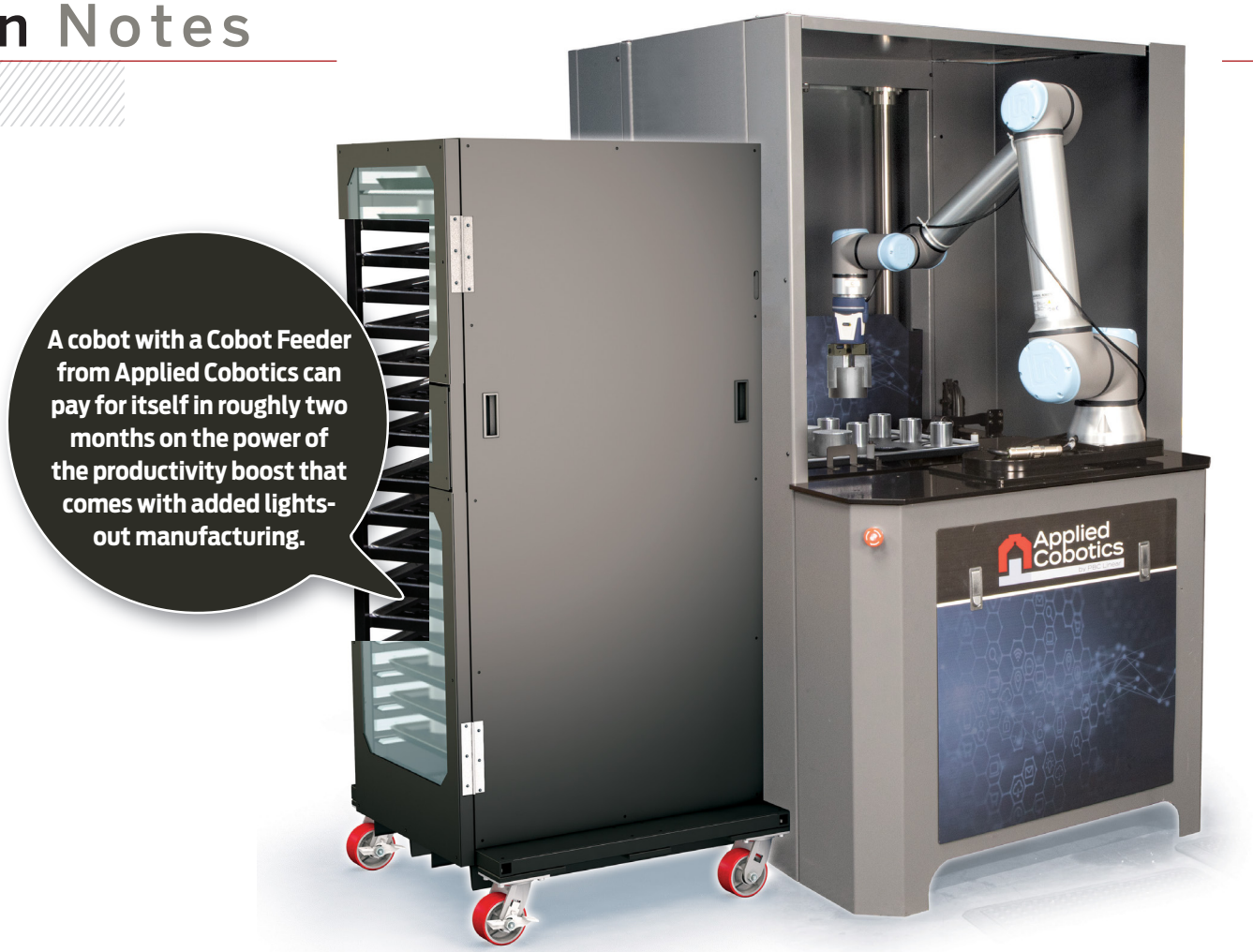

Automation tool for robot production

Edited by **Mike Santora** • Managing Editor

When first implementing cobots, the engineers at Applied Cobotics quickly realized that the vision systems for picking parts from a bin lacked the sophistication to consistently complete tasks and the affordability for further expansion. Without an automated loading and unloading system, cobots were sitting idle and falling far short of their potential.

Their solution was to build the Cobot Feeder around dunnage trays and combine it with a parts tray rack to continuously feed the robot. This automation package provided solutions to common core challenges:

- Provide the correct orientation for cobot grippers
- Offer organized and repeatable placement of parts
- Allow for easier programming of cobots
- Increase the overall efficiency of cobots

The experience of PBC Linear and their efforts to automate with cobots illustrates how essential it is to have a unique machine like the Cobot Feeder. This is especially poignant when considering how the pandemic has amplified the shortage of skilled workers and exposed a supply chain fraught with severe backlogs and delays.

What started as a reconnaissance effort into possible solutions quickly turned into a must-need imperative for the PBC Linear team due to the pandemic. With CEO Bob Schroeder's backing, seasoned engineers, alongside a group of enthusiastic interns at

Design Notes

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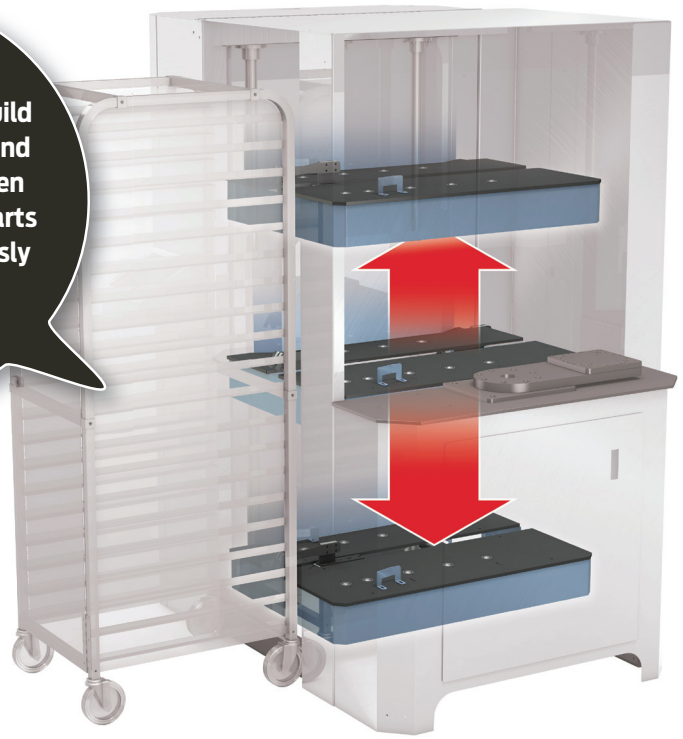
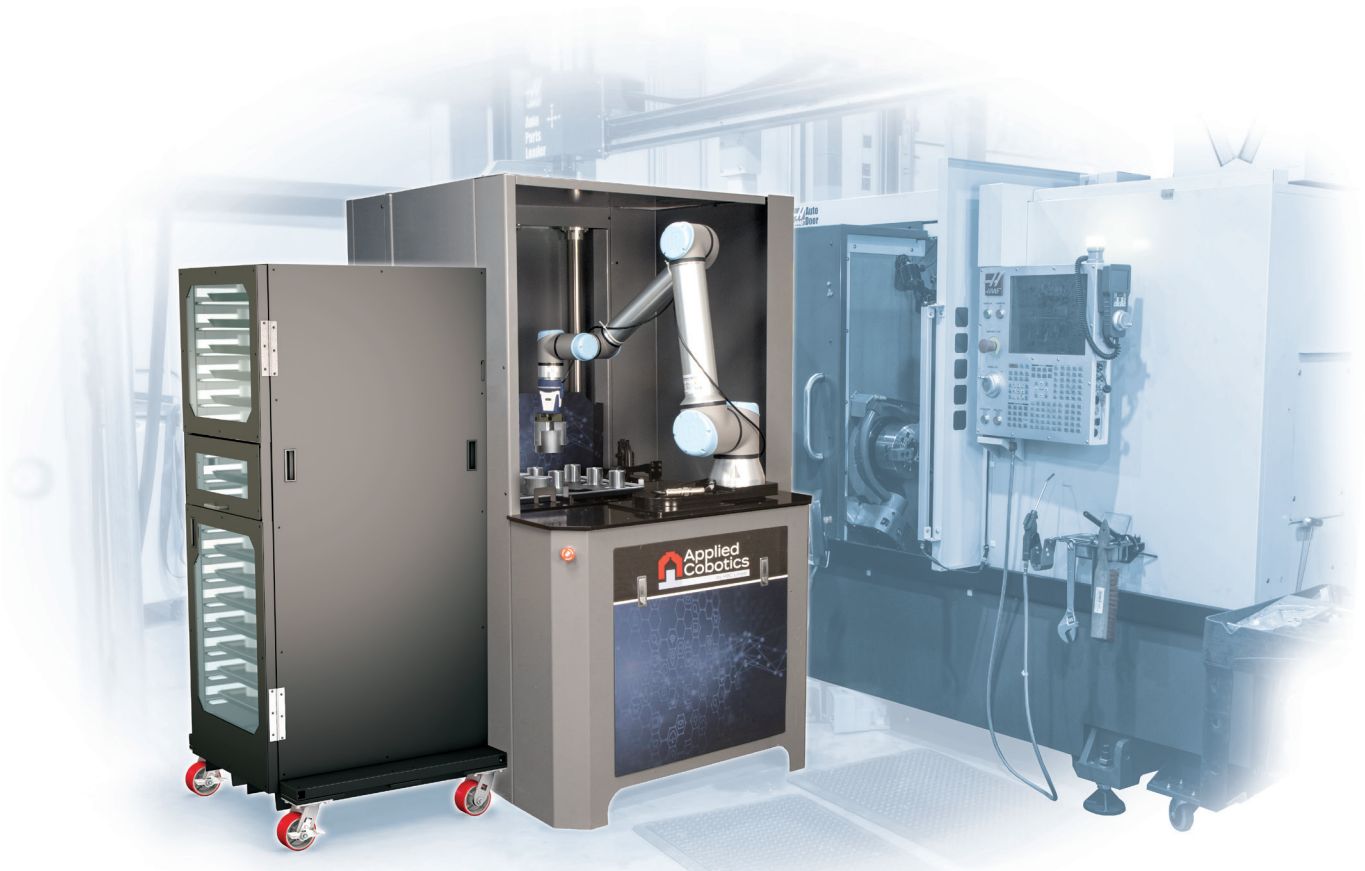


Applied Cobotics, began designing and building prototypes while investigating different materials and linear motion systems. The highly repetitive tasks targeted for the initial automation were the CNC mills and lathes used to produce many of their signature bearings. With roughly 80 CNC machines in the PBC Linear shop and 15 cobot stations in operation, there was plenty of room to experiment.

Results

Over a recent span of twelve months, PBC Linear was able to increase its sales by 33%. In contrast, their labor has only increased 3%. This is represented anecdotally in several examples:

Project schedules: Often, lot sizes are gauged for a single work shift. The reality



is that a job rarely finishes within the allotted time. In essence, a five-day job can often really take eight or nine days to complete. The Cobot Feeder allows those jobs to finish overnight so that every day is a fresh setup, and each job stays in step with the production schedule.

Parts organization: The reliance on custom dunnage parts trays replaces the old tedious process of a worker stacking/restacking parts to and from a bin or machine and then repeating that process multiple times throughout that project's timeline. In addition, quality-sensitive parts can be compromised using part bins. The Cobot Feeder model avoids quality issues, downtime, and potential costs.

Multiple parts processing: The options for multiple configurations of parts trays on the rack means different parts can be run during the same job run. This greatly reduces the setup and changeover time required, offering greater efficiency on the shop floor.

An additional benefit is that their workforce has full buy-in to this new manufacturing model, supporting a higher degree of job satisfaction, skill sets, and potentially higher wages. Workers now act more as managers of multiple stations. They can load several machines and then either check on the quality of parts or go to lunch while the cobot and Cobot Feeder continue to operate without a break.

Regarding ROI, the complete Cobot Feeder solution can increase the efficiency of cobots and other types of robots by up to 1600%. Generally, a cobot can pay for itself within six months. A cobot with a Cobot Feeder from Applied Cobotics can pay for itself in roughly two months on the power of the productivity boost that comes with added lights-out manufacturing.

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PBC Linear
www.pbclinear.com