

## Reliable Tank Level Measurement

Plant Name: North American Chemical Manufacturer

Industry: Chemical

Product(s): Intermediate Chemicals

### Application

Throughout process industries including chemicals, petrochemicals, plastics, pulp & paper, and refining, storage tanks are widely used to hold feedstocks and final products. Tanks are highly specialized. Designed specifically with the safety and preservation of a particular chemical in mind, they are kept as cool and dry as possible to prevent spoilage and safety risks.

Since storage tank sizes vary widely by process and material, a large portion are installed outdoors and, therefore, exposed to ambient conditions. In locations such as the Texas panhandle, the daily temperature in the spring could vary by 30°F. During the winter, a cold front can bring a 50° temperature swing in a matter of hours. Incorrect level measurement due to changes in ambient or process temperature can cause the tank to overflow, leading to safety hazards, lost product, inventory control problems, environmental contamination, and damage to process equipment such as pumps.

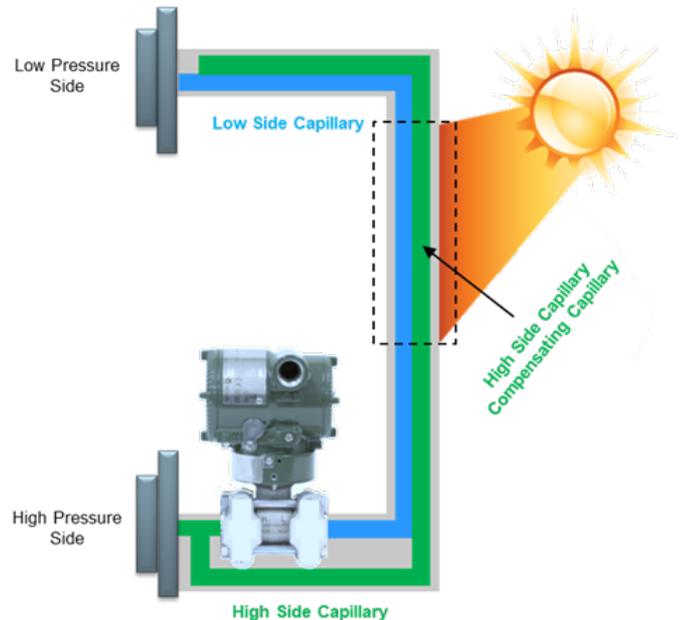


### Challenges

Differential pressure (DP) level measurement is among the most common methods to determine the quantity of chemicals or raw materials inside a tank. Accurate quantification simply requires DP and the density. However, for tanks located outdoors, ambient temperature conditions can interfere with the level measurement due to the expansion and contraction of oil inside capillary tubes that are connected to diaphragm seals.

## Solution

Yokogawa has designed the EJXC80A Diaphragm Seal System with a unique compensating capillary specifically to address this issue. The compensating capillary is an additional capillary tube on the high-pressure side of the transmitter that balances the volume of fill fluid with the capillary on the low-pressure side. This allows both the high and low side fill fluids to be exposed to the same conditions and reduce errors caused by changes in ambient temperature. By reducing variability in tank measurements, chemical storage capacity can be increased and operators can better manage production targets. In addition, there is no need to perform manual checks to confirm tank levels and periodically re-zero the transmitter.



## Key Advantages



- Eliminating re-zeroing and manual check requirements reduces maintenance OPEX costs.
- Stable measurement leads to increased storage capacity, improved production management and improved profitability.
- Reducing the risk of tank overflows reduces risks in terms of process downtime, inventory management problems, environmental contamination incidents and safety compliance.