

**W A L C H E M**

An Iwaki America Company

# Metering Pumps



# Advanced Metering Pump Technology



Walchem and Iwaki joined forces to develop the most innovative and comprehensive metering pump product line in the world. Iwaki metering pumps are designed for a broad range of applications, and are manufactured to the highest quality standards that exceed even the toughest customer expectations. Our commitment to new product development and innovation has resulted in many industry firsts, including EK - the world's first IP67 waterproof solenoid metering pump.

Featuring four great pump series, EZ, EW, EK, and EHE, E-Class metering pumps are powered by advanced microprocessor-based electronics and superior mechanical design. With capacities up to 20 GPH (76 l/h) and pressures to 250 psi (17 bar), E-Class has a pump that will fit most any industrial, municipal, or agricultural water or wastewater application. And, the entire E-Class pump line is backed with a comprehensive 2-year warranty that covers the entire pump, including the liquid end and diaphragm.

## High Speed Performance

E-Class pumps operate up to 360 strokes-per-minute. Most competitive products operate at 180 SPM or less, resulting in slug feeding, accelerated diaphragm wear and poor feed control.

## Dual Bearing Support

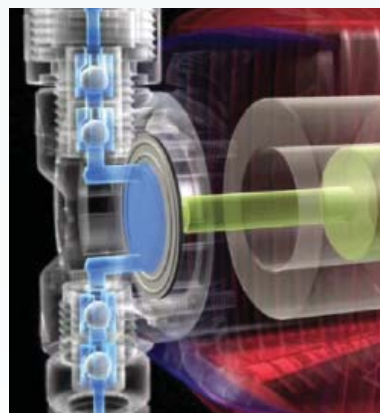
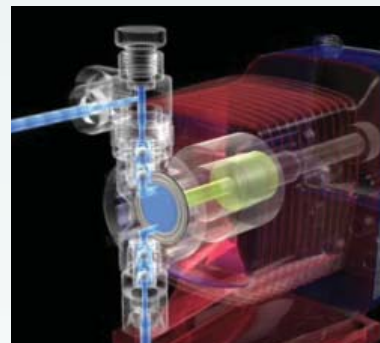
All E-Class pumps feature dual bearing support. The armature and shaft are supported with a bearing on each end, which ensures proper axial movement, enabling E-Class pumps to operate up to 360 SPM, while extending the life of the diaphragm.

## Superior Check Valve Performance

Dual Check Valve Assemblies in both suction and discharge fittings feature precision ball guides and tapered seats. Precise machining and molding of parts limit valve ball travel, ensuring that balls fully seat and seal with every stroke. This superior check valve design and performance guarantees fast priming.

## High Compression Ratio

The compression ratio of a metering pump is important because it affects the pump's ability to prime and vent. The compression ratio is improved when you reduce the dead volume of the pump head during operation. All E-Class pumps feature a very high compression ratio that ensures proper feed, especially with off-gassing products. (e.g. Sodium Hypochlorite)



**2-YEAR WARRANTY**  
**'Bumper-to-Bumper' on all**  
**E-Class Pumps**  
**including Wetted Parts**

For more information and the latest specifications, visit us on the web at [www.walchem.com](http://www.walchem.com)

# EW Series

Compact, powerful, and packed with a variety of innovative design features, EW is the flagship of the E-Class metering pumps. With output capacities up to 6.7 GPH (25.4 l/h) and a maximum pressure of 250 PSI (17 bar), there's an EW model to enhance any chemical feed application.



## IP65 Construction

The rugged Polyphenylene Ether (PPE) enclosure is equipped with a durable clear cover to protect the membrane switches and stroke control of the pump, which are mounted opposite the liquid end. The display utilizes a high temperature LCD that provides extra protection from sunlight in outdoor applications. A variety of liquid end combinations are available to ensure a perfect match for your specific application.



PVC

GFRPP

PVDF

316SS

## Control Features

All EW series pumps come equipped with pulse, stop & pre-stop inputs in addition to stop & pulse output control. The EW-Y module also features:

- **Feed Accuracy** - Powered by the E-Class 360 Stroke-Per-Minute technology, the EW has an incredible adjustment range of 1800:1 ensuring precise feed control for any application.
- **Analog Input Control** - Fixed or scalable 4-20mA input control.
- **Pulse Input Control** - Pulse input with multiply and divide features (1-9999). 12VDC output power supply for Hall Effect water meters.
- **Quick-Prime** - Hold 2 keys down and pump runs at 100% of speed to prime quickly without adjusting application settings.
- **Keypad Lock-Out** - Keypad functions can be locked out providing feed security and integrity from unwanted adjustments.



- **Easy Draw-Down Calibration** - In the calibration mode the user only needs to start and stop the pump, enter the draw-down volume and the pump calibrates volume-per-stroke.
- **Flow Rate Display** - After calibration, EW will display the flow rate. As long as stroke length is constant the pump will accurately display the volume of fluid being pumped. In cases where the pump is being controlled externally with a pulse, the pump will display and count down remaining flow based on the pulse input. Coupled with the Posiflow Feed Verification, EW ensures proper feed for your application.



- **Feed Verification** - EW is equipped with three pre-programmed modes for accepting the Posiflow Feed Verification Sensor. The Posiflow provides a pulse feedback to the pump to verify prime and proper feed. Depending on the mode, the user can program the pump to stop, continue operating and/or send an alarm based on the Posiflow input.

## EZ Series

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EZ Series with digital speed control offers precise chemical injection at a low cost. EZ has output capacities up to 6.3 GPH (23.8 l/h) and a maximum pressure of 150 PSI (10 bar). The compact size and simple control make it ideal for OEM, water treatment, car wash and a variety of other applications.

### Value

Effective, reliable performance is achieved through sophisticated engineering. EZ Series features an advanced microprocessor control with a turndown ratio of 360:1, making it an exceptional value. EZ is simple to operate with three pushbutton keys. The 360:1 turndown ratio provides unmatched versatility and results in high-resolution chemical feed and elimination of slug-feed effects.

### Compact Modular Design

The liquid end, drive, and electronics are modular, enabling economical repair or replacement of parts. The control module can easily be mounted in a remote location with the optional remote control cable assembly.

### Innovative Timer Control

The EZ-Timer module integrates Walchem's EZB pump technology with a versatile programmable timer. Timed feed control can be programmed in daily or weekly cycles. The weekly schedules can be programmed in either 1 or 2-week cycles with a daily on-time. The daily timer can be set for multiple daily on-times. The EZ-Timer pump is a simple and effective way to automate chemical addition in small systems.



## EK Series

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EK Series are the world's first IP67 electronic metering pumps. This means that EK is the only pump in the industry guaranteed to operate submerged 3 feet under water for up to 30 minutes! Needless to say, EK Series pumps are ideal for wet or high humidity environments such as irrigation, agriculture, car wash or paper mill applications. EK models are available with output capacities up to 6.7 GPH (25.4 l/h) and a maximum pressure of 150 PSI (10 bar).

### IP67 Waterproof Construction

By integrating the pump body into a one-piece design, sealing is easier and more effective. Both the drive and the controller are completely insulated from moisture or gas. A watertight clear cover protects the display, controls and stroke length adjustment. All circuit boards and electronic components have been completely encapsulated to prevent failure due to moisture or gas. The display utilizes a high temperature LCD that provides extra protection from long-term exposure to sunlight in outdoor applications. Construction of the EK Series pumps makes them perfect for indoor and outdoor applications where the pumps are frequently exposed to wash down.

### Control Features

High speed and a 20% minimum stroke length allow EK Series to achieve an 1800:1 turndown ratio. The digital display and pushbutton speed control make setting EK pumps easy and precise. EK pumps come equipped with pulse input (1:1) control and also feature an external stop input that can be set to stop the pump from a normally open or normally closed contact. To maintain the IP67 rating, a proprietary connector is utilized that makes connection of the inputs simple, yet retains a watertight seal.



## EHE Series

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EHE is the workhorse of the E-Class metering pumps. Superior mechanical design and quality of manufacturing merge to create a pump greater than the sum of its parts. EHE pumps have outputs up to 20 GPH (76 l/h) and a maximum pressure of 150 PSI (10 bar). Combining the EHE performance with a turndown ratio of 1800:1 yields one of the most versatile pumps on the market today. EHE Series is ideal for chemical feed applications in a wide range of fields, including drinking water, agriculture, and municipal/industrial wastewater.



### Versatile

EHE pumps meet the demands of applications requiring accuracy over a wide output range. The 1800:1 turndown ratio provides the ability to accurately control a high capacity pump to very low outputs, without compromising accuracy. This enables oversized pumps to be installed in applications where output requirements fluctuate, or to accommodate future system growth.

### Control

Microprocessor-based circuitry provides operator adjustment of pump speed and external input settings via 4-button keypad. EHE comes with digital and analog external mode control. The external digital input mode features pulse multiply and divide circuitry that is often used in flow proportional systems, such as with a flow meter contactor. The external analog input mode is a programmable 4-20mA input that provides scalable speed adjustment based on any analog signal.

## IX Series

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A new class of advanced metering pumps! The IX Series are digitally controlled direct-drive diaphragm pumps. Years of experience in high-end motor technology result in an extremely accurate and energy efficient metering pump while maintaining a high resolution. The IX Series meet today's demand for automated chemical delivery in industries from water treatment to chemical process with output capacities up to 39.6 GPH (150 l/h) and a maximum pressure of 150 PSI (10 bar). Highly precise control offers a solution for a variety of dosing applications.



### High Turndown Ratio

Exact motor control adjusts the discharge and suction speeds to meet a full and accurate turndown ratio of 750:1 (150 l/h to 200 ml/h).

### High Accuracy

Combined with precise motor control, an efficient valve design maintains accurate flow rates to allow a low-cost, mechanically-driven diaphragm pump to achieve a high accuracy of  $\pm 1\%$ .

### Energy Savings

Helical gears and return spring reduce power consumption by up to 70% compared to conventional mechanical diaphragm metering pumps.

### Efficient Pump Head Design

A fixed stroke length maintains high compression in each stroke resulting in fast priming and no air-lock at any flow rate. Controlling the flow rate by adjusting the discharge speed only and maintaining the suction speed ensures a constant injection rate at any flow, reducing pressure spikes and load in the pump and discharge lines.

# LK Series

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In a class by itself - LK is a motor-driven, mechanically actuated diaphragm metering pump with a maximum capacity of 114 GPH (432 l/h) and a maximum pressure of 225 PSI (15 bar). This expanded output range makes LK a perfect complement to the E-Class metering pump line.

LK pumps are ideal for chemical feed applications in a wide range of fields, including water treatment, chemical process, agriculture, mining and paper.



## Stroke Adjustment

Accurate and reliable stroke setting is accomplished with a micrometer dial of the spring back stroke adjustment mechanism. This lockable mechanism is adjustable from 10 to 100%.

## Drive

The heart of the LK is the dual-cam drive system with a built-in worm gear type speed reducer. The aluminum bronze worm gear and the tapered roller bearing provide efficient transmission of motor power to the pump. This compact and reliable design consists of a rigid mechanism that provides maximum wear resistance in continuous operation over long periods of time.

## Motors

All of the standard models employ totally enclosed fan-cooled motors which are vertically mounted to save space. A variety of motor options are available, including explosion-proof and DC variable speed motors for external control by a 4-20 mA input signal.

# Accessories

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Walchem is the leading manufacturer of metering pumps and analytical controllers for a wide variety of water treatment applications. To complete your system, Walchem provides high quality accessories for cooling tower, boiler, potable water and wastewater applications. All of Walchem's accessories are carefully designed and selected for compatibility with our pumps and controllers to enable our customers to provide a complete system solution.



- > Level switches to monitor tank levels
- > PosiFlow sensors to verify metering pump performance
- > Mounting brackets for metering pumps
- > Polyethylene storage tanks
- > Agitators with pump suction tube shield
- > Multi-function/tri-purpose valves to provide anti-syphon, back pressure and pressure relief for metering pumps
- > Paddlewheel/multi-jet inline flow meters for proportional chemical feed
- > Calibration columns to verify metering pump output
- > Solenoid valves for cooling tower and boiler applications

## Multi-Function Valves

Walchem's Multi-function valves provide back pressure and anti-syphon protection in addition to standard venting functions for your 11, 16 and 21 size E Series metering pumps. These valves will prevent syphoning when pumping downhill and will increase accuracy and repeatability in applications with little or no system pressure.



## PosiFlow Sensor

The PosiFlow sensor verifies that your metering pump is pumping and has not lost prime or had the discharge line cut. There are no moving parts in the sensor, which ensures long life and eliminates concerns of plugging or leaking. Available for 11, 16 and 21 sizes of E-class pumps.

## Tri-Purpose Valves

Walchem's economical Tri-Purpose Valves are three valves in one. Installed in one direction, the spring loaded PTFE faced diaphragm provides 30 psi of back pressure and anti-syphon protection. Installed in the opposite direction, it provides pressure relief that is adjustable from 30-125 psi.



# Specifications

								
Feature	EZ Series		EW Series		EK Series	EHE Series	LK Series	IX Series
Control Module	D Module	T Module	F Module	Y Module	R Module	E Module	N/A	N/A
Maximum Output	6.3 GPH (23.8 l/h)		6.7 GPH (25.4 l/h)		6.7 GPH (25.4 l/h)	20 GPH (76 l/h)	114 GPH (431 l/h)	39.6 GPH (150 l/h)
Maximum Pressure	150 PSI (10 bar)		250 PSI (17 bar)		150 PSI (10 bar)	150 PSI (10 bar)	225 PSI (15 bar)	150PSI (10 bar)
Strokes per Minute	360		360		360	360	58/116	240
Turndown Ratio	360:1		1800:1		1800:1	1800:1	Note 1	750:1
Stroke Length Adjustment	Fixed		20-100%		20-100%	20-100%	10-100%	Fixed
IP Rating	IP65		IP65		IP67 Waterproof	IP65	IP65	IP65
Multi-Function Valve Option*	✓		✓		✓			
Degassing Valve Option*	✓		✓		✓			
Posiflow Option	✓		✓		✓	✓		
Pulse Input			✓	✓	✓	✓		✓
Pulse Multiply & Divide				✓		✓		✓
4-20 mA Input				✓		✓	Note 1	✓
PosiFlow Input				✓				
Stop Input		✓	✓	✓	✓	✓	Note 1	✓
Pre-Stop Input			✓	✓				✓
Pulse Output			✓	✓				✓
Stop Output			✓	✓				✓
Timer Option		EZB						
Alarm Output				✓				✓

\* Select sizes and liquid end options.

Note 1: Standard turndown ratio of the LK is 10:1. With the addition of the DC motor option, the turndown ratio increases to 100:1 and the control capability expands to include a 4-20 mA input control signal.

## Safety Certifications

The E Class metering pumps are WQA tested and certified to NSF/ANSI Standard 61.



The E Class and IX Series metering pumps are tested by Intertek to UL and CSA standards.



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