



**WHITE KNIGHT®**

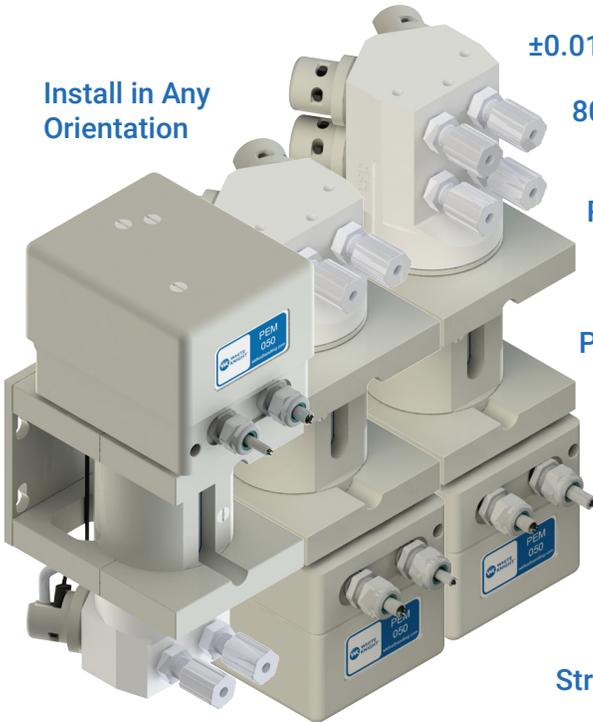
# PEM METERING PUMPS

## Ultra-Pure Multi-Port Electronic Metering Pumps

PEM electronic metering pumps accurately dispense 1-50 ml of corrosive media. They feature an adjustable stroke. Their fully supported rolling diaphragm offers 80 psi discharge pressures. They have PTFE flow paths and no exposed metalics to prevent corrosion and contamination.

### ADVANCED PUMP TECHNOLOGIES

Install in Any Orientation



Serial, Ethernet, or Digital Communications

±0.01% Repeatability

80 psi Discharge

Fully-Swept PTFE Flow Path

2-6 Fluid Ports

Programmable Suckback

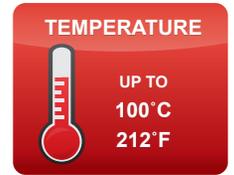
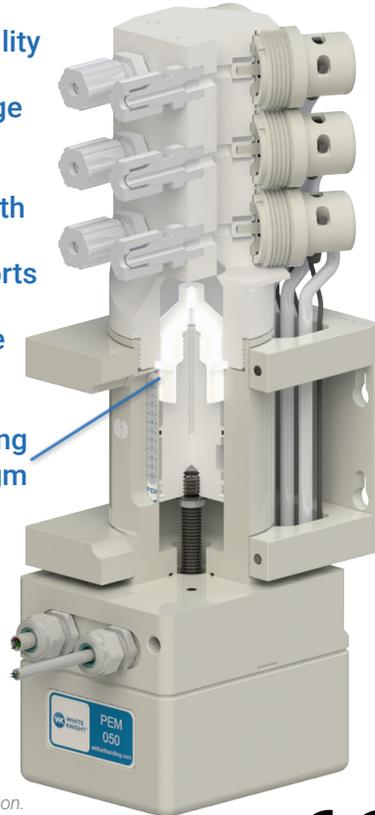
PTFE Rolling Diaphragm

Leak-Free Operation

Adjustable Stroke Speeds

No Exposed Metals

*See online animation.*



### Features & Benefits

- Electronically controlled adjustable stroke dispense volume up to 50ml
- Fully adjustable stroke speed
- Highly accurate; ±0.01% repeatable
- 2 to 6 port configurable
- No exposed metalics prevents corrosion and contamination
- PTFE wetted surfaces with fully-swept flow path for ultra-pure applications
- PTFE rolling diaphragm for linear dispense
- Visual position reference for easy setup and monitoring
- Leak detection available
- Easy to install and service with quick-change mount
- Install in any orientation
- Clean room assembly, testing and packaging
- Self-priming
- Compact footprint
- Minimal hold-up volume
- 80 PSI discharge capable
- Positive inlet/outlet valving prevents flow through
- Programmable system logic
- Programmable suckback

### Industries

Semiconductor  
LEDs & Electronics  
Flat-Panel Displays  
Photovoltaic / Solar

### Applications

Chemical Dispense  
Chemical Replenish  
Chemical Dosing  
Chemical Blending  
Chemical Spiking  
Premix Vessels  
Single-Wafer Tools

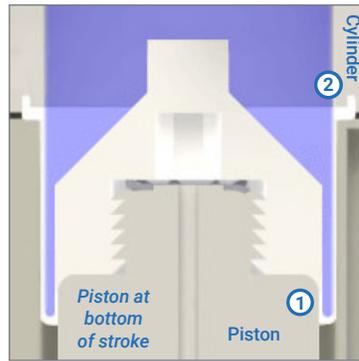
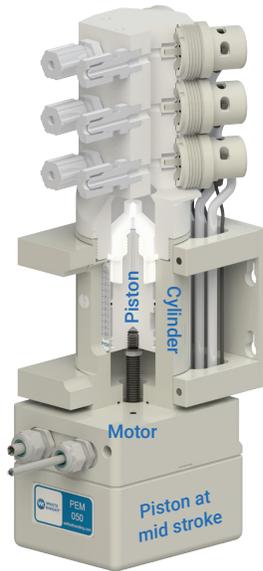
<https://wkfluidhandling.com/pem>





## Operation

As the motor moves the piston downward, fluid is drawn through a port into the chamber. As the motor moves the piston upward, fluid is forced out of the chamber, and valves control the flow through the outlet ports. Fluid may be dispensed via one port or alternated between ports. Fluid may also remain in the chamber to be dispensed as needed.



The diaphragm ends are fixed to the piston (1) and internal cylinder (2). As the piston moves, the end of the diaphragm connected to it moves and the end connected to the cylinder remains stationary. The center of the diaphragm rolls, forcing liquid in/out.

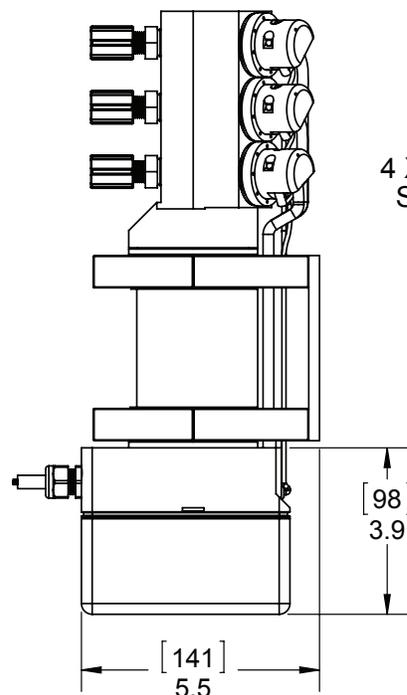
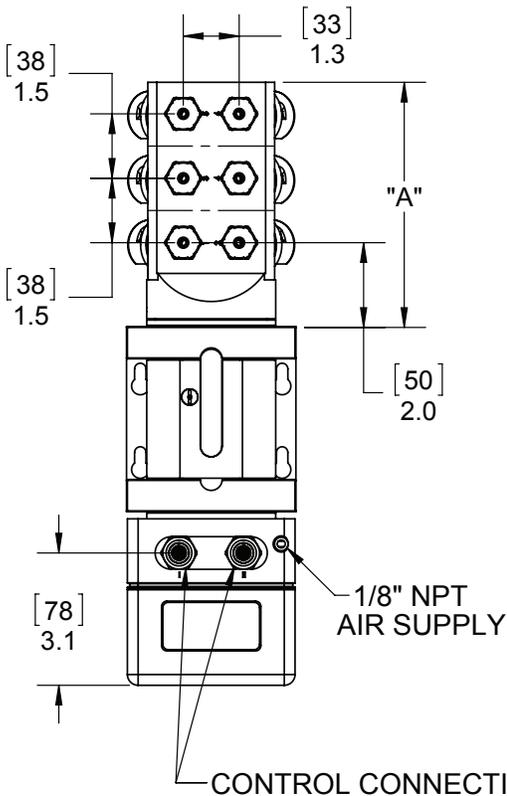
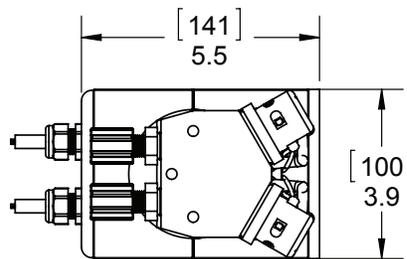
## Specifications

Model	PEM050
Dispense Range	1 - 50 ml per Stroke
Repeatability (at Full Scale)	± 0.01% *
Max Cycles Per Minute	6 CPM
Air Consumption	1 - 3 SCFM
Communication	Serial, Ethernet, or Digital (0-5 V, 0-10 V, 4-20 mA)
Valve Actuation Air Pressure	4.14 - 5.86 bar (60 - 85 psi)
Max Discharge Pressure	5.51 bar (80 psi)
Fluid Path Materials	PTFE
Temperature Capability	0 - 100°C (32 - 212°F)
Weight	2.95 kg (6.5 lb)
Suction Lift *	4.6 m (15 ft)

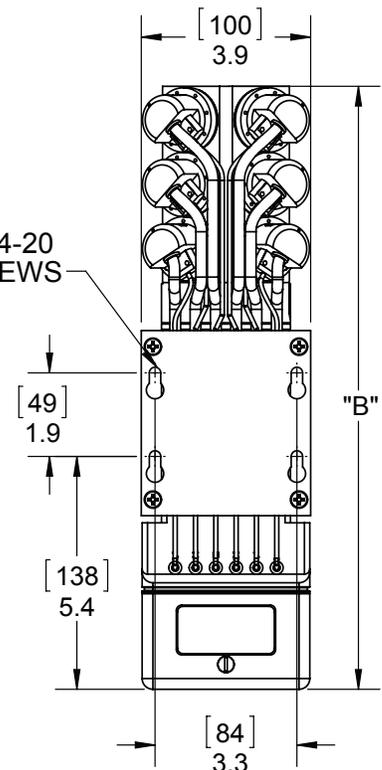
## Dimensions

Dimensions in millimeters (inches)

	"A"	"B"
PEM050-02	2.7 (69)	11.0 (279)
PEM050-03	4.2 (107)	12.5 (318)
PEM050-04	4.2 (107)	12.5 (318)
PEM050-05	5.7 (145)	14.0 (356)
PEM050-06	5.7 (145)	14.0 (356)



\*Optimized parameters can improve repeatability (up to ± 0.01%). Minimize suction lift to maximize repeatability. Contact White Knight for details. Tests conducted with water at ambient temperature. Dispense measured at full stroke with maximum and minimum supply pressures at 80 psi and 60 psi.



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