

B i o t e c h n o l o g y P r o c e s s V e s s e l

Part Number: 05-02
550675 Revision B



THE APPLICATION PROBLEM

A west coast biotechnology manufacturer was developing a proprietary process involving blood plasma. The process produced a highly-confidential and expensive liquid valued at approximately \$100,000 for each 1/8 inch of liquid.

This manufacturer had many requirements in choosing an instrument to measure this liquid:

- High degree of accuracy
- Ability to be installed in a low-head clearance area
- Sanitary measurement device

Since this liquid was so expensive, accuracy of the level measurement was critical; a device with high resolution was needed. In addition, these process vessels range in height from 6 to 8 feet, leaving only approximately 2 feet of head clearance for installation purposes. Since the process included blood plasma, a sanitary means of liquid level measurement was also required.

Reference:

Level Sensors Brochure: Part No. 550650.
M-Series Digital Specification Sheet: Part No 550784
M-Series Analog Specification Sheet: Part No 550677

The manufacturer considered many different technologies for this application. Weigh tables and load cells could solve the low head clearance issue, but the cost and recertification requirements of these technologies was unacceptable. Ultrasonics and Radar technologies were ruled out because this process contains foam and is agitated, conditions that render these technologies ineffective.

THE LEVEL PLUS SOLUTION

After researching many types of level technologies, this customer chose the M-Series magnetostrictive level gauge. The model that best suited their application was:

- Single-loop gauge with HART® communications
- Sanitary NEMA Type 4X enclosure
- 316L stainless steel sanitary gauge

M-Series gauges use magnetostrictive technology. Magnetostriction provides a high degree of accuracy that is unaffected by volatile process conditions.

M-Series gauges are modular. The modules consist of the electronics housing, sensing element, and the sensor pipe. This allows the sensor pipe to be installed and sealed in the vessel, while the electronics and flexible sensing element can be removed from the sensor pipe.

In this application, the M-Series sanitary outer pipe was mounted in the vessel before installation in the building. The flexible sensing element and electronics housing were then installed into the sensor pipe in the low-head clearance area. Should future need arise, the customer may remove the flexible sensing element and electronics housing from the rigid sanitary outer pipe in the low-head clearance area without having to removing the pipe from the vessel. This design also eliminates the need to shut down the process, preventing costly down time.



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