

# Metering Pumps



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# W A L C H E M

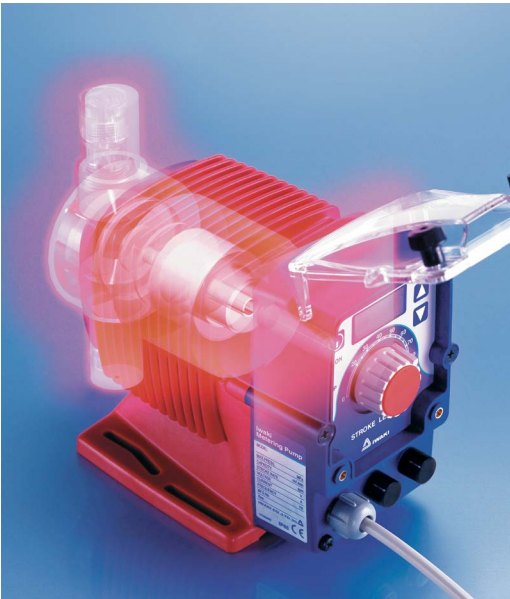
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**IWAKI America Inc.**

Walchem integrates its advanced sensing, instrumentation, fluid handling and communications technologies to deliver reliable and innovative solutions to the global water treatment market.

Our in-house engineering is driven by quality, technology and innovation. For more information on the entire Walchem product line, visit [walchem.com](http://walchem.com).

# Advanced 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 high speed 360 strokes per minute technology.

Featuring four great pump series, EZ, EWN, EHE and EJ, the E Series 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 290 psi (20 bar), E Series has a pump that will fit most any industrial, municipal, or agricultural water or wastewater application. The entire E Series 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 Series 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

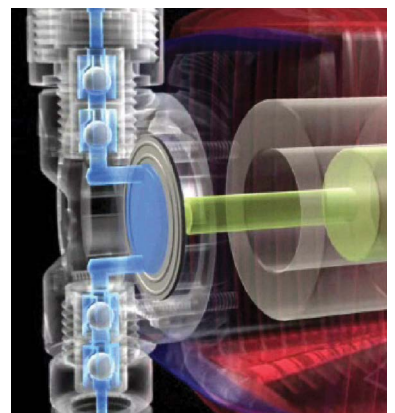
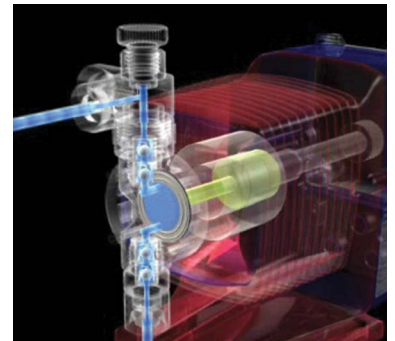
All E Series pumps feature dual bearing support. The armature and shaft are supported with a bearing on each end, which ensures proper axial movement, enabling E Series pumps to operate up to 360 SPM, while extending the life of the diaphragm.

## 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 Series pumps feature a very high compression ratio that ensures proper feed, especially with off-gassing products. (e.g. Sodium Hypochlorite)



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



# EWN Series

Compact, powerful, and packed with a variety of innovative design features, EWN is the flagship of the E Series metering pumps. With output capacities up to 6.7 GPH (25.4 l/h) and a maximum pressure of 290 PSI (20 bar), there's an EWN 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 heat and sunlight. A variety of liquid end combinations are available to ensure a perfect match for your specific application.



PVC

GFRPP

PVDF

316SS

## Control Features

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

- › **Feed Accuracy** - Powered by the E Series 360 Stroke-Per-Minute technology, the EWN has an incredible adjustment range of 1800:1 ensuring precise feed control for any application.
- › **Analog Input Control** - Fixed or scalable 0-20mA input control.
- › **Pulse Input Control** - Pulse input with multiply and divide capability.
- › **Quick-Prime** - External AUX input or hold 2 keys down and pump runs at 100% of speed to prime quickly without affecting application settings.
- › **Keypad Lock-Out** - Keypad functions can be locked out (programmable code) 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, the EWN can display the flow rate for easy reading and adjustment (mL/m, GPH, L/H).

Additional EWN-Y Exclusive Features:

- › **Feed Verification** - The EWN-Y is equipped to accept both the EFS magnetic flow sensor and the PosiFlow feed verification sensor. Using communication from the sensors, the EWN-Y measures or verifies flow and can self-adjust speed to ensure proper feed for the application.
- › **Totalization and Data Logging** - Accumulated flow as well as other pump operation parameters are logged in the pump memory.
- › **Analog Output** - A programmable 0-20 mA output proportional to pump flow.
- › **Programmable Alarms** - Two output alarms can be set for a variety of conditions.



# EZ Series

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.



# EJ Series

The EJ Series provide precise chemical injection at an economical price. Universal voltage capability enables operation from 100 - 240VAC in virtually any country. The EJ Series are compact, simple to operate and have outputs to 3.2 GPH (12.0 LPH) and a maximum pressure of 175 PSI (1.2 MPa).

## High Speed Performance

The EJ Series operate at 360 strokes-per-minute, providing high resolution chemical feed and high turndown capability. Most competitive products operate at slower speeds, resulting in slug feeding, accelerated diaphragm wear and poor feed control.

## External Control

The EJ Series have both digital input and Stop/Start inputs built into the pump, enabling the flexibility of either proportional or On/Off control in a simple package.

## IP65 Protection

A robust housing protects the pump from normal wear. Designing the digital display and keypad control within the drive housing creates a highly water resistant design.



# EHE Series

EHE is the workhorse of the E Series 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

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 80 GPH (300 l/h) and a maximum pressure of 247 PSI (17 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 1000:1 (300 l/h to 7.5 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.

# LKN Series

In a class by itself - LKN 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 Series metering pump line.

LKN pumps are ideal for larger 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.

# Large LK Series

Iwaki LK Series metering pumps are motor-driven, mechanically-actuated diaphragm metering pumps. This larger LK Series can achieve outputs up to 856 GPH (3240 l/h) and maximum pressures of 220 PSI (1.5 MPa). The LK Series is ideal for chemical feed applications in a wide range of fields, including pulp and paper, chemical process, mining, wastewater treatment and agriculture.



## Performance

The LK series has a discharge accuracy (repeatability) that is within  $\pm 2\%$  FS. Reliability has been enhanced with the improvement in the linearity of the stroke and the discharge ratio of each stroke.

## Drive

As with the LKN, the drive of the LK is a dual-cam drive with a built-in worm gear type speed reducer. This compact and rigid mechanism, provides maximum wear resistance in continuous operation over long periods of time.

## Motors

The LK-A, LK-B, and LK-C series pump are designed to be fit with IEC general-purpose, vertically mounted TEFC outdoor-use motors, providing different voltage and enclosure options, including VFD-ready and explosion-proof designs.

\*Engineered product. Consult factory for delivery.

# Specifications

							
Feature	EZ Series	EWN Series		EHE Series	EJ Series	LK Series	IX Series
Control Module	D Module	R Module	Y Module	E Module	R Module	N/A	N/A
Maximum Output	6.3 GPH (23.8 l/h)	6.7 GPH (25.4 l/h)		20 GPH (76 l/h)	3.2 GPH (12.0 l/h)	114 GPH (431 l/h)	79.2 GPH (300 l/h)
Maximum Pressure	150 PSI (10 bar)	290 PSI (20 bar)		150 PSI (10 bar)	175 PSI (12 bar)	225 PSI (15 bar)	247 PSI (17 bar)
Strokes per Minute	360	360		360	360	58/116	140
Turndown Ratio	360:1	1800:1		1800:1	360:1	Note 1	1000:1
Stroke Length Adjustment	Fixed	20-100%		20-100%	Fixed	10-100%	Fixed
IP Rating	IP65	IP65		IP65	IP65	IP65	IP65
Multi-Function Valve Option*	✓	✓			✓		
Degassing Valve Option*	✓	✓			✓		Not Needed
Posiflow Option	✓	✓		✓	✓		
Pulse Input		✓	✓	✓	✓		✓
Pulse Multiply & Divide		✓	✓	✓			✓
0-20 mA Input		✓	✓	✓		Note 1	✓
PosiFlow/EFS Input			✓				
Stop Input		✓	✓	✓	✓	Note 1	✓
Pre-Stop Input		✓	✓				✓
Pulse Output		✓	✓				✓
Stop Output		✓	✓				✓
0-20 mA Output			✓				✓
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.

Note 2: Pumps (except EK) should always be shielded from direct exposure to the elements.

## Safety Certifications

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

\* See [www.wqa.org](http://www.wqa.org) for specific chemicals and certification parameters.

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





# Accessories

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.

- EFS flow sensors to measure metering pump output
- PosiFlow sensors to verify metering pump performance
- Mounting brackets for metering pumps
- Polyethylene storage tanks
- Level switches to monitor tank levels
- 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
- Adjustable back pressure and anti-syphon valves

## Multi-Function Valves

Walchem's Multi-function valves provide back pressure, pressure relief, and anti-syphon protection in addition to standard venting functions for the 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.



## Auto-Degassing Valve

The Auto Degassing Valve greatly improves the degassing capabilities of the E Series metering pumps. The design uses a dual check valve system to maintain proper pump operation to vent gas out the valve and back to the supply source. The ADV retains the full pressure capabilities of the pump.



## Anti-Syphon/Back Pressure and Pressure Relief Valves

These rugged valves are constructed from PVC, PP, PVDF, or SS components to ensure long life and reliability. The spring loaded PTFE faced diaphragms provide positive discharge pressure to stabilize pump output and prevent syphoning. All valves are screw adjustable from 0 to 150 psi. These valves are ideal for IX, LK and E Series metering pumps.



## 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 most E Series pumps.



## Calibration Columns

Walchem's calibration columns provide verification of metering pump output. Constructed from Polypro, clear PVC, or glass, they have graduations in milliliters and GPH. Available in easy clean versions with vented (npt) removable top, and in sealed versions with vented (npt) non-removable top.



**W A L C H E M**

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