

# Custom Rubber ready to develop next generation

By Kyle Brown  
Rubber & Plastics News Staff

CLEVELAND—Charles Braun, Custom Rubber Corp. president, is planning for the future, not just for his own company, but for the larger manufacturing industry.

Braun has taken the first steps toward getting a new generation of young people involved in manufacturing by partnering with a local high school, he said during a recent tour the company hosted for members of the Association for Rubber Products Manufacturers.

When one of his children was looking through course selections for high school, Braun realized that Shaker Heights High School in Cleveland didn't offer any kind of shop class, he said.

"They're part of a consortium of other local high schools that don't have any vocational training," he said. "They offer this list of courses which include graphic imaging technology, administrative office technology, financial management, cosmetology, pharmacist technician—all great careers. But none of them are related to manufacturing."

Braun was discouraged, but during a tour of another facility, he got his inspiration by way of Cardinal Manufacturing, a student-run machine shop built into a shop class in the Eleva-Strum school district in Strum, Wis. Cardinal, started by instructor Craig Cegielski, takes orders from outside customers in the region, giving students a more hands-on experience and skill-building in manufacturing.

A customer supplies a model or a part to Cardinal, where Cegielski responds with a quote, and a purchase order is sent. The business itself is completely student-run, Braun said.

"They're teaching kids shop by giving them orders from industry, which is way more effective ultimately than your teacher saying, 'Today we're going to make candlestick holders.'"

With a live order in hand, a student learns the machine and how to manage an order to hit a deadline, Braun said.

Cegielski challenged tour attendees with five questions about connecting a manufacturing company with local schools



RPN photo by Kyle Brown

**Custom Rubber President Charles Braun talks to attendees at the ARPMM tour about plans to partner with a local high school.**

to develop student interest. His quiz asked: Have you visited your school superintendent in the past year? Has the high school principal toured your business? Are you on a first-name basis with the tech-ed teacher? Has an employee presented in a classroom within the last year? Has your company donated equipment, supplies or money for vocational training?

"My answer to all five questions was no. I hadn't done any of those things," Braun said.

He reached out to Jonathan Kuehne, Shaker Heights High School principal, to pitch his idea for a similar program in Cleveland. Raider Manufacturing, named after the high school's mascot of the Raiders, will bring students up close to working with an industry customer to create a product.

"My long-term objective is to create Raider Manufacturing, a student-run manufacturing company," Braun said.

The project is still in its infancy, but it began to take forward steps over the summer. The realization of the project is probably still a decade away, but creating immediate new employees isn't the point, he said.

"You can't go into these things thinking, 'I'm going to get an employee out of this.' That's the wrong thing," Braun said. "Even if you send one more kid

through the training, that's one more person in the pool. And maybe he doesn't work for you. But the job he takes, the guy that was going to take that job, that guy will work for you.

"You have to think about the global pool. If you're lucky, you'll get one or two, but that's not the short-term goal."

In the interim, Braun is pushing to add curriculum that bring in elements of design and engineering, he said. Within the last year, Custom also has started plans to host plant tours for high school students. He's worked with other local business owners to establish regular tours across the industry, and is coordinating with Shaker Heights to expand the project in upcoming years.

"We have to get these kids out of the classroom and show them how cool manufacturing is," he said. "That's the first step. It doesn't cost any money, and you can do it tomorrow."

Braun has challenged his team to come up with projects for students to problem-solve like a typical manufacturing issue. The goal is to give the students a project, have them go back to their class and design a prototype, then present it before building more to finish an order.

He also encouraged others to talk to the local school districts, especially the high school, to find ways to connect the manufacturing industry to education.

"Reach out to your local high school. They're really nice people," Braun said. "They really want to do the right thing, but they just need some input."

## Shift changes

Though Braun is looking far down the road, he's also trying to fill positions right now, with about 12 openings available as the company aims for a rough total of 100 employees. He's working with local services to fill those gaps, but "the fact that we're still not fully staffed means none of them are working well," he said.

One change Custom has made since January both to manage incoming projects and give employees more options is

a transition toward aligning its work force under two 12-hour daily shifts, rather than three 8-hour shifts, he said.

Custom had been getting business that it wasn't able to meet five days a week, and asking employees to work six days each week regularly was getting stressful, said Tim Zeigler, vice president of manufacturing for Custom.

"Everybody's got a family and a life we're trying to lead and kids in school and whatnot, and we're getting a lot of pushback because we're working six days a week," Zeigler said. "We were getting some turnover because of the work. We tried to pare that back to only a couple times a month."

Even that wasn't enough to help employees balance life and work, and Custom looked at alternate schedules, hitting on the four 12-hour daily shifts.

Crews work 6 a.m. to 6:30 p.m. or 6 p.m. to 6:30 a.m. with a half-hour overlap between them. Each team works three days one week and four days the next, which ends up covering every other weekend.

"What it's given us is some consistency with a portion of our business that needs to run seven days a week to support those customer accounts," Zeigler said.

When Custom made the transition, there were long-term employees that Braun considered critical, he said.

"We knew if we pushed everyone to this schedule, we would likely lose a lot of those long-term employees," Braun said.

Braun gave those employees the option to stay on the 8-hour shifts, and many did. All new employees are on the 12-hour shifts going forward.

"It's been a nice way for us to make sure that we kept the people who are really good," he said.

The new schedule has taken some time for employees to become accustomed, but they've learned how to recharge during the long shifts with short breaks, Zeigler said.

"The nice thing about it is, when you're working three to four days a week, you've got three to four days off," he said. "Some of our people really enjoy that. They wouldn't change it for the world. Other people, it doesn't work with their home life. But those are the challenges of any business you're going to face."

## Good growth

Custom has faced those challenges with a projection of about 6-7 percent growth for the year, following "good growth" between 2016-17, Braun said. The company has taken delivery of a new Desma machine, and three others last year. Its Cleveland location is about 66,000 square feet, with about 6,000 square feet for offices and 60,000 for manufacturing and warehouse.

"I think we're going to keep it at one machine this year," Braun said. "I would suspect between replacing old machines and growth, we'll need at least 1-2 machines a year for the foreseeable future."

The company also has put a focus on improving mill safety, especially regarding the shift to the 24-hour schedule with more volume. Custom worked with other local companies to learn from their safety procedures before making changes, Zeigler said.

The processes start with a focus on training, because there are often fewer physical barriers to the operator being injured. Some automated safety systems such as pressure-sensitive belly bars can be helpful, "so if the operator does get himself out of position, it automatically shuts the mill down," Zeigler said.

"If you make it almost impossible for him to get injured, that's probably a



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better scenario," he said.

There also are manual systems such as trip wires and kick plates, though those are less effective because they require the operator's input, he said.

As the volume of jobs has remained high, Custom instituted a 12-month apprenticeship training program, Zeigler said.

"It includes compounding mill operations. We spend four weeks just working with the operator on how to properly cut on the mill, stay out of the danger zone and work the mill," he said. "We make sure they're comfortable, make sure they're doing it appropriately."

Each month, they sit down with the employee and review their performance to determine what's going well and where improvement is needed, he said.

"After a year, we have an operator who's trained, who's doing a really good job with this," Zeigler said.

To boost mill safety, Zeigler is looking at raising the mill to move the pinch point farther away from the operator and add a pressure-sensitive belly bar, he said. The company upgraded its safety mechanisms with a safety trip cable and a kick plate. It also updated its mill extraction procedures with victim care.

"One of the things we had a hard time finding was how to care for the victim. What do you do with the victim in this case? It's all about getting the mill open," he said.

Custom will work with the Red Cross to get employees trained on that response, including knowledge of how to use a tourniquet, if necessary. Another serious risk is the possibility of the victim going into shock while the extraction procedure is happening, he said. The response there includes talking to the victim and reassuring them, covering up the wound so the victim can't see it while help is arriving.

"There are certain things in the victim care that we think are very important and often get missed," Zeigler said.

The team also realized during extraction testing that getting a victim out of the mill with a full load of rubber was much more difficult than the smaller drills they'd been running.

"The things we were doing at 75 pounds of rubber worked, but don't in a real mill situation," he said.

As a solution, they cut the rubber off of the mill in the extraction process to only deal with the bank, and then cut that down to a manageable size, he said.

"So once EMS arrives, they're not dealing with a 150-pound bank of rubber and the victim. They're dealing with maybe 5 pounds of rubber and the victim," Zeigler said. "Those were the key things we were looking at."

### New inspection systems

Custom also invested in building its own digital inspection system because of the high demand of a customer to which Custom shipped about 3.5 million parts last year, Engineering Manager John Bellett said. The quality wasn't as high as a medical product, but high enough to require a final inspection, which would at times tie up five or more finishing operators.

"That number of employees created issues throughout the whole department," Bellett said.

Custom initially looked at purchasing a full system from an automation company, but decided to try to build its own because of the cost and a lack of flexibility, he said. Custom was interested in inspecting this part, but also wanted a system that would allow for inspection of other parts in the future.

Bellett's team started with a vision system, a conveyor belt "and a very blurry vision of what we wanted to do," he said. The project later took on a second camera, to check the other side of the part after it had been flipped on the conveyor. The inspection system and camera came from Keyence.

Building the system offered some advantages, including more flexibility in how the project was set up, as well as in the possibility of working with other parts, he said.

The entire system cost about \$30,000, but the productivity savings already have met the company's 12-month objective to pay for the entire system, he said.

"The biggest improvement we're seeing is from time," Bellett said. "Inspection rates are roughly 430 percent faster for the vision system to do it versus our inspection operators."

Custom is looking at other jobs that could benefit from the inspection system, especially as it continues to look for new employees, he said.

"Instead of five operators running for eight hours a day to inspect a part, it's one operator for two hours a day or so," Bellett said. "The accuracy is there, the consistency is there and it's working well."

Custom also upgraded its capabilities in dealing with mold damage from inserts, according to Maintenance Manager Jerry Wear. If the molds aren't put in place properly or something is left in, the mold can close and damage the tool.

"It costs money to repair that, and there's the loss in production," he said. The team used the success of the digital inspection system to create a solution, mounting a camera to the machine that can take a picture of the tool and inserts before operation, Wear said. If the camera senses something wrong, the system won't let the machine operate. After an adjustment, the camera checks again, and if the problem has been cleared, the machine continues normal operation. Wear's team worked out details with lighting changing from day to night, and the correct placement for

mounting the camera without getting in the way of operation. Each complete system costs about \$12,000, and the company has made two so far.

The systems already have logged several confirmed saves, preventing damage to equipment, Wear said.

"This adds up quick. It also increases your production time, because you're not pulling your tool out, sending it out to be repaired and having it come back," he said. "Payback for the system took less than 140 hours of production."

The systems have improved Custom's machine utilization and customer service, and were designed to be flexible so they could be moved around to other machines as needed, Wear said.

"The nice thing about the system is that it doesn't matter what machine we put it on, it will work. It's just a matter of taking it over and plugging it in," he said.

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