

Large Texas Refinery Improves Reliability and Personnel Safety in Hydrofluoric Acid Application Using the Rosemount 8800 Vortex Meter

Results

- Enhanced personnel safety using the Rosemount™ 8800 Vortex flow meter with isolated sensor design and Critical Process Safety valve for verifiable secondary isolation.
- Eliminated up to 32 potential leak points
- Signal Strength can indicate cavitation, erosion of the shedder bar or flexure, sensor deterioration, etc., improving the overall measurement confidence.



Application

Hydrofluoric Acid (HF) as a chemical catalyst in an Alkylation Unit

Customer

Large refinery on the Gulf Coast

Challenge

In recent years, the petroleum refining industry has placed an increasing emphasis on the safety of the use of HF in petroleum refineries. Refineries use the acid in a manufacturing process called alkylation which is increasingly important in producing a high-quality gasoline. HF is extremely hazardous and corrosive, and if accidentally released, can form a vapor cloud. Existing orifice meters pose risks due to a high number of potential HF leak points from threaded connections. For this reason, the American Petroleum Institute (API) has established guidance on the safe operations of HF alkylation units, as seen in RP-751.

Solution

A large refinery in Texas decided to replace their traditional orifice installations with the Rosemount 8800 Vortex Flowmeters. The Vortex meter eliminated a multitude of issues they were experiencing on the HF application. The isolated sensor design seals in the process while the all-welded meter body enables online maintenance and sensor verification. A Critical Process Safety Valve further enhances the safety of the critical measurement by verifying the sensor cavity has no process fluid before removing the sensor nut. This design fully eliminated the need for bypass lines and increases personnel safety significantly by eliminating potential leak points. The possible damage due to corrosion was an important consideration when choosing the correct device, and the Vortex meter provided several choices of wetted materials. Nickel is the basis of a group of materials used for corrosive applications. In general, nickel alloys have the basic corrosion resistance of nickel combined with the added resistance associated with the alloyed metal. This combination made for a reliable solution against corrosion. The Rosemount 8800 Vortex flowmeter was selected to significantly improve the safety and confidence of the measurement point while reducing the costs associated with installation and maintenance.

“The Rosemount 8800 Vortex flow meter was selected to significantly improve the safety and confidence of the measurement point while reducing the costs associated with installation and maintenance.”



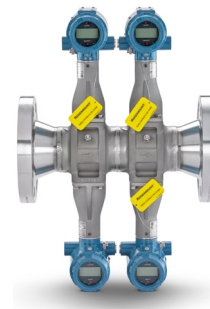
Rosemount 8800 Reducer Vortex

Resources

Emerson Automation Solutions Industries
[Emerson.com/Refinery](https://www.emerson.com/Refinery)



Rosemount 8800 Dual Vortex



Rosemount 8800 Quad Vortex

The Emerson logo is a trademark and service mark of Emerson Electric Co. Brand logotype are registered trademarks of one of the Emerson family of companies. All other marks are the property of their respective owners. ©2022 Emerson Electric Co. All rights reserved.

00830-2400-4003 Rev AA

Emerson Automation Solutions supports you with innovative technologies and expertise to address your toughest challenges.

For more information, visit [Emerson.com](https://www.emerson.com)