



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

Temperature: Up to 90°C	Pressure: Up to 689 kPa			
Watts: 24kW to 312kW	Certifications: UL compliant, SEMI S2/S3 and CE optional			
Volts: 200 to 600 V, three phase standard, single phase optional				
Compatibility				
<input type="checkbox"/> NO acids	<input checked="" type="checkbox"/> YES water	<input type="checkbox"/> NO bases	<input type="checkbox"/> NO solvents	<input type="checkbox"/> NO gases

APPLICATIONS

- Semiconductor
- Flat Panel Display

Lufran Ultra Pure Water Heater

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 95° C.
Temperature Accuracy	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 - 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

LUF	-	105	-	6	U	U	5	-	SK-CE
Model Version	Wattage	Voltage	Inlet Plumbing	Outlet Plumbing	Flow Control	Options			
LUF (DAC Control)	024 = 1 column	1 = 208V	A = 1/2 inch Flared	A = 1/2 inch Flared	0 = Not Supplied (LLT version)	Blank = No Option			
LLT (PID Control)	036 = 1 column	2 = 240V	B = 3/4 inch Flared	B = 3/4 inch Flared	5 = Ultrasonic; 2-20 lpm (std for up to 52kW)	C1 = Ethernet communications			
	052 = 1 column	3 = 380V	C = 1 inch Flared	C = 1 inch 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 inch Pillar	P = 1/2 inch Pillar	9 = Ultrasonic; 15-150 lpm, 25.4mm	## = Custom design (see eng.)			
	105 = 2 columns	7 = 440V	Q = 3/4 inch Pillar	Q = 3/4 inch Pillar		UPS = Battery style backup			
	130 = 2 columns	9 = 220V	R = 1 inch Pillar	R = 1 inch Pillar		PS= Similar to UPS but with no batteries			
	144 = 2 columns	10 = 200V	S = 3/8 inch Flared	S = 3/8 inch Flared		EF = Flush mount EMO guard			
	156* = 2 columns	12 = 120V	T = 3/8 inch Super 300 Pillar	T = 3/8 inch 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 inch Super 300 Pillar	V = 1/2 inch Super 300 Pillar		SK = Stack light			
	260* = 4 columns		W = 3/4 inch Super 300 Pillar	W = 3/4 inch Super 300 Pillar		MB = Monitor boards for SSRs included			
	288* = 4 columns		X = 1 inch Super 300 Pillar	X = 1 inch 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)

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

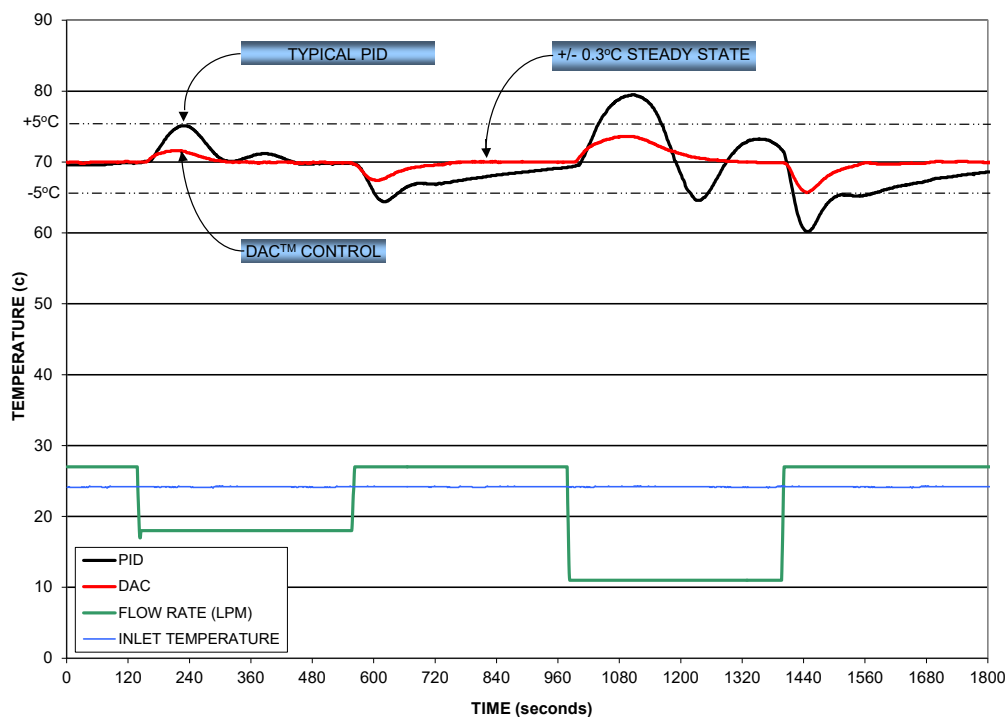
Quick reacting: Responds instantly to flow changes rather than simply monitoring outlet temperature.

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.

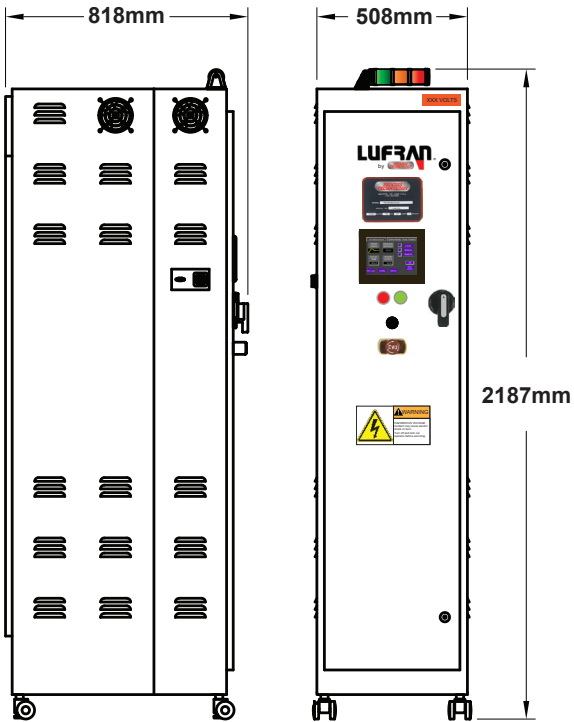
DAC™ CONTROL COMPARED TO PID CONTROL



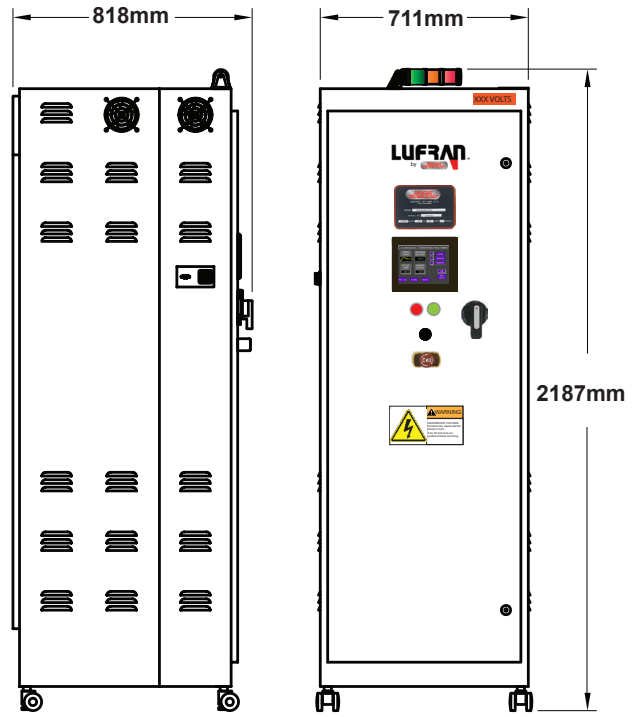
ADVANTAGES OF DAC™ CONTROL OVER PID CONTROL

- PID controls only monitor one sensor input (monitors outlet temperature). The DAC responds instantly to flow changes rather than simply monitoring outlet 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.

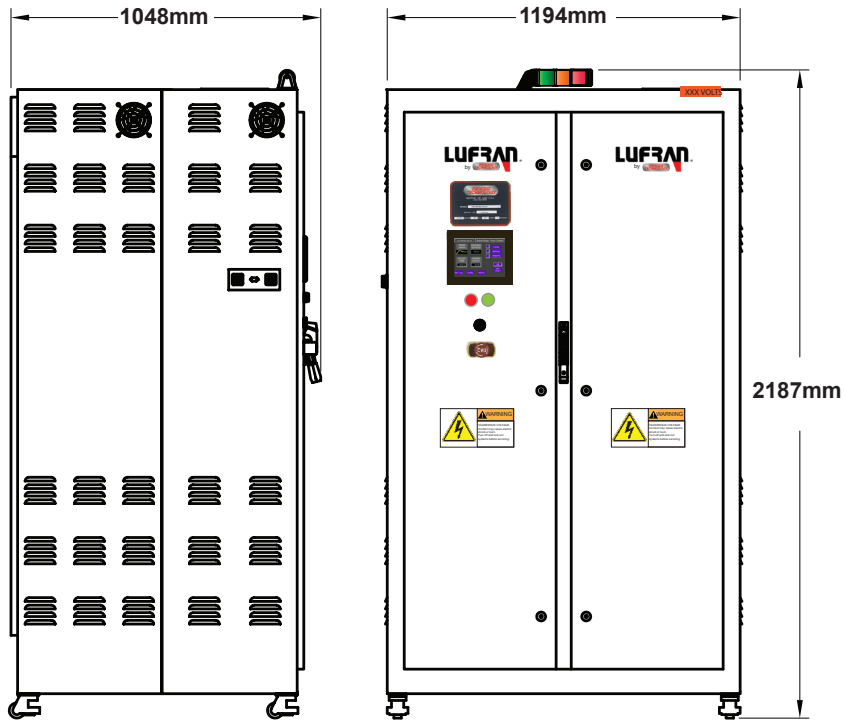
DIMENSIONS



**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)