

Attributes

- Suitable for no flow through high rate flow procedures where a rapid exchange of media is required with low cell surface shear
- Cell temperature can be controlled from ambient to 50 degrees C +/- 0.2 degrees C without the need of an air curtain
- Temperature is controlled uniformly across entire field with media equilibrating as it enters the chamber
- Closed system so that bicarbonate CO2 or organic buffers can be employed
- Compatible with 1/16" tubing for perfusion (C-Flex, Tygon, etc.)
- Easily assembled with ordinary skill (no tools required) Stand-alone temperature controller with an alarm circuit to safeguard your cells
- Near laminar flow

Uniform temperature, closed, live-cell environmental chamber.

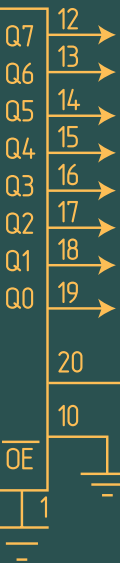
**FCS3 Closed Chamber for Upright Microscopy**

Closed System Live Cell Environmental Chamber System for Upright Microscopes

The FCS3 provides the user with all of the functionality of the popular FCS2 but redesigned for upright microscopes.

What is it?

The Focht Chamber System 3 (FCS3) is a live-cell micro-observation system specifically for upright microscopes. It has all of the optical, thermal and fluidic capabilities of its predecessor the FCS2. Therefore, it provides compatibility with all modes of microscopy, uniform temperature control throughout the observation aperture, a near laminar flow that is adjustable to provide the user with the ability to modify the separation of optical surfaces, flow path geometry, and fluid volume.



How does it work?

Temperature Control

The FCS3 was designed to maintain accurate thermal control and allow near laminar flow perfusion. Both of these functions are incorporated into our patented Microaqueduct Slide (see drawing below). The surface of the slide, opposite the specimen side, is coated with an electrically conductive transparent thin film of Indium-Tin Oxide (ITO) and two electrical contacts (busbars). When the FCS3 is completely assembled and placed on the stage adapter, two electrical contacts and a thermal sensor, (not shown in drawing), rest on these busbars. A temperature controller is used to pass a regulated current flow through the ITO Coating. This causes the surface of the slide to heat. The heat is transferred through the media to the cell surface on the coverslip thereby providing a conductive heat transfer. The metal base of the chamber is also temperature regulated to provide heat to both the incoming media and peripheral thermal support to the metal housing.

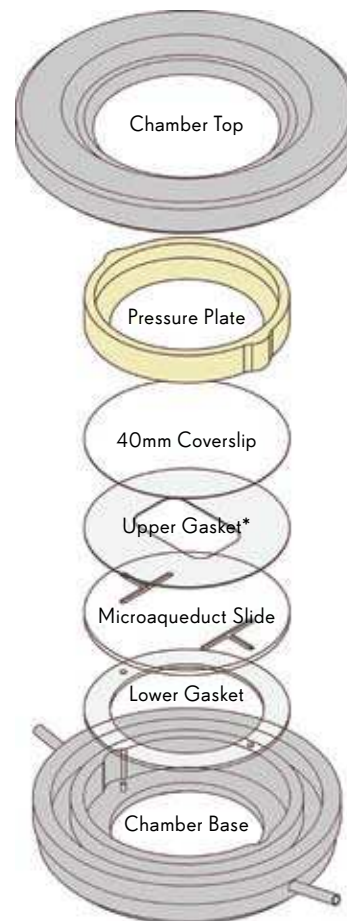
Microaqueduct Slide

Microaqueduct Perfusion: A fluid pathway is formed by separating the Microaqueduct slide from the coverslip containing cells with a single silicone gasket. This gasket can be any thickness from 50 micron to 1mm and any lateral geometry you choose or create. This arrangement allows the user to define the flow characteristics. Therefore, you are not limited by the geometry of the optical cavity instead you select or create it! Fluid access to this flow channel is made through two 14-gauge needle stock tubes protruding from the sides of the chamber top. These tubes provide fluid connection to two perfusion holes in the Microaqueduct slide that interface two "T" shaped grooves cut into the inner surface of the Microaqueduct slide. The "T" groove allows the media to seek the path of least resistance and become nearly laminar before flowing across the cells. This technique eliminates the need for the metal perfusion ring and additional gaskets, which are the limiting factors, required by most conventional chambers.

Microaqueduct design enables proper Koehler illumination with high-numeric aperture optics for both transmitted and reflected modes of microscopy.

The system is comprised of:

- Chamber (environmental optical cavity)
- Electronic Controller
- Stage Adapter



FCS3 Closed Chamber Ordering Information

Part No.	Product Description
Bi-21-060319-3	FCS3 Starter Set: FCS3 Chamber, Chamber Controller, 5 Microaqueduct Slides, 50- #1.5,40mm Coverslips, and Gasket Set (30/set)
Bi-21-060319-3-08	FCS3 Universal Upright Stage Adapter -other sizes avail.
Bi-21-060319-3-03	FCS3 Chamber
Bi-21-060319-3-0303	FCS3 Chamber Controller
Bi-060319-2-0719	FCS3 Gasket Set (30/set)
	Complete Bioptechs product line available.

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