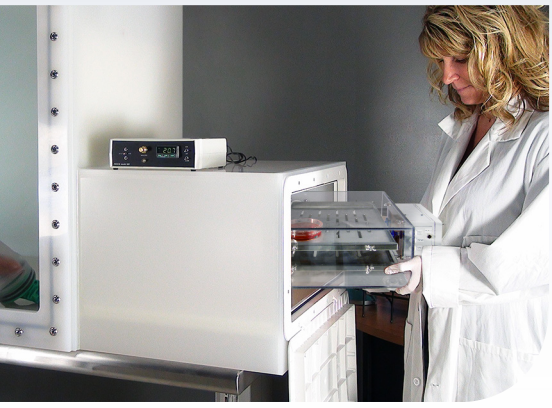
BioSpherix

CytoCentric Products

C-Shuttle

Glove Box

- **Full Time O_2/CO_2 Optimization During Handling**
- **Full Time Protection**
- **Better Cell Growth**
- **Better Cell Health**
- **Maximum User Comfort**
- **Ample Workspace**
- **Accommodates Subchambers**



Cells are brought into the C-Shuttle via sub chamber. The buffer chamber matches the workspace environment, then cells are accessed from the interior door.

O_2 and CO_2 (optional) Optimized Glove Box

CYTOCENTRIC HOOD

The C-Shuttle is part of a practical system for handling your cells under the same conditions at which they incubate. It provides ample workspace where you can handle and manipulate your cells without disruption of O_2 and/or CO_2.

FULL TIME OPTIMIZATION DURING CELL HANDLING

Interruption in optimal O_2 and/or CO_2 conditions can have major effects on cell cultures. Normally when cells are manipulated outside their incubator in clean hoods, controlled gases such as CO_2 and O_2 are disrupted.

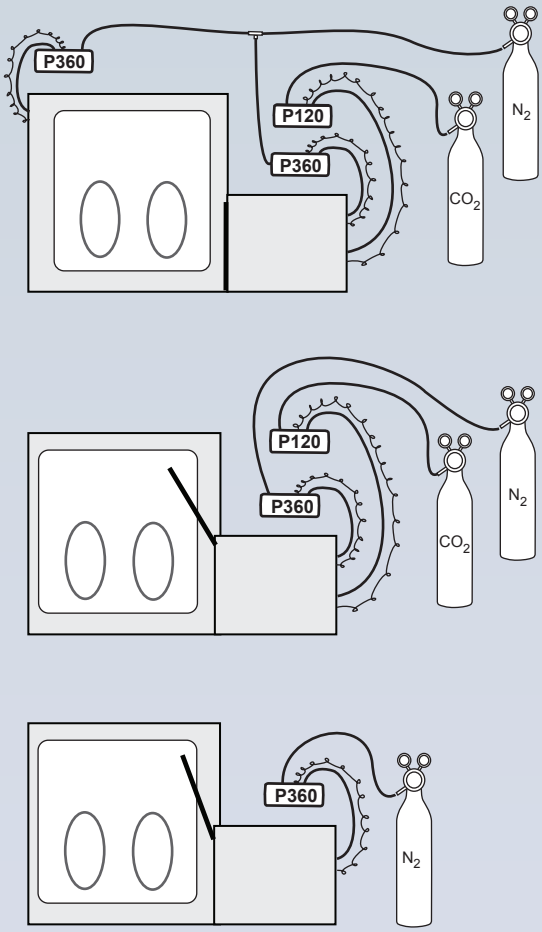
Effects can be devastating on cultures. Consider oxygen regulated genes. Hypoxia upregulated genes are immediately shut off by even brief exposures to room air.

Imagine what can happen to receptors, ion channels, cytokines, extracellular matrix, etc. when the pH changes out of the physiologic range!

DOCKS SUBCHAMBERS FROM REMOTE INCUBATORS

Using a transport vessel such as the BioSpherix C-Chamber between the C-Shuttle and your incubator is the most economical way to achieve uninterrupted conditions. The incubator protects cells from exposure. The transport chamber maintains conditions for the brief period between controlled environments. The C-Shuttle is controlled, and the buffer chamber allows your cells to enter without disrupting the set environment within.

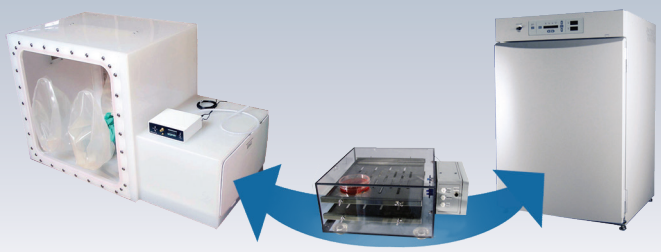
Installation Schematic



Installation

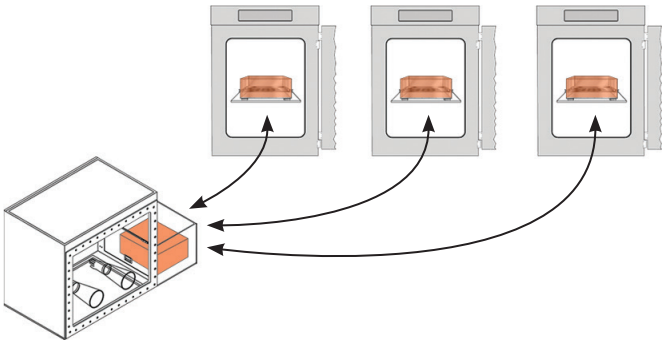
1. Set C-Shuttle on secure level surface.
2. Place controller(s) on or near buffer chamber.
3. Hook up gas supply.
4. Connect the controller(s), power supply and sensor.

How It Works

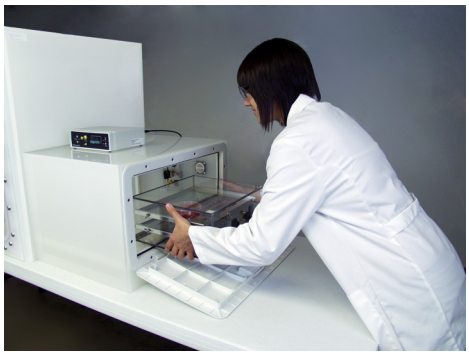


The unique C-Shuttle is comprised of several components to complete a system. It provides a workspace for cell cultures under the same O_2/CO_2 conditions where the cells reside within the incubator.

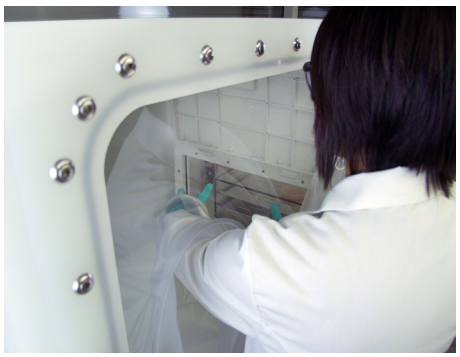
Another component, the C-Chambers, provide a semi-sealed gas-controlled transport mechanism for cultures to travel from the incubator, to the glove box, and back to the incubator. The buffer chamber of the glove box is designed to fit C-Chambers. You can leave a C-Chamber in the buffer chamber, remove cells into uninterrupted O_2/CO_2 atmosphere, manipulate them without disturbance, and finally return them into the incubator with the same O_2/CO_2. One C-Shuttle can handle dozens of C-Chambers distributed around the building.



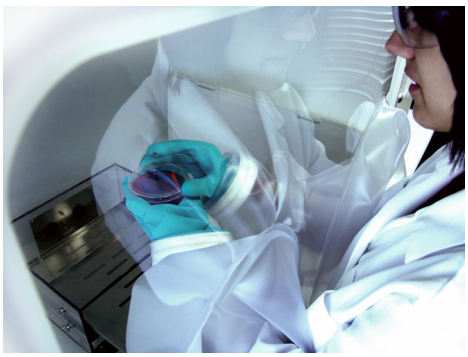
Operation



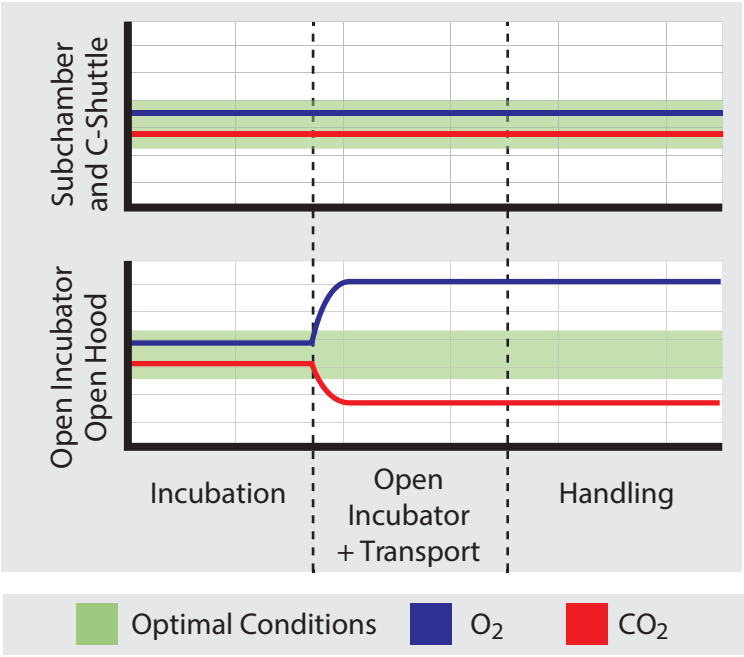
Cells are moved into the buffer chamber protected inside a subchamber with opening facing the workspace.



Technician removes cells from the subchamber docked in the buffer chamber.

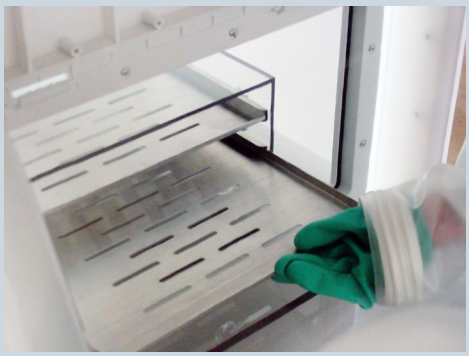


Cells are handled and manipulated under aseptic and optimal O_2/CO_2 conditions and returned to subchamber after handling.



Cells removed from normal incubator and handled in normal hood are exposed to suboptimal conditions. Cells cultured in a subchamber and handled in a C-Shuttle are never exposed to suboptimal conditions.

The C-Shuttle allows plenty of head-space for long pipettes and other instruments. Technicians work comfortably.



C-SHUTTLES PROTECT THE RESEARCHERS

Cells are often purposely grown and processed to generate or test viruses and vectors. More worrisome is when cells are unknowingly infected with viruses or other transmissible agents. The C-Shuttle limits exposure to harmful viruses, vectors and prions where conventional open labs allow the technicians to breathe potentially dangerous non-cellular biological entities.

UNINTERRUPTIBILITY

When working in a C-Shuttle your cells are never exposed to sub-optimal conditions. Whether you're using $O_2/CO_2/N_2/CO$ your workspace and transport is always controlled to a precise and optimal level. Top scientists have been telling us for decades that the sudden shift of oxygen from open incubator doors and manipulating cells in normal room air is causing havoc on HIF and other transcription factors.

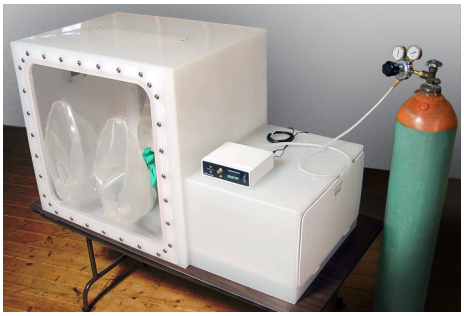
PROTECTION AGAINST CONTAMINATION

In open labs with open hoods, cells and researchers share the critical workspace most of the time. The majority of contamination in labs is caused by humans and their bioburden. A closed environment provided by the C-Shuttle and C-Chambers ensures that the main source of contamination is removed.

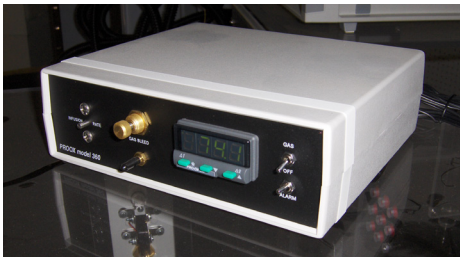
Top Left: Cultures can be handled inside the workspace at the same O_2 and/or CO_2 by simply opening the C-Chamber from inside.

Left: C-Shuttle buffer chamber receives chambers C174, C274, and C374. Cultures can easily be moved from their host incubator, without disturbance of O_2 and/or CO_2.

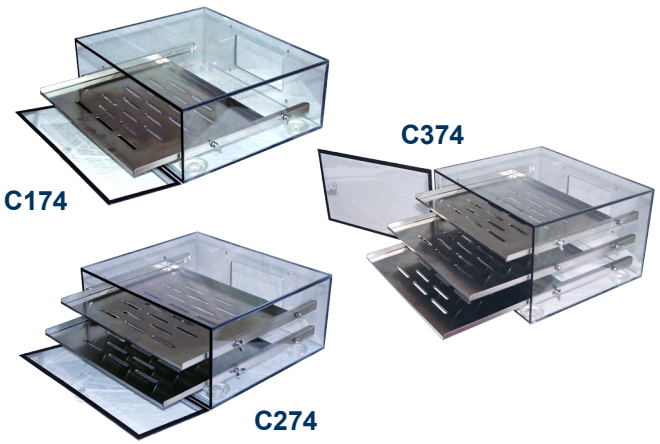
Parts



COMPLETE SYSTEM - The C-Shuttle, a C-Chamber (sold separately), a gas controller (system comes with ProOx P360, other options available) and gas (customer supplied). A nitrogen gas supply is necessary for hypoxia. If CO_2 control is necessary, a CO_2 controller and tank of CO_2 is also required.

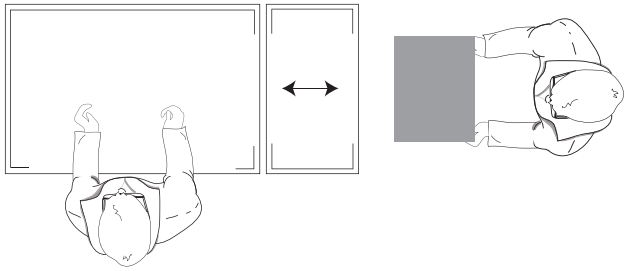


CONTROLLERS - Controllers such as the ProOx P360 (pictured above) and similar O_2 / CO_2 controllers fit the C-Shuttle. They are flexible and very capable.

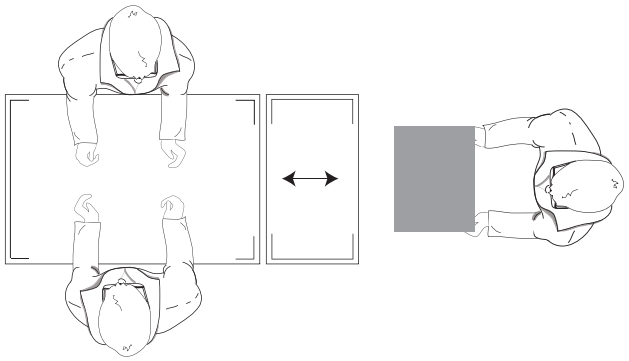


Three standard C-Chambers sizes are compatible with the C-Shuttle. One of the three should fit most applications.

Options

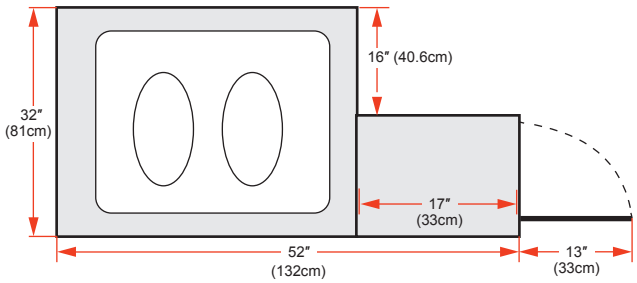


Typical configuration for one user access (Top view)

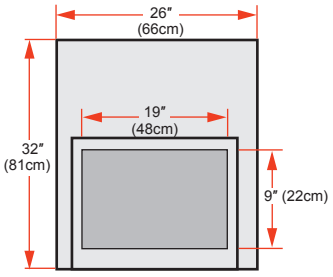


Optional two user access configuration (Top view)

Dimensions



Front View



Buffer End View

BioSpherix®

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cell incubation and processing
systems

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