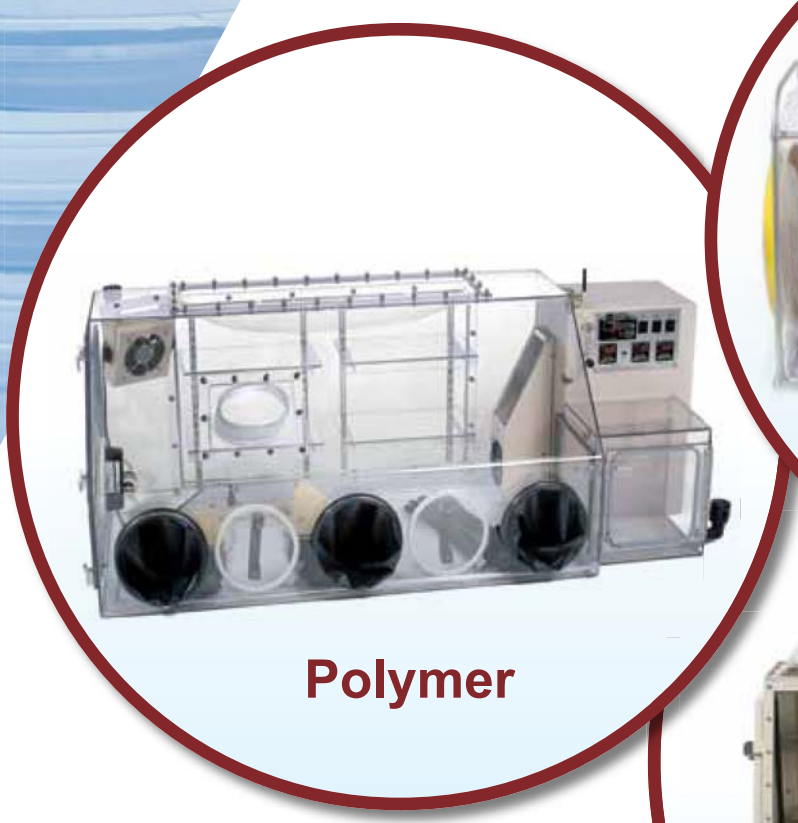
Anaerobic Chambers:

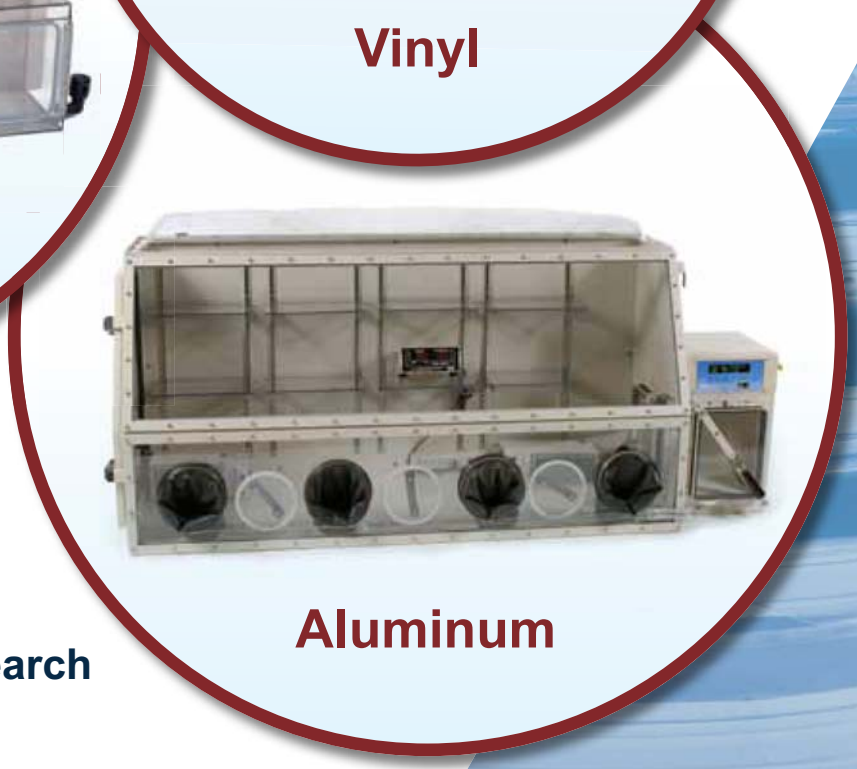
Vinyl, Aluminum & Polymer

Gloved and Gloveless



Polymer

Vinyl



Aluminum

Applications:

- Anaerobic microbiology research
- Clinical microbiology
- Controlled biochemical assays
- Protein crystal growth
- Biofuels and environmental microbiology
- Specialized cell culture incubation

Anaerobic Chambers

Vinyl: pg 4

Aluminum: pg 10

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The Coy vinyl chamber was the first developed especially for anaerobic microbiology, and it is now the anaerobic chamber of choice for the majority of users who employ an anaerobic process.

Coy also offers both economical polymer and sturdy aluminum chambers. Our modular construction and accessories allow us to tailor a chamber that meets your needs.

At Coy Laboratory Products, we pride ourselves on asking you the right questions so that we can deliver you exactly the right product for your application.

Configurations and Types

- Vinyl, polymer or aluminum
- Heated or unheated, or unheated with incubator
- Gloved or gloveless

Standard Features – All Coy Anaerobic Chambers

- Automatic or manual airlock with vacuum pump & tubing
- Gas regulator(s) with tubing and fittings
- Catalyst fan box(es) (heated or unheated)
- Stak-Pak with Catalyst (two per fan box)
- Six-receptacle plug strip
- Feed-thru adaptor(s)

How Coy Anaerobic Chambers Work

All Coy Anaerobic Chambers operate with a hydrogen gas mix reacting with a palladium catalyst to remove excess oxygen. Key components of Coy Anaerobic Chambers are the gas (user supplied), the catalyst, the catalyst fan box, temperature control accessories (if needed) and the airlock. All chambers require the addition of two gas sources, a background gas (typically N_2) and a gas mix containing 5% H_2 with the balance comprised of any inert gas such as N_2, CO_2, or Ar. A palladium catalyst in a Stak-Pak is placed over the circulation source called a catalyst box (sometimes referred to as a fan box). The gas mix with H_2 gas is circulated through the catalyst and removes O_2 by forming a water molecule. Generally, O_2 levels equilibrate to 0-5 parts per million (ppm). After initial establishment of the anaerobic atmosphere, the gas mix (H_2 5%) should be refreshed every 5-10 days and the catalyst rejuvenated by heating it. The airlock is used to reduce O_2 levels prior to the transfer of samples in and out of the chamber to avoid large spikes of O_2 into the system.

Anaerobic Chambers
Interior Work Area L x D

Vinyl	inches	millimeters
Type A	59 x 32	1499 x 813
Type B	78 x 32	1981 x 813
Type C	42 x 32	1067 x 813
Aluminum – gloveless or with gloves		
1 Person	41 x 23	1041 x 584
2 Person	71 x 23	1803 x 584
Polymer – gloveless or with gloves		
3 foot	35 x 23	889 x 584
4 foot	47 x 23	1194 x 584
5 foot	59 x 23	1499 x 584

Catalyst Fan Box

Made up of a fan to circulate the air and a tray to hold the Stak-Pak, the fan box may be heated, with digital display/controls (shown here) or unheated.

Stak-Pak with Catalyst

The catalyst is contained within wire mesh called a Stak-Pak. The catalyst is alumna pellets coated with palladium which provide a meeting ground for hydrogen and oxygen molecules. Additional wire mesh containers may be filled with other material and stacked in multiples of up to three in order to solve issues in the chamber such as moisture (desiccant) or chemical contamination (activated charcoal). The unique design of the Stak-Pak with Catalyst allows it to be stacked on a fan box and still maintain proper air flow.

Incubation and Heaters

For applications that require incubation with temperature control, Coy has several solutions. The advantages and disadvantages of these options should be factored into your selection.

Anaerobic chamber with heater option

The entire chamber becomes an incubator. Incubation capacity is limited only by the size of the chamber. Disadvantages include larger temperature variations and a less comfortable work area when compared to an unheated chamber with incubator option. It is a less expensive solution than purchasing an unheated chamber with an incubator.

Anaerobic chamber with incubator option

An unheated chamber with an incubator has the advantage of incubation with more precise temperature control when compared to the same process with just a heater in the chamber. The chamber also is more comfortable to work in than a heated chamber. The disadvantage is the limited incubation capacity and odd-size containers may not fit in it.

Anaerobic chamber with heater and incubator option

The advantage is that the heater can be kept turned off until the incubator reaches overflow capacity at which point it can be turned on. While this is a best of both worlds choice, it is more expensive. Only Coy Vinyl Anaerobic Chambers can be retrofitted in the field with an incubator. All three types of anaerobic chambers can have a heater specified at initial purchase or later.

Airlock Specifications

		COY Type A, B or C Vinyl Anaerobic Chamber	COY 1 or 2 Person Aluminum Anaerobic Chamber (Gloved or Gloveless)	COY 3, 4 or 5 ft. Polymer * Anaerobic Chamber (Gloved)	COY 3, 4 or 5 ft. Polymer * Anaerobic Chamber (Gloveless)
VACUUM AIRLOCK SPECIFICATIONS					
Airlock Interior Dimensions/ Capacity	Inches (LxDxH)	13.6 x 13.6 x 13.4	13.6 x 13.6 x 13.4	NA	NA
	Millimeters (LxDxH)	345 x 345 x 340	345 x 345 x 340	NA	NA
	Capacity (100 MM petri dishes)	150	150	NA	NA
Door Opening	Inches (WxH)	8 x 11	8 x 11	NA	NA
	Millimeters (WxH)	203 x 279	203 x 279	NA	NA
Automatic or Manual Airlock Operation		Both	Both	NA	NA
Airlock Transfer Time		< 60 seconds	< 60 seconds	NA	NA
Adjustable Vacuum Levels		S	S	NA	NA
Adjustable # of Cycles		S	S	NA	NA
Self-Calibrating Pressure Sensor		S	S	NA	NA
9 Different Memory Profiles		S	S	NA	NA
Gas Low Alarms		S	S	NA	NA
PURGE AIRLOCK SPECIFICATIONS					
Airlock Interior Dimensions/ Capacity	Inches (LxDxH)	NA	NA	12 x 10 x 14	12 x 10 x 14
	Millimeters (LxDxH)	NA	NA	305 x 254 x 355	305 x 254 x 355
	Capacity (100 MM petri dishes)	NA	NA	50	50
Door Opening	Inches (WxH)	NA	NA	9 x 12	9 x 12
	Millimeters (WxH)	NA	NA	228 x 305	228 x 305
Automatic or Manual Airlock Operation		NA	NA	Both	Automatic
Airlock Transfer Time		NA	NA	60 - 190 seconds	60 - 190 seconds
Digital Time Display		NA	NA	A	S
Adjustable Purge Time		NA	NA	A	S
Sliding Airlock Shelf		NA	NA	A	A

Can be customized with vacuum airlock* **S *= Standard equipment on this unit* **A** *= Accessory available for additional cost* **NA** *= Not available for this product*

How Coy Vacuum Airlocks Work

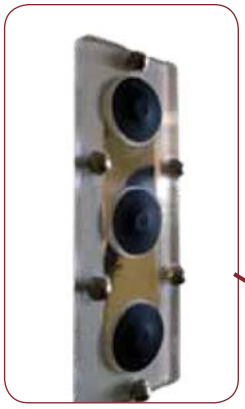
Coy vacuum airlocks (manual or automatic) remove O_2 from ambient conditions to achieve acceptable levels of O_2 prior to transfer to/from the chamber. The airlock reaches the low O_2 level through a multiple vacuum/purge procedure. The standard factory procedure is to pull a vacuum to 20" of mercury, then purge back to 1" of Hg using an inert background gas. Another cycle is repeated with the inert gas. A third cycle is performed with the H_2 gas mix used for anaerobic work. On the third and final purge, the vacuum level is brought back to ambient with just a slight vacuum left to hold the seal. The seal is easily broken by the user when opening the door. Automatic airlocks are equipped with an advanced electronic program that allows adjustments in vacuum levels, number of cycles, calibration of pressure sensors, and programmable profiles, depending on the type of work being done in the chamber. All vacuum pumps are equipped with moisture traps to prevent excess moisture from the chamber or gas tanks from entering the pump. This helps prevent pump vane rusting, which can significantly damage the pump. Manual airlocks operate with the user turning ball valves for the gas and pump while monitoring the vacuum levels. Automatic airlocks operate with the touch of a button.

Vacuum Airlock Door (Updated in 2006)

This update to the airlock door has a spring-loaded corner pivot which allows the door to swing up while parallel to the airlock, saving valuable space. Older Coy airlocks may be retrofitted in the field with the new style door and updated digital electronics.

Purge Airlock

The purge-only units operate by flushing background gas into the airlock to push out excess oxygen prior to opening the interior door. Ideal purge times are provided by Coy for various O_2 levels. Automatic units allow the user to preset a specific time to purge the airlock with a simple touch of a button. With manual units, the user operates ball valves and times the purge. Purge units, while initially less expensive to purchase than vacuum airlocks, generally have a higher operational cost and a longer transfer time.



Automatic Pressure Relief Valve (rear of unit)

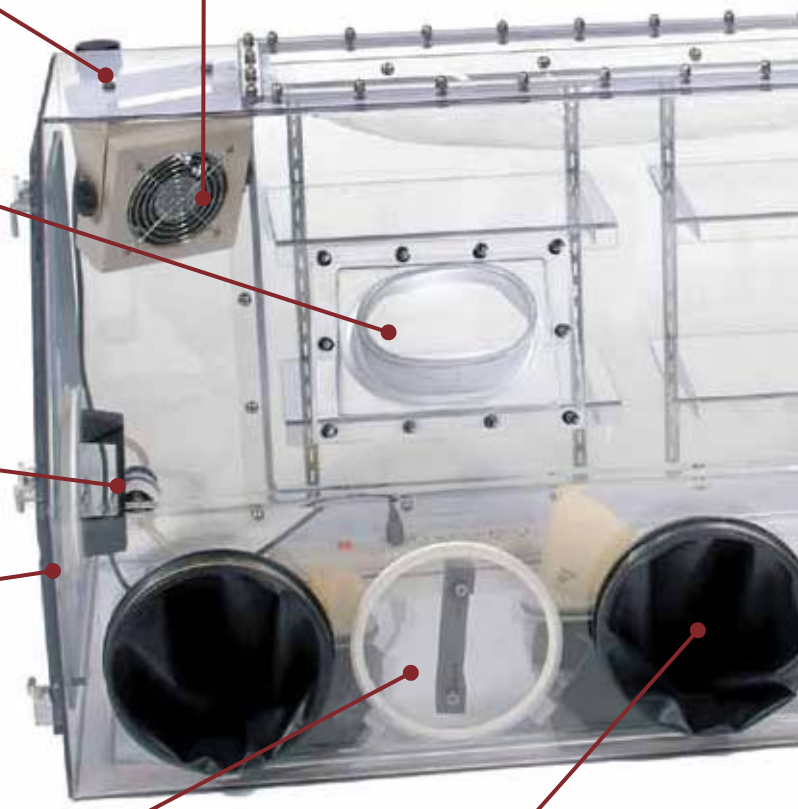
Vents excess pressure to the room or a fume hood.

Additional Circulation Fan

Provides optimal air circulation; standard on the 4- and 5- foot polymer units (fan heated on 5-foot unit)

Microscope View Port

This flexible vinyl sock fits directly over the eyepieces of your microscope, allowing them to extend through the wall of the glove box for easier use.



Feed-Thru Adaptor

Input location for electrical wiring, tubing and cords

Large Side Door

Allows easy introduction of necessary equipment.

Gloveless Sleeve (pictured) or Sleeve-Length Glove

Provides access to the chamber. Gloveless sleeve eliminates oxygen before entering the chamber without compromising anaerobic conditions.

Arm Port Plug

Slides and fits tightly into the arm hole of a chamber to make an airtight seal when the gloves are being changed or when the gloveless sleeves are idle. No additional effort required.

Patented Diaphragm Top

Allows the chamber to physically adjust to the user's hands entering and exiting the glove box, thus saving gas. There's no waiting for expensive electronics to compensate so there is no glove fight-back.

Integrated Catalyst Fan Box

Made up of a fan to circulate the air and a tray to hold the catalyst, the system is heated and has a built-in dehumidifier. The chamber air (gas mix with H_2) is circulated through the catalyst which removes O_2 by forming a water molecule.

Ball Valve

For rapid purging to establish initial atmosphere or to reestablish as necessary.

Control Panel

Includes controls and digital displays for temperature, humidity, the airlock and custom gas injection system control.

Polymer Gloveless Anaerobic Chamber

Automatic Purge-Only Airlock

An automatic purge-only airlock removes O_2 from ambient conditions to acceptable levels prior to sample transfer into the chamber's strict anaerobic atmosphere. The airlock achieves the low O_2 level through a simple purge procedure. Digital controls allow adjustments in purge time.

Shelves

Adjustable-height polycarbonate interior shelves provided in sets of two.

Model 10 Gas Analyzer for Oxygen/Hydrogen

Patented analyzer constantly monitors and displays both atmospheric oxygen and hydrogen levels at a fraction of the cost of two separate analyzers. Visible and audible alarms alert the operator. Available on all polymer units; located on a dedicated shelf above the airlock door (not shown in chamber photo above).

Polymer Anaerobic Chambers

THREE SIZES AVAILABLE:

- 3 Foot
  (with two arm ports)
- 4 Foot
  (with three arm ports)
- 5 Foot
  (with four arm ports)

Standard Equipment and Features

- Solvent welded
- Patented diaphragm top
- Purge airlock is located on right side of the chamber unless requested otherwise at time of order
- Chamber manufactured from clear ¼”/6 mm polycarbonate
- Two Stak-Paks with Catalyst
- Arm port plugs seal the chamber when operator is not working in it or when changes need to be made to the cuff, sleeve or glove

Gloveless Polymer Chamber (pictured)

Standard Features

- Automatic purge-only airlock
- Operator’s arms and hands can enter the chamber through a gloveless sleeve with cuff without compromising anaerobic conditions
- Vacuum system (foot-operated) creates a low O_2 atmosphere in the gloveless sleeves prior to operator removing arm port plugs. By allowing handling and inspection of samples barehanded or with surgical gloves, the vacuum system offers better sample manipulation relative to a gloved system
- Automatic solid-state dehumidifier
- Gas mix regulator and nitrogen background gas regulator plus tubing and fittings
- Large side door (left side placement)
- Automatic, user-adjustable gas injection system
- Fully adjustable, automatic interior heating unit
- Adjustable interior shelves
- 4-foot (48”/1219 mm) unit has three glove ports, one of which is equipped with a sleeve-length glove to allow easy reach into the airlock for sample transfer, avoiding the gloveless sleeve process which can take up to 60 seconds
- Integrated catalyst fan box equipped with additional circulation fan (4-foot unit) or additional heated circulation fan (5-foot unit)

Gloved Polymer Chamber

Standard Features

- Neoprene sleeves with fitted latex gloves and arm port plugs; optional neoprene gloves available
- One gas mix regulator and tubing
- Manual purge airlock available (right side placement)
- Chamber available heated or unheated

Why Choose Coy Polymer?

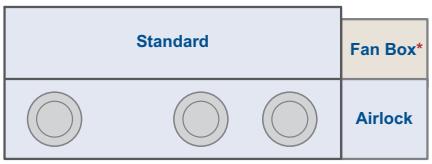
- Small customizable footprint enables chamber to fit into most spaces
- Units are low cost due to purge-only airlock
- Patented diaphragm top compensates for small volume changes, decreasing gas loss
- UV-resistant acrylic is also available for applications utilizing UV light inside the chamber
- Solvent welding ensures a strong, airtight structure that won't leak

Why Choose Gloveless?

- When strictest anaerobic environment unnecessary
- Especially useful for clinical applications or when tactile efficiency or manual dexterity is an issue

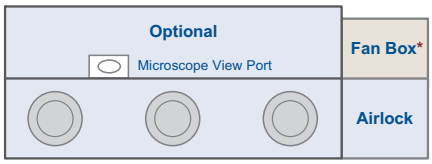
Port Locations for 4-Foot Chambers

Standard configuration has two glove ports with a third port on the right nearer the airlock. The centralized ports are gloveless but accessing the gloveless sleeve takes 30 to 60 seconds and is a drawback when the user simply wants to transfer samples. In the 4-foot gloveless units, this third port is advantageous because it has a sleeve-length glove equipped for faster access.



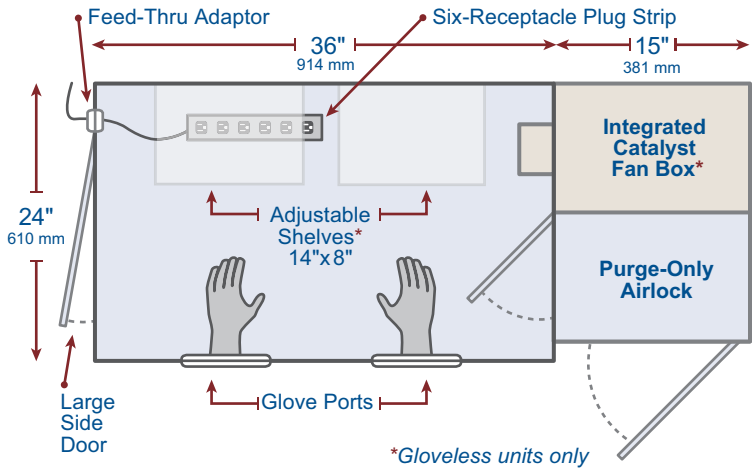
*Gloveless units only

Optional glove port locations are evenly spaced across the chamber. This configuration is usually only used for microscope applications.

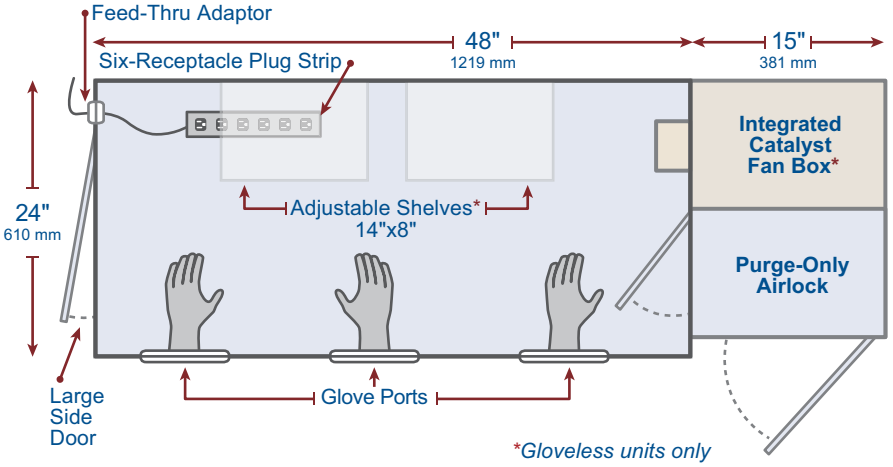


*Gloveless units only

3 Foot



4 Foot



5 Foot