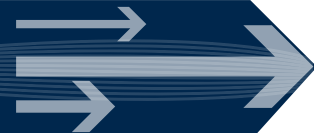


Metering Pumps



EWN-R Series Electromagnetic Metering Pumps

The EWN-R Series electronic metering pumps offer superior high speed dosing capability with more standard features. The flexibility of the EWN-R pump enable it be integrated into virtually any chemical feed application using a universal-voltage, digital controller with an expanded set of control features. Superb valve performance and advanced solenoid engineering combine to make a highly precise pump for the most demanding applications.

EWN pumps have outputs to 6.7 GPH (25.2 L/h) and a maximum pressure of 290 PSI (20 bar). The high speed of operation results in high resolution chemical feed and long service life. Quiet and compact, the EWN pumps prime in seconds and hold prime reliably.



➤ High Speed Performance

E-Series pumps operate up to 360 strokes-per-minute with adjustments in 1 spm increments, providing high resolution chemical feed. Adjustable stroke length further increases the ability to refine the output, making the E-Series one of the most versatile solenoid metering pumps on the market.

➤ Multi-function Digital Controller

The controller in the EWN-R pump provides for flexible pump control including scalable Analog control, Digital Input with both Multiply and Divide capability, external stop control, or simple speed and stroke length control. Display can be adjusted between flow rate units or % speed for easy-to-read output and quick adjustment. The controller is universal voltage so it can be used anywhere in the world.

➤ Engineered Longevity

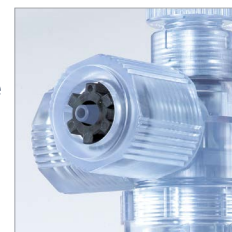
All E-Series pumps feature dual bearing support. The armature and shaft are supported with a bearing on each end, which ensures proper axial movement, enabling the E-Series to operate at 360 SPM while extending the life of the diaphragm.

➤ 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.

➤ Flexible Connections

A removable tubing insert provides flexibility of tubing sizes and eliminates twisting of the tubing during connection. A threaded insert can be used in place of the tubing adapter to easily convert any connection to NPT.



➤ High Compression Ratio

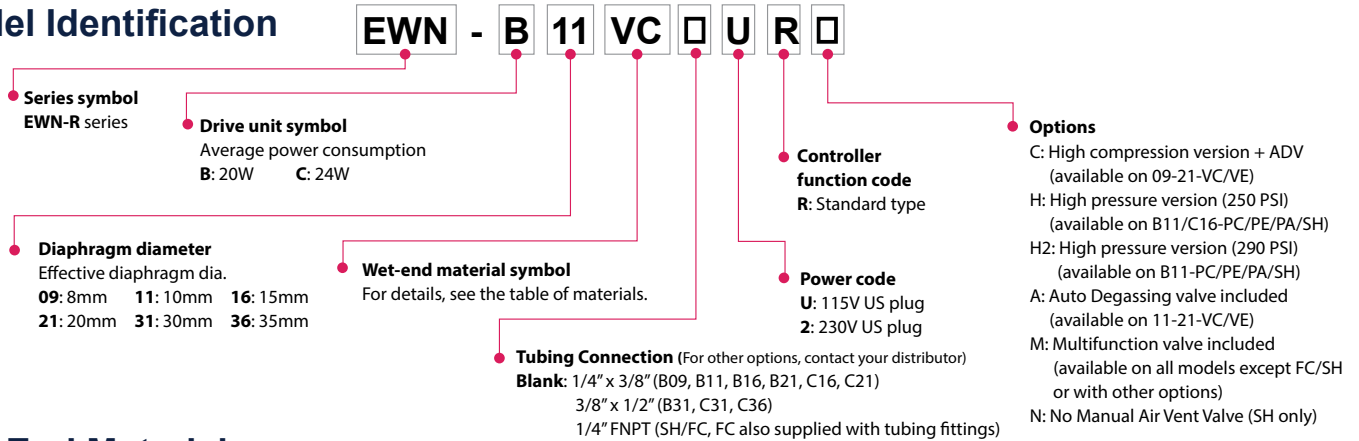
The compression ratio of a metering pump is important because it affects the pump's ability to prime and vent. The compression ratio is raised when you reduce the dead volume of the pump head during operation. All E-Series pumps feature a very high compression ratio that ensures proper feed especially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

W A L C H E M

IWAKI America Inc.

Specifications

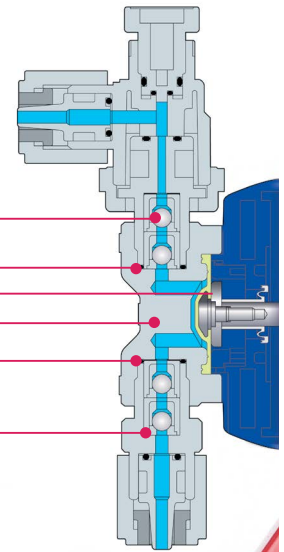
Model Identification



Wet End Materials

	Pump Head	Diaphragm	Valve Balls	Valve Seat	O-ring Seal	Gasket		
VC	PVC	PTFE +EPDM	CE	FKM	FKM	PTFE		
VE				EPDM	EPDM			
VF			PTFE	EPDM	EPDM			
PC	GFRPP		CE	FKM	FKM			
PE				EPDM	EPDM			
PA				PCTFE	AFLAS®			
FC	PVDF			PCTFE	PTFE			
TC				FKM	FKM			
TA				PCTFE	AFLAS®			
SH	316SS		HC	316SS	PTFE			

CE	Alumina ceramic	EPDM	Ethylene propylene diene monomer
FKM	Fluoroelastomer	GFRPP	Glass fiber reinforced polypropylene
PTFE	Polytetrafluoroethylene	PVC	Polyvinylchloride (translucent)
PCTFE	Polychlorotrifluoroethylene	HC	Hastelloy C276
PVDF	Polyvinylidene fluoride	316SS	316 Stainless Steel



Pump Specifications (Standard pumps and pumps with MFV)

Model		B11	B16	B21	B31	C16	C21	C31	C36	
									VC/VE/PC/PE	FC/SH/TC
Maximum output capacity	GPH	0.6	1.0	1.6	3.2	1.3	2.1	4.3	6.7	6.5
	mL/min	38	65	100	200	80	130	270	420	410
	mL/shot	0.02-0.11	0.04-0.18	0.06-0.28	0.11-0.56	0.04-0.22	0.07-0.36	0.15-0.75	0.23-1.17	0.23-1.14
Maximum rated discharge pressure	PSI	150	105	60	30	150	105	50	30	30
Maximum useable pressure	PSI	203	116	73	30	174	116	50	30	30
Stroke rate	% (spm)	0.1 to 100 (1 to 360)								
Stroke length rate	% (mm)	20 to 100 (0.2 to 1.0)				20 to 100 (0.25 to 1.25)				

Note 1: Maximum output capacity shown is at **Maximum Rated Discharge Pressure** (stroke length 100%, stroke rate 100%) and increases as a discharge pressure reduces.

Note 2: Maximum Useable pressure rating is the maximum useable capability of the pump. Maximum output capacities may be lower than published at pressures higher than Maximum Rated Discharge Pressure. Maximum pressure of PVC type is 174 PSI. Please contact your distributor for more information.

Note 3: The performance is based on pumping clean water at ambient temperature at rated discharge pressure and voltage.

Note 4: Liquid temperature: PVC liquid ends: 14 to 104°F (-10 to 40°C) GRFPP/PVDF/SS liquid ends: 14 to 140°F (-10 to 60°C)

Note 5: Ambient temperature: 32 to 122°F (0 to 50°C) Relative humidity: to 85% (non-condensing)

Note 6: All pumps include a manual air vent valve except FC/SHN/HV models. All pumps include one foot valve, injection valve, 20 ft. of PE tubing and ceramic weight except for SH/H2/HV models.

Input/Output Connectors (Sold Separately):

E90495 5-pin connector: Use for Analog, Pulse & AUX inputs + Output Relay on EWN-R

E90496 5-pin reverse key connector: Use for Stop & Pre-Stop inputs on EWN-R

Specifications

Controller Specifications

Operational mode	MAN	0.1 to 100% stroke rate		
	EXT control	DIV (Dividing)		/1 to 9999
		MULT (Multiply)		x1 to 9999
		ANA. R (Analog, rigid)		4 to 20, 0 to 20, 20 to 4, 20 to 0 mA
		ANA. V (Analog, variable)		2 points 0.0 to 20.0 mA range 0.0 to 100% stroke rate
Display	LCD	14 segment 5 digits		%, ml/m, L/H, GPH, STOP, PRIME, AUX etc
	LED	ON	Green	Green lights when ON blinks OFF synchronous with stroke.
		STOP	Orange/Red	Orange lights when Pre-STOP is made, red when STOP is made.
Keypad	5 keys	START/STOP, EXT, ▲(UP), ▼(DOWN), Disp		
Control function	STOP/Pre-STOP	Pump keeps running when Pre-STOP is made. Pump stops when STOP is made.		
	Prime	Pump runs at max. stroke rate while up and down keys are pressed.		
	Key lock	Keypad can be locked and unlocked.		
	Calibration	Discharge capacity per shot is calculated automatically by operating and stopping pump in the calibration mode to determine the flow rate.		
	Buffer memory	ON or OFF selectable. Max. 65535 stroke pulses are stored in memory.		
Input	Pulse	No voltage contact or open collector. Max 200 Hz. NO/NC selectable		
	Current	DC0 - 20mA (Input resistance 200 Ω)		
	Stop/Pre-stop	No Voltage contact or open collector		
	AUX	Pump runs at max.stroke rate when made. No Voltage contact or open collector		
Output	Photo-MOS relay AC/DC24V 0.1A			
	STOP, Synchronous with stroke			

Note 1: If the max. stroke rate by calculation exceeds 100% stroke rate because of the relation between the setting and input signal when the pump is in EXT operation, the operation is fixed at Maximum stroke rate speed of manual operation.

Note 2: By changing the setting, the pump can run when the contact signal comes in. **Note 3:** The max. frequency of input pulse is 200 Hz. ON time of input pulse is 10 to 100 mS.

Note 4: The max. potential voltage at a contact is 12V and current is 0.1mA. If a contact such as relay is used, the minimum application load should be 0.1mA or less.

Safety Certifications

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

* See www.wqa.org for specific chemicals and certification parameters.



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



Electrical Specifications

EWN	EWN-B	EWN-C
50/60 Hz, 1 phase	20 Watt avg.	24 Watt avg.
100-240VAC ±10%	0.8 Amp max.	1.2 Amp max.

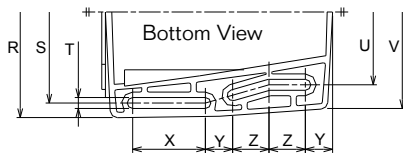
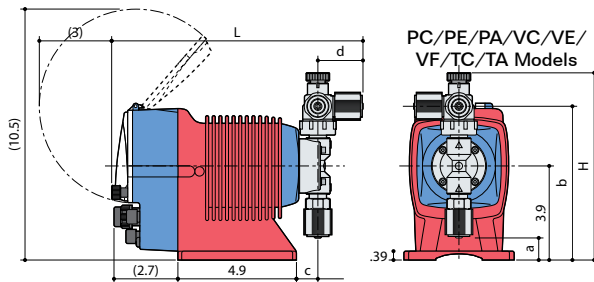
Shipping weight

EWN-B: 10 lbs (4.5 kg)

EWN-C: 12 lbs (5.5 kg)

*SH liquid ends increase weight up to 50%

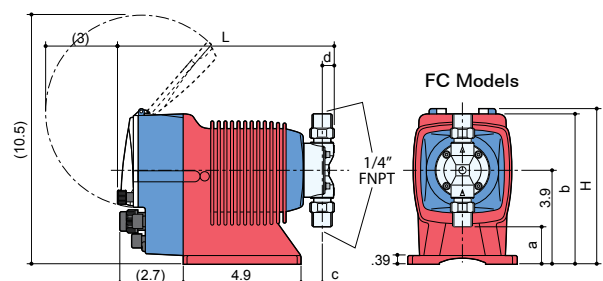
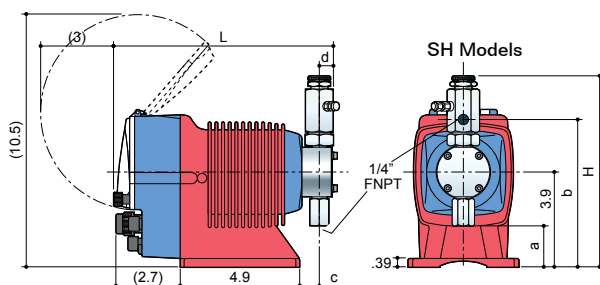
Dimensions (in inches)



Material	Model	H	L	a	b	c	d
PC/PE/PA VC/VE/VF TC/TA	EWN-11,16, 21	7.83	10.43	0.94	6.45	0.90	1.85
	EWN-31	8.34	10.51	0.23	6.97	0.98	1.89
	EWN-36	8.30	10.51	0.27	6.93	0.94	1.89
SH	EWN-11,16, 21	7.91	9.13	1.73	6.10	0.86	0.59
	EWN-31	8.38	9.17	1.34	6.49	0.90	0.59
	EWN-36	8.50	9.17	1.26	6.69	0.90	0.59
FC	EWN-11,16, 21	6.53	9.09	1.57	6.31	0.90	0.51
	EWN-31	6.97	9.29	0.90	6.97	0.98	0.63
	EWN-36	6.97	9.25	0.90	6.97	0.94	0.63

Mounting Dimensions

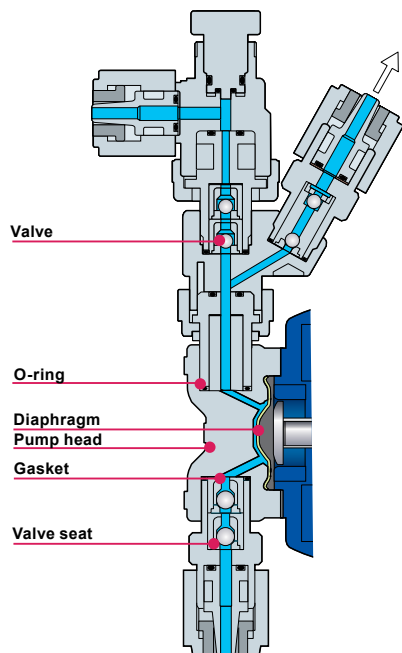
EW Model	R	S	T	U	V	X	Y	Z
11,16, 21	4.57	3.94	0.24	3.15	4.17	1.57	0.59	0.79
31, 36								



Options

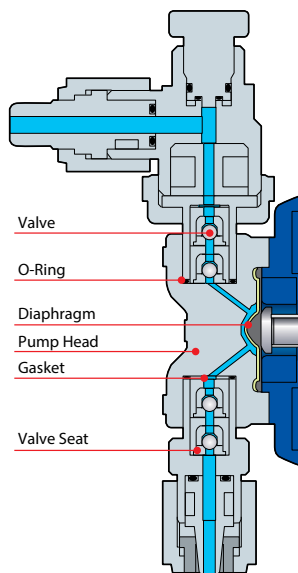
Auto Degassing Valve Model

Chemicals that outgas, such as Sodium Hypochlorite or Hydrogen Peroxide, can generate enough gas to gas lock metering pumps. Using a dual check valve system, the Auto Degassing Valve vents any gas to atmosphere to eliminate gas lock conditions and keep the pump primed.



High Compression Model

Increasing the compression ratio by minimizing dead volume in the liquid end combined with the auto degassing valve further helps to eliminate gas in the pump heads. In addition to reducing air lock conditions, the increased compression ratio helps with accuracy at low output ranges.

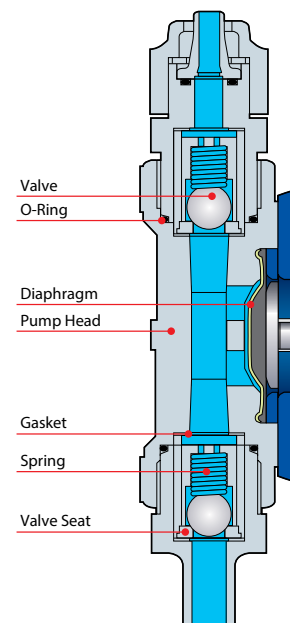


High Pressure Model

The high pressure models are capable of operating at flow rates up to 0.6GPH (40mL/min) at a maximum discharge pressure up to 290PSI. This makes it suitable for applications such as chemical injection into boiler makeup water.

High Viscosity Model

The High Viscosity pump has a uniquely designed liquid end with oversized flow paths and spring loaded valve checks. Coupled with a reduced max speed, the HV pumps are designed for polymer/coagulant injection in water treatment applications.



Wet-end material

Material code	VC-A	VE-A
Pump head	PVC	
Valve	CE	
Valve seat	FKM	EPDM
Gasket	PTFE	
O-ring	FKM	EPDM
Diaphragm	PTFE+EPDM	

Wet-end material

Material code	VC-C	VE-C
Pump head	PVC	
Valve	CE	
Valve seat	FKM	EPDM
Gasket	PTFE	
O-ring	FKM	EPDM
Diaphragm	PTFE+EPDM	

Wet-end material

Material code	PC-H	PE-H	SH-H
Pump head	GFRPP		SUS316
Valve	CE		HC
Valve seat	FKM	EPDM	SUS316
Gasket	PTFE		
O-ring	FKM	EPDM	—
Diaphragm	PTFE+EPDM		

Wet-end material

Material code	PC-V	P6-V
Pump head	GFRPP	
Valve	CE	316 SS
Valve seat	PCTFE	
Spring	Hastelloy C276	316 SS
Gasket	PTFE	
O-ring	FKM	EPDM
Diaphragm	PTFE+EPDM	

Specifications (Special versions)

Model	Auto Degassing Valve					High Compression Models (ADV included)					
	B11	B16	B21	C16	C21	B09	B11	B16	B21	C16	C21
Max. Output Capacity	GPH	0.5	0.9	1.4	1.0	1.7	0.2	0.4	0.6	1.0	1.2
	mL/min	30	55	86	65	110	12	23	40	63	78
	mL/shot	0.02 - 0.08	0.03 - 0.15	0.05 - 0.24	0.04 - 0.18	0.06 - 0.31	0.01 - 0.07	0.03 - 0.13	0.04 - 0.22	0.07 - 0.35	0.06 - 0.30
Rated Discharge Pressure	PSI	150	105	60	150	105	150	150	105	60	150
Stroke Rate	% (spm)	0.1 - 100 (1-360)					0.1 - 100 (1-180)				
Stroke Length Range	% (mm)	20 - 100 (0.2 - 1.0)				20 - 100 (0.25 - 1.25)		20 - 100 (0.25 - 1.25)		20 - 100 (0.3 - 1.50)	

Model	High Pressure Models		High Pressure Models (290 psi)		High Viscosity Models	
	B11	C16	B11	C31	B11	C31
Max. Output Capacity	GPH	0.4	0.6	0.3	0.3	2.4
	mL/min	25	40	17	17	150
	mL/shot	0.02 - 0.1	0.03 - 0.17	0.05 - 0.07	0.05 - 0.07	0.13 - 0.63
Rated Discharge Pressure	PSI	250	250	290	290	73
Stroke Rate	% (spm)	0.1 - 100 (1-240)		0.1 - 100 (1-240)		0.1 - 100 (1-240)
Stroke Length Range	% (mm)	20 - 100 (0.2 - 1.0)	20 - 100 (0.25 - 1.25)	70 - 100 (0.5 - 0.9)	70 - 100 (0.5 - 0.9)	20 - 100 (0.25 - 1.25)

Note 1: Max. output capacity shown is at **Rated Discharge Pressure** (stroke length 100%, stroke rate 100%) and increases as a discharge pressure reduces.

Note 2: The performance is based on pumping clean water at ambient temperature at rated voltage.

Metering Pumps



EWN-Y Series + EFS Sensor

Iwaki's New EWN-Y Series Electromagnetic metering pump with the revolutionary EFS Flow Sensor provides precise flow monitoring, feedback and control.

The new EWN-Y electromagnetic pump combined with EFS flow sensor provides accurate real-time control and display of dosing rate.

Set point control allows the desired flow rate to be simply programmed into the pump. Through feedback from the EFS sensor, the pump constantly adjusts its speed to maintain the set dosing rate - even under changing temperature, viscosity or suction and discharge pressure conditions.

The EFS is mounted directly on the pump for accurate dosing rate measurement - ALL WITHOUT ANY TIME-CONSUMING CALIBRATION.



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

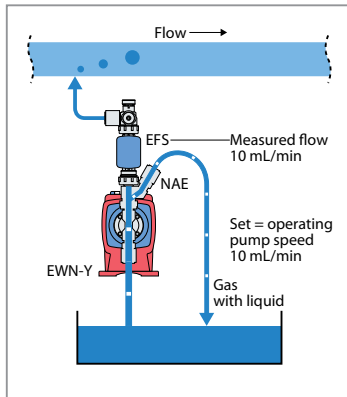
The compression ratio of a metering pump is important because it affects the pump's ability to prime and vent. The compression ratio is raised when you reduce the dead volume of the pump head during operation. All E-Class pumps feature a very high compression ratio that ensures proper feed especially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

W A L C H E M

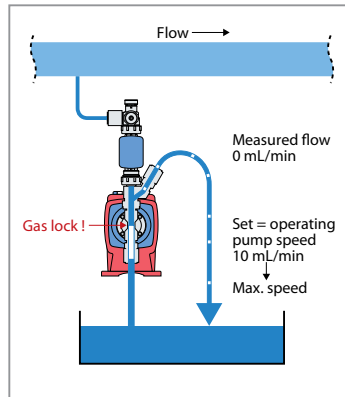
IWAKI America Inc.

Features

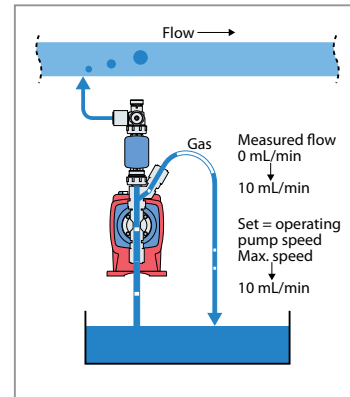
How the Auto-degassing System with EFS Operates:



The auto air vent valve bleeds gas and liquid out of the pump chamber. However, pump output is maintained due to the feedback control from the flow sensor.



When a large volume of gas enters into the pump chamber, pump output will go to "zero" until the gas bleeds out. The feedback control increases pump speed, reducing the bleed time and quickly re-priming the pump.



After the gas has been purged, the EFS sensor will begin to measure flow. Feedback from the sensor controls the pump, slowing it back down so the flow rate meets the set value.

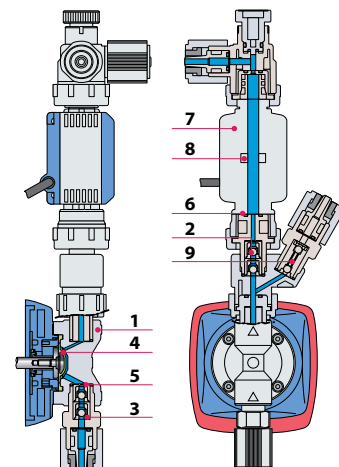
- » The new EWN-Y electromagnetic pump combined with EFS flow sensor provides accurate real-time control and display of dosing rate. Presence of non-conductive media (i.e. oil) in the flow may generate erroneous readings.
- » Set point control allows the desired flow rate to be simply programmed into the pump. Through feedback from the EFS sensor, the pump constantly adjusts its speed to maintain the set dosing rate - even under changing temperature, viscosity or suction and discharge pressure conditions.
- » The EWN-Y provides a clear display of actual dosing rate and a 4-20 mA output signal proportional to the flow rate.
- » An optional Auto Degassing Valve (ADV) can be mounted in-line with the EFS sensor to eliminate gas-lock conditions quickly with continuous venting.
- » The EWN-Y pump automatically recognizes the EFS sensor when connected and powered.
- » A standard injection check valve is required when discharge-line length is less than 10 feet. An in-line check valve (purchased separately) is required when discharge-line length is over 10 feet.



Wet End Materials

Pump	VC	VE	PC	PE	PA	TC	TA
1 Pump head	PVC	PVC	GFRPP	GFRPP	GFRPP	PVDF	PVDF
2 Valve ball	CE						
3 Valve seat	FKM	EPDM	FKM	EPDM	PCTFE	FKM	PCTFE
4 Diaphragm	PTFE+EPDM						
5 Gasket	PTFE						
9 Separation pin	Ti	HC276	N/A	N/A	N/A	N/A	N/A
EFS Sensor	FT	FH		FF			
6 O-Ring	FKM	EPDM		FKM			
7 EFS Body	PVDF	PVDF		PVDF			
8 EFS Electrode	Titanium	Hastelloy C22					

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



Specifications

Pump Specifications

Model	Capacity GPH (mL/min)	Discharge capacity per shot mL/shot	Rated discharge pressure PSI (MPa)	Stroke length adjustable range %	Stroke rate % (SPM)	Standard connection (OD x ID) Hose dia inches	Current A	Average power consumption W	Voltage VAC 50/60Hz	Shipping Weight lbs (kg)
B11	0.6 (38)	0.02-0.11	150 (1.0)	50-100	0.1-100 (1-360)	3/8 x 1/4	0.8	20	100-240	12 (5.5)
B11-A	0.5 (30)	0.02-0.08	150 (1.0)							
B16	1.0 (65)	0.04-0.18	105 (0.7)							
B16-A	0.9 (55)	0.03-0.15	105 (0.7)							
B21	1.6 (100)	0.06-0.28	60 (0.4)							
B21-A	1.4 (86)	0.05-0.24	60 (0.4)							
B31	3.2 (200)	0.11-0.56	30 (0.2)							
C16	1.3 (80)	0.04-0.22	150 (1.0)	40-100			1.2	24		14 (6.4)
C16-A	1.0 (65)	0.04-0.18	150 (1.0)							
C21	2.1 (130)	0.07-0.36	105 (0.7)							
C21-A	1.7 (110)	0.06-0.31	105 (0.7)							
C31	4.3 (270)	0.15-0.75	50 (0.35)							
C36	6.7 (420)	0.23-1.17	30 (0.2)							

Note 1: Each discharge capacity shown above is at the discharge pressure(stroke length 100%,stroke rate100%) and increases as discharge pressure reduces.

Note 2: The performance is based on pumping clean water at ambient temperature at rated voltage.

Note 3: -A versions include the auto degassing valve (ADV).

Sensor Specifications

Liquid Conditions	Temperature range	32-140°F (0-60°C) non-freezing, no viscosity/characteristic change	
	Required conductivity	1000mS/m or more	
Accuracy for the EFS-05 with EWN-B11/B16/B21/C16/C21		±5% of reading at or above 40ml/min	±2ml/min below 40ml/min
Accuracy for the EFS-10 with EWN-B31/C31/C36		±5% of reading at or above 120ml/min	±6ml/min below 120ml/min

Operating Conditions

Ambient Temperature: 32° to 122°F (0 to 50°C)

Liquid Temperature: PVC liquid ends: 32 to 104°F (0 to 40°C)

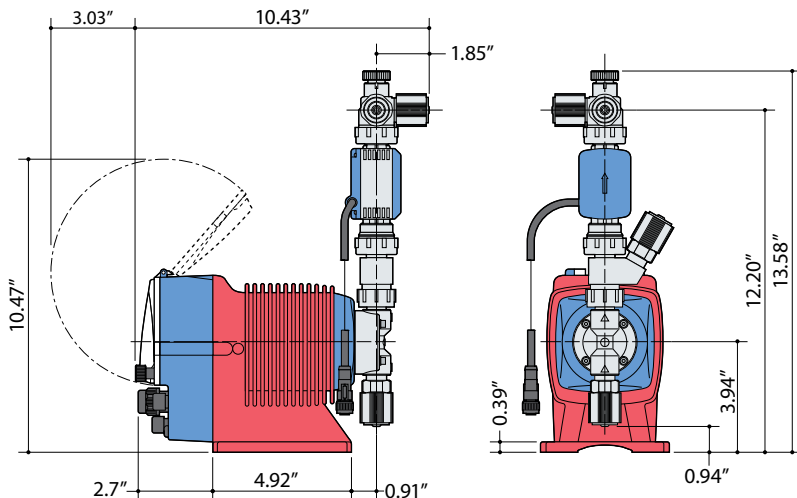
Below 32°F (0°C), pump is limited to 70% of maximum pressure. Liquid cannot freeze.

Storage Temperature: 14° to 122°F (-10° to 50°C)

Relative Humidity: to 85% (non-condensing)

PP, PVDF liquid ends: 32 to 140°F (0 to 60°C)

Dimensions



Safety Certifications

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

* See www.wqa.org for specific chemicals and certification parameters.



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



Ordering Information

EWN - **B** **11** **VC** **□** **U** **Y** **A** - **□**
1 **2** **3** **4** **5** **6** **7** **8** **9**

1 Pump Series

2 Drive Unit (See Specifications Table on page 3)

B: 20W

C: 24W

3 Diaphragm Diameter

11: 10mm 16: 15mm 21: 20mm

31: 30mm 36: 35mm

4 Liquid End Material

See Table on page 2

5 Connection (For other options, consult factory)

No Character: 3/8" OD x 1/4" ID (11 - 21 sizes)

1/2" OD x 3/8" ID (31 - 36 sizes)

6 Power Code

U: 115 VAC US Cord

2: 230 VAC US Cord

7 Controller Function

Y: Multi-function type

8 Special

H: High pressure version (250 PSI)

(available on B11/C16-PC/PE/PA/SH)

A: Auto Degassing valve included

(available on 11-21-VC/VE)

M: Multifunction valve included (available on all sizes
& liquid ends except FC/SH/HV or with other options)

9 EFS Flow Sensor (See Table on Pg. 2 for materials)

Blank: No sensor, pump only (See EWN-Y brochure)

1: EFS-05/10-FT

2: EFS-05/10-FH

3: EFS-05/10-FF

Notes:

Size 05 for 11/16/21 pumps

Size 10 for 31/36 pumps

Input/Output Connectors:

E90495 5-pin connector: Use for Analog, Pulse, Interlock, AUX & Batch S/S inputs & Analog Output. (Supplied with pump)

E90496 5-pin reverse key connector: Use for Stop & Pre-Stop inputs. Also for PosiFlow or FCM input (Sold separately)

E90497 4-pin square connector: Use for relay outputs (Sold separately)

Controller Specifications

Model		EWN-Y	
Operational mode	Auto control	Feedback control	0.1 to 999.9mL/min 0.001 to 59.994 L/H 0.001 to 15.829 GPH
	EXT control	Analog rigid	4 to 20, 20 to 4, 0 to 20, 20 to 0mA proportional control to stroke rate
		Analog variable	2 - point setting (Analog variable) (Proportional control to flow/stroke rate in the range of 0-20mA)
		BATCH	0.1 to 99999.9 mL 0.001 to 99.999 L 0.001 to 26.385 G
Display	LCD		14seg-5digits backlit LCD Operating conditions and Flow rate etc
	LED	ON	A 2-color LED lights in orange when turning on power and in green during operation.
		STOP	A 2-color LED lights in red when receiving the STOP signal and in orange when receiving the PreSTOP signal.
		OUT	A LED lights in red when the pump is transmitting a signal to external devices.
Keypad	5 keys		START/STOP, EXT, ▲(UP), ▼(DOWN), Disp
Control function	STOP/Pre-STOP		Pump keeps running when Pre-STOP is activated. Pump stops when STOP is activated.* ¹
	Prime		Pump runs at max. stroke rate while up and down keys are pressed.
	Key lock		Keypad can be locked and unlocked.
	Inter lock		Operation stop at contact input* ¹
	Reading calibration		Reading adjustment of flow volume per shot
	Buffer		ON/OFF of the batch control buffer memory
Input	Pulse signal input for batch control		No voltage contact or open collector* ²
	Analog		0 to 20mADC (Input resistance is 220Ω.)
	STOP/Pre-STOP (Level sensor)		No voltage contact or open collector* ²
	AUX		No voltage contact or open collector* ²
	Interlock		No voltage contact or open collector* ²
	Batch		No voltage contact or open collector* ²
Output	OUT1		No voltage contact (Mechanical relay), 250VAC 3A (Resistive load) Either the Signal recognition output* ³ , Control error, or Poor flow detection is selectable (default: STOP).
	OUT2		No voltage contact (PhotoMOS relay), AC/DC24V 0.1A Either the Sensor signal output, Synchronous output, Signal recognition output* ³ , Control error or Poor flow detection is selectable.
	Analog		4 to 20mA DC (Allowable load resistance : 500Ω)
Data logging		Total flow volume Total number of strokes (1=1000 shots) Total number of signal outputs (OUT1) Total number of signal outputs (OUT2) Total power connection time Total operating time	
Buffer memory		Nonvolatile memory	
Power voltage* ⁴		100 to 240VAC 50/60Hz	

Note 1: The setting can be changed to "operation starts with contact closure".

Note 2: The maximum applied voltage from the pump to an external contact is 12V at 2.3mA. When using a mechanical relay, its minimum application load should be 1mA or below.

Note 3: STOP/ Pre-STOP/ Interlock/ Batch completion outputs are independently enabled.

Note 4: Observe the specified power voltage range. Otherwise failure may result. The allowable power voltage range is 90 to 264VAC

