

## Torus and Festo design total handling solution

for new TQ-Lab plastic packaging testing station

**Torus Technology Group has partnered with Festo to create a purpose-designed integrated handling solution for its new TQ-Lab modular plastics packaging testing station.**

Torus offers a range of custom designed automated inspection & testing systems that enable customers to control high speed processes, reduce costs and maintain quality in demanding environments. TQ-Lab is a unique, total quality testing station for plastics packaging such as bottles and jars, typically used for soft drinks, health supplements, cosmetics, and domestic cleaning products.

Festo's inhouse design expertise and online software tools played a critical role in helping Torus to develop the optimum solution for the complex handling requirements involved.

### Expanding horizons

Plastics packaging requires precision measurement of aspects such as material thickness, outer body and neck physical dimensions, neck diameter and volume as well as load testing for crushing and pressure.

The TQ-Lab can undertake all the necessary tests on both empty and filled containers or preforms in a single system. Once batches of containers are placed onto the turnaround conveyor, the operator simply selects the relevant program and walks away. A bespoke vision system locates the position of the neck and an intelligent gripper and multi-axis pick and place system transfers the product from the conveyor between measurement modules. Customers can select the Torus test modules to suit their particular test requirements or budgets. Controlled via a single interface, TQ-Lab delivers reliable data to the network with no operator influence.

Accurate handling and repeatability were key to delivering customer benefits; such as reduced time and labour costs, the potential to collect a large amount of measurement data, and a reduced footprint.

Torus investigated the option of building the handling system themselves but identified issues with compatibility and reliability using multiple suppliers. It also considered using an 'off-the-shelf' robot solution, but this involved design modifications and specialist automation skills

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outside their core expertise. They needed an automation expert to help them optimise the system design.

“Festo had been a valued supplier of automation components to Torus for many years, but this was the first time we decided to tap into their design support services,” says Brian Wilson, Engineering Director at Torus. “It was the best decision we could have made.”

### **Handling with care**

TQ-Lab was developed over twelve months and Festo was involved from an early stage. Chandra Patel, Business Development Manager at Festo, explains: “We reduced design lead-in times quite significantly using our extensive software tools and experience to identify the best components for the handling system specification. We also simplified the handling system into a single integrated solution and used the Festo ELCC cantilever axis to replace the original custom-built vertical module with a technically neat and commercially attractive single part.”

“The highly technical specification and complexities of movement made it crucial to test that the design would work in principle before building out the handling system. Festo’s dedicated sizing and simulation software enabled them to test different configurations and prove to Torus that the final design would deliver the desired performance in terms of accuracy and repeatability.”

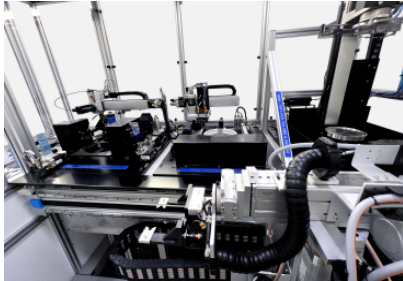
### **Mission accomplished**

Festo’s automation expertise enabled Torus to reach a final design more quickly and delivered a fully optimised solution. Festo then built and delivered the complete handling solution for installation in the TQ-Lab.

Their support does not stop at the point of delivery. Festo have also made it easier for Torus to order the handling system in future by assigning it a single order number, which automatically generates a comprehensive list of all the necessary components. This streamlines purchasing and stores, while still supporting any repair or replacement needs.

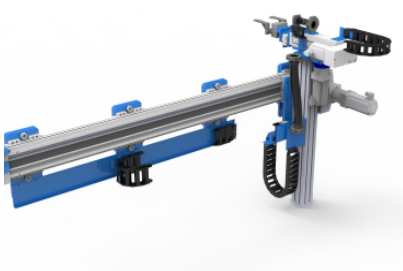
Concludes Brian Wilson: “Festo were there all the way, from early concept discussions, through component selection and system design, testing to commissioning, to fine-tuning and completion. With their support, we have delivered a unique automated testing solution at least six months earlier than predicted – giving us and our customers a real competitive advantage.”

### **Press Images**



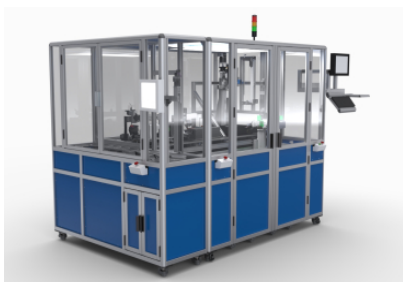
**Torus image 1**

Festo integrated handling solution comes to the fore



**Torus image 2**

Festo engineers supported by powerful sizing and simulation software created a versatile, modular, and integrated handling solution



**Torus - image 3**

TQ-Lab modular testing station for polymer packaging

## **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 CO<sub>2</sub> 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](http://www.festo.com/gb) and [www.festo.com/ie](http://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](http://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](http://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](http://www.festo.com/bionics)