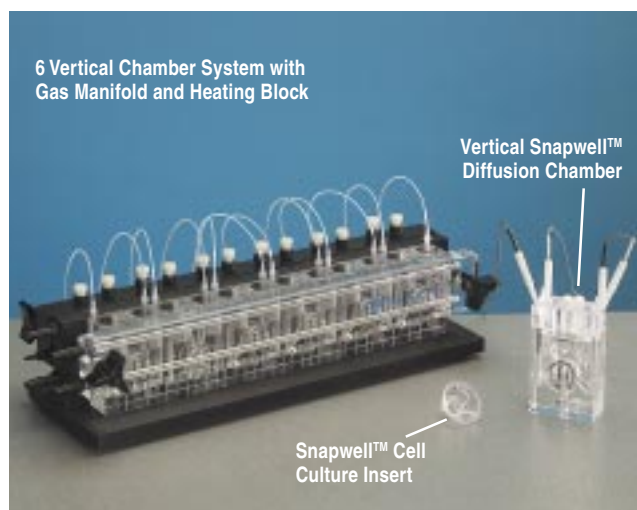


Vertical Ussing and Horizontal Diffusion Chamber System



Vertical Diffusion/Ussing Chamber System

The vertical diffusion chamber system is used for transport studies on both filter grown cell monolayers and surgically excised tissue sections. The vertical diffusion chamber system consists of six diffusion chambers, a 12-channel gas manifold and a heat block. Six general types of vertical chambers are currently available: one for use with cells grown on Snapwell™ membrane supports and the others for use with tissue.

Tissue Diffusion Chambers

Tissue diffusion chambers are constructed as two half-cells that are held together by a high tension spring retaining ring that insures leak free operation. They are available with both circular and oblong openings, depending on the tissue type under study. For example, for intestinal tissue studies, oblong openings can increase the effective surface area of the sample.

Several low volume tissue chambers that reduce the amount of compound required to conduct permeability studies and custom chambers are also available. Up to six vertical chambers of any type can be placed in the heat block at one time, allowing convenient execution of six simultaneous transport studies under precise experimental conditions. The compact configuration, 38.1 x 10.2 x 12.7 cm (15 x 4 x 5 in), conserves valuable bench space. An optional heat block that can hold up to 24 chambers is also available. An optional adapter (perfusion cap) can be inserted into each half cell for closed perfusion applications. Figure 2 depicts the vertically configured Snapwell™ and tissue diffusion chambers for use with either the 6 or 24 chamber vertical diffusion chambers.

- Designed for easy placement of Snapwell™ (grown cells) or tissue sections
- All Snapwell and tissue diffusion chamber configurations are compatible with the vertical system, providing versatility and convenience for correlation studies
- Side-by-side orientation prevents a hydrostatic pressure gradient across cell layer
- Distributes gas (user supplied) to the diffusion chambers where media circulation is generated by gas lift, reducing unstirred fluid layers adjacent to cells
- Individual control valves on gas manifold allow independent adjustment of gas flow into each diffusion chamber half-cell
- Closed perfusion capable

Gas Manifold

The 12-channel gas manifold distributes gas (user supplied) to the Diffusion Chambers where media circulation is generated by gas lift, reducing unstirred fluid layers adjacent to cells.

Heat Block

The dual heating blocks of the Vertical Chamber System provide efficient and precise heating or cooling of the Diffusion Chamber System. Temperature is controlled by use of a circulating water bath. The Heat Block and Gas Manifold allows six simultaneous tests to be run, improving experimental precision.

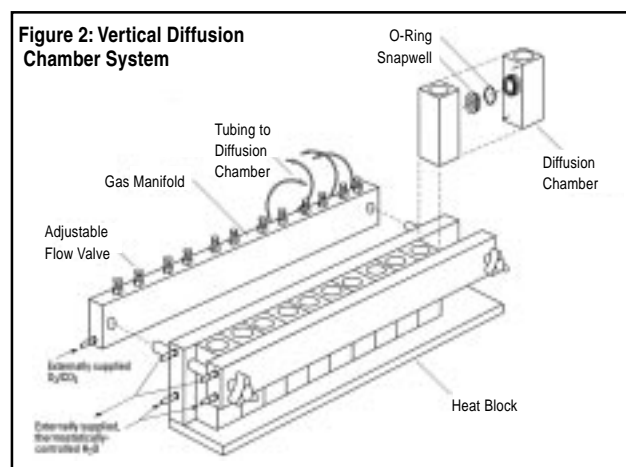


Figure 2: Vertical Diffusion Chamber System