

Pharmaceutical Manufacturer Streamlines Production With Custom-Made Work-Positioning Tables

Roxane Laboratories, Inc., a Columbus, OH-based manufacturer of prescription drugs, recently added state-of-the-art work-positioning tables to prevent back strain among its production-line employees. Since the addition of seven Roll-On Level Loaders custom-made by last year by the Southworth Products Corp., Portland, ME, there has been a lot less bending and lifting at the busy plant.

Roxane, a subsidiary of the Boehringer Ingelheim Corp., Ridgefield, CT, is a leading manufacturer of pharmaceutical products, including tablets, liquids, and inhalers for hospitals and pharmacies. To comply with strict U.S. Food and Drug Administration (FDA) standards for minimizing product contamination, the company maintains its packaging areas as clean rooms. Clean rooms have certain requirements which call for special automated equipment.

Roxane employees package and ship millions of product units every year. In the process, they lift approximately 1.5 tons per week. Variations in packaging keep them on their toes. For example, a liquid drug may be packaged in a single-dose heat-sealed plastic cup, a multiple-dose plastic or glass bottle holding from 4 milliliters to 1 liter, or an injection vial. Some bottles are packed with eyedroppers, some with spoons. Although the processes of filling and sealing are automated, the empty, sterilized containers need to be removed from boxes stacked on skids and steadily added to the line. At the other end, full, labeled containers are packaged in new boxes and stacked on skids. One box of full bottles can weigh up to 40 lbs. Until last fall, all production lines required continual leaning, bending, lifting, and twisting by production-line employees of different ages, heights and genders. Repetitive walking with heavy boxes was also necessary. The only way to get a box to or from the far side of a skid was to carry it there.

The company actually started to solve this problem some time ago. In 1998, it decided to install portable lift tables that met clean-room standards. The company contacted a local distributor, whose representative suggested the Roll-On Level Loader, a standard Southworth model. After visiting Roxane's facility, he realized this would not do, and contacted Southworth directly for guidance.

The issues he discussed involved a variety of special circumstances. Most of the plant's equipment, for example, is stainless steel to allow for easy washdowns without causing rust. Skids are galvanized steel. Roxane originally wanted stainless steel Roll-Ons, but found the cost prohibitive. Southworth recommended using its Steel-It paint, an epoxy coating that contains flakes of stainless steel.

After further consideration, Roxane requested a videotaped demonstration of the Roll-On. Roxane then placed Kimberly Borns in charge of the project. A production engineer with a degree in industrial systems engineering, she had responsibility for everything from specifications to employee training. By June 2000 Borns had committed to ordering seven Roll-On Level Loaders made to specifications to be determined following a design review.

A standard Roll-On consists of a pallet-size, three-sided steel box, open at one end

so pallets or skids can be rolled on and off an internal platform with a hand pallet truck. The operator controls the hydraulically powered platform, lowering or raising it to maintain convenient, easy-on-the-back levels for loading and unloading. For production-line work, the platform is raised at one end as employees remove boxes to keep the remaining boxes at working height. At the other end, the platform starts out raised, and is lowered as employees stack up new boxes. The entire unit can be lifted and transported to another location after locking the platform at the proper height and inserting the forks of a hand pallet truck beneath. These features appealed to Roxane executives, and were articulated to Southworth's industrial designers by Borns. The result was a custom-made Roll-On with a square, built-in turntable that can be rotated so employees never have to reach too far for the next box. The entire unit is painted with Steel-It.

"The technology existed to give Roxane exactly what it needed," says Jim Snyder, a Southworth regional manager. "To do anything less would have been a compromise. The new machine will undoubtedly have other applications, and that justifies the extra engineering costs."

The maximum lift height of the 2,000-lb.-capacity turntable is 30 in. A 1hp electric motor drives the hydraulic pump that raises the platform when the operator pushes the "Up" button. Lowering, by depressing the "Down" button, is by gravity, with a relief valve to modulate speed.

Still, power is needed to move the platform either way. This is a safety feature, since the photoelectric toe guards need power. Three beams ("electric eyes") cover the sides as well as the front. This is an additional safety feature to protect employees' feet. If the beam is broken, the platform cannot be lowered.

"We were pleased that Southworth stuck with us through all our design modifications," says Borns, noting that other modifications included a longer power cord and a longer, fold-up ramp that provides a gradual slope to facilitate the moving of skids on and off the platform's turntable.

"The employees have really been appreciative of these units," she says. "Not having to bend down and do all that lifting has made a huge difference in their morale. They see that we are taking an interest in their health and safety and providing them with new equipment to make their jobs easier."

Though it's too soon for statistics, Born and the management team at Roxane expect that use of the Roll-Ons will reduce back injuries, in addition to improving productivity.

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