



GENESIS QUARTERLY

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INSIDE:

REDEFINING VISUAL INSPECTION IN PARENTERAL PACKAGING

In this edition, we're proud to introduce a smarter way forward. Through our partnership with Boon Logic, Genesis Packaging Technologies is delivering a breakthrough in automated visual inspection: Advisum™, powered by AI-driven unsupervised machine learning. With this new platform, manufacturers can dramatically improve defect detection, streamline validation, and realize rapid ROI—all while reinforcing Genesis' 75-year legacy of leadership in parenteral packaging innovation.



A SMARTER PATH FOR CONTAINER CLOSURE

For decades, visual inspection of parenteral packaging has relied on rigid, rules-based camera systems – often difficult to program, slow to adapt, and costly to maintain. These limitations have left manufacturers struggling with inefficiencies, missed defects, and unnecessary expenses

Vial capping machines in today's industry frequently depend on rules-based camera systems to perform inspections. While these systems have served as the standard, they require significant manual programming for each defect type. Developing inspection "recipes" often means engaging OEMs or vision experts, consuming valuable time and resources. On top of that, software and hardware changes can quickly render these systems outdated, limiting adaptability to evolving production requirements.

The result? Inefficiencies, increased risk of missed defects, higher false reject rates, and added costs tied to rework or recalls. It's a reactive approach to inspection—when the industry needs something more proactive, flexible, and cost-effective.

INTRODUCING ADVISUM™ - POWERED BY BOON LOGIC AVIS

Genesis Packaging Technologies has long been a pioneer in the science of parenteral packaging and container closure integrity. Now, through our partnership with Boon Logic, we bring forward a transformative solution: **Advisum™**, the Genesis visual inspection platform enhanced with Boon Logic's AI-driven **AVIS** software.

Built on unsupervised machine learning, this system is designed for flexibility and ease of deployment:

Retrofit Compatibility

Advisum™ can be added to cappers already equipped with rules-based camera systems or integrated as a stand-alone station. It can even be applied to semi-automated inspection booths for final inspection.

Simple Validation

Unlike rules-based systems requiring defect libraries, Advisum™ can be trained quickly using only good product, making qualification straightforward.

Rapid Deployment

With training times measured in minutes, the system reduces setup complexity while delivering results faster than traditional approaches.

KEY ADVANTAGES OF AI-DRIVEN INSPECTION

Fast, Easy Training

Recipe training is simple and rapid, typically completed within minutes. No need to create or catalog thousands of defect samples.

True Reject Accuracy with Fewer False Rejects

Advanced pattern recognition improves detection reliability while minimizing costly over-rejects.

Streamlined Validation and Qualification

Once trained, the ML algorithm can be locked, simplifying compliance and validation processes.

Rapid Return on Investment

Whether managing high-volume/low-value or low-volume/high-value products, ROI is measured in weeks or months—not years.

Versatile Across Container Types

Effective with molded glass, tubular glass, molded plastic, and more.



TECHNICAL INSIGHTS

Traditional vision systems depend on defect libraries and rules-based analytics. By contrast, AVIS leverages unsupervised machine learning to detect anomalies and hidden patterns without pre-programming failure modes.

1,000X Faster Model Creation

AVIS builds models in minutes or hours rather than months.

Defect Detection at Scale

Optimized for pre- and post-cap operations, it catches the full spectrum of common defects.

Lower False Reject Rates

By modeling “normal” operation, the system avoids misclassifying acceptable product.

Types of Defects Detected:

- Raised or missing stoppers
- Misaligned caps
- Cap color inconsistencies
- Crimp quality issues
- Incorrect fill levels
- Product discoloration
- Particulate contamination
- Glass defects (cracks, chips, scratches, scuffs)

CONCLUSION: PROACTIVE INSPECTION FOR MODERN MANUFACTURING

By introducing Advisum™, Genesis Packaging Technologies and Boon Logic are changing the way manufacturers safeguard product quality. Defects are identified earlier, enabling real-time corrective action at the capping stage. This proactive approach reduces waste, prevents costly rework, and minimizes the risk of defective products reaching distribution.

More than just an inspection tool, Advisum™ represents a new standard for operational efficiency and product integrity in pharmaceutical manufacturing—continuing Genesis’ tradition of driving innovation in parenteral packaging.



KEEP YOUR LINE PRODUCING

MAINTENANCE & SERVICE

By Dave Sharman

Congratulations on a successful summer shutdown—at least we hope it was! If so, that success likely came from a well-executed pre-shutdown strategy. Careful preparation, seamless coordination, strong regulatory alignment, and smart use of both time and resources represent just some of the elements needed for such an effort. For Genesis, shutdowns—together with routine PM maintenance—remain vital opportunities to keep equipment operating at peak performance.

Preventive Maintenance

PM involves regularly scheduled tasks designed to prevent unexpected failures or breakdowns. The goal is to sustain performance, maintain GMP compliance, and extend equipment life. Compared to corrective or reactive maintenance, this proactive approach reduces the risk of costly downtime, production delays, and potential safety concerns.

Service Contracts

As part of a preventive maintenance plan, service contracts deliver a reliable and cost-efficient way to keep systems running smoothly. Benefits include predictable costs, less administrative work, priority scheduling, and access to virtual support. Service and training contracts for 2025 are now available.

Spares

From critical to operational, spare parts help maintain continuous operation by ensuring needed components are always on hand. By assessing risk, impact of failure, lead time, and cost, inventories can be managed more strategically.

"It's better to be prepared for an opportunity and not have one than to have an opportunity and not be prepared." – Whitney M. Young Jr.



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Field Rebuilds

A strong preventive maintenance program provides the insight needed to track and document field rebuild requirements, allowing rebuilds to be strategically scheduled to reduce downtime on essential production equipment. Restoring machinery to peak condition is key to extending asset life while ensuring production demands are met in the most cost-effective way.

Upgrades

Improving functionality, expanding capacity, integrating new technologies, meeting updated regulations, or simplifying maintenance—all can be achieved with standard or custom upgrades. For example, our latest standard upgrade replaces the stainless-steel mesh belt on large cappers with a modular plastic conveyor belt. Unlike mesh belts, which eventually slip due to worn O-rings, the modular belt is driven by toothed sprockets for consistent performance. It also allows for quick disassembly, cleaning, and replacement, while minimizing particulate risks. Its self-lubricating design enables quieter operation, and its uniform edging provides smoother vial transfer. A true all-around improvement.





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Genesis Packaging Technologies is a Worldwide Leader in the Science and Technology of Parenteral Vial Sealing and Residual Seal Force Testing

We provide advanced vial sealing equipment for the packaging of critical injectable pharmaceutical products. Genesis designs, develops and builds vial cappers with innovative technologies that meet the technical challenges of parenteral pharmaceutical packaging, assuring seal integrity and in compliance with advancing regulatory requirements for aseptic processing and container closure integrity. Offering our customers the tools and knowledge to consistently achieve container closure integrity remains our priority.

Purchasing equipment from Genesis offers customers support from a company with over 75 years of experience dealing specifically with vial handling equipment and technologies. Service is available on all equipment manufactured by Genesis and the former Machinery Systems Division of The West Company.

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