

## **PSX Application Profile**

### **Application: Hydro-Pulping Heating**

Virgin pulp, recycled fiber, waste paper, or secondary fiber prepared for use on a paper machine by a large, agitated vessel, known as the Hydro-Pulper. Feedstock is made up for the paper machine by taking dry pulp sheets (or broke), adding water, and agitating it until the fibers are well dispersed. The optimal temperature for the diluted stock is 120-140 °F. Warm white water from the paper machine is usually used to dilute the stock. Sometimes during startup of a machine after an extended shutdown, there is no white water available. When using cold water is used to dilute the stock, a number of issues can result if the stock is not at the appropriate temperature:

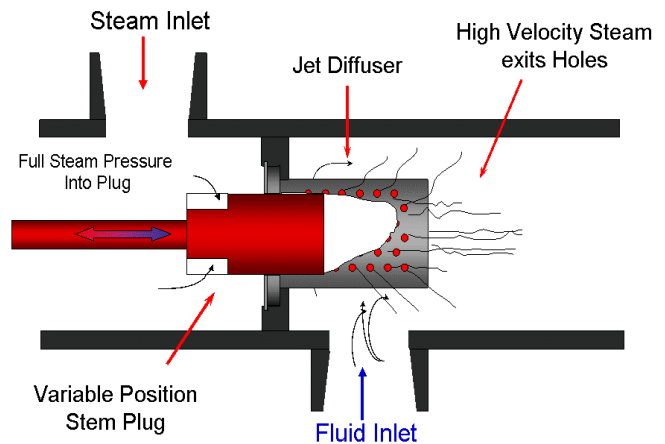
- If the pulp stock is sent to the machine at too low a temperature; off-grade paper may result until the paper machine water system warms up.
- The Stock could be heated with steam spargers. Unfortunately, externally controlled steam spargers have an operating history including inconsistent heating, and potential damage the vessel. **Low velocity steam** delivery on traditional spargers is typically an inefficient method of condensing steam and can lead to **uncondensed steam** escaping the tank or vessel which is vented to atmosphere. Attempting to sparge steam into thick stock slurry requires long heating time and significant tank agitation to disperse the steam.

### **PSX Heater Solution:**

A PSX heater is installed on the water feed line to the Hydro-Pulper to heat the incoming water. Flow rates into the pulper typically range from 100 to 2,000 GPM depending on the size of the Pulper and the desired fill rate. The PSX D-Series heater can accommodate water flows up to 5,000 gpm. The water being used to dilute the stock is heated to the desired temperature in line. The PSX can accommodate varying flows and varying incoming water temperatures. The **Internal Modulation** and **variable position stem plug** will allow for the appropriate amount of steam to be injected. This will assure that the stock temperature will be constant, reducing variability of the paper machine wet end chemistry. Heating the water will also reduce the amount of time required to agitate and disperse the pulp.

#### Jet Diffuser Technology...

**Sonic Velocity Steam Injection** controls the mass flow of steam through a steam diffuser to ensure rapid mixing and condensation of the steam. This eliminates process upsets and vibration.



### **ProSonix Direct Steam Injection Key Benefits:**

- **Energy savings** resulting from faster heat-up time and reduced heat loss to atmosphere
- **Reduce pulping time** by on demand heating and faster heat-up time
- **Better temperature control** (+/- 1 °F) & more consistent wet end chemistry results in reduced chemical use
- **Lower steam consumption** than alternative heating methods such as sparging
- **Lower maintenance costs**
- **Improved paper quality**

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