Ultra-pure, ultra-reliable high purity water!

- Ultimate cleanliness in ultra-pure deionized water heating
- PTFE and PVDF wetted surfaces for ultra-low particle counts
- Patented purge process offers MTBF >10 years
- DAC™ “Demand Anticipation Control” for high temperature accuracy
- Up to 312 kW units available

- Up to 95°C, depending on operating conditions
- 24 kW to 312 kW
- Up to 600 volts, three phase
- Up to 689 kPa
- UL 499 compliant, SEMI S2/S3 certified. CE compliant as an option.
### Features & Values
- Extremely precise temperature control and stability: Utilizes a patented temperature/flow algorithm to calculate exact heater output requirements. (DAC)
- MTBF: 9.39 years. Documented, real-world “mean time between failures” of nearly 10 YEARS! Uptimes of greater than 99% can be expected.
- Element Gas Purge: Removes permeation to extend element life expectancy. Monitors integrity of element tubing.
- Standby heating mode option capable of converting from an on-demand heater (which only heats when there is a flow demand) to a traditional tank-style heater during “no flow” or “trickle flow” conditions. The heater maintains the internal water volume near or at the desired operating temperature between process requirements and provides instant hot water when needed.
- Designed for high purity semiconductor and flat panel display manufacturing processes.
- PTFE heating elements are in direct contact with the DI water for maximum efficiency and fast response.

### Specifications

<table>
<thead>
<tr>
<th>Wattages</th>
<th>24 kW to 312 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltages</td>
<td>Up to 600 volts, three phase.</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>Up to 95º C.</td>
</tr>
</tbody>
</table>

#### Lufran - (DAC) Temperature Accuracy
- +/-0.3°C, depending on operating conditions.

#### Lufran LT - (PID) Temperature Accuracy
- +/-3°C, depending on operating conditions.

### Flow Rate
- 1 LPM to 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 temperature alarm
- PVDF pressure relief valve
- Heater overtemp circuitry

### Certifications
- UL 499 compliant, SEMI S2/S3, optional CE compliant.

### Model Number Breakdown

<table>
<thead>
<tr>
<th>LUF</th>
<th>105</th>
<th>6</th>
<th>U</th>
<th>5</th>
<th>SK-CE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Version</td>
<td>Wattage</td>
<td>Voltage</td>
<td>Inlet Plumbing</td>
<td>Outlet Plumbing</td>
<td>Flow Control</td>
</tr>
<tr>
<td>LUF (DAC Control)</td>
<td>24 kW</td>
<td>1 = 200V</td>
<td>A = 1/2 inch Flared</td>
<td>A = 1/2 inch Flared</td>
<td>0 = Not Supplied (LT version)</td>
</tr>
<tr>
<td>LUF (PID Control)</td>
<td>208 kW</td>
<td>2 = 240V</td>
<td>B = 3/4 inch Flared</td>
<td>B = 3/4 inch Flared</td>
<td>1 = Ultrasonic; 2-20 lpm (std for up to 52kW)</td>
</tr>
<tr>
<td>024 = 1 column</td>
<td>3 = 380V</td>
<td>C = 1 inch Flared</td>
<td>C = 1 inch Flared</td>
<td>2 = Ultrasonic; 10-70 lpm (std for &gt;52kW)</td>
<td>6 = Ultrasonic; 15-150 lpm, 25.4mm</td>
</tr>
<tr>
<td>036 = 1 column</td>
<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>
<td>105 = Custom design (see eng.)</td>
</tr>
<tr>
<td>052 = 1 column</td>
<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>
<td>156 = Other remote interface design (LUF only)</td>
</tr>
<tr>
<td>072 = 1 column</td>
<td>6 = 480V</td>
<td>P = 1/2 inch Flared</td>
<td>P = 1/2 inch Flared</td>
<td>9 = Ultrasonic; 15-150 lpm, 25.4mm</td>
<td>195 = UPS style backup (see eng.)</td>
</tr>
<tr>
<td>078* = 1 column</td>
<td>7 = 440V</td>
<td>Q = 3/4 inch Flared</td>
<td>Q = 3/4 inch Flared</td>
<td></td>
<td></td>
</tr>
<tr>
<td>130 = 2 columns</td>
<td>8 = 220V</td>
<td>R = 1 inch Pillar</td>
<td>R = 1 inch Pillar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>144 = 2 columns</td>
<td>9 = 200V</td>
<td>S = 3/8 inch Flared</td>
<td>S = 3/8 inch Flared</td>
<td></td>
<td></td>
</tr>
<tr>
<td>150* = 2 columns</td>
<td>10 = 200V</td>
<td>T = 3/8 inch Super 300 Pillar</td>
<td>T = 3/8 inch Super 300 Pillar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>195 = 3 columns</td>
<td>11 = 120V</td>
<td>U = 3/4 inch Super 300 Pillar</td>
<td>U = 3/4 inch Super 300 Pillar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>210* = 4 columns</td>
<td>12 = 600V</td>
<td>V = 1/2 inch Super 300 Pillar</td>
<td>V = 1/2 inch Super 300 Pillar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>267* = 4 columns</td>
<td>14 = 320V</td>
<td>X = 1 inch Super 300 Pillar</td>
<td>X = 1 inch Super 300 Pillar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>312* = 4 columns</td>
<td>15 = 415V</td>
<td>Y = 1 1/2 inch Super 300 Pillar</td>
<td>Y = 1 1/2 inch Super 300 Pillar</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### LUFRAN DATA SHEET

**PROCESS TECHNOLOGY**

DS12082017
**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)
  
  - Required percentage power
  - Inlet fluid temperature
  - 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.

**DAC™ CONTROL COMPARED TO PID CONTROL**

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 temperature.

- 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.
WARNING
HAZARDOUS VOLTAGE.
Contact may cause electric shock or burn.
Turn off and lock out systems before servicing.

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)