



IWAKI Product Guide for Semiconductor Manufacturing Process

IWAKI delivers the best solutions to every pump requirement in semiconductor manufacturing processes including chemical distribution and point-of-use dispensing, recirculation and filtration, photoresist application and CMP delivery.



The Heart of Industry

The FLP Series Reduces Discharge Pulsation Without the Use of a Separate Dampener, Reducing the Total Cost of Installation.

Wafer Cleaning Chemistry Delivery

Pneumatic Drive Low Pulsation Bellows Pumps

PULSELASER FLP

The unique design of the IWAKI FLP bellows pump achieves low pulsation and high pressure sustaining capability.

This produces a stable discharge capacity and pressure without the use of a dampener. Reduced air consumption up to 30% compared to our previous models is also achieved.

• FLP-60W only



Low Pulsation

The unique drive mechanism of the system determines and maintains optimum movement of the bellows and supply-air switching to give minimum discharge pulsation.

High Sustained Pressure Capability

The optimum bellows movement improves pressure sustaining capability to maintain stable discharge capacity and pressure under frequent load change, especially in single wafer processing.



Reduction of Air Consumption (FLP-60W)

Reduced air consumption up to 30% compared to our previous models is achieved with no reduction of pump performance.

Elimination of a Dampener

The pump works without the use of a dampener, saving space inside equipment & installation costs such as fluoroplastic joints. The total weight/size of the equipment is also minimized.

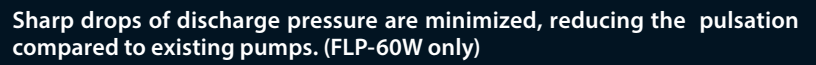
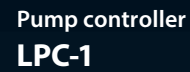


FLP-60W					Model	FLP-75W				
50					Max. discharge capacity ^{Note}	92				
0.41 ~ 0.5	0.31 ~ 0.4	0.21 ~ 0.3	0.11 ~ 0.2	0.1	L/min	0.41 ~ 0.5	0.31 ~ 0.4	0.21 ~ 0.3	0.11 ~ 0.2	0.10
120	140	155	160		Supply air pressure range	MPa	90	105	150	125
464	419	338	252	116	Max. stroke rate	spm	647	608	615	355
					Max. air consumption	NL/min				99

Note: The max. discharge capacity is based on pumping ambient clean water at supply air pressure of 0.2MPa. (FLP-75W: 0.3MPa)

• Liquid temperature range: 5 ~ 100°C (0.5MPa), 101 ~ 150°C (0.4MPa), 151 ~ 180°C (0.3MPa)

• Max. viscosity: 50mPa·s, • Suction lift: 1m (The suction lift is based on pumping ambient clean water at the maximum spm.) • Mass: FLP-60W: 22kg, FLP-75W: 42kg



CMP Cmp Slurry and Wafer Cleaning Chemistry Delivery

High Temperature Liquid Delivery Enhances Cleaning Efficiency.

Pneumatic Drive Bellows Pumps

FS-100HT2

Maximum flow rate of up to 100 L/min with 180°C liquid. This allows delivery of CARO (SPM) or H₃PO₄ at a flow rate 1.8 times higher than our existing pumps (55 L/min).

- Max. discharge capacity: 100 L/min
- Supply air pressure: 0.15 ~ 0.5 MPa
- Liquid temp. range: 10 ~ 180 °C
- Stroke speed: Max. 120 spm



Max. Discharge Capacity 100 L/min, Max. Supplied Air Pressure 0.7MPa

Pneumatic Drive Bellows Pumps

FS-N

The pump's fast stroke speed allows compactness, light weight and low cost while enabling high flow & pressure capabilities. (FS-80NT) The versatile FS-N can be used for various chemical supply applications in semi-conductor / LCD manufacturing processes.

- Max. discharge capacity: 100 L/min
- Supply air pressure: 0.2 ~ 0.7 MPa
- Liquid temp. range: 5 ~ 60 °C
- Stroke speed: Max. 200 spm



Max. discharge capacity (L/min)	Max. supplied air pressure (MPa)	Model	Max. air consumption (NL/min)	Temperature range (C)	Main materials	
					PTFE	PFA
92	0.41	FLP	647	5 - 180	○	○
100	0.5	FS-H	1210	5 - 180	○	○
100	0.7	FS-N	1495	5 - 60	○	○
80	0.5	FW	820	10 - 100	○	○
40	0.5	FW-H	480	10 - 180	○	○
22	0.3	FF	180	5 - 100	○	○
40	0.2	FF-H	200	20 - 180	○	○
40	0.4	FA	200	5 - 100	○	○

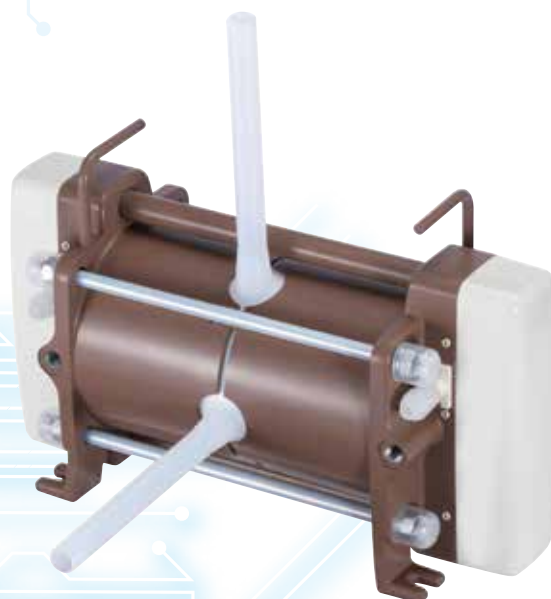
Wide Range of Liquid Temperatures/High-Pressure Discharge.

Pneumatic Drive Bellows Pumps

FS-H

A small, lightweight and cost effective solution.

- Max. discharge capacity: 55 L/min
- Supply air pressure: 0.15 ~ 0.5 MPa
- Liquid temp. range: 5 ~ 180 °C
- Stroke speed: Max. 240 spm



Energy Efficient Design Consumes Less Air.

Pneumatic Drive Bellows Pumps

FF/FF-H

The FF series is designed for use with medium temperature liquids (Al cylinder type: 5 to 100°C, PVC cylinder type: 5 to 50°C) and the FF-H series is designed for temperatures ranging from 20 to 180°.

- Max. discharge capacity: 40 L/min
- Supply air pressure: 0.15 ~ 0.3 MPa
- Liquid temp. range: 5 ~ 180 °C
- Stroke speed: Max. 120 spm



Applications

⊙ Usable

○ Usable depend on condition

Application		Model	FLP	FS-H	FS-N	FW	FW-H	FF	FF-H	FA	CFD
Wafer wet-bench	Cleaning (Batch process)		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	—
	Cleaning (Single wafer)		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	—
Chemical supply equipment			○	⊙	⊙	⊙	—	○	—	○	—
CMP process	Mixed-liquid circulation/Transfer		⊙	⊙	⊙	⊙	—	○	—	○	—
	Cleaning		⊙	⊙	⊙	⊙	—	⊙	—	⊙	—
Chemical replenishing equipment			—	—	—	—	—	—	—	—	⊙

Wide Range, Wide Variations

Chemical Replenishing

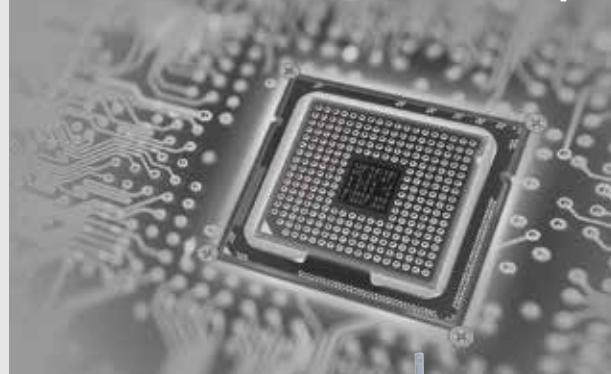
Chemical Replenishing Pumps CFD

Excellent performance for strong acid and alkali replenishment in Semiconductor manufacturing.

- Capacity range: 1 or 8 mL/shot
- Max. discharge pressure: 0.05 MPa
- Liquid temperature range: 20 ~ 60 °C
- Stroke speed: Max. 30 spm



Semiconductor Process Pump

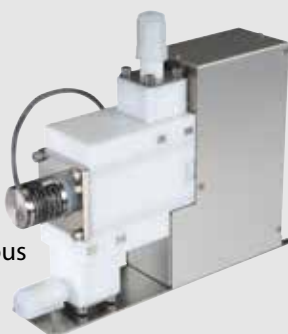


Photoresist Dispensing

Photoresist Dispensing Pumps PDS-H115

Capable of dispensing highly-viscous photoresist in LED or MEMS manufacturing.

- Max. discharge capacity: 12.0 mL/shot
- Max. discharge pressure: 1.0 MPa
- Repeatability: $\pm 0.3\%$ or below (F.S.)
- Max. liquid viscosity: 10,000 mPa·s

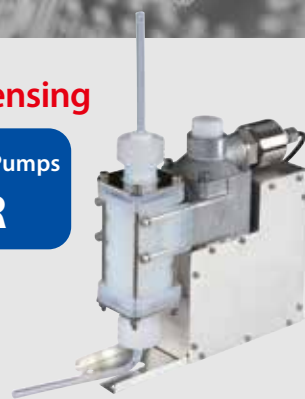


Photoresist Dispensing

Photoresist Dispensing Pumps PDS-105R

High accuracy, Compact size, Low cost.

- Max. discharge capacity: 5.0 mL/shot
- Max. discharge pressure: 0.15 MPa
- Repeatability: $\pm 0.3\%$ or below (F.S.)
- Max. liquid viscosity: 200 mPa·s



Compact and Simple With a Seal-Less Structure

Direct drive pumps NRD

- Max. discharge capacity: 70 L/min
- Max. head: 19 m
- Main materials: GFRPPE, GFRPP, GFRPPS



Magnetic drive pumps MD-F

- Max. discharge capacity: 125/135 L/min (50/60Hz)
- Max. head: 10.5/11.5 m (50/60Hz)
- Main materials: CFRETFE



Magnetic drive gear pumps MDG

- Max. discharge capacity: 14/17 L/min (50/60Hz)
- Max. discharge pressure: 0.6 MPa
- Main materials: SUS316, CFRPEEK, PPS



Chiller Coolant Circulation Pumps

Valveless Plunger Pumps

Hi-Cera Pumps V

- Max. discharge capacity: 1.6/1.9 ~ 1400/1682 mL/min (50/60Hz)
- Max. discharge pressure: 0.7 MPa
- Main materials: Al₂O₃, SiC, SUS, PTFE



Highly Accurate Feed Pumps

Process Magnetic Drive Pumps

MDM

Magnetic drive processing pump with dry running capability

- Max. discharge capacity: 1800 L/min
- Max. head: 74/107 m (50/60Hz)
- Main materials: CFRETFE, PFA



LCD Panel Manufacturing Process Pumps

Process Magnetic Drive Pumps

AMP

Polypropylene magnetic drive process pumps

- Max. discharge capacity: 1000 L/min
- Max. head: 36/49 m (50/60Hz)
- Main materials: CFRPP



Process Magnetic Drive Pumps

MXM

Magnetic drive pumps with an excellent balance of features and performance

- Max. discharge capacity: 600L/min
- Max. head: 29/42 m (50/60Hz)
- Main materials: CFRETFE



Self-Priming Magnetic Drive Pumps

SMX-F

Versatile self-priming magnetic drive pump with enhanced durability under abnormal operation

- Max. discharge capacity: 440/520 L/min (50/60Hz)
- Max. head: 24.5/35 m (50/60Hz)
- Main materials: CFRETFE



Process Magnetic Drive Pumps

MX-F

Reliable & energy efficient magnetic drive pumps

- Max. discharge capacity: 510 L/min
- Max. head: 29.5/27 m (50/60Hz)
- Main materials: CFRETFE



IWAKI World-Wide Network



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Vietnam	: International Technical Trading Co., Ltd.	TEL: (84)28 39 621 621 FAX: (84)28 39 650 292

()Country codes

Manufacturing Locations



IWAKI Saitama plant



IWAKI Miharu plant



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IWAKI has global net work.
Please find your distributor location at

www.iwakupumps.jp



Caution for safety use:

Before use of pump, read instruction manual carefully to use the product correctly.

Actual pumps may differ from the photos. Specifications and dimensions are subject to change without prior notice. For further details please contact us.



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