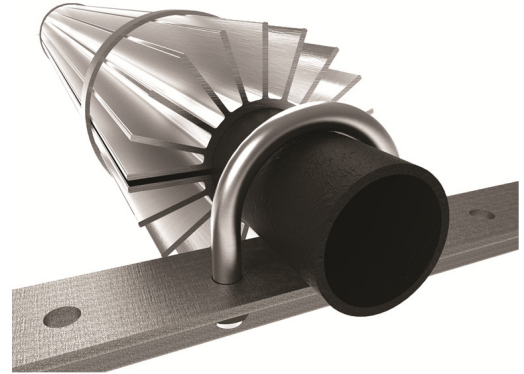




Standard Specification

QFin™ maximizes the heat input of a carbon or stainless steel internal heating coils and it is fully removable and replaceable. QFin is a bolt-on heating fin that attaches to any size pipe. The highly conductive aluminum material of QFin increases the heating surface area which allows for greater heating capabilities or decreased total footage of the internal coil. QFin is specifically designed for high viscosity fluids such as Asphalt, Bitumen and Heavy Oils to allow for easy removal and reinstallation of fins if the product cokes on the fins.



1) QFin™ Selection:

QMax™ Industries, Inc. does not use charts or graphs showing how many QFin strips to use for a given pipe size, process or temperature. Instead, each QFin system is specifically designed for each application using finite element thermal modeling software developed by QMax Industries, Inc. We ask our customers to complete a system evaluation questionnaire for every application (**QFIN-EQ**).

The profile of QFin is also unique for each pipe and tube size. Before installation of any system, the fit of the QFin should be verified. Below is a list of standard profiles for QFin. Other sizes are available upon request:

<u>Nominal Pipe Size</u> (inch)	<u>Pipe Outside Diameter</u> (inch)	<u>Fin Inside Diameter</u> (inch)	<u>Fin Outside Diameter</u> (inch)	<u>Fin Thickness</u> (inch)	<u>Weight</u> (lb/in)	<u>Weight</u> (lb/ft)	<u>Surface Area Increase</u> (%)
1	1.315	1.365	3.000	0.100	0.203	2.434	793%
1.25	1.660	1.710	3.500	0.100	0.234	2.808	709%
1.5	1.900	1.950	4.250	0.125	0.378	4.540	767%
2	2.375	2.388	5.750	0.125	0.546	6.552	917%
3	3.500	3.550	7.000	0.125	0.624	7.488	671%
4	4.500	4.550	7.925	0.125	0.672	8.059	534%

<u>Tube Size</u> (inch)	<u>Tube Outside Diameter</u> (inch)	<u>Fin Inside Diameter</u> (inch)	<u>Fin Outside Diameter</u> (inch)	<u>Fin Thickness</u> (inch)	<u>Weight</u> (lb/in)	<u>Weight</u> (lb/ft)	<u>Surface Area Increase</u> (%)
0.250	0.250	0.255	1.250	0.063	0.042	0.508	1481%
0.375	0.375	0.380	1.500	0.063	0.051	0.608	1148%
0.500	0.500	0.505	2.000	0.063	0.069	0.826	1173%
0.625	0.625	0.630	2.250	0.063	0.076	0.913	1034%
0.750	0.750	0.755	2.250	0.063	0.073	0.878	815%

2) QFin™ Installation:

The simplicity of QFin is one of its many benefits. As with any system, if the system is not installed properly, it may not function as intended. It is important to review and follow the QFin Installation Procedures (***QFin-Install***) and inspect the system to ensure a successful installation.

3) QFin™ Product Information:

- Dimensions:
 - QFin is offered in 9½ ft lengths (other lengths available)
- Material: 6063-T5 Aluminum (mill finish)
- Thermal Conductivity: 1450 BTU(in)/hr ft² °F (209 W/m-°K)
- Maximum Temperature Limitation: 750 °F (399 °C)
- Weight: See chart above (*without pipe, tube, HTC or Banding*)
- Standard tube/pipe sizes: See chart above (*custom designs are available upon request*)