Lufran DI Water Series Heater

Ultra-pure, ultra-reliable high purity water heater! Utilizing PTFE and PVDF wetted surfaces, the Lufran DI Series is the preferred and industry-leading heating solution for highly-critical semiconductor and flat panel display manufacturing processes. Featuring an advanced temperature control system and sizes up to 312kW, this is the ultimate in ultra-pure deionized water heating.

BEST IN CLASS!

FEATURES

Complete (turn-key) System
- Only plumbing and main power required
- Allows for fast and easy installation
- Space saving design minimizes footprint requirements

DAC™ (Demand Anticipation Control) Temperature Control System
- Patented temperature/flow algorithm calculates exact heater output requirements for precise temperature control
- Responds instantly to changes in flow to minimize temperature fluctuations at the outlet
- Improves process consistency and yields
- Quick heat-up and recovery times reduce water consumption

Patented Purged PTFE-Covered Heating Element Design
- Maintains DI water cleanliness to decrease wafer defect
- Monitors integrity of element tubing for breach detection
- Removes permeation to extend element life expectancy
- Documented “mean time between failures” of nearly 10 YEARS!

Additional Benefits
- 99% efficient heating element reduces waste energy consumption
- No consumable halogen lamps to replace minimizes downtime and overall cost of ownership

APPLICATIONS
- Semiconductor
- Flat Panel Display

Temperature: Up to 90°C
Pressure: Up to 689 kPa
Watts: 24kW to 312kW
Volts: 200 to 600 V, three phase standard, single phase optional

Compatibility
- acids: NO
- water: YES
- bases: NO
- solvents: NO
- gases: NO

call 1-440-974-1300 • visit processtechnology.com • or contact your local representative for more information

DS_LufranDIWater_11212019
**APPLICATIONS**

- Semiconductor wet processes
- Filtration
- Sterilization/cleaning

**SPECIFICATIONS**

**Wattages**

24 kw to 312 kW

**Voltages**

Up to 600 volts, 3 phase (single phase optional)

**Temperature Range**

Up to 95º C.

**Temperature Accuracy**

Lufran - (DAC) Temperature Accuracy:

+/− 0.3ºC, depending on operating conditions.

Lufran LT - (PID) Temperature Accuracy:

+/− 0.3ºC, depending on operating conditions.

**Flow Rate**

1 - 200 LPM

**Standard Features**

- EMO Circuit (local and remote)
- Ground Fault Protection
- USB Data Logging
- Capacitive Liquid Level Sensor Protection on Elements
- System Pressure Monitor
- Purge Control Monitors
- Process High Pressure Alarm
- PVDF Pressure Relief Valve
- Heater Overtemp Circuitry

**MODEL NUMBER BREAKDOWN**

<table>
<thead>
<tr>
<th>LUF</th>
<th>6</th>
<th>U</th>
<th>U</th>
<th>5</th>
<th>SK-CE</th>
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<tbody>
<tr>
<td>Model Version</td>
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<td></td>
<td>Options</td>
</tr>
<tr>
<td>LUF (DAC Control)</td>
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<td>Blank = No Option</td>
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<tr>
<td>LLT (PID Control)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C1 = Ethernet communications</td>
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<tr>
<td><strong>Wattage</strong></td>
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<td>CE = Other communications (see eng.)</td>
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<td>024 = 1 column</td>
<td>1 = 208V</td>
<td>A = 1/2 inch Flared</td>
<td>A = 1/2 inch Flared</td>
<td>0 = Not Supplied (LLT version)</td>
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<td>036 = 1 column</td>
<td>2 = 240V</td>
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<td>B = 3/4 inch Flared</td>
<td>2 = Ultrasonic; 2-20 lpm (std for up to 52kW)</td>
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<td>3 = 380V</td>
<td>C = 1 inch Flared</td>
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<td>6 = Ultrasonic; 10-70 lpm (std for &gt;52kW)</td>
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<td>4 = 400V</td>
<td>L = 25 mm Butt Fusion</td>
<td>L = 25 mm Butt Fusion</td>
<td>7 = Non-invasive; 0.5-20 lpm</td>
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<td>5 = 415V</td>
<td>N = 32mm Socket Fusion Union</td>
<td>N = 32mm Socket Fusion Union</td>
<td>8 = Non-invasive; 1-50 lpm</td>
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<td>6 = 480V</td>
<td>P = 1/2 inch Flared</td>
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<td>9 = Ultrasonic; 15-150 lmm, 25.4mm</td>
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<td>7 = 440V</td>
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<td>10W = Custom design (see eng.)</td>
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<td>9 = 208V</td>
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<tr>
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<tr>
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<td>13 = 600V</td>
<td>V = 3/4 inch Super 300 Pillar</td>
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<td>312 = 4 columns</td>
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**Options**

- UPS = Battery style backup
- PS = Similar to UPS but with no batteries
- EF = Flush mount EMO guard
- CE = CE certification
- DB = Stack light
- MB = Monitor boards for SSRs included
DAC™ DEMAND ANTICIPATION CONTROL available on Lufran only

Extremely precise temperature control and stability: Utilizes a patented temperature/flow algorithm to calculate exact heater output requirements. (DAC)

- Sterilization/Cleaning
- Required percentage power
- Flow Rate
- Actual Power Applied
- Low Temperature Boost
- High Temperature Shut-off

Quick reacting: Responds instantly to flow changes rather than simply monitoring outlet temperature.

Better temperature stability: Responds quickly to recipe (flow and temperature) changes.

Water conservation: Faster heat up and recovery means less water usage.

Friendly operator interface (User friendly HMI): Touch pad display with easy to understand commands.

ADVANTAGES OF DAC™ CONTROL OVER PID CONTROL

- PID controls only monitor one sensor input (monitors outlet temperature). The DAC responds instantly to flow changes rather than simply monitoring outlet temperatures.
- PID controls do not recognize changes in flow rate or inlet temperature. The DAC responds quickly to recipe (flow and temperature) changes.
- PID controls are much slower to respond to changes in operating conditions. DAC controls have quick heat-up and recovery times resulting in less water usage.
FIGURE A: 24kW - 78kW HEATER CABINET
(For standard 380V-600V models)

FIGURE B: 90kW - 156kW HEATER CABINET
(For standard 380V-600V models)

FIGURE C: 157kW - 312kW HEATER CABINET
(For standard 380V-600V models)