



# APPLICATION NOTE

**INDUSTRY: FOOD**

**MARKET NICHE: JUICE**

**PRODUCT: DC-F SANITARY POSITIVE DISPLACEMENT FLOWMETERS**

**FLUID: SINGLE STRENGTH JUICE**

**SERVICE: BATCHING AND CONTINUOUS BLENDING • VISCOSITY: 4.4–5.3 cP**

## OVERVIEW

As processing systems become more sophisticated, flowmeters play an increasingly critical role in providing feedback for proper monitoring and control. These systems can even process more difficult fluids such as single strength juice. However, most flowmeters cannot accurately measure juice because of the pulp and solids in it. Flow Technology positive displacement flowmeters can. Their simple, durable design allow them to handle tough fluids, like juice, while still providing high accuracy.

## SITUATION

A juice processor in Florida converted orange juice concentrate into several products including single strength juice. His operations included large individual batches and continual batching systems leading to packaging. The customer needed a simple method of verifying batch sizes and evaluating the performance of the batching system.

## SYSTEM DESCRIPTION

From a storage tank, a positive displacement pump transferred the concentrate to a blending system utilizing metering pumps where the concentrate was converted into the needed new product. A Flow Technology meter was placed on the concentrate metering head and on the water metering head.

## ANALYSIS

The Flow Technology flowmeter helped monitor two major aspects of the processing system. The first was the natural mechanical error caused by the wearing, aging, or malfunctioning of check valves and pumps. For example, the valves would hang up or lose efficiency and the pump rate dropped off as seals wore out. The flowmeter gave clear feedback on exactly how much liquid was going through the system. The second problem developed if the brix of the concentrate varied within the batch. The flowmeter signaled the system that the product changed when its highly repeatable performance showed a variation in the amount of liquid moving through the processing line.

The customer had been concerned that production time would be lost when maintenance was done on the flowmeter. However, the Flow Technology meter proved to be easy to clean and it required very little maintenance.

## SALES INFORMATION

The processor was a primary customer of the sales representative. When the blending system was ordered, the representative suggested that a Flow Technology flowmeter could help monitor the system. The processor was not convinced that a flowmeter would greatly simplify their sampling procedures. One of their initial concerns was that any meter that could measure single strength juice would not be accurate enough for them to see any benefits. The pulp in the juice made it difficult to measure.

In response, the representative pointed out Flow Technology's simple design and high accuracy. The final selling point was the fact that the Flow Technology positive displacement flowmeter had performed well on similar juice applications.

## TECHNICAL DATA

Flowmeter: DC20F-6113-5420137/DC30F-6113-5430137

Flow rate: 0–25 gpm/50 gpm

Fluid: Single Strength Juice, 4.4–5.3 cP



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