

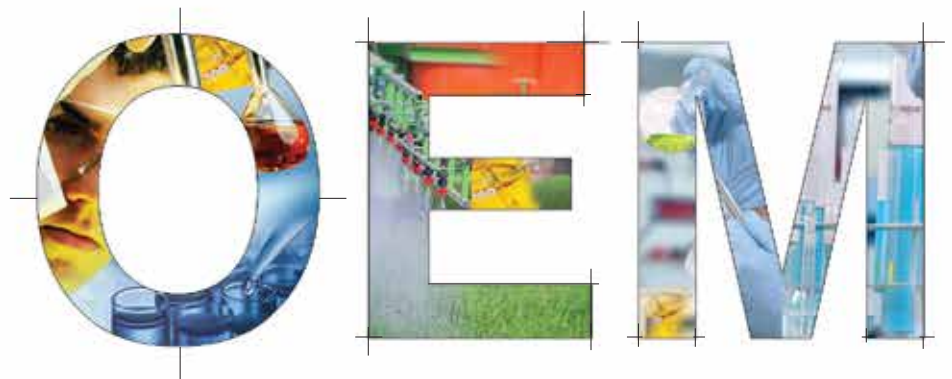


FLUID METERING, INC.

Precision Valveless Metering Pumps and Dispensers



Over 55 Years of Precision Valveless Fluid Control & Over a Million Pumps



Medical, Instrumentation & Industrial

www.fluidmetering.com / 800-223-3388



Why FMI?

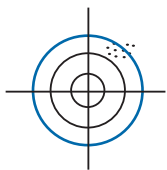
Ultra-Precise Fluid Control. . . from Microliters to Liters

- Patented “No-Valve” Design**
 Eliminates problems and errors caused by valves which clog, leak, hang up, and require service.
- One Moving Part!**
 CeramPump® design utilizes a single, dimensionally stable, chemically inert CERAMIC piston and cylinder ensuring long term, drift free fluid control.
- Proven Performance!**
 Over 55 years OEM experience and more than a million pumps sold.
- Accuracy, Precision, & Reliability**
 Better than $\pm 1\%$ Measured in millions of “trouble-free” cycles.

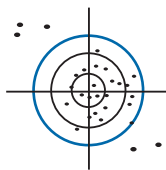
Accuracy, Precision, & Reliability. . .

FMI Pump Typical Flow Data

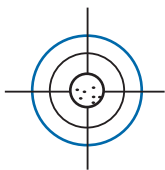
Precision
 Repeatability & degree of variation of a set of values



Accuracy
 How close the average value is to the true value



FMI Pumps
 Accurate & Precise

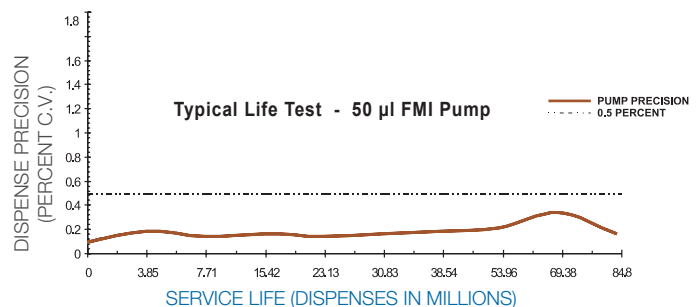
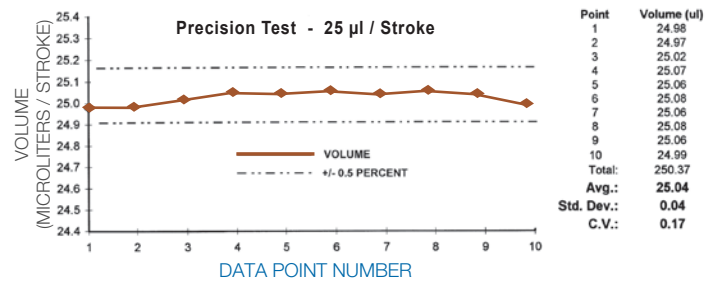
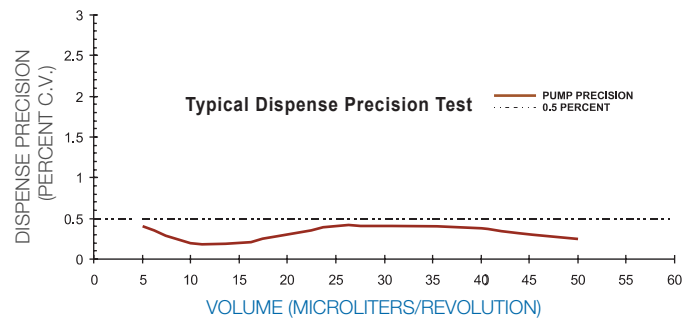


How Our Pump Works

The valveless pumping function is accomplished by the synchronous rotation and reciprocation of a ceramic piston in a precisely mated ceramic cylinder liner.

One complete piston revolution is required for each suction/discharge cycle.

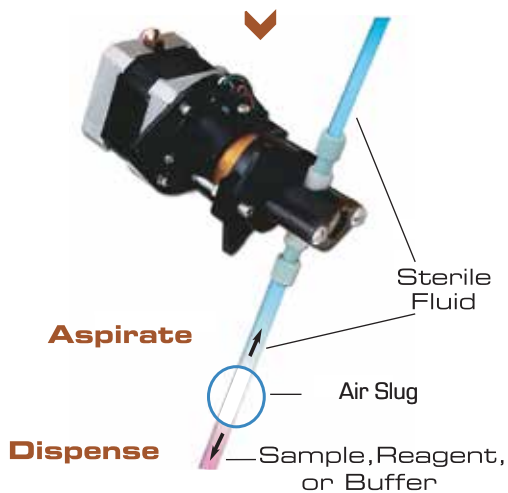
Check out our web site at www.fluidmetering.com for an animation of our unique pumping principle.



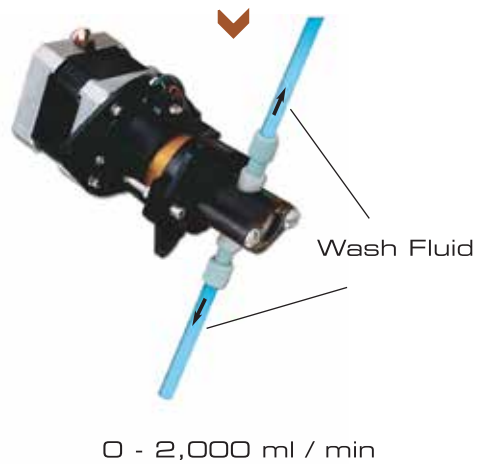


One Dispenser / Pump . . .
 . . . for All OEM Applications

**Valveless Syringing
 Aspirate & Dispense**



**Fast Prime
 Flush & Wash**



**Continuous
 Dispensing**



**Continuous
 Metering**



Over 55 Years of Precision Valveless Fluid Control

Capabilities

- From miniature OEM Stepper Pumps to High Torque Hazardous Duty.
- From 3 microliters per dispense up to 4.6 liters/min continuous flow.
- Operating Temperatures Up to 350° F (158 C).
- Pressures up to 200 psig (13.8 bar).
- Over a Million OEM Pumps Sold.

“STRH” Precision Adjustment Stepper Pump

Ideal for Prototyping & Applications
Requiring Frequent, Accurate Changes
in Dispense Volume

- Precision RH adjustable pump with integral stepper motor & opto sensor.
- Pump head displacement is variable using an easy-grip flow ring ring.
- Low dead-volume design ensures maximum bubble clearing.
- Sample, Dispense, Aspirate, Flush.



“STQP” Adjustable High Flow Stepper Pump

Ideal for Prototyping

- Precision, variable displacement “Q” Pump with integral stepper motor.
- Accommodates all “Q” style pump heads and RH pump heads (with RH/Q adaptor).
- Ideal for OEM applications where accurate & frequent displacement changes are expected.



“STH” Low Flow “STQ” High Flow OEM Pumps & Dispensers

Ideal for Medical, Analytical, & OEM
Instrumentation Applications

- Isolation Gland now available for both STH & STQ models for handling crystallizing fluids.
- Duplex models available for dual channel or proportional metering & dispensing.
- Compact design.
- Factory calibrated.

“STH” Low Flow

Complete Pump Assembly	Max. Dispense Range Microliters / Revolution
STH00CKCLF	0 - 25 μ l
STH0CKCLF	0 - 50 μ l
STH1CKCLF	0 - 100 μ l
STH2CKC	0 - 200 μ l



“STQ” High Flow

Complete Pump Assembly	Max. Dispense Range Milliliters / Revolution
STQ1CKC	0 - .32 mL
STQ2CKC	0 - .72 mL
STQ3CKC	0 - 1.28 mL



“RH” Miniature Pedestal Pump

Panel Mount high precision

- Miniature Motorless “RH” Pumps - Low Flow, High Precision.
- Ceramic & PVDF Fluorocarbon standard wetted materials.
- 0 - 100 Microliters per stroke.
- Precision 0.5% or better.
- Needs only 17 inch ounces of torque.
- Requires only 2 1/4" panel space.
- Easy-grip flow control ring.



“QP” Motorless Pedestal Pump

Pedestal Design Used Extensively in Industrial,
Laboratory, & OEM Applications

- Easily handles slurries, suspensions, emulsions, solvents, viscous concentrates, gases, and more...
- Typically driven by belt, chain, or shaft coupling connected to your special motor drive.
- Minimal torque requirement of 35 inch ounces.



“STF” Fixed Displacement Pump

Ideal for OEM Instrumentation & Equipment for Medical, Analytical, & Industrial Applications

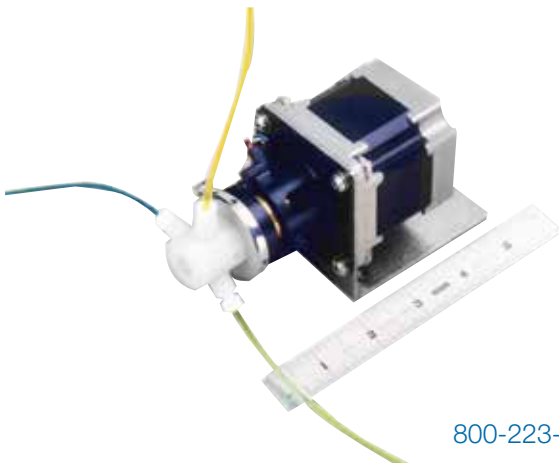
- Economical design with fixed displacement link.
- Displacement link can be customized for individual requirements.
- Precision stepper motors with opto sensors.
- Isolation gland available for crystallizing fluids.



“3-Way” Pump

Ideal for Low Volume Blending or Proportioning in Medical Diagnostic Instrumentation

- Single pump head proportionally meters two fluids into a single stream, or proportionally divides a single stream into two outputs.
- Precision stepper motor control.
- Maximum output: 100 μ L/dispense; 40 mL/min continuous flow.



Brushless DC Pumps

Ideal for Waste/Transfer Applications in Medical, Analytical & Process Instrumentation

- Compact design with integral electronics.
- 24 V Brushless DC motor.
- Factory calibrated for flow rates from 20 mL/min to 400 mL/min.



DC Pumps

“The Standard” for Agricultural Spraying, Mosquito Control and Hydrogen Fuel Cell

- Micrometer-like flow adjustment to 260 mL/min.
- Extended motor shaft can be used for user supplied tachometer.



“ICST-02” Stepper Control

Programmable Control for All FMI Stepper Pumps

- Multiple Input and Output Connections.
- RS 232 Serial Port for PC Connection.
- MS Windows® Programming Software Included.
- Compact Size: 2.0" x 3.1" x 1.6" high (51 x 79 x 41 mm).



“Intelligent” Programmable Pump

Quick Start Control for All FMI Stepper Pumps

- FMI’s STH Stepper Pump with integral programmable driver.
- Driver provides servo control of a stepper pump.
- 5 Programmable inputs, 2 programmable outputs.
- Multiple programming platforms including Visual Basic, C/C++, Delphi, Lab VIEW.
- Analog 0-5V, RS-232 serial , CANopen protocol supported.
- Resonance-free, quiet operation.
- EtherCAT (with optional module).



“RO” Economical Fluid Control

- Economical, Fixed Displacement.
- Reciprocating/Oscillating Ceramic Piston.
- Valveless, Reversible, Self Priming.
- Transfer, Wash, Aspirate, Flush.

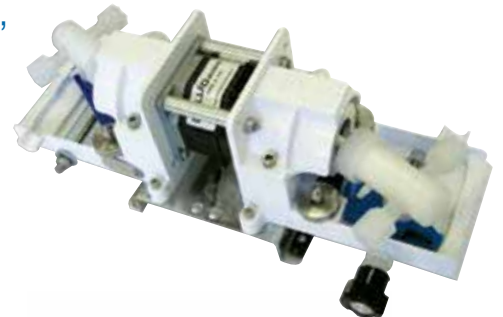


Duplex Ratio:Matic® Pumps

Ideal for Metering reagents and dilution of buffers in OEM medical, laboratory, and environmental analyzers. Production fluid dispensing for manufacture of contact lenses, button cell batteries, and reagent test kits.

- Two valveless pumps controlled by a single variable speed drive.
- Pump displacements independently variable for proportional metering.
- Vary flow rate while maintaining ratios of fluid dispensed or metered.
- Stepper motor and variable DC drive configurations.
- Up to 500:1 Ratio.

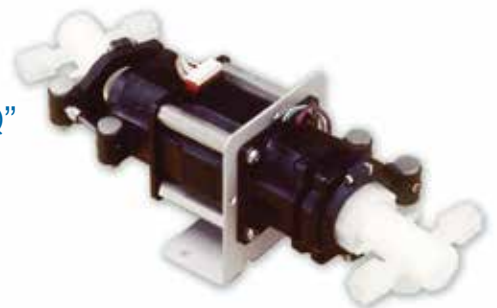
“ST2QP”



“ST2RH”



“ST2Q”



“ST2H”



Who We Are

FMI pioneered the first patented valveless rotating and reciprocating piston metering pump concept and has been delivering pumping excellence and precise fluid control for over 55 years.

Quality

We take quality seriously and back it up, not only as an ISO 9001:2008 facility, but far beyond! Most products are WEEE & RoHS Compliant.

Our Mission Statement . . .
100% Quality, 100% On-Time Delivery

. . . is supported by our valued
OEM supplier awards.



Engineering Design & Development

Our Engineering Team incorporates over 55 years of OEM design experience to meet specific customer & application requirements. With the knowledge and the necessary tools, our engineers have developed the most precise and reliable valveless dispensing and metering pumps available.

eSupport (FMI web site)

Need product and technical information immediately? Check our web site at www.fluidmetering.com and have instant access to product specifications, application information, literature downloads, and an animation of our unique CeramPump® valveless pumping principle.

Also featured in our web site is LiveHelp, which provides a one on one connection between our customers and FMI's application specialists.



Have questions?
Chat live with an FMI
application specialist at
www.fluidmetering.com

Applications. . . We Do It All !

MEDICAL

For precise dispensing, aspirating, rinsing, mixing systems and syringe pump replacement in diagnostic, clinical chemistry and medical equipment manufacturing.

SPRAYING SYSTEMS

For injection of insecticides, herbicides, and agricultural nutrients, as well as for ULV spray equipment.

ENVIRONMENTAL & POLLUTION CONTROL

For sampling stack gases, ground water & wastewater, as well as injection of monomers, polymers, and chemicals for water & waste treatment, TCLP and more. . .

INSTRUMENTATION

For all kinds of precision instruments and monitors including titrators, TOC, S₂O monitors, chromatographic systems & humidity control.

DISPENSING SYSTEMS

For dispensing of solvents, UV adhesives, lubricants, reagents, and mercury in the manufacture of electronics, pharmaceuticals, medical disposables, computer hard drives, audio speakers, and calibration equipment.

FOOD & DAIRY

For candy coating and polishing, as well as, vitamin fortification, addition of flavors, colors, preservatives and a variety of other ingredients used to enhance food products.

