

Valveless Piston Pump

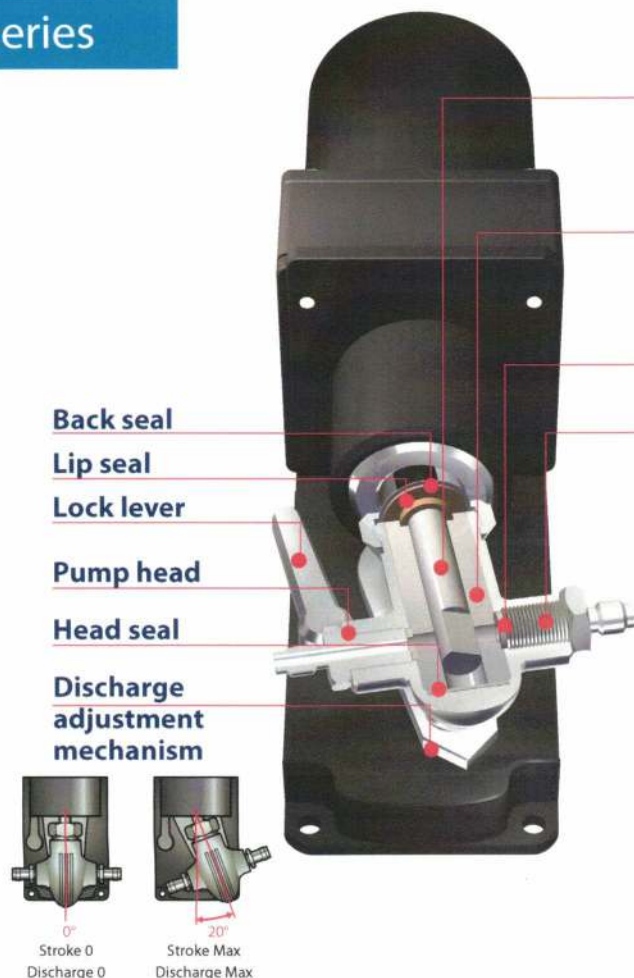


The Iwaki Hicera pump is a compact metering pump that employs a fine ceramic plunger and an optional unique flush circuit. Precision micron-machining on the main ceramic parts ensures a high degree of discharge accuracy. The versatility of the Iwaki Hicera pump makes it ideal for micro-chemical feeding as well as high viscosity liquid feeding.

- **Improve system accuracy** - Ultra-high precision dosing ($\pm 0.5\%$) provides critical control of your chemistry at a micro-discharge capacity.
- **Pumps that last the life of your system** - Our pumps deliver over 40,000 hours of repeatable precision and accuracy without the need for recalibration.
- **Reduce maintenance costs** - A unique valveless design that eliminates clogging/jamming associated with other metering pumps, combined with hardened ceramic materials makes this a great solution for handling solids/slurries.
- **Simplify your fluid path** - Compact (6" x 3" x 2") and lightweight Hicera pumps can be installed in both vertical and horizontal orientations. The reversible motor direction allows you to reverse your flow without needing to add/change the piping.
- **Ease of Integration** - Hicera pumps can come equipped with; synchronous AC motors, DC motors and stepper motors to ensure seamless integration into your control system.
- **Perfect for tough applications** - Whether you're pumping high viscosity, slurries, high purity or crystallizing fluids, Hicera is the one pump that can handle all these applications. Great self-priming, 100 PSI discharge pressure and the ability to dispense into vacuum conditions from high pressure without using a solenoid, make this the ideal pump for aggressive applications.



Construction



Plunger

The plunger is processed using micron order high-precision technology, leading to a higher degree of discharge precision. It is made of SiC or alumina ceramic (Al_2O_3).



Cylinder

Like the plunger, the cylinder is also processed using high-precision technology.



Joint seal

Tube joint

We offer a standard stainless steel hose joint (SUS316) and a stainless steel female adapter (SUS) that can be connected to commercial tube fitting.



Materials

Model	V-05	V-10		V-15	
Pump head	SCS14			SUS304	
Plunger	SiC	SiC	Al ₂ O ₃	SiC	Al ₂ O ₃
Cylinder	SiC	SiC	Al ₂ O ₃	SiC	Al ₂ O ₃
Head seal	PTFE				
Back seal	PTFE				
Tube joint	SUS316				
Joint seal	PTFE				
Lip seal	PTFE				

Model Identification

V - 05 S L P 1 A 1 - X

Standard combination	Plunger diameter	Material (Plunger/Cylinder)	Pump head material	Cleaning port
05SL	05: 5mm	S: SiC/SiC	L: SCS14 Investment casting	_: N/A
05SLP				P: Available
10AL	10: 10mm	A: Al ₂ O ₃ / Al ₂ O ₃	L: SCS14 Investment casting	_: N/A
10ALP				P: Available
10SL		S: SiC/SiC		_: N/A
10SLP				P: Available
15AS	15: 15 mm	A: Al ₂ O ₃ / Al ₂ O ₃	S: SUS304 Cutting product	_: N/A
15ASP				P: Available
15SS		S: SiC/SiC		_: N/A
15SSP				P: Available

Power voltage

- 1: AC100V single phase
- 2: AC200V single phase
- 3: AC200V three phase
- 4: AC110 - 115V single phase
- 5: AC220 - 230V single phase
- 6: DC 12V
- 7: DC 24V
- 0: Others

Gear ratio (Adaptation pump)

- | | |
|-----------------------|-----------------------|
| A: 1/150 (V-05, V-10) | E: 1/7.5 (V-10, V-15) |
| B: 1/75 (V-05, V-10) | F: 1/5 (V-10, V-15) |
| C: 1/30 (V-10) | G: 1/3 (V-10, V-15) |
| D: 1/15 (V-10) | |

Joint (Adaptation pump)

- | | |
|-----------------------------|-------------------------------------|
| 1: Ø6 SUS hose | (V-05, V-10 Gear ratio 1/150 - 1/1) |
| 2: Ø10 SUS hose | (V-10 Gear ratio 1/7.5 - 1/3) |
| 3: Ø13 SUS hose | (V-15) |
| 4: Rc1/4 SUS Female adapter | (V-05, V-10) |
| 5: Rc3/8 SUS Female adapter | (V-15) |

Special specifications

X: Special specifications
Special specifications are required for non-standard motors. Contact us for details about these specifications.

Note: Contact Iwaki America for other selections including stepper motors.

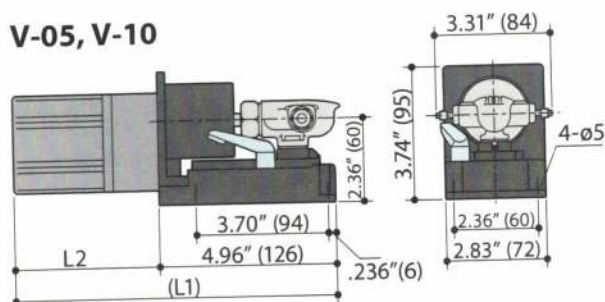
Specifications

Model	Gear Ratio	Speed RPM	Max Flow mL/min	Max Discharge Pressure MPa	Tube joint mm	Standard Motor	Mass kg
V-05SL1A4	1/150	9/11	1.6/1.9	0.7 (101.5 PSI)	Ø 6 SUS tube joint	Induction motor 115VAC 15W	2.3 kg (5 lbs)
V-05SL1B4	1/75	19/23	3.3/4				
V-10□L1A4	1/150	9/11	6.0/7.0	0.7 (101.5 PSI)			
V-10□L1B4	1/75	19/23	13/16				
V-10□L1C4	1/30	48/58	33/40				
V-10□L1D4	1/15	96/116	67/81				
V-10□L2E4	1/7.5	193/232	135/163	0.6 (87 PSI)	Ø 10 SUS tube joint	Induction motor 115VAC 25W	3.0 kg (6.6 lbs)
V-10□L2F4	1/5	290/348	203/245	0.4 (58 PSI)			
V-10□L2G4	1/3	483/580	338/409	0.3 (43.5 PSI)			
V-15□S3E4	1/7.5	193/323	559/673	0.5 (72.5 PSI)	Ø 13 SUS tube joint	Induction motor 115VAC 40W	8.0 kg (17.6 lbs)
V-15□S3F5	1/5	290/348	841/1009	0.3 (43.5 PSI)			
V-15□S3G4	1/3	483/580	1400/1682	0.2 (29 PSI)			

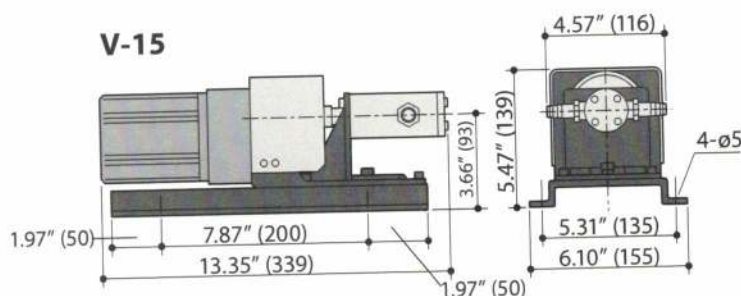
- Either A: Al_2O_3/Al_2O_3 or S: SiC/SiC comes in □
- Performance values in the above table are based on pumping clean water at ambient temperature.
- The revolution per minute is based on use of clean water and varie with liquid characteristics.
- Discharge capacity per revolution when the pump head is at an angle of 20°
 - Approx. 0.17 mL/rev for V-05
 - Approx. 0.7 mL/rev for V-10
 - Approx. 2.9 mL/rev for V-15
- Maximum suction lift with clean water is 4 meters and varies with liquid characteristics.
- Flush out crystallizing or adhesive liquid from the pump head after operation. Fushing ports is recommended with these pumps.
- Contact Iwaki America for detailed outline dimensions.
- Other than standard induction motor, other types of motors such as synchronous motor, DC motor, stepping motor or explosion-proof motors are available. Contact Iwaki America for details.

Dimensions

V-05, V-10



V-15



Model	Standard AC Motor	L1	L2
V-05	15W	9.17" (233)	4.21" (107)
V-10 L1	15W	9.17" (233)	4.21" (107)
V-10 L2	25W	9.64" (245)	4.68" (119)

Note 1:
 9.37" (238mm) for gear ratio of 1/3 - 1/15
 9.76" (248mm) for gear ratio of 1/30 - 1/150

Note 2:
 4.41" (112mm) for gear ratio of 1/3 - 1/15
 4.80" (122mm) for gear ratio of 1/30 - 1/150

Note 3:
 9.76" (248mm) for gear ratio of 1/3 - 1/15
 10.19" (259mm) for gear ratio of 1/30 - 1/150

Note 4:
 4.80" (122mm) for gear ratio of 1/3 - 1/15
 5.24" (133mm) for gear ratio of 1/30 - 1/150

Applications

The excellent discharge precision and superb durability of the Hicera pump makes it ideal for use in a wide range of fields. The pump's versatility enables it to be used in a variety of different processes. Whether it is mounted in other devices or used by OEMs, the Hicera pump can be adapted to fit the needs and specifications of each application.

Fuel-cell

Reformed water pump

Secondary cell

Filling and pumping the electrolyte solutions of a lithium cell
Injection of gel-like liquid at a constant rate

Medical devices

Clinical laboratory devices
Artificial dialyzers

Cleaning equipment

Injection of detergent / rinsing chemical

Paper manufacturing

Injection of paper strength additives at a constant rate
Injection of dye at a constant rate
Injection of slime control agent

Food equipment

Transfer of food additives at a constant rate
Filling of soups
Injection of flavor liquids
Sampling
Injection of bactericides

Capacitor

Injection of phosphoric acid liquid

Liquid waste treatment facility

Injection of polymer flocculants / slaked limes

Specifications for special motors

Stepping motor type

Allows for high precision injection at the ultra-precision level. (Repeatability $\pm 0.5\%$)

Enhanced safety explosion-proof motor type

This type can be used for volatile and flammable drug solutions.
• Explosion-proof motors can also be used.

Speed control motor type

(Equipped with a controller)

The variable volume controller located at the top of the motor makes it easy to control the number of the revolutions.

Sanitary type

This type consists of a ferrule joint and a stainless-steel base. It can be used to sample beer and other beverages.



Special specifications are required for non-standard motors. Contact us for details about these specifications.

Secondary / lithium cell

Pump equipped with a pump head adjustment mechanism

This type has an adjustable knob used to change the swing angle of the pump head, allowing for the accurate adjustment of the stroke length.



Dialyzer

Pump for artificial dialysis

This type consists of a PVDF pump head and 24 VDC stepping motor. It is mounted on an artificial dialyzer for use as a drainage pump or dialysate pump.



V-15 for drug solution / dialysate



V-10 for waste

V-10 for drainage / dialysate

Household fuel-cell

Compact pump type for fuel cells

This type consists of a PVDF pump head and 24 VDC stepping motor. It is mounted on household use fuel-cells, such as ENE-FARM, and used as a pump for reformed water.



V-05ZF5



V-07AF3

Analyzer

Pump for analyzer

This pump is mounted on hemanalysis instruments.



V-07AEP06 for drug solutions / cleaning



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