Tooling & Mold Design

A Manufacturing Case Study

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Overview

29% faster to market. Zero compromise on precision.

A U.S. client needed a complex injection mold for a door trim panel — with a compressed launch timeline. Vilas Business Solutions 's integrated Tooling team delivered end-to-end, from RFQ to final CNC programs, cutting lead time by nearly a third while dramatically improving quality.

-29%
Lead Time

-75%
Scrap Rate

+50%
Tool Life

CHALLENGE

Complex geometry. Compressed timeline. Automotive standards.

The door trim geometry was large and intricate, requiring a multi-cavity mold with optimized cooling and gating systems. The mold had to meet exacting OEM standards for surface finish, texture, and dimensional accuracy — all while being robust enough for high-volume production runs with minimal downtime.

A shortened delivery timeline to align with the client's product launch schedule demanded tight cross-functional coordination across Sales, Project Leadership, Technical Design, Manufacturing, and Programming teams operating within a single workflow.

SOLUTION

End-to-end tooling: design, analysis, machining programs

The Technical Design team created a detailed 3D CAD mold with optimized cooling channels and runner systems, validated by Moldflow analysis to minimize warpage. Complex undercuts were handled through precision lifters and slides, with Class-A surface finish requirements built into the design from the outset.

The Programming team generated and validated CNC machining programs through simulation, delivering complete toolpath documentation and operator guidelines to the client — dramatically reducing their setup burden. Manufacturing team steel selection was optimized for long tool life and reduced maintenance intervals.

THANK YOU

Learn More at vilasbusiness.com.

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