Creating modified atmospheres

don whitley scientific

Anaerobic

Don Whitley Scientific has designed and developed anaerobic workstations continuously since 1980.

We have one of the most comprehensive product ranges for routine and research applications.

Microaerobic

In 1983, Don Whitley Scientific developed the world's first variable atmosphere workstation for microbiological applications.

Hypoxic

Designed specifically for tissue and cell culture applications, our hypoxic workstations provide precise and accurate control of oxygen, carbon dioxide, temperature and humidity levels.

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Jars

Our high quality jars incorporate a patented valve system and can be fitted with a low temperature catalyst sachet. Our jars can be used with gas generating envelopes or prepared using the Whitley Jar Gassing System.

Jar Gassing Systems

The Whitley Jar Gassing System creates microaerobic or anaerobic conditions in seconds for just a few pence, without the need for gas generation kits and without creating chemical waste.

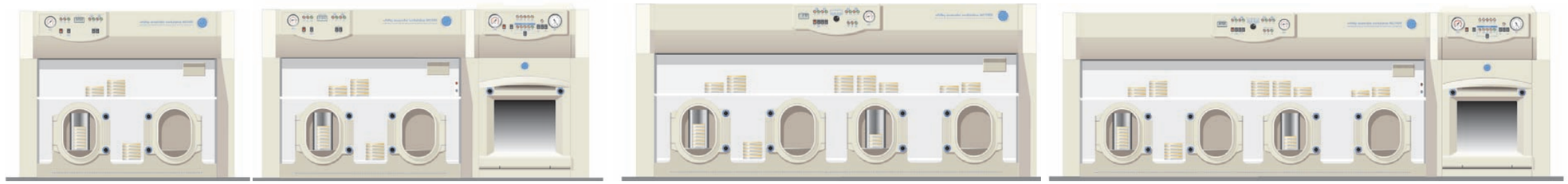
Workstations

Samples can be introduced, manipulated, incubated, examined and removed without loss of controlled environmental conditions.

Isolation rates are significantly increased when samples are placed in a workstation immediately after collection and remain there until identification.*

* Wren, MWD, Journal of Medical Microbiology (1977), Volume 10; pages 195-201. Barenfanger et al, Clinical Infectious Diseases 2002:35 (Suppl 1) S78-83

Anaerobic workstations/1



Features	Whitley 500	Whitley 500 + Airlock	Whitley 1000	Whitley 1000 + Airlock	Features
*Chamber Capacity	540 / 700	540 / 700	1080 / 1400	1080 / 1400	Chamber Capacity*
Port / Airlock Capacity	20 plates per port (40)	20 plates per port + 90 plates via airlock (130)	20 plates via ports (80)	20 plates per port + 90 plates via airlock (170)	Port / Airlock Capacity
Porthole System	Motorised	Motorised	Motorised	Motorised	Porthole System
Gas Supplies	ANO_2 / N_2	H_2 / CO_2 / N_2 or ANO_2 / N_2	ANO_2 / N_2	H_2 / CO_2 / N_2 or ANO_2 / N_2	Gas Supplies
Footswitch	Wireless	Wireless	Wireless	Wireless	Footswitch
Auto Sleeve Gassing	-	-	-	-	Auto Sleeve Gassing
Internal Mains Socket	○	○	○	○	Internal Mains Socket
Storage Trays	-	-	-	-	Storage Trays
Lighting	●	●	●	●	Lighting
Inspection Lamp	○	○	○	○	Inspection Lamp
Single Sample Entry	○	○	○	○	Single Sample Entry
ANO_2 Indicator	○	○	○	○	ANO_2 Indicator
ANO_2 Conditions Monitor	-	-	-	-	ANO_2 Conditions Monitor
Refrigeration	○	○	○	○	Refrigeration
Data Logging	-	-	-	-	Data Logging
Airlock Cycle Time	-	6 minutes	-	6 minutes	Airlock Cycle Time
Extra Cable Glands	○	○	○	○	Extra Cable Glands
Microscope	○	○	○	○	Microscope
Automatic Dehumidifier	●	●	●	●	Automatic Dehumidifier
Automatic Humidifier	-	-	-	-	Automatic Humidifier
Removable Front	-	-	-	-	Removable Front
Workstation Trolley	○	○	○	○	Workstation Trolley
Dimensions (w/d/h)	1040 / 760 / 800	1570 / 760 / 840	1885 / 760 / 800	2415 / 760 / 840	Dimensions (w/d/h)
Weight (lbs/kg)	220 / 100	340 / 155	385 / 175	506 / 230	Weight (lbs/kg)

Notes : ● Fitted as standard ○ Option available - Not applicable *Capacity based upon using 90mm Petri dishes. Shown as working / short term maximum with limited working space

Anaerobic workstations/2

Features	DG250	A35	A45	A85	Features
*Chamber Capacity	270 / 400	400 / 600	600 / 900	540 / 700	Chamber Capacity*
Port / Airlock Capacity	10 plates per port (20)	40 plates via airlock	40 plates via airlock	20 plates per port + 90 plates via airlock (130)	Port / Airlock Capacity
Porthole System	Manual	Instant / Manual	Instant Access Porthole System	Motorised	Porthole System
Gas Supplies	ANO2 / N2	ANO2 / N2	ANO2 / N2	ANO2 / N2	Gas Supplies
Footswitch	Hardwired	Wireless	-	Wireless	Footswitch
Auto Sleeve Gassing	○	○	○	○	Auto Sleeve Gassing
Internal Mains Socket	○	○	○	○	Internal Mains Socket
Storage Trays	○	○	○	-	Storage Trays
Lighting	○	●	●	●	Lighting
Inspection Lamp	●	○	○	○	Inspection Lamp
Single Sample Entry	○	○	○	○	Single Sample Entry
ANO2 Indicator	○	-	-	○	ANO2 Indicator
ANO2 Conditions Monitor	-	○	○	○	ANO2 Conditions Monitor
Refrigeration	-	-	-	○	Refrigeration
Data Logging	-	○	○	○	Data Logging
Airlock Cycle Time	-	60 seconds	60 seconds	5 minutes	Airlock Cycle Time
Extra Cable Glands	○	○	○	○	Extra Cable Glands
Microscope	○	○	○	○	Microscope
Automatic Dehumidifier	●	●	●	●	Automatic Dehumidifier
Automatic Humidifier	-	○	○	-	Automatic Humidifier
Removable Front	Full lift off lid	○	○	-	Removable Front
Workstation Trolley	○	○	○	○	Workstation Trolley
Dimensions (w/d/h)	810 / 760 / 635	1255 / 720 / 710	1650 / 720 / 710	1570 / 760 / 840	Dimensions (w/d/h)
Weight (lbs/kg)	141 / 64	220 / 100	290 / 132	330 / 150	Weight (lbs/kg)

Notes : ● Fitted as standard ○ Option available - Not applicable *Capacity based upon using 90mm Petri dishes. Shown as working / short term maximum with limited working space

Microaerobic workstations

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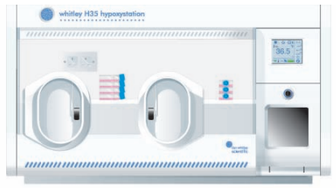
Features	Whitley VA500	Whitley VA500 + Airlock	Whitley VA1000	Whitley VA1000 + Airlock	Features
*Chamber Capacity	540 / 700	540 / 700	1080 / 1400	1080 / 1400	Chamber Capacity*
Port / Airlock Capacity	20 plates per port (40)	20 plates per port + 90 plates via airlock (130)	20 plates per port (80)	20 plates per port + 90 plates via airlock (170)	Port / Airlock Capacity
Porthole System	Motorised	Motorised	Motorised	Motorised	Porthole System
Gas Supplies	Up to 4 separate cylinders of H_2/N_2, CO_2, N_2, Air				Gas Supplies
Footswitch	Wireless	Wireless	Wireless	Wireless	Footswitch
Auto Sleeve Gassing	-	-	-	-	Auto Sleeve Gassing
Internal Mains Socket	○	○	○	○	Internal Mains Socket
Storage Trays	-	-	-	-	Storage Trays
Lighting	●	●	●	●	Lighting
Inspection Lamp	○	○	○	○	Inspection Lamp
Single Sample Entry	○	○	○	○	Single Sample Entry
ANO_2 Indicator	○	○	○	○	ANO_2 Indicator
ANO_2 Conditions Monitor	-	-	-	-	ANO_2 Conditions Monitor
Refrigeration	○	○	○	○	Refrigeration
Data Logging	-	-	-	-	Data Logging
Airlock Cycle Time	-	5 minutes	-	5 minutes	Airlock Cycle Time
Extra Cable Glands	○	○	○	○	Extra Cable Glands
Microscope	○	○	○	○	Microscope
Automatic Dehumidifier	●	●	●	●	Automatic Dehumidifier
Automatic Humidifier	-	-	-	-	Automatic Humidifier
Removable Front	-	-	-	-	Removable Front
Workstation Trolley	○	○	○	○	Workstation Trolley
Dimensions (w/d/h)	1040 / 760 / 800	1570 / 760 / 840	1885 / 760 / 800	2415 / 760 / 840	Dimensions (w/d/h)
Weight (lbs/kg)	242 / 110	363 / 165	407 / 185	528 / 240	Weight (lbs/kg)

● Fitted as standard ○ Option available - Not applicable

*Capacity based upon using 90mm Petri dishes. Shown as working / short term maximum with limited working space

Hypoxic workstations



Features	H35 Hypoxystation	H85 Hypoxystation	Features
O2 Profiling	○	○	O2 Profiling
CO2 Monitoring	○	○	CO2 Monitoring
Data Logging	○	○	Data Logging
Automatic Dehumidifier	●	●	Automatic Dehumidifier
Automatic Humidifier	○	○	Automatic Humidifier
Removable Front	○	-	Removable Front
Chamber Capacity	326 litres	300 litres	Chamber Capacity
Airlock Capacity	12 litres	36 litres	Airlock Capacity
Gas Supplies	CO2 / Air / N2	CO2 / Air / N2	Gas Supplies
Porthole System	Conventional Manual or Instant Access Porthole System	Motorised	Porthole System
Footswitch	Wireless	Wireless	Footswitch
Auto Sleeve Gassing	○	○	Auto Sleeve Gassing
Internal Mains Socket	○	○	Internal Mains Socket
Storage Trays	○	-	Storage Trays
Lighting	●	●	Lighting
Inspection Lamp	○	○	Inspection Lamp
Single Sample Entry	○	○	Single Sample Entry
Vacuum Take-off	○	○	Vacuum Take-off
Airlock Cycle Time	60 seconds	3.5 minutes	Airlock Cycle Time
Extra Cable Glands	○	○	Extra Cable Glands
Microscope	○	○	Microscope
Workstation Trolley	○	○	Workstation Trolley
Dimensions (w/d/h)	1255 / 720 / 710	1570 / 760 / 840	Dimensions (w/d/h)
Weight (lbs/kg)	231 / 105	330 / 150	Weight (lbs/kg)

● Fitted as standard ○ Option available - Not applicable

Maintaining good anaerobic conditions

Stable Temperature

Temperature distribution within the workstation should be uniform. DWS workstations maintain temperature within ±0.6˚C across the working and incubation areas of the chamber.

No Oxygen

Anaerobic gas mixture contains 10% hydrogen, 10% carbon dioxide and 80% nitrogen. Residual oxygen is removed by combining with hydrogen in the presence of a catalyst to produce water.

Catalyst + Anotox™

Catalyst and Anotox must be in good condition and not allowed to get wet. The typical life expectancy of catalyst is between 6-12 months depending on the types of bacteria being grown. Anotox is essential for maintaining ideal internal conditions by absorbing volatile fatty acids and hydrogen sulphide, both of which can be byproducts of the growth of anaerobic bacteria. Anotox has been shown to substantially prolong catalyst life. Don Whitley Scientific recommends that catalyst and Anotox are replaced together.

Relative Humidity Control

To maintain ideal bacterial growth conditions, agar must not be allowed to dry out during sample incubation. Excessive internal moisture may promote bacterial cross contamination.

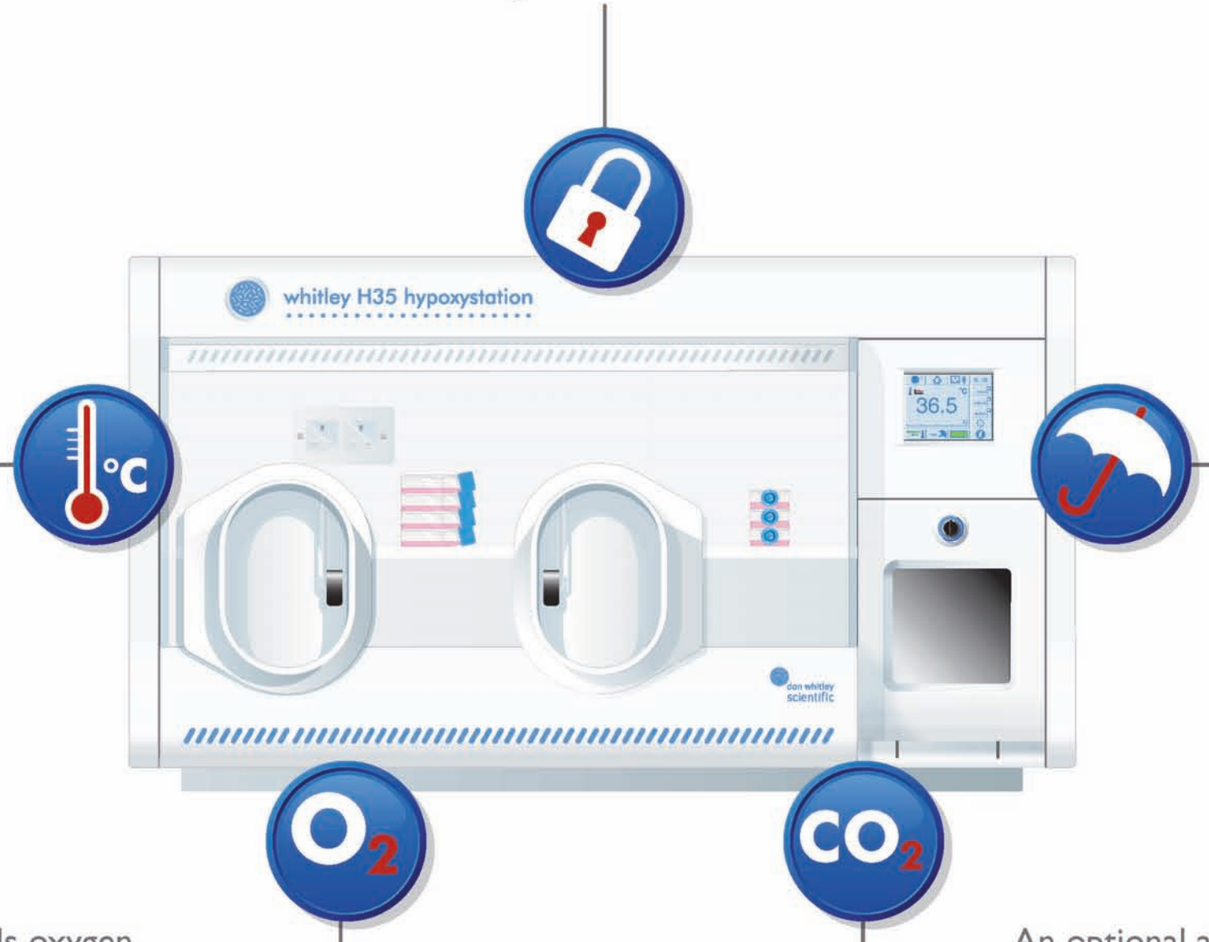
A Sealed Workstation Chamber

Workstations are operated at a slight positive pressure so that any small leaks allow anaerobic gas to leak out, instead of allowing oxygen to enter the workstation.

Maintaining good hypoxic conditions

A Sealed Workstation Chamber

Workstations are operated at a slight positive pressure so that any small leaks allow internal gas to leak out, instead of allowing air to enter the workstation.



Stable Temperature

Temperature distribution within the workstation should be uniform. DWS workstations maintain temperature within ±0.6°C across the working and incubation areas of the chamber.

Relative Humidity Control

An automatic dehumidification system is fitted as standard. Moisture may need to be added to the atmosphere to maintain required levels of relative humidity. An optional humidifier can be specified.

Oxygen Level Control

An automatic feedback system controls oxygen in 0.1% increments from 0.1% to 20%. The oxygen cell is calibrated in situ. The maximum oxygen concentration possible is directly related to the percentage of carbon dioxide selected. There must be a minimum of 80% nitrogen in the system with the balance available to split between oxygen and carbon dioxide.

Carbon Dioxide Level Control

An optional automatic feedback system controls carbon dioxide in 0.1% increments from 0.1% to 15%. The maximum carbon dioxide concentration possible is directly related to the percentage of oxygen selected. There must be a minimum of 80% nitrogen in the system with the balance available to split between carbon dioxide and oxygen.

