

# AG Associates Heatpulse Specifications

## SemiStar Corp – Your Trusted Partner for AG Associates Heatpulse RTP Systems

Looking for a reliable source for your aging AG Associates Heatpulse 4100, 4108, 8108, 8800, or 8800i Rapid Thermal Processors? SemiStar Corp is the go-to expert for refurbished equipment, genuine OEM spare parts, and professional-service.

We maintain extensive inventory of used RTP systems and original parts, and our engineers have over 25 years of hands-on experience servicing AG Associates Heatpulse tools. Still relying on non-specialized vendors? Frustrated by unstable equipment or inconsistent processes caused by second-source parts? Stop chasing problems on your own.

Contact us today at [sales@semistarcorp.com](mailto:sales@semistarcorp.com) and let us handle the issues for you—so you can focus on more important work... or simply enjoy your coffee.

## 4100.1 OPERATING SPECIFICATIONS

The following are the operating specifications for the HEATPULSE 4100 system.

- **Wafer handling:** automatic, serial processing using standard cassettes.
- **Throughput:** Process dependent, approximately 80 wafers per hour (in a null cycle) without flat finder.
- **Wafer sizes:** 4", 5", and 6" standard; 3" optional.
- **Ramp up rate:** Programmable, 10°C to 200°C per second.
- **Steady-state duration:** 1-600 seconds per step.
- **Ramp-down rate:** Programmable, 10°C to 250°C per second. Ramp-down rate is temperature-and-radiation-dependent and the maximum is 150°C per second.
- **Recommended steady-state temperature range:** 400 - 1300°C.
- **ERP temperature accuracy:**  $\pm 3.5^\circ\text{C}$  (typical) to  $\pm 7.0^\circ\text{C}$  (maximum), when calibrated against an instrumented thermocouple wafer (ITC).
- **Temperature repeatability:**  $\pm 3^\circ\text{C}$  or better at 1150°C wafer-to-wafer. (Repetition specifications are based on a 100-wafer set.)
- **Temperature uniformity:**  $\pm 5^\circ\text{C}$  across a 6" (150 mm) wafer at 1150°C. (This is a one-sigma deviation from 100 angstrom oxide-uniformity.) For a titanium-silicidation process, no more than 1.5% increase to uniformity during the first anneal at 650°C to 700°C.

## **4100.2 PHYSICAL DIMENSIONS**

- **Width** 40 in. (102 cm)
- **Depth** 42 in. (107 cm)
- **Height** 82 in. (208 cm)
- **Weight** 1500 lb (680 kg)
- **Shipping weight** 1800 lb (816 kg)

## **4100.3 UTILITY REQUIREMENTS**

Utility requirements include:

- **Power** Standard: 200, 208, 220, 240 VAC; 50 or 60 Hz; 70 A maximum; three-phase plus neutral plus ground  
Optional: 200, 208 VAC; 40 A maximum; three-phase plus ground  
380, 415 VAC; 50 Hz; 40 A; three-phase plus neutral and ground
- **Water Type** Pre-filtered with conventional particulate filter (**No DI Water**); Closed-loop recirculator highly recommended

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#### **4100.4 FACILITY CONNECTIONS**

The following table is a summary of the facility connections for the HEATPULSE 4100 system:

**Table A-1. Facility Connections**

UTILITY	SERVICE SIZE	CONN. TYPE
<b>CDA or Utility N2</b>	1/2" 1/4"	Swagelok Swagelok
<b>Cooling-Water Supply</b> <b>Cooling-Water Return</b>	5/8" 5/8"	Swagelok Swagelok
<b>Gas-Box Exhaust</b>	4" OD	Duct
<b>Cooling Exhaust</b> <b>Scavenger-Hood Exhaust</b> <b>Containment Exhaust (Optional)</b>	2" OD 2" OD 2" OD	Duct Duct Duct
<b>OR</b>		
<b>Exhaust-Manifold Outlet</b>	3" OD	Duct
<b>Process-Gas Exhaust (Scrubber)</b>	3/8"	VCR, Male
<b>Process-Gas Supply</b>	1/4"	VCR, Female
<b>Oven-Recirculator Water Supply</b> <b>Oven-Recirculator Water Return</b>	5/8" 5/8"	Swagelok Swagelok

## 4100.5 UTILITY SPECIFICATIONS

The following table is a summary of the utility specifications for the HEATPULSE 4100 system:

**Table A-2. Utility Specifications**

UTILITY	FLOW RATE			PRESSURE		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
CDA or Utility N2 (Cooling) CDA or Utility N2 (Valve Act.)	8 SCFM <1 SCFM	10 SCFM <1 SCFM	15 SCFM <1 SCFM	30 PSIG 70 PSIG	60 PSIG 80 PSIG	100 PSIG 100 PSIG
Cooling-Water Supply Cooling-Water Return	1.6 GPM 1.6 GPM	2 GPM 2 GPM	2.5 GPM 2.5 GPM	30 PSIG 20 PSIG	40 PSIG 30 PSIG	100 PSIG 40 PSIG
Gas-Box Exhaust	0 SCFM	150 SCFM	>200 SCFM	.5" H <sub>2</sub> O	.75" H <sub>2</sub> O	-----
Cooling Exhaust Scavenger-Hood Exhaust Containment Exhaust (Optional)	8 SCFM 20 SCFM 0 SCFM	10 SCFM 25 SCFM 0 SCFM	15 SCFM 30 SCFM 2 SCFM	.5" H <sub>2</sub> O .5" H <sub>2</sub> O .5" H <sub>2</sub> O	.75" H <sub>2</sub> O .75" H <sub>2</sub> O .75" H <sub>2</sub> O	----- ----- -----
OR						
Exhaust-Manifold Outlet	28 SCFM	35 SCFM	45 SCFM	.5" H <sub>2</sub> O	.75" H <sub>2</sub> O	-----
Process-Gas Exhaust (Scrubber)	10 SLPM	10 SLPM	10 SLPM	.5" H <sub>2</sub> O	.75" H <sub>2</sub> O	2.5" H <sub>2</sub> O
Process-Gas Supply	10 SLPM	10 SLPM	10 SLPM	30 PSI	60 PSI	100 PSI
Oven-Recirculator Water Supply Oven-Recirculator Water Return	3 GPM 3 GPM	5 GPM 5 GPM	7 GPM 7 GPM	30 PSI 10 PSI	40 PSI 20 PSI	60 PSI 40 PSI