



MULTI-LOOP CHEMICAL HEATER

Engineered for your process - manage multiple chambers with one heater! Building off of the popular SHC product line, the Nexus incorporates the same safe indirect heating technology to heat multiple process loops. Using a single heat source, the Nexus improves chamber-temperature matching performance for advanced processing requirements.



FEATURES

Reduced complexity

- One set of controls for up to four process chambers.
- Small space requirements.

Designed for performance

- Allows for precise and stable temperature control for multiple chambers.
- Low watt density design for lower surface temperatures.

Engineered for Safety

- Heats chemicals and flammable solvents through indirect contact.
- Patented purged housing for leak detection.

Advanced Cleanliness

- O-ring free and crevice free design eliminates source for contamination.
- All PFA wetted surfaces for acids and solvents.

Temperature: Up to 80°C (176° F)	Pressure: Up to 275 kPa (40 PSI)			
Watts: 500W to 2000W	Certifications: CE, UL 499 compliant			
120-600 volts, single phase				
Compatibility				
<input checked="" type="checkbox"/> YES	<input checked="" type="checkbox"/> YES	<input checked="" type="checkbox"/> YES	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
acids	water	bases	solvents	gases

APPLICATIONS

- Semiconductor wafer cleaning

DATA SHEET

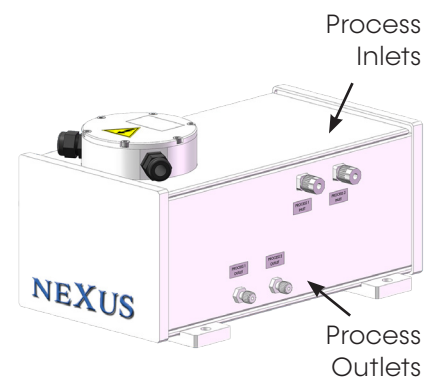
Nexus Multi-Loop Chemical/Solvent Heater

SPECIFICATIONS

Wattages	500 kW to 1400 kW
Voltages	120 volts to 480 volts, single phase
Temperature Range	Up to 80°C (176° F)
Pressure Range	Up to 275 kPa (40 PSI)
Fluid Connections	<p>Inlets:</p> <p>Low Flow: 6.3mm (¼") SP300 Nippon Pillar</p> <p>High Flow: 6.3mm (¼") SMC Hyperflare</p> <p>Outlets:</p> <p>Low Flow: 3.1mm(⅛") SP300 Nippon Pillar</p> <p>High Flow: 3.1mm (⅛") SMC Hyperflare</p>
Safety Features	<p>RTD core sensors</p> <p>Bi-mettalic over-temp sensor</p>

DIMENSIONS

NEXUS Dimensions		
	Inches	Millimeters
Width	9.25	235
Length	14.25	362
Height	7.64	194



MODEL NUMBER BREAKDOWN

NEX / 4L - 1.4 - 6 1 R Q H 1 - R

Nexus Series	# flow paths & flow types	Wattage	Voltage	Phase	Inlet Connection	Outlet Connection	Sensor Type	TCO Rating	Element Type
NEX = Multi-Loop Series	1L = 1 path low flow	.25 = 250	1 = 208	1 = single phase	Q = 3.1 mm Super 300 Pillar	Q = 3.1 mm Super 300 Pillar	H = RTD 100	1 = 90 C	R = Resistive
	1H = 1 path high flow	.4 = 400	2 = 240		R = 6.3 mm Super 300 Pillar	R = 6.3 mm Super 300 Pillar			P = PTC
	2L = 2 path low flow	.5 = 500	3 = 380		4 = 6.3 mm SMC Hyperflare	4 = 6.3 mm SMC Hyperflare			
	2H = 2 path high flow	.75 = 750	4 = 400		8 = 3.1 mm SMC Hyperflare	8 = 3.1 mm SMC Hyperflare			
	3L = 3 path low flow	.8 = 800	5 = 415						
	3H = 3 path high flow	.875 = 875	6 = 480						
	4L = 4 path low flow	1 = 1000	7 = 440						
	4H = 4 path high flow	1.2 = 1200	8 = 575						
		1.25 = 1250	9 = 220						
		1.4 = 1400	10 = 200						
		1.6 = 1600	12 = 120						
		2 = 2000	14 = 600						
			15 = 230						
			16 = 450						

DATA SHEET

SHB/SHC | Chemical and Solvent Heater



SUPERIOR INDIRECT HEATING

The SHB/SHC, a low wattage inline chemical/solvent heater, delivers superior indirect heating with temperature stability. Using multiple temperature sensors and self-limiting technology, this heater ensures safe operation during low or no-flow conditions.



SHB/SHC

FEATURES

Engineered for Safety

- Optimized to safely heat chemicals and flammable solvents through indirect contact
- Redundant temperature sensors ensure safe operation
- PTC (self-limiting) heating technology standard

Advanced Cleanliness

- O-ring free and crevice free design eliminates source for contamination
- SHB series: Electropolished 316SS for solvents
- SHC series: PTFE & PFA wetted surfaces for acids and solvents

Designed for performance

- Allows for precise and stable temperature control
- Low watt density design for lower surface temperatures

Temperature: Up to 180° C (356° F)	Pressure: Up to 1379 kPa (200 PSI)			
Watts: 250W to 2000W	CE, ETL (tested to UL823 compliant, UL499 compliant and CSA C22.2)			
120 to 480 volts, Single phase				
Compatibility				
<input checked="" type="checkbox"/> YES	<input checked="" type="checkbox"/> YES	<input checked="" type="checkbox"/> YES	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
acids	water	bases	solvents	gases

APPLICATIONS

- Semiconductor Wafer Cleaning
- Etching
- Inline Chemical Heating

DATA SHEET

SHB/SHC Chemical and Solvent Heater

SPECIFICATIONS

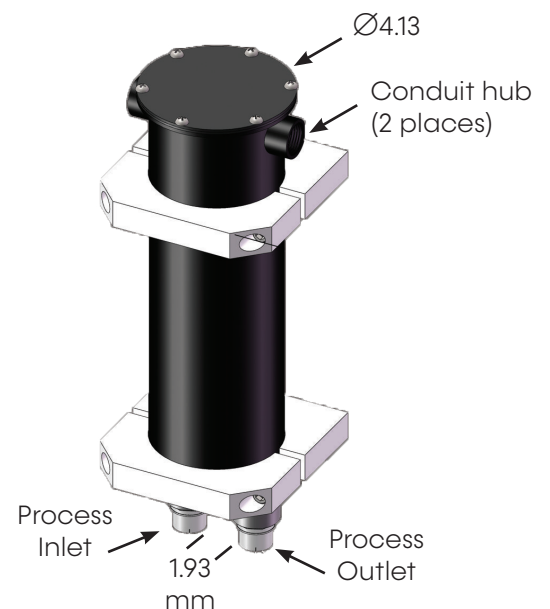
Wattages	250W to 2000W
Voltages	120 volts to 480 volts, single phase
Temperature Range	Up to 180°C (356° F).
Pressure	1379kPa (200 PSI) at 180°C (356° F)
Fluid Connections	3mm, 6mm, 9mm or 12mm. Custom connections available.

MODEL NUMBER BREAKDOWN

SH	C	.875	1	1	V	V	H
Series	Wetted Material	Wattage	Voltage	Phase	Inlet Plumbing Connections	Outlet Plumbing Connections	Element Sensor Type
SH = Solvent	B = 316SS (EP)	.25 = 250	1 = 208V	1 = single phase	O = 5/16" Tube Stub (SHB Only)	O = 5/16" Tube Stub (SHB Only)	K = K-type TC
	C = Fluoropolymer	.4 = 400	2 = 240V		Q = 1/8" Super 300 Pillar	Q = 1/8" Super 300 Pillar	E = E-type TC
		.5 = 500	3 = 380V		R = 1/4" Super 300 Pillar	R = 1/4" Super 300 Pillar	J = J-type TC
		.75 = 750	4 = 400V		T = 3/8" Super 300 Pillar	T = 3/8" Super 300 Pillar	H = 100-Ohm RTD (3-wire)
		.8 = 800	5 = 415V		V = 1/2" Super 300 Pillar	V = 1/2" Super 300 Pillar	R = 1000-Ohm RTD (2-wire)
		.875 = 875	6 = 480V				
		1 = 1000	7 = 440V				
		1.2 = 1200	8 = 575V				
		1.25 = 1250	9 = 220V				
		1.4 = 1400	10 = 200V				
		1.6 = 1600	11 = skip				
		2 = 2000	12 = 120V				
			13 = skip				
			14 = 600V				
			15 = 230V				

DIMENSIONS

Wattage*	L - Length	
	Inch	mm
250	7.38	187
500	10.13	257
750	13.12	333
1000	16.12	409
1250	19.12	486



DATA SHEET

Frontier Chemical / Solvent Heater



Frontier is designed for heating chemicals and solvents in hazardous operating environments. Suitable for heating a wide variety of flammable and non-flammable chemistries using electropolished stainless steel wetted materials for improved cleanliness. Offers outstanding performance over a wide range of flow and temperature requirements. Available up to 36kW, the Frontier is the most powerful inline solvent heater available.



FEATURES

Engineered for Safety

- Heat source isolated from flammable chemistries
- Certified to UL823 compliant and ATEX
- Suitable for Class I, Div 2 and Zone 1 & 2 hazardous environments

Indirect Heating Design

- Provides an evenly heated surface and reduces surface temperatures and hot spots
- Improves chemical longevity and performance for temperature-sensitive chemicals

Advanced Cleanliness

- Electropolished 316SS wetted surfaces and no o-rings in the flow path minimizes contamination of the process liquid
- Crevice-free design reduces risk of contamination
- Non-cast design maintains quality of electropolished surfaces

Designed for Performance

- More available heating power than other inline solvent heaters (up to 36kW)
- Lower mass for faster response time
- Minimizes fluid pressure drop even at very high flow rates (>60 LPM)

Temperature: Up to 180°C (356° F)	Pressure: Up to 690 kPa (100 PSI)
Watts: 3kW- 36kW, *ATEX Zone 1 & 2, 3-18kW	CE, S2, UL823, CSA22.2, ATEX II 2G Ex eb IIc T2 Gb, ATEX II 3G Ex nc IIc T4 Gc
120 to 480 volts, 3 phase standard), single phase (optional), *ATEX Zone 1 & 2, 200- 480V, Single or 3 Phase	

APPLICATIONS

- Semiconductor
- Sterilization/Cleaning
- Electroless Nickel Plating

COMPATIBILITY				
NO	YES	YES	YES	NO
acids	water	bases	solvents	gases

DATA SHEET

Frontier Chemical and Solvent Heater

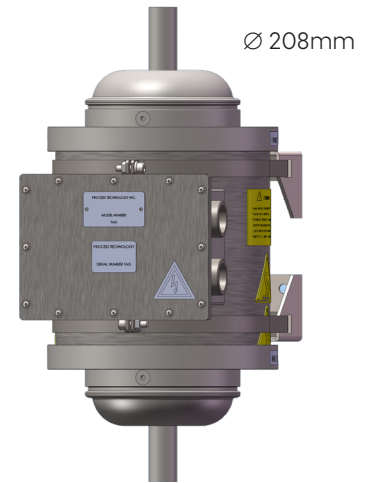
APPLICATIONS

- Semiconductor
- Medical Device Cleaning
- Electroless Nickle Plating

SPECIFICATIONS

Wattages	3 kW to 36 kW
Voltages	120 volts to 480 volts, Single phase or 3 phase
Temperature Range	Up to 180° C (356° F).
Pressure Range	689 kPa (100 PSI)
Fluid Connections	12mm, 19mm, or 25mm Custom connections available
Safety Features	Grounded construction Bimetallic TCO Insulated Housing

DIMENSIONS



Wattage	L - Length	
	kW	Inch
3-6	12.63	321
9-12	18.13	461
18-24	29.13	740
36	40.13	1019

MODEL NUMBER BREAKDOWN

Series	Element Type	Wetted Material	Wattage	Voltage	Phase	Plumbing Connections (316SS)	# of Sensors	Overtemp Sensor Type	# of TCO	TCO type	Flow Configuration	Overall Length	Options
F = Frontal	R = Resistive style P = PTC style (common)	S = 316SS (EP)	3 = 3000 6 = 6000 9 = 9000 12 = 12000 18 = 18000 24 = 24000 36 = 36000	1 = 208V 2 = 240V 3 = 380V 4 = 480V 6 = 415V 7 = 440V 8 = 575V 9 = 220V 10 = 200V 11 = skip 12 = 120V 13 = skip 14 = 600V 15 = 230V	1 = single phase 3 = three phase	-SN50 = 1/2" Non Threaded Tube Stub -SN75 = 3/4" Non Threaded Tube Stub -SN100 = 1" Non Threaded Tube Stub -SV50 = 1/2" Swagelok VCR connections -V75 = 3/4" Swagelok VCR connections -SF50 = 1/2" Sanitary Flange -SF75 = 3/4" Sanitary Flange -SF100 = 1" Sanitary Flange	1 3	K = K-type TC E = E-type TC H = 100-Ohm RTD (3-wire) R = 1000-Ohm RTD (2-wire)	1 3	1 = 232°C TCO. For applications up to 125°C 2 = 268°C TCO. For applications between 125-200°C 3 = Non-Hermetically sealed 270°C TCO 4 = Non-Hermetically sealed 232°C TCO (for applications up to 125°C) 5 = Non-Hermetically sealed 288°C TCO (for applications up to 200°C) <small>*Are not UL 823</small>	L = Low flow range: (0-30) lpm M = Medium flow range: (20-80) lpm H = High flow range: (60-1) lpm	1 = 12.63" Overall Length 2 = 18.13" Overall Length 3 = 29.13" Overall Length 4 = 40.13" Overall Length	Blank = No Options X_# = With Wire (specify length in inches and conduit position (ex. X180A) NE = Non-electropolished ## = TBD as needed ### = Custom Clean req

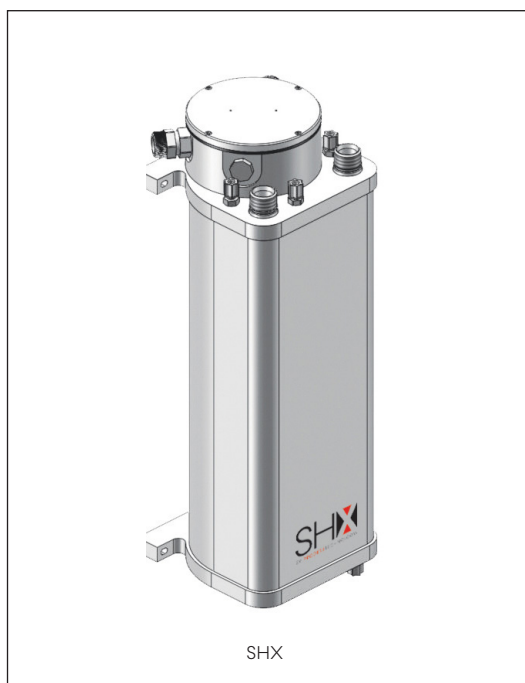
DATA SHEET

SHX | High Purity Solvent Heating



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) and CE (pending), SEMI S2/S3 (pending).			
Volts: 200 to 480 volts, single or three phase				
Compatibility				
NO acids	NO water	NO bases	YES solvents	NO 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) and CE (pending), 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

DATA SHEET

SHX High Purity Solvent Heater

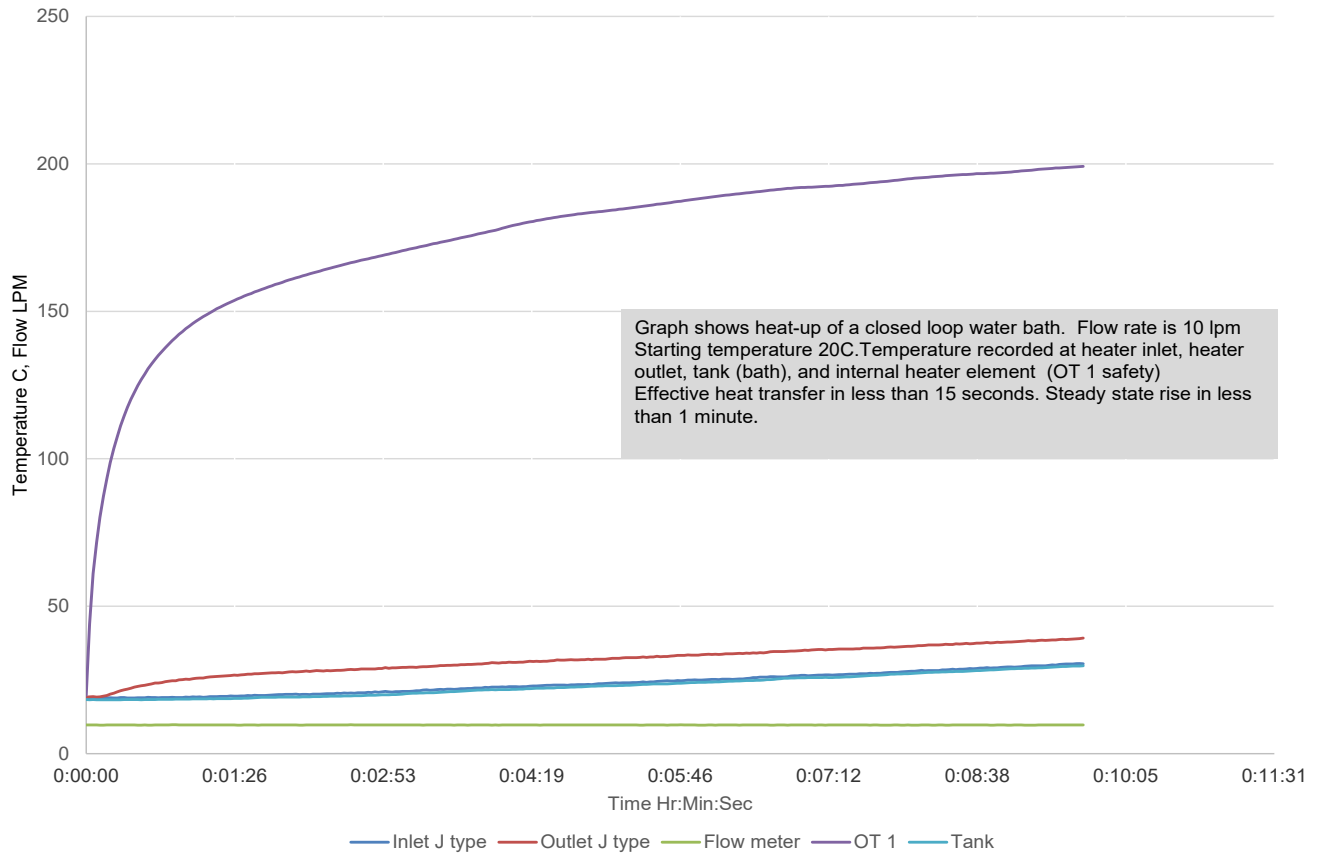
SPECIFICATIONS

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	

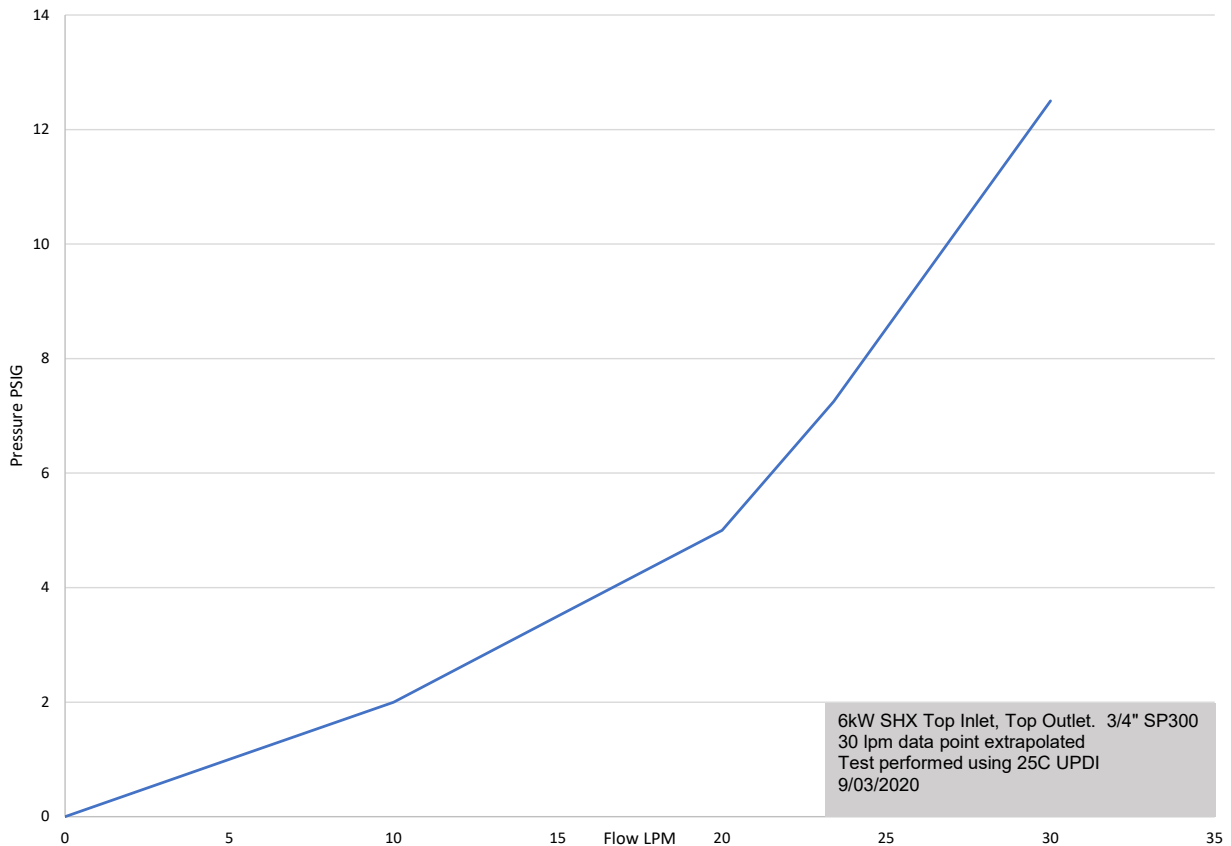
* Dependent on temperature and pressure rating of selected fittings.

** Min .flow could be less depending on control and operating conditions (consult PT Engineering).

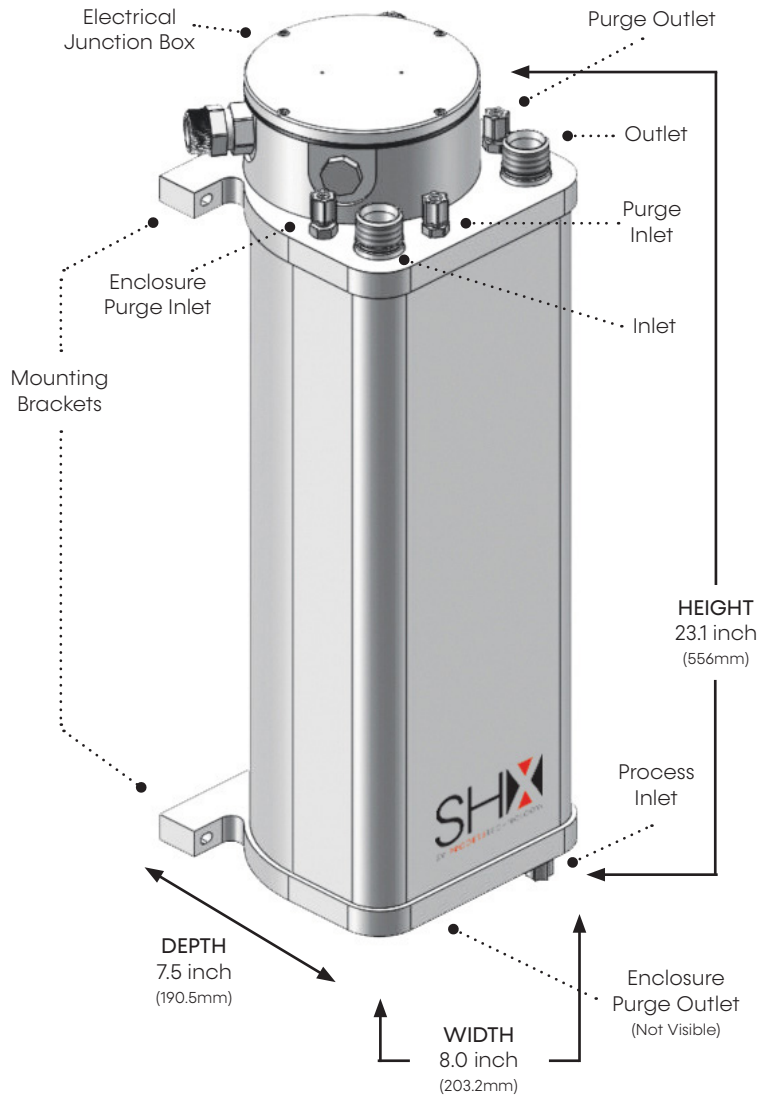
6kW SHX Performance HEAT UP CURVE



6kW SHX Pressure Drop 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; <u>Only size option for 9kW & 12kW, not an option for 6kW</u>	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	*To maintain UL499, TCO cannot be higher than 150°C	
			5 = 415		X = 1 inch Super 300 Pillar; <u>Only size option for 12kW, not an option for 6kW</u>		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							