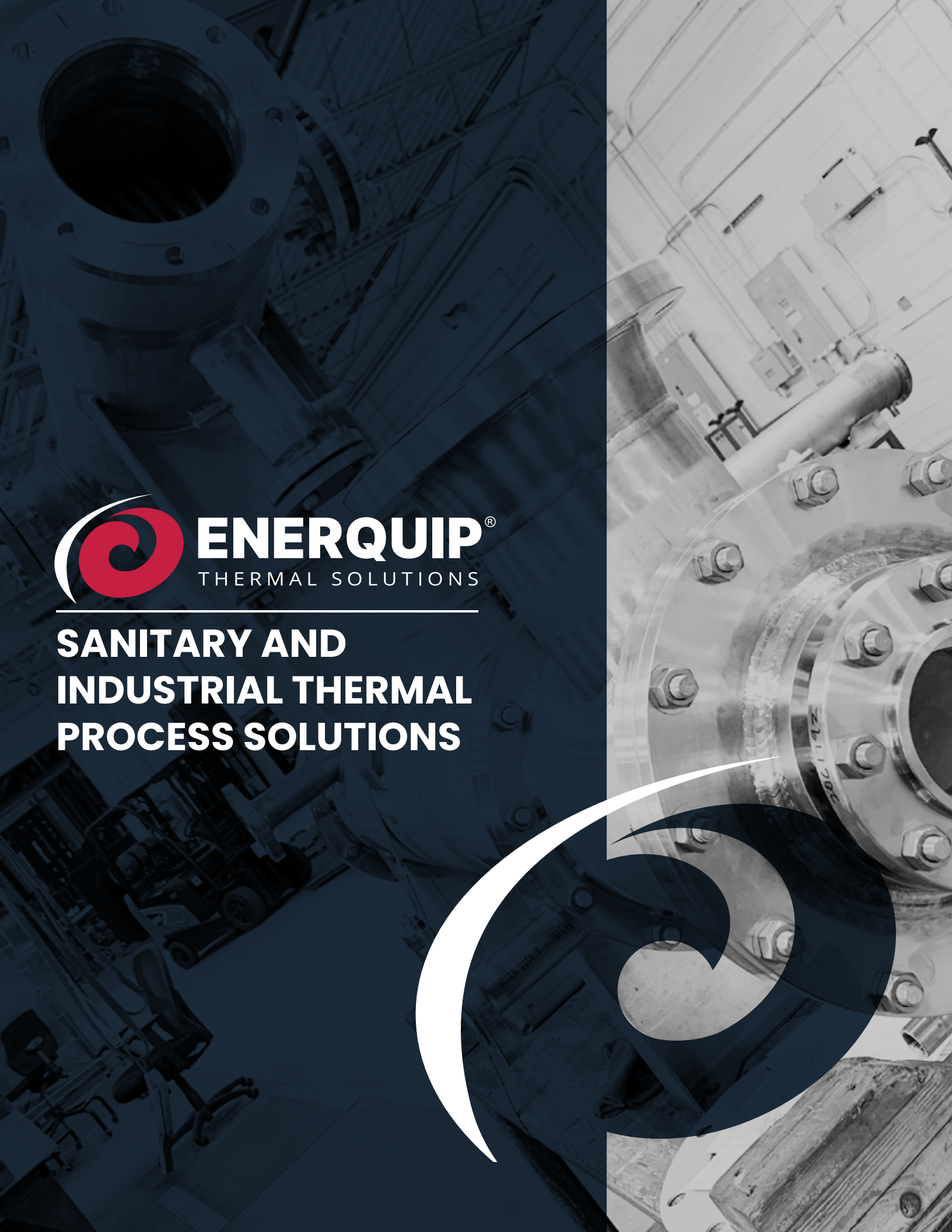


ENERQUIP®
THERMAL SOLUTIONS

SANITARY AND INDUSTRIAL THERMAL PROCESS SOLUTIONS

WELCOME

OUR MISSION IS YOU

Enerquip has been a trusted provider of American-made sanitary and industrial heating and cooling solutions since 1985. Our equipment is proudly designed and built in the USA in our fabrication shops in Medford, WI, and Beggs, OK, and design offices in Medford, WI, and Sand Springs, OK.

OUR MISSION is to serve our partners and customers by providing high-impact thermal solutions that enable them to achieve their highest levels of efficiency, productivity, and success. We accomplish this by continuously innovating and delivering premium products and exceptional service that exceeds expectations.

OUR VISION is to lead the way in pioneering innovative thermal solutions, while building lifelong relationships, all anchored by our unwavering commitment to precision, integrity, and social responsibility.

ENERQUIP'S THERMAL SOLUTIONS

At Enerquip, we pride ourselves on going above and beyond for our customers. It's not just about fabricating high-quality process equipment but exceeding regulatory standards and customers' expectations.

We are proud to partner with original equipment manufacturers (OEMs), engineering firms, resellers, distributors, representatives, and direct-to-end-users to provide efficient, state-of-the-art thermal solutions, including:

- Shell & Tube Heat Exchangers (stock and custom)
- Vapor Condensers
- Thermal Fluid Heaters with serpentine coils
- Asphalt Heaters with serpentine coils
- Tank Heating & Cooling Coils (finned and bare)
- Steam Generators
- Economizers
- Suction Heaters
- Bayonet Heaters

Along with spare parts, we stock a variety of sanitary, off-the-shelf heat exchangers that can fulfill many of our customers' needs. When you have unique requirements, our expert engineers deliver highly customized solutions based on your specific needs and requirements. Because our design and sales engineers have decades of combined heat transfer experience, Enerquip can offer the very latest in heating and cooling technology.

ENERQUIP®
THERMAL SOLUTIONS

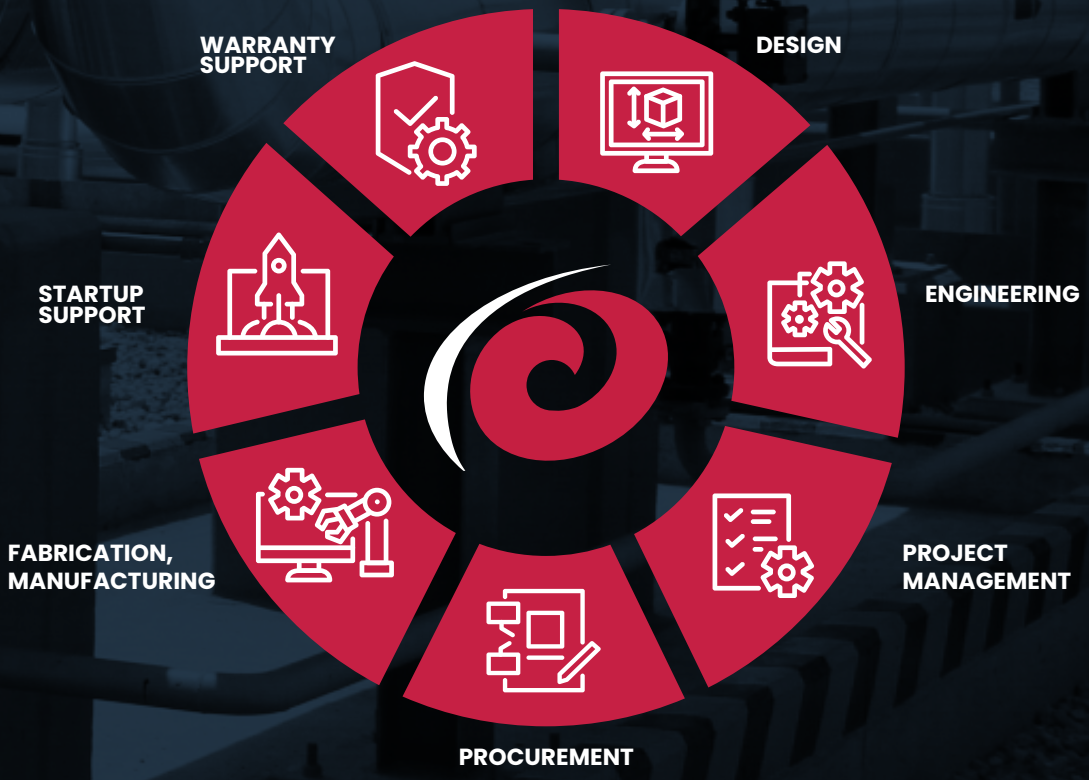
INDUSTRIES WE SERVE

Our reputation for custom, innovative designs, and high-quality fabrication, have earned us preferred supplier status with leading companies in various markets, including:

- Food, Beverage, & Dairy
- Pharmaceutical & Nutraceutical
- Personal Care, including Cannabis & Extraction
- Chemical
- Asphalt
- Biodiesel & Renewable Energy
- Refining
- Tank Terminal
- Pet Care

ENERQUIP VALUE PROPOSITION

With our integrated capabilities, we create top-tier equipment that mitigates risk, boosts performance, reduces operational costs, and maximizes return on investment (ROI). Our comprehensive solution covers everything from design and engineering to fabrication and support.



SHELL & TUBE

SHELL & TUBE HEAT EXCHANGER OPTIONS

- **Sizes:** Up to 48" in diameter (or larger depending on weight)
- **Styles:** U-tube, straight tube, double tube sheet, multi-pass, horizontal or vertical
- **Materials:** Carbon steel, 304L SS, 316L SS, Duplex, AL6XN, Hastelloy, and more (sanitary SS equipment is manufactured in our carbon-free facility in Medford, WI)
- **Types:** ASME, TEMA (Class B, C, or R), PED, CRN, 3-A

PHARMACEUTICAL-GRADE HEAT EXCHANGERS

Our experts understand the quality and precision needed to help our pharmaceutical customers perform their life-saving work. We take our role in this process seriously, demonstrated by the highest level of craftsmanship, rigorous in-process inspections and testing, and full traceability of our materials.

Enerquip's standard pharma-grade design includes:

- 316L tube side material
- Seamless tubes polished to 25Ra
- 40Ra exterior finish
- Tube-to-tube sheet seal-welding
- Double tube sheet design
- Fully radiused and polished return pockets and weep slots
- Pitched to promote draining
- Passivation of product surfaces

Optional upgrades:

- Electropolishing (15 Ra)
- Insulation jacket
- Sight glasses
- Level gauge ports
- Condensate collection sumps/chambers

PHARMA-GRADE PROCESS APPLICATIONS

- Water for Injection (WFI)
- Point of Use (POU) Coolers
- Clean in Place (CIP) Heaters
- Preheaters
- Process Coolers
- Condensers
- Clean Steam Generators

ENERQUIP®
THERMAL SOLUTIONS

SANITARY PROCESS APPLICATIONS

Enerquip's stainless steel shell and tube heat exchangers are widely used in the food, beverage, dairy, and personal care industries. Countless clients have come to rely on our sanitary heat exchangers for their ability to meet tough regulatory obligations, including 3-A.

- In-Stock U-Tube (standard sizes)
- Clean in Place (CIP) Heaters
- Reboilers
- Preheaters
- Process Coolers
- Evaporators

INDUSTRIAL PROCESS APPLICATIONS

- Condensers
- Reboilers
- Preheaters
- Process Coolers
- Evaporators

SANITARY HEAT EXCHANGERS

Enerquip's standard sanitary design includes:

- 304L tube side material
- Welded, bright annealed tubing
- 40Ra exterior finish

Optional upgrades:

- 316L materials (product or utility side)
- 3-A, including 316L seamless tubes polished to 32Ra
- Welded tube-to-tube sheet joints
- Passivation
- Insulation jacket
- Sight glasses
- Level gauge ports
- CIP spray ball assemblies
- Condensate collection sumps/chambers

INDUSTRIAL HEAT EXCHANGERS

Whether you need shell and tube heat exchangers for multi-stage evaporation in an ethanol plant, condensing organics in a chemical plant, vaporizing LNG in a refinery, heating asphalt to ensure pliability, or for landfill gas cooling, Enerquip is the right source for dependable, high-quality shell and tube exchangers you can trust.

Enerquip's standard industrial design includes:

- Carbon steel material
- Welded tubes with a mill finish
- Painted exterior finish
- Tube-to-tube sheet seal-welding

Optional upgrades:

- Stainless steel and higher alloys
- Passivation
- Insulation jacket
- Sight glasses
- Level gauge ports
- CIP spray ball assemblies
- Condensate collection sumps/chambers

SHELL & TUBE

VAPOR CONDENSERS

Vapor condensers work by cooling a vapor to the point where it condenses back into a liquid. This is achieved by passing the vapor through a heat exchanger, where it comes into contact with a cooler surface, typically a tube or a series of tubes. The cooler surface causes the vapor to lose heat, and as a result, it begins to condense back into a liquid.

The condensed liquid then flows out of the heat exchanger and is collected in a separate container, while any remaining vapor is released into the atmosphere or directed back into the process from which it originated.

CONDENSER SOLUTIONS

- Solvent Recovery
- Reflux
- Knock-Back
- Cold Trap
- Pharmaceutical
- Emissions Abatement
- Vacuum System

TUBE BUNDLES

We understand that a leaking heat exchanger tube bundle can result in contaminated products and costly downtime. That's why Enerquip stocks several sizes of replacement tube bundles that can often be shipped same-day.

We can also build replacement tube bundles for Enerquip and other brands of heat exchangers, often in just a few weeks. Our custom replacement bundles allow you to reuse your existing shell and bonnet, saving you time and money.

Enerquip's standard sanitary bundle design includes:

- **Size:** 6" x 54" and 8" x 54"
- **Material:** 304L or 316L stainless steel
- **Seals:** PTFE gaskets or O-rings
- **Style:** U-tube
- **Surface Finish:** 32Ra product contact surface
- **Standards:** Built to TEMA C guidelines, ASME hydro-tested, and code stamped

Optional Upgrades:

- **Size:** From 2" to 48" in diameter, or larger depending on weight
- **Material:** Duplex 2205, AL6XN, Hastelloy and more
- **Style:** Straight tube, floating tube sheet, double tube sheet
- **Surface Finish:** As low as 15Ra Electropolished

ENERQUIP®
THERMAL SOLUTIONS

We offer both sanitary and industrial options for steam generation. Our thermal fluid steam generators provide a compact, efficient solution for various industrial applications, while our tube side steam generators are fully cleanable and are designed to create hygienic clean steam.

THERMAL FLUID STEAM GENERATORS

Thermal fluid steam generators are a perfect solution for customers who need steam for their facilities but don't want to invest in a large-scale boiler operation. Using hot oil sent from an industrial heater, the oil circulates through the tubes inside the steam generator. The tubes then heat the water in the shell of the steam generator to create steam, which is then used to heat rail-cars, tanks, and other processes throughout the operation.

VERTICAL TUBE SIDE STEAM GENERATORS

For sanitary applications, it's more hygienic to generate steam on the tube side of the exchanger. It's also easier to clean and control than on the shell side. The pure steam produced can be used in various sanitary processes, including cleaning equipment. Pure water is fed into the bottom of the exchanger and heated as it rises through the tubes, while hot oil, plant steam, or waste exhaust streams flow on the shell side.

Our engineers will design a custom steam generator solution based on your preferred material of construction, required steam volume, and sanitary needs.

ADVANTAGES OF STEAM GENERATORS OVER BOILERS

Enhanced Safety: Steam generators operate at lower pressures, reducing safety risks.

Improved Efficiency: They boast higher thermal efficiency due to a closed-loop system, resulting in better heat transfer and less energy loss.

Precise Temperature Control: Steam generators offer accurate heating control for consistent results.

Compact Design: They are often smaller, requiring less space.

Heat Sources: Steam generators can utilize either hot thermal oil or plant steam as their heat source.

Faster Start-up and Shutdown: Steam generators offer quicker response to heat demand changes, enhancing operational efficiency.

Want More?

Explore shell and tube at enerquip.com

INDUSTRIAL HEATERS

HIGH-EFFICIENCY THERMAL FLUID HEATERS

Thermal fluid heaters, or hot oil heaters, are used to heat fluids in a closed loop system. They work by using a heat transfer fluid, typically a mineral oil or synthetic oil, that is heated by a burner. The heated fluid then circulates through a closed loop system, transferring heat to the target material or process.

Thermal fluid heaters play a crucial role in the everyday functioning of asphalt plants and energy facilities, along with various other industries. These systems include the following features:

Radiant Chamber with Serpentine Coil

- Seamless pipe
- Stainless steel supports
- Fully hydrotested
- Partial X-ray of welds
- Tube seals at terminal connections
- ASME code stamp – section VIII, Div I
- National board registered
- Removable for easy maintenance

High-Efficiency Burner

- High-off or modulating
- Automatic controls
- Forced draft fan
- Flame failure audible alarm
- Wired and test-fired at factory
- Natural gas, No. 2 oil or propane

Economizer Section

- Helically wound finned pipe
- Increases system efficiency by 10%

Electrical & Control Panel:

- Standard voltage 460/60/3 or 110/60/1
- Control panel – NEMA 4
- Indicating lights

Safety Controls & Alarms:

- High oil temperature
- High stack temperature
- Low flow switch
- Flame safeguard
- Fan motor starter

General & Added Features:

- ¼" carbon steel shell
- Ceramic fiber internal insulation
- Skid-mounted
- Flanged inlets and outlets
- Lifting lugs
- Temperature controller
- Painted with a high temperature, waterproof paint
- 1,000 gallon expansion tank included
- Nitrogen blanketing
- Recirculating pump
- Stub exhaust stack
- Vertical designs

ENERQUIP®
THERMAL SOLUTIONS

THERMAL FLUID HEATERS

Coil Style: Serpentine
Heat Load: 1.3M Btu/hr. to 40M Btu/hr.

Standard Configurations with 85% efficiency:

- AHE-400: rated at 4M Btu/hr. input
- AHE-800: rated at 8M Btu/hr. input
- AHE-1200: rated at 12M Btu/hr. input

Enerquip's thermal fluid heaters are expertly crafted to exceed stringent benchmarks for both performance and efficiency. Crafted with our high-efficiency serpentine coil, these meticulously designed coils elevate the performance of our heaters, making them among the most efficient options available. Additionally, for simplified tube removal, they feature conveniently bolted-on header boxes.

Each of our thermal fluid heaters is tailor-made using state-of-the-art proprietary thermal design software to meet the unique needs of our customers. They are ASME Code stamped for safety, ensuring complete peace of mind for our clients.

LOW NOx

Whether it's due to regulatory requirements, permitting restrictions, or green initiatives, Enerquip can help you meet your low NOx goals.

Our heaters can achieve less than 30 PPM with an upgraded burner and flue gas recirculation, or less than 9 PPM with an ultra-low NOx mesh head burner.

STARTUP SUPPORT

When it's time to install your new industrial heater, you can count on us. We offer startup support for our thermal fluid and asphalt heaters.

INDUSTRIAL HEATERS

ASPHALT HEATERS

At Enerquip, we've developed a diverse range of top-of-the-line asphalt heaters, each designed to meet a wide range of specific needs and applications, from A/C 20 to blown asphalt for roofing shingle production.

Our heaters are manufactured in the USA with only the highest quality materials. They are ASME code compliant, ensuring our clients have access to the safest, most efficient equipment available.

Coil Style: Serpentine

ASPHALT HEATER DESIGN FEATURES

Amongst the most advanced heaters in the asphalt industry, here are some of the key design elements that differentiate our asphalt heaters from others:

Serpentine Coils: These expertly designed coils help our heaters to be some of the most efficient on the market. Serpentine coils offer more even heating with fewer hot spots to avoid coking.

High Volume Combustion Chamber: Within an Enerquip industrial heater, the combustion chamber is where the heat from the burner is augmented. Our high-volume combustion chamber enables our asphalt heaters to have high heat transfer rates and low film temperatures while maintaining highly effective heating.

Integrated Economizer: Our industrial heaters include an integrated economizer for enhanced efficiency. This part uses finned pipes, which significantly increase surface area while reducing the number of pipes needed for optimal heat transfer. The helically wound fins are also more resistant to fouling by exhaust particles. For easy tube removal, our asphalt heaters feature bolted-on header boxes.

Burners & Controls: Our heaters are equipped with a robust burner that offers up to a 40:1 turn-down ratio for superior temperature control. Additionally, our asphalt heaters come standard with a NEMA 4 control panel for outdoor use.

To minimize maintenance, our temperature sensors provide real-time feedback on product temperatures, indicating potential coking or cleaning needs and helping to prevent downtime.

Want More?

Explore industrial heaters at enerquip.com.

ENERQUIP®
THERMAL SOLUTIONS

WASTE HEAT ECONOMIZERS

Enerquip's industrial waste heat economizers are integrated directly into our serpentine coil thermal fluid heating systems or offered as standalone equipment. They efficiently recycle valuable heat back into operations across many sanitary and industrial markets.

Versatile and adaptable, economizers are essential components in partnership with thermal oxidizers and heating processes, utilizing advanced heat recovery technologies to minimize waste and bolster energy efficiency. With substantial savings on operational costs, Enerquip's economizers are a cornerstone of sustainable industrial practices.

WASTE HEAT ECONOMIZER APPLICATIONS

Fluid Heating: Converts turbine exhaust or flue gases from thermal processes like oxidizers, incinerators, or gasifiers to heat thermal fluid, asphalt, water, or glycol.

Asphalt Production: Preheat raw materials for asphalt manufacturing.

Feedwater Preheating: Improve boiler efficiency by preheating feedwater.

HVAC Systems: Preheat/cool air for buildings, reducing HVAC energy needs.

Industrial Processes: Recover heat for various industrial uses.

WASTE HEAT ECONOMIZER DESIGN FEATURES

Enerquip's waste heat economizers excel in managing the challenges posed by heavy ash or contaminated gas in industrial settings. Our units are engineered with the following design features to guarantee resilience in the most demanding environments:

Vertically Wound Fins Welded to the Pipe: Allows debris to fall through, preventing accumulation and ensuring optimal performance.

Soot Blower Lanes & Soot Blowers: Strategically positioned for effective cleaning.

Castable Refractory Throughout Unit: Ensures durability and thermal efficiency.

Maintenance Access Between Sections: Facilitates easy upkeep and servicing.

Removable Header Boxes: Simplifies maintenance and component replacement.

TANK HEATING

TANK HEATING & COOLING COILS

Tank heating coils are essential in thermal fluid heating systems, used across multiple industries like asphalt, chemical, and fuel. They regulate tank temperature for stored materials, so they must be built with durability and efficiency in mind.

Our coils, crafted from carbon steel or stainless steel, boast longevity and performance. Meticulous design ensures reliability, minimizing the need for repairs or replacements within tanks. With seamless pipe and solid helically wound fins, our coils promise decades of service.

Available for steam or thermal fluid heating, our coils adapt to diverse project needs. They accommodate various tank types and thicknesses, with options for custom designs.

These coils can also be designed to fit into an existing tank manway or into any specialty tank, whether it is vertical or horizontal. They come in a variety of thicknesses including schedule 40 or 80, along with sturdy tube supports and legs. If you have a need, our team of engineers can work with you to design a coil that meets your requirements – and exceeds your expectations!

TANK COIL OPTIONS

Coils Style:

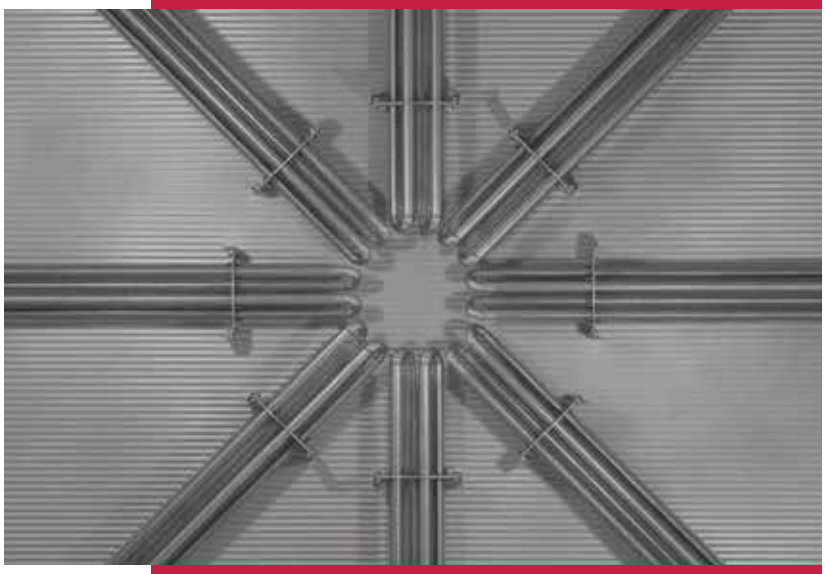
- Bare pipe
- Helically wound finned pipe has up to 12x the surface area of bare pipe
- Longitudinal fins

Materials:

- Schedule 40 or 80 carbon steel
- 304L or 316L stainless steel
- Other high alloys

Heating or Cooling Medium:

- Hot oil
- Steam
- Water
- Glycol



ENERQUIP®
THERMAL SOLUTIONS

BAYONET IMMERSION HEATERS

Unlike our shell and tube exchangers and suction heaters, which are designed to heat liquids as they are pumped through them, bayonet immersion heaters are designed to efficiently heat entire tanks of fluid. With our bayonet immersion heaters, the tube bundle is completely immersed in the tank, and the heating coil is directly exposed to the fluid for maximum heating efficiency.

Enerquip's bayonet heaters are easy to install and take up no extra space. As immersion heaters, they're inserted directly into the liquid through a tank flange, resulting in space and energy efficiency. Plus, with only a utility hookup needed for installation, you'll save time and money on installation costs.

Our bayonet style tank heaters come equipped with a tube sheet, tube bundle, and a bonnet with utility connections. They're easy to remove for cleaning and inspection, making maintenance a breeze. And, with pre-existing flanges and manways on your tank, installation is a snap.

Enerquip's bayonet heaters are designed to withstand harsh operating conditions, including high temperatures, corrosive materials, and heavy-duty use. Our bayonet heaters are constructed from high-quality materials and are built to last, ensuring reliable and efficient heating.

SUCTION HEATERS

Suction heaters are a type of industrial heat exchanger used in various industrial contexts to heat viscous fluids, including asphalt and fuel oil, to a temperature at which they can be pumped.

Keeping entire tanks of these types of liquids at pumping temperatures can be prohibitively expensive. Suction heaters provide on-demand heating during loading and unloading, heating only the liquid being pumped through them instead of heating an entire storage tank of products. As a result, suction heaters are an economical and cost-effective option for plants and facilities in a variety of industries.

Enerquip's bayonet and suction heaters can be built with carbon steel, a variety of stainless steel alloys, or a combination of both.

Want More?

Explore tank heating solutions at enerquip.com

CUSTOM FABRICATION

CUSTOM OEM FABRICATION

Enerquip can design and build a wide variety of process components for OEM systems and industrial operations. We can meet a variety of code requirements while also working within your schedule limitations. Our team has the industry experience to build to your design or create custom equipment components to your specifications.

ENERQUIP'S IN-HOUSE RESOURCES

- **Design:** Experienced design engineering team with 2-D and 3-D capabilities
- **Machining:** In-house machining capabilities
- **Quality:** Stringent quality control process, including complete inspection and hydro-testing where applicable
- **Experience:** Experienced welders, fitters, assemblers, and finishers
- **Options:** Painting, sand-blasting, electropolishing, and passivation available
- **Project Management:** Proven project management processes keep your project on track
- **On-Time Delivery:** Reliable on-time shipping to your plant or jobsite

OUR SPECIALTIES

- **Size:** Up to 48" in diameter (or larger depending on weight)
- **Weight:** Up to 40,000 lbs combined
- **Material:** Carbon steel, 304L SS, 316L SS, Duplex, AL6XN, Hastelloy (our sanitary SS equipment is manufactured in our carbon-free facility in Medford, WI)
- **Standards:** ASME, PED, CRN

ENERQUIP®
THERMAL SOLUTIONS

STAINLESS STEEL UPGRADES

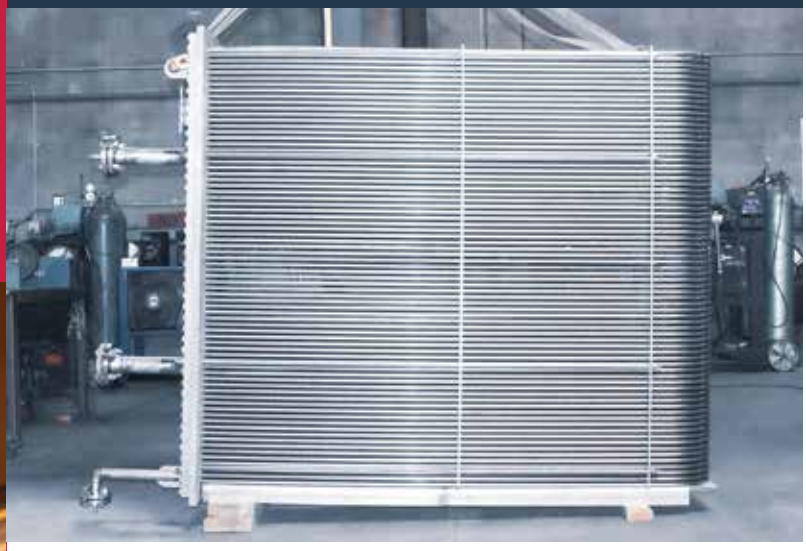
With the combination of our in-house design team, stainless steel buying power, vast industry experience, and our ASME quality system in place, you can be certain that Enerquip will meet your code requirements, industry standards, and schedule limitations.

We can assist OEM's as an overflow supplier to build from your proprietary designs, or we can help you create custom equipment components to your specifications. Our certified welders and stringent quality control process ensures you get the best quality product every time.

From engineering and design support, polishing and inspecting, to packaging and delivery, Enerquip is here to ensure your fabrication is exactly what you need, when you need it.

OUR CUSTOM WORK

- Surge Tanks
- Large Diameter Ductwork & Transitions
- Columns
- Vapor Separators
- Condensate Tanks
- Exhaust Stacks & Scrubbers
- Pre-Fabricated Pipe Spools
- Tank Spargers
- Single Shell Tanks & Pressure Vessels
- Distributor Plates
- Pump Stands & Carts
- Skid Frames and Hangers



Contact Us

Learn for yourself why Enerquip's quality and service is unmatched in the industry. Contact us today!

Enerquip Thermal Solutions
611 North Road, Medford WI 54451
(833) 516-6888 | sales@enerquip.com
www.enerquip.com

ENERQUIP®
THERMAL SOLUTIONS