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HEATEC BULLETIN

Product news from Heatec Inc., an Astec Industries Company 5200 Wilson Road, Chattanooga, TN 37410 423-821-5200 800-235-5200 Heatec.com

How barge operators might cut fuel costs significantly

If you operate a barge equipped with a hot oil heater it may be possible to cut its fuel costs significantly. If the heater has a net thermal efficiency of 80 percent or less, it is wasting a lot of fuel. That is well below the efficiencies of heaters we currently offer.

By changing to a heater with high thermal efficiency it may be possible to achieve substantial savings over the course of a year. Obviously, the amount of savings depends on several variables such as the cost of fuel, the number of hours the heater operates, its heat load, etc.

The first thing you need to determine is the net thermal efficiency of your hot oil heater. To do that, simply measure the temperature of its exhaust gas. Then use the chart shown here to find its net thermal efficiency.

Now examine the table shown on the next page. It is based on a heat load of 8 million Btu/hour and shows fuel usage for a wide range of thermal efficiencies. You can use the hourly usage shown to compare fuel usage of your heater with our heaters with thermal efficiencies from 87 to 92 percent. You can then calculate usage over a year using variables applicable to *your* operation.

As an example, consider a barge that requires 8 million Btu/hour to maintain the temperature of its cargo. Assume it has a heater with a thermal efficiency of 80 percent. If that heater operates only 50 percent or the time, it will burn 330,159 gallons of No. 2 fuel over the course of a year. At $3.90 a gallon that amounts to $1, 287,619/ year!

Our heater operating at 92 percent thermal efficiency could reduce that fuel usage from 330,159 gallons to 287,095 gallons. That would cut usage by 43,064 gallons and save you $167,950 dollars a year. And remember, this is for a single barge.

If your heater has a lower thermal efficiency than the example we cited the savings would be even greater. And if the size of your barge requires more heat than our example, the savings would be greater yet.

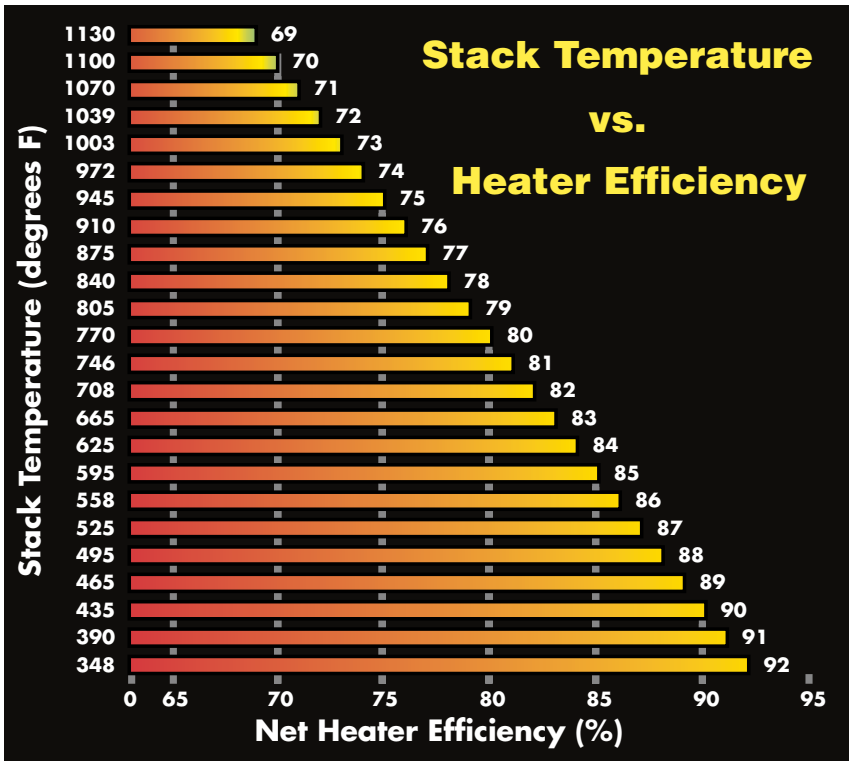
Reducing the amount of fuel you use not only saves you money: it conserves energy. And that is is one of the biggest concerns of our nation at this time.

Our *standard* marine heaters have efficiencies of 87 to 89 percent. With our Stackpack™ heat exchanger their thermal efficiencies increase up to 92 percent.

A changeover to Heatec heaters from another brand of heater should not affect your inventory of replacement parts. Heatec heaters use the same parts you likely have in stock: Powerflame burners, Fireye flame monitors, Partlow controllers, Dean pumps, and other widely available components.

Moreover, Heatec has its own trained field service technicians ready for on-site work, not only on Heatec heaters, but on other brands as well.

We think you will quickly realize that you can't afford to continue using a heater that is wasting a lot of fuel. We will be glad to do a free on-site analysis of your current heaters



and calculate savings you could expect by switching to a Heatec marine heater.

We are the leading manufacturer of heaters for the asphalt industry and have been in business since 1977.

Call us today and let's discuss your options.

About Net Thermal Efficiency

Net thermal efficiency is defined as a measure of a heater's heat input vs. its *usable* heat output. For example consider an input of 132,200 Btu, which is the low heating value or net amount of heat released by burning a single gallon of No. 2 fuel. Thermal efficiency indicates how much of that heat actually ends up in the thermal fluid flowing through its heating coils compared to how much goes out the exhaust stack and into the atmosphere. The amount of heat that goes into the heating coils is its *usable* output.

Thermal efficiency and *combustion* efficiency should not be confused with each other. Thermal efficiency is affected by flux rate and many other details of a heater's design. Combustion efficiency is affected mainly by the burner and combustion air.

Potential savings by upgrading your heater to one with a higher thermal efficiency

Thermal Efficiency (%)	Usage Gal per hour (8 million Btu/hr)	Usage Gal per week (24/7)	Usage Gal per year (operating 50% of time)	Cost per year (No. 2 Fuel at $3.90 gallon)	Savings per year by upgrade to 87% efficiency	Savings per year by upgrade to 92% efficiency
70	86.4	14,512	377,324	$1,471,565	$287,547	$351,896
71	85.2	14,308	372,010	$1,450,838	$266,821	$331,170
72	84.0	14,109	366,843	$1,430,688	$246,670	$311,019
73	82.8	13,916	361,818	$1,411,089	$227,072	$291,421
74	81.7	13,728	356,928	$1,392,021	$208,003	$272,352
75	80.6	13,545	352,169	$1,373,460	$189,443	$253,792
76	79.6	13,367	347,536	$1,355,388	$171,371	$235,720
77	78.5	13,193	343,022	$1,337,786	$153,769	$218,117
78	77.5	13,024	338,624	$1,320,635	$136,617	$200,966
79	76.5	12,859	334,338	$1,303,918	$119,901	$184,249
80	75.6	12,698	330,159	$1,287,619	$103,602	$167,950
81	74.7	12,542	326,083	$1,271,723	$87,705	$152,054
82	73.7	12,389	322,106	$1,256,214	$72,196	$136,545
83	72.9	12,239	318,225	$1,241,079	$57,061	$121,410
84	72.0	12,094	314,437	$1,226,304	$42,286	$106,635
85	71.1	11,951	310,738	$1,211,877	$27,859	$92,208
86	70.3	11,812	307,124	$1,197,785	$13,768	$78,116
87	69.5	11,677	303,594	$1,184,018		$64,349
88	68.7	11,544	300,144	$1,170,563		$50,894
89	67.9	11,414	296,772	$1,157,410		$37,742
90	67.2	11,287	293,474	$1,144,550		$24,882
91	66.4	11,163	290,249	$1,131,973		$12,304
92	65.7	11,042	287,095	$1,119,669		

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