



PHARMACEUTICAL COMPANY ACHIEVES ACCURATE AND HYGIENIC MEASUREMENT WITH THE ROSEMOUNT™ 1408H LEVEL TRANSMITTER

Customer

Large pharmaceutical plant in Shandong, China.

Application

Level measurement in a 1.8-meter stainless-steel mixing tank containing multi-layer blades.

Challenge

The factory engages in the production of pharmaceutical feedstocks such as saline water and glucose, which is the core activity at the pharmaceutical plant. The facility has a variety of tanks including storage tanks, mixing tanks, intermediate reaction tanks and reaction kettles. It is critical for the customer to maintain accurate and hygienic continuous level measurement of the liquid level inside the tanks within the production process.

In order to manufacture pharmaceutical feedstocks in concentrated form, the customer uses mixing tanks of 1.8 meters (708.7 in) in height and 1.5 meters (590.6 in) in diameter. These tanks have a 2-layer blades agitators and each layer has 2 paddles separated by an 180° angle. The tanks undergo SIP cleaning when steam is added in order to sterilize the tanks while feeding and rinsing.

The plant earlier installed a mechanical float level gauge, but the operators were unable to detect the bottom of the tank. The mechanical float level gauge gave rise to erratic measurements caused by turbulence from the mixing action of the agitators, and it did not meet the local hygienic requirements set out by the plant safety council. Also, the mechanical level gauge was not suitable for use in applications with steam such as in SIP cleaning and delivered unreliable level measurement.

Results

- Accurate measurement achieved in mixing tanks with agitators
- Level measurement unaffected by steam and condensation from SIP cleaning
- Compliance with stringent hygienic requirements
- Easy integration into the existing automation system



Image 1. Rosemount 1408H Level Transmitter and hygienic Adapter 1.5 Triclamp.

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Solution

The customer removed their existing unreliable mechanical float level gauge and replaced it with a Rosemount™ 1408H Non-Contacting Radar Level Transmitter with a Tri Clamp process connection.

The Rosemount 1408H Non-Contacting Level Transmitter proved to be reliable and the non-contacting radar technology performed accurate measurements all the way up to the top of the tank with no dead zone, ensuring correct filling and liquid storage in the mixing tanks.

The transmitter features 80 GHz frequency modulated continuous wave technology (FMCW), which can generate a narrow-focused beam that is not affected by agitators or turbulent surfaces. The customer also gained more reliable level measurement in their tanks thanks to the Fast Sweep Technology, which allowed them to get the quickest level measurement by collecting up to 40 times more information than legacy transmitters and providing more information about the level surface in the presence of turbulence and agitations.

The Rosemount 1408H has a stainless-steel housing with minimal crevices and drip-off seal design, which is unaffected by condensation and steam during SIP cleaning. Thus, it helped the customer meet the most stringent hygienic requirements and proved to withstand tank cleaning processes at the plant. Finally, the Rosemount 1408H makes use of hybrid communication (4–20 mA, IO-Link and configurable switch output), so it was easy and simple for the customer to integrate the device into their existing control system using 4–20 mA.

Resources

Rosemount 1408H Level Transmitter:
[Emerson.com/Rosemount1408H](https://www.emerson.com/Rosemount1408H)

Emerson Life Sciences Industry:
[Emerson.com/LifeSciencesMeasurement](https://www.emerson.com/LifeSciencesMeasurement)

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

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ROSEMOUNT™

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The transmitter has a stainless-steel housing with minimal crevices and drip-off seal, thus helping the customer to meet the stringent hygienic requirements.

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The Rosemount 1408H is able to handle internal obstructions such as agitators and turbulent surfaces, and provide reliable and accurate level measurement.

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*Instrument & Equipment Director
Pharmaceutical plant*



Image 2. Mixing tank with multi-layer agitator blades.


EMERSON™