Teamwork at Tecan results in two new and innovative offerings

Tecan has recently launched the Cavro® Centris Pump and Cavro® Omni Robot – new products which both incorporate innovative and novel technologies taking OEM components to the next level. The new product lines are the result of Tecan engineers tackling a variety of challenges to create products that meet our customers' needs.

Some of the Cavro Centris Pump project team members

Cavro Centris Pump

Some years ago at Tecan Systems, an internal presentation led to an ambitious project, starting in August 2006 as a collection of ideas and sketches on a piece of paper, and culminating in Tecan's latest syringe pump offering.

The Cavro Centris Pump combines over 30 years of Tecan's experience in making syringe pumps with new technical innovations, utilizing a novel, highly reliable drive mechanism that was developed in cooperation with Tecan's Liquid Handling and Robotics group. "Involvement in the Cavro Centris Pump project ran interdepartmentally throughout Tecan Systems, from marketing, manufacturing to obviously R&D, and our development team consisted of about nine people," explained David Wold, senior product manager. "But the cooperative effort also extended to the liquid handling experts at Tecan Switzerland, who have truly been a partner from the very beginning, offering us valuable input. For example, it was their feedback that prompted us to redesign the electronics drive using a more sophisticated and powerful chipset and, as a result, the Cavro Centris Pump is by far the quietest Tecan Cavro syringe pump. This updated drive electronics also allows us finer control of each increment of the stepper motor, even at very slow strokes, so this pump is also our smoothest dispensing product." Rich Filice, project manager, added: "We weren't willing to settle with something that was merely good, so we took the additional time and expense to develop something really great. Each of us tackled challenges, and the result is something that we can all be very proud of."

"The easiest way to improve upon a product is to add new features and components, but instead we stripped everything away to leave just the essence of what is needed, creating a new premium product line and reducing the part count by around 30 % in the process," continued David. "When we showed the pump at trade shows and around 15 customer sites in Australia, Europe, Asia and the US, we offered plenty of hands-on time to play with the pump; it didn't take long for engineers to appreciate the elegance, high performance and reliability of the new design."

Rich added: "We are now developing a wash option that can be integrated with the pump to protect the precision-engineered gap between the ceramic surfaces, making it suitable for use with a broader range of chemicals. We'll be busy for a while yet!"

Precision-paired ceramic parts give high accuracy and unprecedented longevity

Cavro Centris Pump - offers a broader working volume range compared to other syringe pumps

Some of the Cavro Omni Robot project team members

Cavro Omni Robot

The Cavro Omni Robot project started in late 2006 with an open brainstorming session, driven by a desire to develop a superior flexible robotic OEM component. Even at this early stage, customers were already the driving force, as Rich Loo, project leader, explained: "We were very conscious that many of our customers wanted a two-axis robot, but our product line-up at the time could only offer a three-axis version." Claudio Bui, director of marketing, added: "We wanted to provide our customers with a degree of flexibility that just wasn't available in any other product on the market."

A key feature of the Cavro Omni Robot is its closed-loop positioning system, which uses magnetic encoder feedback technology for accurate positioning of the robot for each axis. The technology is used in other industries, but Tecan is the first to use it in the OEM instrumentation industry, and the engineers enjoyed the challenge of integrating the technology.

Cavro Omni Robot – modular design for a complete OEM liquid handling solution

Gary Barron, program manager for engineering, elaborated: "We worked with new technologies that we had never used before, so we were learning as we were going. It was an exciting time, even a little scary! It was critical that we were able to find the right people with the necessary experience and skills, because some of the design aspects of this product were new, even to us."

Gary continued: "As the program manager, I worked closely with both Rich and Sean Leu, software manager, and Peter Muerset, system integration engineer, really helped to bring the hardware and software sides together. We wouldn't have a product now, if Peter hadn't been on the team." Rich agreed: "We identified quite early on that the mechanical, electrical and software teams were all doing a good job but they somehow didn't quite match up at their interfaces, and Peter's experience with the integration of Tecan instruments from his time at Tecan Switzerland really helped pull it all together to work as a system." In total, around 17 people were intimately involved throughout the project, including project leaders, mechanical engineering, electrical engineering, software, firmware and manufacturing.

"We have taken the Cavro Omni Robot all over Europe, the US and Australia, to trade shows as well as directly meeting numerous customers," said Rich. "Several prospective customers are already very interested and are just waiting to get their hands on our new toy." Claudio added: "It was very well received. They could all see the simple and elegant design, and they also liked its modularity, because they can benefit from it by really getting a good head start in their development projects."

"Now that we have celebrated the release of the Cavro Omni Robot, we are planning our next adventures already. Watch this space!" concluded Rich.

For more information about Tecan Cavro products, visit **www.tecan.com/oemcomponents**

Cavro Omni Robot – with closed loop positioning, designed to meet the most demanding accuracy standards