Vandemoortele Enhances Quality Assurance While Maintaining Efficiency

While others are still talking about Industry 4.0, Vandemoortele is already producing with self-learning quality control — and planning to roll it out at additional sites.

In cooperation with machine manufacturer Grunwald, Vandemoortele designed a new 5-lane Grunwald Foodliner for filling and sealing margarine cups in two different formats. One thing was clear from the start: the machine had to be mono-PP ready. The standard “headspace heating” quality control method would have significantly reduced cycle rates when processing mono-materials. That’s why Grunwald proposed using sealing heads from watttron™, which offer top-tier sealing quality for all lid materials — with integrated quality control.

This solution appealed to Vandemoortele because, ideally, it could also be retrofitted into their existing line. In that line, quality control is currently performed manually and on a spot-check basis — with no space for additional sensors or stations.

Tailored Integration

From the very first sealed cup, Vandemoortele was impressed with the seal quality — for both aluminum and mono-PP lids. After successful installation, the key step followed: customizing the quality control system to fit Vandemoortele’s specific production environment. In close collaboration with their production team, the intelligent monitoring system was configured to perfectly align with their established workflows and quality standards.

The result: a system that automatically adapts to real-world production conditions:

Smart Adjustment: The system independently recognizes when production parameters change — such as speed shifts or product changeovers — and adjusts its evaluations accordingly.

Transparent Monitoring: Production managers get detailed insight into results and can fine-tune tolerance thresholds to their specific requirements, ensuring full control over quality standards.

An Unexpected Highlight in Practice

During commissioning, one truly unique advantage emerged: our inline quality control detects when a lid sticks to the heating module. All affected sealed products are reliably rejected, and if the issue repeats, the line stops preventively — avoiding contamination or damage.

Results That Speak for Themselves

Performance data from the test phase shows that all faults with significant thermal impact were reliably detected.

Production Volume	11,760 units
Aluminum lid errors (misaligned, double, missing)	11 pieces (0.09%)
Detection Rate	100% (11/11)

The system started with conservative parameters to ensure **zero critical errors**. The result: 100% detection with only 0.26% additional rejects — a rate that continues to improve.

To further validate the system's precision, controlled contamination tests were conducted at Vandemoortele — from minimal 5mm deposits to clearly visible 25mm areas:

Section size (margarine)	Rejected as Poor Seal	Visual Assessment	Seal Integrity
5 mm	No	Good	Tight
10 mm	No	Good	Tight
15 mm	Yes	Insufficient	Tight
20 mm	Yes	Insufficient	Partially leaky
25 mm	Yes	Insufficient	Leaky

For contamination up to 10 mm, the system does not intervene — rightfully so, as the seals remain intact and visually acceptable. From 15 mm upward, the system begins rejection — the precise threshold where visual quality drops, even if the seal is still functionally tight. At 20 mm and above, the system prevents real leakage issues that could lead to complaints.

This technology makes an accurate distinction between "visually imperfect but functional" and "actual quality defects" — something traditional methods couldn't do. This saves both unnecessary waste and potential complaints.

The systematic validation proves: the production team has found the right balance between quality assurance and economic efficiency through optimized parameter settings.

What's Next? Now, the existing line — along with another line at a different site — will be upgraded with the watttron™ heating system and inline quality control.