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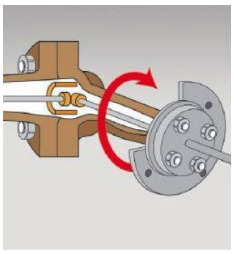
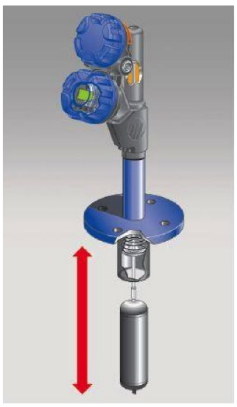
Major Chemical Manufacturer Utilizes E3 Modulevel® For Total Level And Interface Applications

One of the world's largest producers of caprolactam, an organic chemical used as a precursor to the manufacture of synthetic fibres, required continuous monitoring of liquid levels in tanks.

The temperature range of the medium could reach 170°C (338°F) with an operating pressure of 3.5 bar(g) (50 psig). Level devices had to be reliable, as they are a part of the emergency shutdown (ESD) system and be able to handle sudden spikes and turbulence. After deliberation, the Magnetrol E3 Modulevel® liquid level transmitter was chosen. The Model E3 has a history of success in the chemical industry, has ratings far above what was required for these applications, is SIL 2/3 certified, and can measure either total level or interface.



Torque Tube Technology



Range Spring/LVDT Technology

Unlike torque tube displacer transmitters, the Model E3 utilizes a precision range spring and a highly accurate linear variable differential transformer (LVDT) to detect and convert liquid level into a stable 4-20 mA output signal. The range spring and stem attached to the LVDT core move vertically, eliminating the occurrence of friction or wear often found with torque tube arms mounted on a knife edge.

Although the displacers can vary widely in length, the LVDT core movement is only 32 mm (1.25") maximum. This minimal core movement, along with the damping spring, results in a stable output signal, even during extreme turbulence, to prevent false trips of the ESD system.

The simple construction of the Model E3, which consists of three main elements, allows the customer to carry out their own repairs. As a result, operating costs, maintenance time and the requirement for spare parts, are reduced. Consequently decreasing the overall budget for the retrofit project, which consisted of over 120 level transmitters.

Magnetrol has a variety of technologies to measure total level and interface based on user operating conditions and safety requirements. In this case, a time-tested displacer technology was the best choice for the turbulent process conditions and SIL 2/3 certification requirement.

For more information on the differences between the Model E3 and torque tube displacer level transmitters download our white paper.

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