

# case history

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## Market: Production of Biopharmaceuticals

### CUSTOMER

The Andover, Mass., production facility of Genetics Institute, Inc., which is headquartered in Cambridge, Mass.

### PROBLEM

The facility uses many stainless steel pharmaceutical vessels, ranging from 250 to 2500 liters. GI implemented a level-sensing system to measure biopharmaceutical product levels in the vessels -- as well as the buffers, acids and caustics used for various process and sanitization procedures. GI had tested many level-sensing technologies, including differential pressure cells and capacitance sensors. However, these technologies didn't perform well during trial runs. Also, they didn't provide a clear picture of product levels at the vessel's bottom. Dissatisfaction with those technologies caused GI to test Kistler-Morse stainless steel Sonologic Level systems. Although the units worked well for about 12 cycles under test conditions, they would eventually fail because of the sterilization procedures used on the vessels. The vessels are typically sterilized with steam heated at up to 275 degrees F at 30 PSI for an hour; the original K-M units were only specified to operate continuously at 230 degrees F at 50 PSI, and at 250 degrees F for about five minutes.

### APPLICATION

Kistler-Morse mechanically redesigned the transducers, which resulted in a Sonologic system that withstands the superheated sterilization environment. "We upgraded internal materials in the sensor that are rated to take higher temperatures, and changed the package design" says Kai Mesterton, senior project engineer at Kistler-Morse. The upgraded units are specified to perform indefinitely at 275 degrees F at 50 PSI, and 300 degrees F for washdowns. The new design also allows for leak integrity testing, using standard soap bubble techniques.

### BENEFIT

"We're seeing better accuracy in our tests so far, compared to the differential pressure cells," says Derek Neely, manager of GI's Automation and Instrumentation engineering group. "It has twice the resolution that we saw in the tests of the DP cells."

### CONCLUSION

Derek emphasized that the Kistler-Morse system is still undergoing rigorous testing, but the results so far are encouraging. "Although our biopharmaceutical products are unique, the sterilization processes we use are pharmaceutical industry standards, so if the (K-M) units hold up under testing, they could have wide application throughout the industry," Neely says.