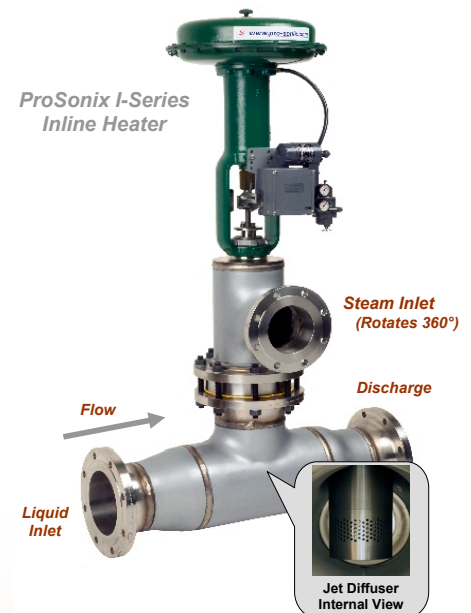


The ProSonix™ Direct Steam Injection heater is designed for water heating, difficult to pump slurries such as pulp stock, wastewater sludge, mineral slurries, and other aggressive fluids. ProSonix™ unique method of direct steam injection utilizes internally modulated steam control via an integral Pneumatic Actuator and variable position steam plug, to accurately meter the mass flow of steam, through choked flow conditions.

Choked flow is the phenomenon of accelerating a vapor to maximum velocity by creating a pressure differential through an engineered opening. By establishing choked flow, the steam mass flow can be metered to precisely control the heating of the liquid. This produces predictable results based on position of the stem plug. Through a variable-area steam diffuser, steam flow is metered at the point where steam and liquid first contact and mix.

PSX Heater with Jet Diffuser Technology

- **Sonic velocity steam** injection via internally modulated steam control & variable position steam plug for vibration free operation.
- **Precise temperature control** of +/- 1°F for reliable heating performance.
- **Compact design** allows for minimal installation space requirements.
- **Expanded Body** – Allows for insertion of steam diffuser to maintain proper flow velocities thru heater.
- Configurations allow for **single or multi-stage heating**
- For challenging process heating applications
- Can be installed in horizontally or vertically.
- **High temperature rise** (up 250°F) in a single pass.
- **Materials of Construction** - Standard carbon steel or 316SS. Optional special alloys & wear coatings available for erosive or corrosive applications.
- Standard ANSI class connections for 150 psig steam, with optional 300 psig available.
- Designed to ASME B31.1 Also optional ASME, CRN, or CE/PED certifications available
- Patent No. 8,167,278,B2



PSX I SERIES FEATURES & BENEFITS:

- Radial Jet Diffuser Design delivers a sonic velocity steam injection pattern to optimize steam mixing and distribution for uniform heating of the fluid.
- Sonic Velocity Steam Injection via choked flow conditions - optimize steam mixing for rapid condensation and elimination of steam cavitation.
- Eliminates plugging and fouling with no hot surfaces for burn and scorch sensitive slurries and sludges.
- Internally Modulated Steam Injection - controls mass flow of steam allowing for smooth and stable operation.
- Energy Savings as a result of low pressure drop across the heater, typically 1-2 psig, reduces pump demand.
- Positional Steam Inlet allows steam inlet flange to be rotated in 360° for ease of steam piping connection.
- Self-Cleaning Design eliminates mineral & scale build-up

PSX I-Series - Angled Jet Diffuser

Expanded Body allows for insertion of steam diffuser to maintain proper flow velocities thru heater. Can be used in Single or Multi-stage heating arrangements for difficult to heat slurries and sludges.

Applications for I-Series Angled Jet Diffuser

- High solids, high viscosity, & difficult to pump slurries
- Fibrous slurries such as pulp stock and biomass
- Anaerobic digestion of municipal wastewater bio-solids, animal by-products, and biogas production
- Mining & mineral processing applications

PSX I-Series Applications

- Tank or Vessel heating
- Inline for continuous or intermittent heating
- Water or Slurry Heating
- Boiler Feedwater Pre-heating
- Supplemental Hot Water Needs
- Seasonal Heating Applications
- Large Pipe & Hi-Flow with low temp rise needs

PSX I-Series with Electric Actuator

- Locations with-out compressed air available
- Remote locations



I-Series with Electric Actuator

I-Series Inline Heater								
Available Configurations				Connections			Capacities	
Size	Model	Steam to Liquid Connection	Liquid Body Diameter	Steam	Liquid "In"	Liquid "Out"	Type	Flowrate (gpm)
PSX100	PSX101	1x1	3.0"	1.0"	1.0"	1.0"	NPT	49
	PSX10H	1x1.5	3.0"	1.0"	1.5"	1.5"		110
	PSX102	1x2	3.0"	1.0"	2.0"	2.0"		196
PSX150	PSX15H	1.5x1.5	3.0"	1.5"	1.5"	1.5"	NPT	110
	PSX152	1.5x2	3.0"	1.5"	2.0"	2.0"		196
PSX200	PSX202	2x2	6.0"	2.0"	2.0"	2.0"	NPT	196
	PSX203	2x3	6.0"	2.0"	3.0"	3.0"		440
PSX300	PSX303	3x3	6.0"	3.0"	3.0"	3.0"	RFF	440
	PSX304	3x4	6.0"	3.0"	3.0"	3.0"		782
PSX400	PSX404	4x4	8.0"	4.0"	4.0"	4.0"	RFF	782
	PSX406	4x6	8.0"	4.0"	6.0"	6.0"		1761
PSX600	PSX606	6x6	10.0"	6.0"	6.0"	6.0"	RFF	1761
	PSX608	6x8	10.0"	6.0"	8.0"	8.0"		3130
PSX800	PSX808	8x8	12.0"	8.0"	8.0"	8.0"	RFF	3130
	PSX810	8x10	12.0"	8.0"	10.0"	10.0"		4890
	PSX812	8x12	12.0"	8.0"	12.0"	12.0"		6650
PSX1000	PSX1010	10x10	16.0"	10.0"	10.0"	10.0"	RFF	4890
	PSX1012	10x12	16.0"	10.0"	12.0"	12.0"		6650
	PSX1014	10x14	16.0"	10.0"	14.0"	14.0"		8765
PSX1200	PSX1212	12x12	20.0"	12.0"	12.0"	12.0"	RFF	6650
	PSX1214	12x14	20.0"	12.0"	14.0"	14.0"		8765
	PSX1216	12x16	20.0"	12.0"	16.0"	16.0"		11585

Note: PSX Heater selection is based on steam pressure & process heating application conditions.

For more information, visit pro-sonix.com.