

**preeflow® eco-
DUO 450**

Precision volumetric
dispenser

**Fisnar F4303
ADVANCE**

Benchtop dispensing
robot



Our customer

Gas sensor
manufacturer
DD-Scientific

Customer benefits

- Highly accurate and repeatable process
- Increased throughput
- Removed risk of operator variation leading to quality issues
- 23 days of time saved per year
- Decreased scrap rate

Improving quality while maximising productivity in gas sensor manufacture

DD-Scientific is a fast-growing sensor manufacturer, located in Fareham on the south coast of the UK. The company's products are used in many different applications from industrial gas safety to carbon monoxide detectors in the home – every sensor it makes has the potential to save a life. The company takes pride in producing high-quality sensors, both to meet its customers' needs, and to keep end-users safe.

The young team at DD-Scientific is backed by personnel with 100+ years' experience in gas detection and instrumentation – it is a dynamic, market-leading business, dedicated to creating the most accurate and reliable gas sensors in the world.

One of DD-Scientific's key selling points is that its sensors do not leak during their lifetime.

In recent years, the company has invested heavily in automation, to increase its productivity, while achieving the highest levels of accuracy and repeatability to ensure integrity.

Rob White, Sales Director at DD-Scientific said

“The last few years have been amazing at DD-Scientific. We've gone from strength to strength – adding new faces with new ideas, and new ways of

working that have really shaken things up. We've invested heavily in robotics, including a pin welding robot that enables us to weld three times as many pins as before, all identical."

Automating a vital sealing process

During the sensor manufacturing process, DD-Scientific uses a specialised two-part epoxy to seal the pin heads – a fundamental step to prevent the sensors from leaking. The company was initially mixing, metering, and dispensing the epoxy by hand, a time-consuming process that introduces operator variance. DD-Scientific identified that the process could be improved with automation and contacted Intertronics for support with the upgrade.



After working with DD-Scientific to understand the details of its application, Intertronics recommended and supplied several **preeflow® eco-DUO precision metering, mixing and dispensing systems**, and integrated them with **Fisnar dispensing robots**. The two-component precision volumetric, positive displacement system uses a progressive cavity pump principle to achieve an accuracy of $\pm 1\%$, >99% of the time.

With the new equipment, DD-Scientific can deposit the right amount of metered and mixed epoxy, in the right place, every time, improving productivity while mitigating the rate of failure. With a throughput of 1.5 million sensors a year, all with a minimum of two pins to seal, the time saved by removing the manual processes equates to 23 days a year. DD-Scientific has moved the five people involved in the manual process into more valuable areas of the business.

As part of its automation journey, DD-Scientific has also automated some of the next steps on the line. Because bubbles or flaws can form in the epoxy during the 14-hour curing process, a robot-based camera system visually checks each sensor, automatically handling batches of up to 400, and physically picks and rejects any with suspect quality. Further robots are involved in handling the electrode heat seal, and sorting the sensors as a pass or fail once they have been tested against their target gas.

Rob White, Sales Director at DD-Scientific said:

"It's absolutely vital that our sensors don't leak. If a sensor breaks, it can take out a much larger instrument. We take pride in supplying our customers with the absolute best equipment, to support them with their life-saving technology, be it an oxygen sensor on an incubator for a new-born baby or a carbon monoxide sensor in someone's home."

"We have an excellent relationship with Intertronics, who understands our goals, are knowledgeable and experienced in automated dispensing technology and have backed us up throughout the process. We're looking forward to working together more in the future."

Matt Baseley, Technical Sales Executive said:

*"There is a real buzz in the air at DD-Scientific. The team is clearly committed to being the best in their field. Equipped with an automated, volumetric dispensing process, DD-Scientific can maintain its clear competitive advantage and increase its throughput, all while making time and resource savings. We love that they have called our system 'Barbara', and **made a movie about her**. I'm excited to see what the company does next."*

DD-Scientific's long-term goal is to further improve productivity and throughput by investing in automation in key areas of the production process, from production to testing to packaging. With the technology investment so far, the company can now produce a potentially life-saving gas sensor every seven seconds.

preeflow® eco-DUO 450

- Genuine volumetric meter, mix, and dispense dosing
- Accuracy of $\pm 1\%$, >99% of the time
- Viscosity independent
- Suck back effect
- Easy to clean
- Controllable dosing flow

Applications include: Electronics packaging, SMD/SMT, Semiconductor, LCD/LED/OLED, Medical, Biological chemistry, Laboratory, Photovoltaic, Optics and photonics.

Fisnar F4303 ADVANCE

- Fast, accurate and reliable 24/7
- Dispenses dots, lines, arcs and circles
- Resolution 0.001mm/axis
- 100 programs memory, 50,000 points per program

Applications include: Form-in-place gaskets, adhesives, potting and filling materials, coatings, gaskets, and shielding.



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