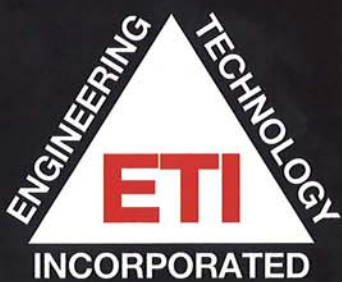


Indirect Heaters



Engineering Technology, Incorporated

Indirect Process Stream Heaters

An Indirect Heater liberates heat in a separate chamber, normally a firetube, and the heat is transferred to the process stream through a media such as water, glycol/water, steam, salt or flue gasses.

The primary advantages of indirect heating are:

1. The heating media transfers heat evenly.
2. The coil inside wall temperature is lower, thus reducing the possibility of caking, scaling and plugging which is a common problem in direct heating.

Engineering Technology Inc's Indirect heaters are offered in a wide variety of output ratings that are widely applicable to the petroleum industry, in power generation and industrial uses. Indirect Heaters operate reliably, efficiently and safely.

Engineering Technology Inc. offers four (4) types of Indirect Heaters.

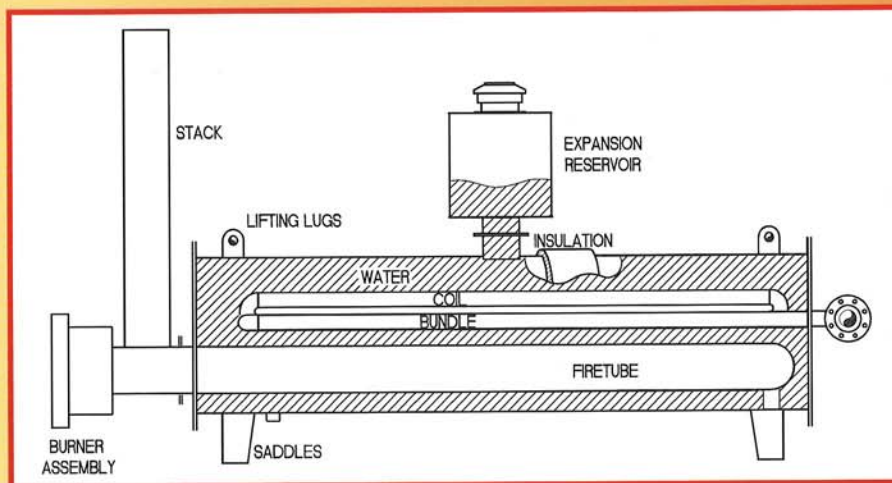
- WATER BATH HEATERS STEAM BATH HEATERS
- SALT BATH HEATERS HTE (High Thermal Efficiency)

Water Bath Heaters

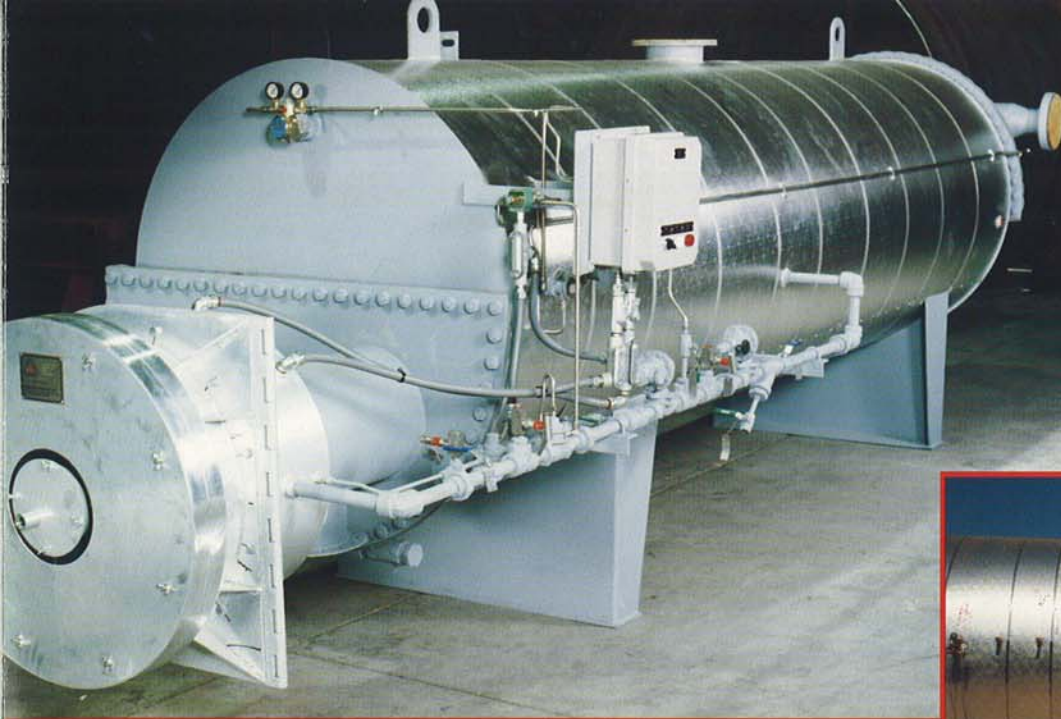
Water Bath heaters have a vessel filled with a transfer media of water or glycol/water mixture (see diagram). The combustion chamber (firetube) and the process coil are submerged in the media. The fire-tube transfers the heat released by the burner to the

media which then transfers the heat to the process through the process coil. The maximum operating temperature of the Water Bath heater is 190°F.

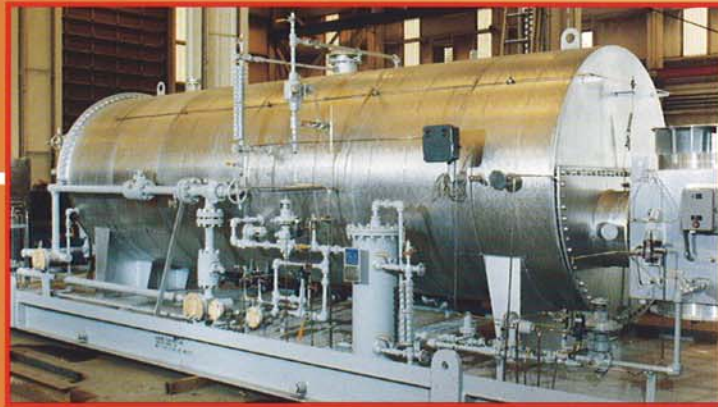
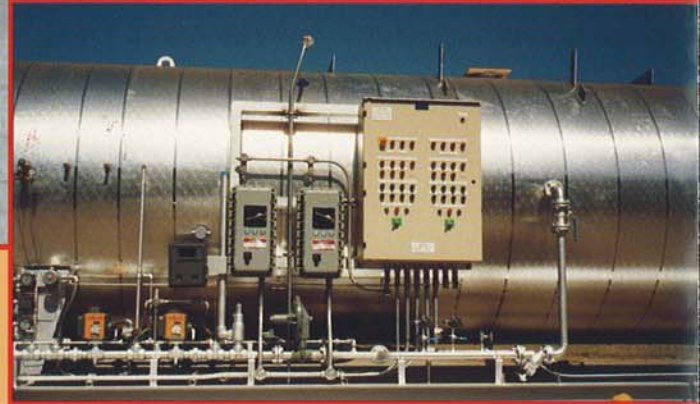
Engineering Technology Inc's. standard sizes for Water Bath Heaters are shown below.



Duty, Btu/hr Absorbed Heat	Vessel Size
100,000	18"OD x 5'0"
250,000	24"OD x 7'6"
500,000	30"OD x 10'0"
750,000	36"OD x 12'0"
1,000,000	42"OD x 15'0"
1,250,000	48"OD x 15'0"
1,500,000	48"OD x 17'6"
1,750,000	60"OD x 15'0"
2,000,000	60"OD x 17'6"
2,500,000	60"OD x 20'0"
3,000,000	60"OD x 22'6"
3,500,000	72"OD x 22'6"
4,000,000	72"OD x 25'0"
4,500,000	72"OD x 30'0"
5,000,000	84"OD x 22'6"
6,000,000	84"OD x 30'0"
7,000,000	96"OD x 30'0"
8,000,000	96"OD x 30'0"
10,000,000	96"OD x 30'0"



**Custom
Designed To
Meet Your
Requirements**



Steam Bath Heaters

Engineering Technology Inc.'s. Steam Bath Heaters are similar to the Water Bath Heaters except only the combustion chamber (firetube) is

immersed in the water bath media. The process coil is located above the water level and is enveloped by saturated steam, which transfers the heat to the process coil. Process outlet temperatures to 215°F can be obtained with the Steam Bath Heater.

Salt Bath Heaters

Engineering Technology Inc.'s. offers a heater that operates at elevated temperatures to 700°F. The Salt Bath Heater is filled with eutectic salt that has a melting temperature of approximately 290°F.

High process outlet temperatures can be attained because the salt does not degrade at elevated temperatures. Salt Bath heater coils can be serpentine or multi-tube as required for high process flow rates and low pressure drops.

HTE (High Thermal Efficiency)

The HTE heater is a forced draft heater that utilizes the products of combustion as the heat transfer medium. The heat generating section and the heat transfer section are separated. Heat is transferred to an expanded surface area (finned tube coil bundle) by forced convection. The combustion gases are

circulated from the heating section across the coil section and out the stack. The HTE heater typically delivers 80% gross heating efficiency or 90% net heating efficiency. Flame temperatures are reduced by the recirculated combustion gases eliminating radiant heat transfer. Process outlet temperatures from 800°F to 1,000°F can be obtained with an HTE heater.

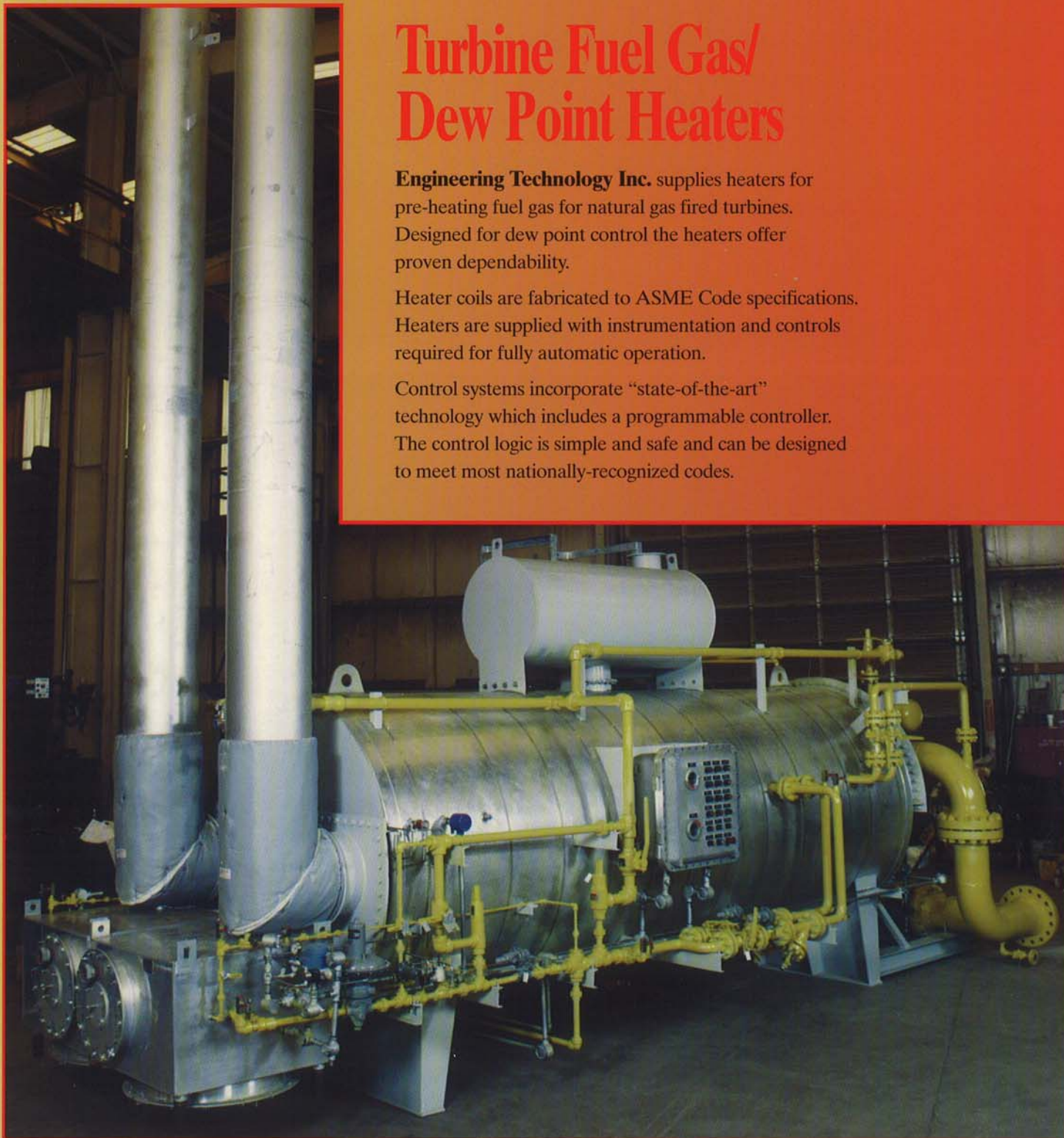
Process Bath Heaters For The Power Generation Industry

Turbine Fuel Gas/ Dew Point Heaters

Engineering Technology Inc. supplies heaters for pre-heating fuel gas for natural gas fired turbines. Designed for dew point control the heaters offer proven dependability.

Heater coils are fabricated to ASME Code specifications. Heaters are supplied with instrumentation and controls required for fully automatic operation.

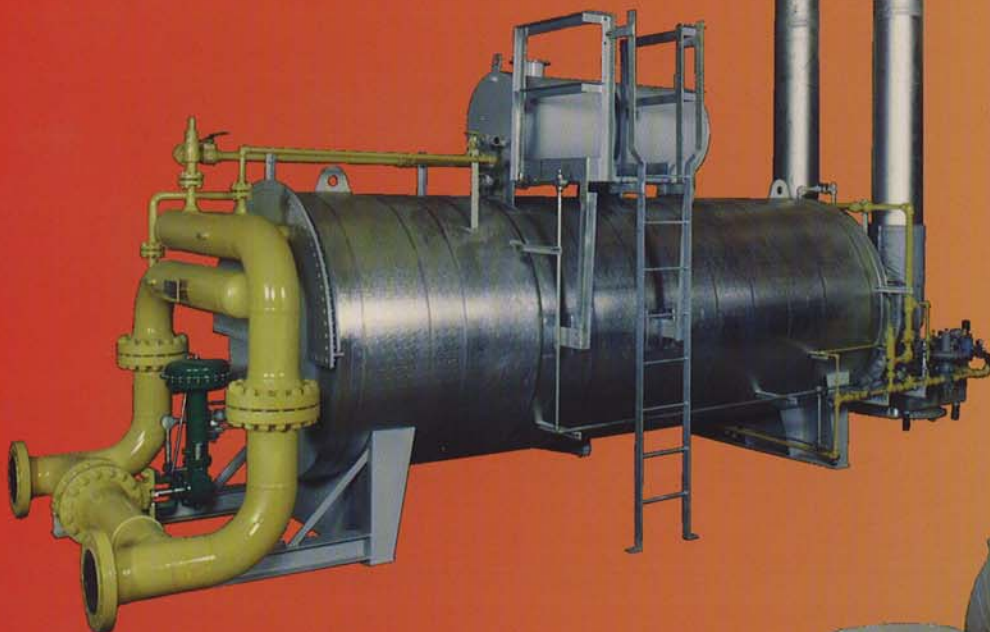
Control systems incorporate "state-of-the-art" technology which includes a programmable controller. The control logic is simple and safe and can be designed to meet most nationally-recognized codes.



Electric Turbine Fuel Oil Heaters

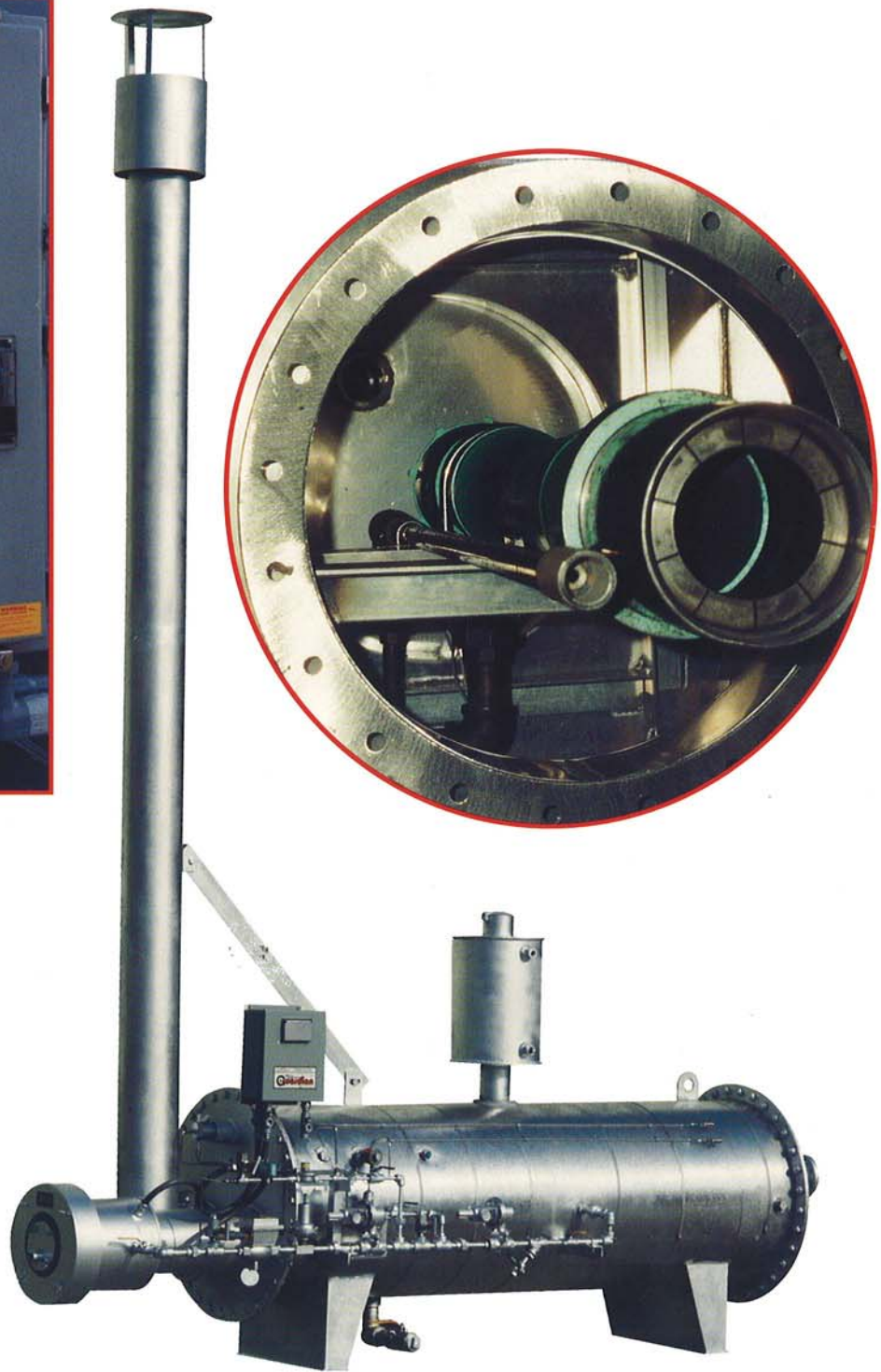
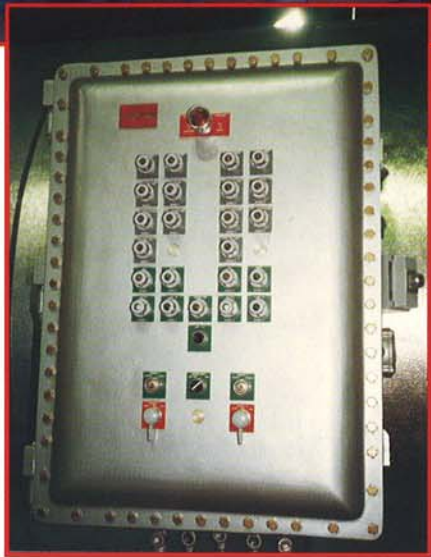


Turbine Fuel Gas Heater



Salt Bath Heater





For Quotations or Further Information Contact:

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