



# Fluidix Series

## Steam-Driven Deionized Water Heating Systems

### Heateflex Corporation

When High Flows of Hot DI Water are Required...

Heateflex Corporation  
Offers a Solution...

Fluidix Series  
DI Water Heaters

#### **Benefits:**

- Low Cost of Operation
- Consistent Process Temperature with PLC Controls
- High Purity PFA/PVDF Wetted Surfaces
- Field Proven Technology for Reliable Operation

#### **Experience in Industry**

Fluidix Steam-Driven Heating Equipment entered the market place in 1982. From that point in time, the method for heating mass amounts of Deionized water changed forever. Currently, Fluidix equipment heats over 400 million

gallons of DI Water each year throughout the semiconductor industry, with many of the original units still in production.

The industry experience that is held by Heateflex Corporation and Fluidix helps build reliable machines that reduce the cost of heating high flows of DI water. In addition, customers using Fluidix equipment achieve ZERO-defect yields in sub-micron geometries on 200mm wafers.

In High Flow demands, no other model comes close!!!

## Why Steam?

When selecting an ultra-pure heater, the question to use steam or electric usually comes up. In general, for higher DI water flows, a unit that utilizes steam costs less than a comparable electric unit. In addition, the operational cost savings typically pay for the equipment within a year and a half of service.

## Operation Savings that Really Add Up

Basis: 30 gpm Heated from 20°C to 80°C

	Steam	Electric
Yearly Energy Cost*	\$62,406	\$145,615

First Year Savings: \$83,209

Five-Year Savings: \$416,045

Ten-Year Savings: \$832,090

\*Based on average U.S. energy costs, corrected for 82% boiler efficiency and 50% usage factor.

The Fluidix Series DI Water Heater offers several other reasons to consider steam. In this design, there are no heater elements to burn out and the system can be run dry or at zero flow without causing any damage to the unit. The intrinsically safe design has automatic shutdown and isolation / contamination prevention system built into each unit. A purge system is not required because the water can be heated to >100°C during standby. The heater medium used in the Fluidix is a low-pressure steam operating on 15 psig, and steam throttling is not required.

## Features

- Uses Low Pressure Steam for Low Cost of Ownership
- Easy to Use PLC/Touchscreen Control
- Reduce Your Fab Equipment with Single Exchanger System that Provides Up to 100 GPM
- Mixing Valve Temperature Control for +/- 0.5°C Accuracy (See Temp. Graph)

## Safety Systems

As with all Heateflex Corporation heating products, the Fluidix Steam-powered and Heating Water-powered Heating Equipment is designed with safety in mind. The unit can be divided into two sides, the Shell Side (steam side) and the Tube Side (process side). Each side has different safeties incorporated into the design.

### Shell Side (Steam) Safeties

The main safeties on the Shell Side are the over-temperature RTD and the process relief valve. 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.

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## Tube Side (Process) Safeties

The Tube Side is more critical to yields and has several safeties incorporated to protect it.

- Over-Temperature Protection. The process temperature is monitored to assure proper regulation.
- PTFE pressure-relief valve (set to approximately 68 psig) keeps the unit operating at safe pressures

In addition, the Tube Side had three safeties to ensure the integrity and purity of the process.

- Low-Pressure Monitoring
- Leak Detection
- Auto-Isolation with Cold Bypass

The low-pressure monitoring and leak detection checks the integrity of the PFA process feed line. The auto-isolation with cold bypass will self-contain the unit while allowing the DI water to bypass and complete the cycle.

## Purity

- System Designed to Maintain Process Purity For Years with All PFA & PVDF Wetted Surfaces
- No Measurable Changes in TOC Bacteria, Silica and Particles >0.06 $\mu$
- Ionic Contamination Ranges from Non-detectable to 0.04 ppb

## Fluidix Steam-Powered Heater Specifications

### Typical Overall Dimensions

Model	Length	Width	Height
PC-3273	38"	38"	78"
PC-5760	57"	57"	78"
PC-6810	57"	57"	78"
PC-11217	68"	68"	78"
PC-11350	68"	68"	78"

### Typical System Specifications

Model	GPM	Temp. Capability	Process In/Out	Steam In/Out
PC-3273	15	20 – 88°C	32mm	2" Ansl Flange
PC-5760	25	20 – 88°C	50mm	3"
PC-6810	30	20 – 91°C	50mm	3" Ansl Flange
PC-11217	40	20 – 93°C	63mm	4"
PC-11350	50	20 – 91°C	63mm	4"

## Wetted Surface Material PVDF & PFA

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<b>Temperature Range</b>	Ambient to 95°C, accurate to $\pm 0.5^{\circ}\text{C}$
<b>Safety Interlocks</b>	Steam Side: Over-Temp RTD & Pressure Relief Valve Process Side: Over-temp Protection, Pressure Relief Valve, Process Low-Pressure Monitor, Leaks Detection, & Auto-Isolation with Cold Bypass
<b>Minimum Velocity</b>	0.5 GPM (to prevent bacteria growth in DI water)
<b>Maximum Flow</b>	100 GPM
<b>Minimum Pressure</b>	Process Side: 22 PSIG
<b>Maximum Pressure</b>	Steam Side: 15 PSI Process Side: 68 PSI
<b>Boiler Requirements</b>	From 500,000 – 3,000,000 Btu/hr or approximately 200 kW – 800 kW

**Call today for prices and lead times.**

All data subject to change.

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