

Festo pneumatics expertise helps Cerulean achieve 90% energy efficiency improvements

on new tube packing machine

Soaring energy prices and the need to continuously drive down costs are key considerations for manufacturers. So, when packaging machinery specialist Cerulean decided to redesign its highly successful FPS-1 tube packer, high energy efficiency and reduced total cost of ownership (TCO) became key design requirements.

Working with long-term automation partners Festo, Cerulean identified where CAPEX and OPEX savings were achievable during the tube packing process. Together, they were able to optimise the design and performance of the new FPS120s to achieve energy efficiency improvements in excess of 90 percent, saving 4.5 million litres of compressed air per year.

The new Cerulean FPS120s tube packing machine is designed for hygienic packing at speeds of up to 120 tubes per minute and incorporates the latest control and display technology. A user-friendly colour touch screen enables the user to control set up, packing options and store all settings in a library for quick change over and later use. The touch screen supports multiple languages and can be configured for local operator preferences. Changing tube or carton size typically takes less than 15 minutes, allowing the FPS120s to meet the flexible requirements of a modern tube making facility.

Design optimisation

To deliver significant improvements in TCO, Festo and Cerulean conducted a comprehensive review, from component selection to running costs at designated outputs. Festo online tools were invaluable in this regard.

The Pneumatic Simulation Tool allows users to input the desired application parameters, such as number of cycles/minute requirement, tube diameter/length, positioning time, etc. The online tool then identifies the optimum pneumatic cylinders, flow controls, valves and settings based on energy consumption to deliver the most efficient options.

Festo's Pneumatic Sizing Tool can then be applied to refine the system design. This online tool addresses aspects such as positioning time and CO₂ emissions. It gave Cerulean confidence that all of the pneumatic cylinders and valves specified for the new FPS120s were correct for the application.

"Over-specification is a common mistake in pneumatic systems," says Nathan Colbert, Key Account Manager at Festo. "Festo's online assessment tools make it quicker and easier for customers to identify the best components for their application and refine their design, delivering both CAPEX and OPEX savings."

These initial design assessments showed that Cerulean could achieve immediate savings using standard products from Festo's core range, including VUVG-LK valves, DSNU cylinders and the MS Air Prep. Further efficiency savings were achievable by reducing tube lengths and diameters, which decreases dead volumes and cycle times.

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Improving energy efficiency

Cerulean also invited Festo to undertake an energy efficiency survey on an original FPS-1 tube packer and compare the results with an equivalent survey of the prototype FPS120s. Festo energy efficiency services are based on key lessons learned within its own production facilities and follow an ISO approved and proven approach.

The results proved that the FPS120s tube packer would offer significant TCO improvements over the old FPS-1 model: it delivers a 48% improvement on maximum air consumption, and an impressive 92% improvement on average air consumption. Cerulean have calculated a saving of 4.5 million litres of compressed air per year based on the machine running 24 hours a day, 7 days a week, 365 days a year (but not allowing for any downtime).

Says Shaun Toms, Portfolio Manager at Cerulean: “In today’s economic climate, manufacturers like us have a growing responsibility to become more efficient in order to compete in today’s highly competitive marketplace. This entails a programme of continuous improvement and innovation. We wanted our next generation tube packer to address our customers’ pain points around energy consumption and total cost of ownership. Festo’s automation expertise was invaluable in helping us attain this goal.”

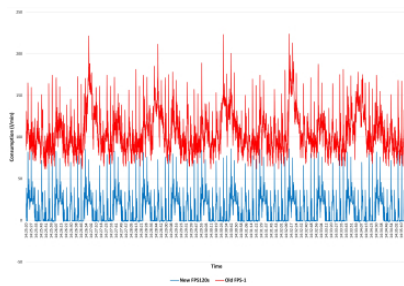
The FPS120s tube packer is available now for immediate order.

Press Images



Cerulean 1

The new, energy efficient Cerulean FPS120s tube packing machine



Cerulean 2

Energy consumption comparison: new FPS120s tube packer (average consumption 7.90 l/min) versus old FPS-1 model (94.89 l/min)

Festo GB & IE

About Festo

Festo is a leading international supplier of automation technology with a turnover in 2024 of around €3.45 billion. Festo employs over 20,000 people worldwide and is a proven innovator and problem solver in pneumatic and electrical automation, where it is the performance leader. Festo offers around 36,000 pneumatic and electric products in hundreds of thousands of variants for factory and process automation technology, many of which can be tailored to

specific customer needs. Sustainability, reducing its CO₂ footprint, digital learning, innovation, performance and speed are the key drivers for the company's future. Festo GB operates as a carbon neutral organisation and uses the PAS 2060 standard externally audited by NQA to validate this claim to customers, employees and other stakeholders.

Festo Industrial Automation's innovative strength is demonstrated through the launch of around 100 new products every year. The company invests over 8.5% of its turnover in R&D, resulting in over 2,600 patents held worldwide. For more information about the company's products and UK / Irish services, please visit: www.festo.com/gb and www.festo.com/ie

Festo and Industry 4.0 - Festo has engaged with the Industry 4.0 initiative from its inception: as a user, manufacturer and trainer. As a member of the steering group, the company has taken an active role in defining the core standards such as the RAMI model and the Administration Shell. Festo Didactic has installed Industry 4.0 Cyber-Physical Factory training hardware systems in many leading universities and training centres. It also provides Industry 4.0 training courses for change managers and practical workshops for employees. Industry 4.0 technologies such as OPC-UA communications are embedded in the latest generation products. For more information, go to www.festo.com/digitalisation

Festo Didactic training delivers training for industry – by industry. Combining Festo's industrial heritage with its future-focused manufacturing and engineering expertise to deliver courses for greater productivity and competitiveness. Offering a wide range of open courses, structured development programmes and tailor-made, customer-specific projects on technology and Industry 4.0 and the industry-leading online training suite, Festo LX. Festo also provides state-of-the-art training equipment solutions for industrial companies and educational institutions around the world. Festo Didactic has around 56,000 education customers worldwide. More information on Festo training and consulting services can be found at: www.festo.com/didactic

Festo Bionic Learning Network encapsulates the innovative nature of Festo, raising awareness and attracting talent to the company. Exploring the links between nature and technology opens new areas of innovation and demonstrates complex ideas in a stimulating and enjoyable way. Festo works with an alliance of internal R&D, external educational establishments and specialist companies to advance bionic solutions for automation applications of the future. The objective is to benefit from bionics as a source of inspiration and to realise these in industrial automation. For more information about Festo's Bionic Learning Network, please visit: www.festo.com/bionics