

Fluidix Steam-Driven Deionized Water Heating Systems

Ideal solution for high flows of hot deionized water (DIW)

Features & Benefits

- All-PVDF/PFA wetted surfaces maintain system process purity for many years
- Field-proven technology for reliable operation
- Uses low-pressure steam for low cost of ownership
- Consistent process temperature with easy-to-use PLC/touchscreen controls
- Reduce fab equipment with single exchanger systems for up to 100 gpm
- Mixing valve temperature control for +/- 0.5°C accuracy
- No measurable changes in TOC bacteria, silica and particles >0.06µ
- Ionic contamination ranges from non-detectable to 0.04 ppb

Safety Systems

Safety is designed into the Shell Side (steam) and Tube Side (process).

Shell-Side: Over-temperature RTD and relief valve safeties.

The RTD monitors the incoming steam to assure proper temperature regulation, and a safety pressure relief valve keeps the unit operating in low pressure conditions.

Tube-Side: Critical safeties ensure process integrity, purity, and protect yields.

- Over-temperature protection monitors process temperature for proper regulation
- PTFE pressure-relief valve ensure safe operating pressures (set to ~68 psig)
- Low-pressure monitoring and leak detection ensure integrity of PFA process line
- Auto-isolation with cold bypass will self-contain the unit while allowing DIW to bypass and complete the cycle

Specifications

Model	Dimensions (in.)			GPM	Capability Temp. (°C)	Process In/Out (mm)	Steam In/Out
	L	W	H				
PC-3273	38	38	78	15	20 - 88	32	2 in. Ansl Flange
PC-5760	57	57	78	25	20 - 88	50	3 in.
PC-6810	57	57	78	30	20 - 91	50	3 in. Ansl Flange
PC-11217	68	68	78	40	20 - 93	63	4 in.
PC-11350	68	68	78	50	20 - 91	63	4 in.

Wetted Material	PVDF & PFA	Steam Side Safety Interlocks	Over-Temp RTD & Pressure Relief Valve
Temp. Range	Ambient to 95°C, accurate to +/- 0.5°C	Process Side Safety Interlocks	Over-temp Protection, Pressure Relief Valve, Process Low-Pressure Monitor, Leaks Detection, & Auto-Isolation with Cold Bypass
Min. Velocity	0.5 gpm (to prevent bacteria growth in DIW)	Boiler Requirements	From 500,000 - 3,000,000 Btu/hr or ~200 - 800 kW
Max. Flow	100 gpm		
Min. Pressure	Process Side: 22 psig		
Max. Pressure	Steam Side: 15 psi Process Side: 68 psi		

Why Steam?

Steam-powered ultra-pure DIW heaters typically cost less for high DIW flows than comparable electric units. Their operational cost savings often pay for the equipment within 1.5 years of use.

Operation Savings Add Up		
Yearly Energy Cost*	Steam \$62,406	Electric \$145,615
First Year Savings	\$83,209	-
Five-Year Savings	\$416,045	-
Ten-Year Savings	\$832,090	-

** Estimates based on heating 30 gpm from 20°C to 80°C with average U.S. energy costs, corrected for 82% boiler efficiency and 50% usage factor.*

Fluidix DIW heaters offer several other reasons to consider steam.

- No heater elements required so system can run dry or at zero flow rate
- No purge required as water can be heated to >100C during standby
- No steam throttling required
- Automatic shutdown and isolation/contamination prevention for added safeties

Our Industry Experience

Fluidix steam-driven heating equipment entered the marketplace in 1982. As a result, the process for heating mass amounts of DIW changed forever. Currently, Fluidix equipment heats over 400 million gallons of DIW each year throughout the semiconductor industry, with many of the original units still in production. Customers using Fluidix equipment achieve zero-defect yields in sub-micron geometries on 200 mm wafers. Our experience ensures reliable machines that fit your needs and reduce costs of heating high flows of DIW.