

LIQUID HEATING SOLUTIONS WORLDWIDE

MEET OUR FAMILY OF PRODUCTS



***pick***<sup>®</sup>  
*heaters inc.*

**DIRECT STEAM  
INJECTION SYSTEMS**

# Direct Steam Injection

## About Pick...

With a continuous flow of refinement and innovations, Pick Heaters has developed other products to provide solutions to customers for their application needs. Pick was the first Direct Steam Injection company to introduce a 3A certified **Sanitary (SC) Heater** in 1984 and was also the first DSI company to offer a pilot scale version especially for R&D. Pick developed custom **Fabricated (FAB) Heaters** which allow for flow rates and pressures outside the norm. **Pick Custom Design (PCD)** a division of Pick Heaters was formed to combine Pick's experience in heat transfer and packaging to meet all process heating needs - direct or indirect heat transfer systems. The **Pick Desuperheater DS Series** was launched in 2009 to offer customers a simple, cost effective method of cooling steam to within 10°F of saturation.

Since 1945 Pick Heaters has been the leader in Direct Steam Injection. **Pick Direct Steam Injection (DSI) Systems** heat any water-miscible liquid or aqueous slurry instantly on a continuous straight-through basis. Plus, they hold the outflow temperature to extremely close tolerances, regardless of fluctuations in steam and water pressure and process flow rate.

The Pick System injects medium- to high-pressure steam into the liquid through hundreds of small orifices for instant and uniform blending. The Pick Heater is designed for low velocity mixing with little or no pressure drop. All steam is condensed within the heater body, with no downstream straight-run piping requirements.

Pick Heaters can cut fuel costs as much as 28 percent compared to indirect shell-and-tube or plate heat exchangers with 100 percent of the heat energy in the steam absorbed by the liquid.

## Pick Constant Flow Heater

The Pick Constant Flow Heater is used wherever a constant flow of heated liquid at precisely controlled temperatures is required. It is ideal when the water flow rate is fixed or varies over a narrow span (3:1) turndown. The Pick Constant Flow Heater is delivered as a complete, compact system and can be easily customized with additional controls, valves and instrumentation to meet your plant specifications.

For water flow turndown beyond 3:1 or rapid start-stop cycling applications, please refer to our Variable Flow design.



## Pick Variable Flow Heater

The Pick Variable Flow Heater is designed to deliver instant hot water at a precisely controlled temperature over a wide range of water flows. It is used for frequent start-stop applications, and is ideally suited as a central heating system for multiple use points such as wash-down hose stations. Standard systems can handle 12:1 water flow turndown, or can be designed with dual control valves for up to 100:1 water flow turndown.



Some optional equipment shown.

# Process Heating Solutions

## Pick SC Sanitary Heater

Pick SC Sanitary Direct Steam Injection System can be used to heat/cook any water-miscible liquid or slurry instantly on a continuous, straight-through basis. It can also handle pumpable slurries containing bite-size pieces such as salsas or stews.

The Pick Sanitary Heater is the only DSI system that achieves instant set point temperatures and provides thorough cooking of products like starches. Intimate and gentle blending of steam and product are ensured by the system's unique, low-velocity, variable orifice steam injector and helical flights. This eliminates the shear and product degradation commonly associated with sonic-velocity venturi systems.



Some optional equipment shown.

## Pick BX Starch Cooking Heater

A Pick BX Heater provides instantaneous and complete cooking of starch and other water-miscible slurries. It is proven effective on pearl, modified, and cationic starches with solids concentrations up to 35% and cooking temperatures ranging from 90°C – 150°C.

The unique design of the Pick BX Heater offers key advantages over other high-velocity venturi devices and indirect heat exchangers, such as low pressure drop, low noise level, non-shearing, and low velocity mixing. This ensures thorough heating/cooking.



## Pick FAB Heater

Pick Fabricated Designs offer the same features and benefits of our standard models, regardless of size or material of construction. These unique, customized heaters can accommodate flow rates well beyond the norm – up to 25,000 GPM (5680 M<sup>3</sup>/hr). They also have the ability to conform to existing piping, from 2 inches to 32 inches in diameter and beyond. High-pressure applications (e.g. 900 PSI) or requirements such as DN or ANSI flanges can easily be handled by our fabricated designs.



## Pick DSI Packaged Systems

Pick Packaged Hot Water Systems are custom-designed to meet process industry needs effectively and efficiently. Within a range of applications from pilot projects to large-scale production, Pick components can be integrated to meet the requirements of heating jacketed reactors and kettles, rotary vacuum dryers, plate heat exchangers, CIP systems and other heat transfer applications.



# Pick Product Extensions

## Pick Custom Design (PCD) Systems

PCD systems incorporate various methods of heat transfer, including ancillary components for a complete skid or frame package, ready for customer final installation and start-up. This eliminates the chore for customers to self-source required piping, valves, traps and instrumentation with the added install costs. The customer depends on Pick to stand behind the complete scope of supply.

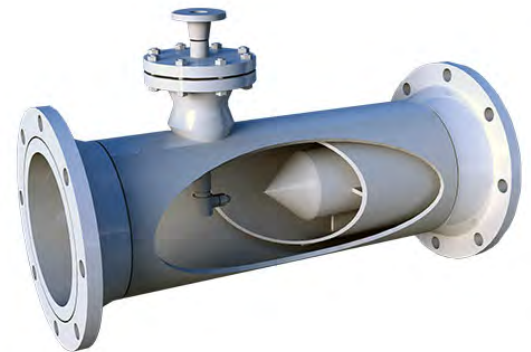
Customers can rely on over 75 years of Pick's packaged system design experience and know-how. Each system is "custom designed" to satisfy specific customer requirements, supplied in a compact skid or module.



## Pick Desuperheater

The Pick Desuperheater is a water spray type with single nozzle. The nozzle is positioned at the center of the desuperheater. Water is sprayed axially, in the direction of steam flow. Conical insert with thermal sleeve increases velocity to promote rapid absorption of water, while isolating the housing from thermal stress.

This design provides a simple, cost effective method of cooling steam to within 10°C of saturation temperature. Spray type desuperheaters are appropriate for applications having relatively stable steam and cooling water throughput (up to 3:1 turndown).



Contact us to request an application data sheet or to discuss your application

***pick***<sup>®</sup>  
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## A Global Presence

Pick is there when you need us, with factory-trained representatives throughout North and South America as well as in Europe and the Far East. That means you get technically competent consultation on your needs, plus accessible service after the sale...no matter where you call home.

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