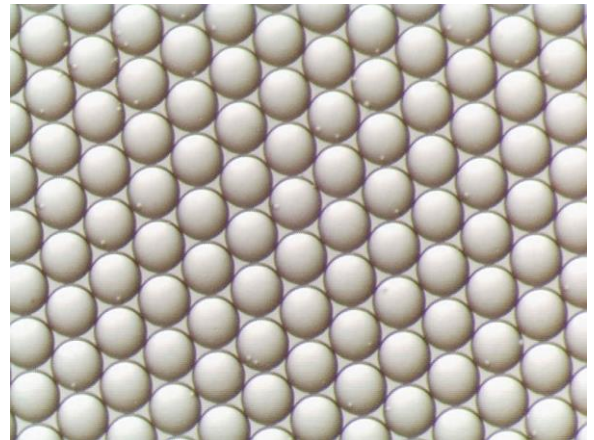
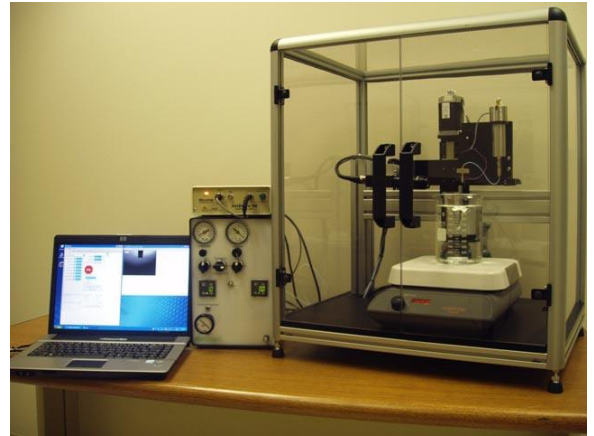


## Precision Microsphere Manufacturing System

### Product Description

MicroFab has taken three popular ink-jet based microsphere production methods and combined them into a single bench top research platform. Based on MicroFab's research into ink-jet manufactured drug loaded microspheres, the SphereJet™ system combines drop-on-demand, pressure assisted drop-on-demand, and continuous ink-jet drop formation. Drop generation rates of up to 50kHz and drop diameters of 20  $\mu\text{m}$  to 100  $\mu\text{m}$  can be achieved. With the SphereJet™ system, researchers can develop new materials and protocols based on the solvent extraction/evaporation method of microsphere manufacturing.



### Standard Features

- Drop-on-Demand, Pressure Assisted Drop-on-Demand, or Continuous Mode drop formation.
- 10" x 10" digital stir plate with RPM readout.
- 1L collection vessel.
- Software controlled Z-axis positioning.
- Low and high pressure (up to 100 psi) pneumatics controls
- CCD camera for drop and collection observation.
- Enclosed and controlled ventilated work area.
- JetDrive™ V drive electronics with bipolar, sine, and arbitrary waveform modes.
- JetLab® control software.

## Applications

- Controlled Drug Delivery
- Microencapsulation
- Protein Delivery
- Tissue Engineering Supplements
- DNA Delivery
- Growth Factor Delivery
- Tracer Encapsulation
- Explosives Encapsulation

## Microsphere Characteristics

- Monodispersity
- Controllable Process
- Material Flexibility
- High Drug Loading Efficiency
- Sustained Release
- Pharmacological Efficacy
- Scalable Process

## Specifications

Subsystem	Standard
Jet Drive Electronics	JetDrive V embedded: Bipolar, Sine, & Arbitrary Waveform modes
Operating Frequency	up to 30kHz DOD / up to 50kHz Continuous
Pneumatics control circuit	four state pneumatic control; vacuum/pressure fine adjust 0-100 psig; 2 digital pressure gauges (low & high)
Microsphere Generation Modes	Drop-on-Demand (DOD) & Pressure Assisted DOD; Continuous with immersed dispenser tip
Computing hardware	Laptop, 733Mhz processor, 512MB RAM, 40+ GB hard drive, CD-ROM, Ethernet, 2 uncommitted USB 2.0 ports)
Visualization	Horizontal camera for jet setup; 4x3mm field of view; USB camera & software
Dispensing Device & Printhead	MJ-AT-01-xxxx low-temperature printhead; custom MicroFab high pressure printhead

