



How to successfully automate tube labeling

In diagnostics, efficiency and accuracy are of the essence, especially in large-scale performance studies. For TRIGA-S, a leading full-service contract research organization (CRO), a recent study posed a logistical challenge.

With around 20,000 patients participating and the need to label over 2 million tubes with individual barcodes, the requirement for precise labeling and traceability was particularly high. To meet this challenge, TRIGA-S turned to HTI Automation.

Together, HTI Automation and TRIGA-S developed a customized solution based on the

X-TubeProcessor®_Flex, which not only met the requirements of the study, but is also still in use after the study has ended.

HTI Automation and TRIGA-S demonstrated their strong partnership and the valuable exchange of expertise. Through close collaboration, they not only developed a solution that perfectly met the study's requirements but also continues to be used sustainably beyond its completion.



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“*From the first contact to the final definition of the necessary modules, about three months passed. During this time, we held extensive consultations with the TRIGA-S technicians to thoroughly clarify all the technical details and requirements. The X-TubeProcessor®_Flex was then customized according to TRIGA-S' specific requirements, with the valuable know-how and feedback from the TRIGA-S team playing a crucial role. We carried out feasibility checks and tests to ensure that the device met the high standards and needs of TRIGA-S. The continued close and professional cooperation with TRIGA-S makes it possible to continuously improve and further develop our products.*”

Dr. Wolfgang Heimberg, Owner & CEO HTI Automation

Challenges

The challenge was not only to label tubes in high volumes, but also to ensure the quality of the labels, i.e.

- precise positioning of the label on the tubes
- ensuring the correct barcode information readability of the barcodes for humans and machines
- documentation of the labeled tubes for quality assurance
- Precise placement of the finished tubes on the rack

Workflow

In the first step, each tube is prepared for the labeling process and fed by the tube feeder. Each tube receives a specific barcode, which is printed on a label and then precisely stuck onto the tube. This ensures that the label is positioned exactly to ensure optimal readability.

An integrated barcode reader then checks the readability of each barcode. Afterwards, the tubes are placed on the rack at a predefined position.

Initially, a photo function was used to document each labeled tube for quality assurance purposes, as is also the case with manual processing. However, this function was later no longer needed due to the excellent quality of the X-TubeProcessor®_Flex.

Solution at a glance

- ✓ • **Labeling:** Each tube is labeled with an individual barcode that is precisely placed to ensure the highest accuracy and traceability.
- ✓ • **Integrated Barcode Reader:** A barcode reader immediately checks the readability of the barcodes, thus optimizing quality assurance
- ✓ • **Precise Placement:** The tubes must be placed correctly in a predefined position on the rack. The exact positioning can be specified by the user very quickly and easily prior to the run.

After the X-TubeProcessor®_Flex has finished filling the racks, they are manually removed from the machine, stored separately or fed directly to the subsequent process.

The entire workflow is continuously monitored to avoid errors. In case of errors, the employee is informed directly via e-mail.

Regular inspections and maintenance of the X-TubeProcessor®_Flex ensure a smooth and efficient workflow.

Thanks to the professionalism and expertise of both teams, who are in continuous contact, fast and effective support can be provided and customer-specific improvements can be made to the X-TubeProcessor®_Flex.

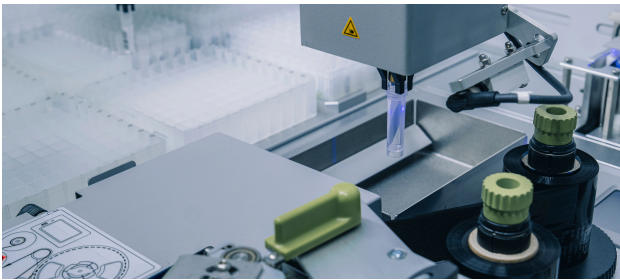


“We deliberately chose the X-TubeProcessor®_Flex from HTI Automation because the local proximity and similarity to our medium-sized company was of great importance to us. HTI Automation's comprehensive service and all-round support, coupled with a partnership-based approach, were crucial. HTI Automation doesn't just work according to a set formula, but instead specifically addresses our pain points. The X-TubeProcessor®_Flex was precisely tailored to our needs and quickly implemented. Even today, our concerns are always taken into account and HTI Automation continuously seeks suitable solutions. It is clear to us that we will continue to rely on HTI Automation in the future.”

David Brodbeck, Head of Laboratory at TRIGA-S

Advantages of automated labeling: efficiency and accuracy

The successful implementation of the X-TubeProcessor®_Flex has delivered significant advantages and greatly enhanced the production processes at TRIGA-S. One of the standout features is the consistently high quality of the labeling process. The processor guarantees precise label placement on the tubes, while ensuring exceptionally high print quality.



The X-TubeProcessor®_Flex has significantly boosted productivity since its introduction. Moreover, its automation capabilities have freed employees from monotonous routine tasks, enabling them to dedicate their time and energy to more demanding and value-adding tasks.

By reducing preparation time to just 15 minutes, the X-TubeProcessor®_Flex enables effective optimization of production times at TRIGA-S, allowing production runs to be extended into the night hours. This has resulted in a further increase in efficiency.



The X-TubeProcessor®_Flex offers a significant advantage in terms of optimized safety and quality control. The integrated barcode reader eliminates the need for additional validation, simplifying documentation and further reducing the margin for error.



“The X-TubeProcessor®_Flex has already paid for itself in full through the extensive study for which we purchased it. In addition, it ensures that we can continue to conduct studies with consistently high quality and efficiency in the future. Initially, our employees had concerns about the new technology, but these quickly gave way to the conviction that the X-TubeProcessor®_Flex is a valuable addition to our team: not only does it reduce our workload, but it has even created new jobs – since then we have all affectionately called it 'Karli'.”

Klaudiusz Rolnik, Team Leader at TRIGA-S

About TRIGA-S GmbH Scientific Solutions

Since 1998, TRIGA-S has stood for high-quality contract research services. The family-run company specializes in performance studies for in vitro diagnostics (IVD) and companion diagnostics (CDx). TRIGA-S is certified according to DIN EN ISO 13485 and works in accordance with GCP/GCLP guidelines. As a member of the German Association of Contract Research Organizations (BVMA), TRIGA-S is headquartered in Habach, south of Munich. The company employs over 120 people and has a modern contract laboratory (BSL2), extensive office, logistics and storage space, as well as conference rooms. TRIGA-S is a preferred partner for global diagnostics companies, small and medium-sized enterprises, as well as start-ups.

About HTI Automation

HTI Automation is a family-run, globally operating provider of solutions for laboratory and production automation. The company is characterized by high quality standards, flexible solutions and a strong customer orientation. With many years of expertise, HTI Automation supports customers, particularly in the pharmaceutical and life science industries, in optimizing their processes and increasing their efficiency. Alongside customized solutions, HTI also offers proven standard X-TubeProcessor systems, which impress with their reliability and efficiency. Highly qualified specialists support customers in every phase of the project, from planning and design to implementation and maintenance. HTI Automation understands the individual requirements of its customers and offers solutions that are specifically tailored to their needs..