IX Series
Metering Pumps

Iwaki's IX Series Metering Pumps are digitally controlled direct-drive diaphragm pumps. Years of experience in high-end motor technology result in extremely accurate and energy efficient metering pumps with high resolution.

The IX Series meets today's demand for automated chemical delivery in industries from water treatment to chemical process. Highly precise control offers a solution for a variety of dosing applications.

1000:1 Turndown Ratio

IX Series pumps use efficient Brushless DC motors for speed control. High resolution motor control adjusts the discharge and suction speeds to meet a full and accurate turndown ratio up to 1000:1 and flowrates from 80 GPH (300 L/H) down to 0.002 GPH (7.5 mL/H).

±1% High Accuracy

Combined with precise motor control, an efficient valve design maintains accurate flow rates to allow a low-cost, mechanically-driven diaphragm pump to achieve a repeatability of ±1%.

70% Energy Savings

Helical gears and return spring reduce power consumption by up to 70% compared to conventional mechanical diaphragm metering pumps.

High Compression Pump Head Design

A fixed stroke length and proprietary liquid end design maintains high compression during each stroke, resulting in fast priming and no gas-lock at any flow rate up to full rated pressures.

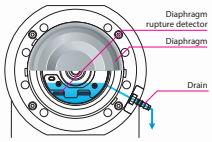
Features

Suction vs. Discharge speed

- Suction speed remains constant. Discharge speed reduces as pump is turned down, helping to reduce pulsation and inertial forces on piping.

Standard Diaphragm Leak Sensor

- Behind the diaphragm, a sensor monitors for any sign of rupture or leakage.



Faulty Operation Detection

- Abnormal operation detection protects the pump and piping during discharge pressure spikes (valve closure) or increases (clogging).

  Note: In some instances, software may not be able to detect sudden increases in pressure due to a closed discharge. Installation of pressure relief/safety valve is always recommended.

Universal Design

- Multi-voltage operation (100-240VAC) and compliant to UL & CE standards
- Drive/control units each sealed to IP65 ratings

Cavitation Prevention

- The suction speed can be manually lowered for operation with highly viscous liquids or prevention of cavitation.

"Foolproof" Valve Cartridge Design*

- An orientation guide in the suction or discharge ports prevents valve cartridges from being incorrrectly installed. * Except C060 and Stainless Steel versions.

Automatic Control

- Fully programmable analog or digital proportional control of the pump with Batch and Internal timer control features.

Degassing Assist

- Keypad operation or a contact signal (AUX) runs the pump at the full speed (overriding any mode) assisting in air elimination and priming.

Operation History

- The controller logs total power connect time, operation time, the number of strokes and the number of power-on cycles.

Flexible, User-friendly Interface

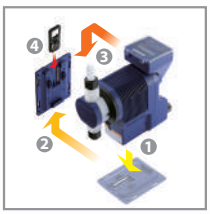
IX-B Series

- Customer controller positioning enables adjustment and setting of location on-site.

Rotates every 90 degrees into 4 positions

Swings two steps on each side

- Flexible installation of the pump with built in wall bracket. * Patent Pending (pump base turns into wall bracket)



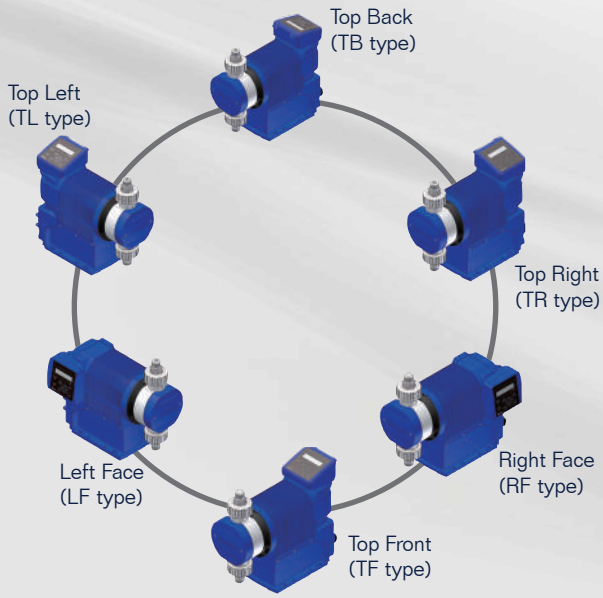
1. Remove the pump base
2. Attach pump base to wall
3. Hang the pump to base
4. Lock it in place with clip

Installation on wall

- 2-line LCD Display with LED backlight
- Multiple display languages
- Larger LED status bar for pump status visibility at distances or in dark locations.

IX-C and IX-D Series

- The controller position can be ordered in 6 positions for operator convenience.
- LCD display with LED backlight
- Multiple display languages.
- Bright LED for indication of pump status.



Specifications

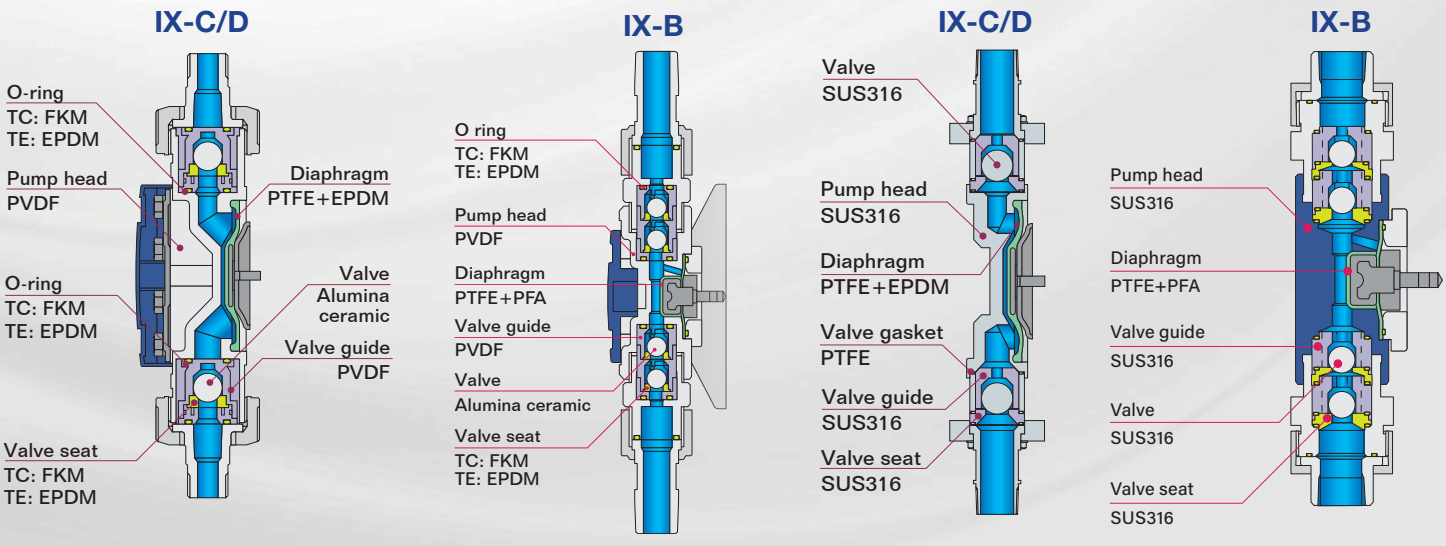
Model	Capacity Range GPH (LPH)	Max Pressure PSI (Mpa)	Average power consumption	Current Amps	Connection Size		Weight lbs (Kg)	
					TC/TE	S6	TC/TL	S6
IX-B007	0.002-1.98 (0.0075 - 7.5)	247* (1.7)	17W	0.4A	1/2" MNPT	3/8" FNPT	7.75 (3.5)	9.92 (4.5)
					3/8" x 1/4" Tube	N/A	7.75 (3.5)	N/A
		145 (1.0)			1/2" Flange		8.25 (3.7)	13.2 (6.0)
IX-B015	0.004 - 3.96 (0.015 - 15)	145 (1.0)			1/2" MNPT	3/8" FNPT	7.75 (3.5)	9.92 (4.5)
					3/8" x 1/4" Tube	N/A	7.75 (3.5)	N/A
					1/2" Flange		8.25 (3.7)	13.2 (6.0)
IX-B030	0.008 - 7.93 (0.03 - 30)	87* (0.6)	19W	0.5A	1/2" MNPT	3/8" FNPT	8.25 (3.7)	11.0 (5.0)
					1/2" x 3/8" Tube	N/A	8.25 (3.7)	N/A
					1/2" Flange		8.60 (3.9)	14.3 (6.5)
IX-B045	0.012 - 11.89 (0.045 - 45)	58* (0.4)			1/2" MNPT	3/8" FNPT	8.25 (3.7)	11.0 (5.0)
					1/2" x 3/8" Tube	N/A	8.25 (3.7)	N/A
					1/2" Flange		8.60 (3.9)	14.3
IX-C060	0.02 - 15.8 (0.08 - 60)	145 (1.0)	62W	0.8 A	1/2" MNPT		17.6 (8.0)	23.1 (10.5)
					1/2" Flange		19.8 (9.0)	26.4 (12.0)
IX-C150	0.05 - 39.6 (0.2 - 150)	58 (0.4)			3/4" MNPT		19.8 (9.0)	24.3 (11.0)
					3/4" Flange			28.7 (13.0)
IX-D150	0.05 - 39.6 (0.2 - 150)	145 (1.0)	110W	1.3A	3/4" MNPT		32.0 (14.5)	33.1 (15.0)
					3/4" Flange			37.5 (17.0)
IX-D300	0.1 - 79.2 (0.4 - 300)	73 (0.5)			1" MNPT		34.2 (15.5)	37.5 (17.0)
					1" Flange			43.0 (19.5)

***CAUTION:** Pump may be capable of higher pressure than tubing. Operate pumps at pressures lower than tubing specifications.

NOTES:

- Maximum discharge capacity is rated with clean water at ambient temperature at maximum discharge pressure. Output may increase as pressure decreases.
- Accuracy is not guaranteed at flows below 0.5GPH (2 LPH) for IX-D300S6, 0.26GPH (1 LPH) for IX-C150S6 or 0.11GPH (0.4 LPH) for IX-C060S6.
- Maximum viscosity: IX-B: 100/500 cps IX-C: 1000 cps IX-D: 300 cps (standard pumps - consult factory for higher viscosities). Outputs may be reduced.
- Liquid temperature range: 0 -50°C (TC, TE type), 0-80°C (S6 type). No viscosity change. Non freezing. No slurry.
- Operating temperature range: 0-50°C (Indoor use only)
- Operating humidity range: 30-90% RH (Non-condensing in the controller)
- Maximum dry suction lift rating is 6.5 ft. (2m).
- Pumps should always be shielded from direct exposure to the elements.

Materials of Construction



TC, TE Materials **S6 Materials**

Ordering Information

IX - C150 TC N - TB - U
1 2 3 4 5

IX SERIES

1 DRIVE UNIT/PUMP SIZE
- B007: 1.98 GPH (7.5 LPH)
- B015: 3.96 GPH (15 LPH)
- B030: 7.90 GPH (30 LPH)
- B045: 11.80 GPH (45 LPH)
- C060: 15.8 GPH (60 LPH)
- C150: 39.6 GPH (150 LPH)
- D150: 39.6 GPH (150 LPH)
- D300: 79.2 GPH (300 LPH)

2 WET END MATERIALS
- TC = PVDF/FKM/CE
- TE = PVDF/EPDM/CE
- S6 = 316SS/PTFE

3 CONNECTIONS
- T = Tubing IX-B TC/TE ONLY
- N = MNPT (3/8" FNPT on IX-BS6)
- FA = Flange (ANSI 150 lb)

4 CONTROLLER LOCATION
IX-C/D Only; Leave Blank for IX-B
- TB = Top Back
- TF = Top Front
- TR = Top Right
- TL = Top Left
- RF = Right Face*
- LF = Left Face*
- * No display cover on IX-C

5 POWER CORD
- U = USA (115V)
- 2 = USA (230V)
- E = Europe (220V DIN)

Safety Certifications

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

Intertek

IWAKI AMERICA

About Us

For more information on the entire Iwaki America product line, visit:

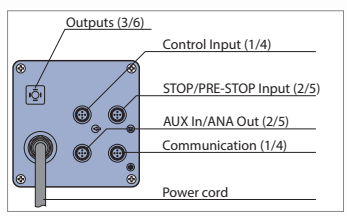
iwakiamerica.com
walchem.com

Controller Specifications

Operation mode	MAN (Manual)		Use the UP (↑) and DOWN (↓) keys to adjust a flow rate.
	EXT	ANALOG fixed control	4-20mA, 0-20mA, 20-4mA, 20-0mA (Proportional to the flow rate)
		ANALOG variable control	2-setpoint programmable (0-20mA, proportional to flow rate)
		Pulse control[Note1]	**IX-B007:** 0.000625mL/PLS - 15.0mL/PLS **IX-C060:** 0.00625mL/PLS - 120mL/PLS **IX-B015:** 0.001250mL/PLS - 30.0mL/PLS **IX-C150:** 0.0156mL/PLS - 300mL/PLS **IX-B030:** 0.002500mL/PLS - 60.0mL/PLS **IX-D150:** 0.0156mL/PLS - 300mL/PLS **IX-B045:** 0.003750mL/PLS - 90.0mL/PLS **IX-D300:** 0.0312mL/PLS - 600mL/PLS
		Batch control[Note1]	**IX-B007:** 0.625mL/PLS - 15.0L/PLS **IX-C060:** 6.25mL/PLS - 120L/PLS **IX-B015:** 1.250mL/PLS - 30.0L/PLS **IX-C150:** 15.6mL/PLS - 300L/PLS **IX-B030:** 2.500mL/PLS - 60.0L/PLS **IX-D150:** 15.6mL/PLS - 300L/PLS **IX-B045:** 3.750mL/PLS - 90.0L/PLS **IX-D300:** 31.2mL/PLS - 600L/PLS
		Interval batch control-[Note1]	Day: 0 - 9, Hour: 0 - 23, Minute: 1 - 59
			Same flow ranges as Batch control.
		Profibus control[Note8]	Communication protocol: Profibus-DP-compliant International standard: EN50170 (IEC61158)
Monitors	LCD		16 digits □ 2 lines, backlit character LCD
	LED		WHITE: Pump stopped/waiting. ORANGE: Running, Pre-Stop condition. GREEN: Pump operating. RED: Alarm condition/stopped.
Operation	Keypad		(⏻)Start/Stop, MENU, ESC, (↵)Enter, (↑)Up, (↑)Down, (←)Left and (→)Right keys
Control function	STOP		Operation stops/starts with input contact[Note2]
	PRIME		Forces max. speed operation by pressing the (↓)UP and (↓)DOWN keys
	Keylock		Locks/unlocks keypad operation with PIN code
	Interlock		Operation stops/starts with input contact[Note2]
	AUX		Pump operates at programmed flow rate with input contact
	Maximum discharge rate		Adjusts maximum flow rate limit of pump (all operation modes)
	Buffer memory		Enables memory or ignoring of incoming pulses during operation in Batch mode
	Analog input display		Displays the actual analog input value
Input	STOP/Pre-Stop/AUX/Interlock		No-voltage contact or open collector[Note3]
	Analog		0-20mA DC (Internal resistance is 200Ω)
	Pulse		No-voltage contact or open collector. Max pulse frequency: 100Hz (Pulse ON: 5mS+)
Output	Alarm1 (OUT1)		No-voltage contact (mechanical relay): 250VAC 2A (Resistive load) Possible output conditions can be Enabled/Disabled: STOP / Pre-Stop / Interlock / Leak Detection / Motor Overload[Note7] / Batch Complete[Note4] / Drive Error Factory preset: Leak Detection is Enabled for OUT1
	Alarm2 (OUT2)		No-voltage contact (PhotoMOS relay): AC/DC 24V 0.1A (Resistive load) Possible output conditions can be Enabled/Disabled: STOP / Pre-Stop / Interlock Leak Detection / Motor Overload[Note7] / Batch Complete[Note4] / Drive Error / Volume Prob. PLS[Note5] Factory preset: Interlock is Enabled for OUT2
	Power supply		12VDC 30mA maximum
	Current		DC 0-20mA, 2 programmable setpoints (Max. resistance load: 300Ω)
Power voltage[Note6]			100-240VAC ±10% 50/60Hz

Note1: Volume per pulse is programmable in the Pulse, Batch or Interval Batch operation modes. The minimum pump outout is the volume per one stroke of the pump (corrected with calibration). The increment settings are also a factor of the volume per stroke of the pump (corrected with calibration).
Note2: Pump can be programmed to STOP or START with input contact.
Note3: The max voltage and current applied to the input contact is 12 VDC and 5mA. If a relay is used, the min applicable load must be 5mA or less.
Note4: When Batch Complete (batch operation complete output signal) is set to ENABLE, all other functions will be set to DISABLE by default.
Note5: When Volume Prop. PLS output is set to ENABLE, all other functions will be set to DISABLE by default.
Note6: Do not operate pump outside of the specified voltage range to avoid damage. The min to max voltage range limits are 90-264VAC.
Note7: The Pressure at which the Motor Overload alarm triggers is approximately 1.3 to 2 times the rated maximum discharge pressure.
Note8: When using ProfiBus communication, a separate ProfiBus Conversion Box (Accessory) and connectors are required.

Optional Accessories



1. DIN 5-Pin Field-wired Control Input connector (ANA/DIG/Batch). P/N E90495 (Supplied w/Pumps)
2. DIN 5-Pin Reverse-key Field-wired connectors (Stop/Aux/ANA Out). P/N E90496
3. DIN 4-Pin Field-wired mini-square Output connectors (OUT1/OUT2) P/N E90497
4. DIN 5-Pin Control Input connector & 5m Cable (ANA/DIG/Batch) P/N IX0018
5. DIN 5-Pin Reverse-key connector & 5m Cable (Stop/Aux/ANA Out) P/N IX0019
6. DIN 4-Pin mini square Output connectors & 5m Cable (OUT1/OUT2) P/N IX0020
7. ProfiBus Converter Box for communication interface (IX0018 req'd) P/N PB-01

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