IWAKI

EW
series

Electromagnetic metering pumps

High-tech combination of pump technology and electronics technology

Conventional electromagnetic metering pumps generally suffer from low resistance to exposure of external liquids. With improved sealing of not only the control unit but also the pump unit, a remarkable improvement to this exposure has been achieved in the EW series.

Electromagnetic metering pumps with high resistance to external liquids

Conventional electromagnetic metering pumps generally suffer from low resistance to exposure of external liquids. With improved sealing of not only the control unit but also the pump unit, a remarkable improvement to this exposure has been achieved in the EW series. With its tough construction and high tolerance to external liquids, the EW series can be widely used in applications ranging from incorporation into various devices to utilization as standard equipment in water treatment facilities.

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.

High resolution

For discharge flow adjustment, a dual control system which controls the length of stroke and the number of strokes employed. Since stroke by stroke adjustment is possible, the discharge rate can be controlled in a wide range from a minimal flow rate to its maximum discharge.

Multifunctional controller

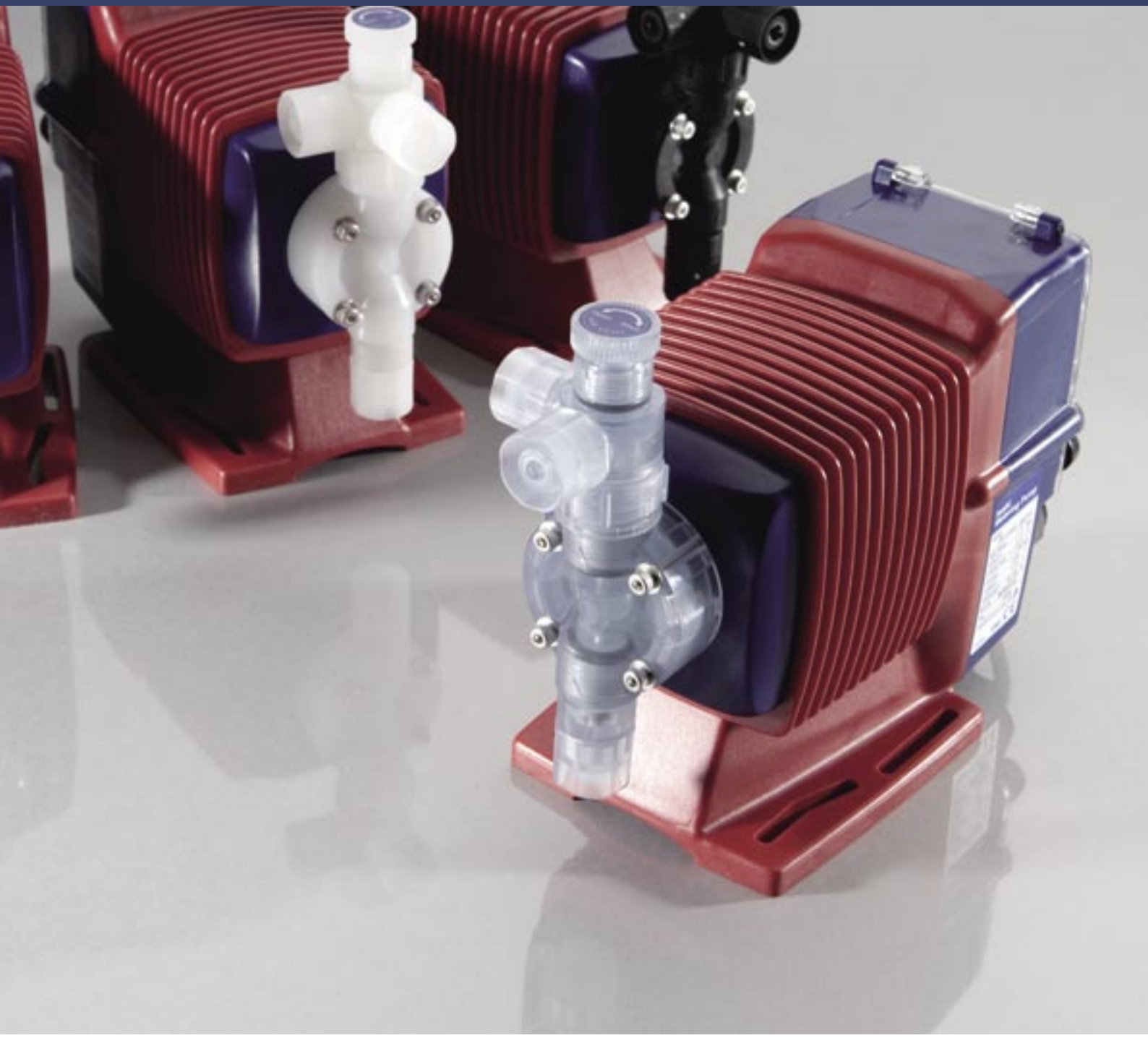
The controller includes a CPU and is equipped with double-level stop function and external control function.
The display for the number of strokes utilizes a high temperature type LCD which provides extra resistance to the direct rays of the sun.

High compression ratio

The compression rate is raised by reducing the dead volume of the pump head and increasing the length of stroke, aiming at higher self-priming capability and more effective venting.

PVC type | GFRPP type | PVdF type | SUS 316 type

High-tech combination of pump technology and electronics technology



Pump unit

Pump head
Four types, PVC, GFRPP, PVdF and Stainless steel 316 are available.

Diaphragm

A conical diaphragm with less dead volume. Made of EPDM covered by fluororesin, it is highly corrosion resistant and remarkably durable.

Valve
A dual stage valve system is used to improve the checking ability. There are two types of valve assemblies, i.e., for acid liquid and for alkaline liquid.

Air vent valve

The smaller flow rate types (to the EW-□21) have air vent valves as standard equipment. Air in the pump chamber can be easily released simply by turning knob.

Note: For SUS316 type, airvent valve is available for all pump sizes.

Controller unit

Controller
A CPU is mounted to raise the resolution and promote functional diversity.

Control panel
An LCD suitable for use under high temperatures is weather-tight and easy for the operator to see. To protect the controller portion from liquid, membrane switches are used.

Stroke length adjusting dial
The large control dial is easy to operate. Dual control of the number of strokes as well as the length of stroke allows a wide range of discharge adjustment.

Controller cover
All models have controller covers as standard equipment.

Connector
A connector which meets DIN standards is employed for the connection with external cord.

Drive unit

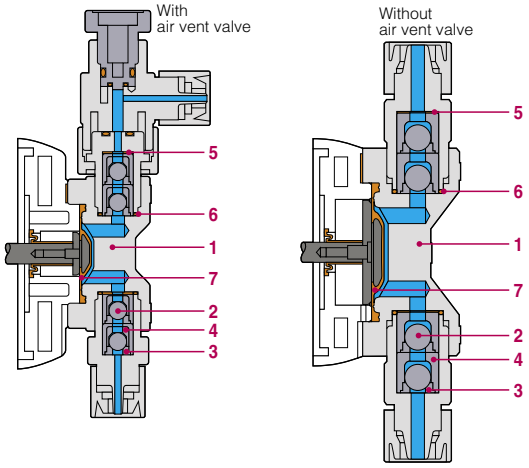
Solenoid
A coil and a thermal protector, insert-molded from resin, ensure superior insulation. For convenience in recycling, the resin portion and the metal portion are constructed to be easily separable.

Pump body
The body is in PPE which offers good resistance to deterioration from ultraviolet rays and also provides strong resistance to chemical exposure.
A rubber gasket is inserted between the bracket and the pump head to prevent liquid from entering into the drive portion.

Wet-end materials

	VC	VH	PC	PH	TC	SH
1 Pump head	PVC	PVC	GFRPP	GFRPP	PVdF	SUS316
2 Valve	Alumina ceramic	Hastelloy C276	Alumina ceramic	Hastelloy C276	Alumina ceramic	Hastelloy C276
3 Valve seat	FKM	EPDM	FKM	EPDM	FKM	SUS316
4 Valve guide	PVC	PVC	GFRPP	GFRPP	PVdF	SUS316
5 Valve gasket	PTFE					
6 O ring	FKM	EPDM	FKM	EPDM	FKM	–
7 Diaphragm	PTFE coated EPDM					

Note: Illustration shows PVC, GFRPP and PVdF type.



Pump identification

EW - F 11 VC - 20E P F 2

- **Drive unit symbol**
  Average power consumption / Length of stroke
  B: 10W / 1mm
  F: 16W / 1.25mm
  G: 24W / 1.5mm
- **Series symbol**
  Iwaki electromagnetic metering pump EW series
- **Wet-end material symbol**
  For details, see the table of materials.
- **Effective diameter of diaphragm**
  08: 8mm **11**: 10mm **16**: 15mm
  21: 20mm **31**: 30mm **36**: 35mm
  46: 45mm
- **Power supply voltage symbol**
  20E: AC220V/230V/240V single phase
- **Power cord terminal**
  P: With plug
  No code: Crimp-style terminal
- **Controller unit type**
  F: F type
- **Diameter of connecting tube** (mm)
  2: 4x6
  3: 6x8
  5: 9x12
  6: 10x12
  9: Rc1/4
  23: 6x12
  24: 5x8

Specifications of pump

Model			B08	F11	F16	F21	F31	G21	G31	G36	G46
Capacity	VC, VH, PC, PH	L/hr	0.6	1.5	2.5	3.6	9.0	4.7	9.9	15.1	24.0
		mL/min	10	26	42	60	150	78	165	252	400
		mL/shot	0.056	0.142	0.233	0.333	0.833	0.433	0.917	1.40	2.20
	TC, SH	L/hr	0.6	1.5	2.4	–	–	4.7	9.9	13.8	TC: 24.0, SH: 22.8
		mL/min	10	26	40			78	165	230	TC: 400, SH: 380
		mL/shot	0.056	0.142	0.222			0.433	0.917	1.28	TC: 2.20, SH: 2.11
Max. discharge pressure		MPa	1.0	1.0	1.0	0.7	0.3	1.0	0.6	0.4	0.2
Stroke length (Effective adjustment range)		mm	1 (50-100%)	1.25 (40-100%)				1.5 (30-100%)			
Stroke rate			1-180spm								
Power supply (common to 50/60Hz)			AC220V / 230V / 240V single phase								
Insulation type, etc.			E type insulation / with built-in thermal protector / with 2m power cord								
Average power consumption		W	10	16				24			
Average current		A	0.4					0.6			
Connection (Applicable tube diameter)	VC, VH	mm	4x6, 6x8, 6x12, 5x8				9x12, 6x12	4x6, 6x8, 6x12, 5x8	9x12, 6x12		
	PC, PH	mm	4x6, 6x8				9x12	4x6, 6x8	9x12		
	TC	mm	4x6			–	–	4x6	10x12		
Thread onnection	SH		Rc1/4					Rc1/4			
Mass		kg	2.8					3.7			3.9

Note 1: The maximum discharges are values obtained while utilizing clear water under maximum discharge pressures. Under lower discharge pressures, larger amounts than the above are discharged.
Note 2: To prevent overfeeding, discharge pressure should be 0.12 MPa or higher. (For F31, G36 and G46, it should be 0.05 MPa or higher.)
Note 3: Max. discharge pressure when pumping liquid at temperature 0 to -10˚C is limited to 70% of rated max. discharge pressure.
Note 4: Above mass are PVC, GFRPP & PVdF type. Please contact Iwaki for SUS316 type.

Operating Conditions
• Liquid temperature range VC/VH: -10 to 40˚C, PC/PH/TC/SH: -10 to 60˚C (Without dew condensation.) • Ambient temperature range: 0 to 40˚C
• Ambient humidity range: 35 to 85% RH (Without dew condensation inside the controller.)

Specifications of controller

Operational function	Function	MANUAL (Manual operation)
		EXT: 1 point (Operation by external signals)
		STOP: 2 points (Operation to be stopped by external signals)
	Switching	Selection by operating keys (UP and DOWN keys) START / STOP key (Membrane)
Control function	Setting	• MANUAL The number of strokes between 1 and 180 spm • EXTERNAL Digital input operation 1 : 1 (No pulse to be stored; the highest SPM at the time of overflow)
	Stop	Pre-stop contact input lights LED. Stop contact input stops pump operation.
	Highest SPM	180 spm.
Input	Pulse	No-voltage contact or open collector
	Stop	Level sensor: No-voltage contact or open collector (2-stage type, NO or NC contact selectable)
Output	Alarm output	1. Alarm: PNP Transistor (During stop contact input) 2. SPM synchronization PNP Transistor
Connection	External connection	DIN connector system

Accessories

Check valve CA / CB / CS

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

CA: Available in PVC and CFRPP.

CB: 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	
CA-1VC	4x6, 5x8 6x8, 6x12	R3/8 and R1/2	0.17±0.04	PVC (CFRPP)	Hastelloy C276	FKM	EW-B08, F11, F16, F21, G21
(CA-1V)			$0.17^{+0.05}_{-0.04}$			EPDM	
CA-1VE (1E)			0.17±0.04			EPDM	
CA-2VC (2V)	9x12		0.17±0.04			FKM	EW-G31
CA-2VE (2E)						EPDM	
CA-2VCL (2VL)	9x12		$0.05^{+0.04}_{-0.03}$			FKM	EW-F31, G36, G46
CA-2VEL (2EL)						EPDM	
CB-1VC	4x6	4x6	0.17±0.04	PVC	Hastelloy C276	FKM	EW-B08, F11, F16, F21, G21
CB-1VE						EPDM	
CS-1S	Rc1/4	Rc1/4	0.2±0.03	SUS316	Hastelloy C276	–	EW-B08, F11, F16, G21, G31
CS-1SL			0.05±0.03				EW-G36, G46

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		Body	O-ring	
Note **BVC-1**□□	4x6 6x8 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.

Air vent valve AV

This is for EW-F31, G31, G36 and G46.

Specifications

Model	Tube connection	Material	Applicable pump
AV-LVC-5	9x12mm	PVC, FKM	EW-F31, G31, G36, G46-VC
AV-LVH-5		PVC, EPDM	EW-F31, G31, G36, G46-VH
AV-LPC-5		GFRPP, FKM	EW-F31, G31, G36, G46-PC
AV-LPH-5		GFRPP, EPDM	EW-F31, G31, G36, G46-PH

Multi-function valve MFV

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

Specifications

Model	Tube connection	Set pressure	Material	Applicable pump
MFV-SVC	4x6mm 5x8mm 6x8mm 6x12mm	$0.2^{+0.13}_{-0.12}$ MPa	PVC / FKM / PTFE	EW-B08, F11, F16, F21, G21
MFV-SVH			PVC / EPDM / PTFE	
MFV-SPC			GFRPP / FKM / PTFE	
MFV-SPH			GFRPP / EPDM / PTFE	

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

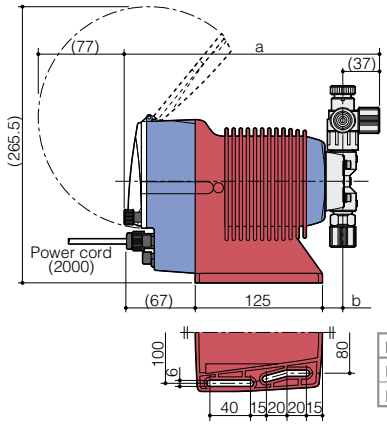
Model	Level switch	Connection mm	Length mm
PS-1	Single	4x6, 5x8, 6x8, 6x12, 9x12	520, 650, 810, 1000, 1350
PS-2	Double		520, 720, 810, 1000, 1350

Pulse oscillating flow meter

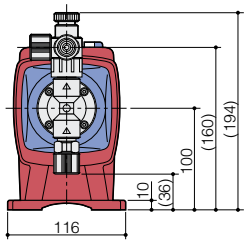
Specifications

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

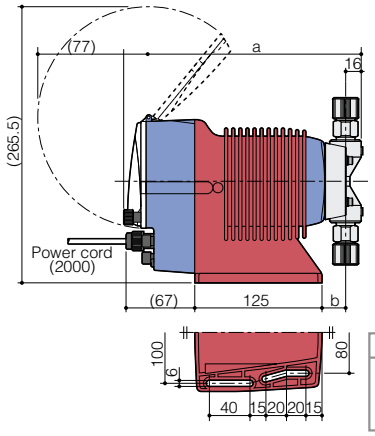
Dimensions in mm



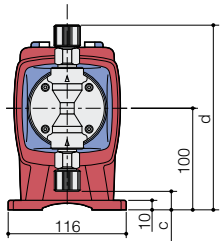
EW-08, 11, 16, 21



Model	a	b
EW-08	(250.5)	(18.5)
EW-11. 16. 21	(254.5)	(22.5)



EW-31, 36, 46



Model	a	b	c	d
EW-31	(235.5)	(24.5)	(18)	(182)
EW-36	(235)	(24)	(18.5)	(181.5)
EW-46	(237)	(26)	(13)	(187)

Note: Above dimensions are PVC standard type as reference. Please contact us for details of other models.

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