

### Application: Pasteurizer Hot Water Supply

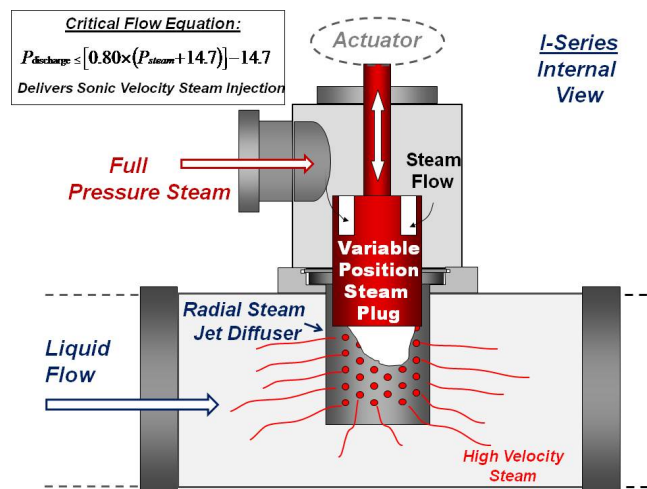
In the Food & Beverage industry, there are a number of applications where containers need to be cleaned and pauperized prior to being filled in the packaging process. Companies such as Fruit & Vegetable Juice processors, Beer & Spirits, Vegetable & Fruit canning and so forth are all processes that require cleaning and washing of packages and containers prior to filling.

Typically, the pasteurizer will operate at temperatures of 160-180°F. Water is delivered to the pasteurizer which in turn needs to be heated prior to processing the containers in the pasteurizer. Proper temperature control ensures processing optimization. A low pressure drop across the water heater allows for more efficient operation of the pumps and better control for the spray nozzles. There are a number of challenges associated with conventional water heating methods:

- Heat Exchangers can require a sizable amount of floor installation space and room to remove tubes for cleaning. Other issues are lag response time, **mineral & scale build-up**, and high pressure drop.
- Traditional mechanical spargers are prone to **plugging & fouling**.
- Conventional steam injection heaters with external steam control via a steam PRV are prone to process upsets such as **hammer & vibration**.

### PSX Heater Solution

ProSonix' unique method of steam injection utilizes an internal steam control to precisely deliver the appropriate **mass flow of steam** for the required heating. We do not throttle or regulate steam pressure. This design offers a precise method of steam control through a **choked flow** control delivery of the steam. Choked flow is the phenomenon of accelerating a vapor to maximum velocity by creating a pressure differential through an engineered nozzle. 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. This method eliminates the need for an external steam control valve or downstream mechanical mixing devices. **High velocity steam flow** optimizes the steam mixing and condensation with the liquid and eliminates problems with vibration/steam hammer.



### Key Direct Steam Injection Benefits

- **Precise Temperature Control** (+/- 1 °F) assures optimal processing conditions
- **Self Cleaning Design** eliminates costly maintenance issues from scale & mineral build-up
- **Low Pressure Drop** (typically 1-2 psig) reduces pump demand
- **High Turndown** of both steam and water flowrate allow for flexible operating conditions.
- **Ease of Installation** as the PSX Heater can be installed on the pasteurizer or in the water piping above.
- **Stable Operation** – eliminates steam cavitation

For additional information, please visit [www.pro-sonix.com](http://www.pro-sonix.com)