COONEY ENGINEERED SOLUTIONS

EVOLVING THE FRONTIER OF ENERGY TRANSFER

MADE IN USA

SEMI-INSTANTANEOUS STEAM TO WATER HEAT EXCHANGER

THERMO-PACK

HIGH-EFFICIENCY SUBCOOLING

COMPACT DESIGN

MINIMAL MAINTENANCE

COONEY ENGINEERED SOLUTIONS

A DIVISION OF COONEY TECHNOLOGIES

EFFICIENT | RELIABLE | COMPACT

SEMI-INSTANTANEOUS STEAM TO WATER HEAT EXCHANGER SKIDS

Why Choose Thermo-Pack?

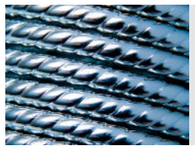
Thermo-Pack offers a compact steam-to-hot water heat exchanger solution requiring minimal maintenance and delivering substantial energy savings.

Learn how the Thermo-Pack can help your facility reduce its energy costs and optimize performance.

10-15%
AVERAGE ENERGY SAVINGS
COMPARED TO SHELL & TUBE HX

Energy Savings

Cross counterflow design sub-cools condensate for maximum efficiency. Save 10-15% energy.



Minimal Maintenance

Corrosion-resistant materials and lower condensate temperatures ensure durability and longevity.

Compact Footprint

The vertical design fits tight mechanical rooms easily, and scales for larger applications.

Smart Design, Superior Heating: Explore Thermo-Pack Benefits

- **Advanced shell & coil heat exchanger for efficient, reliable water heating.**
- **Sub-cools steam condensate to maximize energy and eliminate flash steam.**
- **Compact vertical design fits tight mechanical rooms.**
- **Prepackaged skid system and options for outlet orientation, reduces installation time and costs.**
- **Available for domestic hot water, heating, and process applications.**

Advanced Heat Exchanger Technology

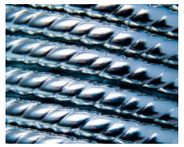
Shell & Coil Technology in a Packaged Skid System

Imagine a water heating solution that saves energy and optimizes performance in a sleek, compact design. At its core is the Thermo-Pack's advanced shell & coil heat exchanger—an innovation that sets a new standard for energy-efficient water heating systems.

Heat Exchanger Specifications

- Engineered to sub-cool condensate utilizing maximum energy from every pound of steam
- Helically wound and corrugated coil for enhanced turbulent flow and heat transfer coefficient
- 316L passivated electropolished stainless steel
- Completely enclosed welded construction
- Designed, constructed and tested in accordance with ASME Section VIII Division
- Maximum working pressure: 300 PSI
- Max working temperature: 422°F

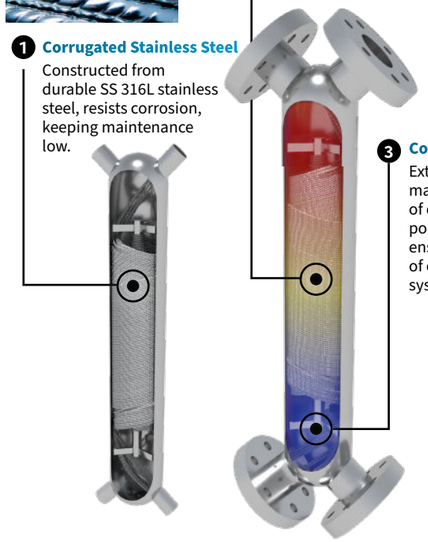
316L SS Tubes



1 Corrugated Stainless Steel
Constructed from durable SS 316L stainless steel, resists corrosion, keeping maintenance low.

2 Thermal Shock Prevention
Gradual water heating prevents thermal shock and fouling, extending system reliability and minimizing downtime.

3 Condensate Sub-Cooling
Extracts the maximum amount of energy from every pound of steam, ensuring optimal use of energy and longer system life.



Cross-Counterflow Efficiency

Innovative cross-counterflow design ensures water and steam flow in opposite directions, extracting maximum energy. Gradual water heating prevents thermal shock and fouling, extending system reliability and minimizing downtime. Condensate sub-cooling reduces energy waste and improves system lifespan.

Maintenance Made Simple

Constructed from durable SS 316L stainless steel, the Thermo-Pack resists wear and corrosion, keeping maintenance needs to a minimum. For easy upkeep, 3/4" threaded ports on the water side of the skis provide fast access for cleaning, ensuring smooth operation with minimal downtime.

Reliable Performance

The Thermo-Pack delivers reliability and efficiency with a robust, space-saving vertical design. Built to save time, money, and energy, it's crafted for lasting performance and backed by a 5-year heat exchanger warranty.

DOMESTIC HOT WATER

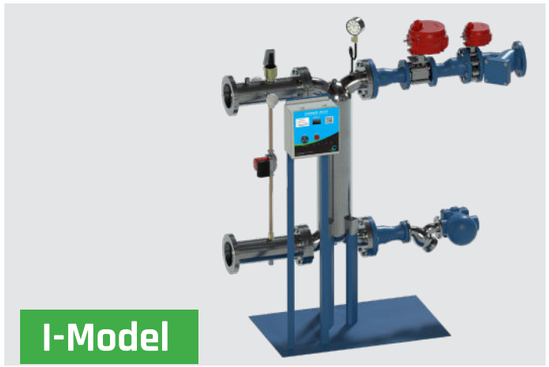
SEMI-INSTANTANEOUS STEAM TO DOMESTIC WATER HEAT EXCHANGER SKIDS

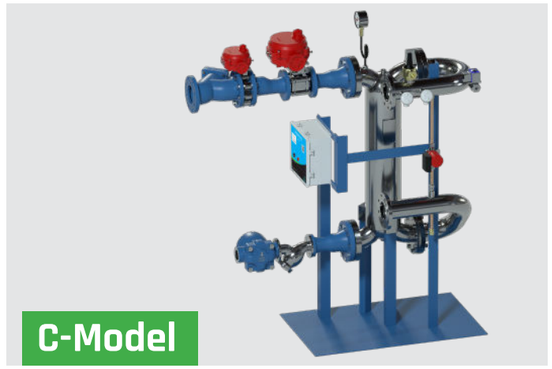
EFFICIENT | RELIABLE | COMPACT

Steam to Domestic Hot Water Systems

Compact, efficient, and reliable—our domestic hot water systems sub-cool condensate to save energy, eliminate flash steam, and cut maintenance costs. With precise steam control, a space-saving design that fits through doorways, and customizable outlets for fast installation, they're built to save time and money.

- **Save 10-15% Compared to Shell & Tube Heat Exchangers**
- **Condensate Sub-Cooling Eliminates Flash Steam**
- **Reduces Maintenance & Extends Equipment Lifespan**
- **Small Footprint and Vertical Design**
- **Self Contained Plug & Play Skid**





Model	Outlet Orientation	Base Plate Dimension	Overall Width	Maximum Height	Water Side Piping	Steam Inlet
Up to 10 GPM	I-Model	17" x 70"	21"	60"	2"	1-1/4"
	C-Model	21" x 34"	31"			
11-30 GPM	I-Model	26" x 55"	31"	66"	3"	2"
	C-Model	32" x 46"	37"			
31-60 GPM	I-Model	32" x 56"	39"	79"	4"	3"
	C-Model	33" x 40"	38"			
61-120 GPM	I-Model	36" x 90"	42"	99"	4"	6"
	C-Model	38" x 50"	41"			

Boost Energy Savings

The Thermo-Pack is an investment that can put money back into your budget. Achieve significant energy savings and reduce costs, contributing to a greener, more sustainable world.

	Thermo-Pack	Shell & Tube
Avg Condensate Temp	110° F	249° F
Steam Consumption	1,382 lb/hr	1,587 lb/hr
Sub-Cooling Energy Recovery	194,159 BTU/hr	0 BTU/hr
Increase in Efficiency	**15%**	

STANDARD SKID PACKAGES

STEAM TO DOMESTIC HOT WATER

What's Included on a Standard Packaged Skid?

- **316L Stainless Steel Shell & Coil Heat Exchanger**
  Delivers superior heat transfer, lasting durability, and excellent resistance to corrosion.
- **Control Panel with Optional BacNet Integration**
  Simplifies operation and system diagnostics by providing seamless system feedback and control options.
- **V-Ball Control Valve**
  300:1 turn-down, handles up to 300 PSIG steam without a a PRV ensuring precise temperature control and energy efficiency.
- **Pressure / Temperature Relief Valve**
  Protects the system from unsafe pressure or temperature levels, ensuring safety and compliance.
- **Steam Safety Shut Off Valve**
  Automatically halts steam flow in unsafe conditions, safeguarding both the system and the operator.
- **Inlet Wye-Strainer**
  Prevents debris from entering the system, protecting critical components and enhancing longevity.
- **Recirculating Pump**
  Ensures continuous and efficient hot water delivery, improving system performance and consistency.

Properly sizing your system is key to optimizing performance and minimizing energy waste. Our flow-rate analysis uses non-invasive water meters to measure your facility's hot water needs accurately. This ensures your heat exchanger is perfectly sized, avoiding oversized or inefficient systems that can drive up costs.

*Subject to Availability

ADDITIONAL OPTIONS

TAILORED SOLUTIONS FOR YOUR FACILITIES NEEDS

- **Control Valve/Package**

  Variety of control options available per facility's specifications and requirements. Electric or pneumatic.

- **Pressure Motive/Pump Traps**

  Gravity condensate drainage standard. Pump traps are available if condensate needs to be lifted.

- **Outlet Orientation**

  Choose from I or C pattern outlet orientations, offering easy accessibility and saving on installation costs.

- **Blending Station***

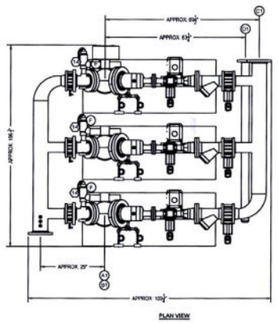
  Reduces Legionella risk by raising hot water temperature, then blending cold water for safe, non-scalding temperatures.

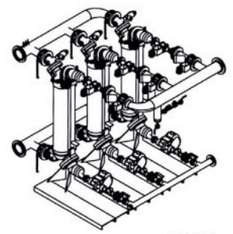
  Shipped Loose, Not Included on Skid

Steam to Heating Hot Water Systems

By combining energy efficiency, precise control, reduced maintenance demands in a space-saving design, our heating hot water systems offer a reliable solution for your facility's needs. These features ensure your operation achieves peak performance while maintaining long-term cost savings.

- **Maximize Energy Savings With Condensate Sub-Cooling**
- **Reduce Maintenance Costs With Lower Temperature Condensate**
- **Achieve Precise Temperature Control**
- **Expand Capacity Easily With Manifolded Heat Exchangers**
- **Handle Up To 300 PSI Steam Without A PRV System**
- **Compact Design Smaller Than Typical Shell & Tube Models**





Maximum Performance

Our heating systems are designed to deliver unmatched efficiency and reliability. Capable of handling pressures of up to 300 PSI without requiring external pressure-reducing stations, these systems simplify operation while reducing equipment and installation costs.

Efficiency

Our systems sub-cool condensate, harnessing sensible heat from condensate to recover energy that would otherwise be wasted. This feature boosts energy efficiency and lowers condensate temperatures, reducing wear and tear on pumps and equipment. The result? Reduced maintenance costs and an extended lifespan for your infrastructure.

Compact + Powerful

Compared to traditional shell and tube systems, our solutions feature a small footprint that saves valuable space in tight mechanical rooms. Their modular design allows heat exchangers to be easily manifolded together, offering unlimited capacity scalability.

STANDARD SKID PACKAGES

STEAM TO HEATING HOT WATER

What's Included on a Heating Hot Water Packaged Skid?

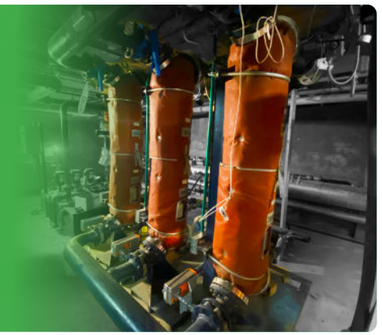
- **316L Stainless Steel Shell & Coil Heat Exchanger**
  Superior heat transfer, durability, and corrosion resistant. Can be manifolded for unlimited capacity or redundancy.
- **Control Panel Optional BacNet Integration**
  Simplifies operation and system diagnostics by providing seamless system feedback and scalable control options.
- **V-Ball Control Valve**
  300:1 Turn-down, handles steam pressures up to 300 LB without requiring a pressure-reducing valve or station.
- **Control Valve Package**
  Variety of control options available. Electric or pneumatic control valves available.
- **Pressure / Temperature Relief Valve**
  Protects the system from unsafe pressure or temperature levels, ensuring safety and compliance.
- **Steam Safety Shut Off Valve**
  Automatically halts steam flow in unsafe conditions, safeguarding both the system and the operator.
- **Inlet Wye-Strainer**
  Prevents debris from entering the system, protecting critical components and enhancing longevity.
- **Gravity Condensate Drainage or Pressure Motive / Pump Traps**
  Gravity condensate drainage standard. Pressure motive or pump traps are available if condensate needs to be lifted.

Reduce Your Thermal Footprint

$9,117 **4-Week Savings of a Thermo-Pack Compared to a Shell & Tube Heat Exchanger***

	Thermo-Pack	Shell & Tube
Avg Condensate Temp	170° F	281° F
Steam Consumption	3,769 lb/hr	4,312 lb/hr
Sub-Cooling Energy Recovery	422,543 BTU/hr	0 BTU/hr
Increase in Efficiency	**11%**	

Based on 400 GPM steam pressure of 35 PSIG, 1,000 lbs/hour at a cost of $25 per therm



PROVEN PERFORMANCE

Learn how Cornell University utilizes Thermo-Pack's to provide reliable, efficient hot water to residents in their North Campus.

Scan to Read the Full Case Study on our Website

Scan Me

WHAT OUR CUSTOMERS ARE SAYING

Cornell University

"Cooney Engineered Solutions worked with us and created what we wanted. And that is a big deal for us."

FRANK PERRY, CORNELL UNIVERSITY

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THERMO-PACK

Who is Cooney Engineered Solutions?

Innovation has always been one of the core drivers of our organization. This passion for bringing simple yet innovative solutions to the HVAC industry was the primary driver in creating our patented Freeze Block technology and launched the Cooney team into the manufacturing environment.

As the team has grown we've worked hard to keep our core values and culture consistent. Building relationships with our customers, a deep understanding of their goals in every project along with always focusing on the community, employees and our environment drives our decision process .

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