



WHITE KNIGHT®

.....engineer approved™

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 55 psi discharge pressures. They have PTFE flow paths and no exposed metals to prevent corrosion and contamination.

ADVANCED PUMP TECHNOLOGIES



Install in Any Orientation

Serial, Ethernet, or Digital Communications

±0.01% Repeatability

55 psi Discharge

Fully-Swept PTFE Flow Path

2-6 Fluid Ports

Programmable Suckback

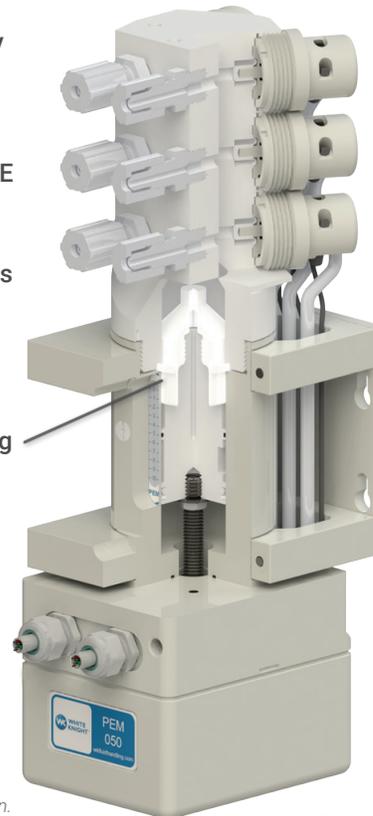
PTFE Rolling Diaphragm

Leak-Free Operation

Adjustable Stroke Speeds

No Exposed Metals

See online animation.



Features & Benefits

- Electronically controlled adjustable stroke dispense volume up to 50 ml
- 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
- 55 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

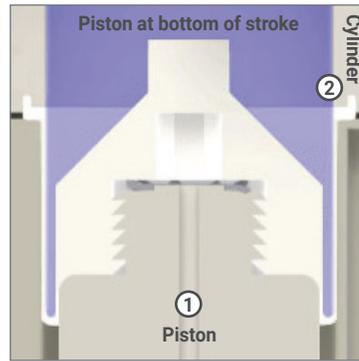
<https://wkfluidhandling.com/pem050/>





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

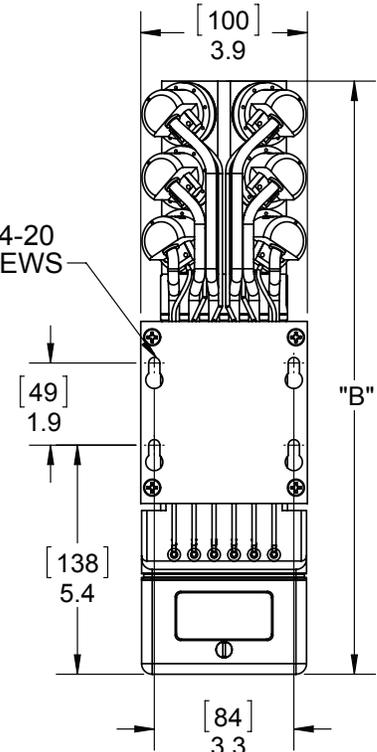
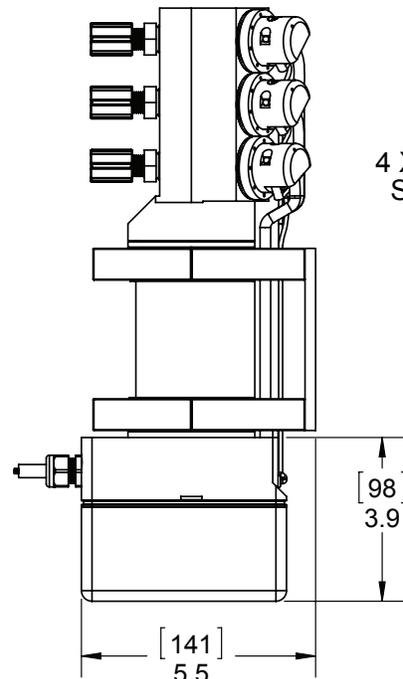
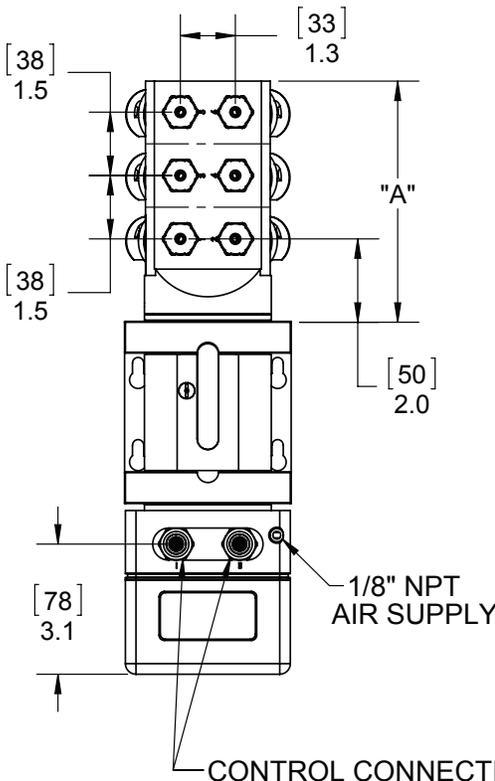
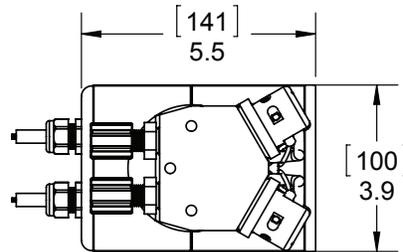
Model	PEM050
Dispense Range	1 - 50 ml per Stroke
Repeatability (at Full Scale)	± 0.01% *
Max Cycles Per Minute	6 CPM
Air Consumption	1 - 3 SCFM
Communication	Serial, Ethernet, or Digital (0-5 V, 0-10 V, 4-20 mA)
Valve Actuation Air Pressure	4.14 - 5.52 Bar (60 - 80 psi)
Max Discharge Pressure	3.8 Bar (55 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)

*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. Pressure operation >55 psi back pressure diminishes over time.

Dimensions

Dimensions in inches (mm)

	"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)



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