV	24	18	8
ASB270DV	33	23	11

Additional options – AMB420DV – AMB430DV – AMB440DV

Load Sensed Process Timing	Ref: AAR014
Pulsar Freesteaming	Ref: AAN009
Integral data printer	Ref: AAR130
FDA 21 CFR part 11 controller software	Ref: CFR021
Remote maintenance/diagnosis	Ref: RDM101
Ethernet interface	Ref: AAR122
IQ/OQ documentation	Ref: IQ/OQ
Assisted air cooling	Ref: AAP006
Morrison discard container (W:180 x H:200 x D:260mm)	Ref: AAN346

Category III (BSL-3) compliance	Ref: AVQ009
Five position shelf rack (AMB420) Two shelves supplied	Ref: AAN025
Five position shelf rack (AMB430) Three shelves supplied	Ref: AAN530
Five position shelf rack (AMB440) Three shelves supplied	Ref: AAN040
Spare shelf (AMB420)	Ref: AAN022
Spare shelf (AMB430)	Ref: AAN532
Spare shelf (AMB440)	Ref: AAN043

Additional options – ASB260DV – ASB270DV

Load Sensed Process Timing	Ref: AAR014
Pulsar Freesteaming	Ref: AAN009
Integral data printer	Ref: AAR130
FDA 21 CFR part 11 controller software	Ref: CFR021
Remote maintenance/diagnosis	Ref: RDM101
Ethernet interface	Ref: AAR122
IQ/OQ documentation	Ref: IQ/OQ
Assisted air cooling	Ref: AAP006
Advanced water cooling	Ref: AAP100
Autodrain	Ref: AAP018

Autofill	Ref: AAP019
Drain Cooling	Ref: AAN420
Category III (BSL-3) compliance	Ref: AVQ006
Morrison discard container (W:280 x H:290 x D:330mm)	Ref: AAN300
Container tray (W:279 x H:127 x D:279mm)	Ref: AAN080
Additional shelf kit (for ASB260/ASB270)	Ref: AAN316
Water softener (compact)	Ref: AAW002
Direct Steam model	Ref: Various

See pages 20-25 for further information explaining options and accessories

Installation requirements

Power requirements:

The power requirements for the standard machines are listed in the Specifications table, however these can vary depending on the options selected. For details on the exact power requirements on these options please contact us. *N.B. A Neutral line and protective Earth are required for all electrically heated units.*

AMB model drainage requirements:

A condensate bottle or a similar heat resistant receptacle per chamber. Alternatively connection to a free venting, non-manifolded drain (35mm diameter) capable of withstanding temperatures up to 100°C.

ASB model water and drainage requirements:

A cold water supply of 2-6 Bar minimum, 4 litres/min is required for the 'Autofill' option.
Max temperature 25°C, Max flow rate 20 litres/min. Requirements vary for RO/de-ionised/hard water.

Drainage: Free venting, non-manifolded drain (35mm diameter) capable of withstanding temperatures up to 100°C.

SQUARE ECO Autoclave Range

125, 216, 250, 360 litre models

*Fitted with **heaters in chamber***

The SQUARE ECO range has been designed to bridge the gap between circular chamber autoclaves and the more complex square chamber autoclaves that Astell offer. The SQUARE ECO range still contains all the features you would expect from an Astell autoclave, including colour touchscreen, multiple programs for sterilizing and our delayed start/media holdwarm features, but this cost effective range has been designed with simplicity and economy in mind.

The ECO range is manufactured using high quality materials and includes all the safety features you would expect to find on any of our smaller units, with a manual door.

SQUARE ECO models are supplied with 'heaters in chamber'.

Features include:

- Media holdwarm and delayed start facility
- 5.7" colour touchscreen controller
- External pressure gauge
- Range of options and accessories *(see opposite page for details)*
- Assisted air cooling
- Autofill/Autodrain
- Over pressure/temperature protection
- Validation port

Specifications

Model no.	Steam source	Volume (litres)	Power supply	Chamber dimensions W x H x D (mm)	Overall dimensions W x H x D (mm)
MNS125E	Heaters in Chamber	125	415V, 3 Phase, Neutral & Earth, 16kW	500 x 500 x 500	780 x 1750 x 1000
MNS216E		216		600 x 600 x 600	880 x 1850 x 1100
MNS250E		250		500 x 500 x 1000	880 x 1850 x 1750

Only suitable for fluid loads

Model no.	Steam source	Volume (litres)	Power supply	Chamber dimensions W x H x D (mm)	Overall dimensions W x H x D (mm)
MNS360E	Heaters in Chamber	360	415V, 3 Phase, Neutral & Earth, 16kW	600 x 600 x 1000	880 x 1850 x 1700

(Power consumption/dimensions may vary with the addition of certain options)

Bottle capacity

Below is a table identifying the total number of Duran bottles it is possible to fit in to each SQUARE ECO autoclave using the standard base shelf. The number in brackets indicates quantity of extra bottles with the addition of a centre shelf (optional extra).

Model no.	500ml	1000ml	2000ml
MNS125E	25 (30)	20	9
MNS216E	42 (42)	30	16
MNS250E	60 (60)	40	21
MNS360E	66 (66)	50 (50)	21

Advanced options *(Selection of this option alters the power supply requirements listed in the Specifications table)*

Simple Vacuum Option

The AVC002 vacuum utilises the standard heaters in the base of the chamber with simple pre-vacuum air removal and post vacuum cooling to effectively sterilize porous type loads and 'difficult' discard loads, but without any drying capability.

Astell Ref: AVC002

Additional options

Load Sensed Process Timing	Ref: AAR014
Pulsar Freesteaming	Ref: AAN009
Integral data printer	Ref: AAR130
FDA 21 CFR part 11 controller software	Ref: CFR021
Remote maintenance/diagnosis	Ref: RDM101
Ethernet interface	Ref: AAR122
IQ/OQ documentation	Ref: IQ/OQ

Category III (BSL-3) compliance	Ref: AVQ006
Drain Cooling	Ref: AAN420
Discard container (W:300 x H:300 x D:300mm)	Ref: AAQ300
Loading system 1 x external trolley + 1 x internal truck	Ref: AAQ600
Water softener	Ref: AAW002
Stainless steel fascia panelwork	Ref: SSFPW

See pages 20-25 for further information explaining options and accessories

Standard safety features

All SQUARE ECO range autoclaves are fitted with the following built-in safety features as standard:

- Over temperature protection, a cooling lock, a safety valve test program and emergency stop button
- The door mechanism is safety linked meaning a cycle cannot start until the door is properly closed; or opened until the pressure and temperature within the chamber is at a safe level
- The door seal is steam and vacuum resistant, and will seal effectively without trapping or entrapment of 'foreign' material
- Doors are thermally insulated to prevent the surface temperature presenting a potential hazard to operators

Installation requirements

Power requirements:

The power requirements for the standard machines are listed in the Specifications table, however these can vary depending on the options selected. For details on the exact power requirements on these options please contact us. *N.B. A Neutral line and protective Earth are required for all electrically heated units.*

Water and drainage requirements:

A cold water supply of 2-6 Bar minimum, 4 litres/min is required. Max temperature 25°C, Max flow rate 20 litres/min. Requirements vary for RO/de-ionised/hard water. Drainage: Free venting, non-manifolded drain (54mm diameter) capable of withstanding temperatures up to 100°C.

Touchscreen controller

Manual door

Pressure gauge

SQUARE Autoclave Range

125 – 735 litre models

*Fitted with **steam generator** as standard*

Astell's SQUARE range offers the choice of seven different chamber sizes ranging from 125 to 735 litres and various heating, loading and door options. The SQUARE range is suitable for sterilizing glassware, fluids, waste and porous type loads (subject to configuration).

Features include:

- 5.7" colour touchscreen controller
- 7 standard chamber sizes available
- Choice of three heating methods: Direct steam, heaters in chamber or with steam generator (subject to chamber size and load type)
- Single or double doors (pass through)
- Automatic or manual door operation
- Full range of options and accessories *(see opposite page for details)*
- Custom built units available to meet your exact requirements

Specifications

Models listed below are a representative selection. Please contact us for the full range of available sizes and options.

Model no.	Volume (litres)	Doors	Door mech.	Steam generator	Chamber dimensions W x H x D (mm)	Overall dimensions W x H x D (mm)
AVS125	125	1	Auto or Manual	24kW	500 x 500 x 500	780 x 2000 x 1300
AVS216	216	1	Auto or Manual	24kW	600 x 600 x 600	880 x 2000 x 1400
AVS250	250	1 or 2	Auto or Manual	24kW	500 x 500 x 1000	880 x 2000 x 1750
AVS360	360	1 or 2	Auto or Manual	24kW	600 x 600 x 1000	880 x 2000 x 1750
AVS490	490	1 or 2	Auto	48kW	700 x 700 x 1000	1250/1500 x 2000 x 1700
AVS612	612	1 or 2	Auto	48kW	700 x 700 x 1250	1250/1500 x 2000 x 2000
AVS735	735	1 or 2	Auto	48kW/72kW	700 x 700 x 1500	1250/1500 x 2000 x 2300

(Overall dimensions are based on single door models. May vary with the configuration and addition of certain options)

Standard safety features

All SQUARE range autoclaves are fitted with the following built-in safety features as standard:

- Over temperature protection, a cooling lock, a safety valve test program and emergency stop button
- The door mechanism is safety linked meaning a cycle cannot start until the door is properly closed; or opened until the pressure and temperature within the chamber is at a safe level
- The door seal is steam and vacuum resistant, and will seal effectively without trapping or entrapment of 'foreign' material
- Doors are thermally insulated to prevent the surface temperature presenting a potential hazard to operators

AVS735 fitted with optional stainless steel panels

Advanced options *(Selection of these options alters the power supply requirements listed in the Specifications table)*

Integral Steam Generator Option

The heaters in chamber are replaced with a 24kW/48kW integral steam generator. This option helps to improve cycle times by increasing the efficiency of steam production and also includes automatic water filling as standard, removing the requirement of manually filling the machine with water between sterilization cycles (a mains water supply is therefore required for this option). Astell Ref: 24KWSG or 48KWSG

Advanced Vacuum Option

A vacuum option is essential for porous type loads (e.g. wrapped instruments and fabrics) or other cycles where air pockets could easily become trapped within the load. The AVC001 option is Astell's advanced pulsar vacuum, which when used in conjunction with the integral steam generator and a heated jacket enables the dry output of all loads. Astell Ref: AVC001

External Jacket Option

Requiring a steam generator or direct steam option (and normally in conjunction with the AVC001 vacuum option), the external jacket option effectively adds an additional layer to the outside of the autoclave chamber. This can then be independently heated by the steam generator to enhance the drying process at the end of the cycle, or it can be flooded with water during cooling to aid faster cooling times. Astell Ref: AAQ302 (AAQ302C for cooling)

Additional options

Integral data printer	Ref: AAR130
Load Sensed Process Timing	Ref: AAR014
FDA 21 CFR part 11 controller software	Ref: CFR021
Remote maintenance/diagnosis	Ref: RDM101
Ethernet interface	Ref: AAR122
IQ/OQ documentation	Ref: IQ/OQ
Internal convection cooling	Ref: AAP102
Air ballast (requires compressed air)	Ref: AVC004
Integral air compressor (Req. for Vacuum units)	Ref: AAQ503
SPF seal (for double door machines only)	Ref: AVQ007

Drain Cooling (heaters in chamber models only)	Ref: AAN420
Category III (BSL-3) compliance	Ref: AVQ006
Morrison discard container (W:300 x H:300 x D:300mm)	Ref: AAQ300
Additional shelf	Ref: AAQ801
Water softeners	Ref: AAW002
Blow down vessel	Ref: AAB001
Loading systems	Ref: AAQ600/2
Stainless steel pipework (primary)	Ref: AAS001
Stainless steel pipework (full)	Ref: SPL422

See pages 20-25 for further information explaining options and accessories

Installation requirements

Power requirements:

The power requirements for the standard machines listed in the Specifications table are 415V, 3 Phase, with Neutral and Earth. Requirements can vary depending on the configuration and options selected. For additional details of exact power requirements please contact us.

Water and drainage requirements:

A cold water supply of 2-6 Bar minimum, 4 litres/min is required. Max temperature 25°C, Max flow rate 20 litres/min. Requirements vary for RO/de-ionised/hard water. Drainage: Free venting, non-manifolded drain (54mm diameter) capable of withstanding temperatures up to 100°C.

Touchscreen controller

Stainless steel pipework (optional)

Pressure gauge

SQUARE MAX Autoclave Range

600 – 1400 litre models

*Fitted with **steam generator**/direct steam*

Astell's SQUARE MAX range offers the choice of five different chamber sizes ranging from 600 to 1400 litres and various heating, loading and door options. The SQUARE MAX range is highly customisable and by choosing from the many options available it is possible to sterilize almost anything (subject to configuration).

Features include:

- 5.7" colour touchscreen controller
- 5 standard chamber sizes available
- Choice of two heating methods: Direct steam or steam generator
- Single or double doors (pass through)
- Automatic sideways opening door operation
- Full range of options and accessories *(see page 18 for details)*
- Custom built units available to meet your exact requirements

Specifications

Models listed below are a representative selection. Please contact us for the full range of available sizes and options.

Model no.	Volume (litres)	Doors	Steam generator	Direct steam	Chamber dimensions W x H x D (mm)	Overall dimensions W x H x D (mm)
SVS600	600	1 or 2	48kW	4kW	600 x 1000 x 1000	2000 x 2000 x 1500
SVS875	875	1 or 2	72kW	4kW	700 x 1000 x 1250	2000 x 2000 x 1750
SVS1050	1050	1 or 2	72kW	4kW	700 x 1000 x 1500	2000 x 2000 x 2000
SVS1200	1200	1 or 2	72kW	4kW	600 x 1000 x 2000	2000 x 2000 x 2500
SVS1400	1400	1 or 2	72kW	4kW	700 x 1000 x 2000	2000 x 2000 x 2500

(Overall dimensions are based on single door models. May vary with the configuration and addition of certain options)

Standard safety features

All SQUARE MAX range autoclaves are fitted with the following built-in safety features as standard:

- Over temperature protection, a cooling lock, a safety valve test program and emergency stop button
- The door mechanism is safety linked meaning a cycle cannot start until the door is properly closed; or opened until the pressure and temperature within the chamber is at a safe level
- The door seal is steam and vacuum resistant, and will seal effectively without trapping or entrapment of 'foreign' material
- Doors are thermally insulated to prevent the surface temperature presenting a potential hazard to operators
- Water conservation re-circulation system minimising water usage

SQUARE MAX fitted with optional stainless steel panels

Double Door SQUARE Autoclave Range

250 – 1200 litre models

*Fitted with **steam generator** as standard*

Astell's Double Door range of SQUARE autoclaves are ideal for high-containment type facilities that may be handling dangerous pathogens and microorganisms, and/or where a specific area or 'clean room' are isolated. The Double Door range offers the capability to specify a pass-through machine in various sizes with options for heating, loading and door specifications. The Double Door range is highly customisable and by choosing from the many options available it is possible to sterilize almost anything (subject to configuration).

Features include:

- 5.7" colour touchscreen controller
- 5 standard chamber sizes available
- Choice of two heating methods: Direct steam or steam generator
- Automatic door operation
- Full range of options and accessories *(see page 18 for details)*
- Custom built units available to meet your exact requirements

Image shown features optional custom glove box attachment for illustration purposes.

Specifications

Models listed below are a representative selection. Please contact us for the full range of available sizes and options.

Model no.	Volume (litres)	Doors	Steam generator	Chamber dimensions W x H x D (mm)	Overall dimensions W x H x D (mm)
AVD250	250	2	24kW	500 x 500 x 1000	1300 x 2000 x 1395
AVD360	360	2	24kW	600 x 600 x 1000	1500 x 2000 x 1285
AVD490	490	2	48kW	700 x 700 x 1000	1500 x 2000 x 1300
SVD875	875	2	72kW	700 x 1000 x 1250	2000 x 2000 x 1650
SVD1200	1200	2	72kW	600 x 1000 x 2000	2000 x 2000 x 1395

(Overall dimensions may vary with the configuration and addition of certain options)

Standard safety features

Double Door SQUARE range autoclaves are fitted with the following built-in safety features as standard:

- Over temperature protection, a cooling lock, a safety valve test program and emergency stop button
- The door mechanism is safety linked meaning a cycle cannot start until the door is properly closed; or opened until the pressure and temperature within the chamber is at a safe level
- The door seal is steam and vacuum resistant, and will seal effectively without trapping or entrapment of 'foreign' material
- Doors are thermally insulated to prevent the surface temperature presenting a potential hazard to operators
- Water conservation re-circulation system minimising water usage

Advanced options *(Selection of these options may alter the power supply requirements listed below)*

Integral Steam Generator Option

Available as 24kW, 48kW or 72kW integral steam generator. This option helps to improve cycle times by increasing the efficiency of steam production and also includes automatic water filling as standard, removing the requirement of manually filling the machine with water between sterilization cycles (a mains water supply is therefore required for this option).

Astell Ref: 24KWSG, 48KWSG or 72KWSG

Advanced Vacuum Option

A vacuum option is essential for porous type loads (e.g. wrapped instruments and fabrics) or other cycles where air pockets could easily become trapped within the load. The AVC001 option is Astell's advanced pulsar vacuum, which when used in conjunction with the integral steam generator and a heated jacket enables the dry output of all loads.

Astell Ref: AVC001

External Jacket Option

Requiring a steam generator or direct steam option. The external jacket option effectively adds an additional layer to the outside of the autoclave chamber. This can then be independently heated by the steam generator to enhance the drying process at the end of the cycle, or it can be flooded with water during cooling to aid faster cooling times.

Astell Ref: AAQ302 (AAQ302C for cooling)

Additional options

Integral data printer	Ref: AAR130
Load Sensed Process Timing	Ref: AAR014
FDA 21 CFR part 11 controller software	Ref: CFR021
Remote maintenance/diagnosis	Ref: RDM101
Ethernet interface	Ref: AAR122
IQ/OQ documentation	Ref: IQ/OQ
Internal convection cooling	Ref: AAP102
Air ballast (requires compressed air)	Ref: AVC004
Integral air compressor (Req. for Vacuum units)	Ref: AAQ503
SPF seal (for double door machines only)	Ref: AVQ007

Drain Cooling	Ref: AAN420
Category III (BSL-3) compliance	Ref: AVQ006
Morrison discard container (W:300 x H:300 x D:300mm)	Ref: AAQ300
Additional shelf	Ref: AAQ801
Water softeners	Ref: AAW002
Blow down vessel	Ref: AAB001
Loading systems	Ref: AAQ600/2
Stainless steel pipework (primary)	Ref: AAS001
Stainless steel pipework (full)	Ref: SPL422

See pages 20-25 for further information explaining options and accessories

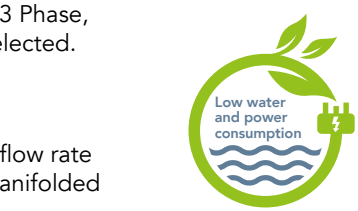
Installation requirements

Power requirements:

The power requirements for the standard machines listed in the Specifications table are 415V, 3 Phase, with Neutral and Earth. Requirements can vary depending on the configuration and options selected. For additional details of exact power requirements please contact us.

Water and drainage requirements:

A cold water supply of 2-6 Bar minimum, 4 litres/min is required. Max temperature 25°C, Max flow rate 20 litres/min. Requirements vary for RO/de-ionised/hard water. Drainage: Free venting, non-manifolded drain (54mm diameter) capable of withstanding temperatures up to 100°C.



Touchscreen controller

Stainless steel pipework (optional)

Pressure gauge

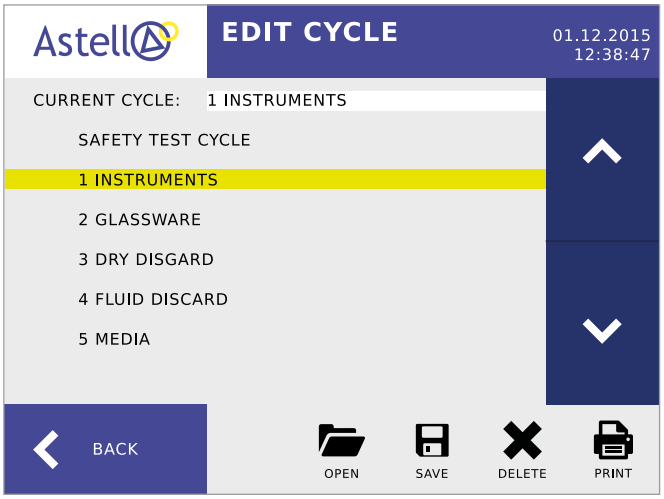
Touchscreen controller

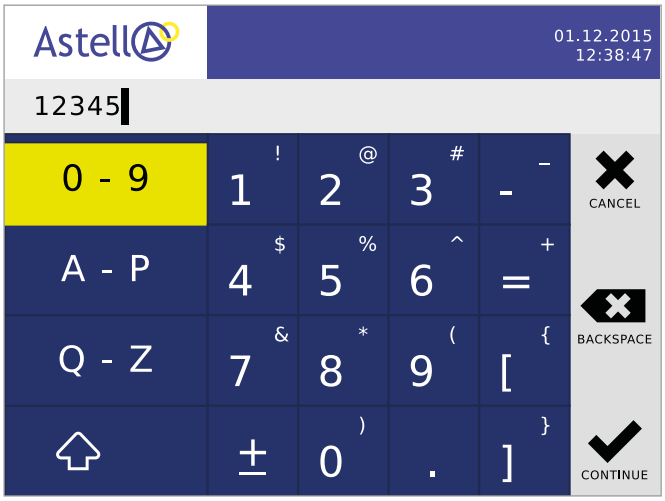
Astell's fully programmable 5.7" colour touchscreen controller is standard fitment to all our sterilization devices

All Astell Scientific autoclaves, steam generators and effluent decontamination systems incorporate the latest innovations in control system technology, providing colour touchscreen controllers as standard throughout the range.

Astell colour touchscreen control systems are an advance in sterilization control technology. Bringing together years of unrivalled experience, we have produced a user friendly, fully automatic control system designed to meet and exceed the expectation of the most demanding laboratories and centres of sterilization.

The controller consists of a wipe clean touchscreen measuring 122 x 94mm and is based on an industrial PLC system, combined with a number of analogue and digital input/output modules. The controller software has been developed by Astell for the precision control of all our autoclaves and sterilizers.





Specifications

Icon driven menu system
Simple cycle selection
Continual cycle monitoring
Secure
Data archiving for up to 5,000 cycles
Multiple user access levels and multi-level password protection
User log
Flexible
Ability to program up to 100 cycles
Program new cycles, modify, duplicate or rename existing cycles
Delayed start facility
Hold warm facility (if applicable)
Informative
Digital display of pressure / temperature
Cycle counter, stage timer, cycle timer and stage display
Print any cycle from the data archive logs (printer required)
Supportive
Fault diagnosis
Safety valve test cycle
Machine service timer
Fault history log

Autoclave options and accessories explained

Integral data printer

Ref: AAR130

This printer provides a permanent and traceable record of: time, temp., pressure, batch number and cycle time. There is also provision for operator signature. The printer also provides reports of cycle settings and servicing information.

Load Sensed Timing

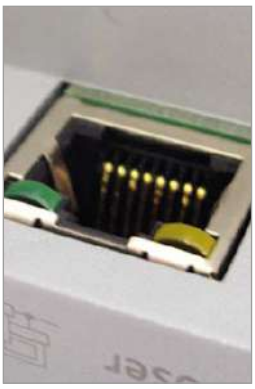
Ref: AAR014

Load sensed process timing allows the sterilization cycle to be controlled via the temperature achieved in the centre of the load. This is achieved by locating a wandering probe in to a media bottle or in to a reference bottle during the sterilization cycle.

Remote maintenance/ diagnosis

Ref: RDM101

This option allows remote access to the touchscreen controller for diagnostics, software updates and secure data capture (additional subscription fees may apply).



Ethernet interface

Ref: AAR122

The Ethernet option allows the user to display the touchscreen of the autoclave on a PC and then monitor cycle progress via VNC, as well as save cycle logs to a server directly or over FTP for backup.

IQ/OQ documentation

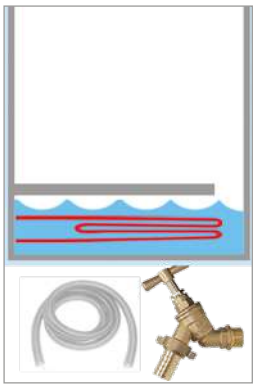
Ref: IQ/OQ

Typically a requirement of pharmaceutical companies or those providing medical devices/ products. The IQ/OQ provides documentary evidence that the autoclave complies to the customer's requirements (as ordered) and performs correctly. Full details available upon request.

Air ballast

Ref: Varies by model

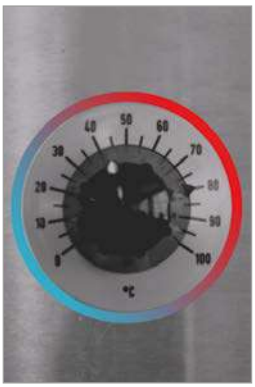
Provides controlled chamber pressure during the cooling phase, preventing 'boil over' of bottled fluids. This option when combined with jacket cooling offers significant reductions in cooling times compared to standard cooling. *NB. This option must be ordered in conjunction with Load Sensed Timing.*



Autofill

Ref: AAP019

The 'Autofill' options automatically maintains adequate water level within the chamber (for heaters in chamber models only). The water inlet is controlled by a level switch and complies with water bylaw regulations. The unit is readily connected to the water supply via a 1.5m flexible hose (supplied).



Drain cooling

Ref: AAN420

The exhaust heat system reduces the temperature of water sent to the drain by thermostatically controlling the temperature of any discarded water. It's ideal in situations where heat resistant drains are not present.
NB. This option requires a mains water supply.

Shelf options

Ref: Varies by model

Various shelf options are available for all front loading Astell autoclaves. All front loading units come with a base shelf as standard, but a central shelf can also be added, creating greater flexibility in terms of available sterilizing space. Top shelves are also available.

Morrison discard containers

Ref: Varies by model

Various size morrison discard containers are available for both top and front loading autoclaves. Pictured:
AAN346
AAN342
AAQ300

Water softener

Ref: AAW002

Recommended to reduce the build-up of limescale on heaters and pipework etc., and particularly recommended for units with steam generators. Unit includes a separate brine tank, allowing installation in difficult or restricted positions. Requires salt. Full details available on request.

Air compressor

Ref: AAQ503

A supply of compressed air is essential on all vacuum units/ square section autoclaves, and units with Air Ballast fitted. The air supply is required to operate the pneumatic valves used in conjunction with the touchscreen controller. This option is therefore essential where an on-site supply is not available.

Category III filter

Ref: AVQ006

Category 3 compliance is often required when dealing with high risk sterilization requirements. A bacterial retentive filter fitted onto the exhaust ensuring nothing leaves the chamber without being sterilized. *NB. Filter may vary from that pictured.*

Stainless steel top loading unit baskets

Ref: Varies by model

Various size stainless steel wire baskets are available for top loading autoclaves. Pictured: The AAN058 large stainless steel wire basket for the AMA250, AMA260 and AMA270. Half depth baskets are also available.

Blow down vessel

Ref: AAB001

This option allows the operator to expel, at high pressure, the contents of the steam generator into this specially designed vessel. The regular action of blow-down reduces the build-up of dissolved solids, elongating the life span of the generator and its heaters. In the absence of a blow down vessel, adequate, safe provision should be made for blowing down.

Loading system

Ref: AAQ600/2

Loading systems are available for single or double door SQUARE range autoclaves. The external trolley is manufactured from powder coated mild steel, with stainless steel runners to accept the internal stainless steel truck.

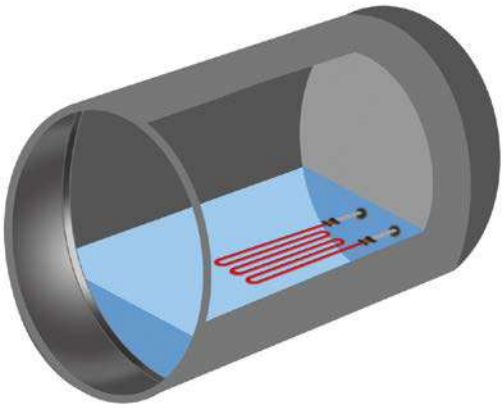
Steam Generators explained

Heaters in Chamber

Heaters in Chamber is the standard configuration fitted to all circular chambered Astell autoclaves and some square chambered models.

On standard machines, water is manually poured by the user directly into the chamber before each cycle begins. As the heater element(s) reach temperature, the water in the chamber boils to produce pressurised steam to force the air out from the chamber. An Autofill option is available to allow automatic water filling to take place so that the autoclave does not need to be manually filled between cycles.

This option is not suitable for sterilization cycles where drying is required for porous loads/fabrics.

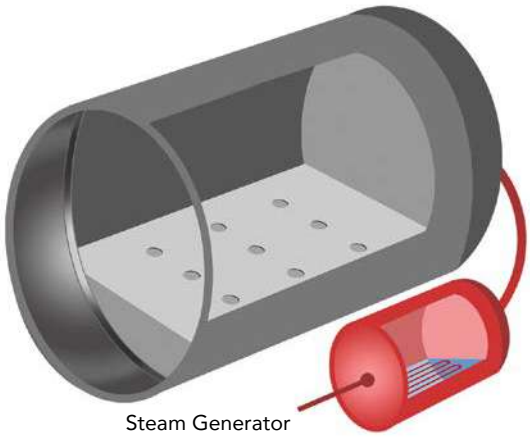


Steam Generator

Steam is produced by a separate integral generator which replaces the heating elements in the chamber and gives improved control over steam production.

A mains water supply enters the steam generator, where it is heated and converted to steam. This then enters the chamber directly from the steam generator as and when it is required.

Please note: Direct steam models are available for most autoclaves on request for use in situations where an in-house steam supply is available. Please contact us for more information.



Steam Generator

Cooling options explained

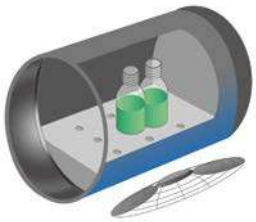
Note: Please refer to individual ranges for the compatibility of cooling options

The cooling of an autoclave load following sterilization will often be the most time-consuming stage of the cycle, particularly if bottled media (or other fluids) are being sterilized. For safe fluid sterilization, the load temperature needs to fall to 80°C before the door can be opened.

With a large load of bottled media, this could mean that the cooling time will represent up to 50% of the overall duration of the cycle. For this reason, Astell offer a variety of cooling options to improve the efficiency (and therefore reduce costs) in the busy laboratory.

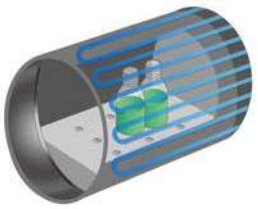
1 External Fan Cooling

A powerful, externally mounted fan helps to reduce cool down time. Like all Astell's cooling options, operation of the external fan system is controlled via the colour touch screen controller. This option is available on all models (except for those fitted with a cooled or heated jacket). Ref: AAP006



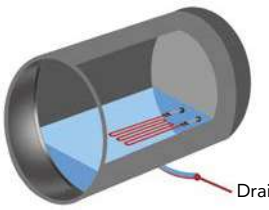
2 Water Cooling (Coils)

Water is circulated through cooling coils in direct contact with the outside of the autoclave chamber, resulting in a substantial reduction of cooling time. Ref: AAP001



3 Autodrain

For use in Heaters in Chamber autoclaves only. This feature can be selected on any cycle and will substantially decrease the time required to cool the chamber to a temperature where the door can be safely opened, especially when used in conjunction with the Water Cooling (Coils) or External Fan Cooling. At a pre-selected pressure during the cooling phase of the cycle, any remaining water in the chamber is evacuated to the drain. Ref: AAP018



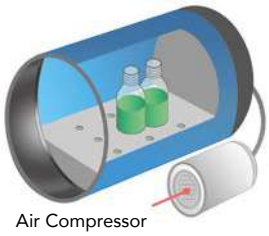
4 Water Cooling (Jacket)

This option quickly and effectively cools bottled media and other fluid loads. After sterilization water is circulated in direct contact with the outside of the autoclave chamber, resulting in the rapid decrease of the internal chamber temperature. The effectiveness of Jacket Water Cooling can be further enhanced if the autoclave is fitted with Internal Fan Cooling (see below for details). Please see page 24 for details of how to eliminate "Boil Over" when using this cooling method. Ref: AAQ302C

5 Cyclon Cooling

Cyclon Cooling provides major benefits in laboratories where large quantities of culture media need to be processed quickly as it provides a significant reduction in cycle time. This option in itself is available free of charge, however as a prerequisite, Water Cooling (Jacket) and Air Ballast options are both required.

This method of cooling is ideal for use in situations where large loads of bottled fluids (e.g. culture media) need to be sterilized quickly.



6 Internal Fan Cooling

A magnetically driven internal fan is situated in the chamber itself, which creates turbulence. The fan needs to be fitted in conjunction with Water Cooling (Jacket) in order to be effective, and these combined options provide one of the most efficient ways of cooling the chamber and load. The dual system is therefore ideal in situations where large fluid loads need to be processed as quickly as possible. Internal Fan Cooling, when used in conjunction with Water Cooling (Jacket), Air Ballast and Load Sensed Timing makes cooling times up to 70% faster than a standard autoclave fitted with no cooling system.

Air Ballast and Load Sensed Timing explained

Cooling fluids quickly and safely

How can I quickly and efficiently sterilize fluid loads?

Sterilizing fluid loads in a quick and effective manor is something that can be easily achieved by using the right options. All Astell autoclaves can be used to sterilize fluids, but to sterilize fluid loads **quickly** the addition of a Cooling system and Air Ballast must be used.

What is Load Sensed Timing?

Load Sensed Process Timing allows the sterilization cycle to be controlled directly by the actual temperature of the load rather than just the chamber temperature. A flexible sensor probe (pictured right) is fitted inside the autoclave chamber and the user should submerge the probe directly into the media (or a reference bottle). It is recommended this is placed in the centre of the autoclave, or the coldest spot (usually determined using validation).

By selecting one of the pre-set sterilization cycles via the touch screen controller, the user can then ensure that sterilization does not begin until the very centre of the load has reached the correct temperature.

But why is Air Ballast required?

Figure 1.1 shows how most autoclaves would operate when no assisted cooling is used. This can be a long process, as after sterilization the chamber must cool down naturally to a safe temperature.

However, in circumstances where a rapid cooling system is used, the sudden change in pressure will most likely cause media/fluids to "boil over" rendering the samples useless and creating spillage in the autoclave chamber (as is illustrated in Figure 1.2).

The best solutions to avoid the problem displayed in Figure 1.2 (whereby "boil over" occurs when the chamber is suddenly cooled) are as follows:

Figure 1.1

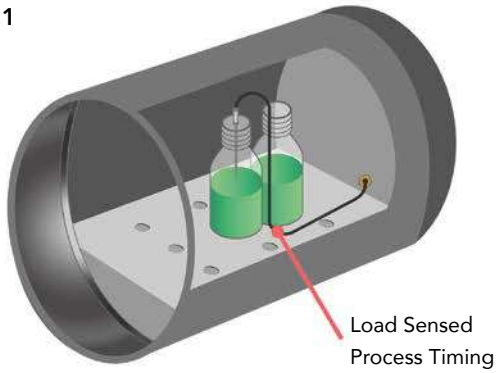


Figure 1.2

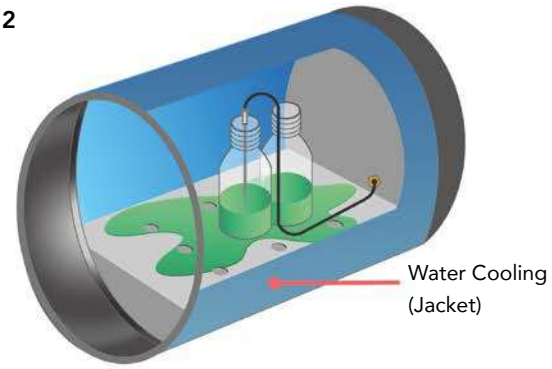
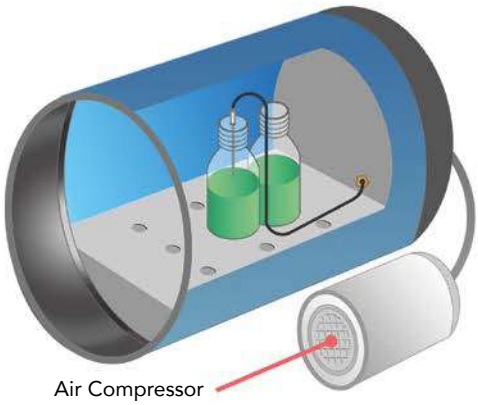


Figure 1.3



Solution One

Advantage – Cost effective cooling for standard loads

If assisted cooling is used (i.e. an External Fan, Water Cooling (Coils) or Jacket Cooling) the cooling would normally be set to activate at just above 100°C to stop a rapid drop in the chamber pressure. Whilst this means there is a delay between sterilization completion and the start of the cooling process, it ensures there is a reduced risk of media/fluids boiling over and emptying into the chamber.

Solution Two

Advantage – Fast efficient cooling (when required)

The second way is to use Air Ballast. Compressed air is quickly injected into the chamber to replace the steam used during sterilization and maintain the chamber pressure during the cooling phase. By using a compressed air source, or an air compressor (available separately), the cooling process can begin immediately following sterilization. The Air Ballast function controls the internal chamber pressure whilst at the same time allowing the selected cooling method to cool the load.

This combination of these two processes ensures a controlled and quick cooling process. If this is then coupled with Fan Cooling (Internal to the chamber) it provides one of the fastest cooling methods available for non-sealed fluid loads.

Simple and Advanced Vacuum explained

Improved air removal for difficult loads

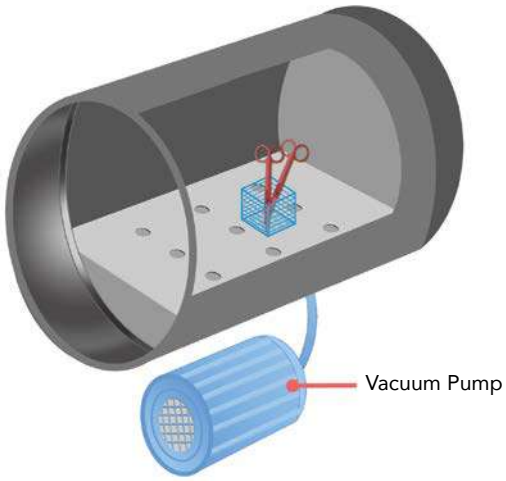
Simple Vacuum

Pre and Post Vacuum with Cooling

Astell's "Simple" Vacuum system is ideal for situations where improved air removal from difficult loads is required. It is ideal for dense discard loads, or vacuum cooling of unwrapped items. (i.e. beakers, plastic containers, metal instruments or glassware).

A typical cycle begins with a pre-vacuum, reducing the chamber pressure and removing the majority of air. A free steaming (air purge) stage then begins. After the sterilizing stage is complete, water in the bottom of the chamber is expelled and then a post vacuum takes place, removing any remaining steam from the chamber and cooling the load.

Whilst this method of air removal is much more effective than a standard autoclave without vacuum, items which retain water i.e. fabrics or porous items should be sterilized using the "Advanced" vacuum method.



Advanced Vacuum

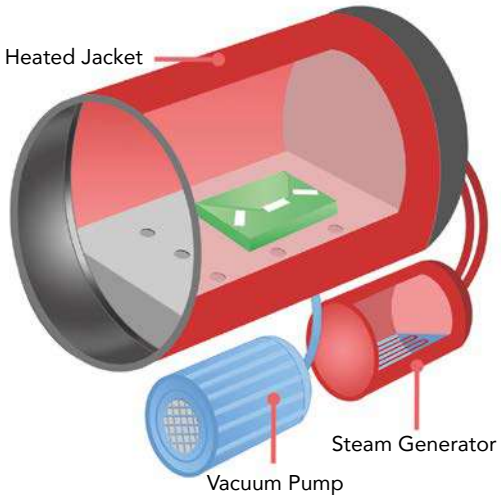
Pre Vacuum with Negative and Positive pulses and Vacuum drying*

Advanced Vacuum is often preferable when dealing with wrapped instruments, porous loads or fabrics typically found in dental, hospital and medical applications.

A typical cycle starts with a pre vacuum which is followed by negative and positive steam pulses; by far the best method for removing air from porous loads and discard waste.

Following the sterilization stage, a post vacuum removes the steam from the chamber. In combination with the heated jacket option, a drying stage then begins to ensure loads are touch dry upon removal.

**requires Heated Jacket and Steam Generator*



Why is a Steam Generator and Heated Jacket required?

In order to ensure a touch dry load is achieved, the condition inside the autoclave need to be just right. with the Advanced Vacuum, negative and positive steam pulses from a dry saturated steam source (i.e. a Steam Generator) to provide the perfect air removal, sterilization and drying conditions.

Achieving touch dry loads is not only achieved with the Advanced Vacuum, but also by using a steam source external to the chamber and a Heated Jacket to avoid cold spots within the autoclave chamber.

This then means that as steam enters the autoclave and comes into contact with the chamber wall, the steam does not condense and produce a wet environment.

At the end of the cycle a vacuum is pulled on the chamber, removing the remainder of the steam within the chamber and leaving the contents touch dry.

Service and Maintenance

Astell are able to offer servicing contracts for all the equipment we manufacture

At Astell Service we are proud to support you with the long-term use of your Astell autoclave by offering a full range of products and services, ensuring the most reliable autoclaves on the market are Astell autoclaves.

We offer the full flexibility of allowing the selection of one of our standard Routine Preventive Maintenance contracts, or working with you to design the support that you require, that best suits your site, through to custom-built plans that could include comprehensive maintenance support covering parts and labour, UKAS accredited calibration, multi-point validation and operator training.

Our standard range of services include fixed term contracts with either 1, 2 or 4 RPM visits per annum that benefit from the experience of our factory trained Field Service Engineers, discounts on un-scheduled site visits during the term of the contract, discount on spare parts and consumables required during the term of the contract, and no minimum order value.

Please contact Astell Service for further information and advice.

Validation and Calibration

Astell Service are able to offer UKAS accredited calibration and validation services conforming to ISO 17025:2005 through our team of factory trained and fully equipped Field Service Engineers, ensuring each appliance is accurate, trusted and meeting your protocol requirements (protocols can be written to customer requirements subject to the specification of the appliance).

We support document packages for Installation Qualification (IQ) and Operational Qualification (OQ) together with a full multi-point validation service for Performance Qualification (PQ) resulting in a clear and concise documented history of your appliance performance.

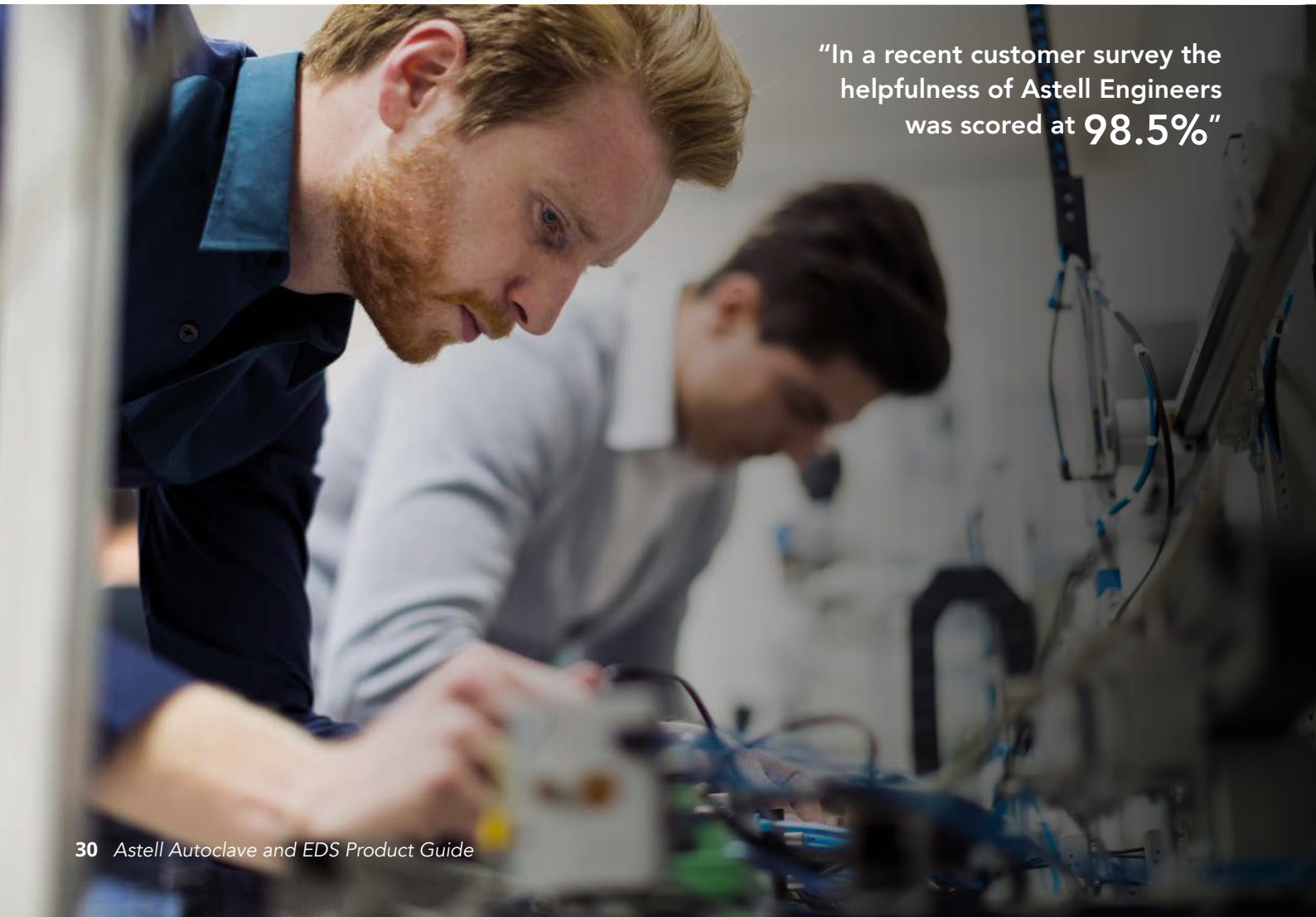
Technical Support

Astell Service can offer technical support both on and off site through our knowledgeable team.

We will happily receive your enquiry via the web-site, telephone or email…

E-mail: service@astell.com

Telephone: +44 (0)20 8309 2000



Steam Generator Range

24kW, 48kW and 72kW models

Stand-alone steam generator units

Astell's Steam Generators are designed with sterilizers in mind, where steam is required in short high peak deliveries during air removal, with quick regeneration and the storage capacity to perform on demand.

Available in three sizes, each Steam Generator is fully programmable via its touchscreen control system, which also displays live information regarding pressure vessel status, pump status and steam pressure.

Standard features include:

- Electrically heated & capable of clean steam generation (subject to water supply)
- Touchscreen controlled with high/low water level indicator
- Electropolished stainless steel pressure vessel
- Over temperature and over pressure cut out
- Float switch level control (water)

Stainless steel pipework, panelwork and a sight glass are available as optional extras in addition to the above specification of the standard unit.

STG024/STG048 model

Specifications

Model no.	Rating	No. of heaters	Power supply	Width (mm)	Height (mm)	Depth (mm)
STG024	24kW	1	3 Phase + Neutral & Earth, 24kW	600	1280	1060
STG048	48kW	2	3 Phase + Neutral & Earth, 48kW	600	1280	1060
STG072	72kW	3	3 Phase + Neutral & Earth, 72kW	800	2000	1150

Technical details

	STG024/ STG048	STG072
Water capacity	89 litres	292 litres
Working water level	68 litres	168 litres
Max. working pressure	6 Bar	6 Bar

Installation requirements

Power requirements:

The power requirements for the standard machines listed in the Specifications table are 415 V, 3 Phase, with Neutral and Earth. Requirements can vary depending on the configuration and options selected. For additional details of exact power requirements please contact us.

Water and drainage requirements:

A cold water supply of 2-6 Bar minimum, 4 litres/min is required. Max temperature 25°C, Max flow rate 20 litres/min. Requirements vary for RO/de-ionised/hard water.

Drainage: Free venting, non-manifolded drain (54mm diameter) capable of withstanding temperatures up to 100°C.

STG072 model

Effluent Decontamination Systems

Batch sterilization for BSL3 waste

Designed to your requirements

Astell Scientific manufactures a wide range of aqueous liquid Effluent Decontamination Systems (EDS) to service any BSL3 facility. EDS are particularly suitable for high containment facilities or high risk laboratories.

As no two projects are likely the same, Astell offers comprehensive project management to guide you through the consultancy stages, including but not limited to:

- Site surveys/technical advice and specifications
- Detailed proposals and technical diagrams
- Manufacturing
- Delivery and installation
- Validation testing
- IQ/OQ packages (installation/operation qualifications)

What waste can be treated?

Effluent types vary for each project, but typically treatable effluent sources will include:

- Tap water from sinks and wash basins
- Water from washroom facilities within a containment area
- Sanitary installations such as toilets
- Water from showers and other cleaning facilities in the containment area
- Any exhaust/water from sterilizers used within the BSL3 area

Standard features

- Colour touchscreen controllers
- Analogue jacket and chamber gauges
- Double valving on effluent input
- Manual override
- Jacket heating and cooling
- Stainless steel vessels (grades available)
- Pumped or non-pumped systems
- Integral or external steam supply
- Fully demountable for easy shipping and install
- Radar level controlling – for accurate tank level monitoring
- Steam sterilizable retentive bacterial filter (1 per chamber)
- Inspection hole
- Primary stainless steel to first valve pipework
- Special design to eliminate the need for safety valves on the sterilizing chamber

Options and upgrades

- Remote technical support unit (contact us for details)
- Higher grade vessel material for special applications
- Internal heating and cooling coil – to improve cycle times
- Double valving on all valves
- Hygienic instrumentation
- Cooling water recirculation – to reduce water consumption
- Agitation to provide better heat distribution and distribute solids
- Valve position monitoring
- Full stainless steel pipework

Nelldorn Glassware Dryer

An economical and efficient method of drying and storing most containers, glassware and plasticware

The Nelldorn Dryer provides an economical and efficient method of drying and storing most containers, glassware and plasticware. In the laboratory, volumetric flasks, measuring cylinders, test tubes and similar equipment can conveniently be dried then left on the tubes until required. For pharmacies, the unit can be used for most types of dispensing containers including plastics.

Features include:

- Capable of holding up to 60 items with 15-20min drying times
- Wall mountable or free-standing
- Thermostatically controlled
- Economical, quick and efficient

Units come complete with a variable 120 minute timer and can dry up to 60 items at one time. A large volume of air is drawn over the thermostatically controlled heating elements and forced through each drying tube. The rapid flow of air dries glass or plastic quickly and without any damage to the apparatus. The Nelldorn Dryer also has a very low power consumption, so is considered more economical to run than a traditional oven dryer.

Drying tube capacity

The table below refers to tube length against drying capacity.

75mm	100mm	140mm	152mm
30	13	9	8

Specifications

Model: DCU012

Voltage: 220/240V, 13A
Dimensions: Width 490mm x Height 430mm x Depth 190mm

Space saving design

The stepped design allows the removal of any item without disturbing the remainder of the load. This also facilitates the run–off of water to the front of the unit where a small drain pipe prevents it collecting at the base. The air intake is recessed at the back of the unit to allow wall or bench mounting.

The dryer is fitted with 60 rigid stain resistant nylon drying tubes with an adjustable timer which can be preset to switch off at your desired time (max 120 mins).

www.astell.com
www.astellbio.com

Astell
LEADERS IN STERILIZATION SINCE 1884

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