



**Ultra Pure Water Heater**

**PRODUCT DATA SHEET**

***Ultra-pure, ultra-reliable high purity water!***

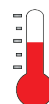
Ultimate cleanliness  
in ultra-pure deionized  
water heating

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 95C, depending on  
operating conditions



24 kW to 312kW



Up to 600 volts, three  
phase



Up to 689 kPa



SEMI S2/S3 certified. CE  
compliant as an option.

**PROCESS  
TECHNOLOGY**

ISO 9001:2015  
WITH DESIGN CERTIFIED

## 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

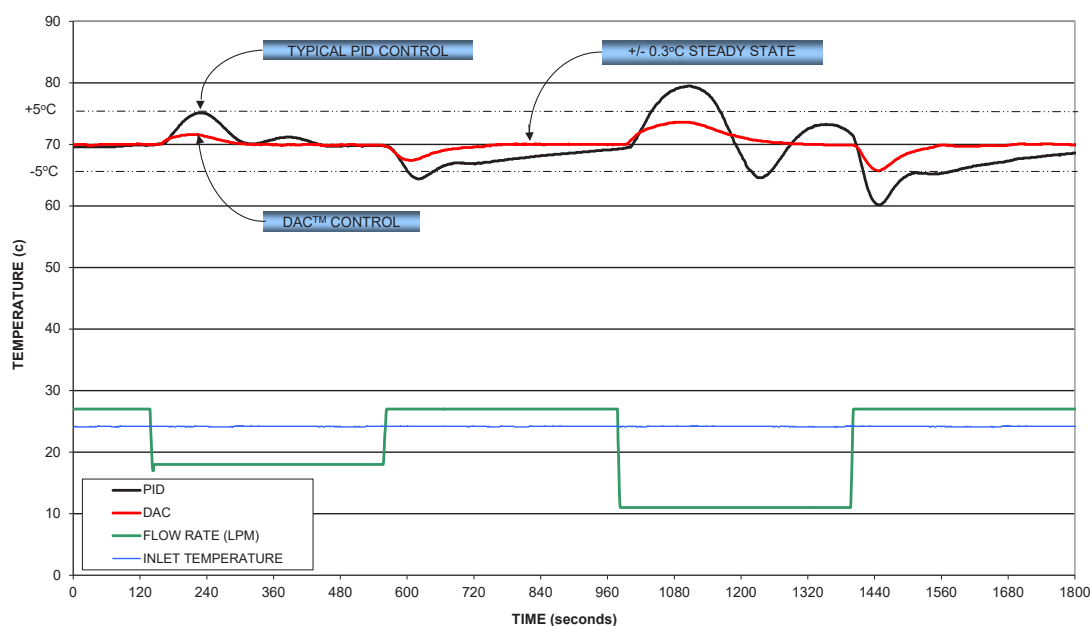
<b>Wattages</b>	24 kW to 312 kW
<b>Voltages</b>	Up to 600 volts, three phase.
<b>Temperature Range</b>	Up to 95° C.
<b>Temperature Accuracy</b>	Lufran - (DAC) Temperature Accuracy: $\pm 0.3^{\circ}\text{C}$ , depending on operating conditions. Lufran LT - (PID) Temperature Accuracy: $\pm 3^{\circ}\text{C}$ , depending on operating conditions.
<b>Flow Rate</b>	1 LPM to 200 LPM.
<b>Standard Features</b>	<ul style="list-style-type: none"> <li>□ EMO circuit (local and remote)</li> <li>□ Ground fault protection</li> <li>□ USB data logging</li> <li>□ Capacitive liquid level sensor protection on elements</li> <li>□ System pressure monitor</li> <li>□ Purge control monitors</li> <li>□ Procss high temperature alarm</li> <li>□ PVDF pressure relief valve</li> <li>□ Heater overtemp circuitry</li> </ul>
<b>Certifications</b>	cULus, SEMI S2/S3, optional CE compliant.

## Model Number Breakdown

LUF	105	6	U	U	5	SK-CE
Series	Wattage	Voltage	Inlet Plumbing	Outlet Plumbing	Flow Control	Options
LUF (DAC Control)	024 = 1 column	1 = 208V	A = 1/2" Flared	A = 1/2" Flared	0 = Not Supplied (LLT version)	Blank = No Option
LLT (PID Control)	036 = 1 column	2 = 240V	B = 3/4" Flared	B = 3/4" Flared	5 = Ultrasonic; 2-20 lpm (std for up to 52kW)	C1 = Ethernet communications
	052 = 1 column	3 = 380V	C = 1" Flared	C = 1" Flared	6 = Ultrasonic; 10-70 lpm (std for >52kW)	C# = Other communications (see eng.)
	065 = 1 column	4 = 400V	L = 25 mm Butt Fusion	L = 25 mm Butt Fusion	7 = Non-invasive; 0.5-20 lpm	RI = Expanded remote interface signals (LUF only)
	072 = 1 column	5 = 415V	N = 32mm Socket Fusion Union	N = 32mm Socket Fusion Union	8 = Non-invasive; 1-50 lpm	R# = Other remote interface design (see eng.)
	078* = 1 column	6 = 480V	P = 1/2" Pillar	P = 1/2" Pillar	9 = Ultrasonic; 15-150 lpm, 1"	## = Custom design (see eng.)
	105 = 2 columns	7 = 440V	Q = 3/4" Pillar	Q = 3/4" Pillar		UPS = Battery style backup
	130 = 2 columns	9 = 220V	R = 1" Pillar	R = 1" Pillar		PS= Similar to UPS but with no batteries
	144 = 2 columns	10 = 200V	S = 3/8" Flared	S = 3/8" Flared		EF = Flush mount EMO guard
	156* = 2 columns	12 = 120V	T = 3/8" Super 300 Pillar	T = 3/8" Super 300 Pillar		LK = Leak Detect Switch
	195 = 3 columns	14 = 600V	U = 25mm Socket Fusion Union (Standard)	U = 25mm Socket Fusion Union (Standard)		CE = CE certification
	210* = 4 columns	15 = 230V	V = 1/2" Super 300 Pillar	V = 1/2" Super 300 Pillar		SK = Stack light
	260* = 4 columns		W = 3/4" Super 300 Pillar	W = 3/4" Super 300 Pillar		MB = Monitor boards for SSRs included
	288* = 4 columns		X = 1" Super 300 Pillar	X = 1" Super 300 Pillar		
	312* = 4 columns					

**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.

## Dimensions

