PROCESS TECHNOLOGY

NEW - SAFELY HEAT IPA and FLAMMABLE SOLVENTS

The SHX portfolio of in-line, ultra-high purity heaters is designed to safely heat IPA and low flash-point solvents, meeting the most stringent cleanliness requirements to support next-generation semiconductor node technologies. Suitable for recirculating and single-pass flow requirements, these compact, low-mass heaters deliver fast heat-up with quick responsiveness to flow changes. SHX is the ULTIMATE in ultra-high purity solvent heating! Explosion proof (EX) versions available.

SHX

Temperature: Up to 90°C (194°F)	Pressure: Up to 475 kPa (69 PSI)
Watts: SHX: 3kW, 6kW, 9kW & 12 kW	Certification: SHX: UL 499 (ETL), CE (pending), SEMI S2/S3 (pending).
Volts: 200 to 480 volts, single or three phase	

Compatibility

NO	NO	NO	YES	NO
acids	water	bases	solvents	gases

FEATURES

Dedicated Ultra-Pure Flow Path for Advanced Cleanliness

Chemistry contained within high-purity PTFE components – no contact with any metals.

No wetted o-ring seals eliminate source for contamination.

Purge design provides early notification in the unlikely event of fluid path breach .

Assembled in Class 100 Clean Room.

Advanced Heating Design Ensures Safety

Indirect heat - heating element is isolated from fluid path for safe heating of flammable chemistries .

Low watt density eliminates localized hot spots enabling IPA to be heated to near boiling temperatures without generating gas.

Redundant sensors provide proper monitoring of temperature for safe operation.

All standard version certified to: UL499 (ETL), CE and SEMI S2/S3 (pending).

Precise and Stable Temperature Control in Compact Design

Low-mass design assures:

- Fast initial heat-up.
- Minimal temperature overshoot.
- Quick response to flow change.

APPLICATIONS

- Semiconductor wafer cleaning

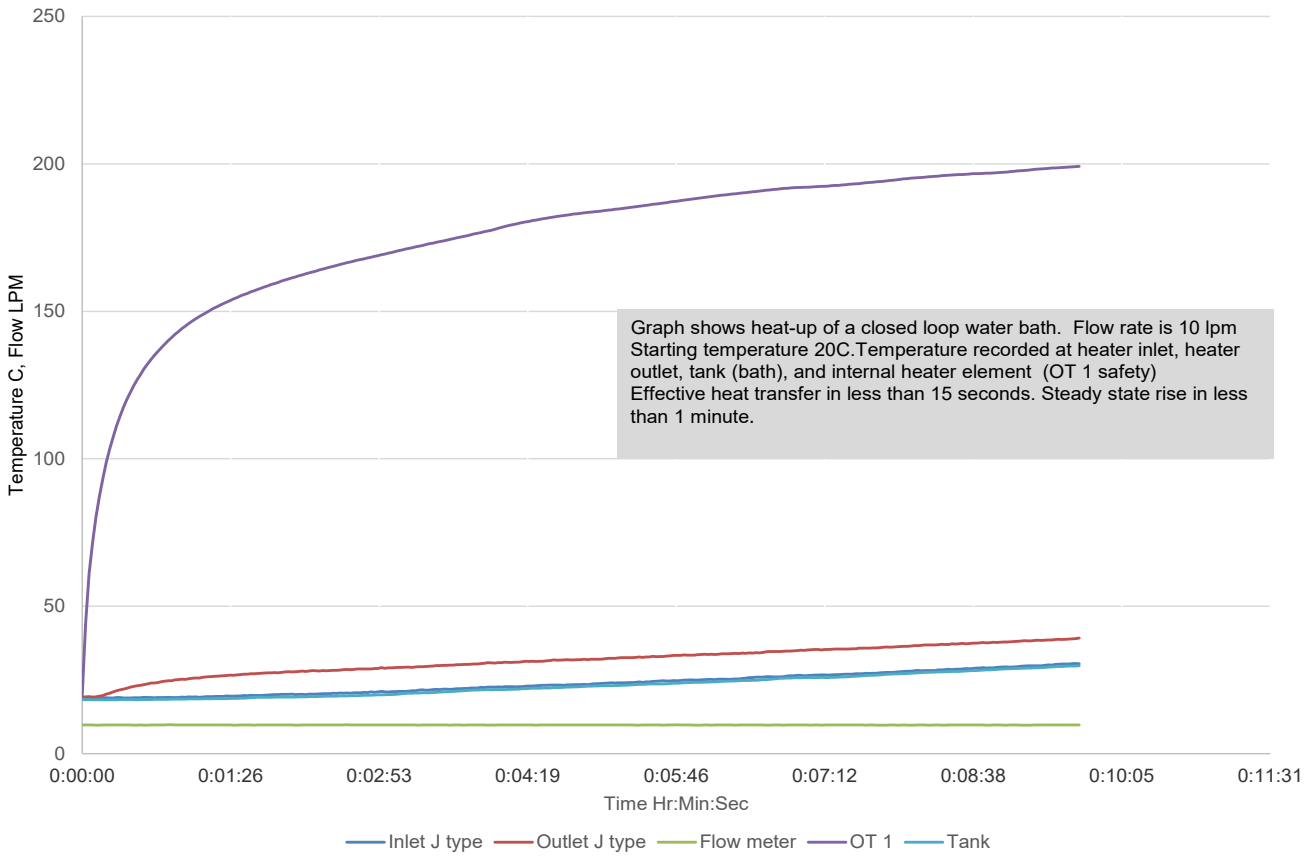
SHX High Purity Solvent Heater

SPECIFICATIONS

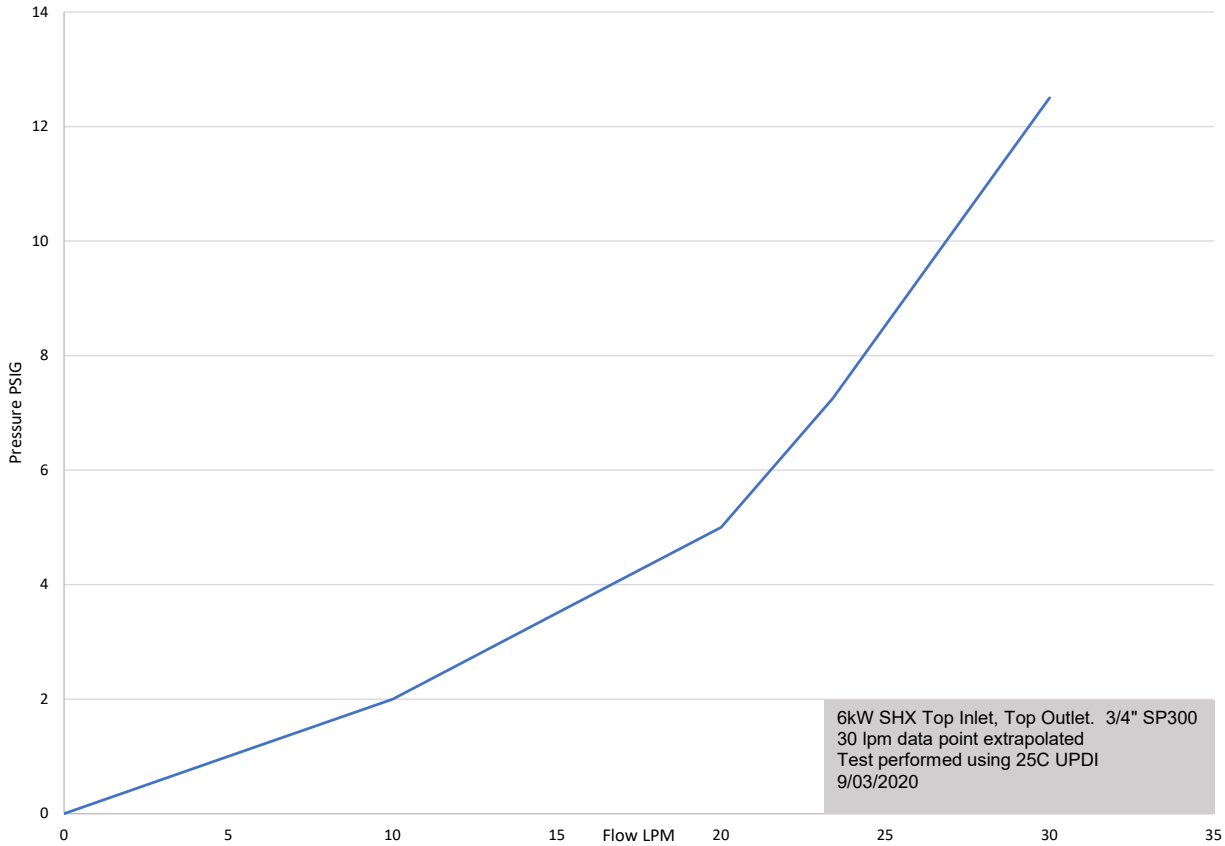
Wetted Surfaces	PTFE	
Power Range	3 kw, 6kw, 9kw, 12kw	
Voltages	200 volts to 480 volts, single phase or 3 phase	
Max Outlet Temp*	Up to 90° C (194° F)	
Max Pressure	Up to 475 kPa (69 PSI)	
Watt Density	≤ 10.0 watts/in^2	
Min. Flow Rate**	2.0 LPM	
Internal Volume	0.9 Liter	
Efficiency Rating	> 97%	
Fluid Connections	Inlet/Outlet Types/Sizes FLARETEK® 12.7mm (0.5 inch), 19.05mm (0.75 inch), SUPER 300 TYPE PILLAR® (300 SP) 12.7mm (1/2 inch), 19.05mm (3/4 inch), or 25.4mm (1 inch) Custom inlet/outlets also available	Drain 9.5mm (0.375 inch), or 12.7mm (0.5 inch) flared, or Super 300 Type Pillar®
Dimensions	23.1" x 7.5" x 8.0" (H x D x W), 556 mm x 190.5 mm x 203 mm	
Mounting	Vertical	
Clean Room Rating	Class 100	

* Dependent on temperatue and pressure rating of selected fittings.
** Min .flow could be less depending on control and operating conditions (consult PT Engineering).

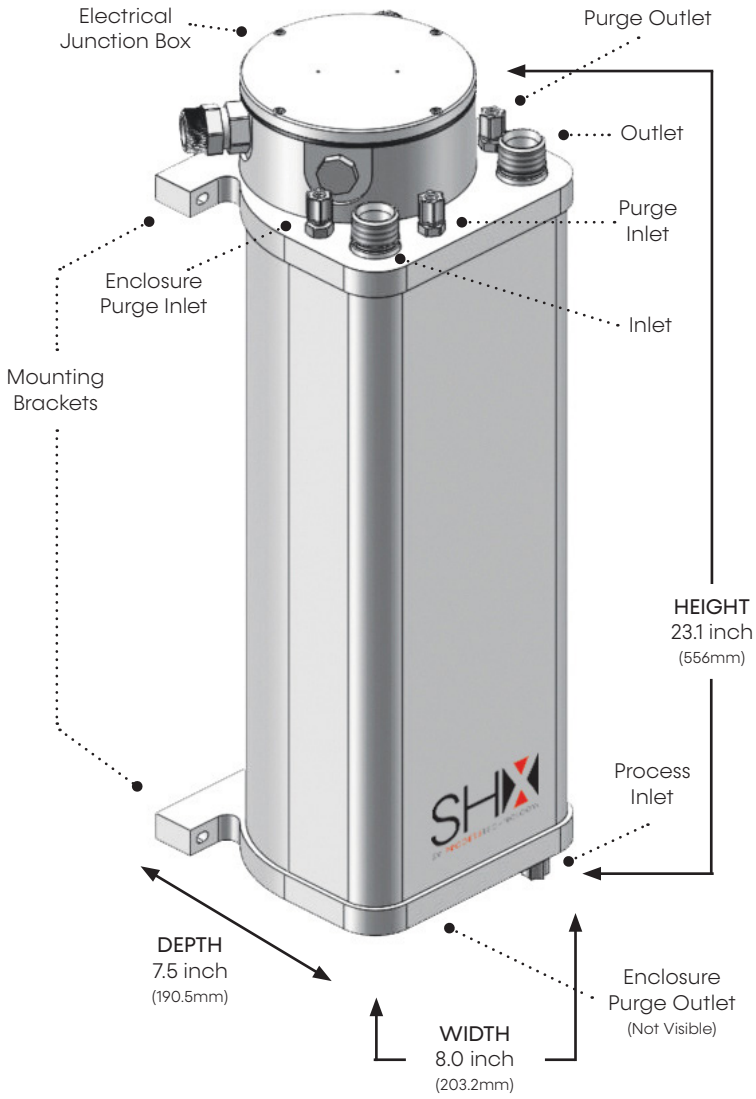
HEAT-UP CURVE



PRESSURE DROP



DIMENSIONS



MODEL NUMBER BREAKDOWN

# of Units	Series	Wattage	-	Voltage	Phase	Inlet/Outlet Connection	Plumbing Configuration	Element Sensor Type	-	Process Sensor Type	TCO Rating	-	Options
blank = 1	**SHX**	***3*** *= 3000*		**1** = 208	**1** = Single Phase	**A** = 1/2 inch Flared	**O** = Inlet/Outlet on the top	**E =** Type E thermocouple		**0** = No Sensor	**1 = 176°C**		**EX** = Hazardous Location Zone 1
2 = 2 * 12kW* only		**6 = 6000**		**2** = 240	**3** = Three Phase	**B** = 3/4 inch Flared	**B** = Inlet at the bottom and Outlet at the top.	**J =** Type J thermocouple		**E** = Type E thermocouple	**2 = 150°C***		**Blank** = No Option
* 2 - 6kW units		**9 = 9000**		**3** = 380		**V** = 1/2 inch Super 300 Pillar	**C =** Inlet/Outlet on the side; Only size option for 9kW & 12kW, not an option for 6kW	**K =** Type K thermocouple		**J** = Type J thermocouple	**3 = TBD**		**##** = Custom design
		12 = 12000*		**4** = 400		**W** = 3/4 inch Super 300 Pillar		**H =** 100-Ohm RTD (2-wire)		**K** = Type K thermocouple			
		* 2 - 6kW units		**5** = 415		**X** = 1 inch Super 300 Pillar; Only size option for 12kW, not an option for 6kW		**R =** 1000-Ohm RTD (2-wire)		**H** = 100-Ohm RTD (2-wire)			
				6 = 480						**R** = 1000-Ohm RTD (2-wire)			
				7 = 440									
				9 = 220									
				10 = 200									
				12 = 120									
				15 = 230									
				16 = 460									

*To maintain UL499, TCO cannot be higher than 150°C