The Heart of Industry

IWAKI

IWAKI ELECTROMAGNETIC METERING PUMPS

EWN-Y

Solutions for chemical handling applications

Electromagnetic metering pumps with precise flow monitoring,

Upgraded software with new features and improved functions

New features

- **Feedback control is now available with digital pulse signal operation in addition to analog control.**
  (Flowrate feedback operation using a pulse input enables easy replacement of existing equipment.)
- **Alarm output can be programmed for either normally open or normally closed operation.**

The EWN-Y electromagnetic pump combined with EFS flow sensor (option) provides accurate real time control & display of dosing rate.

The required flow rate is simply input to the pump. Through feedback from the EFS sensor, the pump constantly adjusts its speed to maintain the set dosing rate - even under changing temperature or suction & discharge pressure conditions.

The EFS is mounted directly on the pump to digitally display dosing rate per minute or hour - ALL WITHOUT ANY CALIBRATION.

The EWN-Y gives a proportional 4-20mA output signal of dosing rate and displays operating history such as total flow volume and power-on time.

EWN-Y
With EFS flow sensor (option)

feedback & control

Displaying flow rate
Pump flow rate may be displayed. In case the EFS flow sensor (option) is installed, the EWN-Y pump can display accurate real time flow rate without any calibration.

Feedback control (with EFS)
Flow rate monitoring of individual strokes by the EFS sensor enable fast response feed back control. The feedback control maintains the set capacity by manually or externally with analog input signal.

Discharge detection
Direct connection to the IWAKI FCP or FCM flow counter (excluding certain low- pressure models) allows effective monitoring of pump discharge (number of shots). Gas lock, abnormal pressure (only with FCP), etc., are also detectable.

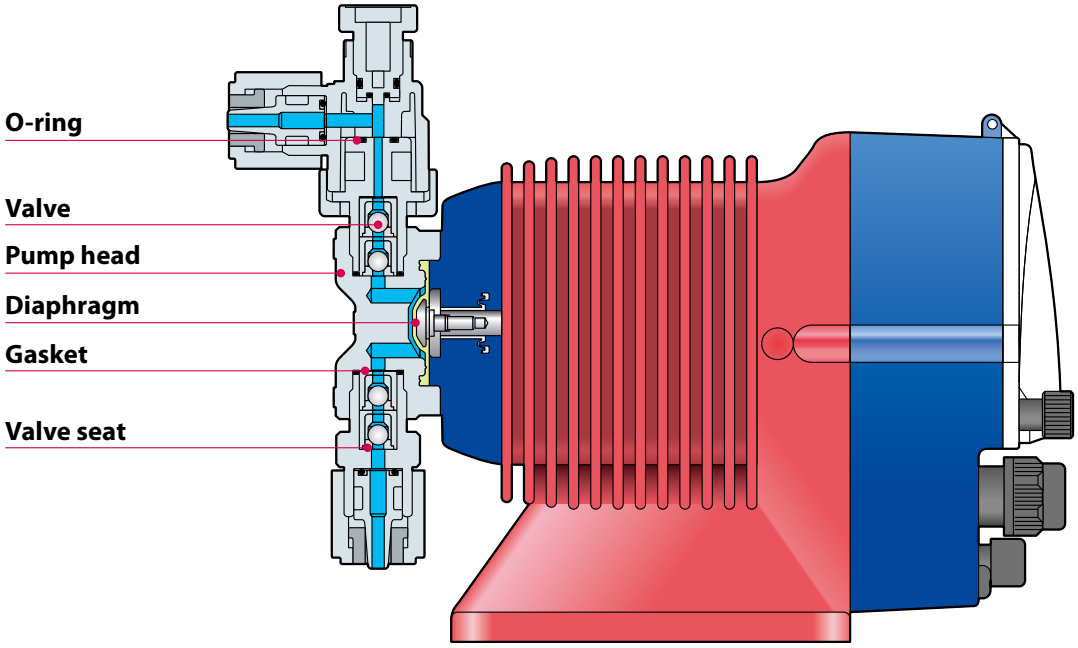
Alarm output and analog output functions are provided as standard function
Two types of alarm outputs and analog output are provided as standard functions. The analog output can be used for flow rate monitoring.

Waterproof structure (IP65)
With the aim of improving resistance to exposure to liquid, the controller unit is installed on the back of the pump and the control panel is protected with a cover as standard equipment.
A rubber gasket is provided between the pump head and the bracket to prevent water from entering from the periphery of the pump head.

Multi hose connection
The use of a new hose stopper eliminates a twist in tube connection.

Technical data

Construction



Wet-end materials

	Pump head	Valve	Valve seat	O-ring	Diaphragm	Gasket
VC	PVC	Alumina ceramics	FKM	FKM	PTFE+EPDM (EPDM of Diaphragm is not wet-end.)	PTFE
VH		Hastelloy C276	EPDM	EPDM		
PC	GFRPP	Alumina ceramics	FKM	FKM		
PH		Hastelloy C276	EPDM	EPDM		
FC	PVDF	Alumina ceramics	PCTFE	-		
TC			FKM	FKM		
SH	SUS316	Hastelloy C276	SUS316	-		

Pump identification

EWN - B 11 VC □ E Y □

- **Series symbol**
  EWN series
- **Drive unit symbol**
  Average power consumption
  B: 20W **C**: 24W
- **Diaphragm diameter**
  Effective diaphragm dia.
  09: 8mm **11**: 10mm **16**: 15mm
  21: 20mm **31**: 30mm **36**: 35mm
- **Wet-end material symbol**
  For details, see the table of materials.
- **Connection**
  Blank: Ø4 x Ø6 (B09,B11,B16,B21,C16,C21)
  Ø9 x Ø12 (B31,C31,C36)
  For other option, please contact us.
- **Power code**
  E: With European cord
  A: With Australian cord
- **Controller function code**
  Y: Y type
- **Special version code**
  C: High compression type
  H: High pressure type
  V: Viscosity type

Specifications of pump

Model		B11	B16	B21	B31	C16	C21	C31	C36	
									VC/VH/PC/PH	FC/SH/TC
Capacity	L/hr	2.3	3.9	6.0	12.0	4.8	7.8	16.2	25.2	24.6
	mL/min	38	65	100	200	80	130	270	420	410
	mL/shot	0.05 to 0.1	0.09 to 0.18	0.14 to 0.28	0.28 to 0.56	0.09 to 0.22	0.14 to 0.36	0.3 to 0.75	0.47 to 1.17	0.46 to 1.14
Rated discharge pressure	MPa	1.0	0.7	0.4	0.2	1.0	0.7	0.35	0.2	0.2
Max. pressure	MPa	(1.4)	(0.8)	(0.5)	-	(1.2)	(0.8)	-	-	-
Stroke rate	% (spm)	0.1 to 100 (1 to 360)								
Stroke length range	% (mm)	50 to 100 (0.5 to 1.0)				40 to 100 (0.5 to 1.25)				
Current	A	0.8				1.2				
Average power consumption	W	20				24				

- Each discharge capacity shown above is at discharge pressure (stroke length 100%, stroke rate 100%) and increases as a discharge pressure reduces.
- The performance is based on pumping clean water at ambient temperature at rated voltage.
- Liquid temperature ·VC/VH types: -10 to 40ºC ·PC/PH/FC/SH/TC types: -10 to 60ºC
- Max pressure is not guaranteed under any discharge condition. Max pressure of PVC type is 1.2MPa. Please contact us for details.

Specifications of controller

Model			EWN-Y	With EFS	Without EFS	
Operational mode	MAN control		MAN(Manual)	•	•	0.1-100.0%(1-360spm)
			Feedback control	•	N/A	0.1 - 999.9mL/min 0.001 - 59.994 L/H 0.001 - 15.828 GPH
	EXT control		DIV	N/A	•	/1-9999
			MULT	N/A	•	x1-9999
			Analog rigid	•	•	4-20, 20-4, 0-20, 20-0mA proportional control to stroke rates
			Analog variable	•	•	2 - point programmable (set point 1 and 2, flow rate or stroke rate)
			BATCH	•	N/A	0.1 - 99999.9 mL 0.001 - 99.999 L 0.001 - 26.385 G
			PLS (pulse operation)	•	•	2 - point programmable (set point 1 and 2, flow rate or stroke rate)[Note 1]
Display	LCD		14seg-5digits backlit LCD Operating conditions and Flow rates 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	5keys		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.			
	Prime		Pump runs at max. stroke rate while up and down keys are pushed.			
	Key lock		Key can be locked and unlocked.			
	Inter lock		Operation stop at contact input[Note 2]			
	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[Note 3]			
	Analogue		0-20mADC (Input resistance is 220Ω.)			
	STOP/Pre-STOP (Level sensor)		No voltage contact or open collector[Note 3]			
	AUX		No voltage contact or open collector[Note 3]			
	Interlock		No voltage contact or open collector[Note 3]			
	Batch		No voltage contact or open collector[Note 3]			
	Pulse		No voltage contact or open collector[Note 3]			
Output	OUT1		No voltage contact (Mechanical relay), 250VAC 3A (Resistive load) Enable or disable the alarms of STOP, Pre-STOP, Interlock, Batch, Out of measurement and Poor flow[Note 4]			
	OUT2		No voltage contact (PhotoMOS relay), AC/DC24V 0.1A Enable or disable the alarms of STOP, Pre-STOP, Interlock, Batch, Out of measurement and Poor flow or Synchronous output (sensor/pump)[Note 3]			
	Analogue		4-20mA 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[Note 5]			100-240VAC 50/60Hz			

Note 1: The maximum frequency of the input pulse is 500Hz (Duty 50:50).
Note 2: The setting can be programmed to "operation starts at contact input".
Note 3: 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 4: STOP/ Pre-STOP/ Interlock/ Batch completion outputs are enabled separately. Output can be programmed to open or close with Alarm.
Note 5: Observe the specified power voltage range. Otherwise failure may result. The allowable power voltage range is 90-264VAC

Optional accessories

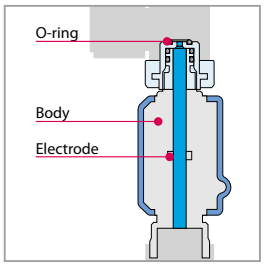
Sensors

• EFS flow sensor

The EFS flow sensor is an electromagnetic flow sensor for the electromagnetic metering pump, EWN-Y series. The flow sensor can measure the volume per stroke of pulsating output without the assistance of pulsation dampeners.

· Constructions and materials

	FT	FH	FF
O ring	FKM	EPDM	FKM
Body	PVDF		
Electrode	Titanium	Hastelloy C22 or equivalent	



· Specifications

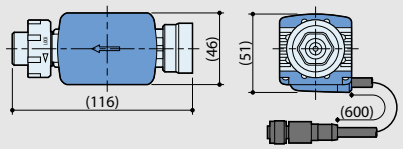
Applicable pump	EFS-05	EWN-B11, B16, B21, C16, C21-Y
	EFS-10	EWN-C31, C36-Y
Available medium	Minimum conductivity 10mS/cm	
Liquid temp.	0 to 60 °C	

· Identification

EFS - 05 FT - □

- **Series symbol**
- **Size: 05, 10**
- **Wet-end material symbol** See the tabel of material.
- **Special configuration code**

· Dimensions in mm

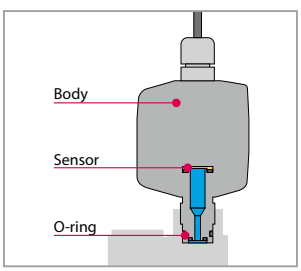


• FCP flow counter (Posi-flow)

The FCP flow counter (Posi-flow) detects the pump pulsation by a pressure sensor. This sensor can check not only the number of dosing but also abnormal pressure (Low and high) as pipe clogging, gas-lock or pipe leakage.

· Constructions and materials

	1PC	1PE	1VC	1VE
O ring	FKM	EPDM	FKM	EPDM
Body	GFRPP		PVC	
Sensor	Ceramic (Al_2O_3) 99.7%			



· Specifications

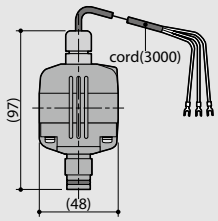
Applicable pump	EWN-B11, B16, B21, C16, C21
Operating pressure range	0.30 to 1.0 MPa
Indicators	Stop / Error : LED disappears Pressure error : LED lights redly Normal operation : LED lights greenly
Liquid temp.	0 to 40 °C

· Identification

FCP - 1 PC

- **Series symbol**
- **Wet-end material symbol**

· Dimensions in mm

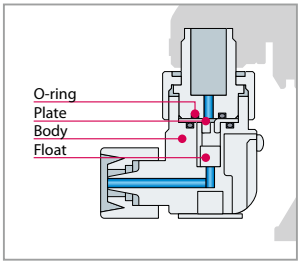


• FCM flow checker

The FCM is a simple flow checker for the electromagnetic metering pump. A magnet molded float sensor and proximity switch detects pulsation of dosing output.

· Constructions and materials

	VC	VH
Body	PVC	
Float	PVC	
Plate	PVC	
O ring	FKM	EPDM



· Specifications

Power voltage	5-24VDC
Max consumption current	8 mA
Max load capacity	15 mA
Output	NPN Open collector
Frequency	Max 6 Hz
Pulse output range	Min flow rate: 0.1 mL/shot Min discharge pressure: 0.2 MPa Max discharge pressure depends on each pump spec. Pump stroke rate: 1-360 spm Pump stroke length: Fixed to 100% (Factory setting)

· Identification

FCM - VC 1

- **Series symbol**
- **Wet-end material symbol**
- **Hose connection code** (Inn.dia. x Out dia)
  - **1**: Ø4 x Ø9
  - **2**: Ø4 x Ø6
  - **7**: Ø1/4" x Ø3/8"

Accessories

• Check valve CAN / CBN / CS

This has the function of a non-return valve and prevents siphon and overfeed.

CAN: Available in PVC and GFRPP.

CBN: In-line type to be connected in the middle of a hose; made of PVC.

CS: Made of stainless steel for SH type.

· Specifications

Model	Connection		Set pressure MPa	Material			Applicable pump
	Inlet mm	Outlet mm		Body	Spring	O-ring	
CAN-1VC (1V)	4x6, 5x8 6x8, 6x12	R3/8 and R1/2	0.17±0.04	PVC (GFRPP/ CFRPP)	Hastelloy C276	FKM	EWN-B09, 11, 16, 21, C16, 21
CAN-1VE (1E)						EPDM	
CAN-1VC-H (1E)	4x9, 4x6 6x8, 1/4"x3/8"		0.17±0.04			FKM	
CAN-1VE -H(1E)						EPDM	
CAN-2VC (2V)	6x12 9x12		0.17±0.04			FKM	EWN-C31
CAN-2VE (2E)						EPDM	
CAN-2VCL (2VL)	6x12 9x12		$0.05^{+0.04}_{-0.03}$			FKM	EWN-B31, C36
CAN-2VEL (2EL)						EPDM	
CBN-1VC	4x6, 5x8 6x8, 6x12		0.17±0.04	PVC	Hastelloy C276	FKM	EWN-B09, 11, 16, 21, C16, 21
CBN-1VE						EPDM	
CS-1S	Rc1/4	Rc1/4	0.2±0.03	SUS316	Hastelloy C276	–	EWN-B11, 16, 21, C16, 21, 31
CS-1SL			0.05±0.03				EWN-B31, C36

• Siphon preventing valve BVC

Made of PVC or GFRPP consisting of non-metalic parts.

· Specifications

Model	Connection		Set pressure MPa	Material		Applicable pump
	Inlet mm	Outlet mm		Body	O-ring	
Note **BVC-1□□**	4x6 9x12	R3/8 or R1/2	0.2 or 0.05	PVC	FKM or EPDM	All models

Note: Different models are available. Please contact for particulars.

• Multi-function valve MFV

This valve has the multi-function of air vent, pressure release inside pipe, pressure releaf and back pressure valv

· Specifications

Model	Tube connection	Set pressure		Material	Applicable pump
		Back pressure valve	Relief valve		
MFV-HTC-2/3/7/23/24	4x6mm, 5x8mm, 6x8mm, 6x12mm, 9x12mm, 10x12mm, 1/4x3/8mm, 3/8x1/2mm	0.25±0.1 MPa	1.25±0.2 MPa	PVDF / FEPM / PTFE+EPDM* *(Not a wet end)	B11/B16/C16/C21
MFV-MTC-2/3/7/23/24		0.25±0.1 MPa	0.55±0.1 MPa		B21
MFV-MTC-5/6/8		0.25±0.1 MPa	0.55±0.1 MPa		C31
MFV-LTC-5/6/8		0.1±0.05 MPa	—		B31/C36

• Foot valve FS / FSP / FSTC

This foot valve with a strainer is made of PVC or GFRPP.

· Specifications

Model	Tube connection	Material	Applicable pump
FSV	4x6mm 5x8mm 6x8mm 6x12mm 9x12mm 10x12mm	PVC / FKM / Alumina ceramic	All models
FSE		PVC / EPDM / HastelloyC276	
FSPV		GFRPP / FKM / Alumina ceramic	
FSPE		GFRPP / EPDM / HastelloyC276	
FSTC		PVDF / FKM / Alumina ceramic	

• Chemical tank EXDT

This is a polyetylene round tank.

Capacity: 35, 60, 100, 200 or 300L

• Priming set PS

Made of PVC furnished with level sensor(s) and foot valve.

· Specifications

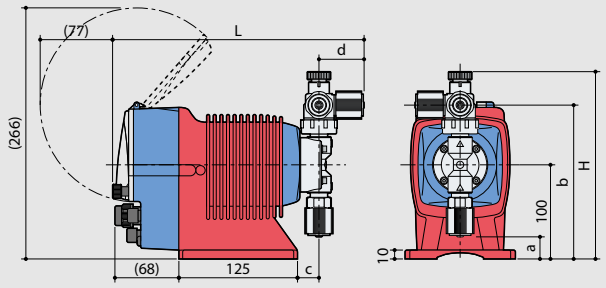
Model	Level switch	Connection mm	Length mm
PS-1	Single	4x6, 5x8, 6x8, 6x12, 9x12	520, 650, 810, 1000, 1350
PS-2	Double		520, 720, 810, 1000, 1350

• Pulse oscillating flow meter

· Specifications

Connection	Max. capacity	Range of pulse
3/4"	5m³/h	1xOutput pulse against 0.25L
		1xOutput pulse against 0.50L
		1xOutput pulse against 1.00L
1"	12m³/h	1xOutput pulse against 0.25L
		1xOutput pulse against 0.50L
		1xOutput pulse against 1.00L
1 1/2"	20m³/h	1xOutput pulse against 0.25L
		1xOutput pulse against 0.50L
		1xOutput pulse against 1.00L

Dimensions in mm

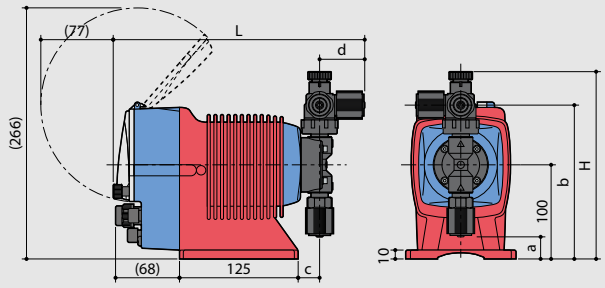


VC/VH

Model	H	L	a	b	c	d
EWN-11, 16, 21	(199)	(265)	(24)	(164)	(23)	(47)
EWN-31	(212)	(267)	(6)	(177)	(25)	(48)
EWN-36	(211)	(267)	(7)	(176)	(24)	(48)

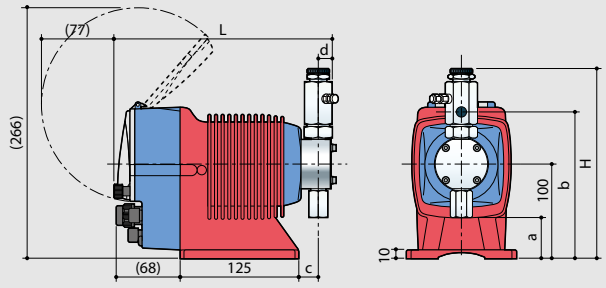
TC

Model	H	L	a	b	c	d
EWN-11, 16, 21	(198)	(265)	(25)	(163)	(23)	(47)
EWN-31	(211)	(267)	(7)	(176)	(25)	(48)
EWN-36	(211)	(268)	(6)	(176)	(24)	(49)



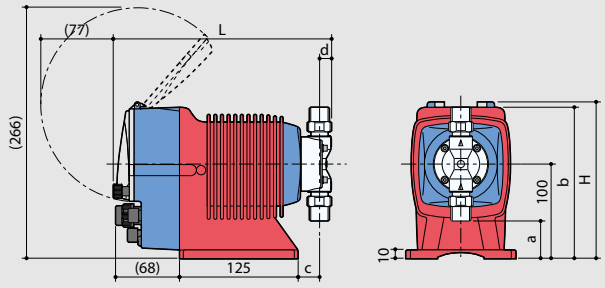
PC/PH

Model	H	L	a	b	c	d
EWN-11, 16, 21	(199)	(265)	(24)	(164)	(23)	(47)
EWN-31	(212)	(267)	(6)	(177)	(25)	(48)
EWN-36	(211)	(267)	(7)	(176)	(24)	(48)



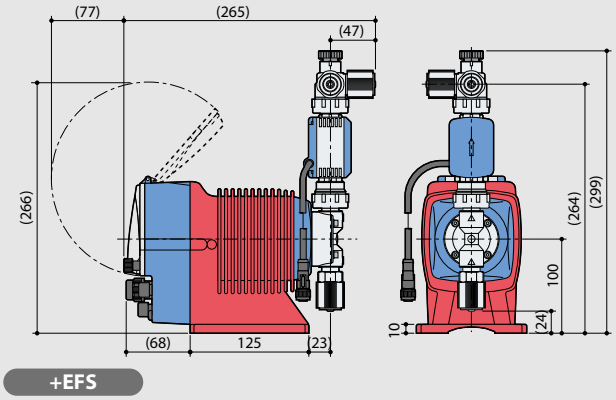
SH

Model	H	L	a	b	c	d
EWN-11, 16, 21	(201)	(232)	(44)	(155)	(22)	(15)
EWN-31	(213)	(233)	(34)	(167)	(23)	(15)
EWN-36	(216)	(233)	(32)	(170)	(23)	(15)



FC

Model	H	L	a	b	c	d
EWN-11, 16, 21	(166)	(231)	(40)	(160)	(23)	(13)
EWN-31	(177)	(236)	(23)	-	(25)	(16)
EWN-36	(177)	(235)	(23)	-	(24)	(16)



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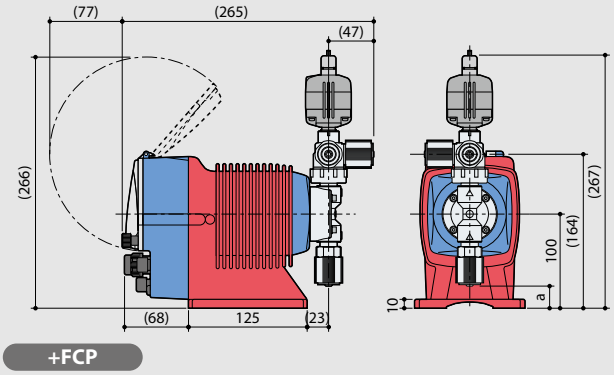

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Caution for safety use:
Before use of pump, read instruction manual carefully to use the product correctly.

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