

## FEATURES:

- Valveless, rotating, reciprocating positive displacement pump
- Ceramic internals
- ¼-28 port connections
- 0-0.150 mL/rev
- Accuracy:  $\pm 1\%$
- Repeatability  $\leq 0.5\%$
- Self Priming
- Precision stepper motors with optical sensor
- 0.5  $\mu\text{L}$  precision
- 0.5% CV
- Teflon, PVDF and ceramic wetted path
- Available in 25  $\mu\text{L}$ , 50  $\mu\text{L}$ , 100  $\mu\text{L}$  and 200  $\mu\text{L}$  configurations or custom configurations specific to your application

## APPLICATIONS INCLUDE:

### Medical

- Syringe pump replacement for diagnostics
- Clinical chemistry
- Medical equipment manufacturing
- Adhesives & lubricants used in assembly of disposable medical components
- Kidney dialysis instrumentation

### Industrial

- Metering and mixing of paint & pigment additives
- Catalyst for foundry resins
- Plating bath regeneration
- Petroleum additives
- Photo chemicals
- Inks
- Monomers
- Adhesives

### Environmental & Pollution Control

- Sampling stack gases
- Ground water & waste water
- Injection of monomers, polymers, and chemicals for water & waste treatment
- TCLP

### Electronics Manufacturing

- For dispensing of ceramic slurries in the manufacture of capacitors and diodes
- Dispensing of insulating and encapsulating materials used in electric motor manufacturing
- Addition of flux for wave soldering equipment
- Dispensing of mercury for switch manufacturing
- Metering of semiconductor wash & etch solutions

### Food & Dairy

- Candy coating and polishing
- Vitamin fortification for milk
- Addition of flavors, colors, and preservatives
- Hops for brewing
- Sanitizing agents for aseptic packaging
- Sample and reagent fluid control in milk analyzers
- Food quality control instrumentation

### Dispensing Systems

- Solvents
- UV adhesives
- Lubricants
- Reagents
- Mercury in the manufacture of electronics
- Pharmaceutical
- Medical disposables
- Computers
- Calibration equipment

### Spraying Systems

- Injection of insecticides
- Herbicides
- Agricultural nutrients
- ULV spray equipment for mosquito control

### Instrumentation

- Titration
- TOC, SO<sub>2</sub> monitors
- Chromatographic systems
- Humidity control
- Blood analyzers

### Pilot Plant

- Chemical synthesis
- Water & waste treatment
- Power plants
- Pharmaceutical manufacturing
- Petroleum refining
- Photo finishing

### Cosmetic & Hygiene

- Pigments used in cosmetic color mixing systems
- Moisture control
- Fragrance addition in the manufacture of diapers and sanitary napkins

### Battery Manufacturing

- Precision dispensing of electrolytes & slurries into batteries
- Lubrication of fine blanking machines used to form and stamp battery components

### Automotive

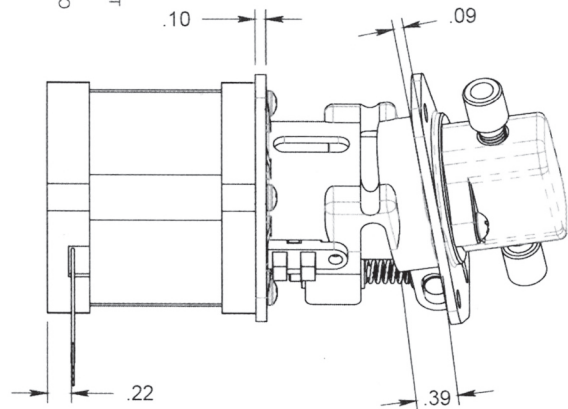
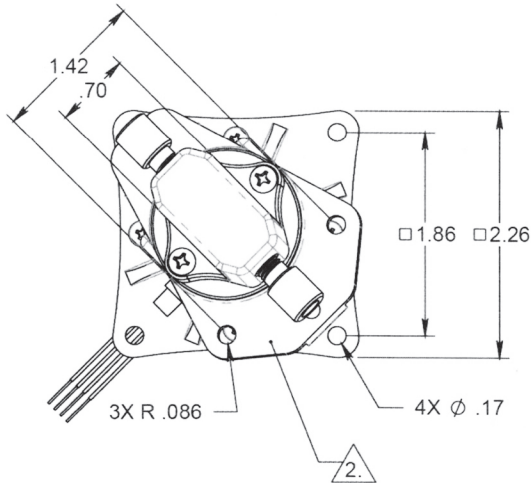
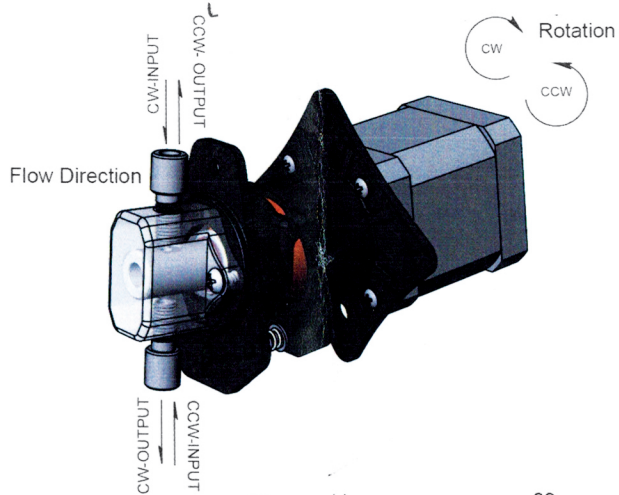
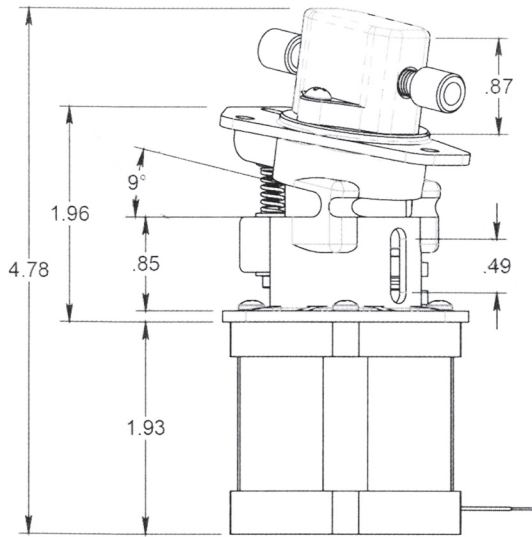
- Hydrogen fuel cell research & development for both the humidification and fuel injection systems
- Insulating and encapsulating coating materials in the manufacture of stators, armatures, and distributors
- Instrumentation to verify gasoline octane rating

### Precision Cleaning

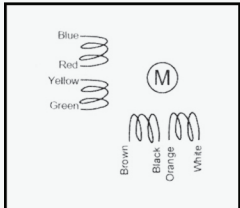
- Concentrated cleaning agents used in automated washers for laboratory glassware & mechanical components
- Metering of ultra-concentrated liquid car wash detergents

**OEM inquiries welcome!**

## Reversible Dispense & Aspirate



### Typical Stepper Motor Leads



### Wetted Path Material:

Ceramic grade medical  
Lip Seals, rulon AR

### Fluidics (Testing performed with DI water):

Port connections, 1/4-28  
Dispense volume 0-0.150mL/rev  
Accuracy: +/- 1%  
Repeatability: ≤ 0.5%

### Electrical:

Voltage 24vdc  
Bipolar  
Max. Current 2.0 amps  
Connector Flying lead or JST  
Step Angle, 1.8° (0.9° available)  
Sensor: optical, flying lead

### Operational Enviromental:

Temperature: 5 to 40°C  
Humidity(non-condensing)

### Non-Operational Environmental:

Temperature(pump head dry): -20 to -70°C  
Humidity(non-condensing)

### Minimum Life Expectancy at 20°C:

Piston/Liner and Seals: 84 million cycles  
Stepper Motor: 1 million cycles or 10,000 hours  
(1 cycle = 360° rotation or 200 full steps)