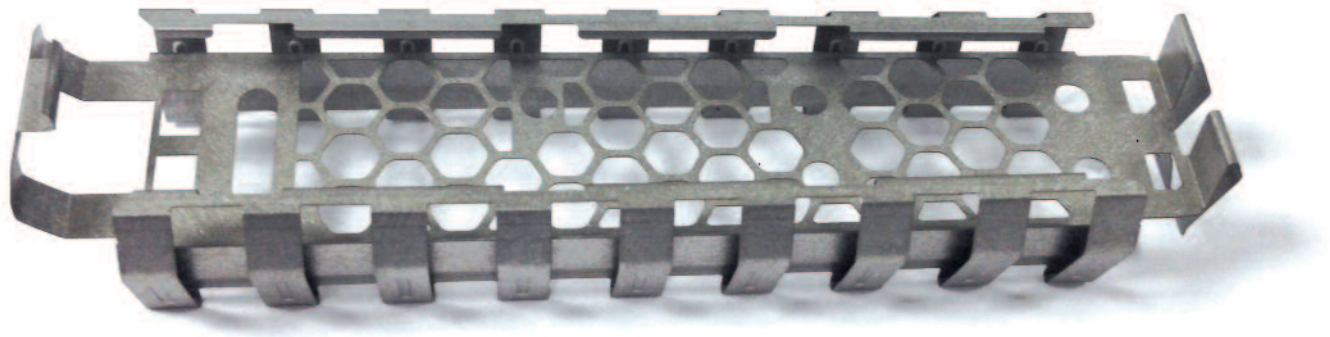
As seen in the September 2014 issue of FFJournal®



Flattening the competition

Electric device manufacturer improves accuracy, reclaims lost time with tooling software app

For the first time, in 2013, the adoption of smartphones outnumbered feature phones, driving an estimated 102 billion app store downloads. But apps aren't just for smartphones these days.

Tooling software now has its own version of an app, one that is helping Faspro Technologies, Inc. reduce the time it takes to create flat pattern blanks, an essential step in the production of thin-gauge metal prototypes and short runs.

"We do a tremendous amount of transactions each week, quoting anywhere from 100 to 300 jobs," says Scott Smith, vice president of sales and marketing for Faspro, Arlington Heights, Illinois. "We needed a tool that could give us accurate flat blanks quickly."

Faspro employs mechanical engineering along with cutting, forming, fabricating and processing services to support the demands of a rapidly swelling electronic device industry with parts that range from board level electromagnetic frequency/radio frequency shields and wireless antennas to electric contacts and clips.

The ability to quickly and easily produce flat patterns is important for both Faspro and its customers. "We routinely receive unclean data and part geometries that don't fit standard flat pattern rules," Smith explains. "The ability to produce an accurate flat pattern allows us to properly quote jobs but it also tells the customer if a part design is viable."

> "Logopress3F is a tremendous time saver. Now if we get a complex part or dirty data, it's no problem."
>
> **Scott Smith**, Faspro Technologies

Puzzle pieces

Quoting a job based on visual evaluation alone can be problematic. Laying a part out flat makes it possible for the manufacturer and product designer to spot weaknesses that could make production impossible.

"We found out about Logopress3 and their partner, Accurate Die Design Software, through our SolidWorks reseller," says Smith. "Their demonstration of its capabilities was overwhelming."

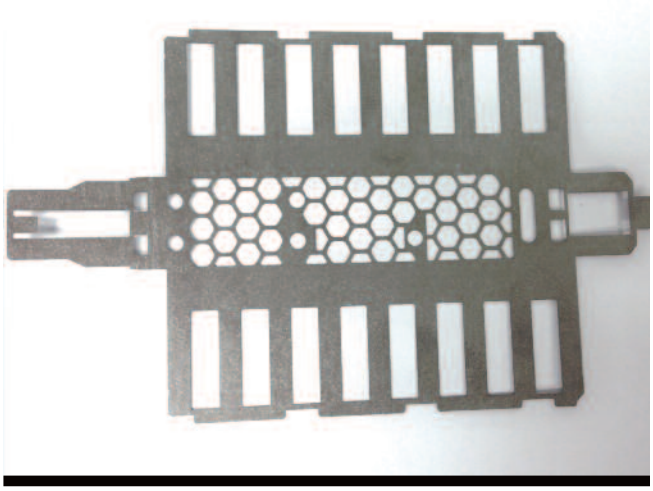
Accurate Die Design Software, Inc., Brookfield, Wisconsin, specializes in 3-D progressive die design software as well as forming analysis, simulation and flat blank prediction software. The company (originally named Accurate Die Design, Inc.) was created in 2001 by Raymond Proeber, a former tool and die maker, to fill a void left by a growing shortage of die designers. "Before long the simple stuff went overseas and I was left with lots of 3-D models that I didn't have any way of designing dies for," recalls Proeber, now president of Accurate Die Design Software.

Proeber became a certified SolidWorks professional in 2002 but says he quickly recognized that SolidWorks was missing the capability to unfold and flatten many parts, as well as special tools for die design. Proeber found the missing links in Logopress3 products. In 2005 Accurate Die Design was named the U.S. Technical Center for Logopress3 including training and support. The company is also the master distributor for Logopress3 in the U.S. and parts of Canada and Mexico. Logopress Corp. is the only company in the world devoted exclusively to developing 3-D die design and related flattening software, according to the company.

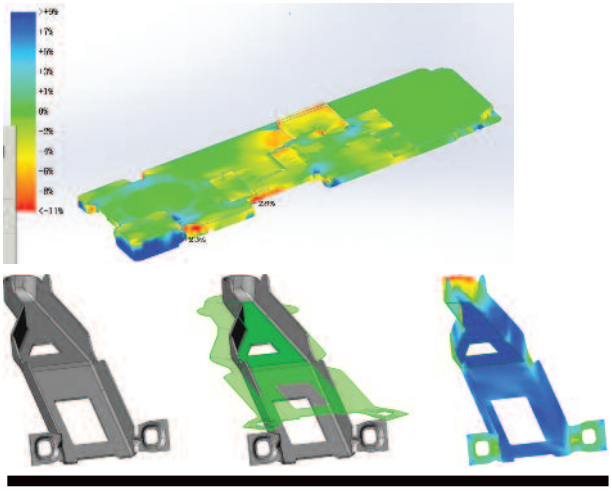
Plug and play

Faspro installed Logopress3 in 2013. "The product easily integrated with our SolidWorks CAD design system," says Smith. "It literally has worked like a plug-and-play app for us."

Logopress3F comprises two different products, says Proeber. "The 'F' is short for flattening," he explains. "Logopress3 Unbending is used for parts that are closer to traditional bent parts. Logopress3 BLANK flattens parts with complex shapes." The materials Faspro uses range from stainless steel, copper, phosphor bronze and nickel silver to aluminum, cold-rolled steel and a



Logopress3F lets Faspro quickly flatten complex parts. With the flat pattern, Faspro creates accurate blanks for forming complex parts like this one.



Logopress3 BLANK can provide information related to stress, strain and thickness as well as deliver accurate flat blanks.

handful of exotic alloys.

The tool and die software app allows Faspro to unfold any part geometry with a high degree of accuracy. "We had a job involving multiple draw features that made parts production complex," Smith notes. "Previously we would have had to develop a part like this through trial and error. Using our traditional methods, it would have taken us at least five iterations over several days to put together an accurate quote. With Logopress3 we flattened this job in just five minutes. That's the power of finite element analysis on the fly."

Once a pattern is flattened, Faspro produces blanks in two ways. Photo chemical etching is used for thin-gauge ferrous and nonferrous materials 0.001 in. thick to 0.05 in. thick. A turret laser press creates blanks from thicker materials 0.05 in. thick to 0.125 in. thick.

"Logopress3F is a tremendous time saver," says Smith. "Now if we get a complex part or dirty data, it's no problem. Before, if we received muddy data, one of our designers would have had to remodel the part before flattening it, which could sometimes take several hours or more."

The software also helps to close the vacuum created when experienced employees retire. According to Smith, Faspro's business has relied on tool-and-die makers able to apply knowledge to create flat patterns along with quoting and fabricating. "Our skilled labor is retiring and no one is stepping forward to fill those shoes," he says. "We used to say that with experienced employees the tool and die trade was 90 percent art, 10 percent science. Logopress3 is changing the balance of this equation to 90 percent science, 10 percent art."

Because use of the software now falls in the hands of Faspro engineers and project managers, new employees with limited experience can be trained in an hour or two to flatten parts with Logopress3. "No formal training is required," says Proeber. "Employees can easily learn to flatten parts for estimating or actual production. As a result, skilled tradespeople are freed up for more critical tasks. These types of tools also make it more interesting for young people coming into fabrication because they are exposed to 3-D technology." Faspro engineers have found the software intuitive, picking it up quickly, Smith says.

The bottom line

In addition to saving Faspro substantial time, Logopress3 provides accuracy for downstream processes. Part nesting is optimized because flat blanks are accurate. "If the blank itself is accurate, you have the assurance that part nesting will be accurate as will each step after that in the production chain," says Smith.

Faspro engineers and project managers also find that Logopress3 isn't limited by part size. The manufacturer makes parts a little larger than a pinhead up to components as large as a chassis for aircraft. "Whether it's the telecommunications, computer or aerospace industry, any product that has a printed circuit board will have our parts in it," Smith says. "We recently produced components for a 55-inch television [set] installed in the first-class cabin of an airplane. Logopress3 really is portable technology like a smartphone app, especially if we are dealing with complex parts that have to fit into a very small space, making tolerances a critical element."

With demand for tool-and-die skills continuing to grow, companies like Faspro find themselves having to do more with less in lieu of experienced workers. "We can't find skilled tool-and-die people," Smith explains. "There's no next generation. We've missed two generations to refill the pipeline with trained people. That's why tools like Logopress3 are so important. In addition to accuracy, we've gone from hours spent in quoting and fabrication to minutes—reclaimed time we can use on tasks that raise our bottom-line profits." FFJ

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