

DCI VPA Syringe Pumps



A VPA offers more.

More Affordable

More Integratable

More User-Friendly

More Pressure and Flowrate Options

More Than Just a Pump



DCI
TEST SYSTEMS

DCI VPA Syringe Pumps

More than just a pump

The same features that make a VPA (Volume-Pressure-Actuator) ideal for use as a pump also make it ideal for many other applications.

- Servo-motor/encoder, precisely controlled with state-of-the-art digital electronics, provides the smoothest possible drive performance with nano-liter volume resolution.
- High-speed positive feedback control loops that allow for precisely controlled constant flow rate, or accurate pressure control.
- Air-operated, zero-volume valves to allow pulse-free switching between cylinders.
- Large ports in valves and cylinder connections allow pressure control to be unaffected by small particles in the fluid.

Some of the applications for which the VPA is ideally suited include:

- Permeability or relative permeability experiments where pulse-free, precisely controlled constant flow rate is required.
- Permeability or relative permeability experiments where a constant pressure drop across a sample is required.
- Drainage-Imbibition tests, where the VPA can act as a receiver to control back pressure in one part of the test, and then subsequently as a pump to push fluid back through a sample.
- Pore-volume compressibility tests where a precise measurement of pore fluid volume expressed from (or injected into) a sample is required while maintaining constant pressure.
- Sample desaturation measurements where the precise volume of fluid expressed from a sample is required. The VPA allows these values to be read automatically so that saturation values can be calculated in real time.
- Flow experiments where precise back pressure must be maintained even with some solids in the fluid that would plug a conventional back-pressure regulator.
- Any application where constant pressure must be generated and controlled.

In short, if your application requires:

- Precisely controlled, pulseless flow
- Exact pressure control in either dynamic flow or static pressure conditions
- Accurate volume measurement to nano-liter resolution either in volume pumped or in volume received
- High pressure/low flow rate or high pressure/high flow rate capability
- Ability to handle some solids in the flow stream
- Ability to handle corrosive fluids

The VPA is right for your application.



Series 32



Series 16

More User-Friendly

The local VPA operator interface is a touchscreen display. With just a few simple steps, the VPA can be set up to operate in flow control mode or pressure control mode, and to act as either a pump or a receiver. In constant flow mode, fill rates are automatically set by the system to assure that continuous pumping can occur.

More Integratable

Seldom is the VPA the only piece of equipment in an experimental setup. Often it is desirable to have multiple devices controlled, and outputs of multiple transducers in a single data acquisition/control program. For this purpose the local operator interface panel is replicated in a LabView emulator that allows the VPA to be controlled from a PC via LAN connection. A LabView API is also available to allow a programmer to readily integrate VPA control into a system control program.

More Pressure and Flowrate Options

DCI offers three series of VPA's that cover a wide range of flow rate, pressure, and cylinder volume options. In addition, DCI can customize a pump to meet your exact requirements.

More Affordable

To find out how affordable the VPA line is, contact DCI for a quotation.

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Specifications

Model Number	Maximum Pressure	Maximum Flow Rate	Cylinder Volume	Volume Resolution	Wetted Parts
Series-Cylinder(s)-Pressure-Volume-Flow-Material	psi(bar)	ml/min	ml	nl	Material
Series 12					
12S-5-20-20-SS	5,000 (345)	20	10	0.97	SS
Series 16					
16(S/D*)-2.5-80-400-(SS/HC**)	2,500 (170)	400	80	4.8	SS or HC-276
16(S/D*)-5-40-200-(SS/HC**)	5,000 (345)	200	40	2.4	SS or HC-276
16(S/D*)-10-20-100-(SS/HC**)	10,000 (689)	100	20	1.2	SS or HC-276
16(S/D*)-20-10-50-(SS/HC**)	20,000 (1379)	50	10	0.6	SS or HC-276
Series 32					
32(S/D*)-3.5-550-550-(SS/HC**)	3,500 (238)	550	550	18	SS or HC-276
32(S/D*)-5-375-400-(SS/HC**)	5,000 (345)	400	375	12	SS or HC-276
32(S/D*)-10-200-195-(SS/HC**)	10,000 (689)	200	195	6.4	SS or HC-276
32(S/D*)-15-120-120-(SS/HC**)	15,000 (1,034)	120	120	3.9	SS or HC-276
32(S/D*)-20-90-70-(SS/HC**)	20,000 (1,379)	90	70	3.0	SS or HC-276

*Available in a (S) Single or (D) Dual Cylinder configuration

**Available in (SS) Stainless Steel or (HC) Hastelloy C 276 construction

Dimensions D x W x H (in)

Series 12	4.9 x 3.5 x 33	Controller Separate
Series 16	10.5 x 10.5 x 41	Integral Controller
Series 32	13.5 x 11.5 x 61	Integral Controller

Utilities

- Power: 110 VAC 60 Hz or 220 VAC 50 Hertz – Specify
- Air (Dual Cylinder Models): 80 – 100 psi (clean and dry)

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