

# Application News

## *Positive Displacement Flow Meters Used in Manufacturing Packaged Meats*

*Industry: Food & Beverage*

*Service: Flow Rate/Total*

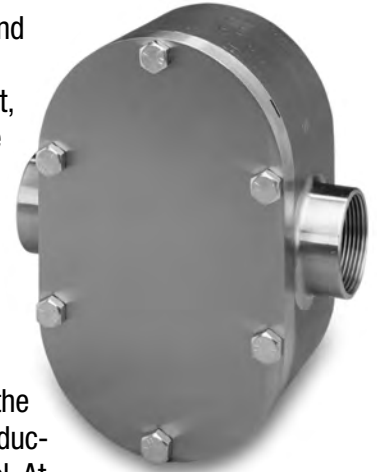
*Fluid: Water & Corn Syrup*

### **Overview**

In the packaged meat industry, it is desirable to be able to process meat, such as cured beef and pork, in ways that are economical and safe and produce a food product that is convenient and attractive for the consumer. In the case of bologna, a typical production process combines meat, seasonings, water and other ingredients, plus a curing mixture that includes sodium nitrite. The meat is ground and chopped very fine, and at large bologna factories, it's pureed so the machines can pour into casings. All bologna is cooked and smoked to pasteurize it, so it's ready to eat when purchased.

### **Situation**

A large manufacturer of packaged meats had previously purchased FTI flow meters for their lactate lines, and was very pleased with the meters' performance. An additional application at the meat plant involved flow measurement on two-inch water and corn syrup lines used in the production of bologna. The application also required a flow rate indicator and totalizer for batch control. At this point in the process, however, it was not necessary to have a sanitary tri-clamp connection on the flow meters. The manufacturer needed a flow meter it could "Clean in Place" and disassemble without being removed from the line. Low pressure-drop across the flow meter on thick fluids such as corn syrup was also a must.



### **Solution**

Flow Technology worked with its local representative to identify viscosities, flow rates and acceptable pressure drop across the flow meters during bologna processing. The Decathlon Series Positive Displacement (PD) meter was subsequently chosen for this application. The customer purchased two-inch DC-I meters for both water and corn syrup lines. The DC-I meters are constructed from U.S. Food & Drug Administration (FDA) approved materials and meet Clean In Place (CIP) requirements.

By using the same PD meters on both lines, the customer benefitted from interchangeability and the reduced need for spare parts inventory.

### **System Description**

The two-inch DC-I PD flow meters handle a 3600cP fluid at 8.7 Gallons Per Minute (GPM) on the corn syrup lines, and measure 36 to 40 GPM on the water lines. IS160-01 Hall Effect Sensors and 12-foot sensor cables are also used. In both cases, a square-wave pulse output is provided to MB10 Batch Controllers.

The Decathlon Series meters are well suited for measuring thick fluids thanks to their loose geometry thermoplastic impellers. This geometry provides lower pressure drop across the meter than typical positive displacement designs. The flow meters can be cleaned in place while remaining in the line, and if a foreign material gets trapped in the impellers, technicians can remove the meter cover plate for easy maintenance without taking the instrument out of service.

### **Technical Information**

Flow Meters: DC20I-6193-5120000

Electronics: IS160-01 Hall Effect Sensor, 19-94506-01 Sensor Cable,  
MB10-1A30 Batch Controller

Flow Rate: 8.7 GPM (Corn Syrup) and 36-40 GPM (Water)

Fluids: Corn Syrup & Water



8930 S. Beck Ave., Suite 107 • Tempe, AZ, 85284 USA  
Tel: 480.240.3400 • Fax: 480.240.3401 • Toll-free: 800.528.4225  
E-mail: [ftimarket@ftimeters.com](mailto:ftimarket@ftimeters.com) • Web: [www.ftimeters.com](http://www.ftimeters.com)  
©2010 Flow Technology, Inc. DB-100180 Rev A