

Q-Series

Deionized Water Heater

Trebor®'s exclusive electric quartz DI water heating technology is trusted for long life, low maintenance and high purity. This market-leading technology is now available in the affordable Q-Series Heater – a system ideal for batch cleaning applications requiring a steady flow of high purity DI water on demand. Hot DI water has been proven to improve cleaning efficiency, enhance process stability, and increase production throughput.

The modular Q-Series heater's versatile configurations meet a broad range of wattage and voltage requirements. A straightforward user interface and multiple remote communication options ensure that we have a system ideal for your manufacturing process.

Leading Edge Technology

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

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

Versatile Control Options

Standard Modbus/RTU-serial communication. Many other remote system monitoring and control options are available to meet virtually all communication requirements and protocols.

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.



DI Water Heater

Compact and Convenient

The modular element allows for a very compact system design and can be changed out in less than 15 minutes if required. A simple control interface provides easy user input and diagnostic feedback.

High Performance

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

Safety Compliant

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

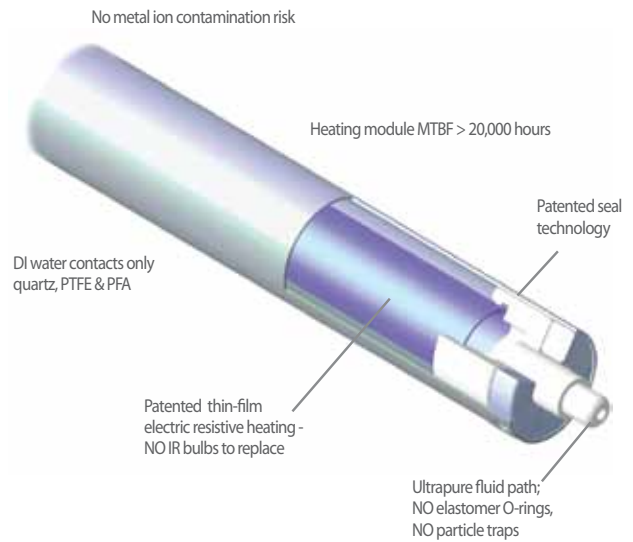
Benefits of Using Hot DI Water

- ▶ Improved cleaning efficiency
- ▶ Faster substrate drying times
- ▶ Better process consistency
- ▶ Increased production throughput
- ▶ Reduced water consumption

Performance Summary

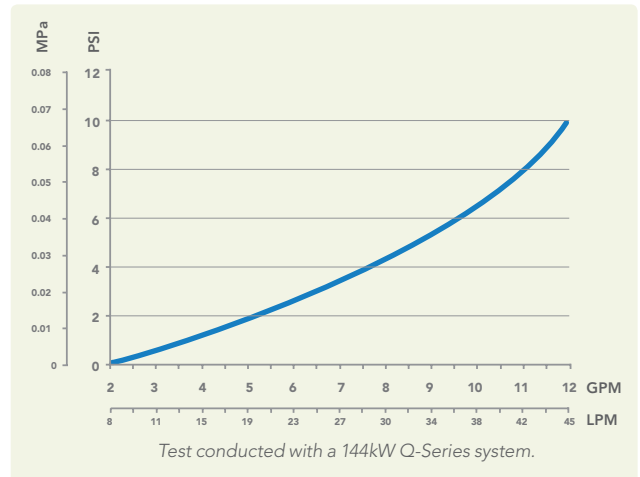
Heater Type	Thin-film on quartz electric resistive heating	
Voltages	208, 380, 415, 480 Volt; 50/60 Hz	
Temperature Limit	95 °C	
Temperature Control	±3 °C in most conditions	
Pressure Range	15 to 60 PSI DI water supply	
Flow Rate	1 to 45 LPM (.25 to 12 GPM); depending on system size	
Efficiency	>98%	
Element Life	>20,000 hrs	
Control System	Zero crossfire SSRs with multi-loop PID control	
Communication Options	Modbus/RTU - Serial (standard), Modbus/ TCP - Ethernet, DeviceNet	
Wetted Surfaces	GE 214 quartz, PTFE, PFA, & PVDF - no elastomer O-rings	
Safety Features	Low liquid level detection Redundant over temperature protection Over pressure relief Open thermocouple detection EMO GFI/Earth Leakage	
Certifications	SEMI S2-0703	CE
	SEMI S8-0701	NFPA79
	Modules FM compliant	
Warranty	One-year standard, extended warranties available	

Patented Heater Technology

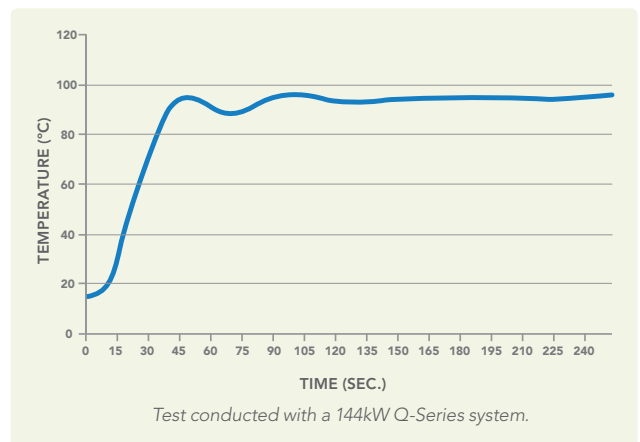


U.S. Patents 6,674,053 6,663,914 6,580,061 6,544,583 6,479,094 5,971,402 6,433,319.
Other patents pending

Pressure Drop



Temperature Performance



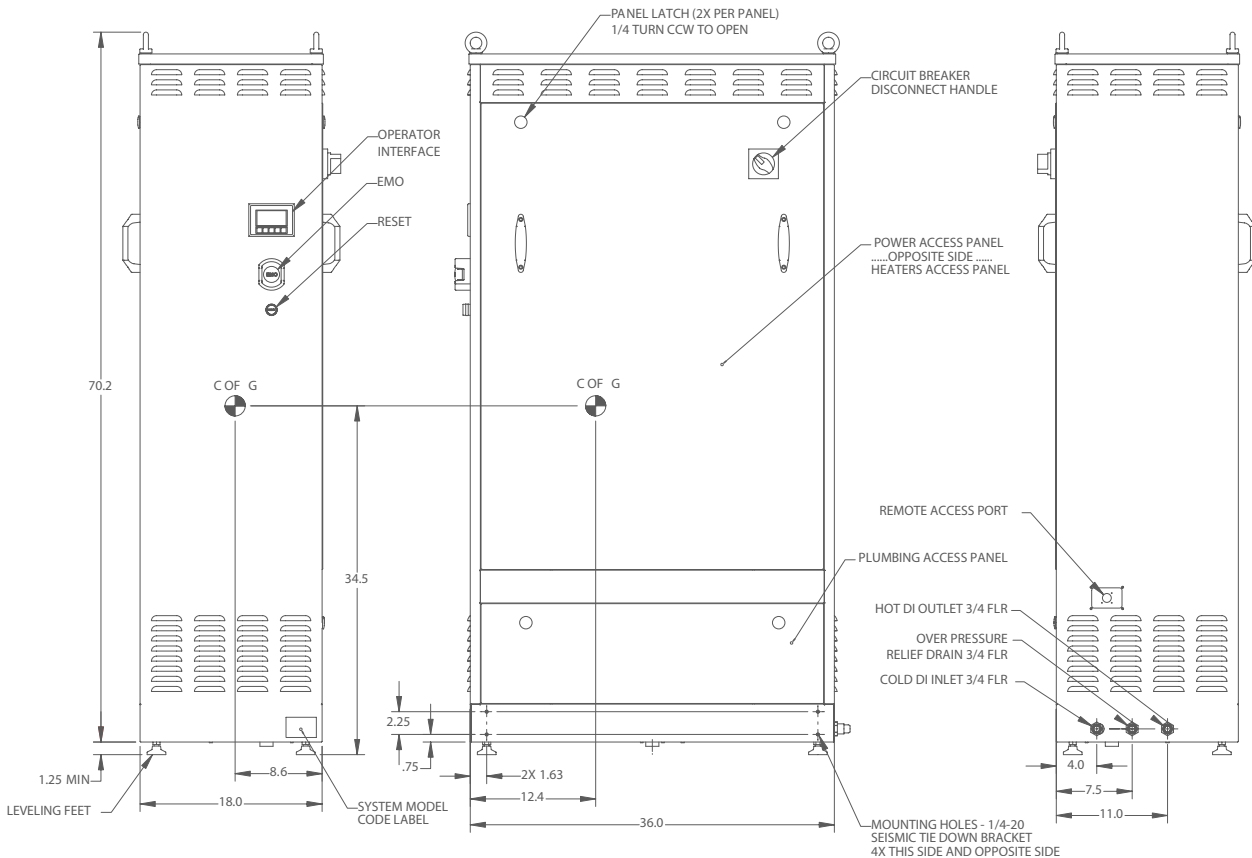
Q-Series Advantages



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

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

Dimensions in Inches (cm.)



Options and Ordering

Use the code numbers for ordering the following options for your Q-Series DI Water Heater.

HEATER	Q	Q-Series Batch Heater
POWER	030	30 kW
	036	36 kW
	060	60 kW
	072	72 kW
	090	90 kW
	108	108 kW
	120	120 kW
	144	144 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
PLUMBING	A	All PFA
	B	PVDF and PFA
OPTIONS	00	No Option

Example of an order number based on configuration options:

Q	144	V480	B	00
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Sizing Formula

In order to determine which heater size you need, determine the kW required with the following formula:

$$\text{Required kW} = 0.264 (\text{Flow in GPM}) (\text{Temp Delta } ^\circ\text{C})$$

Heater Sizing Formula Example

Ambient Water Temp = 25 °C

Desired Process Temp = 70 °C

Temperature Delta = 45 °C

$$\text{Required kW} = 0.264 (4 \text{ GPM}) (45 ^\circ\text{C}) = 47.5 \text{ kW}$$

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