

# PROCESS TECHNOLOGY

## Advantages of Decentralized UPDI Heating vs. Centralized In Semiconductor Fabs

A large production facility (Fab) uses millions of gallons of water per day, so it is important that this is used conservatively. This water is delivered from either a centralized or decentralized water heating system. Process Technology's Lufran® on-demand ultra pure water heater provides many advantages over a centralized DI water system.

### **Cost of Operation: Lower long-term costs**

- Minimal maintenance - The Lufran® water heater has an MTBF of over 9 years > 99% uptime
- Conserve energy - continuous operation is not required, reducing energy usage when the heater is not on.
- Heat only the required volume of DI water versus heating the entire facilities' hot water loop through a centralized system.
- Reduced heat loss - heater can be installed close to the tool minimizing heat loss through piping.
- Eliminates the need for facilities to treat steam condensate and remove fuel exhaust. Reduces CO2 emissions and allows for the replacement of fossil fuels with cleaner electricity.

### **Lower Risks to Wafer Yield**

- Equipment maintenance in the heating system will only affect specific process stations, unlike maintenance for a central system that would affect the yield across all stations.
- On-demand heating simplifies reconfiguring or adjusting capacity.
- Central boiler fault or scheduled downtime will halt production in an entire fab
- Schedule maintenance or replacement for a specific process station without affecting entire yield or other production stations

### **Allows for Multi-temperature Control**

- Decentralized systems allow each heater to be set at different temperatures while a centralized system can be limited to one temperature
- No extra blending valves needed.
- No restriction on maximum water temperature

### **Smaller Footprint than Centralized System**

- The Lufran® water heater can be placed at the most convenient location for your plant, saving valuable production floor space.

