

FACTORY AUTOMATION

Customer reference

B.BRAUN × Mitsubishi Electric / Collaborative Robotics & Manufacturing Safety

AUTOMATION SEWED UP: HOW B.BRAUN STITCHED TOGETHER HUMAN EXPERTISE AND ROBOTIC PRECISION

Key points:

- 20% productivity increase - with collaborative robots playing a significant role
- Revolutionary 3D-printed safety covers enable worry-free robot operation at head height
- Zero mix-up errors and automatic counting eliminate human mistakes while improving daily work routines

For over 180 years, B.Braun has protected and improved people's health worldwide through technological innovation. But even for a company with such extensive experience, some challenges demand entirely new approaches. When their Spanish Center of Excellence for Operation Room Supply (CoEORS) facility in Rubí faced the need to increase production capacity by 200% on a specific packaging line while maintaining pharmaceutical-grade quality, B.Braun confronted a defining moment.

They couldn't simply focus on production metrics - especially as a medical company committed to protecting human health and wellbeing. They needed to ensure worker health and safety while addressing employee concerns about planned automation. Like a well-designed painkiller that quickly eliminates discomfort, B.Braun had to swiftly neutralize any uncertainties surrounding human-robot collaboration - transforming initial concerns into genuine enthusiasm for collaborative automation.

The Challenge: Manual processes reach their limits



B.Braun's Rubí facility serves as a global reference center for surgical suture production and surgical closure technologies. One of the main challenges was to ensure correct positioning, the number of sutures at each location, and traceability during the process of creating the loaders, while avoiding fatigue and human error.

"We identified the process of introducing sutures into loaders as our primary bottleneck," explains Víctor González, Project Engineering Manager.

Manual processes also created mix-up risks - when different suture types could be accidentally combined in one package. This absence of automation created slower workflows that were incompatible with growing market demand for surgical sutures. Additionally, pharmaceutical regulations require strict verification of product information against work orders.

Traditional safety approaches presented an additional challenge. "The main challenge was breaking the traditional industry approach, where every machine is protected by physical barriers," notes González. Planned collaborative robots would operate at operator head height, requiring innovative safety solutions that maintained protection while enabling seamless collaboration.

Workers naturally had initial concerns about this new technology, wondering how it would change their daily routines and whether it would be safe to work alongside robots in such close proximity. Fear of potential job cuts associated with collaborative robot incorporation added another layer of uncertainty to address.

The Solution: Collaborative robotics that puts humans first



IDAXA, working closely with Mitsubishi Electric, delivered a solution centered on the RV-5AS-D Assista collaborative robot, chosen for its precision, safety, and flexibility in pharmaceutical environments. “After analyzing different options, robot integration proved most suitable,” explains González.

The project exemplified true collaboration: B. Braun defined needs and expectations, Mitsubishi Electric provided advanced technology with its collaborative robot, and IDAXA was responsible for integrating everything into the plant, adapting it to the production flow and ensuring safety and efficiency.

The implementation prioritized four critical requirements: maximum workplace safety through collaborative robots designed to work safely alongside operators; ergonomic improvement by automating repetitive tasks; improved production performance through robot precision; and ensured product quality meeting established standards while reducing defects.

Protection proved paramount. IDAXA carried out detailed risk analysis and performed impact force measurements to guarantee compliance with regulations. Risk assessment revealed interaction zones at head height required new protective measures. The team developed a solution using B. Braun’s additive manufacturing capabilities: custom 3D-printed flexible covers that absorb impacts while complying with collaborative robot regulations.

The solution addressed interaction zones at head height through a flexible 3D-printed cover designed together with the B. Braun team - a ‘bumper’ that absorbs impacts and complies with collaborative robot safety standards.

The robot system integrates advanced verification preventing critical mix-up errors. “The robot helps us verify that information printed on supports matches work orders, preventing mix-up errors,” explains a suture line op-

erator. Automatic counting functionality eliminates manual errors - when introducing sutures into loaders, the robot performs automatic counting before passing them to packaging machines. The system validates each process step in real-time, ensuring traceability and compliance with pharmaceutical standards.

Advanced safety systems provide security through automatic shutdown capabilities that respond to any potential impact or risk situation. The active involvement of all departments, from initial design phases to industrialization, proved key to overcoming implementation challenges and ensuring smooth integration.

The Results: From stress to success - the unexpected transformation



The measurable results tell only part of the story. The 20% productivity increase results from process optimization, with collaborative robots contributing through error elimination and consistent precision. Zero mix-up errors represent a significant improvement for pharmaceutical manufacturing safety, with automated verification ensuring every suture package contains correct products matching work orders.

Deployment was completed faster than typical automation projects, reducing production downtime. Real-time validation prevents mix-up errors - essential in medical manufacturing.

Beyond productivity metrics, the implementation revealed unexpected benefits in worker satisfaction. Workers who initially had concerns about robotic collaboration discovered that robots addressed their greatest source of workplace stress: responsibility pressure and potential errors.

“Since the robot’s arrival, my daily work has improved considerably. It facilitates many tasks we perform,” explains the operator. “Working with it is comfortable and safe because it’s designed to protect us. It allows us to focus on more important tasks while it handles repetitive or demanding ones.” The feared technology became a source of confidence and freedom.

“At first it can be intimidating because it’s new technology, but you quickly realize it’s a very useful tool. The robot



doesn't replace our work but complements it," she continues. The initial concerns lasting mere days gave way to genuine appreciation as workers experienced greater job satisfaction.

Critically, no jobs were lost during implementation - instead, working conditions improved significantly through enhanced ergonomics and reduced responsibility pressure regarding potential errors. The paradox became clear: initial worries about human-robot collaboration actually addressed existing concerns about human error. Workers transitioned from repetitive, demanding tasks to

engaging roles requiring creativity and quality oversight.

"The robots not only improve productivity but create a safer and healthier work environment," confirms González. This transformation created measurable improvements in worker well-being while maintaining zero defect rates, demonstrating that automating repetitive tasks improves ergonomics and worker satisfaction.

Implementation speed proved equally valuable thanks to responsive technical support. From testing phase to start-up, engineering and validation times were reduced significantly - especially important in pharmaceutical environments where deployment agility affects return on investment.

The cooperative model without physical barriers, where safety is provided by intelligent machines, demonstrates how thoughtful automation amplifies human capabilities rather than replacing them. The approach addressing both technical and human factors ensured successful operational integration.

The B.Braun implementation demonstrates that collaborative robotics can successfully address manufacturing challenges while maintaining worker satisfaction and safety standards in pharmaceutical environments.

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN