



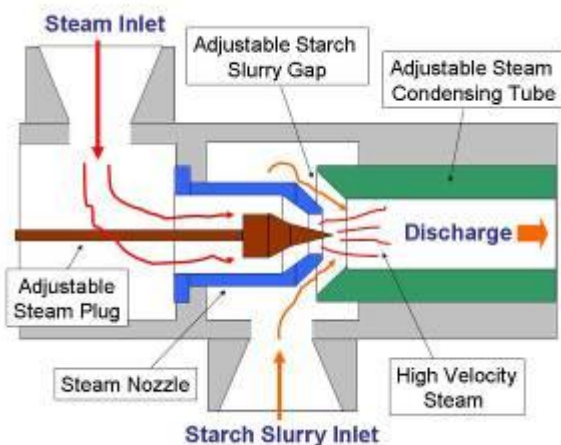
ProSonix™ OptiShear™ Jet Cooker for Starch Processing

PSX OptiShear™ Jet Cooker ...

- **Starch Slurry processing** - Designed for starch slurries with solids concentration of up to 40% concentration.
- **Types of Starch** – The OptiShear™ is well suited for all types of starch such as corn, potato, wheat, cassava, rice, & tapioca.
- **High velocity steam & turbulent mixing injection** via internally modulated steam control & variable position steam plug for vibration free operation.
- **Precise temperature control** of +/- 1°F for reliable heating performance.
- **Ease of Installation** – The OptiShear™ can be installed in any orientation and requires no floor space for installation.
- **Automatic or Manual Operation** simplifies process integration.
- Can be installed in any orientation.
- **High temperature rise** (up 250°F) in a single pass.
- **Materials of Construction** - Standard carbon steel or 316SS with optional wear coatings available for erosive slurry conditions.
- Standard ANSI class connections (NPT threaded or RFF flanged) for 150 psig steam, with optional 300 psig available.
- **Design Standards** - Designed to ASME B31.1 Also optional ASME, CRN. or CE/PED certifications available



The **ProSonix™** OptiShear™ Jet Cooker is designed for starch cooking, wet mill processing of starch, ethanol production, and fructose & alcohol production. **ProSonix™** unique method of direct steam injection utilizes **internal steam modulation** 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.

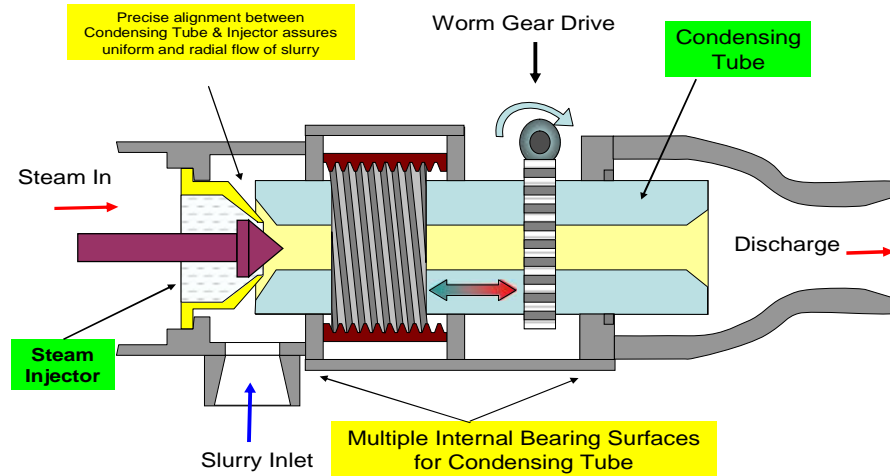


PSX OptiShear™ Jet Cooker Internal View

Adjustable Slurry Gap Optimizes Starch & Steam Mixing, Reducing Enzyme Use ...

In Starch cooking, proper agitation or “shear” is required to optimize the thermal effect of the steam on the starch particles. The OptiShear™ Jet Cooker is equipped with an adjustable Condensing Tube (CT). The adjustable CT can be positioned to vary the gap relative to the steam nozzle, creating a narrow slurry gap. This narrow gap between the CT & steam nozzle, optimizes the steam exposure to the thin ribbon of starch slurry, as it enters the CT.

By changing the position of the CT relative to the face of the steam nozzle, back pressure inside of the OptiShear™ can be optimized to reduce uncooked starch and enzyme usage.

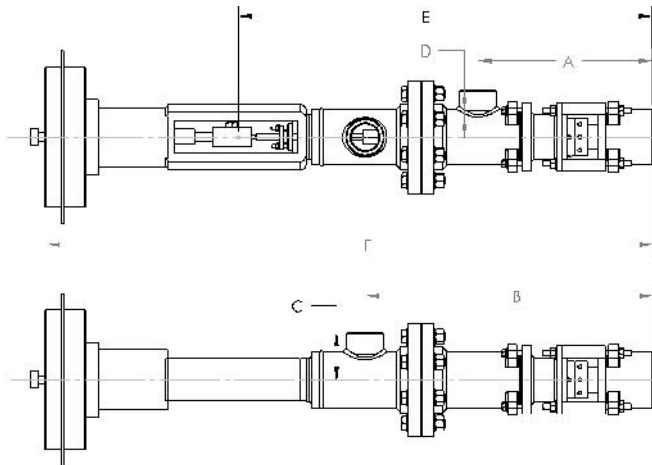


ProSonix *OptiShear™* ... the "Next Generation" in Jet Cooking

Industrial Design Drive Assembly for Reliable Starch Slurry Gap Adjustment:

Radial Slurry Flow - In the OptiShear™ design, the condensing tube and steam nozzle interface is truly coaxial, insuring the starch slurry gap is uniform throughout the full 360° flow path. The tube rests on multiple bearing surfaces so there is no movement of the tube relative to the injector except to adjust the gap.

Advanced Drive System - The tube movement in the ProSonix heater to adjust the starch gap is accomplished using a threaded engagement. The tube is rotated and an external thread moves the tube towards or away from the injector (nozzle). Moving the tube in this way changes the orientation of the tube inside the heater, causing any wear spots of the tube to move as well. This has the beneficial effect of evening out the wear of the internal parts, extending their operating life.



OptiShear™ Jet Cooker – Dimensions & Weights

Model	A	B	C	D	E	F	Weight (lbs)
PSX 100-C	9.4	16	3.1	3.1	21	27.7	55
PSX 200-C	13.8	22.8	3.7	3.7	48.2	82.4	125
PSX 300-C	20	31.5	8	8.9	45	TBS	367
PSX 400-C	22	35	8.2	9.2	48	TBS	487
PSX 600-C	40.5	56.8	10.2	11.2	70.2	TBS	830
PSX 800-C	40	62	14.5	16.25	82	TBS	1125
PSX 1000	43.89	67.6	16.25	18.5	87	TBS	1305

Note: Above dimension are for reference, please contact the factory for specific model/drawing. The selection of the appropriate OptiShear™ is based on steam pressure and processing parameters.

For additional information, please visit us at ... www.pro-sonix.com