

# Gas Supplier Improves Billing Accuracy with Differential Pressure Flowmeter

## RESULTS

- Improved billing accuracy
- Improved reliability, safety, and uptime
- Simplified installation and reduced cost

## APPLICATION

Gas flowmetering

## CUSTOMER

A major supplier of gases and gas handling equipment to Taiwan's chemical industry

## CHALLENGE

Taiwan's extensive industrial base requires gases to be supplied from bulk stations or from gas processing equipment on site. Such gases are critical to the operation of the gas supplier's customers and many need accurate flowmeters to control the process and to meter the amount of gas they use.

In this industry, the predominant concern is accuracy of billing. Other concerns include reliability, safety, and uptime. The gas supplier had used many different flowmetering technologies in the past without complete satisfaction, including but not limited to thermal mass flowmeters, turbine meters, and rotameters. Gas flowmetering is difficult due to small line size applications, which are prone to flow errors caused by pipe internal diameter (ID) uncertainty and orifice plate misalignment. Also, varying pressures and temperatures coupled with low flowrates provide an added challenge. The pressure and temperature variations affect all of the flow equation parameters: discharge coefficient, velocity of approach factor, gas expansion factor, bore diameter, differential pressure, and density.

## SOLUTION

Emerson Process Management engineers provided the gas supplier with a highly reliable solution involving orifice plates with the Rosemount 3095MFP Mass ProPlate® Flowmeter. The 3095MFP combines the Rosemount 1195 Integral Orifice Plate and the Rosemount 3095 MultiVariable™ Mass Flow Transmitter, providing a completely assembled, ready-to-install flowmeter, reducing cost and simplifying installation.



*Rosemount 3095 provides real time, fully compensated mass flow measurement, reducing sources of traditional DP flow uncertainty.*



*Rosemount 3095 MultiVariable™ Mass Flow Transmitter.*

Orifice technology is proven with well established standards that both suppliers and customers can agree upon. This technology is reliable, increasing uptime and safety. Due to the low flow rates and small line sizes, the Rosemount 1195 Integral Orifice Plate was provided. The honed body of the integral orifice reduces ID uncertainty. Also, the self-centering design eliminates plate misalignment.

The 3095 transmitter measures process pressure, temperature and differential pressure simultaneously and dynamically calculates 'real time', fully-compensated mass flow. Fully compensated mass flow reduces sources of traditional DP flow uncertainty caused by pressure and temperature variation.

The 3095MFP delivers unprecedented mass flow accuracy of +/-0.9% over 10:1 flow turndown. For the gas supplier, this performance means reduced variability and improved reliability and safety.

The gas supplier's staff used the PC-based Engineering Assistant<sup>®</sup> software package and handheld HART Communicator to configure the 3095. The configuration software package contains a built-in physical property database so configuration was quick and easy.

Engineers at the gas supplier were impressed with the results of improved accuracy of billing and increased reliability, safety, and uptime. Along with the ease of installation, the Rosemount 3095MFP ensured accurate billing for their customers.

### RESOURCES

#### Rosemount 3095MFP Mass ProPlate Flowmeter

<http://www.emersonprocess.com/rosemount/products/flow/massprpl.html>

#### Emerson Process Management Chemical Industry

<http://www.emersonprocess.com/solutions/chemical>

*The Rosemount 3095MFP ensured accurate billing for their customers.*



Rosemount 3095MFP Mass ProPlate Flowmeter

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