

# Metering Pumps



## IX Series

A new class of advanced metering pumps! Iwaki's IX Series 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 meet 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.



**750:1**  
Turndown

**±1%**  
High Accuracy

**70%**  
Energy Savings

### Summary of Key Benefits

- **High Turndown Ratio**  
Motor control adjusts the discharge and suction speeds to meet a full and accurate turndown ratio of 750:1 (300 l/h to 200 ml/h).
- **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 high accuracy of ±1%.
- **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 maintains high compression in each stroke resulting in fast priming and no air-lock at any flow rate up to rated pressures.

**W A L C H E M**

IWAKI America Inc.

# Features

## » Suction vs. Discharge speed

- Suction speed is constant. Discharge speed is reduced 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)

## » 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 incorrectly installed.



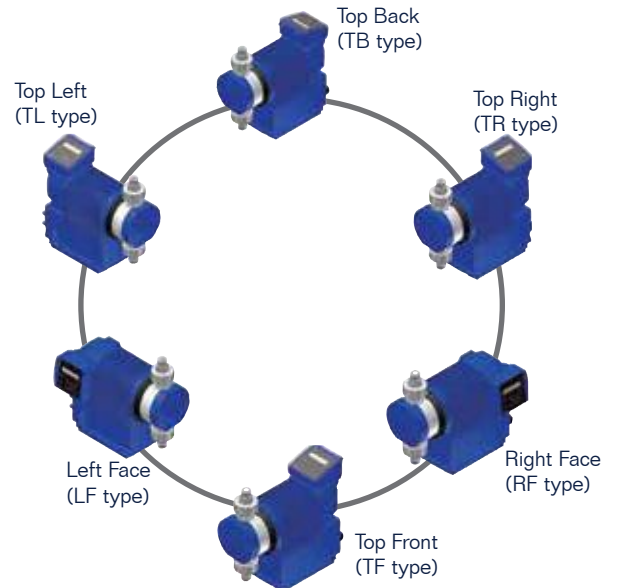
\* Except C060 and Stainless Steel versions.

## » Automatic Control

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

## » Flexible, User-friendly Interface

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



## » Degassing Assist

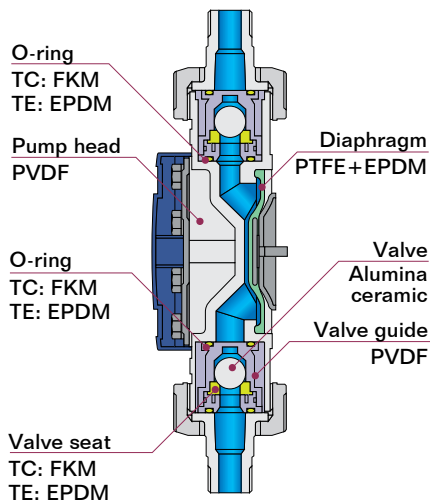
- Keypad operation or a contact signal (AUX) runs the pump at the full speed (overriding any mode) assisting in air elimination and priming.

## » Operation History

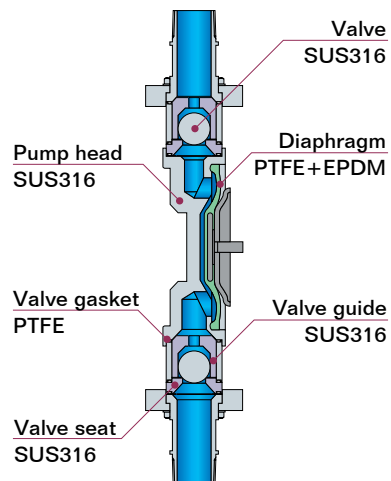
- The controller logs total power connect time, operation time, the number of strokes and the number of power-on cycles.

## Materials of Construction

### TC, TE Materials



### S6 Materials

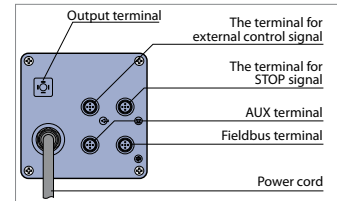


# Specifications

## Pump Specifications

Model	Capacity Range GPH (LPH)	Max Pressure PSI (Mpa)	Average power consumption	Current Amps	Connection Size	Weight lbs (Kg)
IX-C060TC / TE	0.02 - 15.8 (0.08 - 60)	145 (1.0)	62W	0.8 A	1/2" NPT (1/2" flange)	23 (10.5)
IX-C060S6						29 (13.2)
IX-C150TC / TE	0.05 - 39.6 (0.2 - 150)	58 (0.4)			3/4" NPT (3/4" flange)	23 (10.5)
IX-C150S6						31 (14.1)
IX-D150TC / TE	0.05 - 39.6 (0.2 - 150)	145 (1.0)	110W	1.3A	3/4" NPT (3/4" flange)	31.9 (14.5)
IX-D150S6						33.0 (15.0)
IX-D300TC / TE	0.1 - 79.2 (0.4 - 300)	73 (0.5)			1" NPT (1" flange)	34.1 (15.5)
IX-D300S6						37.4 (17.0)

- Maximum discharge capacity is rated with clean water at ambient temperature at maximum discharge pressure. Output may increase as pressure decreases.
- Maximum viscosity: 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: 0-90% RH (Non-condensing in the controller)
- Maximum dry suction lift is 6.5 ft. (2m).
- 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.
- Pumps should always be shielded from direct exposure to the elements.



## Controller Specifications

<b>Monitors</b>	LCD	16x2 backlight LCD	
	LED	Operation / Stop / Alarm	
<b>Operation</b>	Keypads	[START/STOP] [MENU] [ESC] [Enter] [Up] [Down] [Left] [Right]	
<b>Operation mode</b>	MAN (Manual)	C060: 80 mL/H - 60 L/H, C150: 200 mL/H - 150 L/H	
	EXT	Analog control	4 - 20, 0 - 20, 20 - 4, 20 - 0mA, Programmable 0-20 mA
		Pulse control	C060: 0.00625 mL/PLS - 120 mL/PLS, C/D150: 0.0156 mL/PLS - 300 mL/PLS, D300: 0.0312 mL/PLS - 600 mL/PLS
		Batch control	C060: 6.25 mL/PLS - 120 L/PLS, C/D150: 15.6 mL/PLS - 300 L/PLS, D300: 31.2 mL - 600 L/PLS <sup>Note 1</sup>
	Interval batch control	Time 0-9day, 0-23H, 1-59min Capacity C060: 6.25 mL - 120 L, C/D150: 15.6 mL - 300 L, D300: 31.2 - 600 L/PLS <sup>Note 1</sup>	
<b>Control function</b>	STOP	Operation stops with contact input	
	PRIME	MAX spm operation by pressing the Up and Down keys	
	Interlock	Operation stops with contact input	
	AUX	Operation at max. spm with contact input	
<b>Input</b> <sup>Note 2</sup>	STOP / Pre-STOP / AUX / Interlock	No-voltage contact or open collector	
	Profibus <sup>Note 3</sup>	Communication protocol: Profibus-DP International standard: Compliant to EN50170 (IEC61158)	
	Analog	0-20mA DC (Internal resistance is 200Ω.)	
	Pulse	No-voltage contact or open collector (MAX pulse frequency is 100Hz.)	
<b>Output</b>	Alarm 1 <sup>Note 4</sup>	No-voltage contact (Mechanical relay) 250VAC 3A (Resistive load) Selectable: STOP, Pre-stop, Interlock, Leak Detection and Motor Overload.	
	Alarm 2 <sup>Note 4</sup>	No-voltage contact (PhotoMOS relay) AC250V 3A (Resistive load) Selectable: STOP, Pre-STOP, Interlock, Leak Detection and Motor Overload.	
	Power supply	12VDC 30mA or below	
<b>Safety function</b>	Diaphragm rupture detection	The pump will stop if the diaphragm ruptures.	
	Overpressure detection	The pump will stop when the pump load rises too high.	
<b>Power voltage</b>	100-240VAC 50/60Hz		

Note 1: The IX discharges a programmed volume per pulse in batch control. Default setting is 6.25 mL(C060), 15.6 mL(C/D150) or 31.25 mL (D300). The volume per pulse is programmable. This setting can change after calibration and should be verified.

Note 2: Field wireable connectors for external control signals (analog, pulse input, and interlock), the STOP input, PreSTOP and AUX inputs are supplied with the pump.

Note 3: Contact us for use of the IX with Profibus control.

Note 4: A field wireable output connector is supplied with the pump.

- A Ground Fault Circuit Interruptor (GFCI) is recommended.

# Ordering Information

IX - **C** **150** **TC** **N** - **TB** - **U**  
 1 2 3 4 5 6

## 1 DRIVE UNIT

C  
D

## 2 PUMP SIZE

060: 15.8 GPH (60 LPH)  
 150: 39.6 GPH (150 LPH)  
 300: 79.2 GPH (300 LPH)

## 3 WET END MATERIALS

TC = PVDF/FKM/CE  
 TE = PVDF/EPDM/CE  
 S6 = 316SS/PTFE

## 4 CONNECTIONS

N = NPTM  
 FA = Flange (ANSI 150 lb)

## 5 CONTROLLER LOCATION

TB = Top Back  
 TF = Top Front  
 TR = Top Right  
 TL = Top Left  
 RF = Right Face\*  
 LF = Left Face\*

\* No display cover on IX-C

## 6 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.



## About Us

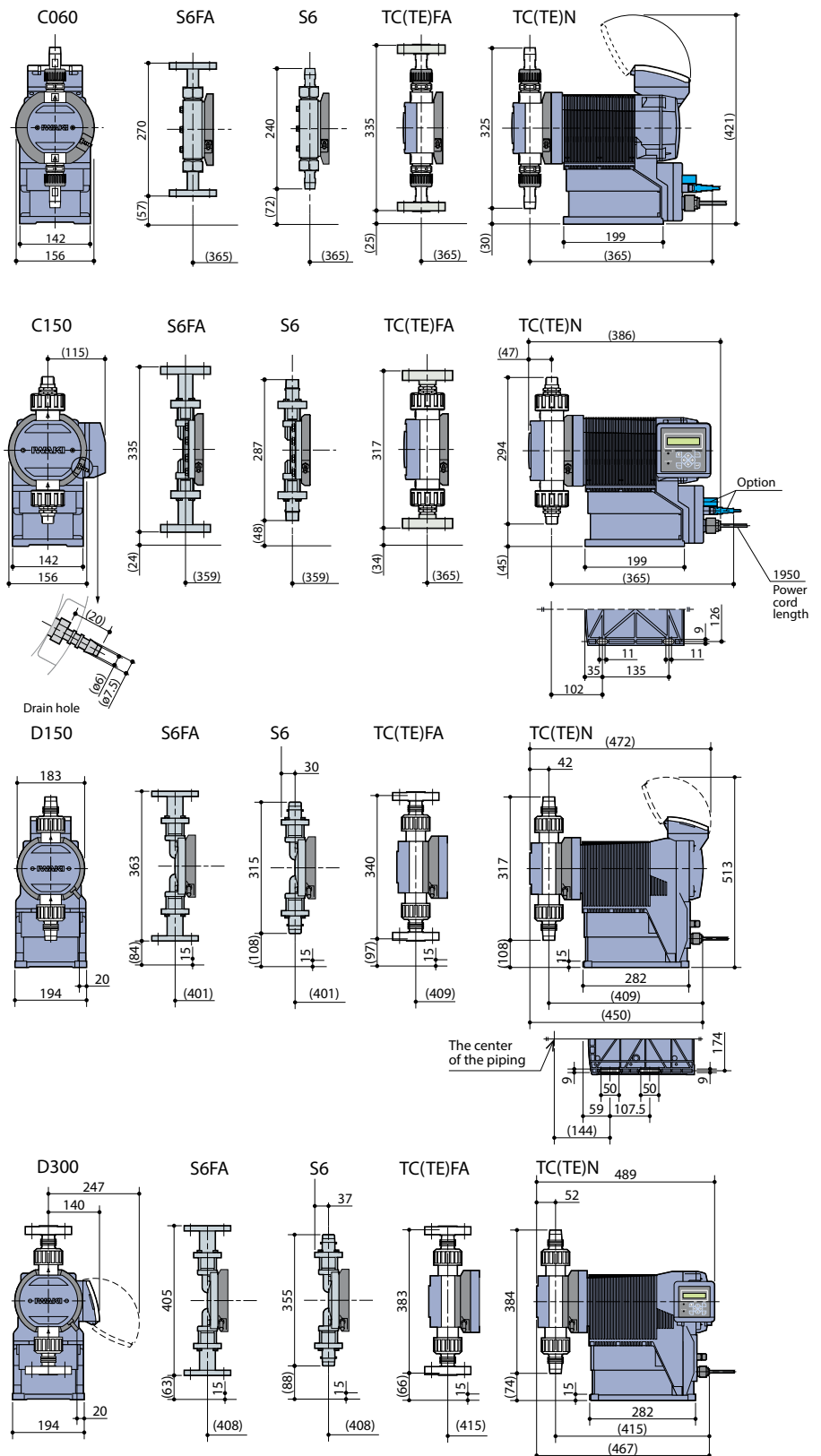
Walchem integrates its advanced sensing, instrumentation, fluid pumping and communications technologies to deliver reliable and innovative solutions to the global water treatment market.

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)



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## Dimensions (mm)



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