

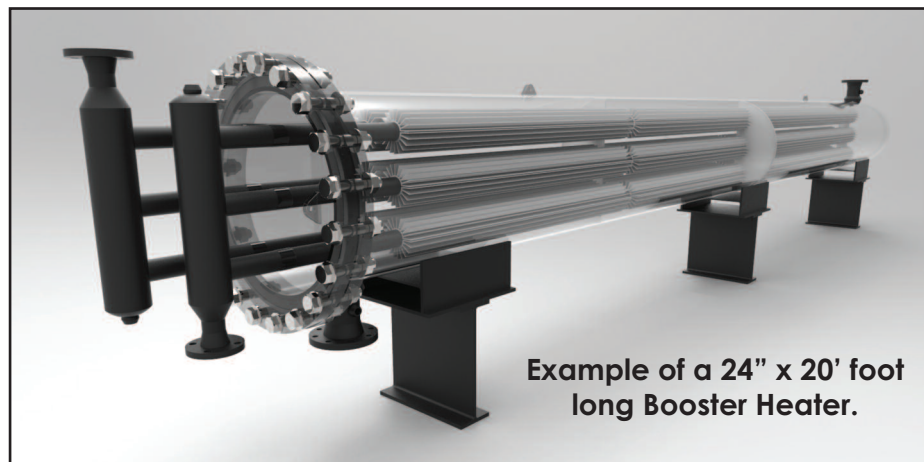
## QMax High Viscosity Fluid Heat Exchanger



**Q**Max High Viscosity Fluid Heat Exchanger is the most effective heat exchanger in the market for heating viscous fluids such as asphalt and bitumen. Our unique design uses QFin (longitudinal, bolt-on fins) to increase the heat transfer surface area of the removable heating bundle by 1,000%.

QMax performs thermal calculations using our proprietary software to accurately predict the heat transfer through the exchanger. We offer standard designs and custom designs to fit most applications and available footprints.

The unique design of the QMax High Viscosity Fluid Heat Exchanger allows for the easy removal of the actual tube bundle AND the removability of the fins if ever coked. Compared with traditional shell and tube heat exchangers, the cleaning complexity and cycle is far less. With replaceable QFin, the installation can be completed in less than a day.



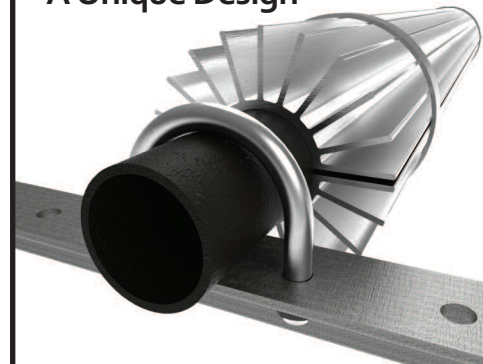
### Usage and Benefits of QMax High Viscosity Heat Exchanger:

- Energy Saver by reducing tank temperatures and heating product only as needed
- Asphalt / Bitumen Producers, Terminals and Emulsion Plants heating product to and from Loading
- Recirculating/Heating viscous fluids externally to heat a tank
- Emergency Heating after a coil failure (Rentals Units Available)

**Case Study:** ABC Terminals had a 120' x 40' tank containing asphalt. The normal storage and shipping temperature was 350° F. By using the QMax High Viscosity Fluid Heat Exchanger, the normal storage temperature was lowered to 300° F. The shipping temperature remained at 350°F. Asphalt was pumped through at 300 gallons/minute.

**Return On Investment based on Energy Savings = 12 months**

### QFin Technology Offers A Unique Design



**Increases heating / cooling surface area by 1,000%**

### QMax Industries, Inc

is a technology company based in Charlotte, NC, with several innovations in the field of process heating.

### Our specialties include:

- > High Performance Steam Tracing
- > High Performance Electric Tracing
- > Equipment Jacketing
- > Tank Heating

**"We're committed to be the world leader in steam tracing technologies."**

**Thomas W. Perry**  
President

**tperry@qmaxindustries.com**  
**704-643-7299**  
**QMaxIndustries.com**

## BREAKTHROUGH PERFORMANCE - A COKING POINT OF VIEW

QFin compared to Traditional Spiral Welded On Fins

### Traditional

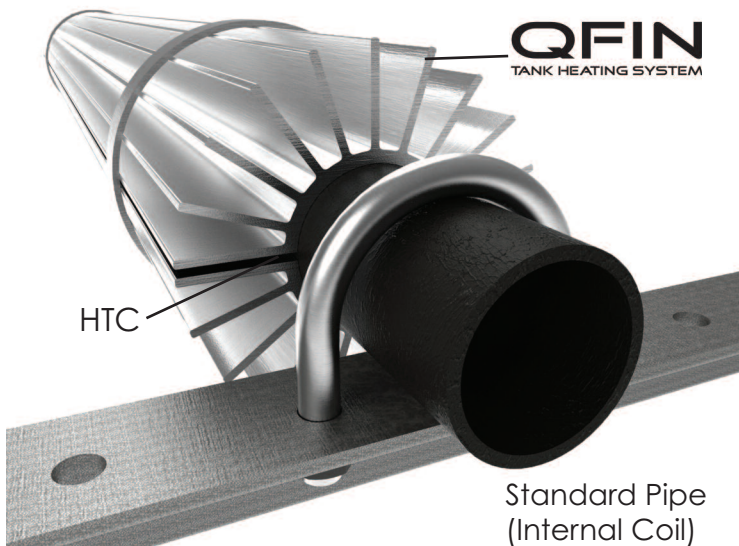
Welded on – requires total coil replacement- requires costly hydroblasting  
Prone to coking within the fin gaps - leads to higher maintenance

### QFin

Bolted-on-removable by simply cutting straps  
Minimized coking due to greater circumferential distance between fins  
Less frequent maintenance and operational cost

**“The QFin System improved the heating performance in our tanks and helped us make better product”**

**– George Mariani**  
Terminal Manager  
Mariani Asphalt  
(An Associated Asphalt co.)



### Design Features of QFin

- Fully and simply removable and replaceable
- Bolts-on to any size pipe
- Aluminum material allows for increased heating surface area by 1000%
- Horizontal direction increases heating footprint
- Maximizes heat input of carbon or stainless steel internal coils
- Decreases unnecessary footage of internal coil
- Prone to reduced coking
- Specifically designed for high viscosity fluids like Asphalt, Bitumen & Heavy Oils

### Estimated Cost Savings

Companies that implement **QFin** as an improvement to standard internal tank coil heating systems often realize significant capital and maintenance costs savings. The largest impact is the **reduction of internal coil infrastructure** (up to 4 times reduction in needed coil length). The following example demonstrates the potential savings based on historical prices. The material savings alone more than offset the cost of the **QFin** system. To run a more detailed analysis of savings, please send us the unit prices that apply to your site specifications.

#### Scenario “A” - Traditional 2 inch Internal Heating Coil

- 2400 ft of Heating Coil x \$50 per foot = \$120,000 Total Install Cost

#### Scenario “B” - QFin Installed on 2 inch Internal Heating Coil

- 600 ft\* of Heating Coil x \$80 per foot = \$48,000 Total Install Cost

**Total Cost Savings with QFin = \$72,000**

\*Adding QFin to the system results in a 4X REDUCTION in coil length.



- > QFin is not a one size fits all system for all areas of industry. It is specifically designed for heating asphalt, bitumen, and other high viscosity fluids.
- > QFin increases the heating surface area to reduce capital and energy costs.
- > QFin continues to perform even after it is subjected to thin layers of coke.
- > QFin is removable to reduce down time and maintenance costs associated with major coking events.