

VISI assists Atlantic Tool & Die with the design of complex progressive dies for the automotive industry

Manufacturing with a progressive edge



Atlantic Tool & Die

VISI is acknowledged as one of the world's leading CAD / CAM software solutions. It offers a unique combination of fully integrated surface and solid modelling, 3D tool design, and comprehensive 2D, 3D and 5-axis machining strategies with dedicated high speed milling routines.

At Atlantic Tool & Die, the proof, and the success of the company, is in its processes.

"One thing that we really hang our hats on as a company is the process of how our dies are designed and built," says Jason Andras, Design Manager at Atlantic Tool and Die (ATD) for the past decade. "We really invest in how we process our tools."

While products and dies manufactured by ATD read like a veritable laundry list, the company primarily serves the automotive sector as a direct-to-OEM, tier-one, and tier-two supplier.



Regarding surfacing and modeling, I have yet to meet anyone who can do what our designers can do with VISI. The ease with which we can create complex surfaces in VISI is critical for us.”

Jason Andras,
Design Manager, Atlantic Tool & Die

Other products ATD manufactures are used to make home appliances, off-road vehicles, heavy trucks, and commercial-power and green-energy solutions, among others.

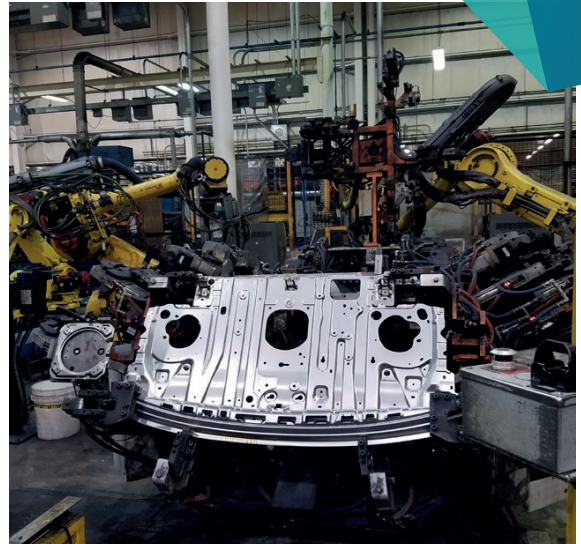
In addition to tool and die building, the company offers stamping, welding, assembly, and tube-manufacturing services. “Our customers are relatively diverse, so we do have some variety, but it’s primarily automotive, and primarily repeat customers,” Andras says.

To fulfill its wide range of design and production demands, ATD employs a crew of 650 associates stationed around the globe. The company’s host of facilities include four stamping and assembly facilities in Ohio; production facilities in Texas and Mexico; a die-building and production facility in China; a design and engineering outfit in Costa Rica; and a sales office in Tokyo, Japan. While the number of dies built annually by the company is in the hundreds, it produces an average number of stamped parts in the millions per year.

In the early 2000s, ATD purchased the VISI CAD/CAM solution, by Hexagon, to fulfill its complex range of tool and die needs. The company receives CNC software support from Tooling Software Technology (TST), LLC, the Michigan-based master distributor for VISI in the United States and Canada.

“The support is excellent,” Andras says of the service provided by TST. “They are quick to respond to any issues that arise, and the follow-through is better than any software support I’ve ever experienced. They will call and e-mail until you verify with them that your issue is resolved.”

Having found that its former solution was not keeping pace with an evolving manufacturing landscape, ATD switched to VISI because the solution could handle increasingly challenging design demands.



About the company:

Name: Atlantic Tool & Die

Business: Tool and die building, as well as stamping, welding, assembly, and tube-manufacturing services

Website: atlantictool.com

Key benefits achieved:

- Greater ease in creating complex surfaces
- Increased accuracy and confidence due to simulation capabilities
- Ability to quickly create top-notch strip layouts



“As time went on and stamping got more complex, there needed to be a way to handle it,” says Andras, who works in the company’s headquarters in Strongsville, Ohio, but collaborates closely with its nine-member design team in Costa Rica.

“The software we use has to be complex enough to do what it needs to do, but simple enough that people who aren’t engineers are able to visualize what they need to see. We can see how quickly our employees can pick VISI up as compared to the software that we have tried to use in the past.”

Most notable, Andras says, “ATD’s former software was limited in terms of simulation and in the creation of surfaces.”

“Our simulation of what we were proving out in terms of our form sequences was a challenge,” he says. “Regarding surfacing and modeling, I have yet to meet anyone who can do what our designers can do with VISI. The ease with which we can create complex surfaces in VISI is critical for us.”

VISI delivers a dynamic, flexible structure within which designers are able to manipulate solids, surfaces, wireframes, or a combination of all three. VISI surfacing technology offers a varied set of tools and methods tailored to assist in an organic, free-form creation of geometry.

Surface modeling functions within VISI include ruled, lofted, drive, sweep, n-sided patch, drape, tangent, draft, resolved, and piped surfaces. Paired with the software’s advanced editing capability, this varied set of modeling commands simplifies the process of healing imported geometry and constructed complicated 3D data.

As ATD primarily builds progressive dies, the company takes advantage of VISI’s numerous strip-layout tools to quickly answer questions posed by customers.

“I spent a lot of time on the phone this morning because a customer expected to have a strip layout within a couple of hours,” Andras says. “Our customers demand to have answers quickly, in terms of cost and design. We noticed that VISI stays up to date with the features we need, and that has made it easier to fulfill those demands.”

Specifically, Andras notes that VISI helps ATD to quickly and easily create the company’s strip layouts.

Beginning with the developed component blank, VISI makes it simple to rapidly generate an efficient 3D strip layout with its automatic blank alignment, rotation, and optimization tools.

The software also offers an automatic 2D strip plan, including fold lines, making both punch design and layout more effective.

Designed to deliver flexibility and customization for the designer, VISI offers a range of automatic and semi-automatic capabilities that help with the generation of shearing punches. Once created, those punches may be dynamically moved to different stages in the strip with a simple drag-and-drop process.

Likewise, the positioning of 3D folding stages onto the strip is seamless, and the strip can just as easily accommodate reductions and increases in the number of stages. To test for the validity and performance of the design, the 3D strip can be simulated at any point in the design process.

Another tool used frequently by Andras and his team is the VISI assembly manager, which “works well to help organize the design,” he says.

The assembly manager allows the designer to rapidly build a solid based upon the layout of the required bolster plates, along with pillar and brush arrangements. By providing access to the parameters of each plate, VISI ensures that the modification of the tool is fast and accurate. The tool assembly also includes critical data required for the operation of the press tool, including press stroke, strip stroke, punch height, and tool-stroke data.

Andras also takes advantage of VISI’s collision detection capabilities, which alert that designer that the virtual design will run into very real trouble once it hits the shop floor.

“It’s important to be able to see, when we design dies, that there may be a problem that we haven’t anticipated.”



Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications.

Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Manufacturing Intelligence division provides solutions that use data from design and engineering, production and metrology to make manufacturing smarter. For more information, visit hexagonmi.com.

Learn more about Hexagon (Nasdaq Stockholm: HEXA B) at hexagon.com and follow us [@HexagonAB](https://twitter.com/HexagonAB).