



**Kistler-Morse®**

*Direct Support Products*

*case history*

## **Market: Beverage Industry (Beer Brewing)**

### **CUSTOMER**

Rainier Brewing Co. of Seattle, WA, is owned by G. Heileman Brewing Company, Inc., of Milwaukee, WI.

### **PROBLEM**

Rainier's Seattle brewery previously used outdated mechanical scales to weigh ground malt and corn grits loaded into two 6,200-lb. feed hoppers. The mechanical scales were accurate within 5.0% on the loaded feed hoppers, which are then emptied into a 15,000-lb. mash tun cooker. Each 100 pounds of ground malt equals about 62 gallons of beer (or two barrels of beer), according to Terry McAdams, Electrical Engineer at Rainier Brewery.

But the mechanical scales used to weigh the ground malt were only accurate with 5.0% of total weight -- or about 600 pounds. In other words, the brewery was experiencing a margin of error of 372 gallons of beer because of the weighing system's limited accuracy. The brewery wanted to find a better way to improve its weighing accuracy and reduce shrinkage.

### **APPLICATION**

In 1990, the brewery installed four Kistler-Morse Load Disc transducers beneath the facility's 15,000-lb ground malt hopper. Since installation, the Load Discs provide accuracy within 100 pounds for the ground malt hopper, according to McAdams. Therefore, the brewery's new weighing system is now accurate within

0.70% of total load --nearly a sevenfold improvement in weighing accuracy.

### **BENEFIT**

Because of the installation of new weighing equipment and changes in which vessels are weighed during production, the brewery has reduced the margin of error for each beer production run down to just 62 gallons (it had been 372 gallons). In addition to the four Load Discs installed under the 15,000-lb. ground malt hopper, Rainier Brewery has made extensive use of other Kistler-Morse equipment. "Now we're totally automatic," McAdams says, "The reliability of the equipment has been real good. They'd better be good -- because if they don't get those weights right, then we're dead in the water."

### **CONCLUSION**

The brewery has not only automated its weighing and batching operations, but it has dramatically reduced margin of error for beer production runs. The Kistler-Morse equipment functions in a washdown environment, and is exposed to heat fluctuations as low as 40 degrees Fahrenheit in the winter and as high as 100 degrees Fahrenheit in the summer. Each weight transducer interfaces with a third-party programmable logic controller via 4-20mA outputs, though digital signals are also available.