PALLETIZING CASE STUDY

Coty Cosmetics

Universal Robots Delivers Half a Million Dollars in Annual Savings at Coty Cosmetics

CHALLENGE

The problem was obvious to Paul Baublitz, project manager at Coty Cosmetics: "We presently have twelve presses, and the challenge with automation is always how to automate such a vast operation in a cost-effective way? "Baublitz had a number of reasons for automating, including addressing the repetitive nature of the operation, which was not ergonomically suitable for human operators, as well as the company's goal for enhanced efficiency. Coty had previously considered automating this operation, but it discovered that the technology on hand at the time wasn't adequate to the intricacy of the application.

SOLUTION

Picking up "godets"—metal pans containing powder cosmetics products—and placing them on trays wrapped in boxes before sending them to another department for further processing constitute the application. Powder is forced into the godets in the presses, where it is examined for surface flaws and measured for pan volume before passing beneath a Cognex 3D profiler head. A UR3 cobot picks up the godets in groups of two or four, depending on the product, and deposits them on a tray if they pass inspection. A UR5 cobot picks up the tray when it is full, transports it to one of five case locations, and then inserts the tray into the case. The UR5 cobot then moves to where empty trays are stored, picks up a tray and places it back in the tray staging area, waiting for the next one to drop in front of the UR3 while it's loading.

Safety despite high production speeds
Collaborative robots are designed for safe operation alongside human workers. However, in order to meet required production rates, Coty needed to push the envelope of the robots' speed and force outside of the collaborative range. To protect operators, Sydorko added lightweight plexiglass guarding and light curtains. These don't inhibit the carts' mobility, but if a worker opens a door or reaches through an active area, the robots immediately drop into a safe collaborative speed. Once the worker shuts the door or moves out of the light curtain, the robots resume their maximum speed.

"You can go as fast as you need to and make sure you can keep up production rates, but you can also be collaborative if that makes more sense. It's the best of both worlds," says Sydorko, who often gets asked why he chose Universal Robots rather than a high-speed traditional industrial robot for the Coty application. One of the key reasons is that traditional robots don't run off a low-power source. *"Right now, we're running the carts off 110 volts,"* he says. *"We would have to use 240 or 480 volts to run a traditional industrial robot. It gets challenging when you want to move carts and puts operators at higher risk."* The weight of a traditional high-speed robot was also a factor as well as the size of the control platforms.

Collaborative integration process leads to success
Now that the cobot-based system is set up, however, the Coty team is able to manage it internally. *"If there's ever any troubleshooting that's needed, the integrator that we worked with is always a phone call away," says Baublitz. "But at this point, we've been running with the carts for months and we're comfortable enough that we can*

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troubleshoot 99 percent of the issues in-house."A great platform," he says. "They're lightweight, they're easy to use, they're low voltage, and certainly could work together in the same environment as individuals, so we decided to give the Universal Robots a shot."

The application involves picking up "godets"—metal pans containing powder cosmetics products—and placing them on trays packaged in boxes and sent to a different department for final processing. In the presses, powder is pushed into the godets, which then travel under a 3D profiler head from Cognex for surface inspection and to measure the volume of powder in the pan. If the godets pass inspection, a UR3 cobot picks them up in groups of two or four, depending on the product, and places them on a tray. When the tray is full, a UR5 cobot picks the tray up and moves it to one of five case locations and places the tray in the case. The UR5 cobot then moves to where empty trays are stored, picks up a tray and places it back in the tray staging area, waiting for the next one to drop in front of the UR3 while it's loading.

Mobile cobots support quick product mix changes.
Up to ten different product "recipes" for various godet shapes, which can range from round to square or rectangular, as well as various thicknesses and weights, are now run by the cobot-based carts. These products can be produced one or two at a time. The carts can hold up to 20 different product "recipes."

The application had significant issues with setup and switching times. Coty was able to put a UR3 and UR5 cobot on each of four mobile carts that can be moved from one press to another thanks to Universal Robots. It is significantly less expensive than having robots manning twelve distinct stations, according to Baublitz. It enabled a project that had previously been financially impossible to become feasible. It usually takes just 15 to 30 minutes to unplug, transfer, and set up the mobile cobots at a new press. Having them mobile was essential to moving the project forward.

Fast ROI, improved work environment and improved quality
For this collaborative automation project, Coty is projected to save half a million dollars annually going forward. That's a significant return on investment, but Coty has seen other benefits as well.

The area where the robots work is dusty and noisy, with heavy vibration from the large presses. Now that the robots are working next to these sources, Coty is able to move employees farther away from this environment and redeploy them to less repetitive and more interesting tasks. Baublitz explains, *"Once this project is fully completed and running three shifts, five days a week, with four carts, there are going to be thirteen fewer employees working in that area. That's a significant change for the organization, with a lot of efficiency improvements, and the team's very excited about that."*

Baublitz also points to new quality initiatives that the Cognex inspection system adds to the automated work cells. Previously, this was one of many tasks that operators performed. "Now there's a computer doing all of that work," Baublitz explains. *"If you see something that needs to be improved, you can immediately react."*