HEXAGON | FORMING TECHNOLOGIES

Case study

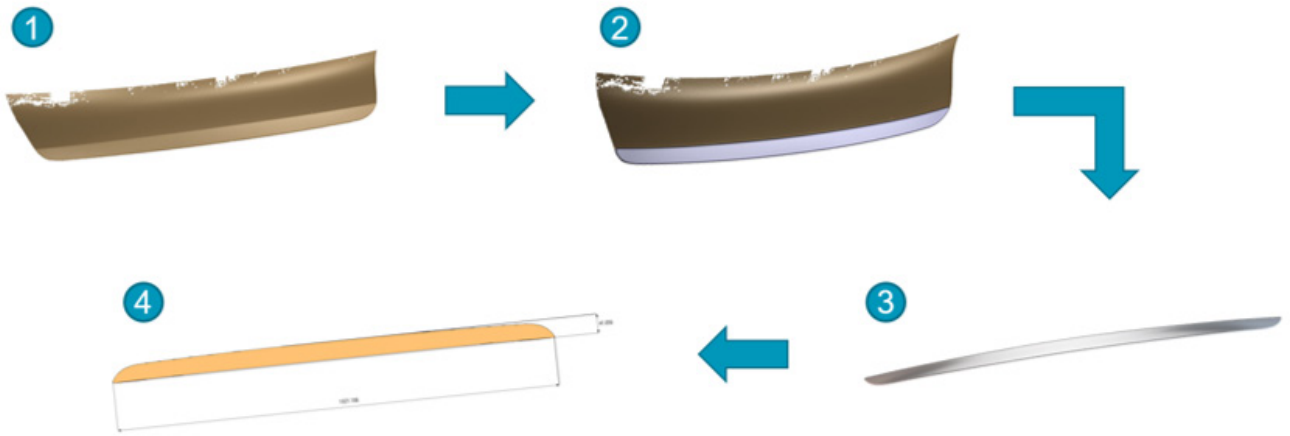
Automotive accessory manufacturer uses CAE simulation for smart manufacturing

OMTEC Automotive Inc., Bursa, Turkey

OMTEC simplifies the blank development process, reduces the number of tryout iterations, and develops parts first-time-right with FormingSuite COSTOPTIMIZER®.

The automotive accessories market is a secondary market of the automotive industry. According to the Global Industry Perspective, Comprehensive Analysis, and Forecast, 2019–2026, the global Car Accessories Market was estimated at USD 415 Billion in 2019 and is expected to reach USD 646 Billion by 2026.

The global Car Accessories Market is expected to grow at a compound annual growth rate (CAGR) of 7% from 2019 to 2027. Competing companies can unlock the potential of the rapid growth of the global Car Accessories Market. This highly competitive market requires companies to be fast and flexible when developing new products.



(1) Laser scanning of the OEM component, (2) surface creation of the component, (3) CAD geometry of the component, and (4) Blank Development from FormingSuite

OMTEC Automotive Inc. was established by Mr. Hüseyin Bağci in 1995. OMTEC produces automotive accessories made of stainless steel, carbon coating, wood coating, aluminum, and leather for almost all OEM brands. OMTEC was founded on the motto of "small touches, big differences" and has used that philosophy to add a unique quality and perspective to vehicles. OMTEC provides a more comfortable driving experience to automobile enthusiasts by adapting their visual tastes, bringing them to life, and never compromising on quality service and customer satisfaction. As a result, OMTEC makes car enthusiasts happy by creating the big differences they love with small touches focused on quality.

OMTEC produces thousands of different product ranges, introducing hundreds of new parts each month. Roughly half of these are stainless steel components that require blank development. The blank development is used to estimate material requirements and is also used to laser cut the first iteration shape for a tryout. A new product development tryout schedule requires one-week cutting iterations. As a result, 3 iterations of a developed blank shape require a minimum of 3 weeks to complete. This time delay is attributed to the fact that the laser cutting machine is a serial production machine, which means that it is used for both production parts and tryouts in new product development. Typical production volumes at OMTEC are 3000 sets per part per year and the total production volume is approximately 200,000 parts per year.

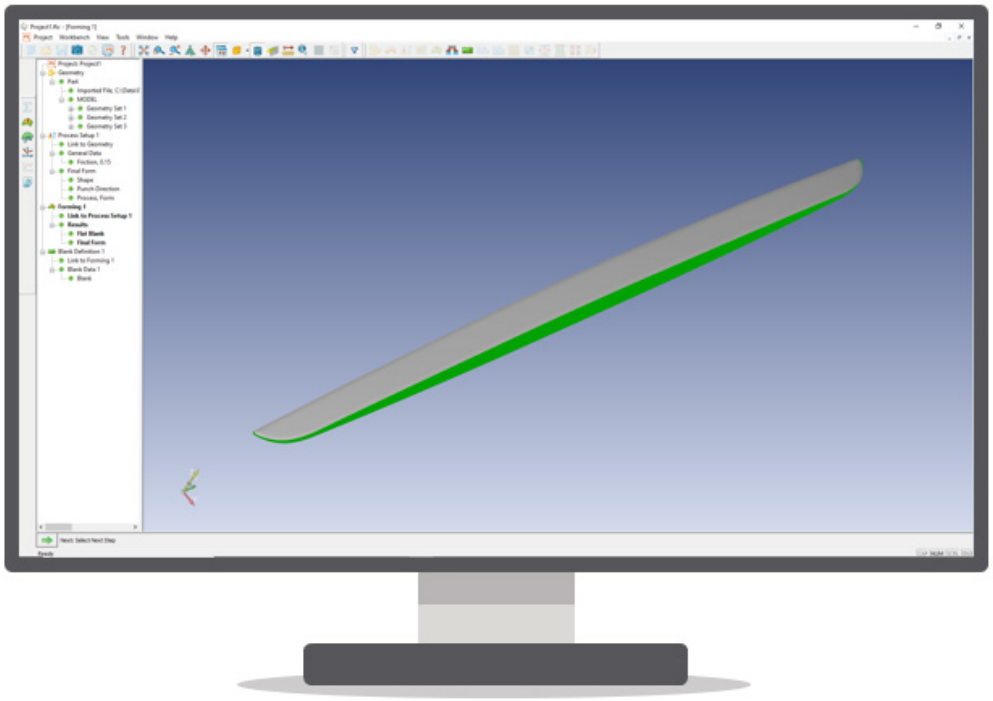
In the past, the typical product development process began with laser scanning of the OEM vehicle components followed by recreating the surfaces as CAD geometry. Then the CAD geometry was unfolded using their blank development tool and sent back to the CAD system to make the data readable by the laser cutting machine. Then the blank development was laser cut and formed into the part shape.

Finally, the part would be evaluated for quality to see if another iteration was required. This process was repeated until the desired part quality (shape/trim line) was achieved.

Introducing a faster and more accurate process

In 2020, OMTEC utilized FTI's FormingSuite software solution COSTOPTIMIZER to assist in accelerating a faster and more accurate product development process. COSTOPTIMIZER enables OMTEC to estimate the material for quoting, accurately develop the blank, and send the blank directly from FormingSuite to the laser cutting machine. This eliminates the need for their previous blank development tool by removing the post-processing step of editing the blank before sending it directly to laser cutting. FormingSuite includes a smoothing tool that converts the faceted boundary of the blank to tangent continuous lines and arcs or a b-spline allowing for direct cutting of the developed blank.

Final component assembled on the vehicle



Part and blank development in FormingSuite

COSTOPTIMIZER has enabled OMTEC to consistently deliver parts on time by reducing design time on average by 2 hours and reducing product management and development time by multiple weeks. “For 85% of our parts, the blank development from COSTOPTIMIZER is laser cut first-time-right,” says Göksen Değirmenci, Engineering Manager at OMTEC. “Precision tools build precision parts. Using FTI software allows us to be quick and agile in our quoting and product development process.”

Improving and accelerating the new product development process at OMTEC by reducing the number of blank development iterations using FormingSuite COSTOPTIMIZER is key to reducing product development time. This allows OMTEC to quickly introduce new product ranges helping them unlock the potential in the continuously growing automotive accessories market.

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>
> **Göksen Değirmenci**
> Engineering Manager at OMTEC

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