Combining smart technology with clinical expertise

NGNY Devices is striving to fully automate laborious pre-analytical sample processing for clinical testing, helping to increase throughput and reduce human error. Its systems are already providing advanced sample sorting and aliquoting across Europe, offering a significant advantage over manual sample handling for busy clinical labs.

Clinical laboratories routinely process thousands of patient samples a day to aid in diagnostics, treatment and disease prevention. Handling copious patient specimens in a variety of tube formats is time consuming and labor intensive, and so many of these busy departments rely on streamlined workflows and automation to enable efficient and error-free analysis. NGNY Devices, based in Spain, uses its engineering knowledge to develop automated sorting and aliquoting systems, helping laboratories to increase reliability and traceability, and ensure that high numbers of patient

samples are processed quickly, accurately and confidently. Joan Viladomat, Engineering Manager at NGNY, explained: "Our company started building automation equipment in 2006, and our systems are now used in clinical laboratories across Europe. From the beginning, we have looked for ways to improve our existing products to better meet client needs. Many of our early customers repeatedly asked us if we could develop instruments for performing liquid handling tasks and we were able to do this after discovering Tecan Cavro® components in 2010.

This is when our company truly evolved, as the Cavro Omni Robot's cutting-edge automation was perfect for our needs."

"We quickly built a strong collaboration with the Cavro team, combining their liquid handling expertise with our understanding of clinical samples and workflows to fully automate the aliquoting process. Incorporation of the Cavro Omni Robot and Air Displacement Pipettor (ADP) into our platforms allowed us to create robust and flexible systems. The Omni is a reliable OEM liquid handling robot and is incredibly

The AQUA8000 offers complete automation of pre-analytical sample handling, reducing errors and freeing staff to perform other tasks

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easy to integrate; it was the perfect size and shape to fit within the dimensions of our instrument. The air displacement pipetting capabilities of the ADP offer precise liquid transfers from 0.1 to 1 ml, and this is much easier than our previous set-up, which required bottles of water as a system liquid. The combined ADP and Omni Robot allows single channel pipetting, including tip pick up, aspiration from a source tube, dispensing into a clean secondary tube, and ejection of the tip once finished. A built-in sensor is able to detect if a tip has not attached properly or fallen off, flagging any potential errors, which is a great feature for peace of mind."

This collaboration has led to the development of the fully automated AQUA product line of pre-analytical platforms, which sort, uncap, aliquot, recap and store tubes, reducing the risk of errors and freeing staff to perform other tasks. Joan continued: "When samples arrive in a lab's specimen reception area, they can be loaded straight onto our AQUA systems, which register the tubes and sort them based on their destination within the laboratory. The instrument then aliquots samples as required, reducing the need for users to perform manual pipetting, and moves tubes from one rack to another, minimizing the chance of mistakes. The exact set-up is easily customizable by the user, allowing them to change parameters – such as sample volume or label information – to suit the needs of their laboratory workflow. It can also detect if there is an issue with pipetting, such as a clotted sample, moving the sample to a different rack to allow manual processing."

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"Following the success of the AQUA7000 platform, we broadened our portfolio to include the AQUA8000, which allows more tubes to be processed at a time, increasing throughput and productivity. Tecan has supported us throughout the design and production of our systems, providing application support and answering any questions that arose. We were shown how to adjust the parameters of the robot, such as the length of the axes, which is incredibly easy to do, and the availability of 3D CAD files made the configuration process even simpler. Using Tecan Cavro components for the AQUA product line effectively gave us a complete liquid handling solution, without having to build each individual module ourselves. We are very happy with both our relationship with Tecan, and the products that we have been able to develop. We are continuously expanding our product portfolio to anticipate our customers' changing needs, and currently have a new system – incorporating the Omni Robot in a slightly different way – in the design process, which is very exciting," Joan concluded.

The AQUA systems can handle a wide range of tube formats

To find out more about Tecan's Cavro components, visit www.tecan.com/components

To learn more about NGNY Devices, go to www.ngny.tech