

Quantum

Ultrapure Deionized Water Heater

Trebor®'s thin-film on quartz electric resistive heating technology is ideal for your ultra-high purity DI water heating applications when process control, cleanliness, and system uptime are of the greatest importance. This technology utilizes GE 214 semiconductor grade quartz tubes bonded with a resistive metallic film and Trebor's patented sealing technology to provide an ultrapure flow path with no elastomer O-ring seals or particle traps. The Quantum's unique design creates a compact, ultra-clean heating module with a meantime between failures greater than 20,000 hours.

Leading Edge Technology

Patented thin-film on quartz electrical resistance heater elements provide exceptional temperature response and improved reliability over IR heating, which requires frequent bulb change-outs.

Unlike most immersion heaters, the Quantum has no metal exposure, which eliminates contamination risk. No external air or nitrogen purge is required.

Versatile Control Options

Standard Modbus/TCP offers the industry's first DI water heater Ethernet control capability. Many other remote system monitoring and control options are available to meet virtually all communication requirements and protocols.

Compact and Convenient

The modular element allows for very a compact system design and can be changed out in less than 15 minutes. An LCD color touchscreen display provides easy user input and diagnostic feedback.



Quantum DI Water Heater

High Performance

Efficient heat transfer and low resident fluid volume produces fast response to changes in flow or temperature set point using multi-loop PID control with zero crossfire SSRs.

Ultra-Clean Design

High-purity flow path of GE 214 semiconductor grade quartz, PTFE, and PFA with no elastomer o-rings and no NPT threads or dead-legs to create particle traps.

Safety Compliant

TUV third party compliance testing and inspection to CE, SEMI S2 & S8, and NFPA79 standards.

Extreme Transition Control

Eliminate fluid temperature fluctuations caused by process flow changes. Signal the heater of an upcoming flow change and within one second, the heater will automatically adjust to minimize the effect on process temperature.

Why Use Hot DI Water?

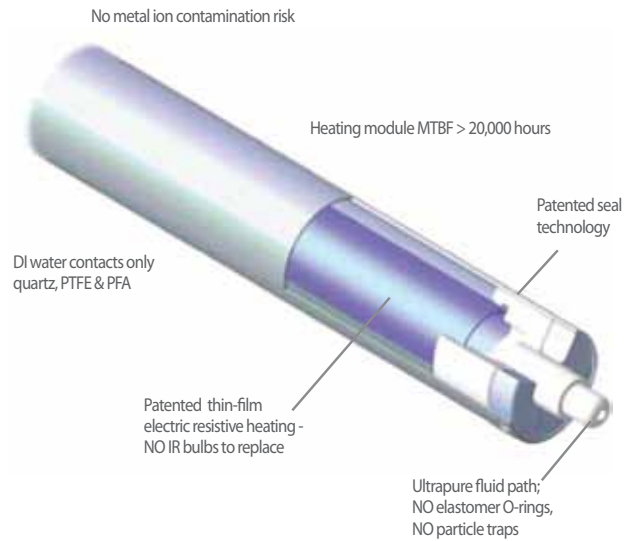
Hot DI water greatly improves cleaning effectiveness, thereby reducing throughput times and water consumption. Hot DI water eliminates variable process temperatures common with seasonal fluctuations of ambient water. Hot DI water rinsing before entering hot acid baths reduces thermal shock to wafers.

Why Quantum Heaters Are Better

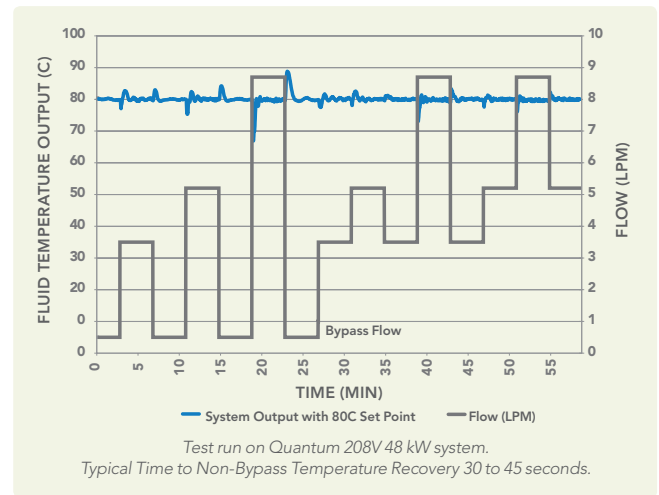
Quantum DI Water Heaters use a patented resistive thin-film coating on quartz heating elements that provides unmatched temperature responses to change flow rates or process set points. This is accomplished with highly efficient heat transfer from the low thermal mass heating element and minimal hold-up volume in the module. Competing technologies are often prone to extreme temperature overshoot or sluggish response. Our fast response improves your throughput and minimizes DI water consumption.

Quantum heating elements are fail-safe with no metal exposure or disruption to the flow path in the event of element failure. With an element MTBF exceeding 20,000 hours, Quantum heaters will provide you with the industry's most reliable and responsive quartz heating solution available today.

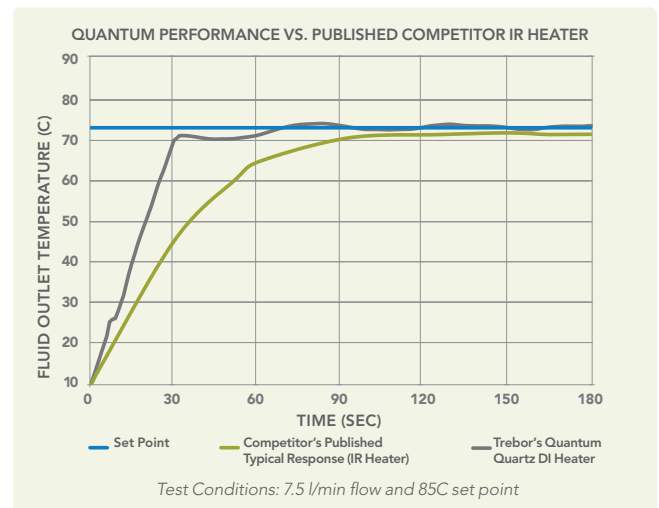
Heater Type	Thin-film on quartz electric resistive heating
Voltages	208, 380, 415, 480 Volt; 50/60 Hz
Temperature Limit	95°C
Temperature Control	± 0.5°C in most conditions
Pressure Range	15 to 60 PSI DI water supply
Flow Rate	0 to 57 LPM (0 to 18 GPM); systems may be combined to achieve higher flows (Multiple output systems available)
Efficiency	>98%
Element Life	>20,000 hrs, heating modules are factory re-buildable with hardware exchange
Control System	Zero crossfile SSRs with multi-loop PID control
Communication Options	Ethernet enabled, modbus/TCP (standard), Modbus/RTU, RS-232, RS-485, DeviceNet
Wetted Surfaces	GE quartz, PTFE, & PFA - no elastomer O-rings
Safety Features	Low liquid level detection Redundant over temperature protection Over pressure relief Open thermocouple detection Liquid spill detection EMO GFI/Earth Leakage
Certifications	SEMI S2-0703 CE SEMI S8-0701 NFPA79 Modules FM compliant
Warranty	Two-year standard, extended warranties available



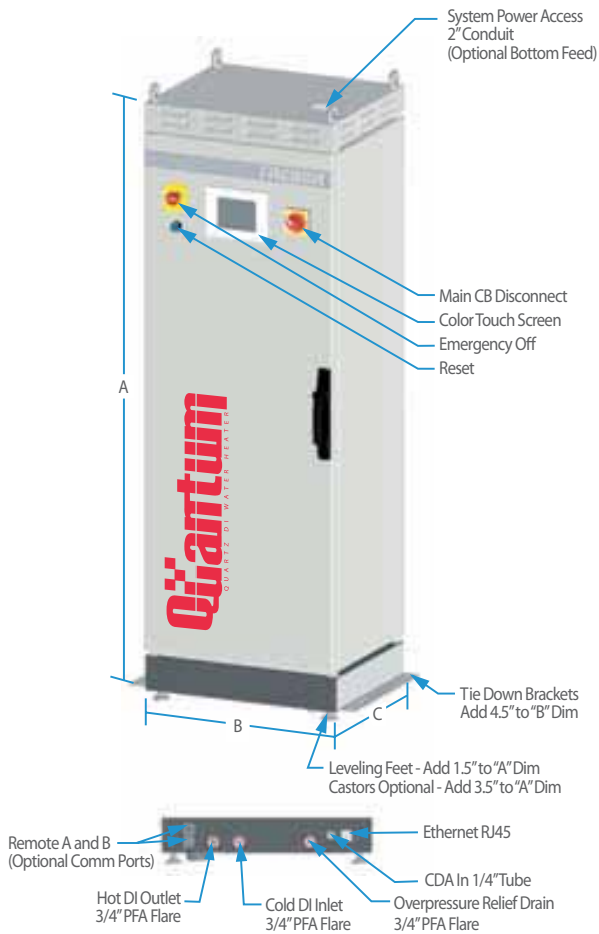
Temperature Response Chart



Time to Temperature Comparison



Dimensions and Installation



Power	Voltage (50/60 Hz)		Current Ratings (Amps)		Heating Module	
30 kW		380	415		45	3
30 kW				480	40	3
30 kW	208				100	3
36 kW				480	45	3
40 kW	208				125	4
50 kW	208				155	5
60 kW		380	415		95	6
60 kW				480	75	6
60 kW	208				185	6
72 kW				480	90	6
70 kW	208				215	7
80 kW	208				245	8
90 kW		380	415		140	9
90 kW				480	110	9
90 kW	208				275	9
100 kW	208				305	10
108 kW				480	135	10
110 kW	208				335	11
120 kW		380	415		185	12
120 kW				480	150	12
120 kW	208				370	12
144 kW				480	180	12
180 kW		380	415	480		15
216 kW				480		18

Refer to back page for determining the right heater size for your application.

Dimensions and Installation

System Dimensions (in/cm)			System Weight	
Power	A	B	C	lbs/kg
30 kW				200 / 91 to 250 / 114
40 kW	70 in	24 in	20 in	
60 kW	178 cm	61 cm	51 cm	
72 kW				410 / 186 to 530 / 240
80 kW				
90 kW				
100 kW	70 in	36 in	20 in	
110 kW	178 cm	92 cm	51 cm	
120 kW				705/320
144 kW				
180 kW	70 in	48 in	24 in	
216 kW	178 cm	122 cm	61 cm	

Options and Ordering

Use the code numbers for ordering the following options for your Quantum Deionized Water Heater.

HEATER	QTM	Quantum Deionized Water Heater
POWER	030	30 Kw
	036	36 Kw
	040	40 Kw
	050	50 Kw
	060	60 Kw
	070	70 Kw
	072	72 Kw
	080	80 Kw
	090	90 Kw
	100	100 Kw
	108	108 Kw
	110	110 Kw
	120	120 Kw
144	144 Kw	
180	180 Kw	
216	216 Kw	
VOLTAGE	V208	208VAC 50/60 Hz, 3 Phase
	V380	380VAC 50/60 Hz, 3 Phase
	V415	415VAC 50/60 Hz, 3 Phase
	V480	480VAC 50/60 Hz, 3 Phase
THERMO-COUPLE	A	Titanium J-type, fast acting
	B	PFA coated J-type
OPTIONS	<i>Options are available at an additional cost:</i>	
	Contact factory for part number when requesting options.	
	Casters (Replace feet)	
	Modbus / RTU	
	Device Net	
	Analog Interface / Remote EMO	
Dual Multiple Outlet Plumbing		
High Temp Output (115° C)		
Low Supply Pressure (>10 PSI)		

Example of an order number based on configuration options:

QTM	060	V415	A	07
-----	-----	------	---	----

Sizing Formula

Required kW = 0.264(Flow)(Temp Delta)

Conversion Calculations:

GPM = LPM/3.8

°C = 5/9(°F - 32)

Heater Sizing Formula Example

Ambient water temp = 25 °C

Desired process temp = 70 °C

Temperature delta = 45 °C

Required kW = 0.264(4 GPM)(45 °C) = 47.5 kW

For optimal temperature response and to compensate for seasonal changes in ambient water temperature, we recommend adding 20% excess heating capacity.

47.5 kW(1.2) = 57 kW. Trebor recommends a 60 kW heater for this application.



Trebor® and the Trebor logo are registered trademarks of IDEX Corporation
©2010 Trebor, Inc., A Unit of IDEX Corporation

T10/IDX1132/08.10

www.treborintl.com | North/South America +1 866 339 4653 | Europe +49 1801 808 800 | Asia +86 10 6566 9090

TREBOR®

A Unit of IDEX Corporation.