

ReciPro[®] Optos Series electronic metering pumps

- *Smooth fluid delivery*
- *High pressure capability*
- *Remote control options*
- *Extended flow rate ranges*
- *Integrated piston wash*
- *Pressure monitoring and pressure limits*



Eldex ReciproPro®

Optos Series



Simple to use and with a footprint only four inches wide

Eldex's Optos Series

incorporates knowledge gained from over 30 years of experience in designing and manufacturing reciprocating piston pumps for a wide variety of applications, while integrating the latest technology and electronics.

- Smooth fluid delivery from intra RPM stepper motor control
- Remote flow rate control via analog signal or RS232 command
- Optional liquid ends for expanded flow rate range
- Integrated piston wash system
- Economical price

With upgrade to Plus Version

- Pressure monitoring with high and low pressure limits
- Integrated low volume pulse damper

Optos Series metering pumps

can be used wherever precise flow rate control, particularly at high pressures, is required.

We manufacture a wide range of Optos Series pumps grouped into three pump models. We can also customize our designs to meet your specific requirements.

All Optos Series pumps are based on a positive displacement, reciprocating piston design, which gives you precise flow control. Various models cover flow rates from .002 to 80 mL/min.

Reproducible metering

Precise metering at high pressure is attained by a positive displacement, reciprocating piston assembly. The piston is driven by a high resolution stepper motor using advanced sine wave adjustment speed algorithms to maximize flow output and minimize pulsation.

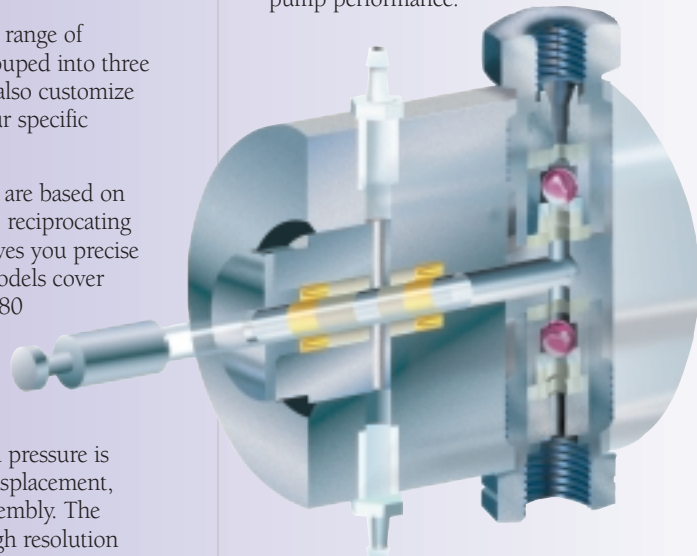
Minimized Pulsation

The Optos Series of pumps incorporates the latest electronic and software technology to optimize intra RPM speeds to reduce pulsations to a minimum.

By upgrading to Plus, the Optos Series pumps can also monitor pressure and set high and low pressure limits, as well as provide additional pulse reduction from a diaphragm damper.

Versatile Features

Extended flow rate ranges are possible by using up to three interchangeable liquid end assemblies. Software control of refill rates and compressibility compensation add to the versatility of the Optos Series pumps and enhance pump performance.



Reproducible metering and corrosion resistant materials

Convenient control options

Flow rates are easily set on the solvent resistant membrane keypad. When the Optos Series pump is fitted with the optional pulse damper, high and low pressure limits can be regulated. In addition, the pumps can be controlled with an analog signal or via an RS232 interface.



Remote control

Corrosion resistance

The materials in the liquid end of the Optos Series pumps are carefully chosen for corrosion resistance. The piston is sapphire, and the inlet and outlet valves incorporate sapphire seats and ruby balls.

The standard piston seal material is an ultra-high molecular weight polyethylene with excellent chemical compatibility characteristics. For specialized applications, a graphite fiber reinforced PTFE (Polytetrafluoroethylene) seal may be substituted.

The liquid end cylinder is precision machined from type 316 stainless steel for its superior resistance to corrosion. In applications requiring the use of extremely corrosive materials, PEEK® versions of the liquid end cylinders are available.

Piston wash

The use of buffers or solutions which crystallize when exposed to air can lead to abrasion of the piston seal. A fully integrated piston wash system is included on all Optos Series pumps, dramatically extending piston seal life.

Simple, robust construction

The Optos Series pump, only 4 inches wide, occupies very little bench space. The design is simplified for optimal reliability. With our extensive experience in reciprocating pump technology, no effort has been spared to make the most durable pump available.

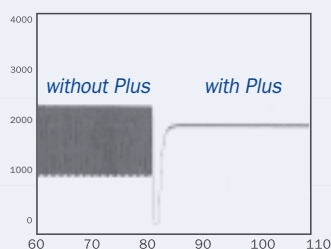
Ideal OEM Pump

The modular and economical design of the Optos Series, as well as the versatile configurations and control features make them ideal for use in OEM applications. In addition, the pumps can be tailored for specific requirements.

Optos Series Options

Plus

Plus versions of Optos Series pumps come with an integrated pulse damper to further reduce pulsation, and the ability to monitor pressure and set high and low pressure limits



Smooth delivery with Plus

Non-Metallic

Optos Series metering pumps can be made with PEEK® liquid end assemblies, eliminating all metal contact in the flow path.

Interchangeable Heads

Optos pumps can be fitted with any one of three interchangeable pump heads, expanding the flow rate capability of each model.



Plumbing Connections

A variety of plumbing configurations are available so that connection to your system is easy.

Optos Series pumps are ideally suited to these applications:

- HPLC
- Column washing
- Post column reaction
- Column testing
- Pilot plant
- Reactant feed
- Flow injection analysis



Choosing the right Optos Series pump

1 Use the following matrix to select the Model and Liquid End combination:

Pick the Model and Liquid End combination best suited to your flow range and pressure requirements; try to choose a combination you will use in the upper range of its flow capacity.

Model 1	Low Flow Liquid End	Standard Flow Liquid End	High Flow Liquid End
Flow rates from .002 to 20 mL/min. Optimal at lower rates, e.g., 0-5 mL/min.	Flow: .002-2.5 mL/min. @ 6000 psi Order code: 1L	Flow: .003-5 mL/min. @ 6000 psi Order code: 1S	Flow: .01-20 mL/min @ 3000 psi Order code: 1H
Model 2:	Flow rates from .003 to 40 mL/min. Optimal at medium rates, e.g., 1-10 mL/min.	Flow: .003-5 mL/min @ 6000 psi Order code: 2L	Flow: .01-10 mL/min @ 6000 psi Order code: 2S
Model 3:	Flow rates from .01 to 80 mL/min. Optimal at higher rates, e.g., 5-80 mL/min.	Flow: .01-10 mL/min @ 3000 psi Order code: 3L	Flow: .01-20 mL/min @ 1500 psi Order code: 3S

2 Select Material for chemical compatibility best suited to your application:

Stainless steel: Wetted parts include type 316 stainless steel, sapphire, ruby, CTFE, gold, UHMW Polyethylene (consult factory for possible options). *Order Code: M*

PEEK®: Wetted parts include PEEK®, sapphire, ruby, UHMW Polyethylene, inert polymers (maximum pressure on PEEK® pumps is the lower of either 4000 psi or the rating shown in the matrix). *Order Code: I*

3 Upgrade to Plus for pressure control and pulse dampening:

Includes integrated pulse damper for smooth flow, pressure monitoring, ability to set high and low pressure limits. *Order Code P*
Note: Not available on Model 3 or High Flow Liquid End pumps.

4 Assemble your Order Code:

Combine Codes from steps 1-3 (e.g. 2SMP)

Common Specifications

Wetted Parts: For 316: Type 316 stainless steel, sapphire, ruby, gold, UHMW Polyethylene, CTFE (consult factory for other options)
 For PEEK®: PEEK®, sapphire, ruby, UHMW Polyethylene, inert polymers

Reproducibility: typically +/-0.3%

Viscosity Limit: 500 centipoise

Tubing Connections: Consult factory for additional options

For 316: Low and Standard Flow Liquid End pumps:

Inlet valves: 1/4"-28 plastic fitting for 1/8" plastic tubing Outlet valves: 10-32 tube nut, ferrule for 1/16" tubing

For 316: High Flow Liquid End pumps: Inlet and outlet valves: 1/8" Swagelok®

For PEEK: Low and Standard Flow Liquid End pumps:

Inlet valves: 1/4"-28 plastic fitting for 1/8" plastic tubing Outlet valves: 1/4"-28 plastic fitting for 1/16" tubing

For PEEK: High Flow Liquid End pumps: Inlet and outlet valves: 1/4"-28 plastic fitting for 1/8" tubing

Control Options: Voltage: 0-5 VDC; Current Loop: 4-20 mA; RS232

Contact Closure & Outputs: Remote run and stop, pressure output (0-5V), pump error output.

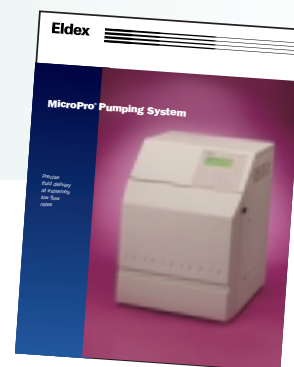
Dimensions: 10 cm W x 23 cm H x 24 cm D (4" W x 9" H x 9.5" D)

Weight: with Plus: 6.4 kg (14 lbs.); w/o Plus: 5.3 kg (11.75 lbs.)

Electrical: 100-230VAC (+/- 10%); 50/60Hz

VA Rating: 80

CE Certified



For microliter and sub-microliter flow rates, ask for our **MicroPro** product line brochure