



WHERE
PRECISION
DRIVES
PRODUCTION



METER - MIX

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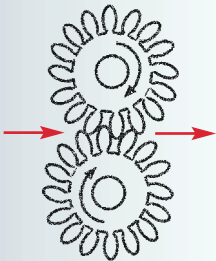
METERING SYSTEMS

PVA specializes in customized metering systems for single and plural component materials to help improve consistency and reliability with automated solutions. While each solution is tailored to a specific application, flexibility for future project growth is built into each product. PVA offers a variety of metering systems in simple, compact designs for automated or handheld operation. All systems can also be operated through a remote controlling device. PVA builds metering systems incorporating the following technologies:

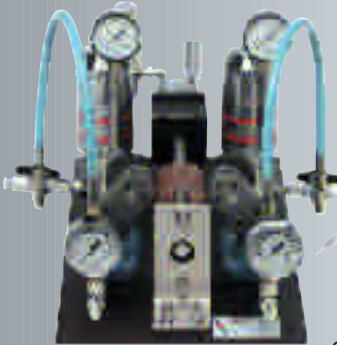
- ▲ Precision gear pumps
- ▲ Piston metering cylinders
- ▲ Rod displacement metering

PRECISION GEAR PUMPS

Servo driven gear pumps can be configured for single or dual component unfilled materials for increased volumetric repeatability. The MX3000 provides a single drive system resulting in a fixed ratio solution whereas independent drives on each gear pump in the MX3000-VR and MX4000-VR will allow variable ratio capability. An independent gear pump system permits control over material proportions allowing the process of multiple chemistries or adjustments to compensate for fluid variations. Gear pump technology produces consistent output without the necessity to recharge the metering device.



Precision gear pump



Gear pump systems offer total control over material flow rates by adjusting the input motor speed. This is ideal for both high volume applications where speed is critical or in instances where material must slowly flow into a cavity without entrapping air. Gear pump metering systems are unique in their ability to achieve flow rates up to 1,440 centimeters per minute and are ideal for both

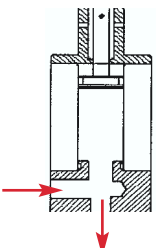
low and high viscosity materials. A gear pump metering system can be used with a standalone controller and foot pedal or trigger assembly for handheld applications or integrated with a PVA robot for precise automated results.

	MX3000	MX3000-VR	MX4000-VR
Flow Rate	Up to 875 cc/min	Up to 875 cc/min	Up to 1,440 cc/min
Viscosity	1-100,000 cps	1-100,000 cps	10,000-2,000,000 cps
Capacity	Up to 5.84 cc/rev	Up to 5.84 cc/rev	Up to 4.8 cc/rev
Mix Ratio	Fixed 1:1	1:1 to 10:1	1:1 to 10:1
Drive System	Single servo	Dual servo	Dual servo
Method	Gear pump	Gear pump	Gear pump



PISTON METERING CYLINDERS

Piston systems provide accurate metering of single or plural component filled or unfilled materials. These system configurations can accommodate high viscosity fluids and rely upon inlet and outlet check valves to control the metering process. Material displacement can be controlled pneumatically or via servo motors permitting both fixed and variable ratio solutions. The MX100-PN provides a single pneumatic drive suitable for fixed ratio applications. Greater control over flow rates in fixed ratio systems can be achieved with the MX100. The MX100 contains a single servo drive capable of controlling the displacement speed.



Piston style

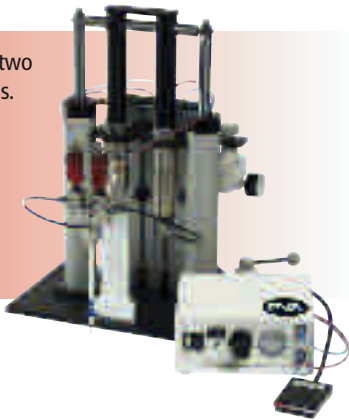
The MX100-VR contains independent servo control over each component allowing adjustment for multiple ratios. This system also permits flow rate variability. All piston metering systems are available for handheld or can be integrated with any PVA robot.

	MX100	MX100-VR	MX100-PN
Viscosity	500-500,000 cps	500-500,000 cps	500-500,000 cps
Capacity	50 cc per shot	50 cc per shot	50 cc per shot
Mix Ratio	Fixed 1:1 or 2:1	Variable 1:1 to 5:1	Fixed 1:1 or 2:1
Drive System	Single servo	Dual servo	Single pneumatic
Method	Piston	Piston	Piston

The MX60 is an ideal economical solution for low volume 1:1 meter-mix applications. A pneumatically actuated cylinder drives two pistons into six ounce cartridges for each components A and B. The MX60 is capable of processing materials from 1-100,000 cps. Any PVA mixing valve integrates with the MX60 for reliable dispensing results.

The MX60 can be integrated with the ST100 valve controller for handheld operations or integrated with a PVA robot for automated dispensing.

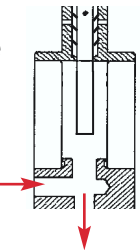
MX60					
Viscosity	500-100,000 cps	Capacity	6 oz. cartridge	Mix Ratio	Fixed 1:1
Drive System	Single pneumatic		Method	Piston	



ROD DISPLACEMENT METERING



Rod displacement metering systems are ideal for high viscosity or otherwise heavily filled, abrasive materials. The MX1000 includes a single servo drive for fixed ratio applications while the MX1000-VR offers variable ratio control via an independent servo drive for each component.



Rod displacement

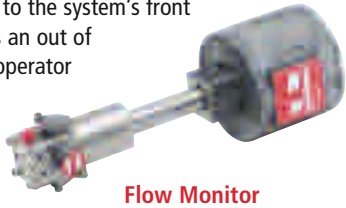
The Rod pump technology produces accurate deposits as the metering rod advances through the metering cylinder. When retracted, material will fill the cylinder through the inlet check valve. The metering rod will travel an adjustable rank that is determined by evaluating the desired dispensing operation. As material is dispensed the fluid travels through the outlet check valve to the application valve. Rod displacement systems reload as the rod retracts through the metering cylinder and material flows back through the inlet check valve.

	MX1000	MX1000-PN
Viscosity	500-500,000 cps	500-500,000 cps
Capacity	60 cc max. shot (varies based on ratio)	60 cc max. shot (varies based on ratio)
Mix Ratio	Variable 1:1 to 10:1	Variable 1:1 to 10:1
Drive System	Single servo	Single pneumatic
Method	Rod Displacement	Rod Displacement

PROCESS CONTROL OPTIONS

Every chemistry requires a degree of custom care and handling for proper processing. PVA provides a diverse selection of optional equipment including material agitation, recirculation, and vacuum degassing. PVA also offers a variety of temperature control options to assist in obtaining the desired application viscosity.

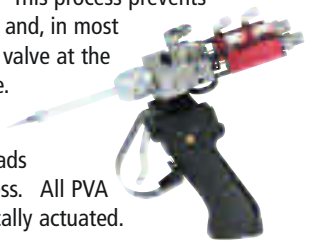
To provide additional process control data regarding your metering process, PVA provides a flow monitor option that provides feedback regarding dispensed material volumes for every cycle. The flow monitor will assure that you are getting the appropriate volume of each component within your specified tolerance. Volumes are optimized and catalogued for each dispensing operation. During the application process, material passes through the flow monitor prior to reaching the dispensing valve. The flow monitor will measure the volume of material that travels through the device and relay the corresponding quantity to the system's front panel screen. If any variable causes an out of tolerance value to be achieved, the operator will be immediately notified of the variation. The flow monitor has a resolution of 0.02 cubic centimeters and is ideal for unfilled chemistries.



Flow Monitor

APPLICATORS

PVA offers a variety of mixing heads to accommodate your application. Each applicator is designed to keep each material component separate until reaching a disposable static mixing device where the catalyst and resin will be combined to form the final chemistry. This process prevents accelerated curing in the applicator head and, in most instances, allows the operator to cap the valve at the end of the day without the need to purge.



Front closing and snuff-back valves are available, as well as custom designed heads tailored to a specific chemistry and process. All PVA meter-mix dispense valves are pneumatically actuated.

DISPOSABLE STATIC MIXERS

PVA stocks a variety of disposable static mixer lengths and diameters to fit your process. Static mixers are available in both Luer-Lok and stepped or slipped luer outlet tips. PVA static mixers are constructed of chemically inert motionless elements and a Polypropylene housing. Static mixers are available with 8 to 48 elements. All nozzles feature an oversized bell inlet for integration with any PVA two-component dispensing valve.



ENGINEERED SOLUTIONS THAT FIT

No matter what your metering requirements may be, PVA will research your application and develop a solution that best fits your process. Each dispensing solution is customized for your specific material and dispensing parameters, yet flexible enough to allow modification to meet changing production environments.

