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PICK UP THE PACE

Tool-designing software boosts productivity at production job shop

New software for the creation of stamping tools has increased the productivity of Oldenburg Metal Tech Inc., Port Washington, Wis., by almost 30 percent. The company is a production job shop that produces progressive, compound and draw-die stamping tools. It also offers general CNC machining and fixture building. Although Oldenburg Metal Tech has two stamping presses, these are used for tool tryout only.

"The industries that we build dies for include automotive, small-engine production, lawn and garden, snowmobiles, ATVs and companies that produce their own products," says Mike Schmit, CAD/CAM manager and tool designer at Oldenburg Metal Tech. "This makes us diverse in the tooling we produce."

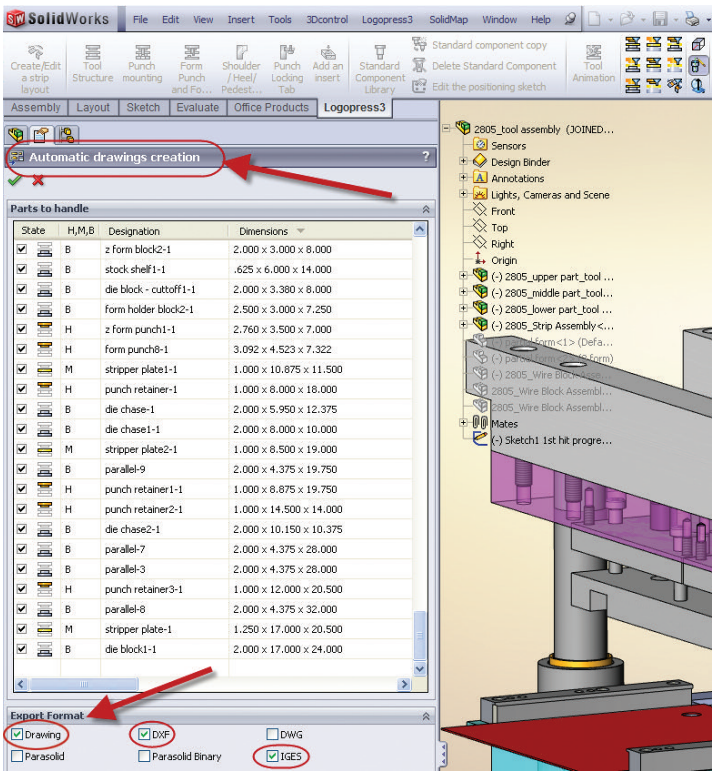
Quick building

Schmit is always looking for ways to be more productive in building tooling for Oldenburg Metal Tech customers. Working 45 to 50 hours a week with another designer places a heavy burden on the company to get die-design work done and ready for production.

"We were using SolidWorks CAD software on a stand-alone basis," says Schmit. "At times, our tooling designs could have a lot of interferences between the assemblies. We could also get a lot of wrong-diameter holes between the plates. We would use a ½-in. tap in one plate, but the mating plate would call out a ⅝-in. counterbore. We needed a way to eliminate these types of problems."

At one time, Oldenburg Metal Tech was sending die-design work to Ray Proeber, owner of Accurate Die Design Inc., New Berlin, Wis., to outsource some of its tooling design work.

In 2004, Proeber's company became the U.S. technical center for tool-design software called Logopress3. This software is an add-on to the SolidWorks CAD program.



"We used Proeber, and we were happy with his work," Schmit says. "We saw what was coming from him, and he was using Logopress3 software. So it was natural for us to look into it. We did check other software, though. But we opted for Logopress3 primarily because it did what we needed it to do, and we also had a comfort level with Proeber, who was selling it. He's a local source, so we can easily get information from him when we have a question or need training."

Oldenburg Metal Tech bought Logopress3 for two main reasons, according to Schmit.

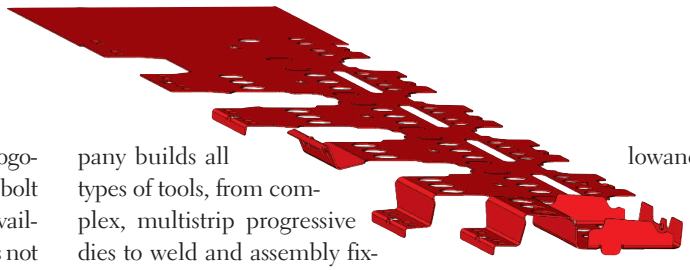
"One was to reduce mistakes that were getting down to the shop floor, and the other was to increase efficiency," he says. "Logopress3 just makes die design and tooling much easier and simpler to understand on the shop floor by making better prints. It's more organized and tailored to stamping dies. We have few mistakes now that get down to the shop floor, and it has increased efficiency."

Schmit also says the software has helped Oldenburg Metal Tech reduce mistakes by half and increase production speed for tooling by at least a third.

"For instance, the software carries over hole information into other areas of the tooling that are affected by a particular hole size," he says. "It carries information from plate to plate. Before, we were putting the information in one plate, and then we would have to put it in the other plate and remember it. Often, we would need to go back and see what the hole diameter in the first plate was to get an accurate hole size in the second plate.

"Before [Logopress3], we never put bolts in because it would take another step and

Logopress3 automatically creates drawings and simultaneously exports additional file formats such as DXF, STEP, etc.



more time," he continues. "In fact, Logopress3 will tell you whether or not the bolt that you're putting in the tooling is available. If you size a 6-in.-long bolt, and it's not available, the software will tell you. It also produces a bill of materials for all the various components in the tooling, such as springs, nitrogen gas springs and properly sized bolts. It has interference detection between all four tool assemblies; the upper, middle and lower plates; and the strip, which can save you from a lot of problems when the tool is finally produced."

Making strides

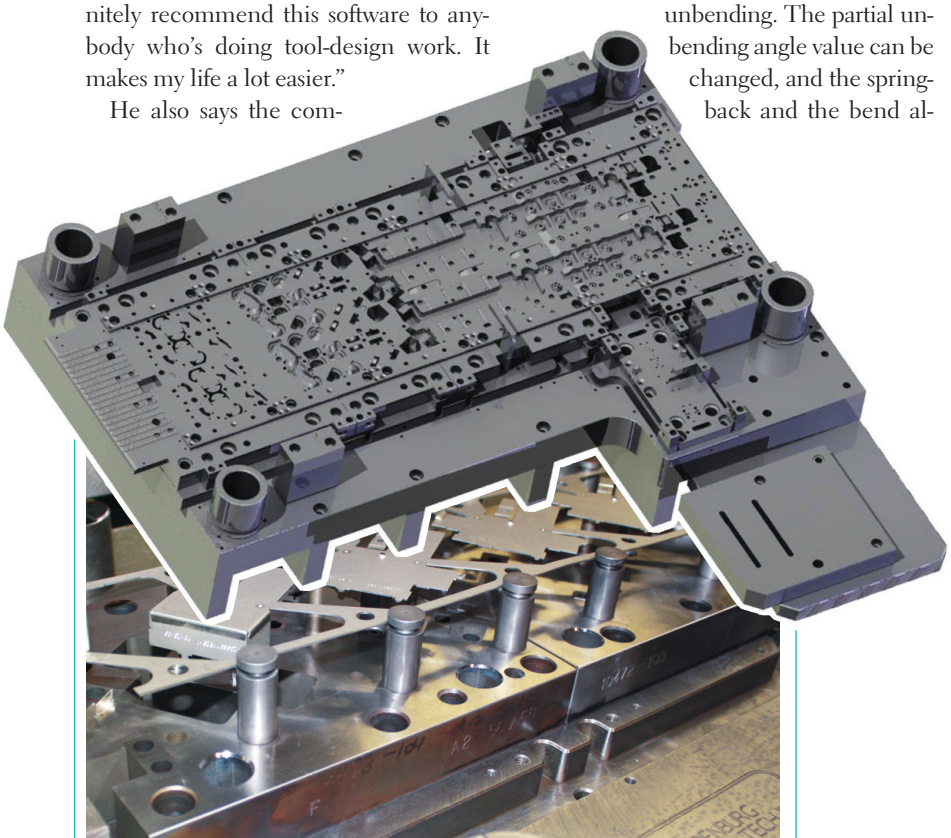
Schmit also says there are some parts SolidWorks couldn't unfold, which was important to him for die design.

"Now, with the Logopress3 add-on, it does a really nice job of unfolding a part, especially for linear bending," he says. "You can get a strip layout quickly. We also use it for estimating too, just to give us a better idea of what that tool will look like when we're coming up with our estimate."

Schmit says Oldenburg Metal Tech customers will provide a model of a part, and he'll then unfold it and give it to the estimator for a quote. SolidWorks itself wouldn't allow the company to do this in many cases.

"Right now, I would hate to design a die without Logopress3," says Schmit. "I definitely recommend this software to anybody who's doing tool-design work. It makes my life a lot easier."

He also says the company builds all types of tools, from complex, multistrip progressive dies to weld and assembly fixtures. One of its largest dies was 12 ft. long.



Full of features

Logopress3 software offers various functions. One is a flattening function that allows the user to quickly and easily approach the theoretical blank of 3-D formed parts. This function helps with quotes and designing dies. It also minimizes development time in the press.

Key functions of the software include managing native and imported data; controlling solids, surfaces and material thickness; a customizable material database; and a choice of the stamping start area and direction. It also allows the definition of pinched and locked areas, thinning and thickening information, and stress and strain data.

With only a few mouse clicks, the unbending functions will unfold a part, and then the intermediate stages can be modeled to define the process for a strip layout. This can be done from a native SolidWorks model or from an imported model without any specific preparation.

These unfolding and unbending features can be edited, allowing a full unbending to be switched to a partial unbending. The partial unbending angle value can be changed, and the springback and the bend allowance options can be managed.

The strip layout module can be used for both progressive and transfer dies. It allows quick and easy modeling of the true solid 3-D strip.

The Logopress3 strip module can be started from a blank or from a folding and stamping process that was first defined using the Logopress3 unbending and flattening tools or from customer-provided imported data.

All kinds of parts, even those with nonconstant thickness, are able to be controlled. It also allows the management of multiple parts in one strip, whether they're identical, mirrored or different.

The Logopress3 strip layout module also includes features and capabilities for round draw parts.

Key functions include automatic computation of each intermediate stage, automatic determination of what draw reductions are used, a customizable computation database, automatic recomputation when changing a radius or diameter, stripper pressure computation, automatic and customizable Web management, and graphical overlays of previous or subsequent stations.

Logopress3 also includes a tool structure assistant that allows fast modeling of the main die components. It's useful throughout the die-design process when additional plates need insertion.

In addition, the die-design software features a dynamic animation command that automatically does interference and collision detection throughout the die while showing the entire die operating as if it were in the press, including the strip lifting and advancing with each press stroke.

This helps catch mistakes in the design stage, saving time and resources. **FFJ**

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