



REFINERY IMPROVED SAFETY AND PRODUCT QUALITY WITH HIGH ACCURACY SATURN™ SENSING TECHNOLOGY

Customer

Leading refinery in Southeast Asia

Application

Fired heater draft pressure control

Challenge

This refinery was having problems controlling the fired heater draft pressure in a tight set-point range. This was causing excessive process variability and upsets in the heater operation. Tight draft pressure control is necessary to ensure uniform heating and prevent flame-out conditions in this crude pre-heater. The customer wanted to correct these problems in the new grassroots refinery being built. Stable and efficient operation of this direct fired process heater requires accurate draft pressure measurement and control.

The draft range pressure transmitter in the existing refinery was quite inaccurate and unstable at low pressures. The inaccurate output of the transmitter caused too much draft pressure fluctuation and consequent process variability.

The unreliable and unstable draft pressure control resulted in several negative business impacts on the operation of this fired heater. First, it caused flame instability with a high risk of flame-out, which is a safety risk. Secondly, it caused accelerated coking of the heater tubes, leading to:

- Poor quality of diesel, kerosene and naphtha products
- Operational interruptions to clean the heater tubes, affecting plant availability and throughput.

Results

- Improved refinery safety
- Reduced production interruptions
- Improved production quality



Rosemount™ 3051S Pressure Transmitter

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Solution

The customer solved this problem in their new grassroots refinery by installing the Rosemount™ 3051S Draft Range Pressure Transmitter, which is well suited for heater draft pressure measurement.

The Rosemount 3051S Draft Range Pressure Transmitter is accurate and stable in low pressure ranges, which is typical for heater draft pressures. Saturn™ Sensing Technology utilized in the Rosemount 3051S incorporates a secondary sensor to optimize performance and expand diagnostic capabilities.

The accuracy and stability of the Rosemount 3051S helped this refinery to achieve tight draft pressure control. This significantly improved flame stability, reduced the risk of flame-out, and improved refinery safety. The reduction in process variability improved uniformity of heat input, which improved product quality, reduced the coking rate and operational interruptions. This resulted in higher plant availability and throughput.

The accuracy and stability of the Rosemount 3051S helped this refinery reduce the crude pre-heater process variability, improve flame stability, and reduce the rate of coking in the heater tubes.



Refinery Heater

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For more information, visit [Emerson.com/en-us/catalog/rosemount-sku-3051s-coplanar-pressure-transmitter](https://emerson.com/en-us/catalog/rosemount-sku-3051s-coplanar-pressure-transmitter)

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