

SOLARIS® HYDROHEATER®

Direct Steam Injection Heaters for Tomato Paste

Improve product quality and reduce the load on screening by eliminating burnt product. Improve finisher performance by optimizing temperature control. Uniformly heat paste up to 38% NTSS.

- Patented mach diffuser technology enables instantaneous condensation of steam for **homogeneous heating without vibration or noise**.
- Constant steam pressure and velocity **eliminate plugging and pressure upsets**.
- **Precise temperature control**, to within 1°F, optimizes process performance and energy savings.
- Straight-through flow design and compact design ease installation and **minimize flow disturbance**.
- Compact design makes installation simple.



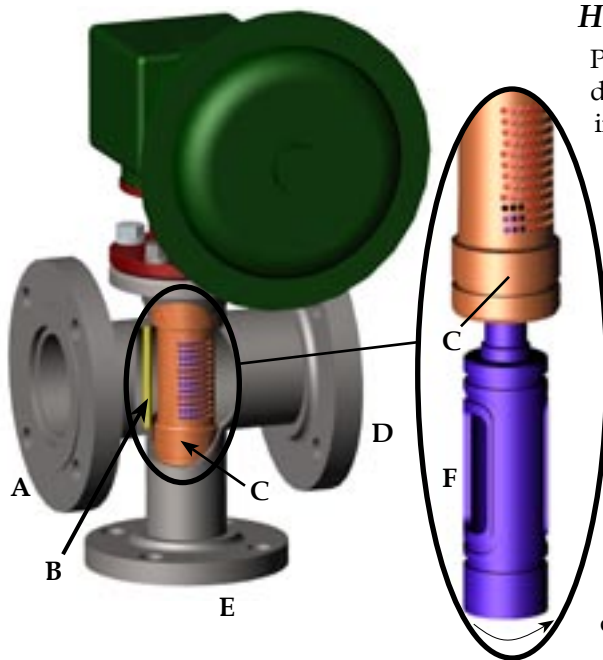
How Mach™ Diffuser Technology Works

Paste enters at the inlet (A), flows past the diverter (B), the steam diffuser (C), and is discharged at the outlet (D). Steam enters at inlet (E) and travels up through the stem plug (F).

Steam is discharged into the paste where the windows in the stem plug are aligned with any number of hundreds of small holes in the diffuser. To control the amount of steam discharged, an actuator rotates the stem plug to expose the windows to fewer or more diffuser holes, as desired. Each hole exposed to a stem plug window discharges steam at very high, often sonic velocity. The turbulent nature of this high velocity discharge enables steam to instantaneously penetrate, disperse, and efficiently mix with tomato paste to effect uniform heating.

Temperature is measured downstream and the steam flow is modulated accordingly to achieve a target temperature.

Note: Within the unit, steam pressure and velocity remain constant throughout the range of operation regardless of the amount of steam being discharged. The high velocity of the steam discharge prevents the multitude of steam ports from plugging.

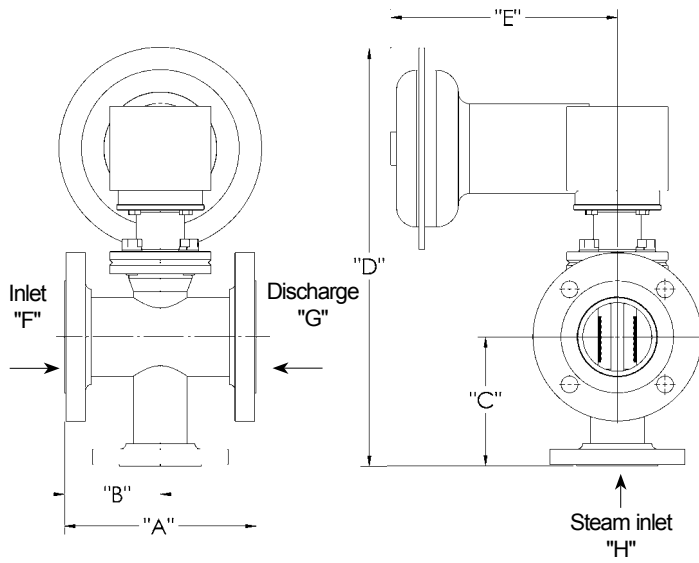


Applications

- + Ideal for both cold and hot break processes
- + Reheat paste prior to sauce conversion
- + Replace inefficient and maintenance-intensive heat exchangers or spargers

Requiring no mechanical mixers, motors, external steam valves, or condensate return, the **Solaris Hydroheater** is the simplest solution for heating paste uniformly.

Dimensions, Weights, and Flow Rates



Note: Dimensions are in inches (cm).

Model	A	B	C	D	E	F,G	H	Weight lb (kg)	Water max. flow rate gpm (m ³ /h)
S103	9.50 (24.1)	4.75 (12.1)	5.75 (14.6)	20.00 (50.8)	10.50 (26.7)	3.00 (7.6)	2.00 (5.1)	75 (34)	700 (160)
S104	11.00 (27.9)	5.50 (14.0)	6.50 (16.5)	22.00 (55.9)	10.50 (26.7)	4.00 (10.2)	2.50 (6.4)	90 (41)	1,200 (270)
S106	13.00 (33.0)	6.50 (16.5)	8.50 (21.6)	28.00 (71.0)	15.00 (38.1)	6.00 (15.2)	4.00 (10.2)	160 (73)	2,700 (615)
S108	16.00 (40.6)	8.00 (20.3)	9.00 (22.9)	30.00 (76.2)	15.00 (38.1)	8.00 (20.3)	4.00 (10.2)	220 (100)	4,700 (1,065)

* Includes removal clearance

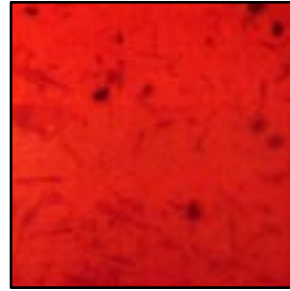


Above: Solaris in a hot break installation.

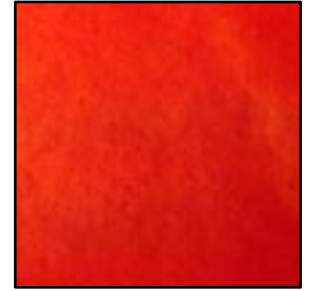
mktg-061 Rev. B 3-05

Features, Performance, Compliances

- Minimal pressure drop - estimated 10 psi
- 4:1 liquid turndown ratio
- Designed for viscosities up to 40,000 cP
- Foolproof assembly
- Can be installed in any orientation
- Designed to ASME B31.1
- 100% Performance Warranty



Tomato paste cooked with traditional steam injection shows burnt particles



Tomato paste cooked with Solaris Hydroheater shows no burnt particles

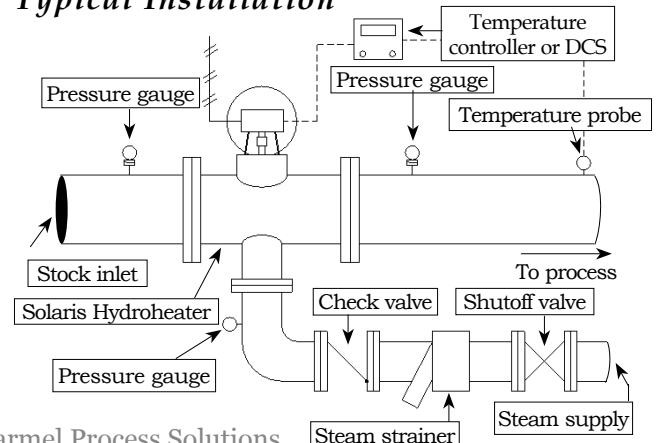
Standard Construction

- Body material: Stainless steel 316L
- Internal wetted parts material: Stainless steel 316
- Connections: ANSI Class 150, ANSI Class 300, DIN 2500
- Standard Actuator: Fisher diaphragm actuator with integral pneumatic positioner
- Pressure Rating: Up to 300 psi at 450° F (20.7 bar at 232° C)

Options

- Special materials and coatings upon request
- Optional mounting supports
- Optional integral steam and product pressure gauges
- Optional digital positioner
- Specify any one of four possible actuator orientations (no charge)

Typical Installation



Carmel Process Solutions
484 E. Carmel Dr. #213
Carmel, Indiana 46032
Phone: 317-705-0217