

Design Automation for Custom Hollow Metal Door & Frame

Case Study Highlights

Client Profile:

Metal Door & Frame Manufacturing, USA

Objective:

Reducing manufacturing and product delivery time to improve productivity and profitability.

Solution:

The time required for design process was reduced through design automation, which involved integrating automation and CAD tools. Based on set of rules, design automation allowed customization of more than 70,000 doors and frame designs. Custom tools were also developed to further improve the process. This approach resulted in significant time savings and allowed same day engineering and manufacturing of the product as compared to 4-5 days traditionally.

Software Used: SolidWorks & DriveWorks

Challenges:

- Reducing lead time in engineering (Average 4- to 5 days)
- Repetitive design task leading to greater chances of error
- Improving the quality while maintaining seamless customization process
- Managing product knowledge for different product
- Maintaining custom template and data for different locks and accessories
- Managing data between multiple departments
- Reducing the overall delivery time to customers

Benefits

- 70 000+ custom doors and frames designed
- 10-minutes a door or frame to shop for manufacturing
- 99% quality enhancement
- Fast response to customer's enquiry
- Fast Delivery and customers can order just in time



Hollow metal doors and frames are one of the demanding products in the US market due to the benefits of light weight and strength. For manufacturers however, meeting the customer demands on time and as per their customization requirements is challenging, especially because these products fall into design-to-order or engineering-to-order category. To remain competitive, manufacturers are required to respond quickly to the inquiry, quote the right price and deliver the product on time.

One of the leading manufacturers of hollow metal doors & frames approached Hi-Tech to get design support and solution to reduce their engineering lead time.

The Solution

Hi-Tech utilized design automation using DriveWorks to solve client challenges. A database was created to capture every single detail required for design, manufacturing and pricing. The automation was done based on the application of set of rules to automatically modify the door and frame dimensions in SolidWorks based on customization requirements. By entering the details in a friendly user interface, CAD models, 2D manufacturing drawings and quotes generated automatically, which directly reduced the engineering time from 4-5 days to one day. This further helped in maintaining the design quality and allowed the client to manufacture the product faster as well as deliver the product on time to the customers.



About Mechanical 3D Modelling

Mechanical 3D Modelling is an India based company that caters for global clientele and plans to penetrate deeper into the existing and emerging markets. Proficiency lies in offering qualitative, cost effective and time bound mechanical engineering design services, including 2D, 3D CAD drafting, 3D solid modeling, FEA, CFD, rapid prototyping, reverse engineering. Professional and highly experienced team can handle all kind of CAD projects with the use of AutoCAD, Wildfire, 3D Max, Inventor, Solid Works, Solid-edges and Pro-e tools.