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Semiconductor Manufacturing Process RE-CIRCULATING HEATING AND COOLING UNIT

A temperature regulating unit of the liquid circulating the process chamber of a semiconductor manufacturing system

There are 2 types of Re-Circulating Heating /Cooling Unit, in accordance with the operating temperature, high-temperature type and low-temperature type.

The high-temperature model uses halogen lamp for heating and cooling water for cooling.

The low-temperature model uses thermo-module for both heating and cooling so as to regulate temperature quickly and precisely.

Features

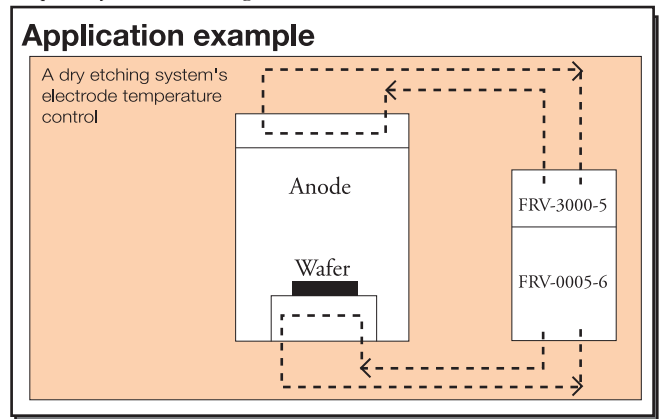
1. Compact size
Circulation liquid can be controlled directly, eliminating the necessity of a large storage tank.
2. High reliability
Circulation liquid circuit is designed to flow through the O-ring sealed piping systems between plumbing blocks without any leakage problems.
3. Quick response
 - High-temperature model : High response halogen lamp enables quick heating.
 - Low-temperature model : High efficiency heat exchange exhibits its quick response to both heating and cooling.
4. Low running cost
All the piping systems are hermetically sealed so that no liquid consumption due to evaporation can occur.

Applications

CVD, PVD
Etching system
Step & scan equipment, etc.



Proprietary controller is required.



Specifications

Model	Circulating unit	FRV-3000-5	FRV-6000-6	FRV-0005-6	Note
	Power controller	FRC-3000-5	FRC-6000-6	FRC-0005-6	
Temperature setting range		40 to 120°C	70(40) to 150°C	10 to 40°C	
Temp. control accuracy		±0.3°C	±0.3°C	±0.1°C	at the stable situation
Cooling capacity *1		1.5kW @ 40°C	3kW @ 40°C	550W @ 10°C	
Cooling method *1		Heat exchange with cooling water	Heat exchange with cooling water	Thermo-Module	
Heating capacity		2kW	4kW	1kW	
Circulation flow rate		20L/min @ 0.2MPa	25L/min @ 0.2MPa	25L/min @ 0.2MPa	
Circulating liquid		Fluorinert™, Galden®	Fluorinert™, Galden®	Fluorinert™, Galden®	Do not use water ethylene glycol
Overall dimensions (mm)*1	Circulating unit	W212 × D618 × H450	W302 × D964 × H604	W305 × D604 × H470	
	Power controller	W158 × D494 × H335	W210 × D555 × H380	W416 × D497 × H400	
Weight	Circulating unit	54kg	82kg	38kg	
	Power controller	17kg	26kg	48kg	
Power requirement		3 phase200V/20A	3 phase200V/35A	3 phase200V/15A	(50Hz/60Hz)

※ Galden®, Fluorinert™ are the trademarks of 3M and Solvay Solexis, respectively.

※ 1 Specific Heating/cooling capacity are measured under the conditions below.

	FRV-3000-5	FRV-6000-6	FRV-0005-6
Heat dissipating water temperature	30°C	30°C	30°C
Ambient temperature	30°C	30°C	30°C
Heat dissipating water flow rate	10L/min	10L/min	20L/min