

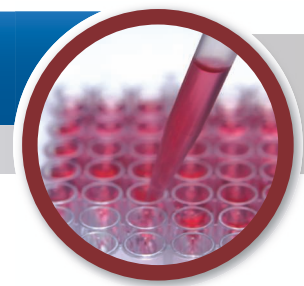
Hypoxic Chambers:

O₂ Control Cabinets for **InVitro** Studies



- Hypoxic
- Normoxic
- Hyperoxic
- Physiologic
- Intermittent Hypoxia

O₂ Control Cabinets for InVitro Studies



Perform short-term experiments, initial feasibility tests, multi-level oxygen studies and dynamic oxygen cycling experiments.

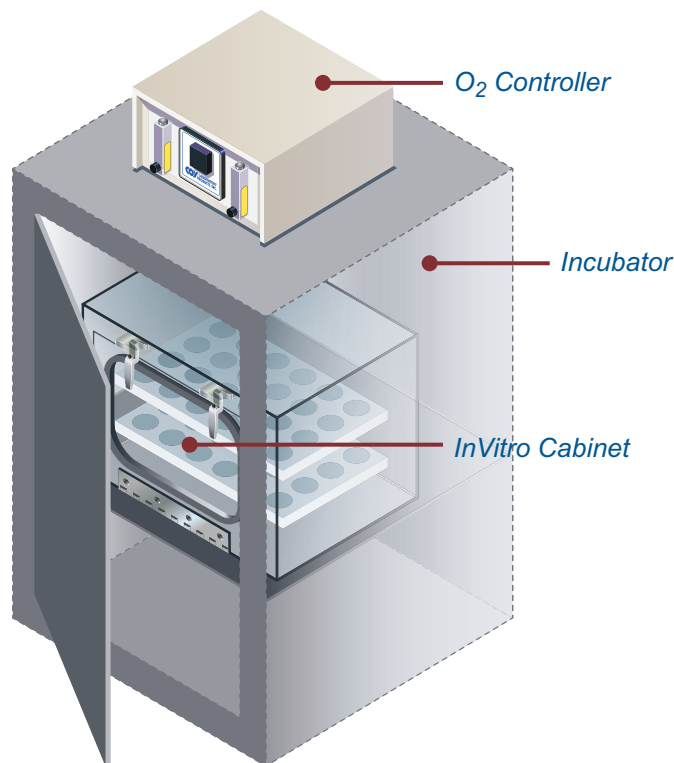
The Coy InVitro Cabinet System is the only system of its type that is a hermetically sealed chamber and allows continuous control of oxygen. The system features result in less gas consumption (lower operating cost) and more reproducible oxygen results when compared to tri-gas incubators and other cabinet systems.

How the Cabinet System Works

InVitro cabinets are designed to use existing lab incubators for temperature control while completely controlling oxygen levels (and optionally, CO₂) inside the cabinet. Pullout shelves, spaced 1.5" apart, provide easy access to samples. Humidity is achieved from water in a high-surface-area tray. The system also offers the ability to change the O₂ levels between multiple setpoints in increments of 0.1%. O₂ control is in either direction without changing gas connections, unlike other systems.

The microprocessor controls gas purges based on the sensor reading and user-adjustable setpoint. This system does not require continuous purge of gas into the cabinet. Depending on the application, you will need to supply one or all of the following gases: nitrogen, nitrogen with CO₂ mix, and O₂.

The cabinet's hermetic seal ensures that even with the controller detached, you can maintain preset O₂ levels for short periods of time depending on experimental conditions. This translates into less gas consumption compared to a semisealed cabinet.



Standard Features and Equipment

- O₂ controller and sensor
- Pressure relief valve
- Two sensor ports
- Circulation fan
- Gas inlet
- Pullout sliding shelves
- Humidification tray
- Adjustable leveling pads
- Factory Calibrated for 0-20.9% O₂ operation. Hyperoxic studies are possible consult COY for details.

Custom Sizing Options

Though this cabinet comes in four standard-size units, we can economically custom size or configure a cabinet to your lab needs. With modular designs and accessories, and 40 years of in-house customization experience, Coy is flexible in its problem-solving approach.



Adaptable to your specific needs

CO₂ Control Options

Consider your research and your budget. You can deliver CO₂ to your experiment in two ways:

1. PREMIXED TANKS OF N₂ AND CO₂ GAS WITH O₂ CONTROLLER

A tank of N₂/CO₂ premixed gas is connected to the O₂ Controller background gas inlet. In response to the set point and measured O₂ level, the O₂ Controller will input the N₂/CO₂ mixed gas into the cabinet as needed. The CO₂ level in the cabinet will be determined by the initial amount of O₂ in the cabinet, the amount of CO₂ in the premixed gas and the O₂ setpoint (see example below).

DESIRED % O ₂ IN CABINET	% CO ₂ IN N ₂ /CO ₂ PREMIXED GAS	RESULTING % CO ₂ IN CABINET
15.00	20.00	5.00
10.00	10.00	5.00
5.00	6.67	5.00
1.00	5.26	5.00

Example: Premixed gas levels required to achieve 5% CO₂ at the desired O₂ level assuming an initial O₂ level of 20.0% O₂

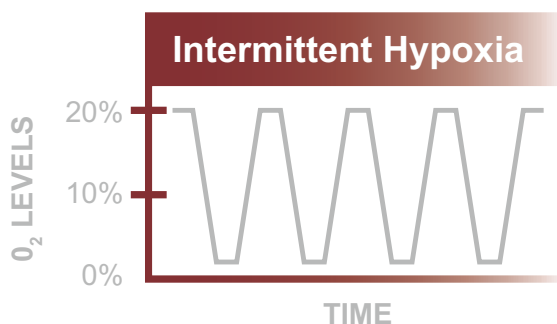
2. COY AUTOMATIC CO₂ CONTROL SYSTEM

Used in conjunction with the O₂ Controller, the Coy CO₂ Controller allows for precise control and constant digital monitoring of CO₂ gas inside the cabinet. The controller compares the measured CO₂ level to a user-defined set point and controls the introduction of N₂ or CO₂ gas into the cabinet. The digital display allows the user to continuously monitor the cabinet CO₂ level and adjust the level from 0-20% in 0.1% increments. Unlike other systems, this dual controller approach allows simultaneous bi-directional control of O₂ and CO₂, which is important since an adjustment in one gas can affect the level of the other. The digital display allows the user to monitor the CO₂ levels constantly for 0-20% control in 0.1% increments.

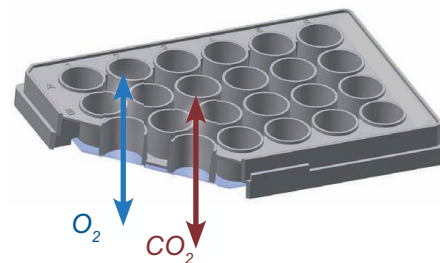


Intermittent Hypoxia (for Dynamic O₂ Cycling)

A **ramp and soak** upgrade is available as a factory-installed option for timed oxygen profile/cycle needs. The upgrade includes automatic cycling between multiple O₂ setpoints plus voltage outputs that allow readings to transfer to a data logger, chart recorder or computer program. Transfer is especially helpful when 24-hour documentation is required.



For **rapid cycling**, inquire about a system that integrates a Coy Cabinet and O₂ Controller with Coy Gas Permeable Plates. The Plates facilitate transfer of rapid gaseous O₂ transitions to the cellular level in a way not possible in standard plates due to slow O₂ diffusion through media.



High Accuracy Calibration Kit

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.



Product Details

Standard Sizes

O₂ Control Cabinet - Model 1: 13.4 W x 13.4 D x 8.4 H in.
1 shelf
34.0 x 34.0 x 21.3 cm

O₂ Control Cabinet - Model 2: 13.4 W x 13.4 D x 10.4 H in.
2 shelf
34.0 x 34.0 x 26.4 cm

O₂ Control Cabinet - Model 3: 13.4 W x 13.4 D x 12.4 H in.
3 shelf
34.0 x 34.0 x 31.4 cm

O₂ Control Cabinet - Model 4: 13.4 W x 13.4 D x 14.4 H in.
4 shelf
34.0 x 34.0 x 36.5 cm

Custom sizing available. Contact us to discuss your needs.



Pullout shelves give easy access to the samples. Shelf spacing is 1.5".

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.



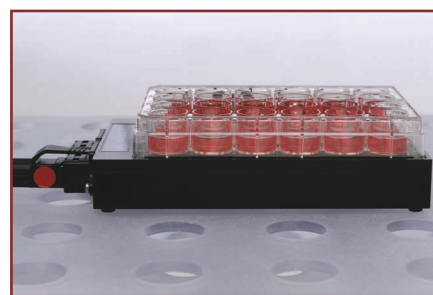
Coy O₂ Control Glove Box for InVitro Studies

To keep cells under continuous controlled conditions during all culture maintenance and incubation, you may want to consider a Coy O₂ Control Glove Box for InVitro Studies.



Gas Permeable Plates

Controlled O₂ 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 microenvironments must change in response to rapid cycling of gaseous O₂ levels.



Dissolved O₂ Measurement

Monitor and capture real-time O₂ or pH levels in all wells simultaneously during incubation to:

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