

## OVERVIEW

The EK Series pump is the world's first and only IP67 rated electronic metering pump - guaranteed to operate submerged 3 feet under water for up to 30 minutes! This makes the EK Series pumps ideal for wet or high humidity environments found in irrigation, agriculture, food & beverage, car wash or paper mill applications.

The EK Series are highly precise metering pumps with outputs to 6.7 GPH (25.2 l/h) and a maximum pressure of 150 PSI (10 bar). The 360 stroke-per-minute operation results in high-resolution chemical feed and long service life. Quiet and compact, EK pumps prime in seconds and hold prime reliably.



## SUMMARY OF KEY BENEFITS



### High Speed Performance

E-Class pumps operate at 360 strokes-per-minute, providing high resolution chemical feed. Most competitive products operate at slower speeds, resulting in slug feeding, accelerated diaphragm wear and poor feed control.



### Engineered Longevity

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 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 guarantees fast priming and reliable performance.



### 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).

Walchem and Iwaki have over 100 years of combined pump experience. This partnership 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 five great series: EZ, EW, EK, EHE, and EHF. The wide range of capabilities within the E-Class ensures that there's a model to fit any water treatment, food & beverage, agriculture, water conditioning, car wash, or other industrial chemical feed application.

EK Series waterproof pumps are designed for the harshest chemical injection environments. 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.



SUS316

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 Wetted Parts**

## Electrical Specifications

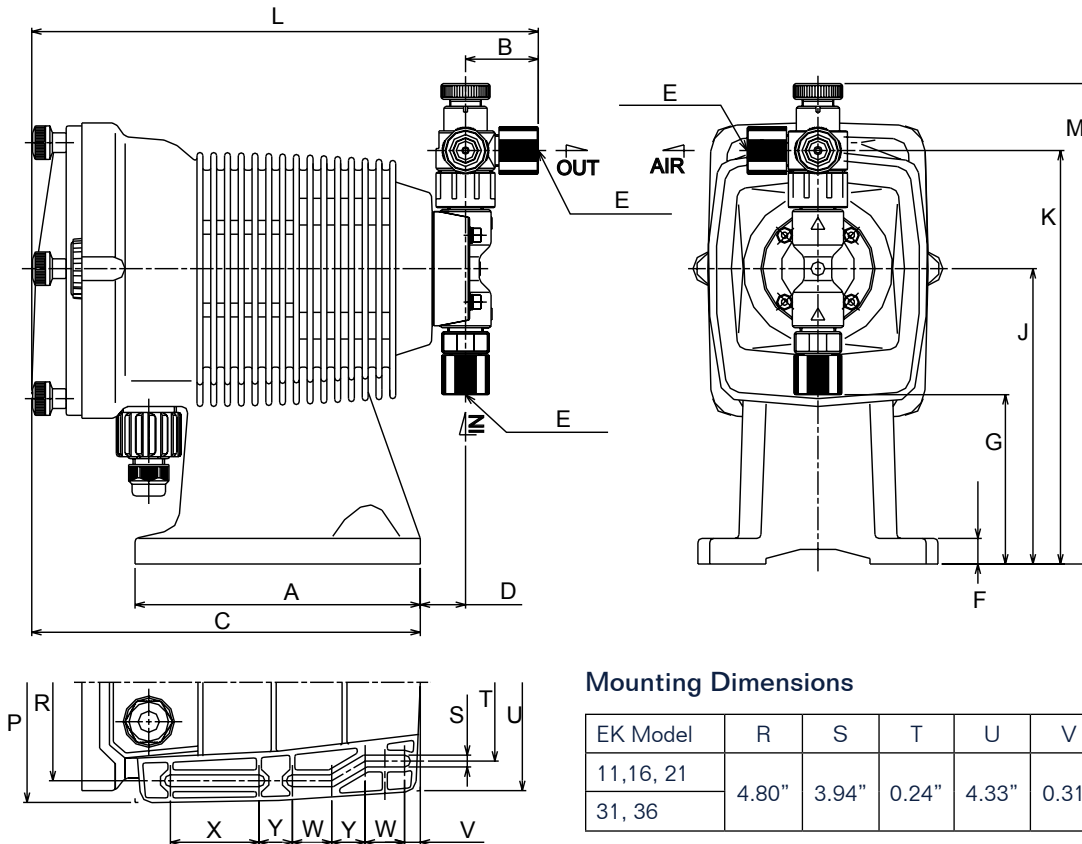
EK	EKB	EKC
50/60 Hz, single phase	20 Watt avg.	22 Watt avg.
115 VAC ±10%	0.8 Amp max.	1.2 Amp max.
230 VAC ±10%	0.4 Amp max.	0.6 Amp max.

Shipping Weight	12 lbs. (5.5 kg)	14 lbs. (6.4 kg)
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## Operating Conditions

Ambient Temperature: 32 to 122°F (0 to 50°C)  
 Relative Humidity: to 95%  
 Liquid Temperature: PVC liquid ends: 32 to 104°F (0 to 40°C)  
 PP, PVDF, SS liquid ends: 32 to 140°F (0 to 60°C)  
 Below 32°F (0°C), pump is limited to 70% of maximum pressure. Liquid cannot freeze.

## Dimensions



### Mounting Dimensions

EK Model	R	S	T	U	V	W	X	Y
11, 16, 21	4.80"	3.94"	0.24"	4.33"	0.31"	0.79"	1.77"	0.67"
31, 36								

all dimension in inches

EK Model	A	B	C	D	E	F	G	J	K	L	M
11, 16, 21	5.71	1.46 <sup>1</sup>	7.78	0.51	ø <sup>1</sup> / <sub>4</sub> x ø <sup>3</sup> / <sub>8</sub>	0.51	3.39	5.91	8.27 <sup>2</sup>	10.14 <sup>1</sup>	9.61 <sup>3</sup>
31, 36	5.71	1.50	7.78	1.06	ø <sup>3</sup> / <sub>8</sub> x ø <sup>1</sup> / <sub>2</sub>	0.51	2.68	5.91	9.14	10.33	10.40

Notes for EK11, 16, 21:

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.

## Safety Certifications

The EK series metering pumps are WQA tested and certified to NSF/ANSI Standard 61.



The EK series metering pumps are tested by Intertek to UL and CSA standards.



## ORDER INFORMATION

EK    **B16**    **R**    **1** — **VC**    **A**  
 Pump series    Capacity/Pressure    Control Module    Voltage    Liquid End    Options

### 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)

### CAPACITY/PRESSURE RATING

See chart on this page

### CONTROL MODULE

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

### VOLTAGE

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

### LIQUID END

See chart on this page

### OPTIONS

A = Auto Air Vent Valve installed in place of manual air vent valve. Available for B11, B16, C16 and C21 sizes with -VC liquid ends only.

M = Multifunction Valve is supplied in place of the manual air vent valve. Available for the 11, 16 and 21 size pumps with VC, VE, VF, PC, and PE 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 with the exception of SH liquid ends.

## Capacity/Pressure Rating

Size	Max Output Capacity		Max output per stroke	Max Pressure <sup>1</sup>		Connection Size Tubing O.D. (in)
	GPH	mL/min	mL	PSI	MPa	
B11	0.6	38	0.11	150	1.0	3/8
B16	1.0	65	0.18	105	0.7	3/8
B21	1.8	115	0.32	60	0.4	3/8
B31	3.3	210	0.58	30	0.2	1/2
C16	1.3	80	0.22	150	1.0	3/8
C21	2.3	145	0.40	105	0.7	3/8
C31	4.3	270	0.75	50	0.35	1/2
C36 <sup>2</sup>	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 EKC36-TC/FC/SH is 6.3 GPH (400 ml/min)

## Liquid End Materials

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		
VC	PVC		CE	FKM	FKM		
VE	PVC		CE	RPFM	EPDM		
VF	PVC		PTFE	EPDM	EPDM		
TC	PVDF		CE	FKM	FKM		
FC	PVDF		CE	PCTFE	PTFE		
SH	SS		HC	HC	PTFE		

CE	Alumina ceramic	EPDM	Ethylene propylene diene monomer
FKM	Fluoroelastomer	GFRPP	Glass fiber reinforced polypropylene
PE	Polyethylene	PTFE	Polytetrafluoroethylene
PCTFE	Polychlorotrifluoroethylene	PVC	Polyvinylchloride (translucent)
PVDF	Polyvinylidene fluoride	HC	Hastelloy C276

## ABOUT US

Walchem integrates its advanced sensing, instrumentation, fluid pumping 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: [www.walchem.com](http://www.walchem.com)



An Iwaki America Company

Walchem, An Iwaki America Incorporated Company  
 Five Boynton Road Hopping Brook Park  
 Holliston, MA 01746 USA  
 Phone: 508-429-1110  
 Fax: 508-429-7433  
[www.walchem.com](http://www.walchem.com)

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