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 (± 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 (Al₂O₃).

**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**

<table>
<thead>
<tr>
<th>Model</th>
<th>V-05</th>
<th>V-10</th>
<th>V-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump head</td>
<td>SCS14</td>
<td>SUS304</td>
<td></td>
</tr>
<tr>
<td>Plunger</td>
<td>SiC</td>
<td>SiC</td>
<td>Al₂O₃</td>
</tr>
<tr>
<td>Cylinder</td>
<td>SiC</td>
<td>SiC</td>
<td>Al₂O₃</td>
</tr>
<tr>
<td>Head seal</td>
<td>PTFE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back seal</td>
<td>PTFE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tube joint</td>
<td>SUS316</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint seal</td>
<td>PTFE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lip seal</td>
<td>PTFE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Model Identification**

<table>
<thead>
<tr>
<th>Standard combination</th>
<th>Plunger diameter</th>
<th>Material (Plunger/Cylinder)</th>
<th>Pump head material</th>
<th>Cleaning port</th>
</tr>
</thead>
<tbody>
<tr>
<td>05SL</td>
<td>O5: 5mm</td>
<td>S: SiC/SiC</td>
<td>SCS14 Investment casting</td>
<td>P: Available, N/A: N/A</td>
</tr>
<tr>
<td>05SLP</td>
<td>10: 10mm</td>
<td>A: Al₂O₃, Al₂O₃</td>
<td>SCS14 Investment casting</td>
<td>P: Available, N/A: N/A</td>
</tr>
<tr>
<td>10AL</td>
<td>15: 15mm</td>
<td>A: Al₂O₃, Al₂O₃</td>
<td>SUS304 Cutting product</td>
<td>P: Available, N/A: N/A</td>
</tr>
</tbody>
</table>

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

**Joint (Adaptation pump)**
1: O6 SUS hose
2: Ø10 SUS hose
3: Ø13 SUS hose
4: Rc1/4 SUS Female adapter
5: Rc3/8 SUS Female adapter

**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

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

- Either A: Al₂O₃/Al₂O₃ or 5SiC/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 vary 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

![Dimensions Diagram](image)

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard AC Motor</th>
<th>L1</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-05</td>
<td>15W</td>
<td>9.17” (233)</td>
<td>4.21” (107)</td>
</tr>
<tr>
<td>V-10 L1</td>
<td>15W</td>
<td>9.17” (233)</td>
<td>4.21” (107)</td>
</tr>
<tr>
<td>V-10 L2</td>
<td>25W</td>
<td>9.64” (245)</td>
<td>4.68” (119)</td>
</tr>
</tbody>
</table>

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 ± 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.

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.

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.

Analyzer
Pump for analyzer
This pump is mounted on hemanalysis instruments.

V-05ZF5
V-07AF3
V-07AEP06
V-10 for waste
V-10 for drainage / dialysate
V-15 for drug solution / dialysate
V-07AF3
V-07AEP06 for drug solutions / cleaning