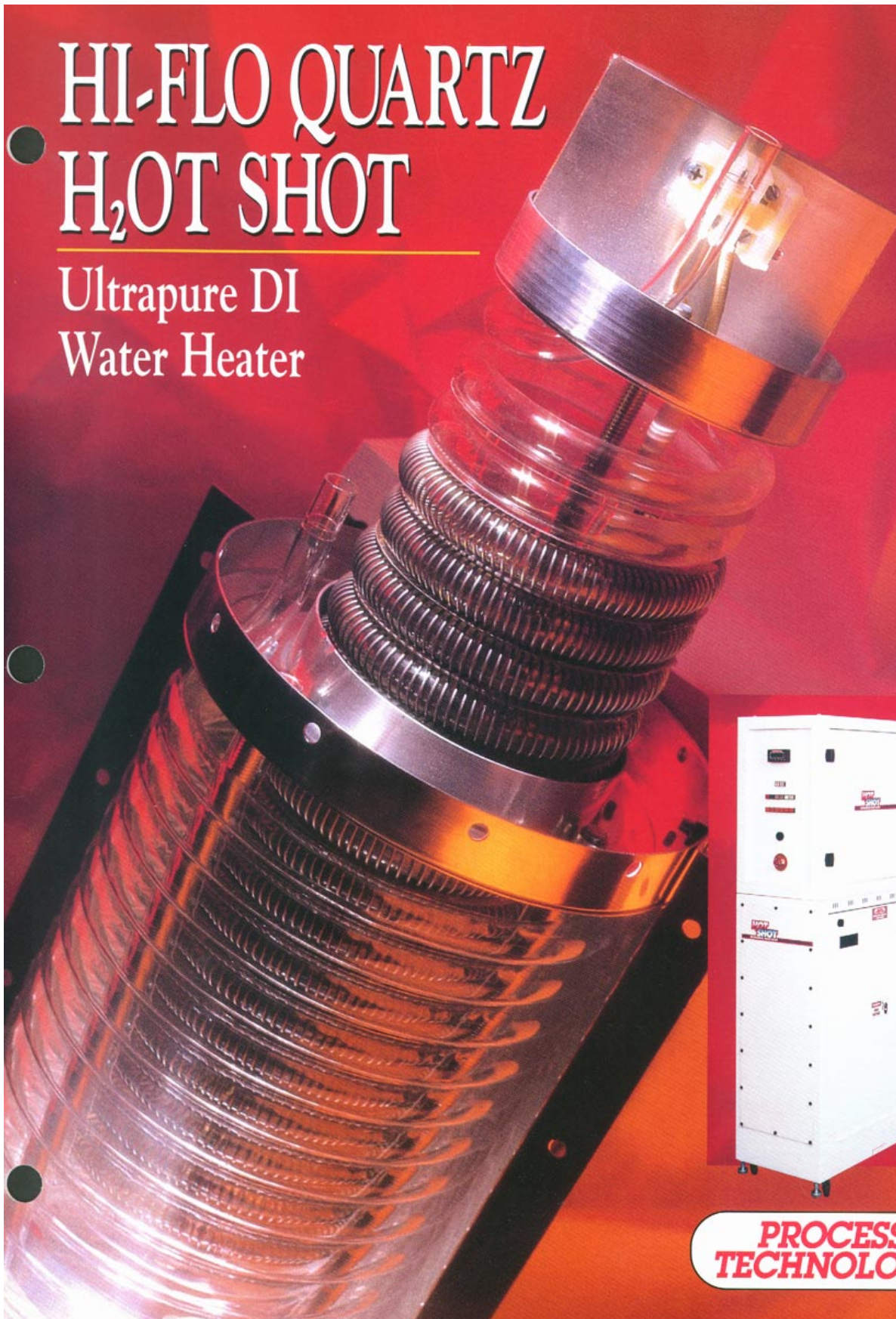


HI-FLO QUARTZ H₂O T SHOT

Ultrapure DI
Water Heater



**PROCESS
TECHNOLOGY**

HI-FLO HCQ SPECIFICATIONS

HEATER	Patented modular heating system using resistive heating (<i>near infrared</i>)
SIZES	24kW multiples up to 144kW (<i>sizes down to 8kW available</i>)
VOLTAGES	208 volt to 480 volt available, 50/60 Hz
TEMPERATURE LIMIT	95° C, depending on operating conditions
TEMPERATURE ACCURACY	1° C, depending on operating conditions
FLOW RATE	4 to 60 lpm (<i>see chart</i>)
EFFICIENCY	> 99%
HEAT UP TIME	> 1° C/second (<i>see chart</i>)
PRESSURE RATING	100 psig @ 24° C, 45 psig @ 90° C (<i>limited by the rating of the PFA fittings</i>)
MTBF	Well in excess of 10,000 hours
TEMPERATURE REGULATING SYSTEM	Distributive zero crossing SSR, powered by multi-loop PID control
TEMPERATURE SENSORS	"J" type thermocouples
HEATING ELEMENT	Cr-Al-Fe alloy resistance wire operating at 700° C
WETTED SURFACES	GE type 214 quartz with 440 HP PFA interconnects
INLET/OUTLET	3/4" flare connections (<i>48kW and higher</i>) 1/2" flare connections (<i>24kW</i>)
FORCED VENTILATION	None required
PURGE GAS	None required
EXHAUST VENTILATION	None required
STANDARD SAFETY FEATURES	<ul style="list-style-type: none"> • Liquid over-temperature shutoff and alarm • Liquid leak detection shutoff and alarm • SEMI S3 compliant, 24 VAC low voltage controls • Low liquid flow detection shutoff • Heater module over-temperature shutoff and alarm • Flow verification/power level control • Redundant heater module over-temperature safety • Automatic cycle cool-down • Emergency off (<i>EMO</i>) with remote capabilities • Ground fault protection
CERTIFICATIONS	<ul style="list-style-type: none"> • ETL certified and CE compliant • Conforms to UL 499 standards • Semi S2 and S3 compliant
OPTIONS	<ul style="list-style-type: none"> • PLC control • RS 232 or RS 485 communication port • Capacitive style leak detection • Resistivity monitoring • Flow monitor display • Air cooled SSR's • OEM-style heater subassembly modules • Seismic hold-downs

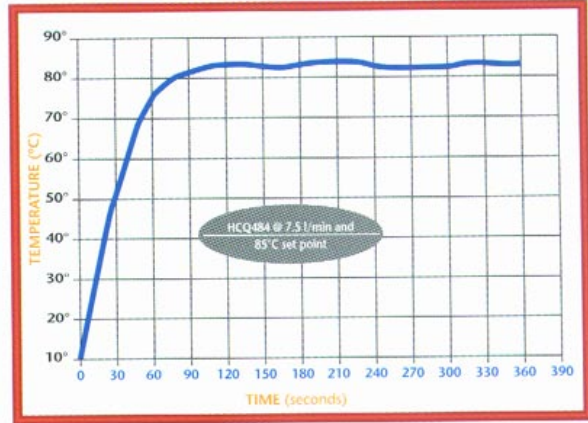
FEATURES and BENEFITS:

- **Hot DI Water:** Heated DI water improves cleaning effectiveness and reduces rinse time in most processes
- **Highly Efficient:** >99% efficiency means lower cost of ownership (COO) and improved return on investment (ROI)
- **Outstanding Cleanliness:** Ultra-clean performance is achieved through the use of high-purity quartz construction
- **Patented Construction:** The unique helical quartz construction provides unequalled sweeping action, creating excellent velocities through the heater and eliminating stagnant zones
- **Outstanding Temperature Stability:** Superior temperature accuracy improves process consistency
- **Reliable:** Our proven heating technology uses high-performance resistance wire, resulting in greatly enhanced service life
- **"Safe Process" Design:** Heating element is isolated from the process to virtually eliminate the potential for catastrophic process contamination
- **Minimal Preventative Maintenance:** Only minor, infrequent PM is needed
- **Easy Maintenance:** Long-life heater element designed for easy access and quick replacement with minimal disruption to the process
- **Low Facility Costs:** No auxiliary gas or special ventilation needed; minimal facility requirements

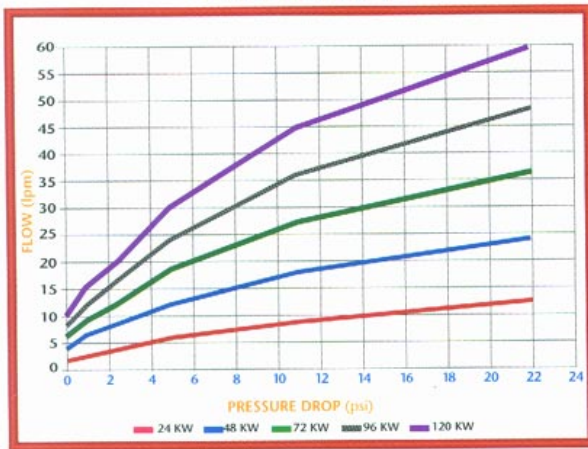
- **Compact Configuration:**
Space-conscious design minimizes footprint requirements
- **No O-Rings:** Flaretek® and Quickgrip® fittings provide leak-free operation and eliminate contamination associated with o-ring seals

Flaretek® and Quickgrip® are registered trademarks of Fluoroware, Inc.

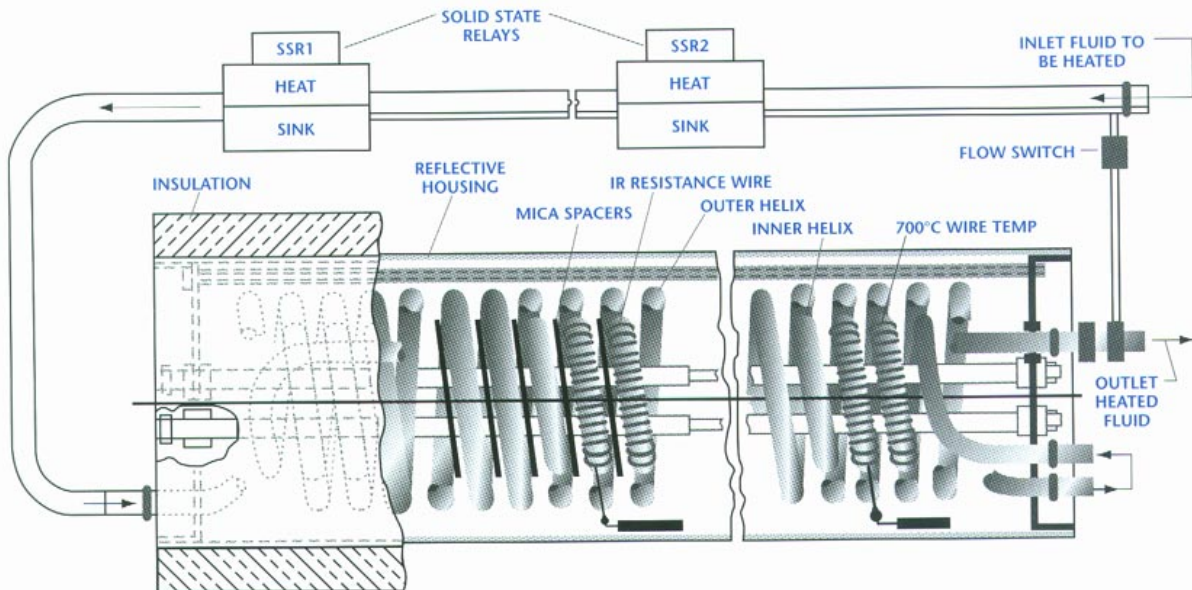
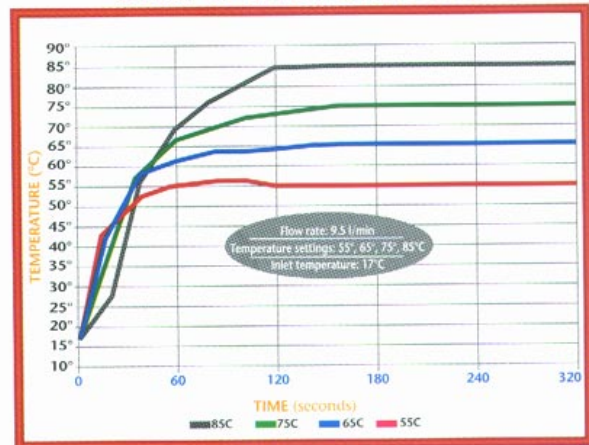
TYPICAL PERFORMANCE CURVE



PRESSURE DROP



START UP CHARACTERISTICS



PROCESS TECHNOLOGY

7010 Lindsay Drive • P.O. Box 660
 Mentor, OH 44060
 Phone: 440-946-9500
 Fax: 440-974-9561
 Eastern U.S./Canada: 800-621-1998

1991 Whitney Mesa Drive
 Henderson, Nevada 89014
 Phone: 702-450-7910
 Fax: 702-450-7912
 Western U.S./Canada: 800-621-1999
www.process-technology.com

HEATER SELECTION MATRIX

FLOW RATE (LPM/GPM)	TEMPERATURE RISE (DIFFERENTIAL) °C/°F						
	11/20	22/40	33/60	46/80	56/100	67/120	78/140
3.8/1.0	*	*	*	*	*	*	*
5.7/1.5	*	*	*	*	HCO24	*	*
7.6/2.0	*	*	*	HCO24	HCO48	HCO48	*
8.3/2.5	*	HCO24	HCO24	HCO48	HCO48	HCO48	HCO48
11.4/3.0	*	HCO24	HCO48	HCO48	HCO48	HCO72	*
13.2/3.5	*	HCO24	HCO48	HCO48	HCO72	HCO72	HCO72
15.1/4.0	*	HCO24	HCO48	HCO48	HCO72	HCO72	HCO72
17.0/4.5	HCO24	HCO48	HCO48	HCO72	HCO72	HCO96	HCO96
18.9/5.0	HCO24	HCO48	HCO48	HCO72	HCO96	HCO96	HCO96
20.8/5.5	HCO24	HCO48	HCO48	HCO72	HCO96	HCO96	HCO120
22.7/6.0	HCO24	HCO48	HCO72	HCO72	HCO96	HCO120	HCO120
24.6/6.5	HCO24	HCO48	HCO72	HCO96	HCO96	HCO120	HCO144
26.5/7.0	HCO24	HCO48	HCO72	HCO96	HCO120	HCO144	HCO144
28.4/7.5	HCO24	HCO48	HCO72	HCO96	HCO120	HCO144	HCO144
30.3/8.0	HCO48	HCO48	HCO72	HCO96	HCO120	HCO144	*
32.2/8.5	HCO48	HCO72	HCO96	HCO120	HCO144	*	*
34.0/9.0	HCO48	HCO72	HCO96	HCO120	HCO144	*	*
35.9/9.5	HCO48	HCO72	HCO96	HCO120	HCO144	*	*
37.8/10.0	HCO48	HCO72	HCO96	HCO120	*	*	*
39.7/10.5	HCO48	HCO72	HCO96	HCO144	*	*	*
41.6/11.0	HCO48	HCO72	HCO96	HCO144	*	*	*
43.5/11.5	HCO48	HCO72	HCO120	HCO144	*	*	*
45.4/12.0	HCO48	HCO72	HCO120	HCO144	*	*	*
47.3/12.5	HCO48	HCO96	HCO120	*	*	*	*
49.2/13.0	HCO48	HCO96	HCO120	*	*	*	*
51.1/13.5	HCO48	HCO96	HCO120	*	*	*	*
53.0/14.0	HCO48	HCO96	HCO144	*	*	*	*
54.9/14.5	HCO48	HCO96	HCO144	*	*	*	*
56.8/15.0	HCO48	HCO96	HCO144	*	*	*	*

*consult factory

Distributed by: