

CASE STUDY

Improving Maintenance Confidence on Selective Coating Applicator Heads



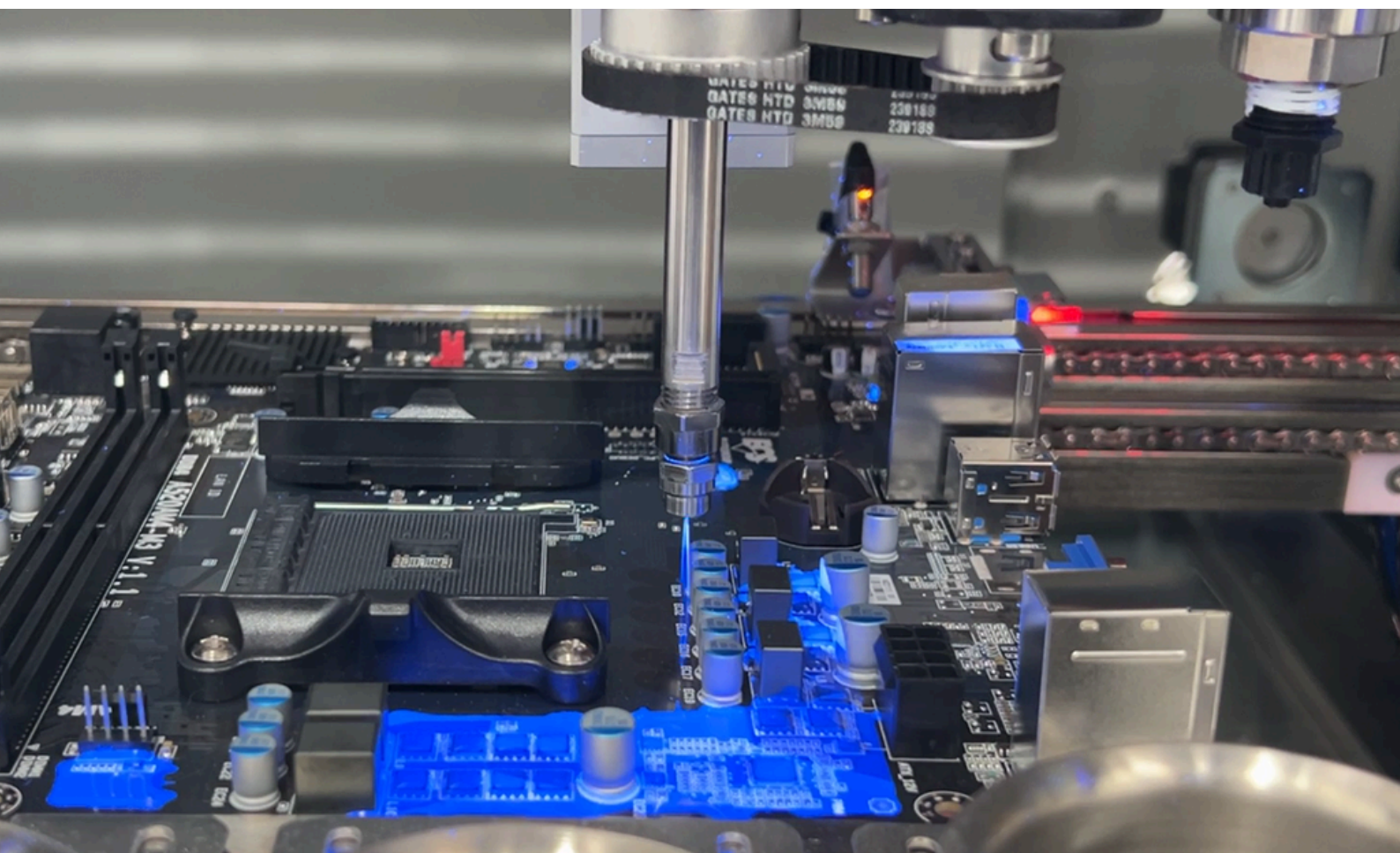
Introduction

Selective coating machines play a critical role in protecting electronic assemblies, where consistency and reliability are essential. To perform correctly, these machines rely on regular maintenance, particularly of the spray heads and applicators that control the flow of conformal coating material.

As part of routine maintenance, applicators/ spray heads must be inspected, cleaned and the seal kit within applicator head replaced.

If these seal kits are not fitted or seated correctly, it can lead to leaks, coating defects, excessive solvent use, and unplanned downtime once the applicator is reinstalled on the production machine.

For manufacturers running multiple selective coating systems, ensuring maintenance is carried out correctly, and verified before production resumes, is a constant challenge.



Background: addressing ongoing maintenance challenges

The customer operated multiple selective coating machines across several production lines, making consistent and reliable maintenance of applicator heads critical to overall throughput and product quality. Routine maintenance tasks such as cleaning applicators and replacing internal seal kits were essential, yet the processes in place were time-consuming and disruptive to production. These maintenance activities often resulted in extended downtime and reduced line availability.

A key challenge was the lack of confidence following seal kit replacement. Once an applicator head had been rebuilt, there was no straightforward or reliable way to verify that seals were correctly fitted and seated before reinstalling the applicator on the selective coating machine. As a result, maintenance teams had to rely on visual checks and experience, with no functional confirmation until the system was returned to production.



This frequently led to problems being discovered too late. Leaks or poor coating performance were often only identified once the applicator was back on the machine and live, at which point the production line had to be stopped again. These unplanned interruptions caused further downtime, increased clean-up effort, and frustration for operators.

In addition, the existing cleaning process relied heavily on manual solvent handling. Cleaning applicators by hand was messy and inconsistent, varied between operators, and increased exposure to solvents. The customer needed a cleaner, safer, and more repeatable process that would allow applicator heads to be cleaned, tested, and verified off-line, giving full confidence that maintenance had been completed correctly before equipment was returned to service.

“ A key challenge was the lack of confidence following seal kit replacement ”

Building a machine that addressed all of the challenges

To address these challenges, the Selective Coater Applicator Pneumatic Cleaner was developed.

The machine allows applicator spray heads (commonly used on systems from manufacturers such as Nordson Asymtek and PVA) to be removed from the selective coater and connected to a dedicated off-line cleaning and testing unit.



Key issue resolved : Downtime during seal changes

By enabling applicators to be cleaned, rebuilt, and tested away from the production machine, maintenance work no longer ties up valuable line time. Applicator heads can be serviced in parallel with ongoing production, significantly reducing overall downtime during routine maintenance cycles.

Key issue resolved: No reliable maintenance verification

The system flushes solvent through the applicator's internal channels under controlled conditions. This provides a functional confirmation that seal kits have been installed correctly, are seated properly, and are performing as intended before the applicator is approved for reinstallation.

Key issue resolved: Leaks discovered only after refitting

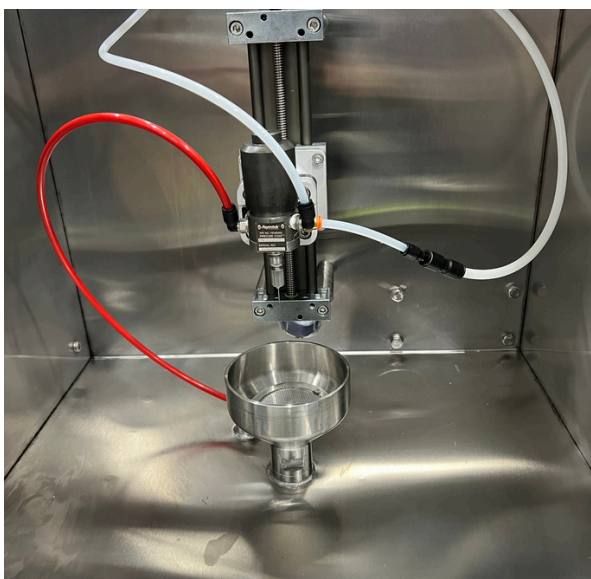
Any leaks or sealing issues are immediately visible during off-line testing. This allows problems to be corrected at the maintenance stage rather than once the applicator is back on the selective coater, preventing costly rework and unplanned stoppages.

Key issue resolved: Messy and inconsistent manual cleaning

The integrated pneumatic cleaning process replaces manual solvent handling, delivering a consistent and repeatable clean every time. This reduces mess, improves cleanliness, and removes variability between operators while also improving overall working conditions.

Key issue resolved: Complex setups for different applicator heads

A push-fit mounting system combined with an adjustable mounting plate allows the cleaner to accommodate multiple applicator head types quickly and easily. This flexibility makes the system suitable for environments running a variety of selective coating platforms without complex changeovers.



Extra benefits: Safety & Operator Protection

Safety was a critical consideration in the design of the system, particularly due to the use of solvents and proximity to sensitive electronics.

The machine includes several important safety features:



Enclosed design with extraction ports to safely remove solvent fumes



Door interlock system that stops operation if the door is opened



Emergency safety shut-off for rapid shutdown if required



Antistatic design, making it safe for use in sensitive electronics manufacturing environments



Toughened safety glass viewing window, allowing operators to observe the cleaning process without risk

These features ensure that applicator cleaning and testing can be carried out safely and consistently, without exposing operators to unnecessary hazards.

Outcome

Following installation, the customer was able to standardise their applicator maintenance process across multiple machines.

Operators can now remove applicator heads, do any necessary maintenance work, place them on the cleaner, flush and test them, and return them to service with confidence that maintenance has been completed correctly.

As a result:

- Maintenance is faster and more consistent
- Unplanned downtime has been reduced
- Leaks and seal-related issues are caught early
- The system is simple to use and easily integrated into existing maintenance routines

The customer reported high satisfaction with the solution and continues to use the machine as a key part of their selective coating maintenance process.



Head Office
5 Verda Park
Wallingford
Oxfordshire
OX10 9SJ

Connect
+44 (0) 1491 824 788
sales@chilternconnections.co.uk
www.chilternconnections.co.uk