

Daxter Tools streamlines design & manufacturing and engages customers with Autodesk Moldflow, Fusion 360 with PowerMill, and Fusion 360 with PowerShape

COMPANY
DAXTER TOOLS

LOCATION
Vasai (East) Thane, India

SOFTWARE
Autodesk Moldflow Insight
Standard
Fusion 360 with PowerMill
Fusion 360 with PowerShape

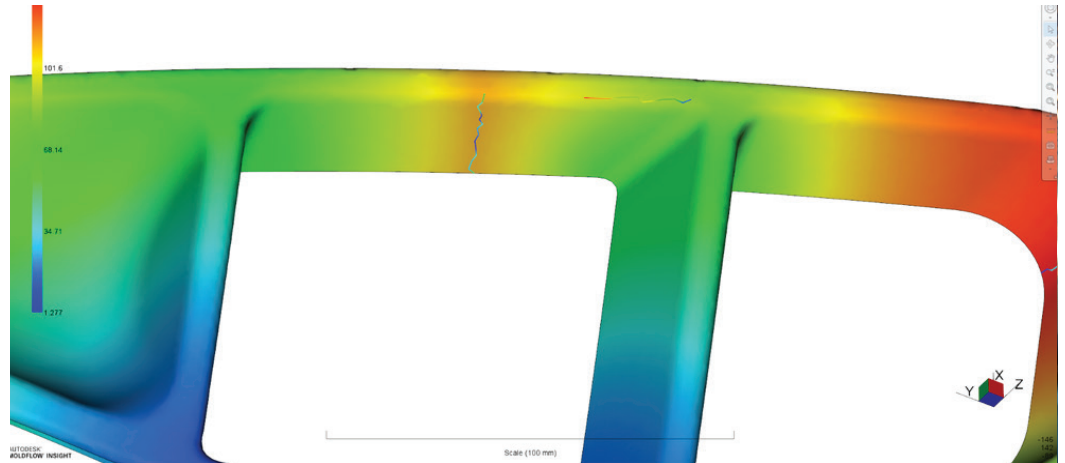


Image courtesy of Daxter Tools

Daxter Tools is a familiar brand to numerous suppliers in the automotive industry. The company was founded in 2006 in Mumbai, India, and since then it has become a leading manufacturer and supplier of tools for plastic injection molded parts, serving markets in India. Daxter Tools designs and manufactures an average of 150 to 170 different molding tools annually.

With a strong presence in various sectors, including home appliances, Daxter Tools thrives in the automotive industry, designing and manufacturing tools for the production of acoustic housings, both interior and exterior components. Its products are molded parts that weigh up to 15 tons, with a maximum mold size of 2000x1000x1000mm.

Quality and timely delivery are the priorities of Daxter Tools' most

demanding customers. Requirements for accuracy accompany each stage of production to enable better quality in the final product. For that reason, Daxter Tools pursues leading technology and the most specialized technical workers to deliver excellence to its customers.

“Die and mold is a demanding industry, where lead time and precision are fundamentals and requires powerful tools.”

explains, Mr. Vimal Panchal, Daxter Tools. “Advanced mold design tools like Autodesk Moldflow gave us the time to do better engineering, respond faster to the clients' changes and replicate the best results without problems.”

“Knowing how molding defects arise is half the battle won. Using Autodesk Moldflow, we are able to overcome challenges easily by adjusting the molding process, without the need to redesign the mold tooling or replacing production equipment.”

Mr. Thangaraju

Moldflow engineer,
Daxter Tools.

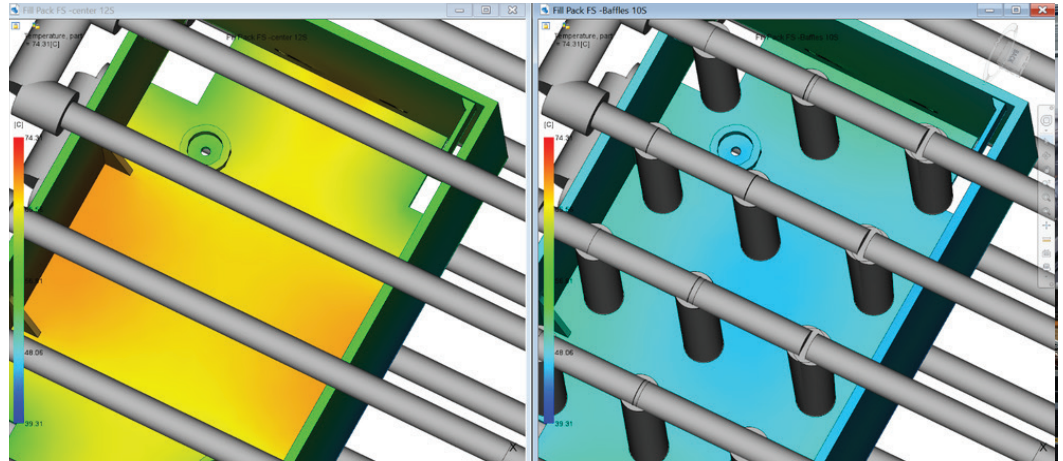


Image courtesy of Daxter Tools

Challenges

With an automotive reputation that goes back more than 15 years, Daxter Tools has the relevant experience and expertise to tackle contemporary industry challenges. The company is well known for its proven automotive injection molds sourcing. While working on client projects, the Daxter team faces various challenges such as surface defects like weld line, warpage, sink marks, short shots, flow lines etc.

Recently Daxter engineers were tasked with solving aesthetic defects in an automotive body panel, in this case the molded parts contained a thin weld line (shown in Figure 1). Since it was an automotive exterior component, it was necessary to relocate the position of this weld line to areas where it is not critical to the strength of the part.

Solution

The development of this automotive panel was split into two stages: design and mold trials. Autodesk Moldflow simulations were performed in during both development stages. During the design stage before making the mold, the main purpose was to verify the gating design and predict the potential defects. The gating design verification was the first task utilizing Autodesk Moldflow.

Various gating designs were tried with single and multiple gates located on the lower middle part, lower right of the part and on left and right sides. After completing all design analysis, the weld line that occurred on the visible appearance area was counted for the final gating design decision making. After comparison of the weld line analysis results, the gate location with least

“Using Autodesk CAD, simulation and CAM software, gives us distinct advantage, setting us apart from our competitors with superior lead-times, quality and expertise. PowerMill and PowerShape allow us to do the programming for highly complex parts in a quick and intuitive manner.”

Mr. Sanjay Yadav

CAM incharge,
Daxter Tools.



Image courtesy of Daxter Tools

weld line defects was selected. Further, after finding the best gate location design to enhance the filling pattern, the thickness of the profile was able to be reduced slightly, therefore saving on material costs.

The best design was used for further cosmetic defect optimization work. After the mold was made and the first mold trial was done, the simulation results were validated with the actual molded part. In addition, the observed defects from the mold trial were analyzed to confirm the root cause of the problem.

The second case the Daxter engineers were keen to share relates to validating cooling channels design using the latest features in Autodesk Moldflow. It is very common to get core and cavity type parts from Automotive clients. As shown in figure 2, the convex areas of that part always showed a concentration of heat, while

the concave areas need less cooling because the presence of more material to help diffuse heat into the mold.

Here, Autodesk Moldflow allowed Daxter engineers to make the cooling layout changes easily, enabling them to change the cooling design to bring the cooling channels closer to the molded products in the cavity. Baffles inserts were added to improve heat transfer capability of the coolant. In this way the temperature was evenly distributed, eliminating cold and hot spots inside the mold. Therefore, product defects caused by poor temperature control, such as residual stress, warpage, voids, and sink marks, were greatly decreased.

After the design was finalized and the Autodesk Moldflow simulations completed, Autodesk Fusion 360 with PowerMill and Fusion 360 with

The great value we add is to understand and define the targets that our customers and end-users require, then devise technical solutions that deliver process and part optimization requirements. Autodesk Moldflow has accelerated our company's overall growth and made positive impacts on our business.

Mr. Sanjay Yadav

CAM incharge,
Daxter Tools.



Image courtesy of Daxter Tools

PowerShape played an integral and vital part in Daxter's production operations. Both CAM tools are fully integrated into every machining phase – analysis, comparison, simulation, machining, and verification. Daxter engineers use various advanced functionalities like automation macros and templates for 2D customization to cut down manual work thus reducing rework and increasing productivity.

Results

Autodesk and Daxter Tools are continuing their partnership to further expand the firm's simulation-driven design process. With continued technology transfer and support of Autodesk Moldflow, the Daxter simulation team has become experienced Autodesk Moldflow users, simulating and developing components every day.

Tools is planning for the expansion of the mold size from 2000x1000x1000 mm to 2000x1500x1200 mm. Along with these bigger, high-end machine tools, the company is looking forward to adding more seats of Autodesk software to handle complex tasks and changes without mistakes and losses of time.

Keeping production efficiency and part-quality at the forefront, Daxter