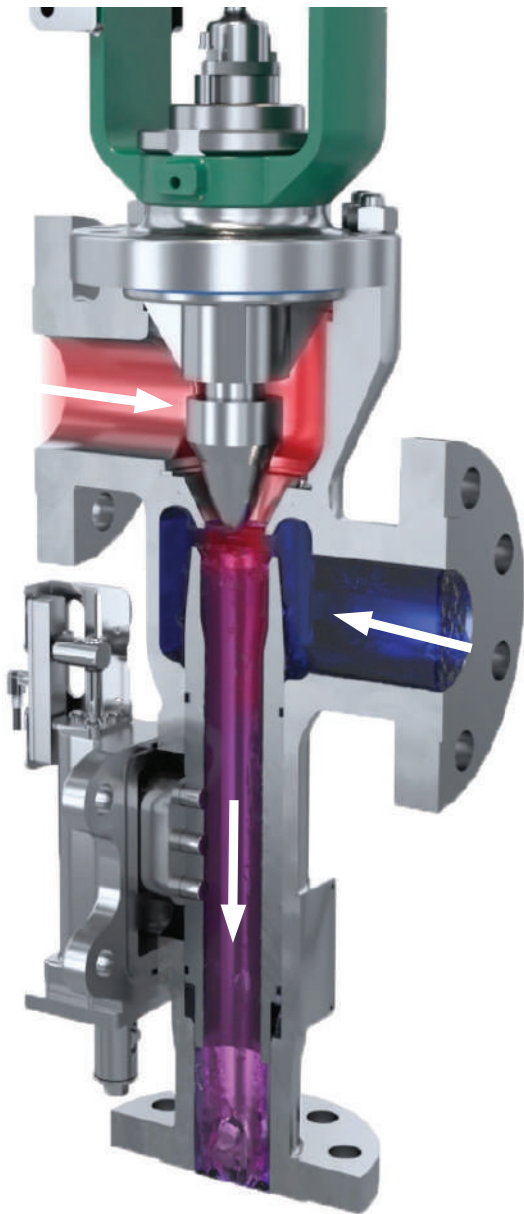


HYDROHEATER[®] FOR INDUSTRIAL APPLICATIONS

The Hydroheater is used in a wide range of industries, including pulp & paper, chemical, wastewater, metal & mining, and more. It is very effective for heating complex fluid types because of the adjustability inherent to this configuration. This workhorse has been used in many applications, with decades of solid experience, making it the outstanding leader in direct steam injection heating.



Key Design Features

- **Internal Modulation:** Steam flow is controlled at the injection point, not by an external steam control valve. Steam velocity and mixing are consistent across the operating range, and other dynamic complexities are minimized.
- **Choked Flow:** is the phenomenon of accelerating a vapor to maximum velocity by creating a pressure differential through an engineered nozzle or diffuser. By establishing choked flow, the steam mass flow can be metered to precisely control the heating of the liquid.
- **Adjustable Flow Geometry:** Both steam & process geometry can be adjusted, providing excellent turn-down ability.
- **Customized Internal Components:** Each application is engineered specifically for your process and further modification is possible.
- **Robust Design:** Heavy-duty design; cast construction.

Process Benefits

- **Non-clogging:** The Hydroheater's choked flow design yields high-velocity steam through the heater, eliminating fouling, scaling, or clogging, as compared to heat exchangers and spargers
- **Near Instantaneous Heating:** Provides a highly mixed, homogeneous temperature profile. Condensation occurs within the heater and is minimized in the downstream piping eliminating hammer as compared with less complex steam sparging configurations
- **Process Stability:** Choked flow design yields constant steam velocity, achieving optimum steam condensation, resulting in precision temperature control and process stability
- **Process Flexibility:** Each Hydroheater is customized to the specific application and process conditions, enabling a broad range of process flow rates and steam pressures.

HYDROHEATER® FOR INDUSTRIAL APPLICATIONS

Adaptation for Abrasive Fluids

The Industrial Hydroheater is robust and reliable, with a standard material of construction being 316 stainless steel.

It can be further enhanced as needed for heating abrasive fluids, including pulp stock, sludge, starches, and mining slurries. Hydro-Thermal offers a variety of abrasive resistant alloys such as HydroSteel and Tungsten Carbide. HydroSteel is a proprietary, martensitic stainless steel formulated for its durability and robustness.

Adaptation for Corrosive Fluids

The Hydroheater has been proven to handle heating corrosive fluids such as sulphuric acid, phosphoric acid, sodium chloride, sodium hydroxide, black liquor, and green liquor. Hydro-Thermal offers a variety of alloys with varying degrees of corrosive resistance, including 317LSS, ALLOY 2205, Inconel 625, SM0254, Hastelloy C-276, and Titanium.

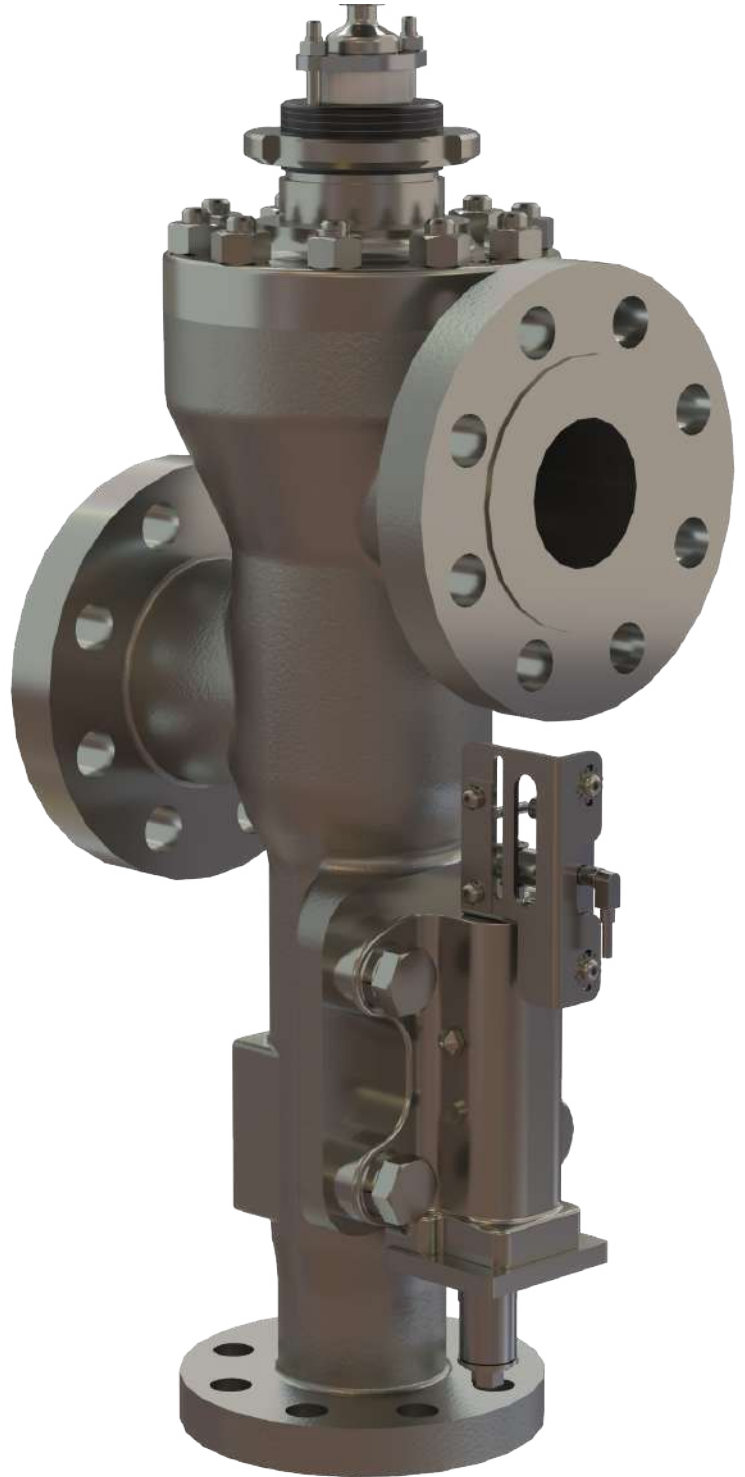
Beyond the Hydroheater, the process piping can also be modified. Although 304L is used for most applications, additional alloys are available to handle corrosive fluids. Typically, 316SS is utilized for piping and tubing. Based on the application, carbon steel is also available.

For specific requirements for your application, please contact Hydro-Thermal directly.

Water Heating

If you depend on hot water at precise temperatures and required flow rates, we have your solution. Not only will you have all the hot water you require, but the Hydroheater is self-cleaning and needs far less maintenance and upkeep than a typical heat exchanger. Our solutions will replace large tanks, spargers, or heat exchangers with a much smaller footprint and far greater energy efficiency.

The Hydroheater can handle large volumes of water and is robust enough to handle hard water, negating the potential for scaling and fouling.



400 Pilot Court | Waukesha, WI
53188(262) 548-8900
(800) 952-0121

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EXONDER®

A World of High Quality Products

📍 Via Torre, 2
📍 28040 Borgo Ticino (NO) - Italy
☎ +39 0321 908466
✉ customercare@exonder.it
🌐 <https://www.exonder.it>

