CASE STUDY

intertronics
adhesives, coatings, sealants & equipment
for your manufacturing and technology applications

preeflow® eco-PEN600
Precision volumetric dispenser

Our customer
Automotive manufacturer in Germany

Customer benefits

- Significant reduction in maintenance costs
- No need to replace valves every four weeks
- Repeatable, precise dispensing of high pressure lubricant

Reducing maintenance costs in automotive manufacturing

A well-known German automotive manufacturer has worked with **preeflow** to replace its piston pump dispensing technology with volumetric dispensers, a project that has significantly reduced its maintenance costs.

The company was using a specialist high pressure lubricant to protect components. The application involved dispensing 100 mg of lubricant using a dispensing valve combined with piston pump technology, a process that took 1.4 seconds. Following a 4 second pause, a further 100 mg would then be dispensed. The daily run time was 21.75 hours on weekdays, and 11 hours on Saturdays and Sundays, in line with the company's shorter weekend operating hours.

Reducing maintenance costs
During the dispensing process, the automotive company found that the high operating pressure caused separation in the lubricant and led to particle agglomeration. This made the lubricant more abrasive, causing wear on the equipment as well as clogging in the dispensing valve.

As a result, the company was replacing the dispensing valves every four weeks, at a cost of around £800 per valve. Extrapolated across 30 lines, the annual cost for valve replacement due to wear was approximately £285,000.

Peter Swanson, Managing Director of Intertronics said:

> *"In the automotive sector, reducing service and maintenance costs is key to reducing the total cost of ownership of manufacturing equipment. This company saw the potential to reduce the excessive valve replacement costs by altering the dispensing technology used."*

A new approach
In partnership with preeflow, the automotive manufacturer commissioned tests of three **eco-PEN600s**, in combination with two eco-Control EC200 2.0s and a flowplus-MONITOR QC.

Available in the UK from Intertronics, the eco-PEN precision volumetric dosing pump uses the progressive cavity pump principle to dose and dispense a wide range of materials with no stress to the material, and absolute control. It offers highly repeatable and consistent dispensing, with an accuracy of ±1%, >99% of the time.

The aim of the testing was to evaluate whether the eco-PEN technology could execute 228,000-230,000 dispensing cycles in 30 days. The team was looking for a high level of repeatability — with a tolerance of ±50 mg.

During testing, the lubricant had a dispensing time of 1.6 seconds (a defined rate of 3.750 g/min), with a pause between shots of 0.4 seconds, and the average output was 0.100 g in two dispensers and 0.099 g in the other.

Results
After 230,000 shots, there was only a minor change to the internal diameter of the dispensing equipment, despite the abrasive properties of the lubricant. The preeflow team continued further testing for research purposes, and to provide additional data on the performance of the technology. Testing found no measurable signs of equipment failure under laboratory conditions — the equipment can surpass the original target of 230,000 shots many times over.

Peter Swanson, Managing Director of Intertronics said:

> *"Even after a million dispensing shots, the customer saw no significant changes in the performance of the equipment. Despite using an abrasive high-pressure lubricant, wear to the eco-PEN technology remained within acceptable limits."*

Switching from piston pump technology to the eco-PEN 600 has delivered significant savings to the customer, as it is no longer necessary to replace the valves every four weeks.

preeflow® eco-PEN600

- Precise, process-stable dispensing as small as 0.001 ml
- Highly repeatable and consistent dispensing, with an accuracy of ±1%, >99% of the time
- Easy system integration, including as part of Intertronics' archytas series of robot integrations
- Gentle product dosing process using positive displacement
- Linearly proportional control characteristics

Applications include: Electronics packaging, SMD/SMT, semiconductor, LCD/LED, medical device assembly, biological chemistry, laboratory, photovoltaic, optics and photonics.

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