

## A Special Bioreactor System Integration for Mammalian Cell Culture

By

### Genesis Tehnologies

New milestone has been reached in biotechnology that brings complete design flexibility and simplicity to the production of mammalian cells and their byproducts. It is now possible to use a variety of cell culture methodologies for the successful growth of virtually all eukaryotic cell lines.

We offer an universal system has been designed for the growth of anchorage-dependent and suspension cultures. For secreted products a fibrous-bed of polyester disks may be employed as a matrix for high-density growth of cells immobilized on the disks. This support is ideal for production of secreted proteins regardless of cell type. Whether growing insect cells, hybridomas or recombinant anchorage-dependent cells, the fibrous-bed concept can maximize productivity.

For some suspension cell lines, marine and pitched blade impellers may be preferred to minimize shear forces and enhance O<sub>2</sub> transfer rate ( eg. double screen-impeller increases O<sub>2</sub> transfer by 20%).

#### **System Features:**

- Interactive 4-gas control with sequential addition of air, O<sub>2</sub>, N<sub>2</sub> and CO<sub>2</sub> for precise pH and D.O. control.
- Internal ring sparger and air/gas overlay facilities.
- Five programmable pumps with assignable functions for feed/harvest, level/antifoam, acid and base addition.
- Computer interface for data logging and computer control.
- Drive motor easily uncoupled for removal of vessel.
- 4-channel recorder output for pH, D.O., temperature and stirring speed.
- Eliminates need for micro carriers with anchorage-dependent cells.
- Entrapped cells avoid shear from impellers, gas bubbles and pumps.
- Cell entrapment allows higher mixing speeds, increasing mass transfer of nutrients and oxygen.
- Capable of continuous measurement of oxygen uptake rate for real-time cell mass determination.
- Secreted products automatically separated from cells in perfusion, eliminating filtration and membrane fouling. Simplified scale-up from 1.4 liters to custom-designed production systems.