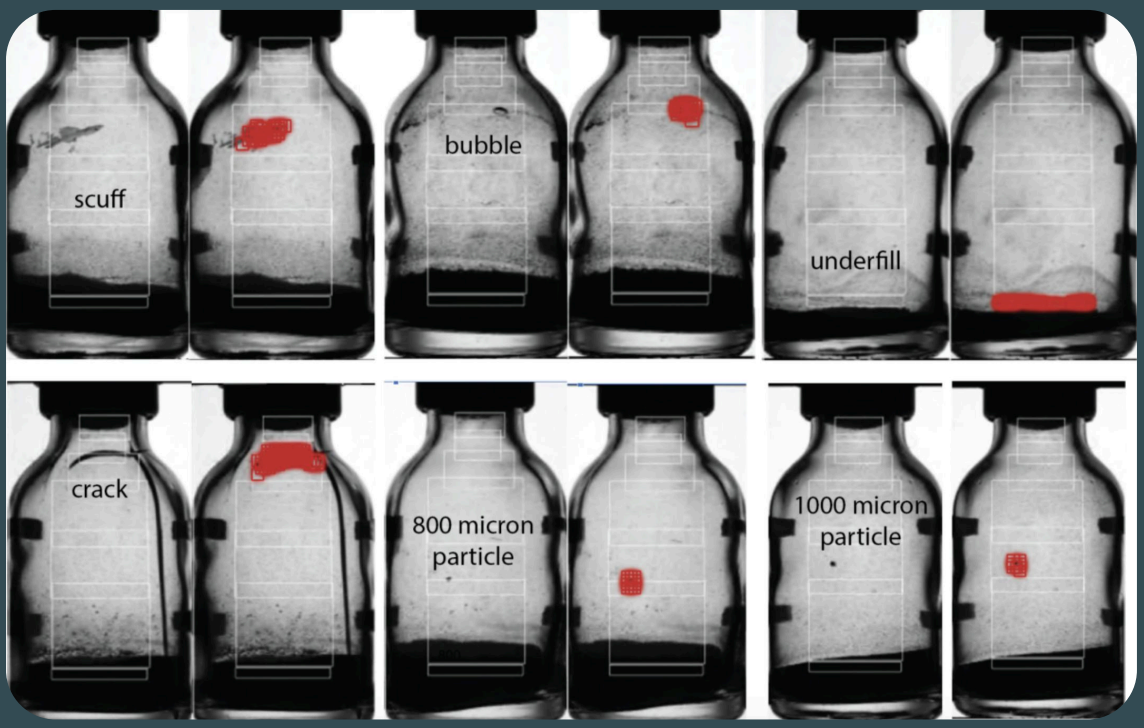
Case Study:

Replacing human inspection of powder-filled molded glass with

AI-based Inspection



boon

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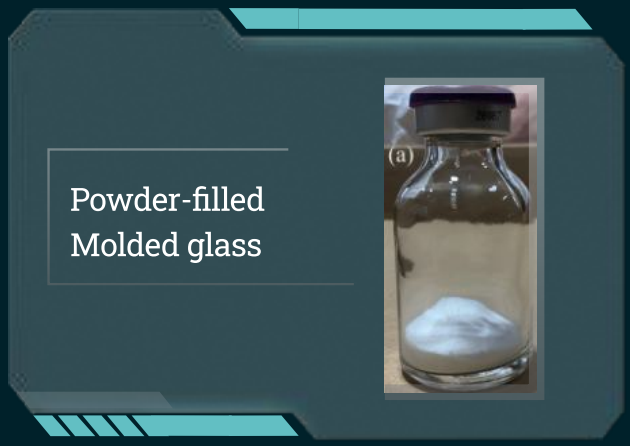
Case Study Summary

Challenge

A CMO recently failed numerous AQLs from semi-automated visual inspection and was looking for a solution to inspect their powder-filled molded glass container.

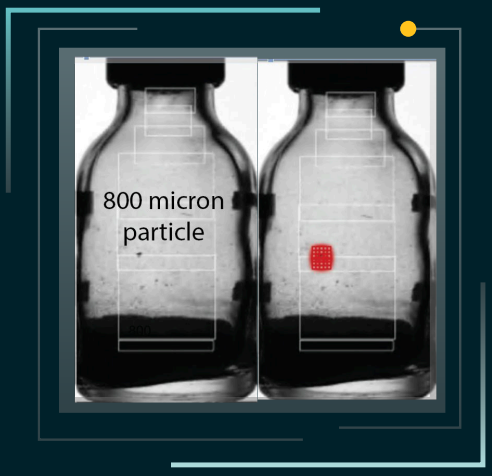


Solution

DAI-50 is the world's first AVI system built for difficult-to-inspect products. Powered by the AVIS platform, the DAI-50 learns normal variations in acceptable products, delivering unprecedented inspection accuracy with minimal false ejects.

Outcome

A feasibility assessment was conducted, demonstrating a detection accuracy of over 98% and a 3% false eject rate for a customer-defined defect set, significantly outperforming human inspectors.

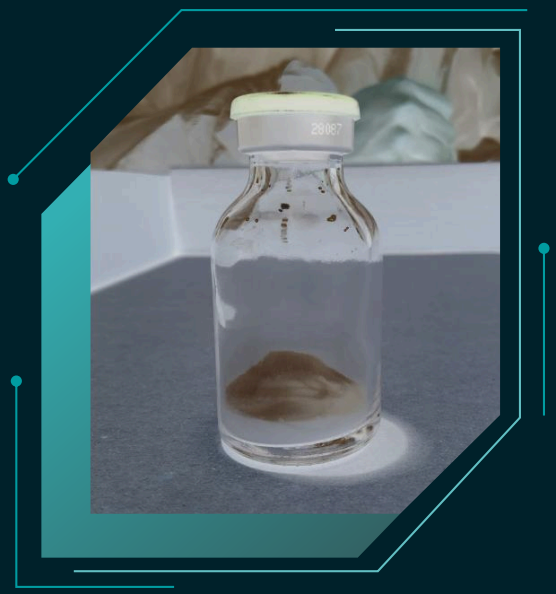


Contents

Failed AQLs from semi-automated visual inspection

The challenge was a 20-ml powder-filled molded glass vial showing significant variation in powder distribution within the vial and the usual variations typical in molded glass. The client, a CMO that is closely affiliated with a major pharmaceutical manufacturer, was using semi-automated visual inspection and had recently failed a series of Acceptable Quality Limits (AQLs) from missed defects. Each failed AQL resulted in thousands of additional production costs and tarnished their reputation.

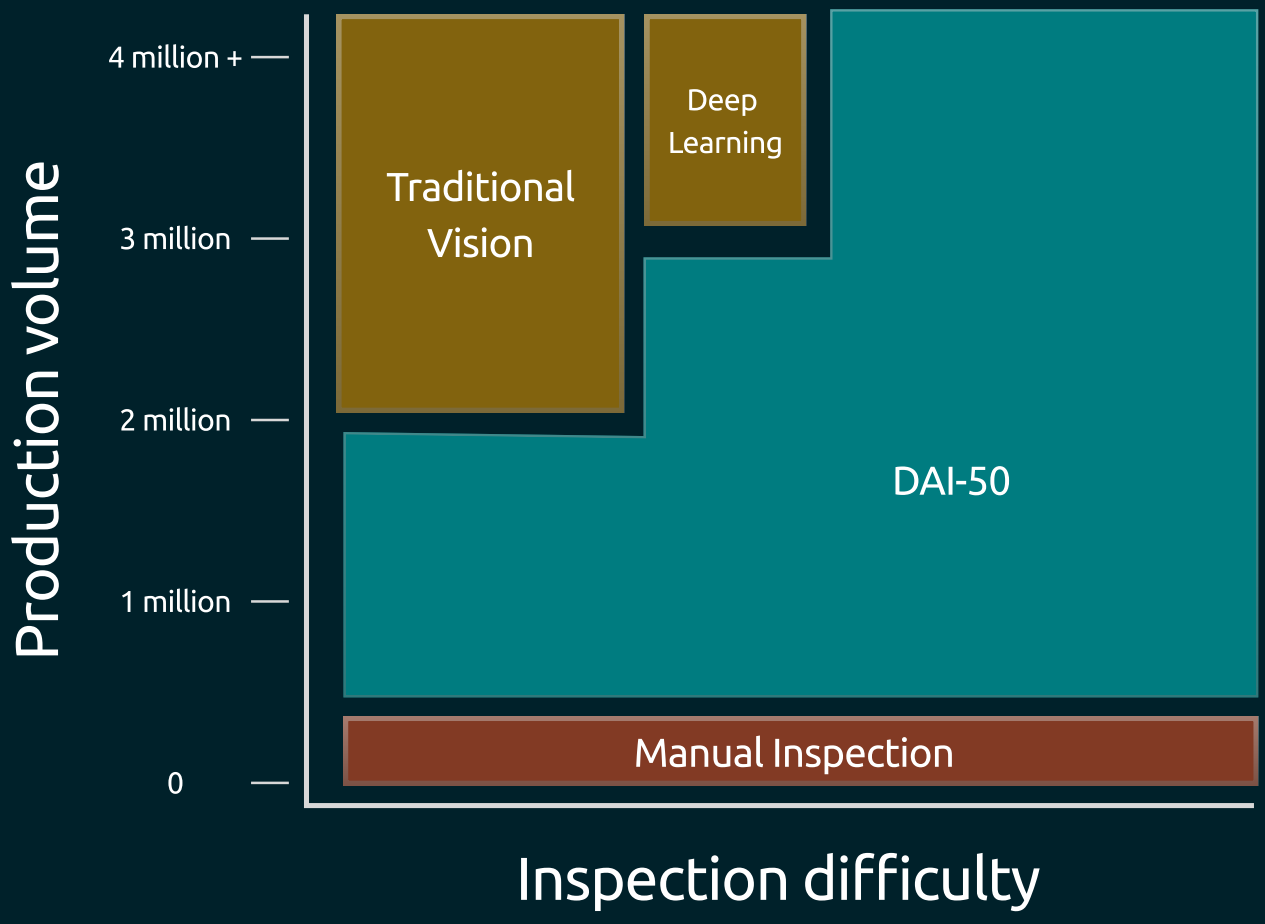
The notion of employing a traditional Automated Visual Inspection (AVI) system was quickly dismissed. Instead, the client wondered if an AI-powered solution could address this issue.



Some vials had a smooth powder formation, while others displayed powder adhering to the walls, clumps, or balls of powder. This wide variation and complexity posed a considerable challenge for human inspectors.

Addressing the gap in Pharma visual inspection

This illustrates the gap in visual inspection capability for products that are too difficult for traditional automated and semi-automated inspection techniques. Dabrico and Boon Logic have teamed up to create AI-based solutions specialized for these challenges.



Supercharge Inspection with the DAI-50

Created in partnership between Boon Logic and Dabrico, DAI-50 is the world's first fully automated visual inspection machine built for difficult-to-inspect products. The DAI-50 learns normal variations in acceptable products, delivering unprecedented inspection accuracy with minimal false ejects.

DAI-50 powered by AVIS

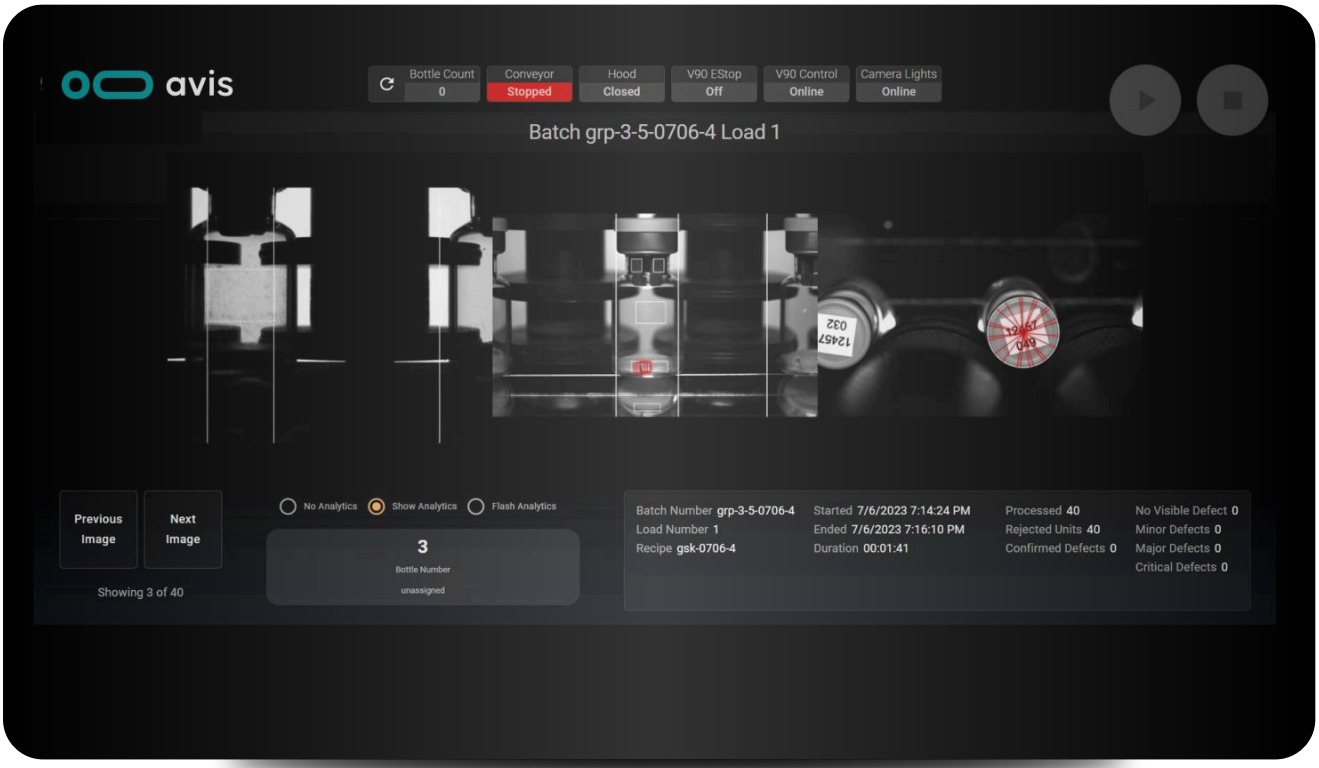
- **AVIS** AI-based visual inspection software by Boon Logic
- **DAI-50** Material handling and product presentation by Dabrico

	DAI-50	Traditional AVI
1 Train without a defect set	✓	✗
2 Time to create new inspection recipe	<1 hour	Months
3 Straightforward validation with explainable AI	✓	✗
4 Upstream integration compatible	✓	✗
5 False eject rate for difficult-to-inspect products	<5%	>10%
6 Cameras per inspection station	3–4	2–10
7 Variable rotation speeds for particle release	✓	✓
8 Specialized onsite staff not required for operation	✓	✗

Dimensions: 97 in x 74 in **Container size:** Up to 1,000 ML

Scalable inspection built around

Cutting-edge AI



AVIS is ushering in the next-generation of visual inspection founded on unmatched inspection performance.

- New recipes can be created from scratch in under 60 minutes without computer vision or AI expertise.
- Support dozens of different SKUs on a single machine with rapid inspection recipe changeover.
- Explainable AI combined with reproducible and tunable detection thresholds make validation straightforward

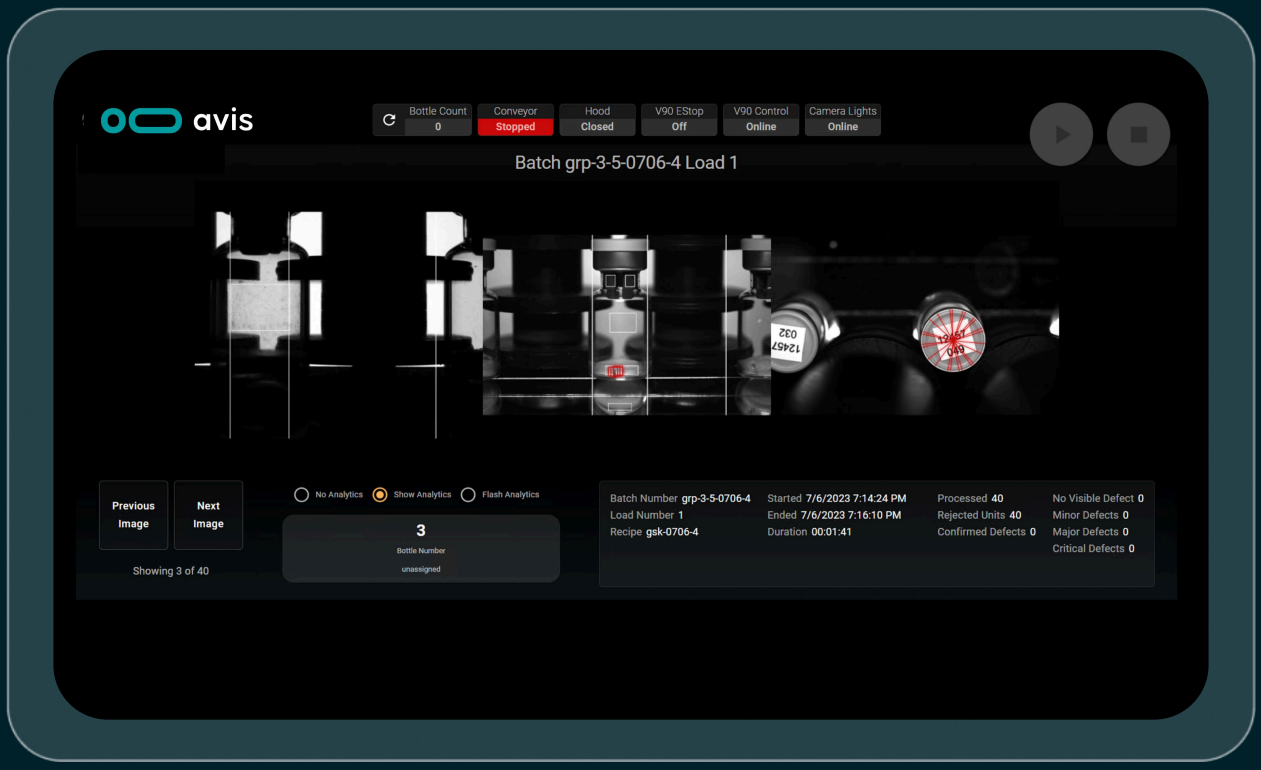
Detection results: 98% defect detection accuracy with less than 3% false ejects

After a few hours of optimizing the camera and lighting positions and defining regions of interest on the vials, AVIS was ready to create its inspection recipe. Within 15 minutes AVIS was processing previously untested vials, rejecting defects and passing compliant units through to the outfeed table.

Using a customer-defined defect set and additional compliant units not used in the training, we were ready to measure the accuracy of AVIS. The test outcomes revealed AVIS's capability to consistently identify 98% of all defects while maintaining a false eject rate of 2.7% exceeding the performance of human operators.

Level-Up Product Quality with AVIS

Tired of failing AQLs? Watch the demo and discover why other manufacturers are replacing human inspection with AVIS.



WATCH A DEMO

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