

## Syringe Pumps

### Customized Solutions - OEM and Special Syringe Pumps



Microliter Syringe Pump Module



PHD ULTRA™ Syringe Pump Module

**H**arvard Apparatus offers a full line of OEM Pumps which can be integrated into an existing system or operate independently via computer control. Harvard Apparatus has a wealth of experience in the development and manufacture of specialized fluidic systems.

We offer the broadest selection of fluidics components, systems and specials. Whether your requirement is for a single order/one time study or you need a fluidic module to integrate into your system, we have the solution. With our extensive experience and variety of stand alone pumps and modules we can customize a product for your application. If you do not find what you are looking for, please contact our expert technical staff so we can review your specifications and work with you to develop or modify a product to meet your needs.

#### AMONG THE APPLICATION AREAS WHERE WE HAVE DEVELOPED OEM SOLUTIONS ARE:

- Mass Spectrometer Calibration Systems
- Medical Injection Devices
- Microfluidic Systems
- Drug Deposition Systems
- And More!

All of the Harvard Apparatus OEM modules are based upon our proven digital syringe pumps. They deliver the same accuracy and reproducibility as our stand alone pumps. We offer a wide range of flow rates and applied forces ranging from 6 lbs to 1,800 lbs.

Syringe diameter, flow rates and target volumes are stored in non-volatile memory. Serial communication is handled through either the RS-232 or USB ports depending upon the module. Every module is supplied with a serial cable. Some of the modules are available with or without a power supply while others come standard with a power supply.

**Our manufacturing facilities in Massachusetts are registered with the U.S. Food and Drug Administration as manufacturer and contract manufacturing facilities.**

#### OEM Syringe Pump Modules

	Order #	Flow Rate	Average Linear Force	Control	Communications
PUMP 11 ELITE MODULE	PC5 70-4800	1.28 pl/min to 88.28 ml/min	35 lbs at 100% Force Selection	PC or other external controller	USB input
MICROLITER SYRINGE PUMP MODULE	PC5 70-2220 or PC5 70-2225	0.001 µl/hr to 1.33 ml/min	6 lbs at 100% Force Selection	PC or other external controller	RS-232 serial input
MILLILITER SYRINGE PUMP MODULE	PC5 70-2219 or PC5 70-2226	0.001 ml/hr to 44.28 ml/min	25 lbs at 100% Force Selection	PC or other external controller	RS-232 serial input
HIGH PRESSURE SYRINGE PUMP MODULE	PC5 70-2202	0.0001 µl/hr to 220.82 ml/min	200 lbs at 100% Force Selection	PC or other external controller	RS-232 serial input
PHD ULTRA™ SYRINGE PUMP MODULE	PC5 70-3506	3.06 pl/min to 215.8 ml/min	75 lbs at 100% Force Selection	PC or other external controller	RS-232 and USB serial input
PHD ULTRA™ PUSH/PULL SYRINGE PUMP MODULE	PC5 70-3508	3.06 pl/min to 215.8 ml/min	75 lbs at 100% Force Selection	PC or other external controller	RS-232 and USB serial input
PHD ULTRA™ 4400 SYRINGE PUMP MODULE	PC5 70-3510	3.06 pl/min to 215.8 ml/min	200 lbs at 100% Force Selection	PC or other external controller	RS-232 and USB serial input