COY LAB PRODUCTS

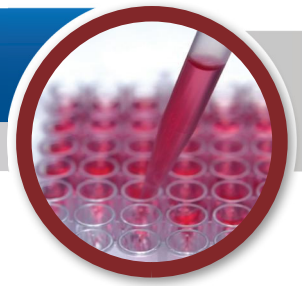
Flexible Solutions. Reliable Results.

Hypoxic Chambers:

O_2 Control Glove Boxes for InVitro Studies

- Hypoxic
- Normoxic
- Physiologic
- Hyperoxic
- Pathologic

O_2 Control Glove Boxes for InVitro Studies



Perform incubation, culture maintenance & analysis in the same environment!

How the O_2 and CO_2 Control Systems Work

O_2 and CO_2 concentrations need to be adjusted from their normal atmospheric air concentrations within the glove box. N_2 is used as a flush gas to displace the atmospheric gas mix to the experimental pre-sets. Sensors connected to microprosessor controls apply control gas purges based on these sensor readings and user adjustable setpoints. Typical units for controlling at less than atmospheric 20.9% O_2 will require N_2 and CO_2 sources. The controllers, combined with the sealed glove box and airlock, provide a more accurate and uninterrupted environment than an incubator or cabinet system by eliminating exposure to nonexperimental conditions.

How the Airlock Works

Coy O_2 Control Glove Boxes are equipped with a purge-only airlock, which is a transfer chamber that equilibrates O_2 levels by purging excess O_2 prior to opening the door into the actual glove box and placing items inside. Ideal purge times are provided by Coy for various O_2 levels. Automatic units use a specific preset time for purges based on protocol and desired glove box O_2 levels. Once preset, the airlock is operated with the touch of a button by lab personnel. With manual units, the user operates a valve and times the purge.

Humidified Incubation Box

The Coy Humidified Incubation Box for Cell and Tissue Culture is a separate unit that sits inside the glove box. It allows cultures to be humidified with the same atmosphere content (gas and temperature) without immediately increasing the humidity of the rest of the box. Capacity: 36 x 100 mm petri dishes or well plates can be stored in each unit if stacked two high. Size: 12" L x 6" D x 16" H (305 x 152 x 406 mm). Custom sizes are available.

How to Control for Heat and Humidity

The Coy O_2 Control Glove Box for Cell and Tissue Culture has temperature control up to 40°C. For long-term incubation, users will want to maintain high humidity levels to prevent samples from drying out. Coy offers a small humidified incubation box that allows samples to be incubated at levels of moisture at or near saturation while minimizing the amount of moisture that escapes into the glove box.

Humidifying the entire glove box is not recommended as the differential between the heated glove box and the lab atmosphere would lead to condensation and potential contamination. Glove Box levels should be controlled to non-condensing levels, which provides a comfortable working atmosphere and protects the users' analytical equipment and the sensors, while minimizing potential microbial contamination.

Coy provides two solutions for controlling and removing moisture from the glove box—a desiccant-based system or an automatic dehumidifier, which is recommended. The dehumidifier is an electronic system with digital displays. The desiccant system involves alumina desiccant contained in a wire mesh and placed over the glove box's circulation system. The desiccant system is less costly than the dehumidifier option, but to succeed, it requires alert personnel who have an understanding of how the system works.

Coy Humidified Incubation Box for Cell and Tissue Culture

Standard Features and Equipment

- Control of O_2 and CO_2 in 0.1% increments
- Gloveless sleeves (operator's arms and hands may enter the box through a cuff-and-sleeve system without compromising the environment)
- Large side door for initial equipment installation
- Interior power supply
- Arm port plugs seal box when operator is not working in it
- Adjustable interior shelves
- Gloves may be attached to sleeves
- Patented diaphragm top to compensate for small volume changes (e.g. hands entering), increasing user ergonomic comfort
- Ergonomic sliding airlock shelf for sample transfer

High Accuracy Calibration Feature

The unique system includes calibration and mounting of the O2 Sensor. By taking into account temperature, pressure and the dilution effects of humidity on O2 in air when it is used as the reference calibration gas, the accuracy achieved is +/- 0.5% O2 from 0-20.9% O2 at 20 – 40° C within 10 hPa of calibration pressure.

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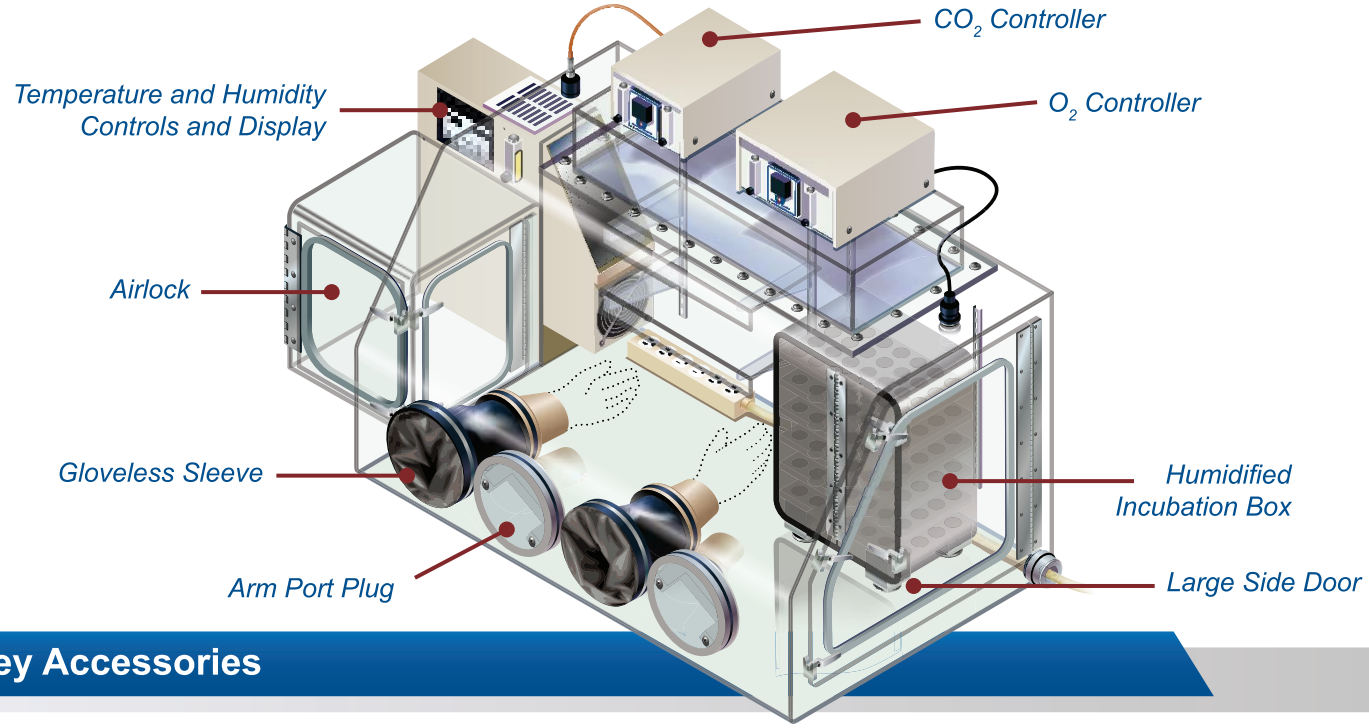

Key Accessories

Adaptable to your specific needs

Recirculating Atmosphere Filtration System (HEPA)

This capsule system filters the box atmosphere and controls contamination through a standard HEPA filter. The external pump-activated system has the filter mounted outside the box. Equipped with sealed, quick-disconnect fittings, the filter is fast and easy to change without compromising filter and glove box integrity. Other types of filters can be added.

UV Light

A combination of fluorescent and 254-nanometer UV lights provides illumination and decontamination of the work area.

Anoxic Upgrade Kit

Coy offers a kit for upgrading O_2 Control Glove Boxes to enable the user to create an anoxic environment, using catalyst reacting with a non-flammable hydrogen gas mix.

Feed-Thru Adaptor

Electrical wiring, tubing or cords are input through factory-installed feed-thru adaptors sealed through the glove box wall.

Microscope View Port

Microscopes, which are valuable tools for intrabox work, are easier to use with this optically clear, flexible vinyl port. The port is sealed to the box wall and is installed directly over the microscope's eyepieces, enabling easy use of the oculars. Cultures may go directly from incubation to the microscope, allowing the researcher to see effects that may be lost when an imaging and/or media change is done outside of a controlled environment. Custom sizing of glove boxes to fit specific microscopes is available.

Imaging Glove Box: *This alternative to microscope stage chambers and enclosures for live cell imaging provides a constant environment during media change, incubation and imaging.*

Custom Sizing for Analytical Equipment

Perform all analysis and manipulations in a controlled environment. Custom sizing and design allow for use of equipment such as a flow cytometer, plate reader, bio-reactor and more.

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Product Details

MATERIALS

Coy O2 Control Glove Boxes for in vitro studies are available with 2 standard sizes. Custom sizing and configuration are available. The choice of material depends on your research needs and budget. Aluminum is generally more robust and, therefore, has more service years than polycarbonate. Polycarbonate is a less expensive option and is easily customizable.

Control Ranges

O_2 CONTROL
Factory Calibrated for 0-20.9% O2 operation. Hyperoxic studies are possible consult COY for details.

CO_2 CONTROL
0-20% in 0.1% increments and control tolerance

TEMPERATURE CONTROL
Factory Calibrated for 0-20.9% O2 operation. Hyperoxic studies are possible consult COY for details.

HUMIDITY IN GLOVE BOX
Controlled to create non-condensing environment

HUMIDITY IN INCUBATION BOX
Saturated at temperature

Standard Sizes

POLYCARBONATE SIZES, INTERNAL WORKSPACE

1 person: 41" L x 23" D x 23" H
1041 x 584 x 584 mm

2 person: 59" L x 23" D x 23" H
1499 x 584 x 584 mm

Custom sizing available.

Contact us to discuss your needs.

QUESTIONS?

Our experts can help you configure a solution that meets your needs. Call (734) 475-2200 or visit www.coylab.com.

Related Products

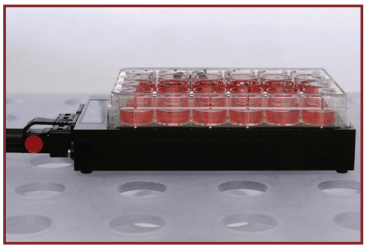
For more information on these products or any of our Hypoxic Chambers, please visit www.coylab.com.

Coy O_2 Cabinet for InVitro Studies

Coy also offers O_2 Control Cabinets for InVitro Studies that provide the same O_2 control of the glove box in a more economical package.

Gas Permeable Plates

Controlled O_2 levels from your incubator, glove box or cabinet transfer directly to the microenvironment of the cells growing on the gas permeable membrane. Provides faster equilibration times and ideal for intermittent hypoxia studies where the cell microenviroments must change in response to rapid cycling of gaseous O_2 levels.



Dissolved O_2 Measurement

Monitor and capture real-time O_2 or pH levels in all wells simultaneously during incubation to:

- Compare treatment effects
- Observe relative levels
- Perform comparative metabolism studies