▶ BY STEVE PIXLEY, AUTOCRIB INC.

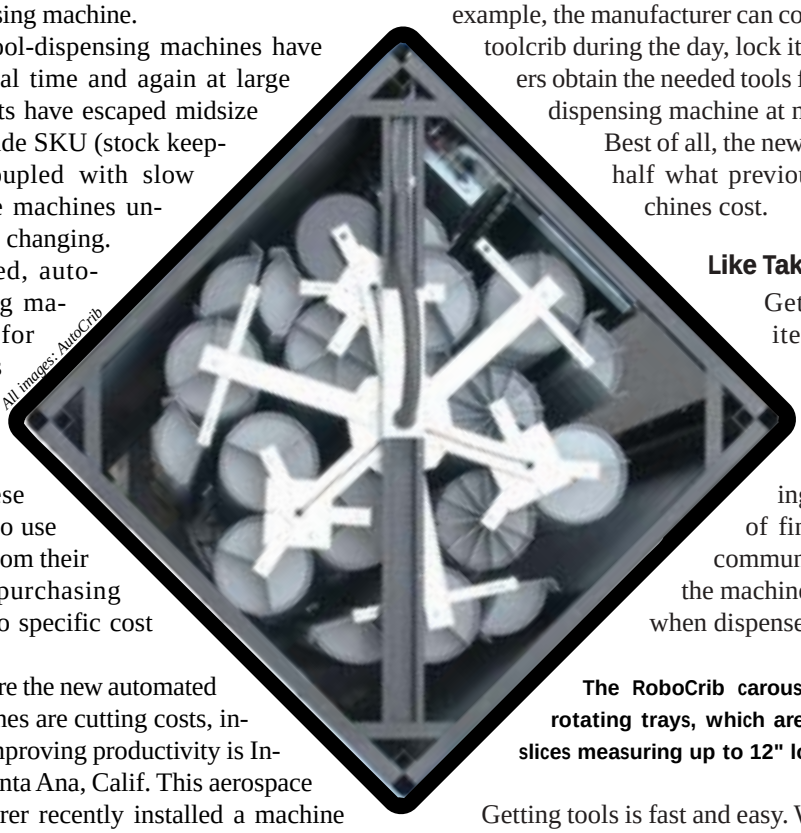
TOOL VEND

Carousel-based, automated tool-dispensing machines can cut costs for midsize companies.

Midsize manufacturers looking to increase productivity, cut costs, increase accountability and reduce downtime can take a page from the success book of large manufacturers: Replace the central toolcrib with an automated tool-dispensing machine.

While automated tool-dispensing machines have proven to be beneficial time and again at large companies, the benefits have escaped midsize companies because wide SKU (stock keeping units) counts coupled with slow throughputs make the machines uneconomical. But that's changing.

New carousel-based, automated tool-dispensing machines are available for midsize manufacturers that have no attended toolcrib or one that is attended only during one shift. These companies also want to use consigned inventory from their suppliers, automate purchasing and track tool usage to specific cost centers.



All images: AutoCrib

The RoboCrib carousel system uses counter-rotating trays, which are divided into pie-shaped slices measuring up to 12" long × 5" wide × 4½" tall.

One example of where the new automated tool-dispensing machines are cutting costs, increasing uptime and improving productivity is Integrated Aerospace, Santa Ana, Calif. This aerospace component manufacturer recently installed a machine with a carousel system that uses counter-rotating trays.

These machines are ideal for dispensing a range of items, including cutting tools, gloves and safety glasses—anything that can fit in a 12"-dia. pie-shaped platter. Now, 20 to 30 fast-moving items can be economically dispensed along with about 500 slower-moving items. The machines can be used exclusively or in conjunction with a traditional toolcrib. For example, the manufacturer can continue to have a manned toolcrib during the day, lock it at night and have workers obtain the needed tools from the automated tool-dispensing machine at night.

Best of all, the new machines cost less than half what previous tool-dispensing machines cost.

Like Taking Candy…

Getting a tool or another item from an automated tool-dispensing machine is similar to buying a candy bar from a standard vending machine. It's a matter of finding the desired item, communicating this selection to the machine and retrieving the item when dispensed.

Getting tools is fast and easy. Workers can obtain tools by imputing a user identification and PIN via the keyboard, bar code or proximity card. Workers can be prompted to enter optional cost center data regarding the transaction, such

as department, job number, machine number or part number.

Next, the worker selects the item he wants from a touchscreen. For instance, an employee might select "½" drill." A series of ½" drills is displayed on the screen. The worker selects the one he wants using the touchscreen and the machine dispenses it in less than 10 seconds.

Some automated tool-dispensing machines are based on the carousel approach and not the coil approach, which is common for vending machines that dispense snacks. Carousel-based machines use counter-rotating platters, which are divided into pie-shaped slices measuring up to 12" long × 5" wide × 4½" tall. The tools can be stored vertically, extending storage length to about 24". The versatility of this design allows a large machine to handle more than 2,500 SKUs, compared to a helix, or coil, design that only dispenses about 70 different SKUs. And yet the footprint size is the same—about 3'×3' for a small machine and 5'×5' for a large machine.

The small and large versions of AutoCrib's new RoboCrib carousel-based, automated tool-dispensing machines are for small and midsize manufacturers. The small machine can dispense over 1,000 different SKUs including cutting tools, MRO supplies and safety products and the large machine over 2,500 different SKUs. The smaller machine has a 3'×3' footprint, while the larger machine has a 5'×5' footprint.

Toolcrib Inefficiencies

To illustrate why a carousel-based machine is so efficient, one has to understand why a traditional central toolcrib is relatively inefficient. First, a central toolcrib requires a worker to stop working, leave his work area and walk to the crib for replacement tools. After waiting his turn, the worker has to then wait until the crib attendant finds the requested tool. During this time, the worker's machine tool or manufacturing cell may stop, resulting in lost production.

Second, most toolcrib inventories are highly inaccurate unless they're manned during all shifts. Leaving the toolcrib unattended even during one shift allows workers to take tools without signing for them. This is especially troublesome when the last ⅜" drill, for example, is taken. Then, when that tool is needed again, there's a mad hunt to find it, which often results in sending someone to the supplier to purchase it or having it shipped overnight, causing more downtime and increased expense.

To overcome this problem, a toolcrib may be locked during the second and third shifts. Workers needing a tool then must find a supervisor to unlock it. Again, if the tool is not signed out properly, there is no worker accountability, and the supervisor's precious time was spent on a relatively mundane task.

All of these problems can be alleviated by decentralizing the toolcrib and using carousel-based, automated tool-dispensing machines strategically placed to service a work cell—usually in close proximity. This significantly reduces the time spent searching for tools.

With this approach, each employee, department and work cell is accountable for tool usage. The entire automated dispensing process is recorded, including the employee, date, time, department, machine, job number and reason for taking the tool.

Furthermore, limits can be placed on tool consumption. For example, management may place a maximum number of nine 2" drills on a specific job regardless of who takes them. Access to the tools can also be controlled by employee, departmental budget, shift and total dollars for an employee—or management can choose to have no access controls turned on and let the employees take whatever they feel is necessary. Nevertheless, whatever is taken is still tracked.

When employees know that management is tracking consumption of a disposal item, they reduce their usage. A case in point is glove usage at Trane Air Conditioning Co. The company reduced glove costs from $1.3 million in 2000 to $865,000 in 2001 simply by tracking usage and enforcing accountability through an automated dispensing machine. This resulted in a 6- to 9-month payback, a common return on investment.

At management's discretion, an accountability system can be set up to track specific usage, such as first shift vs. second shift or production line No. 1 vs. production line No. 2. Information can be tracked about jobs, tools or materials to determine efficiency.

Automatic Reorder

Another advantage of an automated tool-dispensing machine is automatic reorder of supplies when they fall below preset levels. For example, reorder can occur when the number of carbide inserts falls to 20. Or it could be a much more sophisticated reorder formula based on exponential smoothing, where the previous period's forecast is adjusted up or down based on what occurred during that period.

Whatever the methodology, a purchase order is automatically e-mailed or faxed to the supplier for, say, 100 more inserts, which will be quickly reloaded by the supplier.

Automatic reorder eliminates the

need for purchase orders to replenish a toolcrib, which might occur twice a day. One consolidated invoice is mailed to the customer at the end of the month, rather than two invoices per day. Paperwork is substantially reduced, which often allows a purchasing staff member or two to be reassigned to more productive tasks.

Similarly, receiving, accounts payable and inventory control staff can be reduced or reassigned because the supplier absorbs those responsibilities.

Automatic reorder has other benefits. It gets the manufacturer out of the tool supply business and reduces tooling inventory, a costly business expense. About 80 percent of automated tool-dispensing machines have consigned inventory from the supplier. Both the cost and responsibility of inventory are shifted to the supplier, allowing the manufacturer to concentrate on producing its core products.

Because the supplier is consigning the inventory, tool obsolescence is significantly reduced. That is because the supplier is tracking inventory on a daily basis, whether it's moving fast or slow—or not at all. The supplier, with hundreds of customers, can more easily dispose of unused inventory.

Another advantage is flexibility. When a customer orders a dispensing machine, the design is configured to the type of items that will be dispensed. But if the customer makes a mistake when ordering, or if model changeover dictates different manufacturing circumstances, the machine is easily reconfigured in the field, such as from small tools to large tools.

Training on how to use an automated tool-dispensing machine typically takes 3 days. During that time, the trainer explains the software setup and how to operate and maintain the hardware.

When searching for a point-of-use dispensing system, a potential buyer should definitely evaluate some of the new technologies before making a purchase. Furthermore, he or she should investigate the supplier's technical support, software capability and ability to continue to fund R&D.

These types of tool-dispensing systems have long life spans and, therefore, a buyer should partner with a company that will be able to provide long-term support.

Employees follow RoboCrib's menu prompts to obtain a desired tool. The accountability system has 150 standard reports available that, among other things, can track tool consumption by employee, department and job number.

About the Author

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