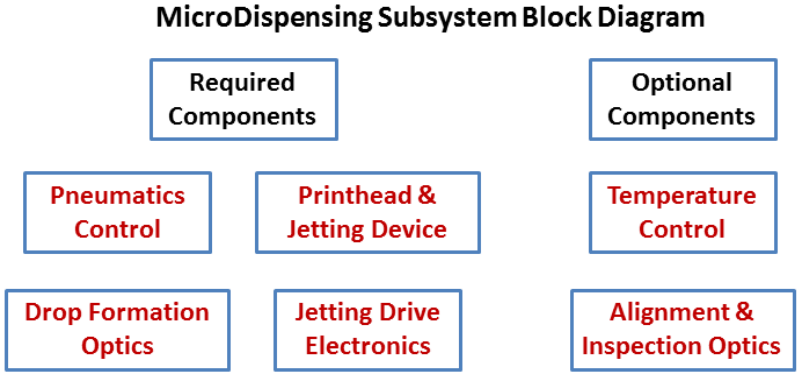
Subsystem Selection Guide

Subsystem Functional Elements

For customers interested in developing their own system using MicroFab Subsystems, the required and optional functional elements of a Microdispensing Subsystem are shown in the block diagram below. [See Printer Selection Guide for a block diagram of an ink-jet based printing system.]



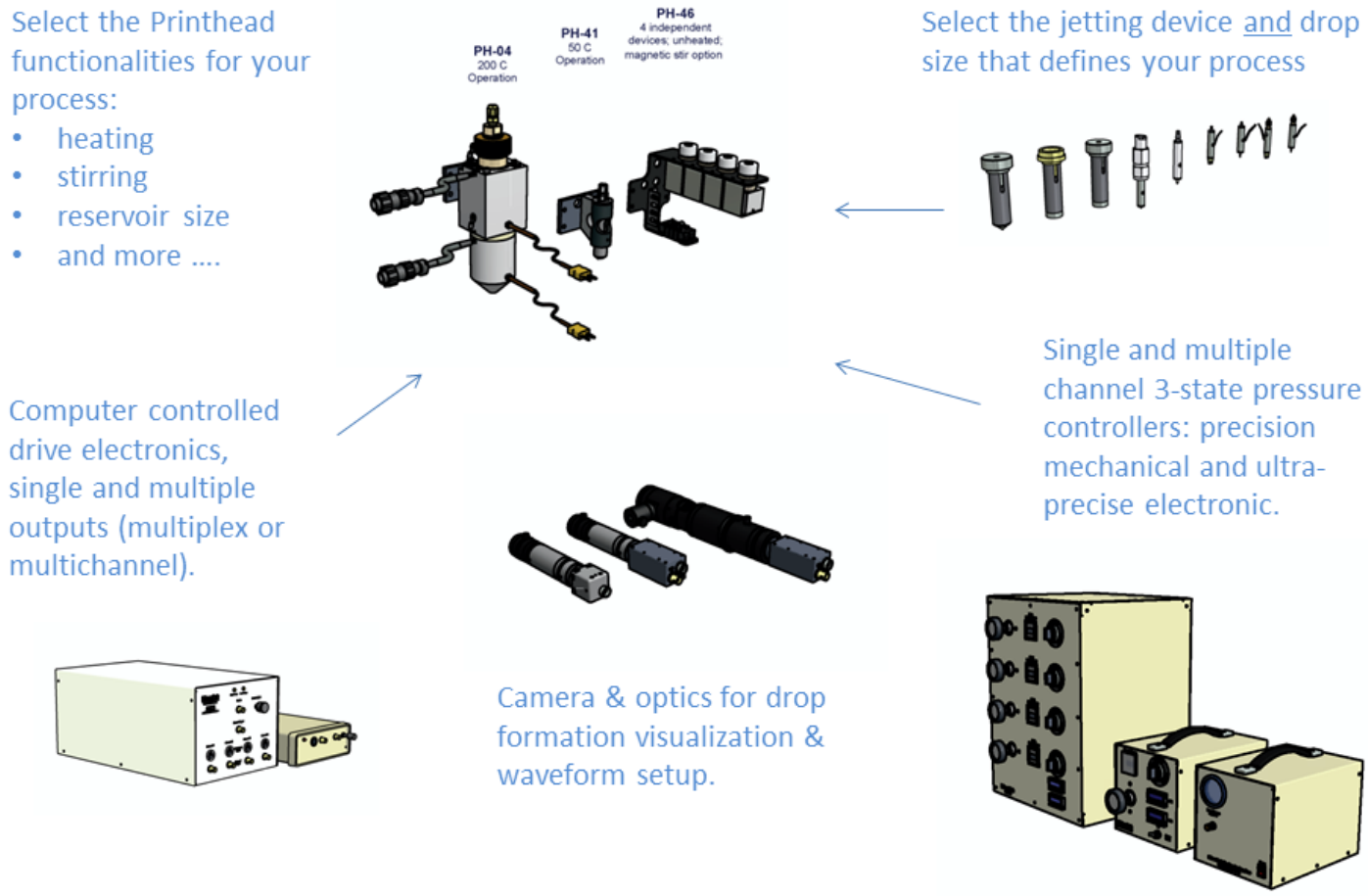
Subsystem Selection

MicroFab offers a large number of options for the printhead subsystem and jetting device, in order to meet the requirements of your application. A customer can select orifice diameters from 10 to 150 microns; operating temperature to 240 ° C; reservoir volumes from 0.5 to 30 mL; stirred reservoirs; size & types of in-line filtration; fluid connectivity from a range of options; and multiple fluid configurations.

To support the operation of the printhead subsystem and jetting device, MicroFab offers two pressure control systems: one using a precision mechanical regulator integrated into a three-state control circuit; and an ultra-precise electronic pressure controller built into the same circuit. Both types of controllers are available in 1-4 channel configurations. For printhead that have integrated heating capability, the temperature controllers are normally integrated with the pressure controller.

The JetDrive™ III computer controlled drive electronics is designed to provide complex drive waveforms to MicroFab's MJ microdispensing devices, allowing operation for a broad spectrum of materials. A Windows® based control program (JetServer™) and the basic command set are provided. The JetDrive™ III comes in single output and multiple

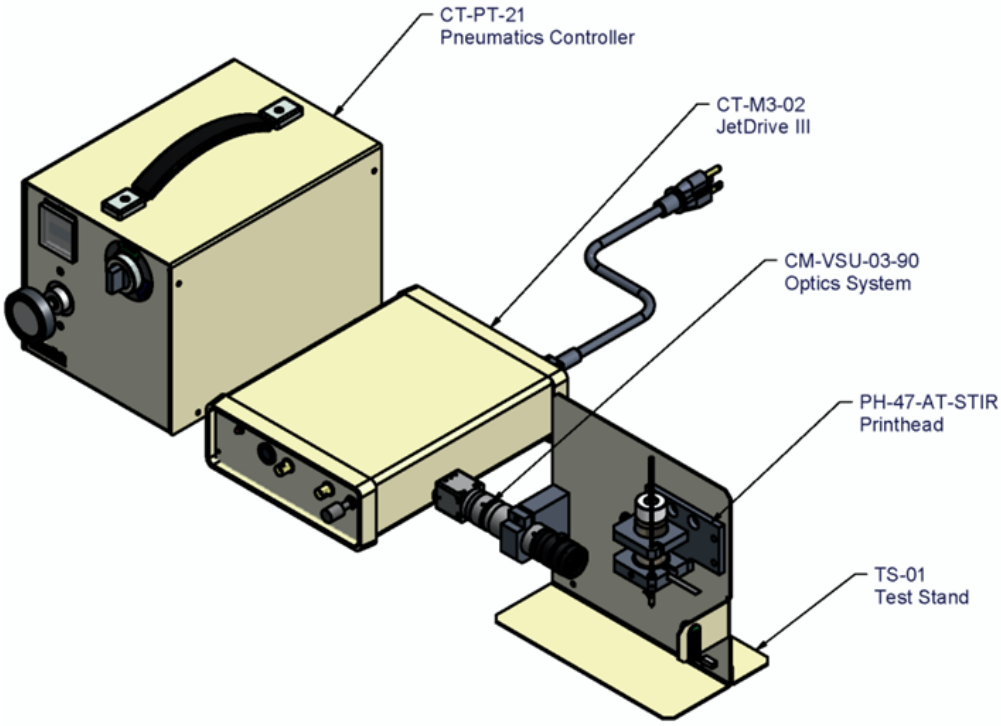
output (multiplexed or multichannel) configurations.



Example Subsystem Configuration

An example of a Microdispensing Subsystem is shown below: single fluid channel, room temperature printhead with a stirred reservoir; pneumatic pressure controller, drive electronics, and drop observation optics. The printhead and optics are shown assembled on a test stand. This allows the Microdispensing Subsystem to be used independent of customer supplied hardware, decoupling training and technology familiarization of the

ink-jet functions from the rest of the system.



More Information

A Basic Ink-Jet Setup contains more information about the function and operation of subsystem components.