

Liquid handling

PUMPS AND ULTRA-HIGH PRESSURE VALVES

Diluter/dispensers, M series (Non-CE)

- Full liquid handling functionality
- Self-priming
- No syringes
- Largest volume range available
- Easy to use Wizard format does away with math problems and charts



Cheminert M Series diluter/dispensers simplify the sample preparation process for dispensing and diluting liquids. A user-friendly Wizard format eliminates all the math calculations and charts usually associated with diluting and dispensing applications. Just enter the dilution ratio and the final volume, and the correct volume is calculated and automatically dispensed for each ratio.

For multiple dispenses, simply enter the volume and the number of dispense repetitions, and the Wizard calculates the total volume to be aspirated. It's that easy!

The diluter/dispenser is built around a patented syringe-free, bi-directional, positive displacement pump. This design approach gives the largest volume range available, and eliminates the inconvenience of having to change and refill syringes.

M10 Diluter/Dispensers

	<i>Prod No</i>
10 nl - 10 ml - M10 diluter/dispenser	CD10-4841-M1A

M50 Diluter/Dispensers

	<i>Prod No</i>
50 μ l - 50 ml - M50 diluter/dispenser	CD50-8182-M2A

Additional Features

"Smart" hand probe

The hand probe signals the operator when an aspirate or dispense step is completed. The unique design also allows the use of fixed or disposable probe tips, as well as other accessories.

Program memory

Up to 100 programs can be permanently stored.

Multi-solvent option

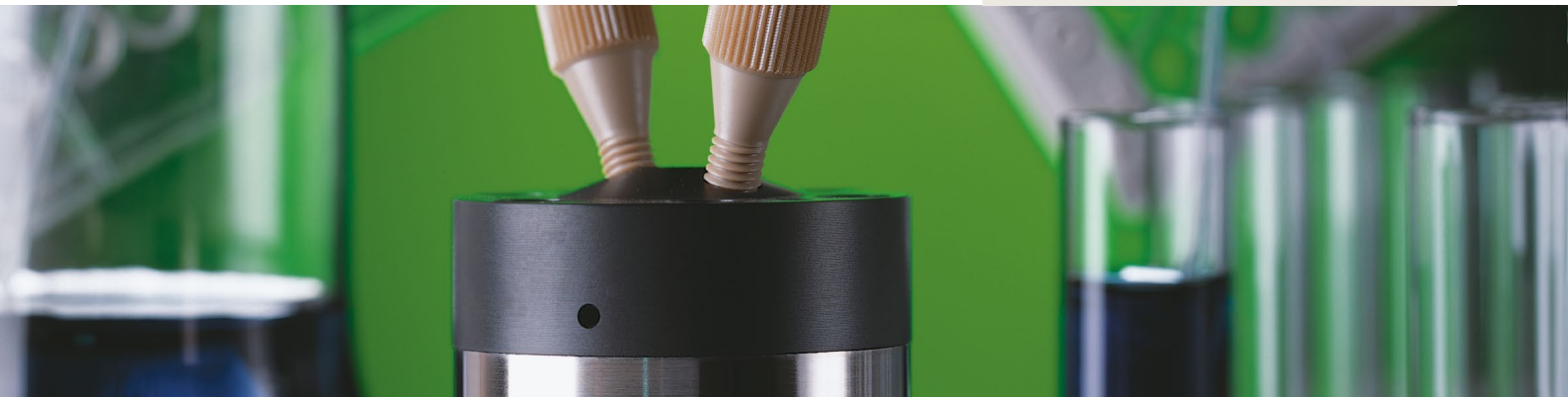
A multiposition stream selection valve can be easily integrated with the pump for multi-solvent applications.

Printer option

Print out methods, sequential steps, time/date/operator stamp, titration, and tubing volume values.

Applications

- Simple dispensing of reagents using the manual dispense mode
- Micro dispensing in microplates and genomic arrays
- Dilutions for AA, ICP, GC, and HPLC samples
- Serial dilutions for all samples
- Multi-sample and reagent additions, micro-plates, tube to plate, tube to tube
- Small and large volume dispensing of reagents
- Titrations



Liquid handling pumps, M series

CE

The Cheminert® M Series liquid handling pump is a syringe-free pump capable of delivering a bidirectional flow over six orders of magnitude.

The M Series is a positive displacement pump, which means that it is self-priming and tolerant of any gas which may find its way into the fluid lines. There is no separate fill cycle, and the capacity is unlimited.

RS-232 and RS-485 communication protocols are incorporated into the microprocessor-driven controller. (USB interface requires an adapter.) The included software package controls flow rates, flow direction, and metered volumes.

Operating principle

At the core of the pump is a polymeric rotor housing four 1/8" diameter pistons in sapphire cylinders. As the microstepper motor turns the rotor, the pistons float on a stationary cam; at any given moment, one piston is filling, one is dispensing, and the other two are in transit between the fill and dispense positions.

SPECS

	M6	M50
Continuous minimum dispense	100 nl	50 µl
Continuous maximum dispense	5 ml/min	25 ml/min
Maximum back pressure	100 psi	100 psi
Gravimetric precision		
for 125 µl	0.5%	0.8%
for 1.25 ml	0.05%	0.1%
Pump internal volume (µl)	100 ± 2 µl	625 ± 10 µl

Applications

- Flow cytometry, cell and drug perfusion
- HTS and robotic systems
- Infusion and micro-dialysis
- Micro diluters/dispensers for nl to ml range applications
- Micro liquid transfers (nl) for micro arrays
- Microtiter plate dispensing using multiposition valves

TECH TIP

Use a standoff assembly if the motor must be separated from the pump head. Standoffs are available in lengths of 2", 3", 4", and 6".



M6 pumps

10 nl - 10 ml

	Prod No
M6 pump with:	
Controller and stepper motor	CP2-4841-100M1
Stepper motor (no controller)	CP2-4841-100SM
M6 pump only	CP2-4841-100D

M50 pumps

50 µl - 50 ml

	Prod No
M50 pump with:	
Controller and stepper motor	CP3-8182-625M2
Stepper motor (no controller)	CP3-8182-625SM2
M50 pump only	CP3-8182-625D

Accessories and replacement parts

		Prod No
Pump motor		
M6		CP-DSM
M50		CP-DSM2
Controller, MicroLynx-4		CP-CM1-P
Standoff assembly *	2"	2SOAMP
	3"	3SOAMP
	4"	4SOAMP
	6"	6SOAMP

* Note: Adding a standoff will change the backlash. Consult factory for further information.

Ultra-high pressure injector system

LIQUID HANDLING

40,000 psi ultra-high pressure injector system

The VICI 40K injector is comprised of six miniature air actuated needle valves, plumbed to simulate the flow path of a conventional rotor/stator injector. An integral controller sends the on/off positioning signals to each valve, coordinating them to perform load, inject, and flush functions.

There are three methods for sending positioning commands to the injector:

- Manual control with the pushbuttons on the controller
- Laboratory computer via serial port communication
- Contact closure inputs

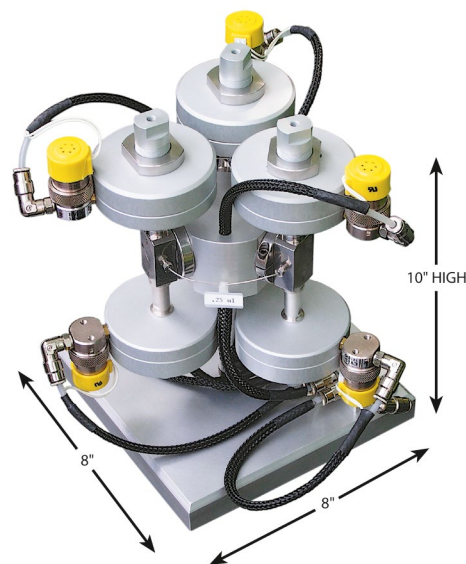
For more information, contact our technical department.

Ultra-high pressure injector system

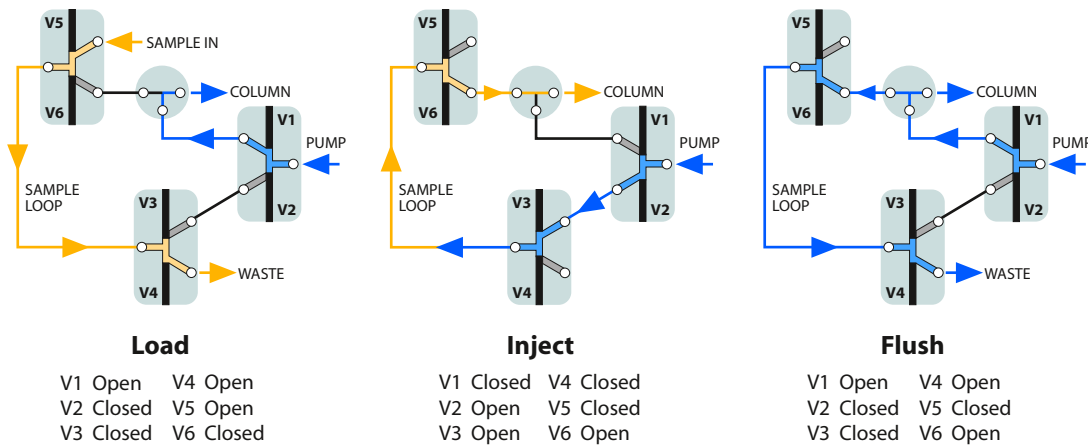
for liquids

Prod No

SPSS40



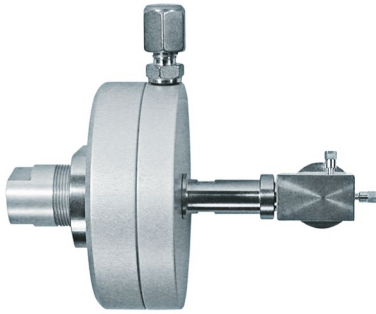
Ultra-high pressure injector system schematic



40,000 psi ultra-high pressure valves

The ultra-high pressure valves that are the heart of our SPSS40 (previous page) are now available individually, in 1/16", 1/32", and 360 micron versions. There are three types – a two port on/off valve, a dual on/off valve, and a 3-way prime/purge valve. (See page 213 for flowpath schematics.) The dual on/off configuration has two individually controlled outlets with a common inlet (or vice versa), emulating a rotary three way valve.

Implementation requires a single three-way solenoid: application of 50 psi opens the valve; venting the air allows the spring to return the valve to the closed position. A fitting for 1/8" air supply tubing is included; two fittings are included for dual valves. (Fitting: prod no EAOR21, page 219)

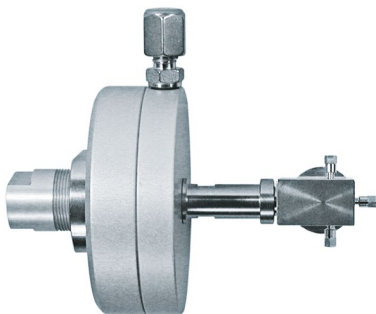


On/off valve
360 µm ZDV fittings

On/off valves

for liquids

SPECS		Fitting size	Bore	Prod No
Temp	Pressure			
50°C	40,000 psi liq	360 µm	0.15 mm	ASFVO40K360
		1/32"	0.15 mm	ASFVO40K.5
		1/16"	0.15 mm	ASFVO40K1



Prime/purge valve
360 µm ZDV fittings

Prime/purge valves

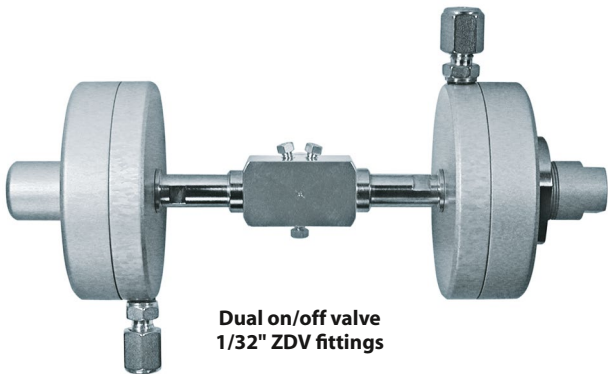
for liquids

SPECS		Fitting size	Bore	Prod No
Temp	Pressure			
50°C	40,000 psi liq	360 µm	0.15 mm	ASFV40K360
		1/32"	0.15 mm	ASFV40K.5
		1/16"	0.15 mm	ASFV40K1

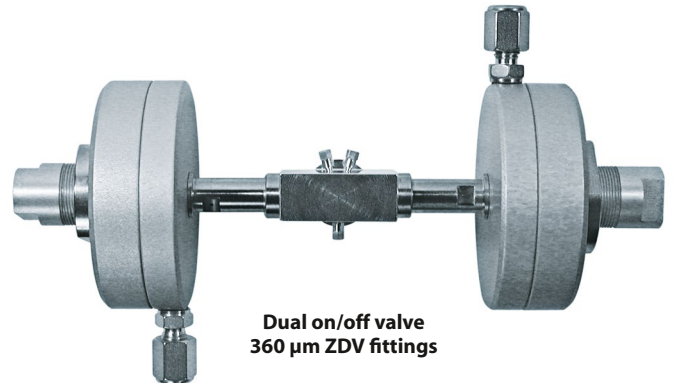
Dual on/off valves

for liquids

SPECS		Fitting size	Bore	Prod No
Temp	Pressure			
50°C	40,000 psi liq	360 µm	0.15 mm	ASFVOD40K360
		1/32"	0.15 mm	ASFVOD40K.5
		1/16"	0.15 mm	ASFVOD40K1



Dual on/off valve
1/32" ZDV fittings



Dual on/off valve
360 µm ZDV fittings

STANDARD ON/OFF AND PRIME/PURGE VALVES

2,000 psi to 10,000 psi valves pp 212-213



TECH TIP

Three dual on/off valves comprise the ultra-high pressure injector system, SPSS40, on the facing page.