

Increase Efficiency. Reduce Cost. Ease of Installation.

Laser Plate™
Heat Exchanger

Laser Plate Reduce Installation and Labor Costs

Marine cargo heating systems are known to be expensive to fabricate, energy-inefficient, and slow to respond. Factory engineered and fabricated Laser Plate heat exchanger banks surpass field-fabricated linear pipecoil in initial cost economy and thermal performance. These integral, one-piece banked assemblies comprise a rugged, high-strength design. Yard installation involves one inlet and outlet connection per Laser Plate bank. Available in stainless steel and higher alloys, these engineered packages conform to ASME, U.S. Coast Guard, DNV, ABS, and Lloyds Register codes.

Cargo Hold Product Heating

Laser Plate offer inherent design advantages when used to heat heavy, viscous products in preparation for efficient cargo unloading in cargo holds of tankers and barges. Initial cost economy is attractive, since these pre-assembled banks completely eliminate linear pipe heating components, significantly reducing onsite shipyard pipefitting labor costs.

Factory manufactured Laser Plate offer superior mechanical integrity and quality assurance, along with reduced weight. Minimized yard installation virtually eliminates the possibility of damage to cargo hold coatings. Laser Plate can be used with heat transfer oil, steam, or glycol.

Cargo heating bank fabricated
from Laser Plate.



Laser Plate Advantages

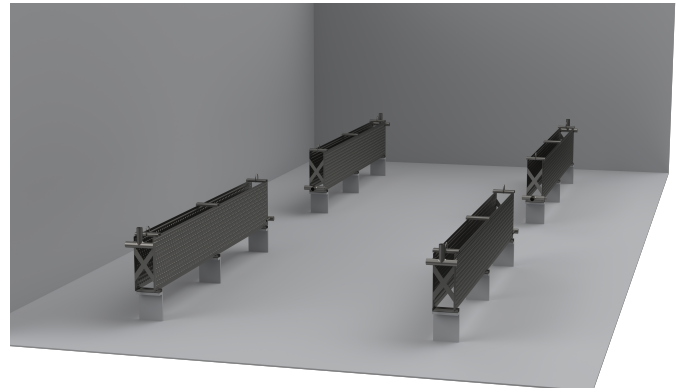
Performance—Laser Plate reduces energy consumption through higher heat transfer efficiency and a chimney effect that induces more effective circulation. This effect promotes rapid, uniform heating through natural convection.

Clean Operation—Vertically mounted Laser Plate allow for easier cleaning of entire barge hold. Vertical orientation of plates allows product to drain off plate surface, minimizing the possibility of coking, benefitting owners with a longer useful life cycle

Simple Installation—Laser plate is assembled into a rigid, integral unit comprised of:

- Manifold connections
- Support and stiffening structures
- Integral feet for elevating the Laser Plate off the deck

Laser Plate based cargo heating system in a cargo hold. Please note the drawing is not to scale; banks are enlarged for clarity.



Shipboard Applications

- Fuel Oil Tankers
- Cargo Tankers
- Asphalt Barges
- ATBs
- Spill Response Vessels
- Ice Breakers/ Arctic Vessels

Laser Plate vs. Pipecoil Installation

Consider a 155,000-barrel ABS Classed ocean going tank barge containing 10 cargo holds with a capacity of 651,000 U.S. gallons per hold:

Pipecoil installation would have required 23,349 linear feet of schedule 40 Pipecoil to properly heat the holds.

Laser Plate installation required a total of 40 immersion banks, four banks per hold. Each bank consisting of two 304L stainless steel plates measuring 22" x 143".

The compact, efficient design of the Laser Plate heat exchanger significantly reduced labor costs, decreased vessel weight, and reduced thermal oil volume. The overall efficiency improvement in these areas helped reduce the initial capital investment for the 155,000-barrel tank barge by \$667,000.

Common Marine Certifications

- CE Marking-Pressure Equipment Directive
- American Bureau of Shipping
- U.S. Coasts Guard
- DNV
- Lloyds Register

Contact our sales and engineering team to learn more about the Laser Plate Heat Exchanger—the right technology for cargo heating.

fernstrum.com

906.863.5553 • sales@fernstrum.com

1716 11th Avenue • Menominee, Michigan 49858

The Marine Dealer for Omega Thermo Products
FERNSTRUM[®]
 R.W. Fernstrum & Company