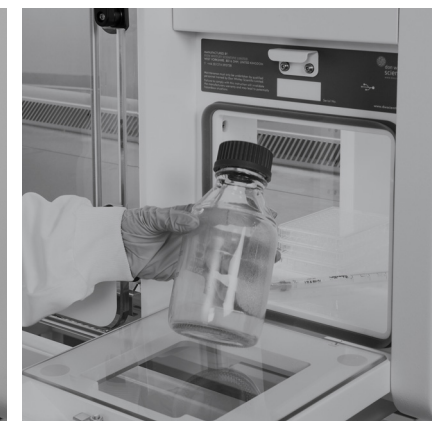
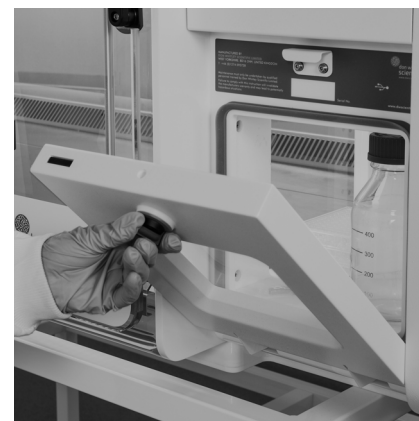
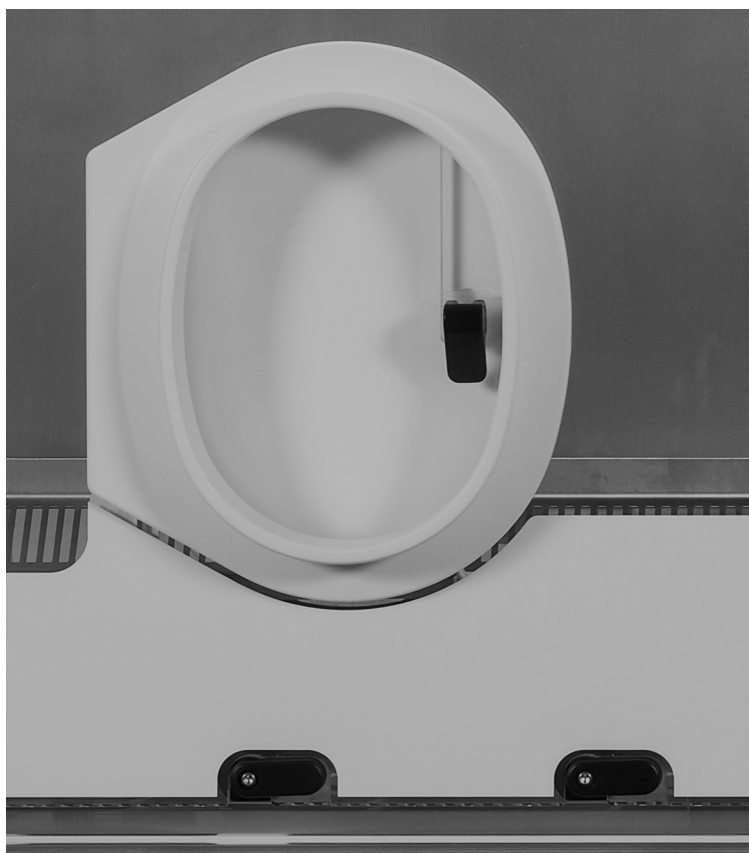


# Whitley GMP Hypoxystations



# 01 | Our Credentials

*Don Whitley started his career in microbiology and haematology laboratories, before moving into the sale of laboratory products. This experience helped him to develop novel ideas for improving the working life of scientists through the use of labour-saving equipment and automated solutions, leading to the formation of Don Whitley Scientific Limited in 1976.*

We continue to design, develop and manufacture our products in the UK and have been granted patents for many of our innovations. We now offer a range of controlled atmosphere workstations for cultivation of mammalian cells under physiologically appropriate conditions of normoxia or hypoxia.

In 2013, in response to the changing needs of our clinical and research customers, Don Whitley Scientific developed the Whitley Internal HEPA Filtration System for applications that require control of airborne particulate. After a number of requests from customers wishing to use our workstations in GMP compliant processes, the next logical step was to develop innovative laminar flow technology, which we have now done. We have successfully added this feature to a Hypoxystation to create a unique product offering: a laminar flow workstation that allows users to process samples under strict hypoxic conditions.

For more information on any of our additional services, please contact us: +44 (0)1274 595728 or [sales@dwscientific.co.uk](mailto:sales@dwscientific.co.uk)

*Top left: In 2009, Don Whitley, our founder, was awarded an Honorary Doctor of Science degree by the University of Bradford.*



# Whitley GMP Hypoxystations | 02



*Whitley GMP Hypoxystations combine sterile laminar airflow, positive operating pressure, and physical isolation, to provide highly effective product protection. The fact that it is a Whitley Workstation guarantees strict control of hypoxic conditions.*

With over 40 years of experience, Don Whitley Scientific is well known for the design and manufacture of workstations and more recently developed the market leading Whitley Internal HEPA Filtration System. The H135 GMP Hypoxystation was designed for customers running GMP certified facilities, to allow manipulation of samples under strict hypoxic conditions whilst maintaining GMP compliance.

Developing a GMP compliant workstation involved the creation of innovative laminar airflow technology and it is this feature that ensures maintenance of EU GMP Grade A particulate counts in the processing chamber. Further, the closed, re-circulating atmosphere and positive pressure operation allow the new workstation to act as a product isolator, which can be housed in a Grade D cleanroom during GMP compliant use.

The large workstation chamber is perfect for accommodating a variety of items of equipment, which can be installed and removed via the removable front (fitted as standard).

The 17.5 litre airlocks provide effective transfer for up to 10 x 500ml Duran bottles (or items of a similar size) to and from the workstation in just 60 seconds. The patented oval gloveports provide maximum comfort when used over extended periods.

A PIN code protected full colour touch screen interface allows easy monitoring of all parameters simultaneously. Alarms and status notices are also displayed.

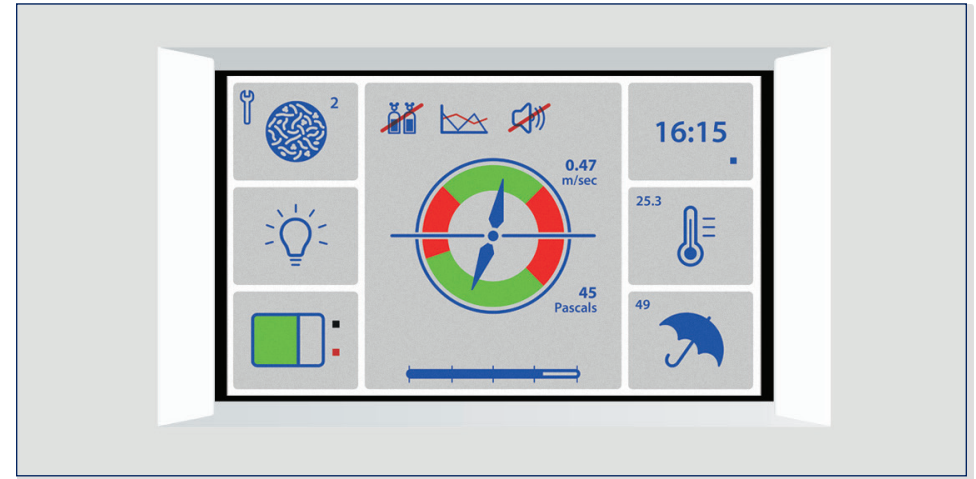
IQOQPQ documentation is available for all models.



# 03 | Whitley H135 GMP Hypoxystation

## FEATURES

- This workstation maintains strict hypoxic conditions and operates using supplies of CO<sub>2</sub>, Air and N<sub>2</sub> for the most effective and efficient running costs.
- An H14 HEPA filter combined with laminar airflow ensures the maintenance of an EU GMP Grade A working environment in the workstation chamber.
- The large workstation chamber is perfect for accommodating a variety of items of equipment, which can be installed and removed via the removable front (fitted as standard).
- With a 900 litre capacity, there is a generous amount of space inside the workstation to house equipment.
- This workstation is Ethernet-enabled for remote access review and control.
- Data logging system records all monitored parameters every 60 seconds, and the event log lists events showing the date and time they occurred.
- A fully automated de-humidification system is included as standard. It does not require any operator intervention.
- The optional HEPA Filtered Airlock includes the incorporation of a H14 HEPA filter to ensure 100% reduction in airborne particulate in the airlock over the course of a 2 minute cycle. This ensures Grade A particulate counts in the main chamber are not compromised.
- A bespoke trolley with heavy-duty castors is provided as standard.
- 'Standby' feature automatically decreases fan speed when the chamber is at rest to optimise energy efficiency.
- Workstation can also be run aerobically if desired, providing further flexibility in use.
- Decontamination is possible through a range of protocols, including the use of hydrogen peroxide fogging.
- IQOQPQ documentation is available.
- Other optional features are available to tailor the system to your requirements.



*H135 Hypoxystation Touchscreen*



*HEPA Filter located in the ceiling*

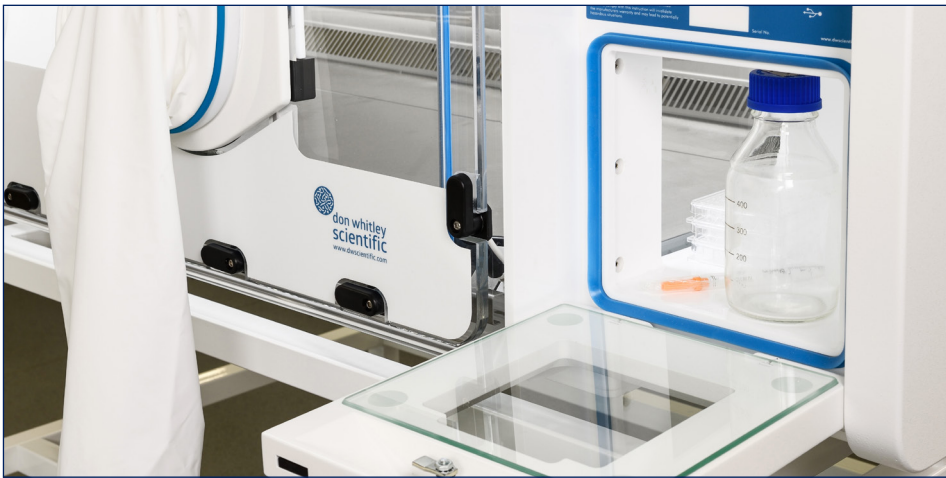
# Whitley H155 GMP Hypoxystation | 04



*H155 GMP Hypoxystation*

## FEATURES

- Provides precise control of O<sub>2</sub> between 20.9% and 0.1% and CO<sub>2</sub> between 0.0% and 15%.
- A huge capacity of 1,800 litres providing a generous amount of space to house equipment inside the chamber.
- HEPA filter face velocity/uniformity of laminar flow and Dispersed Oil Particulate (DOP) tests are carried out in accordance with ISO14644-3 to validate system integrity and performance. All tests are performed by an independent organisation.
- Whitley Intelligent Monitoring continually measures atmospheric down flow to ensure optimised filter performance.
- 'Standby' feature automatically decreases fan speed when the chamber is at rest to maximise energy efficiency.
- These workstations are Ethernet-enabled for remote access review and control.
- Four oval ports allow two people to work in the chamber at the same time.
- Data logging system records all monitored parameters every 60 seconds.
- The Event Log lists events showing the date and time they occurred. The log retains information for 100 days and can be downloaded if the Data Logging option has been purchased.
- A fully automated de-humidification system is included as standard. It does not require any operator intervention.
- A bespoke trolley with heavy-duty castors is provided as standard. A trolley not only saves desk space but is also useful for ease of mobility for service and maintenance.
- This Hypoxystation can also be run aerobically if required.
- A range of possible decontamination protocols, including the use of vaporised hydrogen peroxide.
- Air sampling ports can be fitted to allow particulate monitoring systems to be connected to the workstation for continuous particulate monitoring.



*Hypoxystation Airlock*

# 05 | Specifications

Features	Whitley H135 GMP Hypoxystation		
Chamber Capacity	900 Litres		
Airlock Capacity	17.5 Litres / 10 x 500ml Duran bottles		
Porthole System	Manual Ports		
Gas Supplies	CO <sub>2</sub> / Air / N <sub>2</sub>		
Footswitch	Wireless		
Auto Sleeve Gassing	●		
Internal Mains Socket	○		
HEPA Filtered Airlock	○		
Internal Lighting	●		
Inspection Lamp	○		
Single Sample Entry	-		
Data Logging	○		
Airlock Cycle Time	60 seconds		
Extra Cable Glands	○		
HEPA Filtration	●		
Automatic Dehumidifier	●		
ULPA Filter Upgrade	○		
Removable Front	●		
Workstation Trolley	●		
Remote Access	●		
Dimensions w/d/h (mm)	1470 / 1100 / 1080		
Weight (lbs/kg)	649 / 295		
KEY:	● Fitted as standard	○ Option available	- Not applicable

Whitley H155 GMP Hypoxystation			Features
	1800 Litres		Chamber Capacity
	17.5 Litres x 2		Airlock Capacity
	Manual		Porthole System
	CO <sub>2</sub> / Air / N <sub>2</sub>		Gas Supplies
	Wireless		Footswitch
	●		Auto Sleeve Gassing
	○		Internal Mains Socket
	○		HEPA Filtered Airlock
	●		Internal Lighting
	○		Inspection Lamp
	-		Single Sample Entry
	○		Data Logging
	2 minutes		Airlock Cycle Time
	○		Extra Cable Glands
	●		HEPA Filtration
	●		Automatic Dehumidifier
	○		ULPA Filter Upgrade
	●		Removable Front
	●		Workstation Trolley
	●		Remote Access
	2940 / 1130 / 1080		Dimensions w/d/h (mm)
	1298 / 590		Weight (lbs/kg)
● Fitted as standard	○ Option available	- Not applicable	KEY:

# 07 | HEPA Filtration

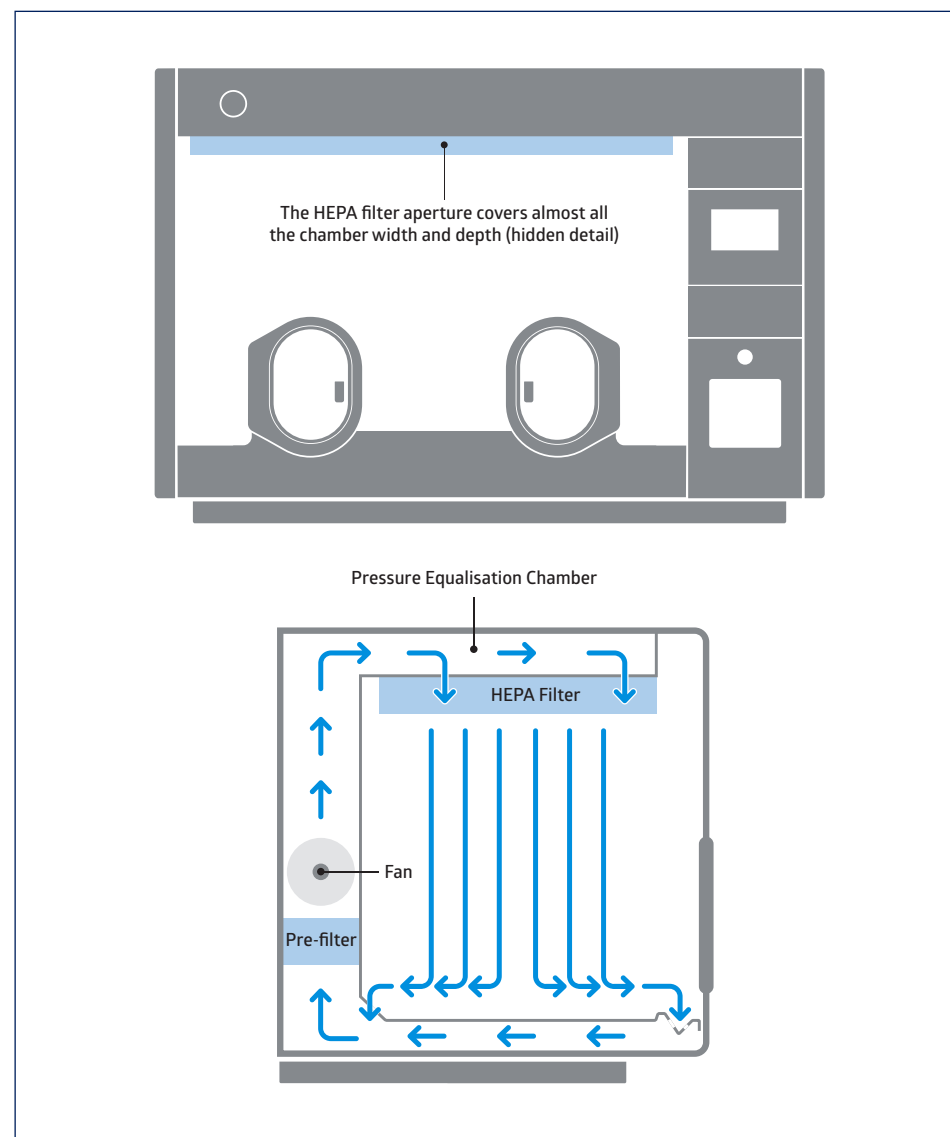
## HEPA FILTRATION AND LAMINAR FLOW TECHNOLOGY

Development of the H135 GMP Hypoxystation has seen a complete re-design of the standard Whitley Internal HEPA Filtration System.

The HEPA filtration system uses an H14 filter housed in the ceiling of the workstation to achieve 99.9997% dispersed oil particulate removal in a single pass. This high filter efficiency, combined with laminar airflow, ensures the maintenance of an EU GMP Grade A working environment in the workstation chamber. In addition, the Whitley Intelligent Monitoring system continually measures atmospheric down flow to ensure optimised filter performance, automatically increasing fan speed to compensate if any pressure drop is detected across the filter. A ULPA filter upgrade option is also available (better than 99.99995% efficient at the MPPS).

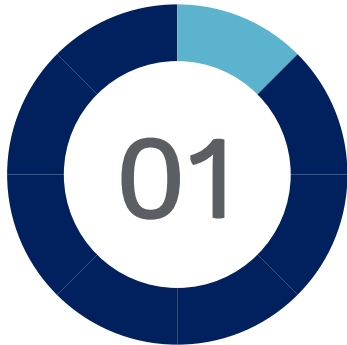
Each workstation undergoes HEPA filter face velocity/uniformity of laminar airflow and Dispersed Oil Particulate (DOP) tests, performed by an independent organisation, to ensure compliance with the relevant portions of ISO 14644-3. Further to this, tests carried out in our own in-house laboratories confirm the integral HEPA filtered laminar flow system meets the requirements set out in BS EN 12469:2000 with regard to protection of the working area from particulate and microbial contamination. Test reports and relevant certifications are available as technical notes upon request.

The workstation is a closed, re-circulating system, but exhaust vents can also be attached to external ventilation systems if desired.



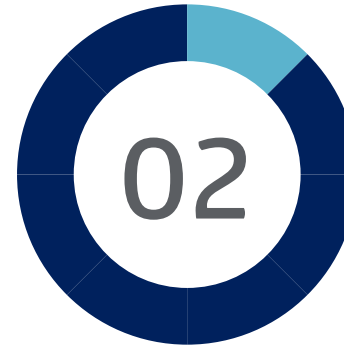


# Unique Innovations | 08



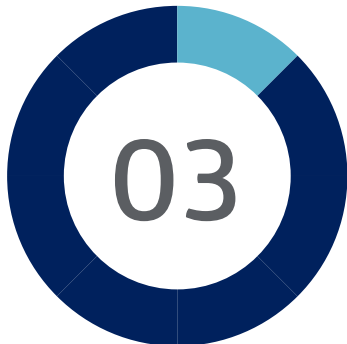
## *Colour Touchscreen*

Operating requirements are configured and maintained by an intelligent, programmable logic controller in conjunction with an intuitive touchscreen interface. The touchscreen interface displays the status conditions of all controlled parameters and also allows the user to change operating parameters to suit specific test conditions. Alarm conditions are clearly displayed and PIN code controlled user access levels protect user adjustable parameters.



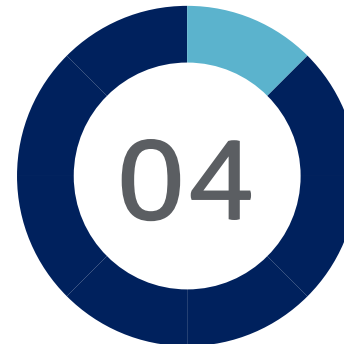
## *Data Download / Traceability*

There is an option to purchase data logging software for some Whitley Workstations. This feature allows recorded workstation temperature, humidity, chamber pressure and other parameters to be downloaded for traceability or reference. The information is displayed on the touch screen in graphical format. The recorded data can be downloaded via the USB interface to a memory stick and imported into a spreadsheet for further analysis and archiving.



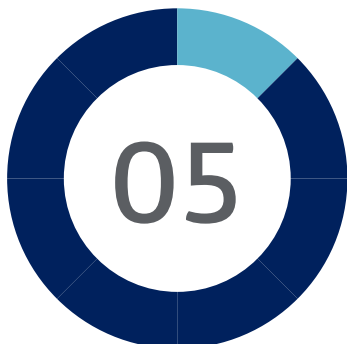
## *Remote Access*

Whitley Workstations are Ethernet-enabled for remote access to the touchscreen panel. This allows you to log into your workstation when you are away from the lab and check current operating parameters, making changes if desirable. This feature allows DWS engineers to log into your workstation remotely to assess the situation should a fault occur. Whitley Workstations also offer an email alert option that sends emails to designated recipients alerting users to workstation alarm conditions.



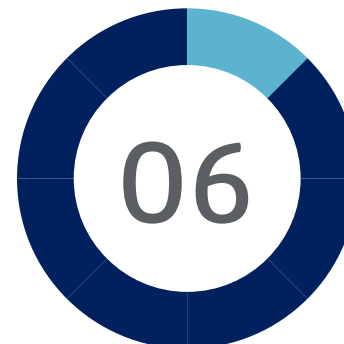
## *Internal Oxygen Sensor*

O<sub>2</sub> sensing, monitoring and control are key components of accurate atmosphere control in a hypoxic workstation. Every Whitley Hypoxystation has an integrated O<sub>2</sub> sensor located in the incubation chamber, under the same environmental conditions as your cell cultures and other samples. This allows for a precise, real-time feedback system that constantly monitors the internal atmosphere. Hypoxystations can quickly respond to any changes to ensure user settings are accurate and reproducible. Having an integrated O<sub>2</sub> sensor eliminates the need to extract a gas sample and pump it to an external or remote monitoring system for evaluation.



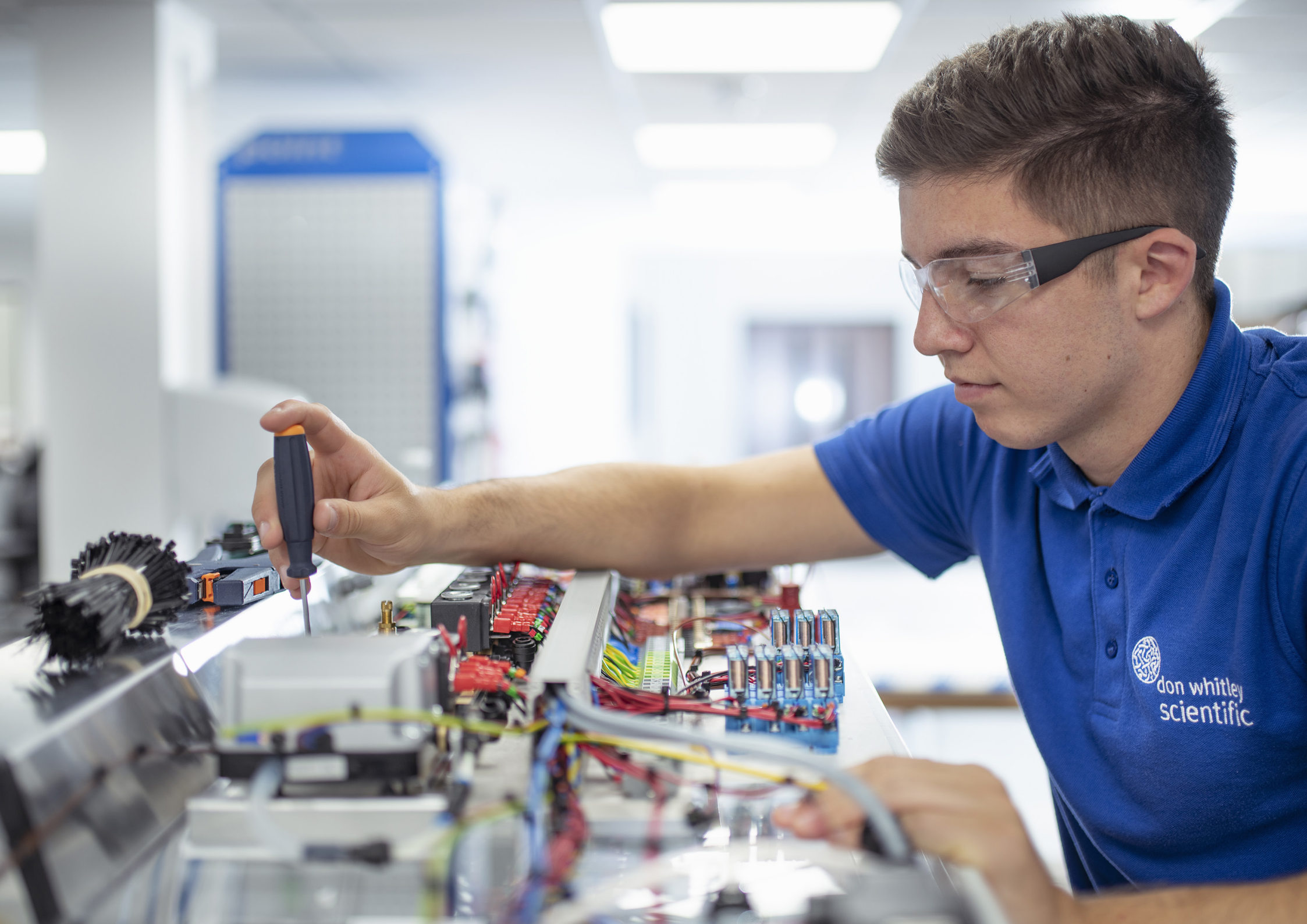
## *Oval Sleeved Ports*

Patented oval, sleeved ports allow greater freedom of movement and operator comfort. This system allows you to work gloved or bare handed or with gauntlets.



## *IQOQPQ*

The Installation Qualification and Operational Qualification (IQ/OQ) is based on a dynamic document that is tailored to meet the needs of each specific customer. The Performance Qualification (PQ) document is prepared through close collaboration with the customer to ensure it is suitable for the particular application.



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# What Can We Do For You? | 10



## SERVICE AND MAINTENANCE

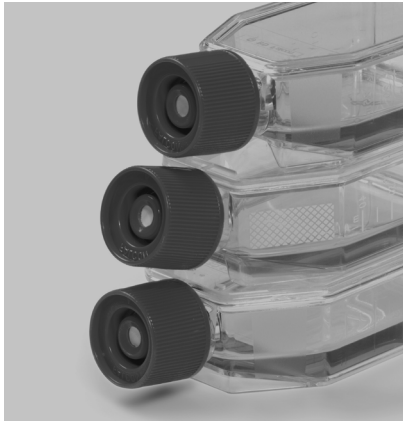
### *Comprehensive service plans*

In the UK we offer customers comprehensive maintenance and repair contracts on a variety of laboratory equipment from many different manufacturers.

We are the only company able to take advantage of training from our in-house colleagues who design and manufacture Whitley products – and, of course, have their day-to-day support.

We also ensure all our engineers have been trained by the manufacturers of any other equipment they service.

- **Engineer coverage across the UK**
- **All our overseas distributors are factory trained and fully supported**
- **Fast response time**
- **Enough spares are carried to ensure a first time fix**



## Don Whitley Scientific Limited

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