

End-of-line breakthrough for leak and flow tests

A new machine to carry out final leak and flow tests on filled single-use carbon dioxide absorption canisters, is three times faster, much more accurate, easier to use and requires less maintenance than the machine it replaces. And it was designed and delivered in just 14 weeks

Essex-based Molecular Products produces and fills the plastic canisters with medical grade soda lime for use in anaesthetic and ventilation machines, as well as re-breathing apparatus for the emergency services. Each filled canister then needs to be pressure and flow tested to confirm the integrity of the unit and to ensure there are no blockages in the inlet/outlet tubes or through the device.

One of the challenges with the previous test system was that canisters tended to jam when coupled to the machine for testing, leading to delays and reduced throughput. To overcome the problem, Molecular Products turned to GB Innomech, a company which specialises in automating highly complex and labour-intensive manufacturing processes to maximise outputs, improve product quality and boost business performance. Innomech works with major international manufacturers in sectors such as pharmaceuticals, medical devices and environmental, as well as earlier-stage businesses looking to bring breakthrough technologies or products to market.

Addressing the jamming issue that was causing Molecular Products its productivity problems, Innomech overcame the problem this by using a novel clamping mechanism with a 'spongy donut' material that requires near-zero product insertion and removal force by the operator. Easy-to-change dust traps have also been



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incorporated to prevent particulate matter from contaminating the machine and interfering with the hermetic seal that is essential during the test. A simple touch screen interface shows clear pass or fail status and independent twin channels allow product to be loaded and unloaded on one station while tests are being performed on the other.

Innomech and Molecular Products have also developed and designed a new, more accurate leak test, using a 'direct differential' methodology that gives an absolute leak measurement in ml per minute. This approach is not only much more sensitive than its predecessor for identifying manufacturing problems but also enables Molecular Products to offer its customers even greater product quality assurance. "Innomech was briefed to double our test throughput with a new machine while eliminating some significant

operational problems with our previous system," says Martin Sexton, engineering manager at Molecular Products. "However what they have delivered is a system to take our production capacity to an even higher level and with added features making it more suited for a demanding 24/7 manufacturing environment."

Innomech designed and delivered this sophisticated, high performance end-of-line testing system for Molecular Products in just 14 weeks. Tim Mead, commercial director at Innomech, comments: "Innomech prides itself on developing breakthrough performance systems but is used to clients not allowing us to talk about the work or to add our logo or any branding to the final machine. In this case, Molecular Products was so pleased with the result they wanted everyone to know and specifically requested we badge the machine with an Innomech nameplate."

This is the first system Innomech has developed for Molecular Products, although the two companies are now working closely on additional machine concepts for other product ranges. Innomech has a growing market reputation for solving the toughest of manufacturing problems by the early identification and management of risk, often cross-fertilising technologies and techniques from a range of industry sectors. All projects from initial feasibility studies through to building production-scale machines are conducted to high specification pharmaceutical industry standards and are designed to comply with GAMP5, FDA and other international standards.

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