

DIE DESIGN and SIMULATION

Process Eased with Design and CAM Software Integration

As seen in April 2018 issue

MetalForming Magazine



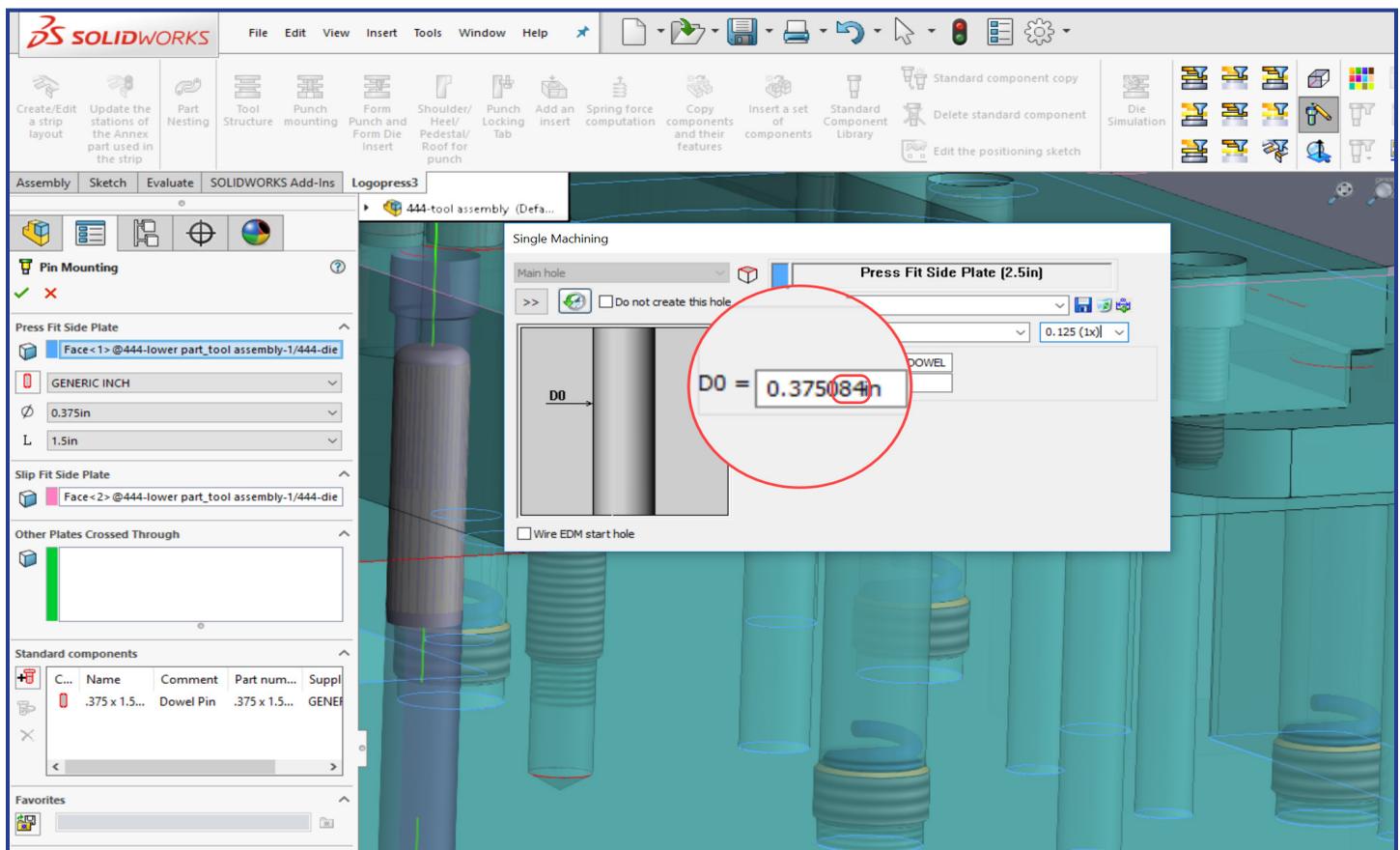
Excellence in Custom-Built Progressive Dies, Contract Stampings, and Injection Molding

Trueline Inc., a 55-year-old LaCrosse, WI, company, specializes in contract services including the design and manufacture of Class A progressive stamping dies as well as contract stamping. The company designs and builds dies for both outside customers and internal production. Its presses range from 22 to 300 tons and operate at speeds to 800 strokes/min., with in-die inspection and adjustment occurring simultaneously.

Looking to upgrade its capabilities and not satisfied with its current 3D die design software, Trueline purchased SolidWorks-based Logopress software.



"With the original [previous] software we experienced a lot of missing holes, or we'd have two mating plates with, for example, one having a 3/8" counterbored hole and another with a 5/16" tapped hole," explains Dale Christopherson, Trueline director of tooling. "Of course, that didn't work very well. Due to our assembly-line-like process, often these types of mistakes would not be caught until die assembly. This caused a lot of rework, or in some



Trueline automatically conveys programming information to its 2.5-axis CAM software through specific decimal values in the values' 5th and 6th places that they have predefined within Logopress for each hole type, diameter, and component. This allows their rules-based CAM software to automatically determine what steps to take to machine each hole. Today, the company employs one programmer for four CNC mills and three CNC lathes.

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cases we had to remake parts, which really disrupted our flow in completing projects.

"We are very busy," he continues. "Our nine Agie wire-EDM machines have more than 80-percent uptime, so reworking or remaking parts really puts a hurt on us. In short, we looked to speed the whole process of building the tool, including design and assembly."

Today, Trueline carries six seats each of SolidWorks and Logopress.

"Logopress is easier to learn and more stable than our previous die design software," Christopherson reports. "It breaks the design down into smaller pieces, making it more manageable for the designer. Also, the new software offers a real advantage for new designers. If they have a good SolidWorks background, they can take off with Logopress right away, even before training. We now design dies with much greater detail in about 70 percent of the time it used to take us in 2D, with fewer mistakes."

After adding Logopress, Christopherson and his team had another major problem to tackle: the amount of time spent on CAM programming.

"At the time we had four programmers along with three CNC mills and two CNC lathes," Christopherson recalls. "Back then, 3D milling entailed only about three to four percent of our work and even so, 2.5-axis programming always was our big bottleneck."

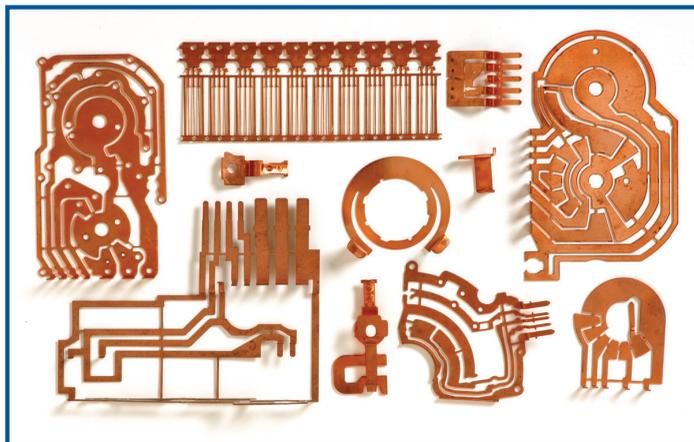
Trueline added SolidWorks-based CAMWorks soft-



ware, which is both feature-based (with feature recognition) and rules-based. The team found that it could easily customize Logopress to integrate with the new CAM software to automate 2.5-axis CNC programming.

For example, when inserting a catalog component, Logopress automatically and simultaneously cuts all holes in all the related plates for this component. The hole sizes that it cuts are user-definable within the software's spreadsheets. Trueline has developed predefined decimal values and added instructions for these values, which allow the rules-based CAM software to automatically determine what steps to take to machine each hole. Today, the company employs one programmer for four CNC mills and three CNC lathes. Should this programmer fall behind, one or more die designers easily can assist with programming. Automation inherent in the software makes this possible, along with the fact that the CAM software runs inside of the same SolidWorks interface as the die design software.

Trueline recently added contract molding services and found that mold designers could make good use of Logopress for tasks common to both die and mold design. Nowhere is this more evident than in the integration of the company's CAM software and die design software. Today, reports Christopherson, the entire group of die designers, mold designers and their CNC programmer work together as a cohesive team due in large part to the organization that the software provides.



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