

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.

