Inline Leak Detection for Meat Packaging

Process Overview

Gaining a competitive advantage in today's meat packaging industry begins with enhanced control of the packaging lines. With changing consumer demands and greater emphasis on product quality and safety, effective packaging processes translate to increased production and greater customer satisfaction.

Modified atmosphere packaging (MAP) is a process developed to extend the shelf life of meat products. MAP substitutes the air inside the package with a protective gas mix. The advantage of MAP is that it slows down the chemical reactions that cause product deterioration, which results in a shelf life two to five times greater than packages with regular air. However, rips, punctures or incomplete seals resulting from issues upstream in the packaging line damage the seal integrity of the package and ultimately impact product quality

Packaging Challenges

MAP is only effective if the actual package itself is intact, making leak testing an essential process step in any end-to-end packaging operation. Leaks in packages cause deviation from the specified MAP gas mix, affecting the quality and shelf life of the product. As a food manufacturer or packager, you are challenged with:

- Ensuring the highest level of quality control
- Preventing customer dissatisfaction and product returns
- Minimizing product waste
- Accommodating quick and flexible product changeover

Meat processors and packagers are turning to new technologies to improve product quality, reduce waste or spoilage due to faulty packaging, and to comply with increasing quality requirements.

The Emerson Solution

Emerson's Rosemount™ CT4215 Packaging Leak Detection System enables 100 percent inline testing of individual packages to prevent faulty packs from leaving your facility, minimizing product losses and costly returns. The system is fully automated and uses Quantum Cascade Laser (QCL) technology to detect trace gases in real time and instantly reject leaky packs without disrupting the production line.

With its speed of 200 packages per minute, small footprint, easy integration into your existing line and visibility into batch quantities and rejection rates, you will be able to optimize production and operational efficiency while ensuring product quality control. Typical applications include:

Products	Packaging Type	Gases
Beef, pork, poultry	Trays, pouches, bags	CO_2, CO, N_2O

Flexibility

Gain flexibility to meet market demands while maintaining productivity

Support all packaging types with minimal changeover

Productivity

Gain insight into production line performance

Inline measurements up to 200 packs per minute

Quality

Reduce costly product losses and waste

Detect leaks at a sensitivity of < 0.3 mm

Compliance

Ensure safe, quality products from your lines and on the shelf

100% product inspection

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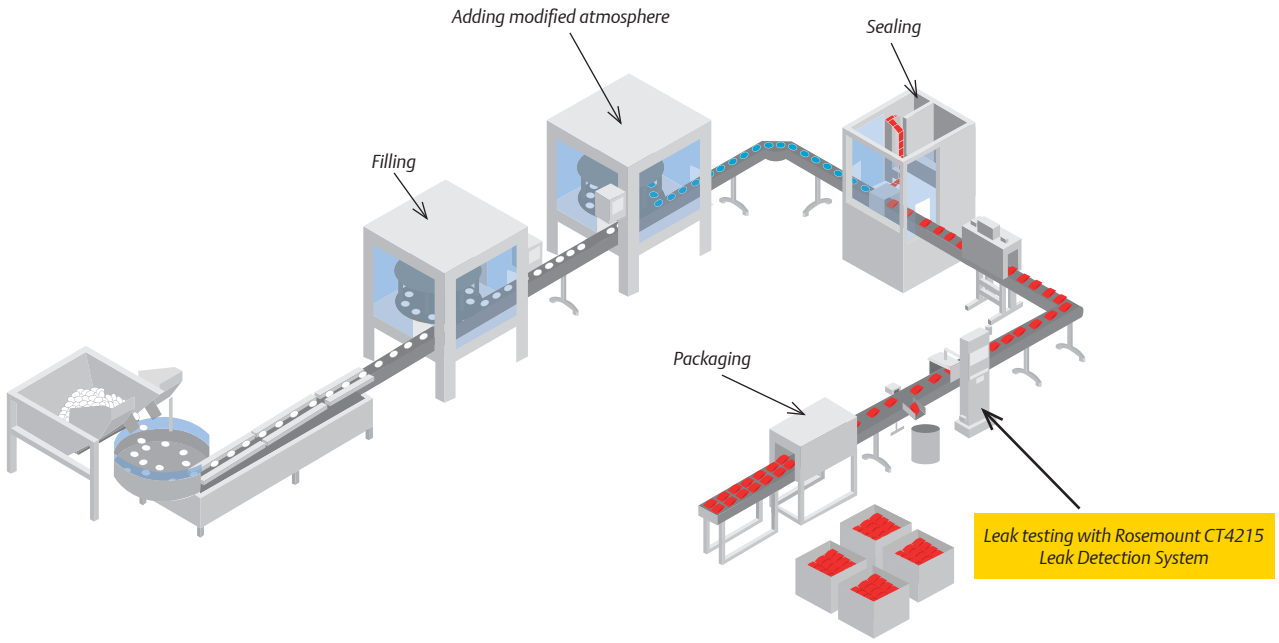
Easy Integration & Operation

The Rosemount CT4215 is designed for easy installation and configuration onto any production line without retrofitting and requires minimal downtime. User configurable alarms notify operators of required troubleshooting actions when multiple leaking packages are identified, and the system's modular, flexible design easily accommodates future gas requirements and new package types.

Features	Benefits
Patented QCL Technology	Detect individual leaking packs with sensitive, fast, and repeatable measurements.
Small Footprint	Easy installation and compact design means minimal impact on your production line.
Automated Rejection	Identify and remove defective packaging from the line without disrupting production.
Full Data Logging Capability	Monitor production data at-a-glance, simple recording with user-friendly software.
Modular by Design	Support easy servicing and system upgrades.
Alarming Capabilities	Reduce waste by quickly identifying leaking packages and resolving the issue before it results in unnecessary wasted packaging.

Figure 1- Typical MAP Production Line



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