

Filling Industry

Overview of Filling Industry and Process

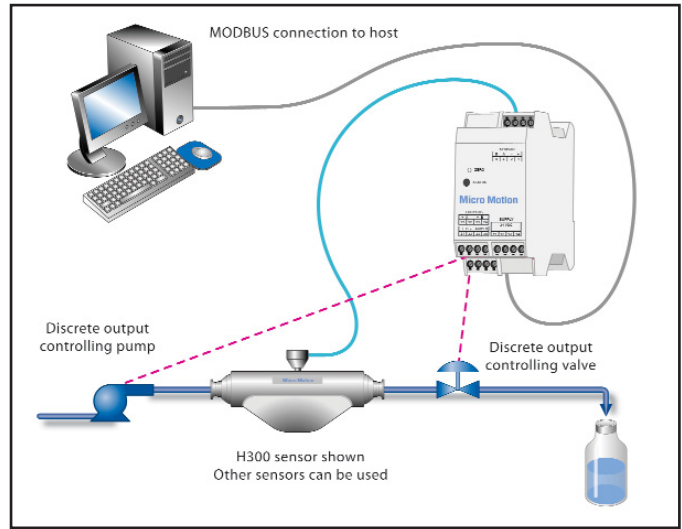
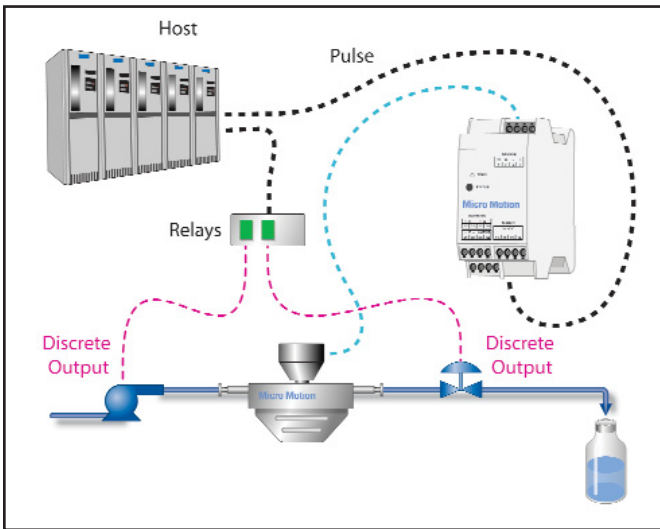
Current world demand for filling machines has been steadily growing and is expected to do so for the foreseeable future. Companies in food and beverage, industrial, and pharmaceutical industries are faced with tighter budgets and pressure to improve the bottom line. The result is that these industries are turning to new filling methods to reduce waste and product giveaway. Traditional filling machines (such as positive displacement (PD) piston, PD pump, time pressure, and gravimetric scales) utilize a number of different technologies to fill containers. Flowmeter based machines are a fast growing segment of this market with magnetic and mass flow technologies leading the way.

Recently, flowmeter-based machines have made gains in popularity due to their flow through design, ease of cleaning, and ability to do fast fills.

Flowmeter-based systems consist of a product delivery system, a flowmeter, a host system, and a fast fill valve. Current methods of control for a flowmeter based system utilize a high speed counter card to count pulses from the flow tube. The host system then runs an algorithm which determines when to close the fill valve. System control latencies are created by generating a pulse, counting it and then determining when to close the fill valve. These have a negative effect on fill accuracies.

Filling Industry Diagrams

Micro Motion offers flexibility in filling process setup, eliminates latency, provides fast accurate fills, and valuable quality control data after every fill!



Comparison of the Most Popular Filling Machine Technologies

- Mass Measurement
- Cleanability (CIP/SIP)
- Accuracy
- Repeatability
- Temperature fluctuation ability (Post CIP)
- Complexity of system
- Entrained air ability
- Super small fills (<10 grams)
- Super short fills (<1 second)
- Requires regular maintenance/calibration
- No moving parts to shear product

	Micro Motion Meter	Volume Piston	Volume Pump	Magmeter	Gravimetric Scales
Mass Measurement	Best	Better	Better	Better	Best
Cleanability (CIP/SIP)	Best	Better	Better	Better	Best
Accuracy	Best	Better	Better	Better	Best
Repeatability	Best	Better	Better	Better	Best
Temperature fluctuation ability (Post CIP)	Best	Better	Better	Better	Best
Complexity of system	Best	Better	Better	Better	Best
Entrained air ability	Best	Better	Better	Better	Best
Super small fills (<10 grams)	Best	Better	Better	Better	Best
Super short fills (<1 second)	Best	Better	Better	Better	Best
Requires regular maintenance/calibration	Best	Better	Better	Better	Best
No moving parts to shear product	Best	Better	Better	Better	Best

■ Best
■ Better
■ Basic

Customer Challenges Overview

- Product container overfills (giving away product)
- Packaging off-spec product
- Maximizing production uptime
- Lack of container size range ability on existing filling machine design

Improving Process Efficiency

Recommended Product Solution

Challenge #1 – Product Container Overfills

Micro Motion 1500 Dosing & Filling Transmitter

Customer Challenge: With the limitations of older filling technologies, many companies are forced to overfill containers in order to assure that consumers get the amount of product stated on the label. This results in product giveaway which has a direct negative impact on their bottom line.

Solution: Micro Motion 1500 Filling and Dosing transmitter with AOC system control architecture eliminates the system latency commonly found with pulse counting control schemes. In addition, mass-based fills are not affected by pressure, temperature, or viscosity changes. These benefits out perform other meter and non-meter technologies and assure on set point fills every time.

Micro Motion 1500 Filling and Dosing Transmitter with AOC and discrete valve control



Challenge #2 – Packaging off-spec product

Micro Motion 1500 Dosing & Filling Transmitter

Customer Challenge: Packaging off-spec product can have huge financial consequences for companies. Lack of consumer confidence and lost market share are possible and, in the case of food, beverage, and pharmaceutical companies, eliminating the possibility of harming the consumer is paramount.

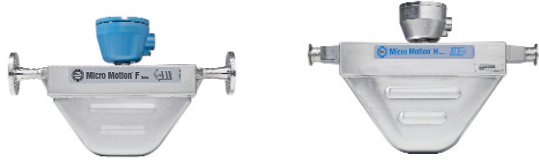
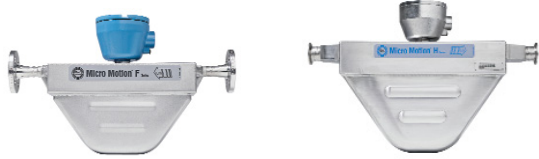
Solution: Micro Motion 1500 Filling and Dosing Transmitter with digital temperature and density reporting provides live, on-line quality control data to the host system to prevent packaging off-spec product.

Micro Motion 1500 Filling and Dosing Transmitter with digital temperature and density reporting



Improving Process Efficiency

Recommended Product Solution

Challenge #3 – Maximizing Production Uptime	Micro Motion F-Series and H-Series
<p>Customer Challenge: In today’s fast paced production environment, companies try to eliminate downtime as much as possible. Older packaging systems that require hours to do product changeovers cost the company valuable revenue.</p> <p>Solution: Micro Motion sensors, with no moving parts and a CIP/SIP design, allow super fast product changeover times.</p>	<p>Micro Motion hygienic flowmeters for Food & Beverage and Life Science Applications</p> 
Challenge #4 – Container Size Rangeability	Micro Motion F-Series and H-Series
<p>Customer Challenge: Lack of rangeability on some filling machines causes increased equipment costs and reduces uptime. Double stroking pistons, having to keep different sized components in stock, or having longer fill times to complete larger fill sizes is a problem faced by packagers.</p> <p>Solution: Micro Motion flowmeters with their high turn-down capabilities allow a large range of product container sizes to be quickly packaged with a single sensor.</p>	<p>Micro Motion hygienic flowmeters for Food & Beverage and Life Science Applications</p> 

Resources and References:

Micro Motion 1500 Filling and Dosing Transmitter Usage and Configuration Manuals (P/N20002743 Rev.A)

Micro Motion 1500 Filling and Dosing Product Data Sheet (PS-00717 Rev.A)

Micro Motion Coriolis meters fill the bill for accuracy and fast product changeovers. Application Note in process (AN-00340 5/02)