

CUSTOMER SUCCESS STORY

Always upright: Werfen responds to demands from clinical laboratories with vertical labelling of vials

Werfen

Ascoli Piceno, Italy



Enhanced quality



Reduced cycle times



Reliable production simulation



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Key Benefits

1

Maintaining vials in a vertical position, ensuring high reagent quality and safe handling.

2

Enhanced quality control with OMRON smart vision systems for accurate barcode and label placement.

3

Achieves up to 1000 labelled tubes per hour with a 30% reduction in cycle time.

4

Simulation technology to predict system reliability and improve implementation efficiency

5

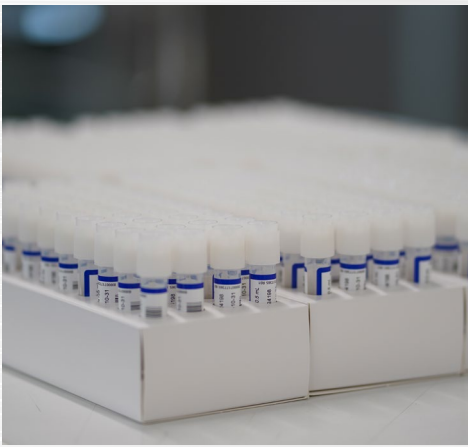
Minimized waste through real-time detection and rejection of non-conforming tubes.

At a glance

Werfen's collaboration with MACCO, OMRON, and Marini Pandolfi has led to an innovative solution for automated test tube labelling.

The system uses OMRON's SCARA robots and smart vision cameras to enable maintaining test tubes in an upright position, preserving reagent quality while reducing manual handling. With a capacity of 1000 tubes per hour and a 30% reduction in cycle time, the solution ensures efficient production, exceptional quality control, and traceability.

Through virtual simulation, Werfen was able to optimize reliability and reduce costs, achieving an innovative, dependable solution that meets the stringent demands of clinical laboratories worldwide.



Werfen is a leading multinational in-vitro diagnostics company. With a team of over 7,000 employees and direct operations in more than 30 countries and a presence through distributors in over 100 territories, the company develops and supplies instruments, reagents and data management solutions that support the clinical decisions in patient care on a daily basis.

In recent years, Werfen has faced a significant increase in demand from clinical laboratories, particularly from the **toxicology sector**. One challenge has been to meet the growing demand for control and calibration materials for the analysis of biological samples, safe and easy to use, in compliance with the diagnostics industry's requirements.

*“Over the last few years, we have developed controls and calibrators for the toxicology line, offering customers a solution in disposable **test tubes** that are clearly identified by a barcode, traceable and easy to use,”* explains **Bruno Costantini**, plant manager at Werfen Ascoli Piceno manufacturing center. *“This has had a significant impact on the market, resulting in an increase in production volumes. Therefore, it was necessary to automate the production process and, as far as possible, to avoid the risk of contamination or deterioration of the contents. Test tubes for toxicology laboratories are filled with very sensitive reagents that need to be frozen and therefore cannot be turned upside down, an aspect that requires them to remain upright throughout the production process, including labelling”.*



For the supply of reagents to drug toxicology laboratories, Werfen has implemented a new automated machine built by MACCO in collaboration with OMRON and Marini Pandolfi. It uses OMRON SCARA robots and advanced vision systems to ensure reagent quality through a vertical handling and labelling process of test tubes.



Robotic handling and vision systems for quality control

Werfen's challenge was taken up by **MACCO**, a company specialized in the design of automated solutions. They decided to build a new line based on **SCARA robots and OMRON vision systems**, designed to handle the entire process of filling and labelling test tubes in a vertical position, minimising the need for any manual operations, thus saving time, resources and reducing the risk of human error.

One of the main obstacles to the project was the **labelling**: *“Conventional systems involve handling the test tubes on a conveyor belt in a horizontal position, but this would have compromised the quality of the reagents, a crucial aspect for those who, like Werfen, have to guarantee reliable clinical results,”* says **Alessandro Bartoloni**, General Manager of MACCO. This is why the decision was made to use an **OMRON i4L SCARA robot**, to develop an innovative (patent-pending) solution capable of picking up test tubes from the filling and capping station and handling them while keeping them upright throughout the labelling process.

“We analyzed the application with MACCO's technical department and found from the outset that the SCARA type was the most suitable to perform the tasks required by the specifications,” adds **Giovanni Cortigiani**, OMRON Robotics Business Developer. “This robot guarantees precise, stable and synchronized handling with the labelling system, ensuring accurate application of the label to each test tube. In this case, it also had to work within an extremely compact cell. That is why we chose a short-reach model”.

The SCARA robot is accompanied in the labelling process by **OMRON's FHV7 smart cameras**, intelligent vision systems that play a key role in quality control. The smart cameras not only check that the label is applied correctly, but also the quality of the barcode print and the position of the label on the test tube. In the event of an error, the system is able to automatically reject non-conforming test tubes, improving the quality and traceability of the entire production process.



Reliability and costs verified before start-up

One of the key steps in the development of the new Werfen production line was the use of simulation prior to commissioning. This was made possible by the collaboration between OMRON and Marini Pandolfi working together on a **virtual model** of the entire production process based on **ACE simulation software**. In this way, engineers from both companies were able to import the cell step files to replicate the virtual model in the application, allowing the software to be reused for debugging the machine.

“As this is a unique solution of its kind, it was essential to have an idea of the reliability of the system before starting to build it,” explains MACCO’s **Alessandro Bartoloni**. *“This is why, together with OMRON and Marini Pandolfi, we set up a simulation team to understand in advance whether the machine we were going to build would be able to perform the applications for which it was designed and within the timeframe set”.*

“Working with OMRON on the simulation gave us the opportunity to verify the reliability of the system and predict possible criticalities, and reduce the risks associated with the implementation phase,” says **Alessandro Fiore**, Application Engineer at Marini Pandolfi. In particular, the simulation made it possible to optimise the entire production cycle, reduce the installation time and improve the performance of the system once it was up and running. Thanks to this preliminary phase, the project was carried out with great efficiency, **minimizing development costs** and ensuring greater reliability from the very first production cycle.

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Results: 1000 labelled tubes per hour with 30% cycle time reduction

The new automated labelling line designed by MACCO has delivered exceptional results. Thanks to the precision of OMRON's i4L SCARA robot and FHV7 vision systems, **Werfen can now label up to 1000 test tubes per hour, reducing cycle times by 30%** compared to previous solutions based on manual processes.

In addition to speed, process quality has also improved significantly. The entire production cycle is tracked and the ability to automatically detect and reject non-compliant tubes in real time dramatically reduces waste. As a result, Werfen is not only able to increase production capacity, but above all to **guarantee a level of product safety and reliability** that fully meets the requirements of the diagnostics industry.

*"There is always a patient story behind our systems, and we and our family members, our friends, our neighbors, are the patients. As such we expect that our health diagnoses are made **with the best equipment to deliver the most accurate data**",* concludes Bruno Costantini from Werfen.

"The solution proposed by MACCO was a breakthrough for us because, with OMRON's robotic and vision system, we can handle the product vertically and control its quality right to the end".

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About Werfen

Werfen is a growing, family-owned, innovative company, founded in 1966 in Barcelona, Spain. It is a worldwide leader in specialized diagnostics in the areas of Hemostasis, Acute Care Diagnostics, Transfusion, Autoimmunity, and Transplant. With over 7,000 employees globally, Werfen operates directly in over 30 countries and more than 100 territories through distributors. Its headquarters and technology centers are based in Europe and the United States. For more information, please visit <https://www.werfen.com/it>



About MACCO

MACCO is a leading manufacturer of packaging machines and automation systems, specializing in the preparation and packaging of cosmetic, pharmaceutical, and nutraceutical products. Founded in 1987, Macco began as a service for the revision and maintenance of packaging machines and later evolved into a manufacturer. The company focuses on designing innovative, reliable, and versatile solutions to meet diverse market demands. Macco operates internationally, serving clients in Europe, North America, Brazil, India, Israel, and Africa. For more information, please visit <https://macco-srl.it/>



About Marini Pandolfi

Marini Pandolfi was founded in 2006 following the merger of two historic companies, ElettrofornitureMarini and Pandolfi, and is part of the Comet Group, Italy's leading electrical supplies distribution group, with over 100 stores in central and northern Italy. The company operates in the electrical distribution sector, offering specific services, solutions and products in the following sectors: traditional electrical material (civil and industrial), lighting, industrial automation, special systems (home automation, video surveillance and anti-intrusion systems, fibre optics, audio/video systems), renewable energies, air conditioning, tools and work equipment. For further information, please visit <https://www.gruppocomet.it/marinipandolfi>

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About OMRON Corporation

OMRON Corporation is a leading automation company with its core competencies in Sensing & Control + Think technology. OMRON is engaged in a wide range of businesses including industrial automation, healthcare, social systems, device & module solutions. Established in 1933, OMRON has about 28,000 employees worldwide, working to provide products and services in more than 130 countries, contributing to the creation of a better society. For more information, please visit <http://industrial.omron.eu>