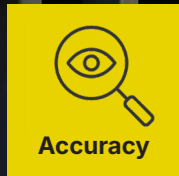


# FOOD & BEVERAGE PACKAGING STATION



Accuracy

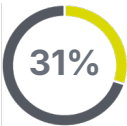


Precision



Reliability

## ENSURE ABSOLUTE PACKAGING INTEGRITY & REDUCE REWORK: PINPOINT PACKAGING PROBLEMS TO REDUCE CONTAMINATION



**Over a third of all global food waste stems from packaging failures.**<sup>1</sup> Whether it's weak or inaccurate seals and micro-leaks due to poor material compatibility and design flaws, every faulty pack represents a lost product, mounting waste, and potential profit loss.



**Food recalls are surging. In 2024, they rose by 10% year-on-year,**<sup>2</sup> **with defective packaging (including seal failures and underfills) among the core contributing factors.** Every packaging error magnifies production costs and risks wide-ranging reputational harm as consumers demand quality and consistency.



**As much as 40% of seal defects are missed by standard visual inspection methods in flexible food-packaging systems.**<sup>3</sup> Reliance on manual or optical checks allows micro-defects to slip through undetected, shortening shelf life and compromising safety.

### Why choose Flir thermal imaging for your packaging station?

Defective packaging lets particles in, leakage out, and causes quality to quickly degrade. At high-speed food production stations, visual checks simply can't keep pace with the scale of operations. Heat-related seal defects are invisible to standard cameras and the naked eye, meaning that manual methods leave gaping blind spots in processes, which risk escalating costs through product rework or recall.

Flir's networked thermography sensors, such as the A70 Fixed-Mount Thermal Camera, enable full-line, non-contact monitoring of both seal and fill zones.

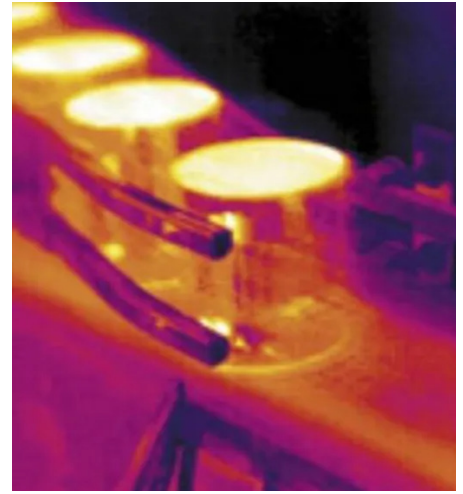




Positioned either above the conveyor or by the line, these sensors can capture even the most minute variations in temperature in the packing after and during sealing.



This ensures that contaminants are caught in real-time, radically reducing spoilage, identifying weak seals or underfills, and that every pack that leaves your facility has the 'seal of approval'.



Bytronic Vision Intelligence, a leading Flir integrator, applies this technology in its proprietary SealCheck DL solution built for packaging stations. Combined with AI-powered deep-learning logic, SealCheck inspects every product in real time, automatically flags non-conforming packs, and provides live data for process control, reducing rework and preventing recalls.

## Key values

### ≤100% in-line inspection coverage

Every pack's seal and fill is checked in real time, eliminating manual "spot" verification and ensuring no defective pack leaves the line.

### Instant, reliable defect detection

Thermal vision spots weak seals, trapped product, leaks, or underfills at the moment of sealing the packaging—before faults escalate or reach distribution.

### Traceable quality for compliance

Easily to intergrate with existing workflows, Flir solutions can produce automated logs, timestamped inspection records, and dashboard-ready data that support Hazard Analysis and Critical Control Points (HACCP), Brand Reputation through Compliance Global Standards (BRCGS), and audit demands by proving seal integrity at scale.

### Reduced waste and cost

Fewer reworks, fewer discarded packs, fewer recalls. Automated thermal inspection turns packaging from a pronounced risk into a performance-optimising operation in your food and beverage facility.

## Key applications

### Reduce packaging errors

#### Inspect seal and fill integrity in flow-wrapped or pouch lines

Flir thermal sensors accurately distinguish the product interface from surrounding packaging surfaces, enabling precise verification of correct fill levels and robust seal formation, even when working with opaque, patterned, or multilayer pouches.

#### Automate rejection and process trigger systems

Seamless integration with SCADA or PLC systems allows failed packs to be instantly rejected or diverted, while feeding fault data into BI tools and activating corrective actions automatically, removing the need for manual oversight.

### What can Flir thermal imaging do for your packaging station?

#### Elevate brand protection and operational efficiency

Continuous, automated inspection significantly reduces packaging-related recalls and strengthens brand trust, while improving throughput, minimising downtime, and lowering overall running costs across the line.

With Flir thermal imaging—including the sensors used in Bytronic's SealCheck DL solution—food producers gain the visibility, control, and confidence needed to maintain true packaging perfection every time.

#### Sources

- 1 Gitnux - Sustainability in the Packaging Industry Statistics, 2025
- 2 Innovations in Food & Beverage - Food recalls rise by 10 % in 2024: Industry experts highlight the challenges and solutions, 2024
- 3 Ilhan T. et al., Understanding the Factors Affecting the Seal Integrity in Heat-Sealed Flexible Food Packages: A Review, Packaging Technology & Science, Vol. 34 No. 6 (2021), Wiley Online Library



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