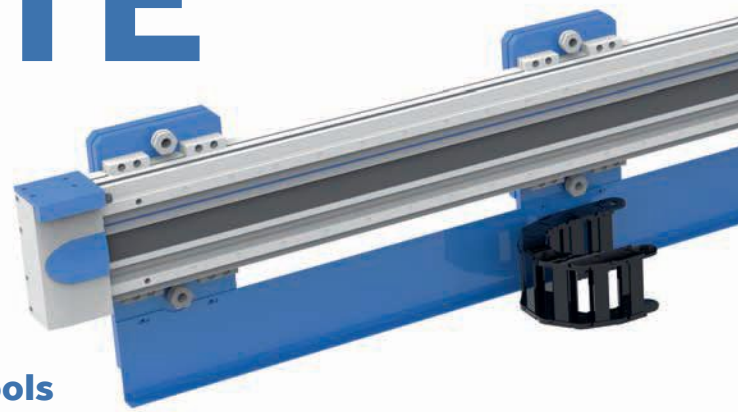
FESTO DELIVERS COMPLETE PACKAGE



A partnership using a range of software tools has created 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.

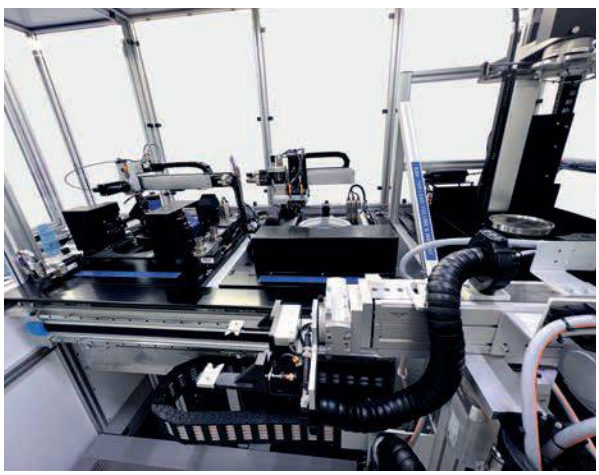
Festo's inhouse design expertise and online software tools played a critical role in helping Torus to develop the optimum solution for the complex handling requirements involved.

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 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.''

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 has 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.''

FESTO AIDS RESTORATION OF NOTRE-DAME

Rotterdam-based company Concr3de has been working on a 3D printer for stone for more than five years, developing an inkjet technique to participate in the reconstruction of Notre-Dame Cathedral in Paris. It achieved this aim using automation technology from Festo.

Architectural applications were the catalyst for the development of Armadillo White, the inkjet 3D stone printer. The founders of Concr3de, architects Eric Geboers and Matteo Baldessari, started with a geopolymer - a material made by binding a residual product from the coal and steel industry with a chemical binder ("ink"). They proposed using the burnt remains of the Paris cathedral as raw material to repair the damaged masonry, because the lack of craftsmen and original raw materials made it difficult to reconstruct the destroyed parts using medieval techniques.

In order to develop their 3D printer, Concr3de needed components that would function reliably for a long time under difficult conditions and be easily scalable. The supplier's knowledge of software technology and service were also important to them.

Using data from Concr3de, Festo meticulously calculated the axes, gearbox, motor and control to obtain the correct inertia ratio. Integrating a Siemens controller was also easy. All Concr3de then had to do was drag the appropriate function blocks for the communication lines from Festo's standard software libraries into the right place. Thanks to Festo's configuration tool, only the positions to be moved had to be entered and a plan of each movement could be created. Festo provided engineering support and training to Concr3de throughout.

The collaboration between Concr3de and Festo has been successful. Printing with the ashes of the building is not only much faster, but also gives the building a history. The necessary scans for the 3D reconstruction are available because American scientist Andrew Tallon fully 3D mapped the building in 2013. Concr3de used one of his scans to reconstruct a sculpture from Notre-Dame, a striga, which is a bird-like demon.

The company printed a 30cm high model of the stone carving, using limestone powder and a binder, in five hours. Tests at the Delft University of Technology have shown that the result is in no way inferior to real limestone.