

# Astell®

Pioneers in Sterilization Technology

## Autoclaves & Sterilizers The Complete Range





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# COMPACT UNITS

## STANDARD FEATURES 30 – 60 LITRES

- 30 - 60 litres Benchtop & 60 litre Top Loading models
- Touch Screen Controller - Fully Programmable with Adjustable Parameters
- Classic & AutoFill versions
- Self Contained
- Base Shelf included on Benchtop units
- Full Range of Options & Accessories
- Suitable for a wide range of Laboratory applications
- Guaranteed precision and versatility in sterilization
- Ultra Quick Swiftlock Door Mechanism
- Service Independent Gasket
- Media Holdwarm (Classic Version)
- Delayed Start
- Data Archiving
- Automatic Safety Valve Testing



### Classic Version

**Ideal for Liquid Loads, Media etc.**

This is the ideal model for all standard traditional laboratory sterilization procedures. Water fill is manual; during the cycle condensate leaves the vessel via a silicone tube that can be connected to a heat resistant bottle. Ideal for use with media or liquid loads.

### AutoFill Version

**Ideal for all Laboratory Applications - AutoFill is fitted as standard**

A pulsed-heat drying system, which is adjustable in 5 minute steps, is available when running a non-fluid cycle. The integral reservoir, once filled, provides sufficient water for up to 20 cycles; moreover, the same container also acts as a collection vessel for both condensate and water that is returned from the autoclave chamber at the end of the cycle.



### Technical Details

100°C – 138°C (0.2 – 2.4 bar)  
 No installation required  
 Simple Touch Screen Operation  
 Stainless Steel Vessel  
 Manufactured in accordance with PED97/23EC

### Safety

Low Water Detection  
 Overheat Protection  
 Door Interlocks  
 Audible & Visual Alarms – [inc. Cycle Fault, Cycle Interruption, Sterilize Failure, Water Low & Door Unlocked](#)

**INSTALLATION** A single-phase power requirement and integral reservoir and/or optional condensate bottle ensure that no special installation requirements are generally necessary for these models. The reservoir bottle on the Autofill Version provides sufficient water (without refill) for up to 20 consecutive cycles, whilst the manual filling of the vessel on the Classic Version is a simple procedure that only takes a matter of minutes. For information on connection to 'non-standard' power please contact our Sales Department.

### Bottle Capacity - Based on Duran type bottle

	AMB420T AMB220T	AMB430T AMB230T	AMB440T AMB240T	AMA440T AMA240T
500ml	10	14	21	24
1000ml	8	11	15	14
2000ml	2	3	4	6*

\* AMA240NT/AMA440NT will hold 8x 2000 ml bottles if baskets are not used

# COMPACT UNITS

## TECHNICAL DETAILS

### SecureTouch

The Touch Screen Controller is fitted as standard on all the Compact Units

SEE PAGE 12 FOR FULL DETAILS



Reference	Classic/Autofill	Loading	Volume Litres	Power Supply	Chamber dia x depth mm	Overall Dims wxhxd
AMB420T	Classic	Front	30	1Ø-13A	350 x 360	520 x 540 x 780
AMB430T	Classic	Front	40	1Ø-13A	350 x 460	520 x 540 x 780
AMB440T	Classic	Front	60	1Ø-13A	350 x 660	520 x 540 x 980
AMA440T	Classic	Top	60	1Ø-13A	350 x 640	530 x 1040 x 700
AMB220T	AutoFill	Front	30	1Ø-13A	350 x 360	520 x 540 x 780
AMB230T	AutoFill	Front	40	1Ø-13A	350 x 460	520 x 540 x 780
AMB240T	AutoFill	Front	60	1Ø-13A	350 x 660	520 x 540 x 980
AMA240T	AutoFill	Top	60	1Ø-13A	350 x 640	530 x 1040 x 700

## MANUFACTURING STANDARDS

PED EN/97/23/EC/ ISO9001-2000 / UKAS / IEC 61010

EN285/EN554 (Where applicable) HTM2010 (Where applicable)

## Options & Accessories

SEE PAGE 14-15 FOR FULL DETAILS

Reference	Description
AAP800	Multi Program Controller
AAR130	Integral Data Printer
	Fan Fold Recorders 1, 2 & 3 pen
AAR500	Sterilization Datalogger
AAP007	Assisted Air Cooling
AAR014	Load Sensed Process Timing
AAR120	RS232 Interface
AAR122	Ethernet Interface
AAN348	Discard Container 172 x 390 x 148h
AAN346	Discard Container 250 x 172 x 183h
AAN340	½ Depth S/Steel Basket 311 x 275h
AAN342	½ Depth Morrison Container 305 x 230h
AAN074	Load Support Plate
AAN020	Three Position Shelf Rack
AAN022	Spare Shelf for AAN020
AAN530	Five Position Shelf Rack
AAN532	Spare Shelf for AAN530
AAN040	Five Position Shelf Rack
AAN043	Spare Shelf for AAN040
AAN308	Condensate Bottle – Classic Models
	IQ/OQ Document Package



# SWIFTLOCK TOP LOADING UNITS

## STANDARD FEATURES 90, 110 & 130 Litres

- 90 - 130 Litres - Top Loading
- Fully Programmable
- PIN Restricted User Programming
- Timed Free Steaming
- Holdwarm / Delayed Start
- Full Range of Options & Accessories
- Suitable for a wide range of Laboratory applications
- Guaranteed precision and versatility in sterilization
- Ultra Quick Swiftlock Door Mechanism
- Service Independent Gasket
- Data Archiving



### IDEAL FOR

Liquids & Most laboratory applications, including Discard, Glassware, Laboratory Instruments etc

Available with various options and accessories, including Assisted Air Cooling, Load Sensed Process Timing, Advanced Water Cooling, Pulsar Free Steaming, Data Recording devices.



### Technical Details

100°C – 138°C (0.2 – 2.4 bar)  
Simple Touch Screen Operation  
Stainless Steel Vessel  
Manufactured in accordance with PED97/23EC

### Safety

Low Water Detection  
Overheat Protection  
Door Interlocks  
Audible & Visual Alarms- inc. Cycle Fault, Cycle Interruption, Sterilize Failure, Water Low & Door Unlocked

### SecureTouch

The Touch Screen Controller is fitted as standard on all Top Loading Units



SEE PAGE 12 FOR FULL DETAILS

Reference	Steam Source	Power Supply Phase Ø Amps/ Phase kW Total	Volume Litres	Chamber Dia x Useable Chamber Depth mm	Loading Height mm	Overall Dims w x h x d
AMA250T	Heaters in Chamber	1/3Ø-30/15A 7/10kW	90L	456 x 448	775	660 x 940 x 840
AMA252T	Direct Steam	1Ø-2A (STEAM)	90L	456 x 448	775	660 x 940 x 840
AMA260T	Heaters in Chamber	1/3Ø-30/15A 7/10kW	110L	456 x 588	912	660 x 1070 x 840
AMA262T	Direct Steam	1Ø-2A (STEAM)	110L	456 x 588	912	660 x 1070 x 840
AMA270T	Heaters in Chamber	1/3Ø-30/15A7/10kW	130L	456 x 680	992	660 x 1150 x 840
AMA272T	Direct Steam	1Ø-2A (STEAM)	130L	456 x 680	992	660 x 1150 x 840

## INSTALLATION – Top Loading Units

### Electrically Heated Models (Heaters in chamber or steam generator)

**Power:** 3-Phase 380-440 volts (Phase-Phase), 50 or 60 Hz. 10kW models may be operated at 7kW from a Single Phase 30 Amp 200-240 Volt supply. For use on 3-Phase Power Supplies of 200-240volts (Phase-Phase) please specify option AAN110 at time of order. NB. A Neutral Line and Protective Earth are required for all electrically heated units.

**Water:** A cold water supply of 2 to 6 bar minimum, 4 L/min is required for the Autofill or Water Cooling (including Deluge Cooling) options. Max Temp. 250°C, Max flow rate 20L/Min.

### Direct Steam Heated Models

**Power:** Single-phase supply of 200-240V 50/60 Hz. A Protective Earth plus Neutral is required. For use on 110 volt + 10% 50/60 Hz supplies specify option AAN110 at time of order.

**Steam:** A supply of DRY SATURATED steam at 4 Bar is required for Direct Steam Heated models.

### All Models

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

# VACUUM TOP LOADING UNITS

## VACUUM VERSIONS



Logi - Mono or Colour

The addition of a vacuum system enhances pre-sterilization air removal and greatly reduces cycle times.

Post vacuum drying (in conjunction with the optional heated jacket or external vessel warming) greatly improves drying performance.

SEE PAGE 13 FOR FULL DETAILS

## STANDARD FEATURES

All the standard features as per the non vacuum version PLUS

- Integral Steam Generator (unless direct steam)
- Pre & Post Vacuum
- Vacuum Pulsing
- Data Archiving

**Ideal for Instruments, Discard, Porous Materials etc**

**NB** - Certain applications may require additional options. See table on Page 14 for further guidance

Reference	Steam Source	Power Supply Phase $\phi$ Amps/	Volume Litres Phase kW Total	Chamber Dia x Useable Chamber	Loading Height Depth mm	Overall Dims w x h x d
AMA260T+AVC002	Steam Generator	3 $\phi$ -15A 10kW	110L	456 x 588	912	660 x 1070 x 1200
AMA262T+AVC002	Direct Steam	3 $\phi$ -4A (STEAM)	110L	456 x 588	912	660 x 1070 x 1200
AMA270T+AVC002	Steam Generator	3 $\phi$ -15A 10kW	130L	456 x 680	992	660 x 1150 x 1200
AMA272T+AVC002	Direct Steam	3 $\phi$ -4A (STEAM)	130L	456 x 680	992	660 x 1150 x 1200

## Negative & Positive Pulsing – Full Vacuum.

In addition to the vacuum models listed above, we also manufacture units for specialized applications with advanced negative / positive pulsing. Please contact us directly or visit our website for further information.

## MANUFACTURING STANDARDS

PED EN/97/23/EC / ISO9001-2000 / UKAS / IEC 61010

EN285/EN554 (Where applicable) HTM2010 (Where applicable)

## Options & Accessories for Top Loading Models

SEE PAGE 14-15 FOR FULL DETAILS

Reference	Description
AAP800	Multi Program Controller
AAR100	Integral Data Printer
AAP018	AutoDrain
AJP150	External Vessel Warming (Vac models only)
AAR102	Printer Freestanding Data Printer
AAR500	Sterilization Datalogger
AAN014	Load Sensed Process Timing
AAR120	RS232 Interface
AAR122	Ethernet Interface
AAN009	Pulsar Free Steaming (Non Vac models only)
AAP019	AutoFill (Automatic Water Fill- Standard on Vac models)
AAP006	Assisted Air Cooling (Non Vac models only)
AAP080	Advanced water cooling Water
AVC004	Air Ballast (Vac models only)
AAQ500	Integral Air Compressor (Vac models only)
AVC005	Option for CATIII Compliance
AVC100	Exhaust Heat Exchange System (Standard on Vac models)
AAN036	Stainless steel wire basket 400d x 400h
AAN042	Stainless steel wire basket 400d x 230h
AAN048	Container with perforated base 380d x 400h
AAN056	Morrison discard container 390d x 500h
AAN058	Morrison discard container 390d x 355h
AAN002	Internal stainless steel load support plate
	IQ/OQ Document Package



## INSTALLATION – VACUUM UNITS

**As Per Page 3, except:**

**Water:** A cold water supply of 2 to 6 bar minimum, 4 L/min is required for the steam generator and vacuum pump

# SWIFTLOCK FRONT LOADING UNITS

## STANDARD FEATURES 120 - 330 Litres

- Touch Screen Controller - Fully Programmable with Adjustable Parameters
- 120 - 330 Litres - Front Loading
- Fully Programmable
- PIN Restricted User Programming
- Holdwarm / Delayed Start
- Timed Free Steaming
- Base Shelf
- Full Range of Options & Accessories
- Suitable for a wide range of Laboratory applications
- Guaranteed precision and versatility in sterilization
- Ultra Quick Swiftlock Door Mechanism



### IDEAL FOR

Liquids & Most laboratory applications, including Discard, Glassware, Media, Laboratory Instruments etc

Available with various options and accessories, including Assisted Air Cooling, Load Sensed Process Timing, Advanced Water Cooling, Pulsar Free Steaming, Data Recording devices etc.

## TECHNICAL DETAILS

### Safety

Low Water Detection - Overheat Protection - Door Interlocks Audible & Visual Alarms – inc. Cycle Fault, Cycle Interruption, Sterilize Failure, Water Low & Door Unlocked

### Manufacturing Standards

PED EN/97/23/EC / ISO9001-2000 / UKAS / IEC 61010 EN285/EN554 (Where applicable) HTM2010 (Where applicable)

### SecureTouch

The Touch Screen Controller is fitted as standard on all Front Loading Units



SEE PAGE 12 FOR FULL DETAILS

Reference	Steam Source	Power Supply Phase Ø Amps/Phase kW Total	Volume Litres	Chamber Dia x Depth mm	Loading Height mm	Overall Dims w x h x d
ASB260T	Heaters in Chamber	1/3Ø-30/15A 7/10kW	120L	450 x 635	750/850	685 x 1490 x 1100
ASB262T	Direct Steam	1Ø-2A (STEAM)	120L	450 x 635	750/850	685 x 1490 x 1100
ASB270T	Heaters in Chamber	1/3Ø-30/15A 7/10kW	150L	450 x 865	750/850	685 x 1490 x 1310
ASB272T	Direct Steam	1Ø-2A (STEAM)	150L	450 x 865	750/850	685 x 1490 x 1310
ASB280T	Heaters in Chamber	3Ø-20A/12kW	230L	600 x 735	800/900	900 x 1575 x 1370
ASB282T	Direct Steam	1Ø-2A (STEAM)	230L	600 x 735	800/900	900 x 1575 x 1370
ASB290T	Heaters in Chamber	3Ø-25A/16kW	275L	600 x 885	800/900	900 x 1575 x 1370
ASB292T	Direct Steam	1Ø-2A (STEAM)	275L	600 x 885	800/900	900 x 1575 x 1370
ASB300T	Heaters in Chamber	3Ø-25A 16kW	330L	600 x 1085	800/900	900 x 1575 x 1570
ASB302T	Direct Steam	1Ø-2A (STEAM)	330L	600 x 1085	800/900	900 x 1575 x 1570

## INSTALLATION – Front Loading Units

### Electrically Heated Models (in-vessel or steam generator)

**Power:** 3-Phase 380-440 volts (Phase-Phase), 50 or 60 Hz. 10kW models may be operated at 7kW from a Single Phase 30 Amp 200-240 Volt supply. For use on 3-Phase Power Supplies of 200-240volts (Phase-Phase) please specify option AAN110 at time of order. NB. A Neutral Line and Protective Earth are required for all electrically heated units.

**Water:** A cold water supply of 2 to 6 bar minimum, 4 L/min is required for the Autofill or Water Cooling (including Deluge Cooling) options. Max Temp. 25°C, Max flow rate 20L/Min.

### Direct Steam Heated Models

**Power:** Single-phase supply of 200-240V 50/60 Hz. A Protective Earth plus Neutral is required. For use on 110 volt + 10% 50/60 Hz supplies specify option AAN110 at time of order.

**Steam:** A supply of DRY SATURATED steam at 4 Bar is required for Direct Steam Heated models.

### All Models

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

# VACUUM FRONT LOADING UNITS

## VACUUM VERSIONS

The addition of a vacuum system enhances pre-sterilization air removal and greatly reduces cycle times. Post vacuum drying (in conjunction with the optional heated jacket or external vessel warming) greatly improves drying performance.

**Ideal for - Many Laboratory Applications, Porous Materials, Media, Discard, Waste, CAT III Applications etc** (NB - Certain applications may require additional options) Available with various options and accessories, including Air Ballast, CAT III Compliance, Full Heated/Cooling Jackets, Load Sensed Process Timing, Data Recording devices etc.

### Logi Controller

The Touch Screen Controller is fitted as standard on all the Vacuum Front Loading Models



Logi - Mono or Colour

SEE PAGE 13 FOR FULL DETAILS

Reference	Steam Source	Power Supply Phase $\phi$ Amps/Phase kW Total	Volume Litres	Chamber Dia x Depth mm mm	Loading Height	Overall Dims w x h x d
ASB260T+AVC002	Integral Steam Generator	3 $\phi$ -25A 18kW	120L	450 x 635	750/850	685 x 1490 x 1300
ASB262T+AVC002	Direct Steam	3 $\phi$ -6A 4kW	120L	450 x 635	750/850	685 x 1490 x 1300
ASB270T+AVC002	Integral Steam Generator	3 $\phi$ -25A 18kW	150L	450 x 865	750/850	685 x 1490 x 1300
ASB272T+AVC002	Direct Steam	3 $\phi$ -6A 4kW	150L	450 x 865	750/850	685 x 1490 x 1300
ASB280T+AVC002	Integral Steam Generator	3 $\phi$ -38A 28kW	230L	600 x 735	800/900	900 x 1575 x 1570
ASB282T+AVC002	Direct Steam	3 $\phi$ -6A 4kW	230L	600 x 735	800/900	900 x 1575 x 1570
ASB290T+AVC002	Integral Steam Generator	3 $\phi$ -38A 28kW	275L	600 x 885	800/900	900 x 1575 x 1570
ASB292T+AVC002	Direct Steam	3 $\phi$ -6A 4kW	275L	600 x 885	800/900	900 x 1575 x 1570
ASB300T+AVC002	Integral Steam Generator	3 $\phi$ -38A 28kW	330L	600 x 1085	800/900	900 x 1575 x 1570
ASB302T+AVC002	Direct Steam	3 $\phi$ -6A 4kW	330L	600 x 1085	800/900	900 x 1575 x 1570

**NB - AutoFill is fitted as standard on these units**

### Negative & Positive Pulsing – Full Vacuum.

In addition to the vacuum models listed above, we also manufacture units for specialized applications with advanced negative / positive pulsing. Please contact us directly or visit our website for further information.

## OPTIONS & ACCESSORIES FOR SWIFTLCK FRONT LOADING MODELS

Reference	Description
AAP800	Multi Program Controller
AAR100	Integral Data Printer
AAR102	Printer Freestanding Data Printer
AAR500	Sterilization Datalogger
AAN014	Load Sensed Process Timing
AAR120	RS232 Interface
SPL285	Blow Down Vessel
AAW001/ AAW002	Water Softener
AAP018	AutoDrain
AAP102	Internal Convection Fan Cooling
ADA100	Deluge Cooling
AAP100	Advanced Water Cooling
AVC004	Air Ballast
AVC005	CAT III Compliance
AVC100	Exhaust Heat Exchange System (standard on vac units)
AVC007	SPF Seal
AAR122	Ethernet Interface
AAN009	Pulsar Free Steaming (Non Vac models only)
AAP019	Autofill (Automatic Water Fill - Standard on Vac models)
AAP006	Assisted Air Cooling (Non Vac models only)
AJP100	Full Heated Jacket
	IQ/OQ Document Package
AAN080	Container Tray 279 x 279 x 127h
AAN300	Morrison Discard Cont 290 x 330 x 280h
AAN316/AAN318	Additional Shelf Kit

**NB - Opposite Hand door configuration can be offered**

### INSTALLATION – VACUUM UNITS (As per page 5 except)

**Water:** A cold water supply of 2 to 6 bar minimum, 4 L/min is required for the steam generator



SEE PAGE 14-15 FOR FULL DETAILS

# SQUARE SECTION UNITS

## Introduction

### SQUARE SECTION STERILIZERS – For Every Application

Astell have many years experience in manufacturing Square Section units and can offer:

- Standard units as detailed in this brochure
- Bespoke Units
- Special Vessel Sizes
- Full Sterilizer Suite Installations
- Units of 3000 litres plus



**Manual Door Units**  
Detailed on **Page 8**



**Automatic Upwards Sliding Door**  
Detailed on **Page 9**



**Sideways Sliding Door**  
Detailed on **Page 10**

### STANDARD FEATURES OF ALL UNITS

- ✓ Touch Screen Controller - Fully Programmable – Multi Cycle
- ✓ 125 – 3000 + Litres
- ✓ Single or Double Door
- ✓ Steam Generators (unless supplied by on site steam supply)
- ✓ Enclosed Sliding Door – Automatically or manually operated
- ✓ Data Archiving
- ✓ Fully Programmable
- ✓ PIN Restricted User Programming
- ✓ Delayed Start
- ✓ Jacketed Cooling (Where applicable)
- ✓ Exhaust Cooling
- ✓ RS232 / Printer Port Ready
- ✓ Stainless Steel Panels
- ✓ Full Range of Options & Accessories
- ✓ Water Conservation System
- ✓ Fluids Cool Lock
- ✓ Base Shelf
- ✓ Fully Adjustable Parameters
- ✓ Integral Air Compressor available if none on site

# SQUARE SECTION UNITS

Manually operated door

## TECHNICAL DETAILS

### SecureTouch

The Touch Screen Controller is fitted as standard on all the Manual Door Square Section units



SecureTouch

SEE PAGE 12 FOR FULL DETAILS

### Logi Controllers

Can be optionally fitted to the Manual Door Square Section



Logi - Mono or Colour

SEE PAGE 13 FOR FULL DETAILS



## MANUAL DOOR UNITS- NON VACUUM

**Suitable for a wide range of applications including:** Media, Discard, Waste, CAT III Applications etc.  
(NB - Certain applications may require additional options)

Reference	Vacuum	Door/s	Heating Type	Power Supply Phase Amps/Phase kW Total	Chamber Litres	Internal Chamber Dims w x h x d	Overall Dims w x h x d
MNS125G	No	1 Manual	Integral Generator	415v 3ph N 18/24kW*	125	500 x 500 x 500	780 x 1750 x 1200
MNS125D	No	1 Manual	Direct Steam	415v 3ph N 4kW	125	500 x 500 x 500	780 x 1750 x 1200
MNS216G	No	1 Manual	Integral Generator	415v 3ph N 18/24kW*	216	600 x 600 x 600	880 x 1750 x 1300
MNS216D	No	1 Manual	Direct Steam	415v 3ph N 4kW	216	600 x 600 x 600	800 x 1750 x 1300
MNS360G	No	1 Manual	Integral Generator	415v 3ph N 18/24kW*	360	600 x 600 x 1000	880 x 1750 x 1700
MNS360D	No	1 Manual	Direct Steam	415v 3 ph N 4kW	360	600 x 600 x 1000	880 x 1750 x 1700

**NB** - These are typical examples - Astell can manufacture almost any configuration - please contact us with details

## MANUAL DOOR UNITS- WITH VACUUM

**Suitable for a wide range of applications including:** Fabrics, Porous Loads, Media, Discard, Waste, CAT III Applications etc.

**NB** - Certain applications may require additional options

Reference	Vacuum	Door/s	Heating Type	Power Supply Phase Amps/Phase kW Total	Chamber Litres	Internal Chamber Dims w x h x d	Overall Dims w x h x d
MVS125G	Yes	1 Manual	Integral Generator	415v 3ph N 26kW*	125	500 x 500 x 500	780 x 1750 x 1200
MVS125D	Yes	1 Manual	Direct Steam	415v 3ph N 4kW	125	500 x 500 x 500	780 x 1750 x 1200
MVS216G	Yes	1 Manual	Integral Generator	415v 3ph N 26kW*	216	600 x 600 x 600	880 x 1750 x 1300
MVS216D	Yes	1 Manual	Direct Steam	415v 3ph N 4kW	216	600 x 600 x 600	880 x 1750 x 1300
MVS360G	Yes	1 Manual	Integral Generator	415v 3ph N 26kW*	360	600 x 600 x 1000	880 x 1750 x 1700
MVS360D	Yes	1 Manual	Direct Steam	415v 3ph N 4kW	360	600 x 600 x 1000	880 x 1750 x 1700

**NB** - These are typical examples - Astell can manufacture almost any configuration - please contact us with details

# SQUARE SECTION UNITS

## Automatic Upwards Sliding Door

### TECHNICAL DETAILS

#### Logi Controllers

SEE PAGE 13 FOR FULL DETAILS

Either Mono or Full Colour Logi Controllers are fitted to all Automatic Upwards Sliding Door Square Section Units



Logi - Mono or Colour



### AUTOMATIC UPWARDS SLIDING DOOR UNITS- WITH VACUUM

**Suitable for a wide range of applications including:** Fabrics, Porous Loads, Media, Discard, Waste, CAT III Applications etc.

**NB -** Certain applications may require additional options

Reference	Vacuum	Door/s	Heating Type	Power Supply Phase Amps/Phase kW Total	Chamber Litres	Internal Chamber Dims w x h x d	Overall Dims w x h x d
AVS125G	Yes	1 Auto	Integral Generator	415v 3ph N 28kW*	125	500 x 500 x 500	1100 x 2000 x 1300
AVS125D	Yes	1 Auto	Direct Steam	415v 3ph N 4kW	125	500 x 500 x 500	1100 x 2000 x 1300
AVS216G	Yes	1 Auto	Integral Generator	415v 3ph N 28kW*	216	600 x 600 x 600	1250 x 2000 x 1400
AVS216D	Yes	1 Auto	Direct Steam	415v 3ph N 4kW	216	600 x 600 x 600	1250 x 2000 x 1400
AVS300G	Yes	1 Auto	Integral Generator	415v 3ph N 28kW*	300	700 x 700 x 620	1250 x 2000 x 1400
AVS300D	Yes	1 Auto	Direct Steam	415v 3ph N 4kW	300	700 x 700 x 620	1250 x 2000 x 1400
AVS350G	Yes	1 Auto	Integral Generator	415v 3ph N 28kW*	350	700 x 700 x 725	1250 x 2000 x 1400
AVS350D	Yes	1 Auto	Direct Steam	415v 3ph N 4kW	350	700 x 700 x 725	1250 x 2000 x 1400
AVS490G	Yes	1 Auto	Integral Generator	415v 3ph N 50kW*	490	700 x 700 x 1000	1500 x 2000 x 1700
AVS490D	Yes	1 Auto	Direct Steam	415v 3ph N 4kW	490	700 x 700 x 1000	1250 x 2000 x 1700
AVD216D	Yes	2 Auto	Direct Steam	415v 3ph N 4kW	216	600 x 600 x 600	1500 x 2000 x 1000
AVD300D	Yes	2 Auto	Direct Steam	415v 3ph N 4kW	300	700 x 700 x 620	1500 x 2000 x 950
AVD360G	Yes	2 Auto	Integral Generator	415v 3ph N 28kW*	350	600 x 600 x 1000	1500 x 2000 x 1300
AVD350D	Yes	2 Auto	Direct Steam	415v 3ph N 4kW	350	700 x 700 x 725	1500 x 2000 x 1050
AVD490G	Yes	2 Auto	Integral Generator	415v 3ph N 50kW*	490	700 x 700 x 1000	1500 x 2000 x 1300
AVD490D	Yes	2 Auto	Direct Steam	415v 3ph N 4kW	490	700 x 700 x 1000	1500 x 2000 x 1300

**NB -** These are typical examples - Astell can manufacture almost any configuration - please contact us with details

# SQUARE SECTION UNITS

## Automatic Sideways Sliding Door

### TECHNICAL DETAILS

#### Logi Controllers

SEE PAGE 13 FOR FULL DETAILS

Either Mono or Full Colour Logi Controllers are fitted to all Automatic Sideways Sliding Door Square Section Units



Logi - Mono or Colour



### AUTOMATIC SIDWAYS SLIDING DOOR UNITS- WITH VACUUM

**Suitable for a wide range of applications including:** Fabrics, Porous Loads, Media, Discard, Waste, CAT III Applications etc.

**NB -** Certain applications may require additional options

Reference	Vacuum	Door/s	Heating Type	Power Supply Phase Amps/Phase kW Total	Chamber Litres	Internal Chamber Dims w x h x d mm	Overall Dims w x h x d mm
SVS600D	Yes	1	From central steam supply	415v 3ph N 4kW	600	600 x 1000 x 1000	2000 x 2000 x 1500
SVS600G	Yes	1	External Generator (Supplied)	415v 3ph N 4kW (Generator 48kW)	600	600 x 1000 x 1000	2000 x 2000 x 1500
SVS700D	Yes	1	From central steam supply	415v 3ph N 4kW	700	700 x 1000 x 1000	2000 x 2000 x 1500
SVS700G	Yes	1	External Generator (Supplied)	415v 3ph N 4kW (Generator 72kW)	700	700 x 1000 x 1000	2000 x 2000 x 1500
SVS750D	Yes	1	From central steam supply	415v 3ph N 6kW	750	600 x 1000 x 1250	2000 x 2000 x 1750
SVS750G	Yes	1	External Generator (Supplied)	415v 3ph N 6kW (Generator 72kW)	750	600 x 1000 x 1250	2000 x 2000 x 1750
SVS875D	Yes	1	From central steam supply	415v 3ph N 6kW	875	700 x 1000 x 1250	2000 x 2000 x 1750
SVS875G	Yes	1	External Generator (Supplied)	415v 3ph N 6kW (Generator 72kW)	875	700 x 1000 x 1250	2000 x 2000 x 1750
SVS900D	Yes	1	From central steam supply	415v 3ph N 6kW	900	600 x 1000 x 1500	2000 x 2000 x 2000
SVS900G	Yes	1	External Generator (Supplied)	415v 3ph N 6kW (Generator 72kW)	900	600 x 1000 x 1500	2000 x 2000 x 2000
SVS1050D	Yes	1	From central steam supply	415v 3ph N 6kW	1050	700 x 1000 x 1500	2000 x 2000 x 2000
SVS1050G	Yes	1	External Generator (Supplied)	415v 3ph N 6kW (Generator 100kW)	1050	700 x 1000 x 1500	2000 x 2000 x 2000
SVS1200D	Yes	1	From central steam supply	415v 3ph N 6kW	1200	600 x 1000 x 2000	2000 x 2000 x 2500
SVS1200G	Yes	1	External Generator (Supplied)	415v 3ph N 6kW (Generator 100kW)	1200	600 x 1000 x 2000	2000 x 2000 x 2500
SVS1400D	Yes	1	From central steam supply	415v 3ph N 6kW	1400	700 x 1000 x 2000	2000 x 2000 x 2500
SVS1400G	Yes	1	External Generator (Supplied)	415v 3ph N 6kW (Generator 100kW)	1400	700 x 1000 x 2000	2000 x 2000 x 2500
SVD600D	Yes	2	From central steam supply	415v 3ph N 4kW	600	600 x 1000 x 1000	2000 x 2000 x 1500
SVD600G	Yes	2	External Generator (Supplied)	415v 3ph N 4kW (Generator 48kW)	600	600 x 1000 x 1000	2000 x 2000 x 1500
SVD700D	Yes	2	From central steam supply	415v 3ph N 4kW	700	700 x 1000 x 1000	2000 x 2000 x 1500
SVD700G	Yes	2	External Generator (Supplied)	415v 3ph N 4kW (Generator 72kW)	700	700 x 1000 x 1000	2000 x 2000 x 1500
SVD750D	Yes	2	From central steam supply	415v 3ph N 6kW	750	600 x 1000 x 1250	2000 x 2000 x 1750
SVD750G	Yes	2	External Generator (Supplied)	415v 3ph N 6kW (Generator 72kW)	750	600 x 1000 x 1250	2000 x 2000 x 1750
SVD875D	Yes	2	From central steam supply	415v 3ph N 6kW	875	700 x 1000 x 1250	2000 x 2000 x 1750
SVD875G	Yes	2	External Generator (Supplied)	415v 3ph N 6kW (Generator 72kW)	875	700 x 1000 x 1250	2000 x 2000 x 1750
SVD900D	Yes	2	From central steam supply	415v 3ph N 6kW	900	600 x 1000 x 1500	2000 x 2000 x 2000
SVD900G	Yes	2	External Generator (Supplied)	415v 3ph N 6kW (Generator 72kW)	900	600 x 1000 x 1500	2000 x 2000 x 2000
SVD1050D	Yes	2	From central steam supply	415v 3ph N 6kW	1050	700 x 1000 x 1500	2000 x 2000 x 2000
SVD1050G	Yes	2	External Generator (Supplied)	415v 3ph N 6kW (Generator 100kW)	1050	700 x 1000 x 1500	2000 x 2000 x 2000
SVD1200D	Yes	2	From central steam supply	415v 3ph N 6kW	1200	600 x 1000 x 2000	2000 x 2000 x 2500
SVD1200G	Yes	2	External Generator (Supplied)	415v 3ph N 6kW (Generator 100kW)	1200	600 x 1000 x 2000	2000 x 2000 x 2500
SVD1400D	Yes	2	From central steam supply	415v 3ph N 6kW	1400	700 x 1000 x 2000	2000 x 2000 x 2500
SVD1400G	Yes	2	External Generator (Supplied)	415v 3ph N 6kW (Generator 100kW)	1400	700 x 1000 x 2000	2000 x 2000 x 2500

\* Separate Generator Spec

700 x 1935 x 840

**NB -** These are typical examples - Astell can manufacture almost any configuration - please contact us with details

# SQUARE SECTION UNITS

## Technical Details

### Manufacturing Standards

PED EN/97/23/EC / EN285 ISO9001-2000 / UKAS / IEC 61010 EN554 (Where applicable) HTM2010 (Where applicable)

### Safety Features

- A cycle cannot start until the door/s are closed and locked.
- Steam / heating cannot be applied to the chamber unless the door/s are closed and locked.
- The door release is interlocked with the chamber air break valve to ensure all residual pressure has completely and effectively vented to atmosphere before the door/s can be opened.
- The door/s will retain their positions in the event of failure of any service.
- The door seal is steam and vacuum resistant, and will seal effectively without trapping or entrapment of 'foreign' material.
- The door/s are thermally insulated to prevent the surface temperature presenting a hazard to operators. The surface temperature will not exceed IEC 61010 requirements.

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/s not closed, the steam supply to the chamber will be turned off and remain turned off.
- If the pressure in the chamber exceeds 0.15 bar the door/s remains locked.

### Installation

**All Models** – i.e. steam generator or direct steam:

**Power:** 3 Phase 380-440 volts (Phase-Phase), 50 or 60Hz.  
For use on 3-Phase Power Supplies of 200-240 volts (Phase-Phase) please specify option AAN110 at time of order. NB. A Neutral Line and Protective Earth are required for all electrically heated units.

**Water:** A cold water supply of 2 to 6-bar is required. Max Temp. 25°C, Max flow rate 20L/Min

**Compressed Air** If you do not have available on-line compressed air (dry, oil-free, 6 Bar) then Air Compressor option (AAQ503) must be specified at time of order.

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

#### Direct Steam Heated Models

**Steam:** A supply of DRY steam saturated at 4.00 bar is required for direct steam models.

For details of Installation, Commissioning and Validation please contact our Service Department.

## OPTIONS - SQUARE SECTIONS MODELS

Reference	Description
<b>Essential options if Porous loads / Fabrics etc are being processed</b>	
AAQ102 / AAQ302	Full Heated Jacket
<b>Essential options if fluids are being processed</b>	
AVQ004	Air Ballast
AAQ014	Load Sensed Process Timing
<b>Recommended Option</b>	
AAQ503	Integral Air Compressor
<b>Additional Options</b>	
AVQ007	SPF Seal - Double Door Units
AVQ005	Option for CATIII Compliance
<b>Data Monitoring &amp; Recording Options</b>	
AAQ100	Integral Data Printer

Reference	Description
<b>Data Monitoring &amp; Recording Options</b>	
AAR500	Sterilization Datalogger
AAQ120	RS232 Interface
AAR122	Ethernet Interface
<b>Cooling Options</b>	
AJA100	Deluge Cooling
AAP006	Air Cooling (Non Vacuum Models only)
AJA102	Internal Convection Fan Cooling
<b>Steam Generator Related Options</b>	
SPL285	Blow-Down Vessel
AAW001 / AAW002	Water Softener
<b>Chart Recorders</b>	
	Fan Fold Recorders 1, 2 & 3 pen IQ/OQ Document Package

SEE PAGE 14-15 FOR FULL DETAILS

## ACCESSORIES

AAQ300	Discard containers 300 x 300 x 250mm
AAQ801	Additional shelf runner & shelf
AAQ600	Loading system consisting of 1 x External Trolley & 1 Internal Truck
AAQ602	Loading system consisting of 2 x External Trolleys & 1 Internal Truck

# SECURETOUCH

## Touch screen controllers

### STANDARD ON ALL CIRCULAR SECTION UNITS

& the Manual Door Non Vacuum Square Section – See Page 8

The new SecureTouch is Astell's latest user-friendly touchscreen control system, designed to ensure ease of operation, precision and flexibility in today's quality conscious laboratory. Typical cycles are factory programmed, but are fully user adjustable to suit individual requirements.

- Graphical Touch Screen Display
- Visual display of cycle progress
- Continuous on-screen display
- PIN Restricted Access
- Data Communications Output to PC during cycle (optional)
- Holdwarm
- Delayed Start
- Fully User Adjustable
- Data Archiving
- 5 programs (optional 10 programs)
- Temperature & pressure channels displayed throughout the cycle
- On-screen status reporting & fault-finding assistance
- Automatic daily Back-up to flash card



The controller displays operation on a wipe-clean clear touch screen and is a sophisticated evolution of the tried and tested Astell "Secure" controller.

The operating system can easily be upgraded onsite helping to ensure that future requirements can be met.

#### Controller Hardware

#### Summary of Controller features

<b>Display</b>	Mono Blue STN
<b>Input</b>	Touch Screen
<b>Program storage</b>	Internal Flash
<b>Real time clock</b>	Standard
<b>Data Output</b>	RS232/Ethernet / USB (Optional)
<b>A/D</b>	12 bit
<b>Digital inputs</b>	8
<b>Digital outputs</b>	8
<b>Analogue inputs</b>	4

#### Data Archiving

A standard feature of the touch screen controllers, Data Archiving stores information of up to 5000 cycles. The data can be accessed by:

- Printing to the integral data printer (optional)
- Downloading to an external PC (requires the optional RS232 Interface)
- Downloading to an external printer (requires the optional RS232 Interface)

### AVAILABLE ON ALL VACUUM UNITS

The New Logi control systems are 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 the most demanding laboratories and centres of sterilization.

- Mono OR Full Colour Touch Screen
- Icon Driven
- Password Protected Security System
- Multiple Access Levels
- Simple Cycle Selection
- RS232 Interface / Port allowing connection to other peripheral devices such as a printer
- Operator Interface
- Enables continual monitoring
- Individual analogue channels are displayed
- Temperature / Pressure etc
- Continuous Data Archiving
- Automatic daily Back-up to flash card



Mono or Full Colour



The controller consists of a wipe clean touch screen measuring 122mm x 94mm and is 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.



#### Controller Hardware

#### Summary of Controller features

<b>Display</b>	5.7" (122mm x 94mm) Mono Grey STN or 5.7" (122mm x 94mm) Colour QVGA touch screen
<b>Input</b>	Touch Screen
<b>Program storage</b>	Flash Card
<b>Real time clock</b>	Battery Backed
<b>Memory</b>	64MB DRAM/256KB SRAM
<b>Serial Interface</b>	RS232 (For connection to printer)
<b>A/D / Pressure</b>	12 bit
<b>A/D / Temperature</b>	16 bit
<b>Digital inputs</b>	32
<b>Digital outputs</b>	32
<b>Analogue inputs</b>	4

The Logi Control Systems are available on all Square Section Models & on the Vacuum Swiftlock Top & Front Loading Units

SEE PAGE 4, 6-7 FOR FULL DETAILS

#### Data Archiving

A standard feature of the touch screen controllers, Data Archiving stores information of up to 5000 cycles. The data can be accessed by:

- Printing to the integral data printer (optional)
- Downloading to an external PC (requires the optional RS232 Interface)
- Downloading to an external printer (requires the optional RS232 Interface)

# OPTIONS & ACCESSORIES



## Cooling

### Advanced Water Cooling

This can only be fitted to machines that have been connected to a mains water supply. A series of cooling coils are fitted to the outside of the autoclave chamber. At the end of the cycle these coils are circulated with cold water, resulting in a rapid decrease of temperature. NB Please note that all vacuum Square Section Sterilizers are fitted as standard with Jacket Water Cooling ( where applicable).

### Assisted Air Cooling

Powerful fans are built within the cabinet outside the chamber, these circulate ambient air over the external chamber walls, and result in an appreciable reduction in cycle times.

### Internal Circulation Fan Cooling

Fan(s) are sited within the chamber itself, which create turbulence reducing cooling time greatly. Internal fan cooling in conjunction with advanced water cooling system is one of the most efficient ways of reducing cycle times on fluid loads.

### Deluge Cooling

A super-quick internal spray-cooling system for use only in conjunction with sealed fluid loads (e.g. bottled media). This option can result in up to a 50% reduction in cooling time for specialised fluid applications.

### AutoDrain

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 Water or Air Cooling.

At a pre-selected pressure during the cooling phase of the cycle, the water reservoir remaining in the chamber is evacuated to the drain. As the discharge water will be approx. 100° we would highly recommend that the AVC100, Exhaust Heat Exchange System is ordered in conjunction with this option.

As all the water is ejected from the unit when using AutoDrain, we would also recommend the option AAP019 AutoFill, so that manual filling of the unit with water is not required after each cycle.

## Drying

### Full Heated Jacket

This option provides a full pressurized jacket around the chamber and further enhances the drying performance of the sterilizer. In conjunction with the vacuum option this is the most effective way of drying loads and is essential for fabric loads and wrapped instruments.

## Data Recording

### Integral Data Printer

The Integral Data Printer is essential where a traceable cycle record is required, it records temperature and elapsed time for each cycle, together with cycle stage messages and time of cycle. The printer employs a long life ink ribbon system which provides fade resistant printouts.

### Fan Fold Chart Recorders

These are high performance microprocessor based recorders – Full Specifications Upon Request

### Sterilization Datalogger

Fascia or stand-alone datalogger for the recording and storage of cycle data

## Other Options

### Multi Program Controller (SecureTouch)

This option adds an additional 5 programs, giving 10 programs in total which can be set by the user to save and store cycle parameters for repeated use. The saved programs can then be selected via the touch screen controller.

### Load Sensed Process Timing

This option allows the cycle timing to be controlled via the temperature achieved in the centre of the load. A wandering probe situated within the chamber is inserted into the load, or a load simulator, and initiates the sterilization period once the probe reaches the sterilization temperature. A Selectable ‘profiled overshoot boost’ feature speeds up the cycle and minimizes over-processing of media loads.

### RS232 Interface

This allows access to and viewing of cycle information which has been stored through data archiving.

The RS232 Interface can also be used to connect the unit to an external PC (computer not supplied), or printer to monitor and store cycle data.

### Ethernet Interface

Ethernet connectivity for a variety of applications.

### Pulsar© Freesteaming PAT

Non vacuum units only. Selected via the Secure controller, this feature assists with air removal from ‘difficult’ loads. The cyclical opening and closing of the vent valve greatly increases turbulence at the Freesteaming stage.

	Load Sensed Process Timing	Vacuum Pulsing	Vacuum & Heated Jacket	Assisted Cooling	Air Ballast
Media	☺			☺ (3)	✓ (4)
Mixed Discard	☺	☺			
Fluid Discard	☺			☺	☺
Glassware		☺			
Unwrapped Instruments		☺	☺ (1)		
Wrapped Instruments		✓	☺ (1)		
Fabrics		✓	✓ (2)		

- |   |             |    |   |    |   |
|---|-------------|----|---|----|---|
| ✓ | Essential   | 1. | If dry load is required?                  | 3. | To prevent excessive cycle time               |
| ☺ | Recommended | 2. | Required to ensure drying of Fabric Loads | 4. | Only essential for Media loads in Vacuum unit |

# OPTIONS & ACCESSORIES



## Other Options

### Air Ballast

Generally for use on vacuum units. This option provides a controlled replacement of steam with compressed air during the cooling phase. This effectively prevents the 'boiling over' of bottled fluids that is frequently associated with assisted cooling systems.

### AutoFill - Automatic Mains Supply Waterfill

The Autofill option automatically maintains adequate water level within the chamber. This is a fully automatic system incorporating an internal reservoir tank which accepts mains cold water at 2-6 bar pressure. The water inlet is controlled by level switching and includes an air gap to comply fully with EC water regulations. The unit is readily connected to the water supply via a 1.5m flexible hose (supplied). All units supplied with the Vacuum Option or Deluge cooling have Waterfill supplied as standard

### Blow Down Vessel

Required on models with Steam Generators, where there is not the facility to accept Blow Down of up to 6bar. This option allows the steam generator to be blown down at high pressure by a competent person. The contents of the Steam Generator are blown into this specially designed vessel. The regular action of blow-down reduces the build up of limescale and other particulate matter, elongating the life span of the generator and it's heaters.

### Option for Category III Compliance - Vacuum Models

Steam enters the chamber through the chamber drain which is sealed during the cycle ensuring all condensate is sterilized. A Bacterial retentive filter fitted into the exhaust line ensures that nothing leaves the chamber without being sterilized. The positioning of the filter ensures that it is sterilized during every cycle.

### Option For CAT III Compliance - Non Vacuum Models

For models without vacuum, or with heaters in the chamber, the bacterial retentive filter is fitted to the exhaust line and is sited to ensure that it is sterilized each cycle

## Integral Air Compressor

A supply of compressed air is necessary on all units fitted with either the Logi Touch Screen Controller, or the Automatic Door system. The Air supply is required to operate the pneumatic door system and/or the pneumatic valves used in conjunction with the touch screen controller. This option is therefore essential where such a supply is not available

## 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. (Supplied as standard on Vacuum units)

## SPF Seal

A bacteriological seal mounted on a special flange to enable a double doored unit to be installed between a sterile and a non sterile area. The SPF seal/flange is fitted against the dividing wall and prevents bacterial migration between the areas

## Water Softener

Water Softener - Single Unit Recommended to reduce the build up of limescale on heaters, pipework etc, and particularly recommended for units with steam generators. OR unit including a separate brine tank, allowing installation in difficult or restricted positions. Requires salt. (Full details, including service requirements, available upon request)

## Opposite Hand Door Option

Standard units have hinges on left hand side. If hinges are required on right hand side this must be specified at time of ordering as option cannot be retrofitted. Available on front loading Swiftlock units, 120-330 litres. Please enquire for further details.

## Accessories



# AFTER SALES SERVICES

## Installation

Correct Installation of any autoclave is a critical factor in the performance of the unit. Astell's Service Department has many years experience with the installation of autoclaves, from a standard setup, to more complex installations. Advice can be given in advance of installation to ensure that the site is ready with the appropriate services to accept the new equipment

- All Astell Service Engineers are trained and well equipped to carry out professional installations
- Customers requirements, no matter how complex, are always considered
- Astell will always endeavour to keep laboratory down-time to a minimum
- Specific site risk assessments & method statements are available upon request

## Commissioning

**Following transportation to site and the installation of the autoclave, Astell's highly skilled technicians can:**

- Commission the new equipment
- Check calibration
- Perform a safety valve function test
- Ensure that the unit is functioning correctly

## IQ/OQ/PQ Validation Packages

**Astell are able to offer full IQ/OQ/PQ Validation packages including**

- User Requirement Specification (URS)
- Design Specification / Technical quotation (DS)
- IQ (Installation Qualification) OQ (Operational Qualification) PQ (Performance Qualification)
- Document packages including all required information

## Spare Parts & Consumables

Gaskets, probes ect. Please contact our Service Department for more information

## Load Validation

In order to verify that your loads are being properly sterilized, Astell would always recommend that the loads are validated. A typical method would be a 12 Point Thermocouple Validation. The process involves inserting up to twelve thermocouples into the load so as to accurately determine that the whole load has reached the set point temperature and has maintained that temperature for the desired time. This work is carried out to UKAS standards and all the equipment used is fully traceable to national standards. Astell can also provide quarterly and annual service and testing in accordance with HTM2010, carried out by experienced and qualified test engineers

## Service Contracts

Astell are able to offer a selection of comprehensive service & maintenance solutions to meet your exact requirements

### Swiftlock Units 23 to 330 litres - Annual Contracts

- 2 Planned Preventative Maintenance visits per year
- Calibration
- Visits to coincide with insurance inspections if required
- Optional UKAS Calibration

### Vacuum and Square Section Units - Annual Contracts

- 4 Planned Preventative Maintenance visits per year
- Calibration
- Visits to coincide with insurance inspections if required
- Optional UKAS Calibration

## Training

Astell are able to offer the following training within the UK. Technical Training is also offered to overseas agents and customers - Please email us for details or to arrange a visit.

- **Operator Training**
- **Supervisor Training**
- **Site Engineer Training**
- **New User / Refresher Training**



Contact our Service Department for further information :  
**[service@astell.com](mailto:service@astell.com) or Tel: +44 (0) 208 309 2000**



**Astell Scientific Ltd:** 19-21 Powerscroft Road, Sidcup, Kent DA14 5DT  
**Tel** +44 (0) 208 309 2024/3/2 **Fax** +44 (0) 208 309 2036 **Email** info@astell.com  
**www.astell.com**



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