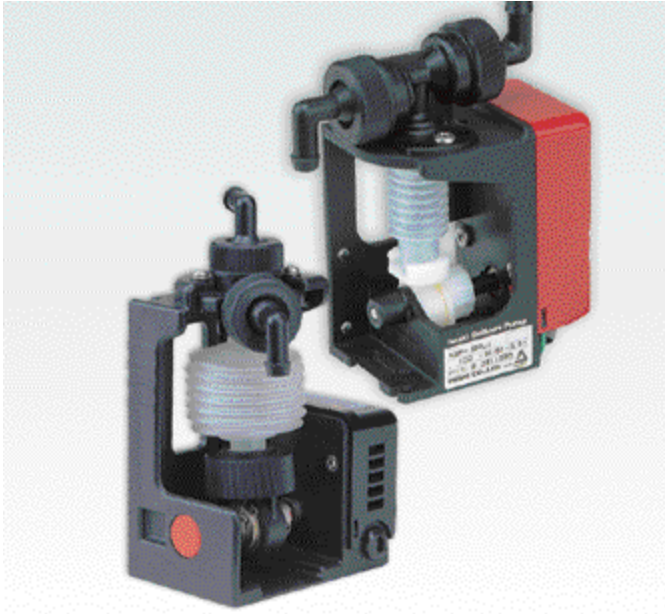




Bellows



KBA/KBR

Long a supplier of quality metering pumps and accessories, Iwaki America is proud to offer its line of Bellows Metering Pumps.

The reciprocating polypropylene bellows offers dependable positive displacement with 1% repeatability through a 10:1 adjustment ratio. Available with either EPDM or FKM elastomers, pump capacities range to 2100 ml/min. The self-priming and corrosion resistant features help provide reliable, continuous duty throughout a variety of chemical dosing applications.

Proven performers, Iwaki America bellows pumps are extensively used in the photographic, plating and electronics industries. Additional features include:

- Off-the-shelf availability
- Simplex, Duplex and Multiplex configurations
- Thermoplastic motor housing
- Stainless steel frame
- Easy output adjustment

Addressing the specific requirements of equipment manufacturers, Iwaki America has developed a full line of economical, versatile, OEM and Multiplex pumps featuring rugged gear-motor drives and flexible designs. Iwaki America Bellows Metering Pumps offer:

- Blow-molded polypropylene bellows ensuring even wall thickness for long life.
- Standard bellows available in 1", 1½" and 2" sizes
- Simple liquid end construction, assuring trouble-free pumping
- Anti-syphon spring (Hastelloy C) available
- Sure-seating elastomeric poppet valves provide positive backflow protection
- Optional duckbill valves for slurries
- Multiplex units utilizing quiet, durable nylon gear-drive.
- Easy front access to each head for output adjustment and service in multiplex units.



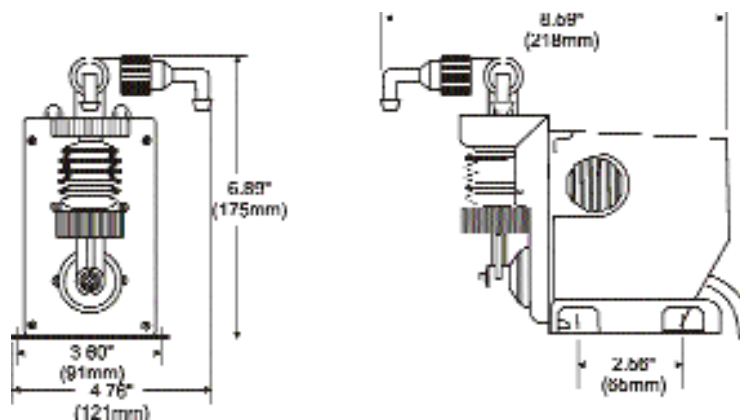
SP/DP



Standard Model (115VAC)	No. of Bellows	Maximum Capacity ml/min (gph)	Maximum Pressure PSI	Strokes/Minute SPM	Self-Prime Lift (dry) Feet (m)	Tubing I.D. Inches (mm)	Maximum Current Amps
SP20-10	1	110 (1.7)	10	33	5 (1.5)	3/8 (9)	1.1
SP60-10	1	205 (3.2)	10	67	5 (1.5)	3/8 (9)	1.1
SP20-20	1	255 (4.0)	5	33	4 (1.2)	3/8 (9)	1.1
SP80-10	1	380 (6.0)	10	135	5 (1.5)	3/8 (9)	1.1
SP60-20	1	495 (7.8)	5	67	4 (1.2)	3/8 (9)	1.1
SP60-30	1	990 (15.7)	5	67	5¼ (1.6)	1/2 (12)	1.1
SP80-30	1	2100 (33.3)	5	135	5¼ (1.6)	1/2 (12)	1.1
DP20-10	2	110 (1.7) x 2	10	33	5 (1.5)	3/8 (9)	1.1
DP60-10	2	205 (3.2) x 2	10	67	5 (1.5)	3/8 (9)	1.1
DP60-20	2	495 (7.8) x 2	5	67	4 (1.2)	3/8 (9)	1.1
DP60-30	2	990 (15.7) X 2	5	67	5¼ (1.6)	1/2 (12)	1.1
DP80-30	2	2100 (33.3) x 2	5	135	5¼ (1.6)	1/2 (12)	1.1

Multiplex Model	No. of Bellows	Maximum Capacity ml/min (gph)	Maximum Pressure PSI	Strokes/Minute SPM	Self-Prime Lift (dry) Feet (m)	Tubing I.D. Inches (mm)	Maximum Current Amps
C311-10	3	100 (1.5) x 3	5	30	5 (1.5)	3/8 (9)	1.3
C311-20	3	230(3.6) x 3	5	30	4 (1.2)	3/8 (9)	1.3
C341-20	3	380 (6.0) x 3	5	50	4 (1.2)	3/8 (9)	1.3
C341-30	3	740 (11.7) x 3	5	50	5¼ (1.6)	3/8 (9)	1.3
C441-30	4	740 (11.7) x 4	5	50	5¼ (1.6)	3/8 (9)	1.3
C541-30	5	740 (11.7) x 5	5	50	5¼ (1.6)	3/8 (9)	1.3
C641-30	6	740 (11.7) x 6	5	50	5¼ (1.6)	3/8 (9)	1.3
C741-30	7	740 (11.7) x 7	5	50	5¼ (1.6)	3/8 (9)	1.3
C841-30	8	740 (11.7) x 8	5	50	5¼ (1.6)	3/8 (9)	1.3
C241-30	12	740 (11.7) x 12	5	50	5¼ (1.6)	3/8 (9)	1.3

SP60-20 Dimensions



P/N 180208.C Jun 2004

EZ SERIES

ELECTRONIC METERING PUMPS

EZ SERIES ELECTRONIC METERING PUMPS

The EZ Series electronic metering pumps with microprocessor control offer precise chemical injection at a low cost.

EZ pumps have outputs to 6.7 GPH and pressure capabilities to 150 PSI. The compact size and simple control make it ideal for OEM applications.

Effective, reliable performance is achieved through sophisticated engineering. Designed with a turn-down ratio of 360:1, the EZ is an exceptional value.



Digital Speed Control

The EZ is simple to operate with three pushbutton keys. The 360:1 turndown ratio provides unmatched versatility.



High Speed Operation

Up to 360 strokes per minute results in high resolution chemical feed, elimination of slug-feed effects.

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.

Double Ball Check Valves

Precision valve guide assemblies prevent loss of prime and ensure easy self priming of 100 cps viscosity solutions with a 5ft. suction lift.

Optional Automatic Air Vent Valve Construction

Eliminates loss of prime when pumping liquids that de-gas easily.

Long Lasting Diaphragm

PTFE laminate over EPDM is molded onto a solid core. A retainer plate is provided to minimize flow rate changes as pressure varies.

Wide Selection of Materials

EZ pumps fit all typical applications for metering pumps. (See liquid end chart, reverse side)

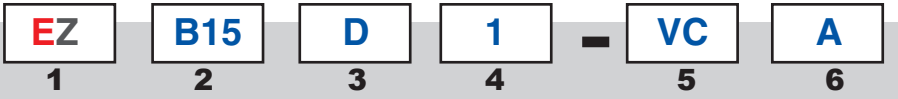
Part of the

W A L C H E M

Family of Products

EH2 2-Year Warranty
Bumper-to-Bumper On All EH Pumps
- Including Wetted Parts

Ordering Information



1 Pump Series

EZ Electronic metering pump with manual speed control (adjustable to 360 strokes per minute).

2 Capacity / Pressure Rating

Size	Maximum Output Capacity		Output per Stroke (mL)	Maximum Pressure		Connection Size (in) Tubing O.D.
	Gal/hr	mL/min		PSI	MPa	
B10	0.6	38	0.11	150	1.0	3/8
B15	1.0	65	0.18	105	0.7	3/8
B20	1.5	95	0.26	60	0.4	3/8
B30	3.2	200	0.56	30	0.2	1/2
C15	1.3	80	0.22	150	1.0	3/8
C20	2.0	130	0.36	105	0.7	3/8
C30	4.3	270	0.75	50	0.35	1/2
C35	6.7	420	1.17	30	0.2	1/2

3 Control Module **D** Manual speed adjustment from 1-360 spm

4 Voltage **1.** 115 VAC, 50 / 60 Hz **2.** 230 VAC, 50 / 60 Hz

5 Liquid End

Liquid End Code	Pump Head & Fittings	Diaphragm	Valve Balls	Valve Seat	Valve Seals	Gasket	Tubing
PC	GFRPP		CE	FKM	FKM		
PE	GFRPP		CE	EPDM	EPDM		
VC	PVC	PTFE	CE	FKM	FKM	PTFE	PE
VE	PVC	BONDED TO EPDM	CE	EPDM	EPDM		
FC*	PVDF		CE	PCTFE	PTFE		
TC	PVDF		CE	FKM	FKM		

NOTE : * Manual air vent valve standard with all models, except FC.

6 Feature

BLANK Standard manual air vent valve included, except with liquid end FC.

A Automatic air vent valve installed. For VC liquid ends on B10, B15 & C15, C20 size pumps only. Pressure rating is reduced by 40 psi with valve installed.

M Multi-function back pressure/anti-syphon valve installed. For PC, PE, VC and VE liquid ends on 10, 15 and 20 size pumps only.

Other Specifications

Electrical	EZ	EZB	EZC
	50/60 Hz, single phase	20 watt avg.	22 watt avg.
	115 VAC ± 10%	0.8 Amp max.	1.2 Amp max.
	230 VAC ± 10%	0.4 Amp max.	0.6 Amp max.

Ambient temperature 32°F to 122°F (0°C to 50°C)

Shipping weight (approx.) 6 lbs

Dimensions EZB H 7.25" L 7.5" W 4.0"
EZC H 8.4" L 8.4" W 4.6"

Standard Materials of Construction

CE	Alumina ceramic
EPDM	Ethylene propylene diene monomer
FKM	Fluoroelastomer
GFRPP	Glass fiber reinforced polypropylene
PCTFE	Polychlorotrifluoroethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
PVC	Polyvinylchloride (translucent)
PVDF	Polyvinylidene fluoride

Safety Performance



The EZ Series metering pumps have been UL tested to meet UL and CSA standards.

All pumps include a manual air vent valve with the exception of FC liquid ends. All pumps include one foot valve, one injection valve, 20 feet of polyethylene tubing and one ceramic weight.

Overview

Walchem and Iwaki have created a unique partnership with over 100 years combined pump experience in an array of different markets. This talent has led to the design of the most innovative and comprehensive metering pump product line in the world, the E-Class Metering Pumps.

E-Class features four great series: EZ, EW, EK and EHE. The variety of pumps within the E-Class will fit any water treatment, wastewater, agriculture, water conditioning, car wash or other industrial feed application.



EW Series

E-Class Metering Pumps

Summary of Benefits

- **High Speed Performance**
E-Class pumps operate at 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 features dual bearing support. The armature and shaft are supported with a bearing on each end, which ensures proper axial movement, enabling the E-Class to operate at 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 raised 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 (i.e.. Sodium Hypochlorite).



EW Series

The EW Series is the flagship of the E-Class with capacities up to 6.7 GPH (25.4 l/h) and a maximum pressure of 150 PSI (10 bar). Compact, powerful and packed with a variety of innovative design features, the EW can enhance any feed application. A variety of liquid end combinations are available to ensure a perfect match for your specific application.

IP65 Construction

The rugged Polyphenylene Oxide (PPO) 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.



PVC

GFRPP

PVDF

316SS

Control Features

All EW Series pumps come equipped with pulse and stop input/output control.

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.

Pulse Output - The EW pump is capable of sending a pulse out synchronous with pump operation.



Stop Input/Output - A stop input contact will stop the pump operation and close a stop output contact for alarm or remote notification. A red light visibly indicates a stopped condition.

Pre-Stop Input - Orange light that gives warning, but pump continues to operate.

In addition to the features found standard on the EW Series, pumps with the EW-Y control module feature:

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.

Flow Display and Totalization - After calibration the EW will totalize the volume feed and display the flow rate. As long as stroke length is constant the pump will accurately totalize all feed. In cases where the pump is being controlled external with a pulse the pump will display and count down remaining flow based on the pulse input. Coupled with the Posiflow feed verification the EW is equipped to ensure proper feed to your application.

Feed Verification - The EW is equipped with 3 pre-programmed modes for accepting our 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 to pump to stop, continue operating and/or send an alarm based on the Posiflow input.

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, programming integrity and protection 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.



EW with Posiflow



EW with Multifunction Valve & Posiflow

2-Year Warranty
 "Bumper-to-Bumper" On All
 E-Class Pumps
 - Including Worned Parts

Electrical

EW

50/60 Hz, single phase
115 VAC ± 10%
230 VAC ± 10%

EWB

20 Watt avg.
0.8 Amp max.
0.4 Amp max.

EWC

22 Watt avg.
1.2 Amp max.
0.6 Amp max.

Shipping Weight (approximate) 12 lbs (5.5kg)

14 lbs (6.4kg)

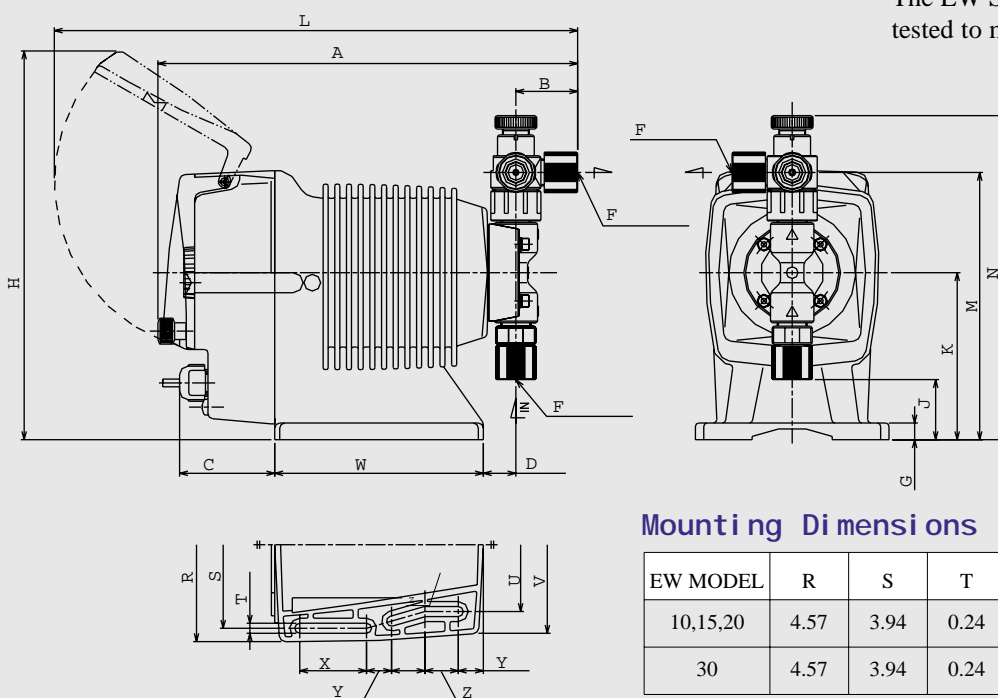
Operating Conditions

Ambient temperature 32°F to 122°F (0°C to 50°C)
Relative humidity to 85%
Liquid temperature 32° to 104°F (0 to 40°C) for PVC based liquid ends
32° to 140°F (0 to 60°C) for PP, PVDF, SS based liquid ends
Below 32°F (0°C), pump is limited to 70% of max. pressure. Liquid cannot freeze.

Dimensions

Safety Performance

The EW Series metering pumps have been UL tested to meet UL and CSA standards.



Mounting Dimensions (inches)

EW MODEL	R	S	T	U	V	X	Y	Z
10,15,20	4.57	3.94	0.24	3.15	4.17	1.57	0.59	0.79
30	4.57	3.94	0.24	3.15	4.17	1.57	0.59	0.79

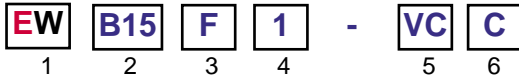
EW MODEL	A	B	C	D	F	G	H	J	K	L	M	N	W
10,15,20	9.92 ¹	1.46 ¹	2.24	0.77	ø1/4 x ø3/8	0.39	9.17	1.42	3.94	12.36 ¹	6.30 ²	7.64 ³	4.92
30	10.12	1.50	2.24	0.93	ø3/8 x ø1/2	0.39	9.17	0.71	3.94	12.56	7.17	8.43	4.92

Notes for EW10, 15, 20:

1. Addition of a Multifunction valve increases overall length by 0.37". Addition of an Auto Air Vent Valve increases overall length by 1.59".
2. Addition of a Multifunction Valve increases discharge height by 0.22". No change for the Auto Air Vent Valve.
3. Addition of a Multifunction Valve increases overall liquid end height by 1.16". No change for the Auto Air Vent Valve.

Standard Materials of Construction

CE	Alumina ceramic	PTFE	Polytetrafluoroethylene
EPDM	Ethylene propylene diene monomer	PCTFE	Polychlorotrifluoroethylene
FKM	Fluoroelastomer	PVC	Polyvinylchloride (translucent)
GFRPP	Glass fiber reinforced polypropylene	PVDF	Polyvinylidene fluoride
PE	Polyethylene	M-PVC	Machined polyvinylchloride



1 PUMP SERIES

EW IP65 electronic metering pump with external pulse control or manual speed control (adjustable to 360 strokes per minute) and manually adjustable stroke length. (Turndown ratio 1800:1)

2 CAPACITY/PRESSURE RATING

Size	Max. Output Capacity		Max. Output per Stroke	Max. Pressure ¹		Connection Size (in) Tubing O.D.
	GPH	ml/min	ml	PSI	MPa	
B10	0.6	38	0.11	150	1.0	3/8
B15	1.0	65	0.18	105	0.7	3/8
B20	1.8	115	0.32	60	0.4	3/8
B30	3.3	210	0.58	30	0.2	1/2
C15	1.3	80	0.22	150	1.0	3/8
C20	2.3	145	0.40	105	0.7	3/8
C30	4.3	270	0.75	50	0.35	1/2
C35 ²	6.7	420	1.17	30	0.2	1/2

¹ Auto Air vent valve reduces maximum pressure approx. 35 PSI (0.2 MPa)

² Output of the EWC35-TC/FC/SH is 6.3 GPH (400 ml/min)

3 CONTROL MODULE

F = For use on all EW models, features digitally adjustable speed and external pulse input control, stop & pre-stop inputs.

Y = For use on all EW models, features analog input, digital input w/multiply & divide, PosiFlow input and alarm outputs.

4 VOLTAGE

1 = 115VAC, 50/60 Hz

2 = 230VAC, 50/60 Hz

5 LIQUID END

Liquid End	Pump Head & Fittings	Diaphragm	Valve Balls	Valve Seat	Valve Seals	Gasket	Tubing
FC	PVDF	PTFE BONDED TO EPDM	CE	PCTFE	PTFE	PTFE	PE
PC	GFRPP		CE	FKM	FKM		
PE	GFRPP		CE	EPDM	EPDM		
VC	PVC		CE	FKM	FKM		
VE	PVC		CE	EPDM	EPDM		
VF	PVC		PTFE	EPDM	EPDM		
TC	PVDF		CE	FKM	FKM		
SH	316SS		HC	HC	PTFE	1/4" NPTF	

6 OPTIONS

C = High compression configuration: supplied standard with Auto Air Vent Valve in place of manual air vent valve. Available for B10, B15, C15 and C20 sizes with -VC liquid ends only.

M = Multifunction Valve is supplied in place of the manual air vent valve. Available for the 10, 15 and 20 size pumps with VC, VE, VF, PC, PE, PCH and PEH liquid ends. Not available with the AAVV feature.

CONNECTORS (ORDERED SEPARATELY)

E90494 4-Pin, Reverse Key Connector. Use for Stop/Pre-Stop inputs on EW/EW-Y.

E90495 5-Pin Connector. Use for Pulse in and Outputs on EW. Use for digital or analog inputs on EW-Y. Supplied standard with EW-Y pumps.

E90496 5-Pin, Reverse Key Connector. Use for Posiflow input on EW-Y.

E90497 4-Pin Square Connector. Use for output connectors on EW-Y.

All pumps include a manual air vent valve with the exception of FC liquid ends. All pumps include one foot valve, one injection valve, 20 feet of polyethylene tubing and one ceramic weight.



WEBMASTER GENERAL INDUSTRIAL CONTROLLER



WEBMASTER COOLING TOWER/BOILER CONTROLLER



METERING PUMP AND ACCESSORIES



WEBALERT REMOTE MONITORING & DATALOGGING

Walchem designs and manufactures an integrated line of analytical control, sensing and metering equipment.

Our in-house engineering is driven by quality, technology and innovation.

For more information on the entire Walchem product line, visit : www.walchem.com

WALCHEM

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Overview

Walchem and Iwaki have created a unique partnership with over 100 years combined pump experience in an array of different markets. This talent has led to the design of the most innovative and comprehensive metering pump product line in the world, the E-Class Metering Pumps. Powered by advanced microprocessor-based electronics and superior mechanical design, the

E-Class features four great series: EZ, EW, EK and EHE. The variety of pumps within the E-Class will fit any water treatment, wastewater, agriculture, water conditioning, car wash or other industrial feed application.



EK Series

E-Class Metering Pumps

Summary of Benefits

- **High Speed Performance**
E-Class pumps operate at 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 features dual bearing support. The armature and shaft are supported with a bearing on each end, which ensures proper axial movement, enabling the E-Class to operate at 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 raised 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. (i.e. Sodium Hypochlorite)



EK Series

The EK Series pumps are the world's first **IP67** electronic metering pumps. This means that the EK is the only pump in the industry guaranteed to operate submerged 3 feet under water for up to 30 minutes! Needless to say, the EK Series pumps are ideal for wet or high humidity environments such as irrigation, agriculture, car wash or paper mill applications. Capacity ratings are up to 6.7 GPH (25.4 l/h) with a maximum pressure of 150 PSI (10 bar). The rugged Polyphenylene Oxide (PPO) 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. A variety of liquid end combinations are available to ensure a perfect match for your specific application.



SUS 316

PVDF

GFRPP

PVC

IP67 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 make 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 the EK Series to achieve an 1800:1 turndown ratio. The digital display and pushbutton speed control make setting the EK pump easy and precise. The 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.



2-Year Warranty
"Bumper-to-Bumper" On All
E-Class Pumps
- Including Worned Parts

Electrical

EK

50/60 Hz, single phase
115 VAC ± 10%
230 VAC ± 10%

EKB

20 Watt avg.
0.8 Amp max
0.4 Amp max.

EKC

22 Watt avg.
1.2 Amp max.
0.6 Amp max

Shipping Weight (approximate)

12 lbs (5.5kg)

14 lbs (6.4kg)

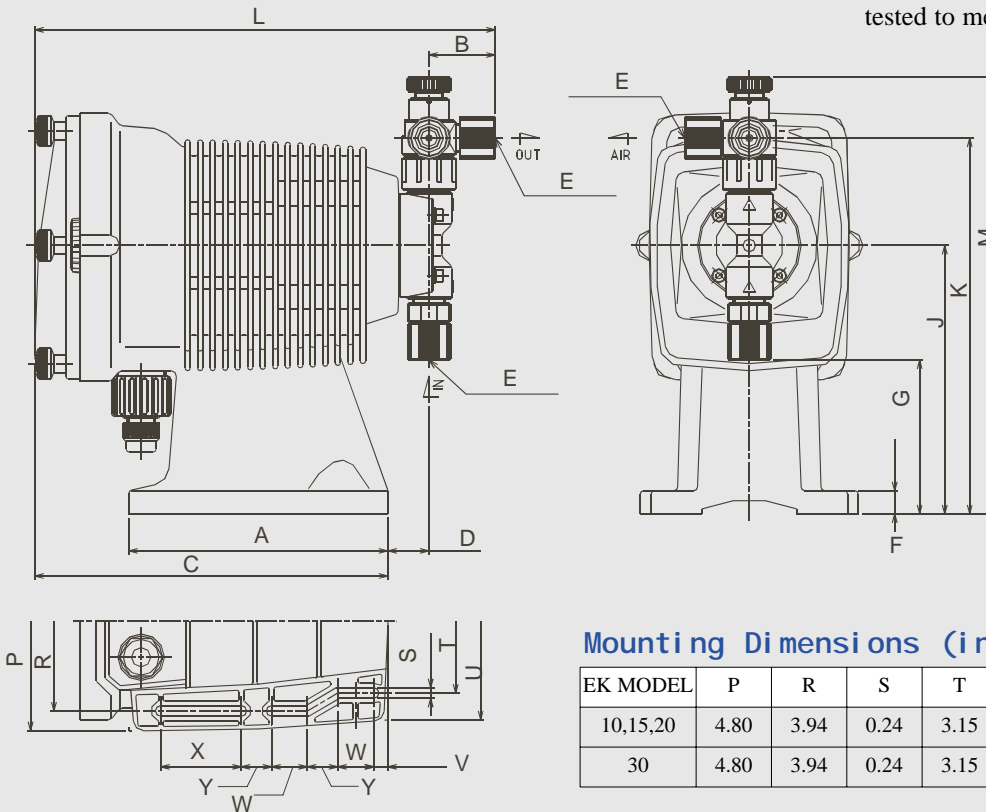
Operating Conditions

Ambient temperature 32°F to 122°F (0°C to 50°C)
Relative humidity to 95% non-condensing
Liquid temperature 32° to 104°F (0 to 40°C) for PVC based liquid ends
32° to 140°F (0 to 60°C) for PP, PVDF, SS based liquid ends
Below 32°F (0°C), pump is limited to 70% of max. pressure. Liquid cannot freeze.

Dimensions

Safety Performance

The EK Series metering pumps have been UL tested to meet UL and CSA standards.



Mounting Dimensions (inches)

EK MODEL	P	R	S	T	U	V	W	X	Y
10,15,20	4.80	3.94	0.24	3.15	4.33	0.31	0.79	1.77	0.67
30	4.80	3.94	0.24	3.15	4.33	0.31	0.79	1.77	0.67

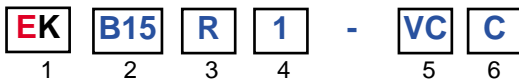
EK MODEL	A	B	C	D	E	F	G	J	K	L	M
10,15,20	5.71	1.46 ¹	7.78	0.91	ø1/4 x ø3/8	0.51	3.39	5.91	8.27 ²	10.14 ¹	9.61 ³
30	5.71	1.50	7.78	1.06	ø3/8 x ø1/2	0.51	2.68	5.91	9.14	10.33	10.40

Notes for EK10, 15, 20:

1. Addition of a Multifunction valve increases overall length by 0.37". Addition of an Auto Air Vent Valve increases overall length by 1.59"
2. Addition of a Multifunction Valve increases discharge height by 0.22". No change for the Auto Air Vent Valve.
3. Addition of a Multifunction Valve increases overall liquid end height by 1.16". No change for the Auto Air Vent Valve.

Standard Materials of Construction

CE	Alumina ceramic	PTFE	Polytetrafluoroethylene
EPDM	Ethylene propylene diene monomer	PCTFE	Polychlorotrifluoroethylene
FKM	Fluoroelastomer	PVC	Polyvinylchloride (translucent)
GFRPP	Glass fiber reinforced polypropylene	PVDF	Polyvinylidene fluoride
PE	Polyethylene	M-PVC	Machined polyvinylchloride



1 PUMP SERIES

EK IP67 aggressive environment rated electronic metering pump with external pulse control or manual speed control (adjustable to 360 strokes per minute) and manually adjustable stroke length. (Turndown ratio 1800:1)

2 CAPACITY/PRESSURE RATING

Size	Max. Output Capacity		Max. Output per Stroke ml	Max. Pressure ¹		Connection Size (in) Tubing O.D.
	GPH	ml/min		PSI	MPa	
B10	0.6	38	0.11	150	1.0	3/8
B15	1.0	65	0.18	105	0.7	3/8
B20	1.8	115	0.26	60	0.4	3/8
B30	3.3	210	0.56	30	0.2	1/2
C15	1.3	80	0.22	150	1.0	3/8
C20	2.3	145	0.36	105	0.7	3/8
C30	4.3	270	0.75	50	0.35	1/2
C35 ²	6.7	420	1.17	30	0.2	1/2

- 1 Auto Air vent valve reduces maximum pressure approx. 35 PSI (0.2 MPa)
 2 Output of the EKC35-TC/FC/SH is 6.3 GPH (400 ml/min)

3 CONTROL MODULE

R = For use on all EK models, features external pulse input control and stop input.

4 VOLTAGE

- 1** = 115VAC, 50/60 Hz
2 = 230VAC, 50/60 Hz

5 LIQUID END

Liquid End	Pump Head & Fittings	Diaphragm	Valve Balls	Valve Seat	Valve Seals	Gasket	Tubing
FC	PVDF	PTFE BONDED TO EPDM	CE	PCTFE	PTFE	PTFE	PE
PC	GFRPP		CE	FKM	FKM		
PE	GFRPP		CE	EPDM	EPDM		
VC	PVC		CE	FKM	FKM		
VE	PVC		CE	EPDM	EPDM		
VF	PVC		PTFE	EPDM	EPDM		
TC	PVDF		CE	FKM	FKM		
SH	SS		HC	HC	PTFE		

6 OPTIONS

C = High compression configuration: supplied standard with Auto Air Vent Valve in place of manual air vent valve. Available for B10, B15, C15 and C20 sizes with -VC liquid ends only.

M = Multifunction Valve is supplied in place of the manual air vent valve. Available for the 10, 15 and 20 size pumps with VC, VE, VF, PC, PE, PCH and PEH liquid ends. Not available with the AAVV feature.

All pumps include a manual air vent valve with the exception of FC liquid ends. All pumps include one foot valve, one injection valve, 20 feet of polyethylene tubing and one ceramic weight.



WEBMASTER GENERAL INDUSTRIAL CONTROLLER



WEBMASTER COOLING TOWER/ BOILER CONTROLLER



METERING PUMPS AND ACCESSORIES



WEBALERT REMOTE MONITORING & DATALOGGING

Walchem designs and manufactures an integrated line of analytical control, sensing and metering equipment.

Our in-house engineering is driven by quality, technology and innovation.

For more information on the entire Walchem product line, visit : www.walchem.com

WALCHEM

180248.A 8/2003

Overview

The EH Series metering pump offers superior dosing capability. Superb valve performance and advanced solenoid engineering combine to make a highly precise pump.

Its high speed of operation and long service life fit it for applications requiring a pump three times its physical size. Super quiet and compact, EH metering pumps prime in seconds and hold prime reliably.



EH Series E-Class Metering Pumps

Summary of Benefits

■ High Pressure

A high pressure head and specially designed retainer combine to create a series of pumps for high pressure applications, perfect for boilers and high rise cooling tower installations.

■ Superior Priming

EH metering pumps easily self-prime 100 cps viscosity solutions with a 5 foot suction lift.

Unique Construction

- The solenoid and pump housing are molded as a single unit for better heat rejection and durability. Front and back dual bearings support the solenoid armature providing better weight distribution and longer diaphragm life.

High Speed Operation

- Up to 360 strokes per minute. The EH series injects at three times the rate of comparable metering pumps, resulting in high-resolution chemical feed and elimination of slug-feed effects.

W A L C H E M



THE FINEST ENGINEERED METERING PUMP IN THE WORLD

Featuring Two Control Options



Y Module

EHB & EHC series pumps can come equipped with digital speed control, programmable 4-20mA input and pulse input with multiplier/divider. The Y module increases the turndown ratio on the EHB/EHC pumps from 125:1 to 900:1. The Y module features a 12vdc power supply which allows you to use either a Hall Effect or reed switch water meter.



- Long Lasting Diaphragm
- Modular Components
- Wide Selection of Materials
- Compact Size
- Double Ball Check Valves



Y Module



R Module

The R Module is equipped with a speed control knob, digital pulse input and external start/stop functions.



R Module



Microprocessor-Based Circuitry

Allows operator adjustment of pump speed and external input settings via 4-button keypad.



External Digital Input Mode-Pulse Multiply

Often used in flow proportional systems. One input pulse can produce 1 to 999 pump strokes.



External Digital Input Mode-Pulse Divide

The pump can be set up to divide (accumulate) pulses by a factor of 1 to 999.



External Control Analog

Programmable 4-20 mA input allows a user defined speed control band; pump speed and mA settings set by user.

2-Year Warranty
 "Bumper-to-Bumper" On All
 E-Class Pumps
 - Including Waxed Parts

Electrical

	EHB	EHC
50/60 Hz, single phase	16 Watt avg.	24 Watt avg.
115 VAC ± 10%	0.9 Amp max	1.4 Amp max.
230 VAC ± 10%	0.3 Amp max.	0.5 Amp max

Shipping Weight (approximate)	EHB	EHC
	6 lbs	9 lbs
	8 lbs	10 lbs
	(thermoplastic liquid end)	(stainless steel liquid end)

Operating Conditions

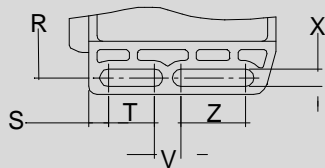
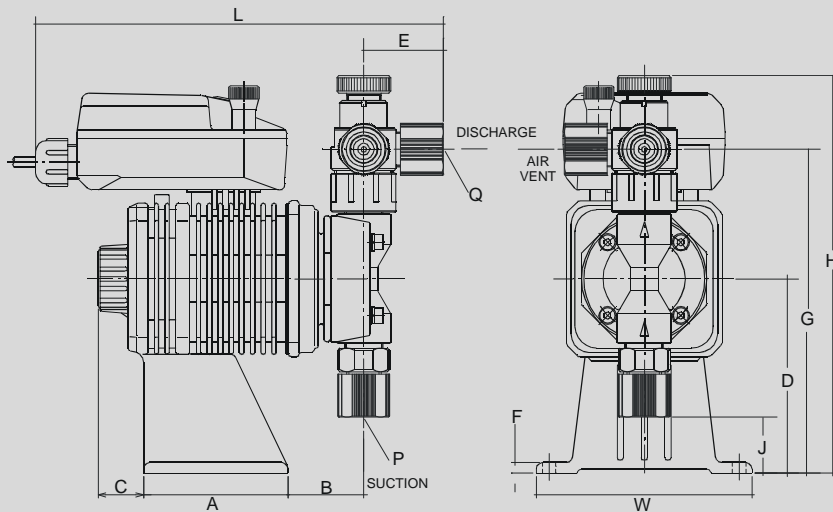
Ambient temperature 32°F to 122°F (0°C to 50°C)

Safety Performance

The EH Series metering pumps have been UL tested to meet UL and CSA standards.



Dimensions



Mounting Dimensions inches (mm)

EH MODEL	R	S	T	V	X	Z
EHB	3.46 (87.9)	0.28 (7.1)	0.65 (16.5)	0.37 (9.4)	0.71 (18)	0.24 (6.1)
EHC	3.94 (100)	0.28 (7.1)	0.67 (17)	0.39 (9.9)	1.81 (45.9)	0.24 (6.1)

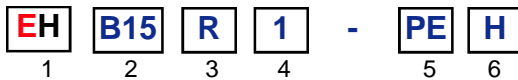
Dimensions given are the maximum for the largest liquid end available for that model.

	A	B	C	D	E	F	G	H	J	L	W
EHB	2.64 (67)	1.57 (39.8)	0.83 (21.1)	3.54 (89.9)	1.46 (37.1)	0.20 (5.1)	5.91 (150.1)	7.24 (183.9) 7.56 (192)*	0.31 (7.9)	7.36 (186.9) 7.72 (196.1)*	3.94 (100)
EHC	3.82 (97)	1.46 (37.1)	0.67 (17)	3.94 (100)	1.46 (37.1)	0.20 (5.1)	7.13 (181.1)	7.64 (194) 7.95 (201.9)*	0.71 (18)	8.23 (209) 8.58 (217.9)*	4.57 (116)

* with Y control module

Standard Materials of Construction

CE	Alumina ceramic	PE	Polyethylene
EPDM	Ethylene propylene diene monomer	PTFE	Polytetrafluoroethylene
FKM	Fluoroelastomer	SS	316 stainless steel
GFRPP	Glass fiber reinforced polypropylene	HC	Hastelloy C276



1 PUMP SERIES

EH Electronic metering pump with external or manual speed control (adjustable to 360 strokes per minute) and manually adjustable stroke length.

2 CAPACITY/PRESSURE RATING

Size	Max. Output Capacity		Max. Output per Stroke	Max. Pressure ¹		Connection Size (in) Tubing O.D.**
	GPH	ml/min	ml	PSI	MPa	
High Pressure						
B10H*	0.5	30	0.08	215	1.5	3/8"
C15H*	0.8	50	0.14	215	1.5	3/8"
Stainless Steel						
B10	0.6	38	0.11	150	1.0	1/4" FNPT
B20	1.5	95	0.26	60	0.4	1/4" FNPT
C20	2.0	130	0.36	105	0.7	1/4" FNPT
C30	4.4	270	0.75	50	0.35	1/4" FNPT
C35	6.7	420	1.17	30	0.2	1/4" FNPT

* High pressure option available for PC and PE liquid ends on B10 and C15 size pumps only.

** 1/4" NPT female for 316 SS

3 CONTROL MODULE

R = ON/OFF with external start/stop & digital pulse control; turndown ratio 125:1

Y = ON/OFF with 0-360 digital speed control, external start/stop, programmable 4-20mA input and digital pulse input pulse multiplier/divider control; turndown ratio 900:1

4 VOLTAGE

1 = 115VAC, 50/60 Hz

2 = 230VAC, 50/60 Hz

5 LIQUID END

Liquid End	Pump Head & Fittings	Diaphragm	Valve Balls	Valve Seat	Valve Seals	Gasket	Tubing
PC	GFRPP	PTFE BONDED TO EPDM	CE	FKM	FKM	PTFE	PE
PE	GFRPP		CE	EPDM	EPDM		
SH	SS		HC	HC	PTFE		1/4" NPTF

6 FEATURE

BLANK = Standard manual air vent valve included.

H = High pressure option available for PC and PE liquid ends on B10 and C15 size pumps only. *See output and pressure ratings above.*

M = A multi-function valve is supplied in place of the manual air vent valve. Available for the EHB and C10-20 size pumps with PCH and PEH liquid ends.



WEBMASTER GENERAL INDUSTRIAL CONTROLLER



WEBMASTER COOLING TOWER/BOILER CONTROLLER



METERING PUMP AND ACCESSORIES



WEBALERT REMOTE MONITORING & DATALOGGING

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EH SERIES

ELECTRONIC METERING PUMPS



The *MOST* Powerful Electronic Metering Pump

No other electronic metering pump can match the power and performance of Walchem's EHE Series.

EHE Series pumps have outputs up to 20 gallons per hour and pressure capabilities from 30 to 150 PSI. Combining the EHE performance and a turn-down ratio of 1800:1 yields one of the most versatile pumps on the market today.

Superior mechanical design and quality of manufacturing merge to create a pump better than the sum of its parts.



Prime Valve Design

The EHE primes in seconds after turning the pump on. Tightly guided check valves ensure a tight seal after each pulse, preventing loss of prime.

High Resolution Metering

Up to 360 strokes per minute provides smooth, uniform, precise chemical injection.

Engineered Longevity

Unique, double support of the solenoid armature extends the life of the bearing creating a smoother, quieter and more precise shot every stroke.

Dual Control Option

Manual or automatic mode features speed adjustment in 1 stroke/minute increments from 1 to 360. Turn down ratio is 1800:1.

Part of the

W A L C H E M

Family of Products

EH2 2-Year Warranty
 "Bumper-to-Bumper" On All EH Pumps
 - Including Wasted Parts



THE FINEST ENGINEERED METERING PUMP IN THE WORLD



POWERFUL

The EHE35 size pump is the most powerful electronic metering pump currently available. A pump's maximum pressure rating times its maximum output at that pressure gives a relative measure of the pump's hydraulic output power, a "power index." The EHE 35 with an output of 8.5 gph at 105 psi yields a power index of 892.5.

No other metering pump even comes close!

EFFICIENT

The EHE Series does its work extremely well. Hydraulic output is maximized by its economic use of electricity via excellent heat rejection, valves that positively and consistently seat, unique front-and-back support of the armature.

DURABLE

Superior magnetic, electronic, thermal and hydraulic designs have been achieved in the EHE metering pump. The result is a pump that will perform longer at maximum duty than any other comparable pump.

TWO YEAR WARRANTY

Your pump will be repaired or replaced for up to 2 years, should it fail, providing the pump is applied according to factory recommendations.



Microprocessor-Based Control Circuitry

Microprocessor-based circuitry

Allows operator adjustment of pump speed and external input settings via 4-button keypad.



External digital input mode, pulse multiply

Often used in flow proportional systems, such as with a flowmeter contactor. 1 input pulse can produce 1 to 999 pump strokes.



External digital input mode, pulse divide

Pump can be set to divide (accumulate) pulses by a factor of 1 to 999.

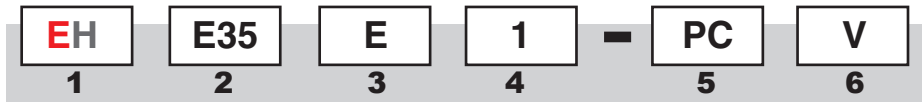


External analog input mode

Programmable 4-20mA input allows for user defined speed control band; user sets minimum and maximum pump speeds.



Ordering Information



1

Pump Series

EHE Microprocessor control for all EHE models. Features manual speed control from 1 to 360 spm in 1 spm increments. External control from pulse signal with internal multiply and divide or from analog 4-20 mA signal.

2

Capacity / Pressure Rating

Size	Output Capacity		Output per Stroke		Maximum Pressure		Connection Size (in.) Tubing O.D.	Power Index GPH x PSI		
	GPH min.	GPH max.	ml/min min.	ml/min max.	PSI	MPa				
E30	0.0031	5.5	0.189	340	0.18	0.94	150	1.0	1/2	825.0
E35	0.0047	8.5	0.289	520	0.289	1.44	105	0.7	1/2	892.5
E45	0.0067	12.0	0.417	750	0.417	2.08	60	0.4	1/2	720.0
E55	0.0111	20.0	0.694	1250	0.694	3.47	30	0.2	1/2	600.0

3

Control Module

E

For use on all EHE models, features external pulse capability (Pulse divide, pulse multiply, analog)

4

Voltage

1- 115 VAC, 50 / 60 Hz

2- 230 VAC, 50 / 60 Hz

5

Liquid End

Liquid End Code	Pump Head & Fittings	Diaphragm	Valve Balls	Valve Seat	Valve Seals	Gasket	Tubing
PC	GFRPP		CE	FKM	FKM		
PE	GFRPP		CE	EPDM	EPDM		
VC	PVC		CE	FKM	FKM		
VE	PVC		CE	EPDM	EPDM		
VF	PVC	PTFE	PTFE	EPDM	EPDM	PTFE	PE
VM*	M-PVC	BONDED TO EPDM	CE	FKM	FKM		
FC	PVDF		CE	PCTFE	PTFE		

* VM liquid end available on E55 only

6

Back Pressure/Anti-Syphon Valve and Piping options

Feature Standard 1/2" tube connection. No accessory valve.

V

Standard 1/2" tube connection with Back Pressure/Anti-Syphon Valve *

T

3/4" NPT (male) pipe thread connection

P

3/4" NPT (male) connection with Back Pressure/Anti-Syphon Valve *

* Not available for FC

Materials of Construction

CE	Alumina ceramic
EPDM	Ethylene propylene diene monomer
FKM	Fluoroelastomer
GFRPP	Glass fiber reinforced polypropylene
M-PVC	Machined polyvinylchloride
PCTFE	Polychlorotrifluoroethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
PVC	Polyvinylchloride (translucent)

NOTE: Tube or piping connection material of construction will be the same as the liquid end.

All pumps include one foot valve, one injection valve, 20 feet of polyethylene tubing, and one ceramic weight with the exception of options P and T.



ELECTRONIC METERING PUMPS

Other Specifications

Electrical (50/60 Hz, single phase)

115 VAC \pm 10% 1.8 Amp max 48 watt avg
 230 VAC \pm 10% 0.8 Amp max 48 watt avg

Operating Conditions

Ambient temperature 32°F to 122°F (0°C to 50°C)
 Relative humidity 30 to 90%, non-condensing

Shipping Weight (approximate)

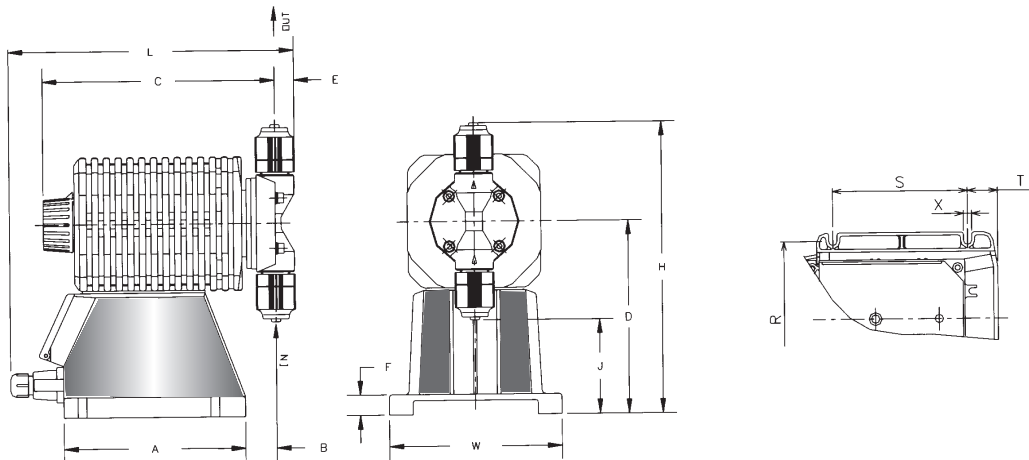
22 lbs (10 kg)

Safety Performance

The EHE Series metering pumps have been UL tested to meet UL and CSA standards.



Dimensions



Overall Dimensions (inches / mm)

A	B	C	D	E	F	H	J	L	W
6.06	1.42	8.13	6.42	0.91	0.67	10.45	2.38	10.17	5.75
(154)	(36)	(206.5)	(163)	(23)	(17)	(265.5)	(60.5)	(258)	(146)

Mounting Dimensions (inches / mm)

R	S	T	X
5.20	4.50	1.00	0.28
(132)	(114)	(25.5)	(7)

2 YEAR LIMITED WARRANTY

Our warranty covers the metering pump electronics (control unit and drive unit) and the entire liquid end, including diaphragm. We will repair or replace any properly applied pump if it fails up to 2 years after delivery.

LK SERIES

MOTOR-DRIVEN METERING PUMPS



LK Series shown with optional pump stand

Liquid Ends

Drive from the gear reduction unit is directly transferred to the diaphragm. This design is economical, yet retains a high degree of versatility. Liquid ends are available in PVC, PVDF and 316 SS for handling acids, bases, solvents, polymers and slurries.

Stroke Adjustment

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

LK

The **LK** Series metering pump is the latest addition to the high performance line of pumps from Walchem Corporation. The 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 (1.5 MPa).

The heart of the LK is the dual-cam system drive with a built-in worm gear type speed reducer. This type of design is compact and very reliable. The tapered roller bearing and oil bath lubrication ensure outstanding durability and wear resistance in continuous operation.

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

Drive

The LK utilizes a dual-cam system drive 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 rigid mechanism 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.

Part of the

W A L C H E M

Family of Products



Ordering Information



- 1 LK Series motor driven metering pump
- 2 N - NEMA 42C motor mounting flange
- 3 Capacity/Pressure Rating

Model	Capacity *		Max. Pressure PSI		Stroke Speed spm		Connection NPT	Net Weight lbs	
	LPH@50Hz	GPH@60Hz	PVC/PVDF	SS	50 Hz	60 Hz		PVC/PVDF	SS
LKN32	30	9.5	150	225	96	116	1/2"	26	37
LKN45	50	15.9	150	225	48	58	1/2"	31	46
LKN47	100	31.8	120	120	96	116	1/2"	31	46
LKN55	168	53.4	75	75	48	58	1"	35	57
LKN57	360	114.3	45	45	96	116	1"	35	57

* Capacities listed are at max. pressure

** LKN47 with VS liquid end has 1" NPT connections

4 Motor Code

- A = 115/230V, 60Hz, 1 ph, 1/3 HP, 1725 RPM, TEFC Frame 42C
- B = 230/460V, 60Hz, 3 ph, 1/3 HP, 1725 RPM, TEFC Frame 42C
- C = 190/380/230/460V, 50/60Hz, 3 ph, 1/3 HP, 1450/1725 RPM, TEFC Frame 42C
- D = 90VDC, 1 ph, 1/3 HP, 1750 RPM, TENV Frame 42C Variable Speed Motor, 115V Control
- E = 180VDC, 1 ph, 1/3 HP, 1750 RPM, TENV Frame 42C Variable Speed Motor, 230V Control
- F = 230/460V, 60Hz, 3 ph, 1/3 HP, 1725 RPM, Explosion Proof Motor
- N = No motor option / used with special motor requirements

5 Liquid End Code

Type	VC	VH	VS	TC	S6
Application	Acids	Alkalines	Viscosity & Slurry	Strong acids	Solvents
1. Pump head	PVC			PVDF	SS316
2. Valve ball	CE	HC	HC/SS304	Alumina ceramic	HC
3. Valve seat Type 32	FKM	EPDM	SS304	FKM	SS316
Type 45 to 57	PVC		SS304	PVDF	SS316
4. O-ring	FKM	EPDM		FKM	----
5. Valve gasket	PTFE				
6. Diaphragm	PTFE + EPDM				

Material symbols

- PVDF: Polyvinylidene fluoride
- CE: Ceramic
- FKM: Fluoroelastomer
- EPDM: Ethylene propylene diene monomer
- HC: Hastelloy C276

Notes:

1. Walchem recommends the installation of a pressure relief valve and a pulsation dampener in the discharge line of the LK Series pumps. Contact your Walchem distributor for these and other control and accessory products from Walchem.
2. Maximum viscosity at rated output is 1000 cps for VS and S6, 500 cps for VH and 300 cps for VC and TC.

W A L C H E M