

Not your father's shop

**Plastics
& Design**

All-in-one toolmaker R&D stakes out new ground

By Rhoda Miel
PLASTICS NEWS STAFF

LEE'S SUMMIT, MO. — Dean Rohr stands just inside one of the six buildings that make up R&D Integrated Solutions in Plastics' manufacturing campus in the Kansas City suburb of Lee's Summit.

Long gray curtains stretch from ceiling to floor, and surround each of the eight processing machines inside the building — making it possible for R&D customers to run proprietary samples of new parts and packages.

Hidden behind those curtains may be a new generation of mouthwash bottles or peanut butter jars, created from start to finish by R&D, which is out to change the idea of what a "tooling company" can do.

Like other mold makers, R&D can make the tools: for injection molding, blow molding, extrusion blow molding and PET preforms. It can oversee every piece of engineering on those tools. It also can run those tools in its own machines — including two-shot injection molding and silicone rubber molding — for either prototypes or short-run production.

And now with the addition of its Leverage Integrated Design industrial design group, housed on the 12-acre R&D campus along with toolmakers and molders and material

engineers, the company also can oversee full design of parts, and do it with a certainty of what it will take to manufacture those parts.

"This," Rohr says, "is where everything becomes real."

Looking past him at the drapes around every machine in a July 29 interview at the company, and considering it's a firm in the middle of the U.S. heartland, it might be easy to make a quip about the *Wizard of Oz* and things hidden behind the curtains. But R&D is in Missouri, not Kansas, and unlike the fantasy world of Oz, everything at R&D is very real.

SPECIAL REPORT

It is working with Tom's of Maine, the Kennebunk, Maine-based personal health-care company, on concepts for future packaging designs, starting from scratch with studies from Leverage.

The Tom's of Maine project also points to the unique platform that R&D occupies. When the company wanted to see what different grips would look like on the bottle, Leverage Creative Director Corwyn Strout was able to tap into the toolmaking expertise within R&D to use inserts in the mold to give the company a chance to try out multiple alterations in styling, but with minimal costs.

"It's because the creative piece works closely with the technical piece that makes something special," said Strout.

To mark the addition of Leverage and note the full range of opera-
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Hands-on: R&D toolmakers verify measurements and track specifications at every step of the production. While the company said its customers rarely ask to see the documents, it helps it to be certain its molds meet customers' technical demands.

At right: An old Tom's of Maine mouthwash bottle, left, and a new one developed through R&D.



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tions, the company has changed its operating name from R&D Tool & Engineering to R&D Integrated Solutions.

R&D is staking out some new territory. Other mold makers and molders have tinkered with design in the past, but the Missouri company is among the first to offer the range of services from precision tools to complete design, said Jeff Mengel, a partner with consulting group Plante & Moran PLLC, with offices in Chicago.

"I would call them product launch specialists," he said.

It is the kind of company, Mengel said, that actively seeks out new niches and new ways to do business, rather than waiting to follow the rest of the market. But at the same time, it is not an approach that will work for everyone.

"It's not going to be for every customer, but then with everything we've ever built here, not every customer takes advantage of all of it," agreed Rex Luchtel, chief executive officer and vice president of operations. "We still want to have it all here, on our campus, available to them."

The staff at R&D credits founder Ivan Drienik for the company's expanded focus. Drienik, who died in October, encouraged his employees to try new things and invested in new technology, Luchtel said, but also embraced the craftsmanship that went into every mold leaving the shop.

"The DNA of R&D is creativity and pushing the envelope, regardless if it's something about being creative in the design of a product or pushing the envelope of a standard machine that everybody else has, but doing something different with it," Rohr said.

It is the drive that prompts the company to hand check each part of a tool and record measurements that the customer never asked for, but which guarantees the precision that the company needs to compete, Rohr said. It is the growth that led R&D to expand into Europe in 1997 through the acquisition of DK Moulds Ltd. — now R&D Tool & Engineering Ltd. — in Mansfield, England.

The company has grown steadily to take in a range of manufacturing and technical operations. Its tooling operations turn

out molds for injection molding, blow molding and injection stretch blow molding in addition to hot-runner systems.

It added processing capabilities first to test tools, then for prototype production and now short-run production that includes standard molding as well as two-shot injection molding. It recently added silicone rubber molding and mold making to its stable of products for the packaging, medical, aerospace and defense industries.

But even as the 250-employee company pushed itself to try more, the North American marketplace was faltering as overseas competition ate into its customer base.

"This is the first time from what I know in the history of toolmaking that they've really tried to commoditize what we do," Luchtel said.

So two years ago, the company launched a strategic planning initiative focused on building on R&D's core strengths.

"I believe that we've had a vision from day one that we wanted to be more than just a tool shop," Luchtel said.

It quickly became clear that R&D could consolidate its abilities in tooling, in prototypes and in small-volume production along with engineering expertise to offer customers a one-stop shop to develop new products. And it also was clear that the company needed one key element to complete that picture: industrial design.

"Yeah, we're creative in the tooling side, but when it comes to

the actual product out of the box, this is what we've really been missing," Luchtel said. "Leverage is the last building block for us."

It was easy for R&D to see what in-house industrial design

could offer — a solid link between the idea that people may love and the reality of manufacturing.

"Design firms with no tooling experience come to us with these concepts and have to put the brakes on," he said. The design the customers may love simply cannot be made.

"We have to educate them about what we can and can't do, and we have to stop, start over and make changes."

That means delays in launching new products, or sometimes starting the ball rolling on a series of compromises that result in a package or part that no one likes.

"We're taking that into consideration from the start," Luchtel said. "Can we manufacture it?"

But while the advantages of marrying the creative and manufacturing processes may seem ideal, in reality it meant linking two different worlds, and getting toolmakers with decades of experience to sign on to a different image of what it was they and their company did.

"When I announced to some of the guys in manufacturing what we were doing in terms of design, I had a lot of guys that were very uncomfortable with it," Rohr said. "They looked to me from a leadership role and wanted to know what I thought. I told them that I was very uncomfortable because I'm a very conservative individual, but you know what? I'd better be uncomfortable, because if



CREATIVE DISTRACTIONS: A conference room inside the Leverage industrial design offices at R&D is nicknamed "the grassy knoll."

you're in your comfort zone, you're not pushing the envelope. We have to change. We have to be open to new things."

Culture clash

Likewise Strout, who came from a pure design background, had to learn how to find a common language with engineers.

"I knew going into this that if we did it right, it was going to cause a culture clash," said David Wescoat, vice president of engineering. "I never knew the depths of what that would mean."

While the people involved did not clash, the styles of working did. Even when it came to language they had to make sure they were talking about the same thing. Just consider one simple example in the question: "Can you make this?"

Early on, Strout would come to the tooling engineers with a concept and ask if they could manufacture it, Wescoat said. Often, the answer was, "no."

But eventually both sides learned that what Strout really needed to know was what steps the engineers would take to make it, what pitfalls they saw looming ahead, and whether the design would need to change.

"The question really was, 'What would you begin with if you were to attempt this?'" Wescoat said. "What would be the first step? Then what would be the next step? People now know to ask, 'What question [am I] being asked?' Are they being asked if they can make that today? Or are they being asked if they can develop that in the future? That's not the thought process the engineer would have had in the past."

Even as the designers and engineers learned a common language, Wescoat said he also

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makes sure that they don't influence each other too much. Engineers, he said, need to work within the confines of the metaphorical box. They need rules and specific data about issues like mold flow analysis, shapes and production.

Industrial designers operate best when they are not closed in.

"I constantly evaluate how much engineering I want [Strout] exposed to," Wescoat said. "Every time he learns something about engineering, he has the potential of bringing that box down on his creativity, and I don't want that."

That is one reason, Luchtel said, that Leverage is in a separate building, even though it is just across the parking lot from the engineers and manufacturing — to maintain separation even as designers and toolmakers collaborate.

Creative workspace

Step inside the Leverage offices, and it is clear that it has a

different outlook than the rest of R&D. There is a flat-screen television and a Nintendo Wii videogame system to give designers some creative distractions. There is an espresso machine, rather than the vending machines in the tooling facility with spare part inventories, and a thick green indoor-outdoor carpet for the conference room, which Strout refers to as the "grassy knoll."

But Leverage does not forget where it is at. A graphic image on an office wall features cows as a tribute to R&D's middle-American location, while that Wii includes a hunting game.

Leverage works hand in hand with product designers from its customers as well as freelance designers. It also has its own designs in development, such as its concept for a peanut butter jar designed around the contours of the standard kitchen knife to make it easier to get all of the peanut butter out of the container.

R&D also will continue working with its customers' own designs

and design firms independent of Leverage, Luchtel said. Companies do not have to hire Leverage just because they want R&D to build their tooling. Leverage is just one part of a suite of offerings, and customers can pick from as many or as few as they want.

"We were a little fearful, honestly, with the brand owners and converters and how it would be conceived by them," he said. "Converters and brand owners do some of this on their own, and we're not looking to replace them."

And because R&D works in a variety of processes and types of tooling, its new outreach can be used by a variety of firms.

"You have truly creative companies out there who are weak on engineering, and you have some strong engineering companies who have done product design, but they're not really creative," Wescoat said. "There's no one else out there doing the same combination of engineering and technical manufacturing expertise and design as we are."



Plastics News photos by Rhonda Miel

R&D's toolmaking facility fills one of the six buildings on its Lee's Summit, Mo., campus.