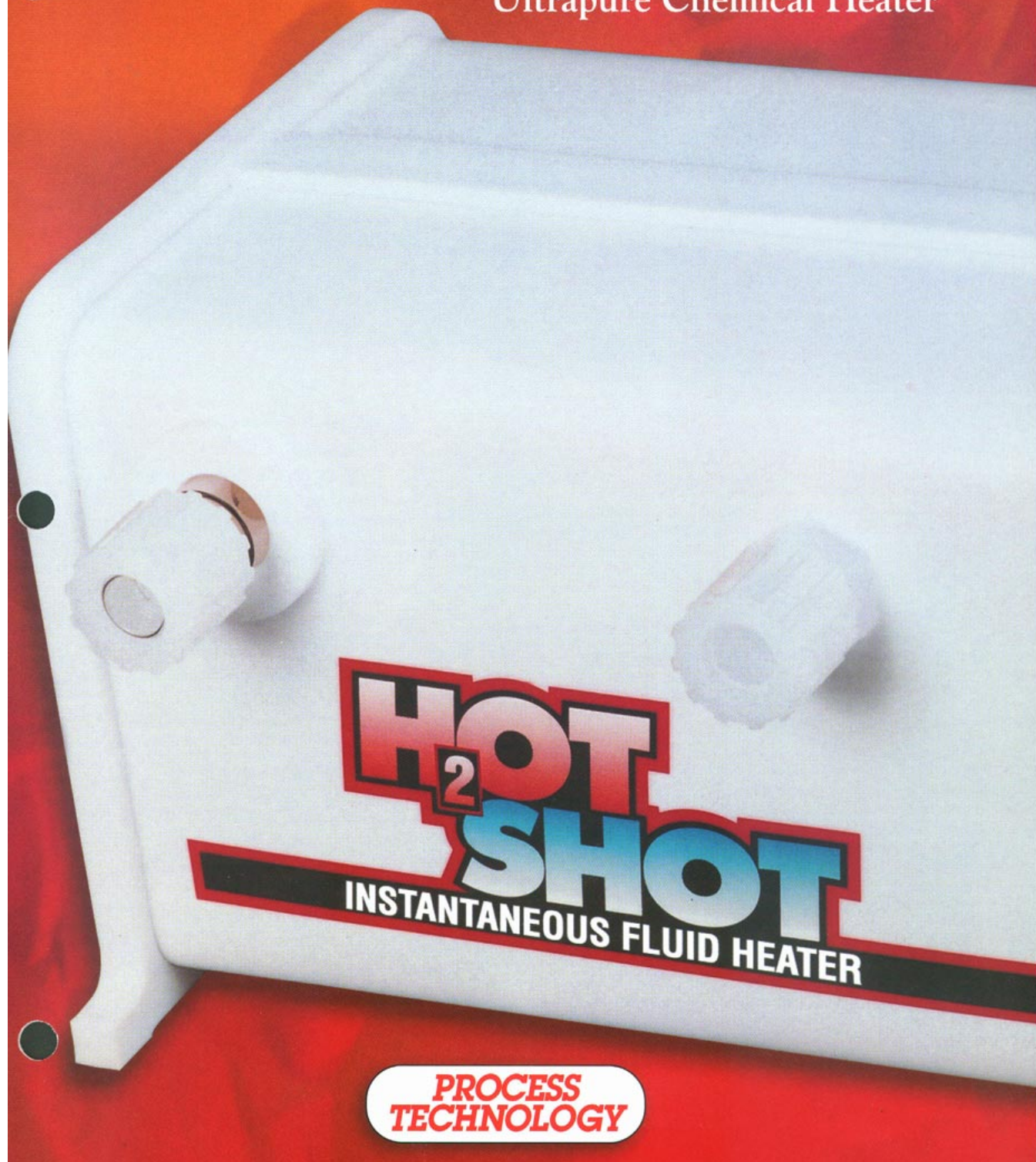


QUARTZ H₂O T SHOT

Ultrapure Chemical Heater



PROCESS
TECHNOLOGY

SPECIFICATIONS

HEATER	Patented heating system using infrared elements
SIZES	750 watts to 12,000 watts
VOLTAGES	208 volt to 480 volt, single or three phase Consult factory for specific wattage/voltage combinations available
TEMPERATURE LIMIT	185° C, depending on operating conditions
TEMPERATURE ACCURACY	1° C, depending on operating conditions
FLOW RATE	Up to 100 lpm (<i>see chart</i>)
PRESSURE RATING	50 PSIG working
MTBF	9,000 hours
MTTR	10 minutes (with adequate access)
HEATING ELEMENT	IR halogen lamps
WETTED SURFACES	100% GE type 214 quartz
INLET/OUTLET	3/4" MNPT flare quartz connections
PURGE GAS	Patented system using 3.5 SCFM (min.) clean dry air (CDA) or nitrogen (N ₂), 1/4" O.D. tube connector
STANDARD SAFETY FEATURES (requires controller interface)	Heater housing over-temperature shutoff and alarm ("J" type thermocouple and redundant bi-metallic snap switch) Purge gas verification and interlock
HOUSING	100% PTFE with viton o-ring seals (non-wetted) Conforms to FM material standards
DIMENSIONS	10" W (254mm) x 19" L (485mm) x 7.8" H (198mm)
CERTIFICATIONS	ETL certified to UL 499 standards CE compliant Conforms to Semi S2 and S3 standards

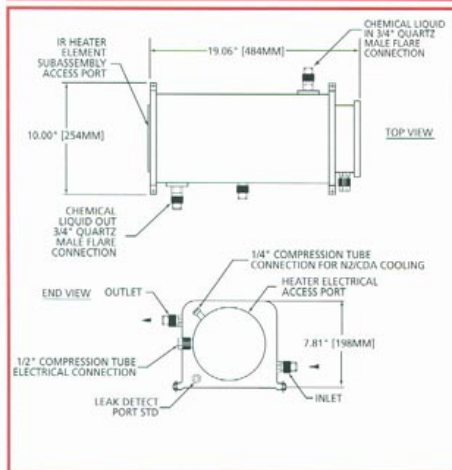
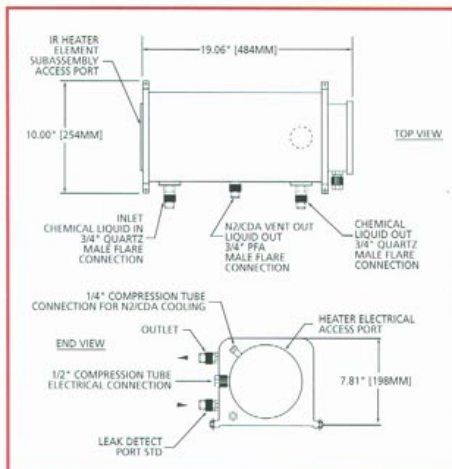
OPTIONS:

- | | |
|---|---|
| • PLUMBING CONFIGURATION | several available, consult factory |
| • SOLUTION LEAK DETECTION | Capacitive-style leak detector |
| • SOLUTION TEMPERATURE SENSOR SUBASSEMBLY | Fluoropolymer sheathed "J" type thermocouple in a flared "T" fitting |
| • TEMPERATURE REGULATING SYSTEM with: | Distributive zero-crossing SSR powered by open looped PID control (consult factory for details)
Available: RS 232, RS 485, 4-20mA, or 0-10V interface
Liquid over-temperature shutoff and alarm |

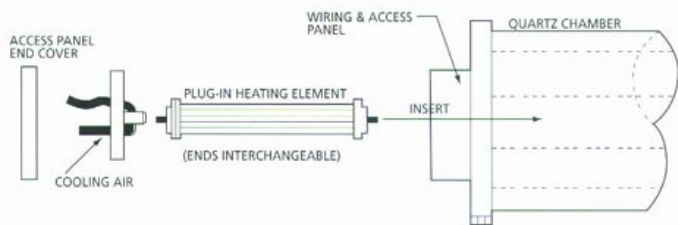
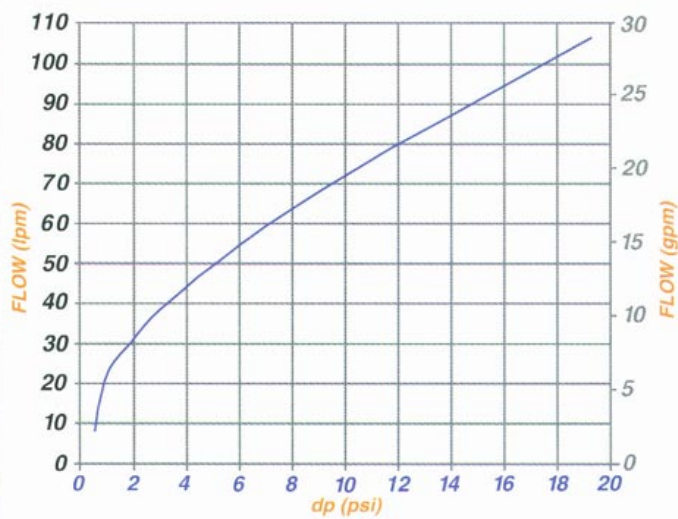
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FEATURES and BENEFITS:

- **Outstanding Cleanliness:** Ultra-clean performance is achieved through the use of 100% high-purity quartz construction. No ionic or bacterial contamination.
- **Reliable:** Our patented cooling system significantly extends heater element life versus conventional designs. With cooling air directed only where it is needed (the lamp sockets), the heater uses minimal purge gas and heater efficiencies are maximized.
- **Low Cost of Ownership (COO):** Heating element can be field replaced without disturbing the plumbing connections or affecting the integrity of the chemistry, resulting in significantly lower costs over the life of the heater and the chemicals.
- **Excellent Responsiveness:** Halogen lamps provide instantaneous start-up and rapid response with excellent temperature stability under varying flow rates.
- **Low Pressure Drop:** Unique construction has minimal pressure drop for high-circulation applications.
- **Easy Maintenance with Minimal Down Time:** Plug-in heater element is easily replaced in minutes. Fluid connections remain intact, eliminating the need for system re-qualification.
- **"Safe Process" Design:** The heating element is isolated from the process to virtually eliminate the potential for catastrophic process contamination.
- **Secondary Containment:** The PTFE housing acts as a maintenance-free secondary containment vessel to help protect the environment from chemical spills. Leak detection available as an option.
- **Compact Size:** Space-conscious design minimizes footprint requirements.
- **No Dead Zones:** Tangential flow pattern eliminates stagnant zones in the heater. The heater is self-draining and self-venting (upon proper installation).
- **No O-Rings:** Process contamination associated with o-rings is eliminated. Leak-free operation assured.



PRESSURE DROP



When maintenance is necessary, element replacement is achieved in minutes without the need for disconnecting plumbing or hard wiring.

Other plumbing configurations available. Please consult factory.

PROCESS TECHNOLOGY

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