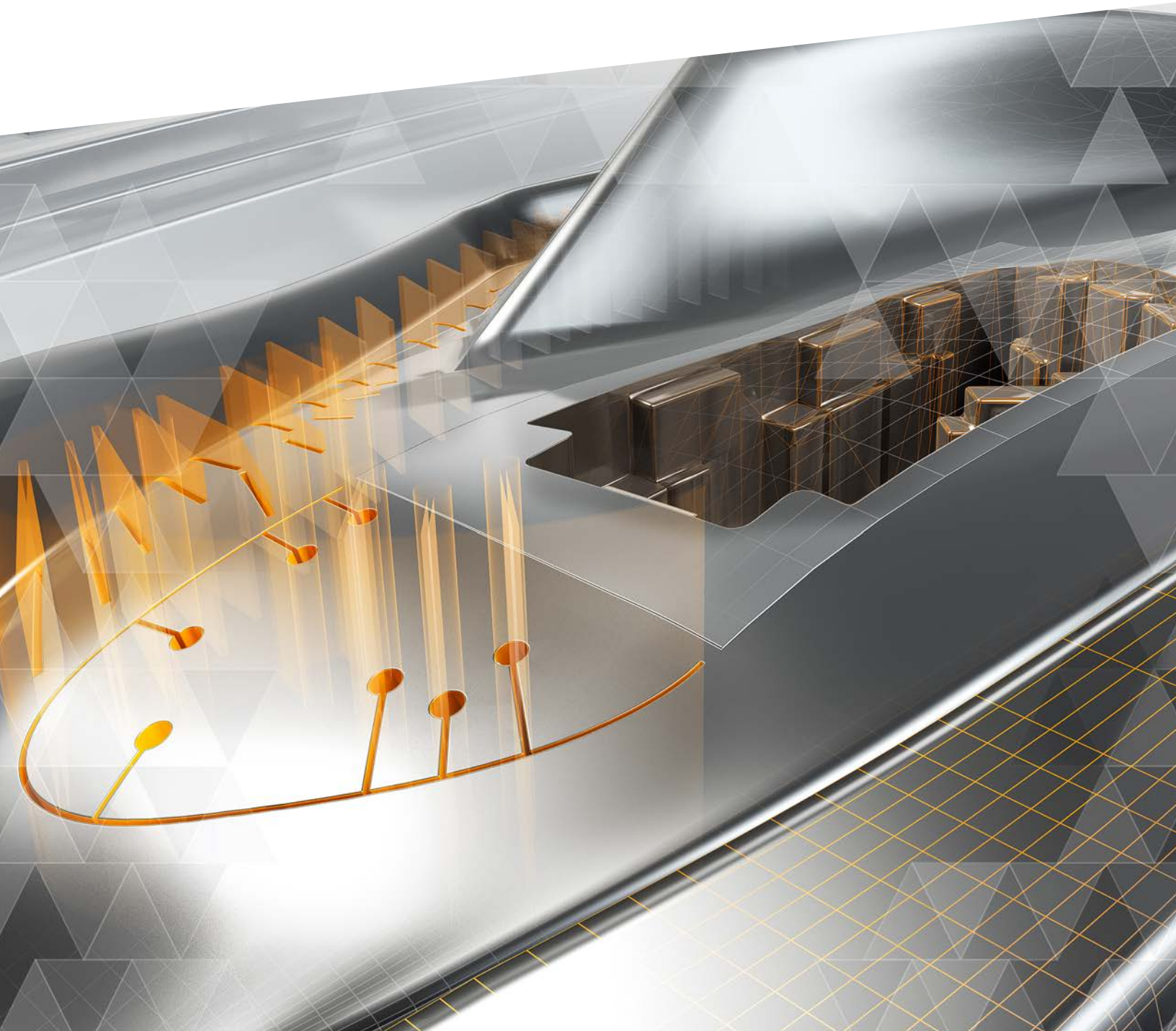


# Preparing complex parts for manufacture



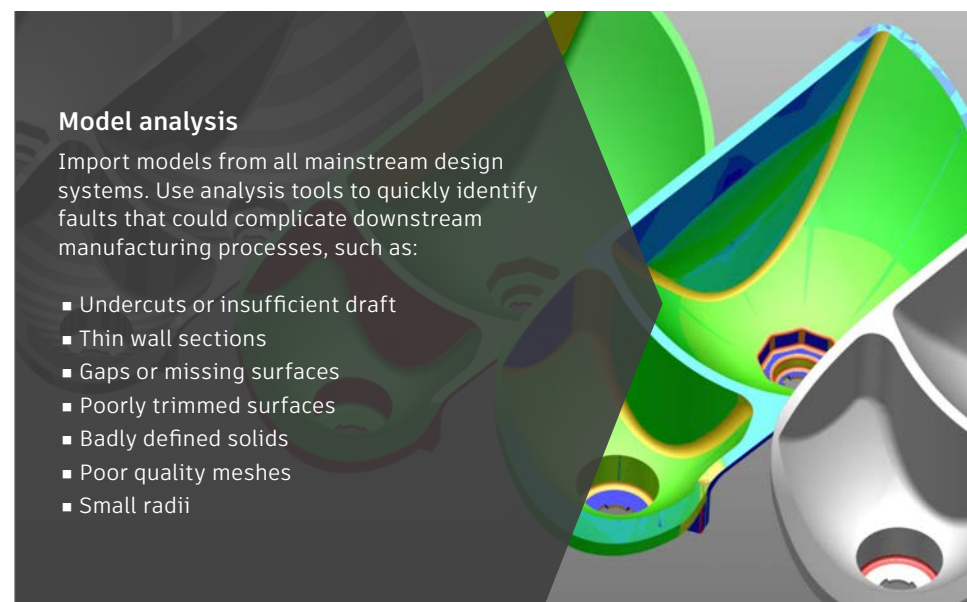
# PowerShape® helps engineers to quickly import, repair and prepare complex models for manufacture.

## Facing these challenges?

- Working with imported CAD files from a variety of different CAD systems and designers.
- Time wasted fixing faulty models (e.g. poor quality solids, gaps, or missing surfaces).
- Customer designs that cannot be manufactured (e.g. insufficient draft, missing fillets, thin wall sections).
- Under pressure to convert designs into core and cavity halves plus associated tooling as quickly as possible.
- Manufacturing engineers needing to create geometry to help the programming of 5-axis CNC machines.
- Managing the design, production, and use of EDM electrodes.
- Regular design changes during the manufacturing process.
- Scanning physical parts and converting the data into high quality, 3D models.

## Modeling for manufacture

High volume, production parts are usually created by molding, casting or forging, all of which require the manufacture of some kind of mold, tool or die. Creating these, “modeling for manufacture” is where PowerShape excels.



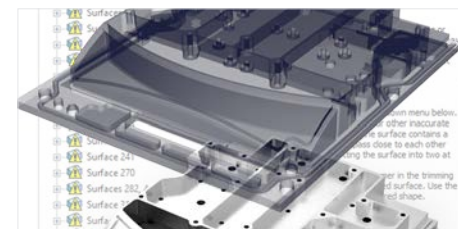
### Model analysis

Import models from all mainstream design systems. Use analysis tools to quickly identify faults that could complicate downstream manufacturing processes, such as:

- Undercuts or insufficient draft
- Thin wall sections
- Gaps or missing surfaces
- Poorly trimmed surfaces
- Badly defined solids
- Poor quality meshes
- Small radii

“The interaction between PowerMill and PowerShape has definitely streamlined our ability to manufacture molds. We can start making chips right away.”

—Shawn McNamara  
Designer  
Chicago Mold Engineering



## Model repair

Use automated wizards to help find and fix critical faults that could negatively impact CAM programming. Help reduce wasted modeling time by identifying and ignoring insignificant faults to allow CNC machining to begin sooner.

Replace corrupted regions of the model with smooth, tangent fill-in surfaces or use powerful trim region editing to fix individual faces.

Use direct modeling to edit parts without the need for a solid model history.

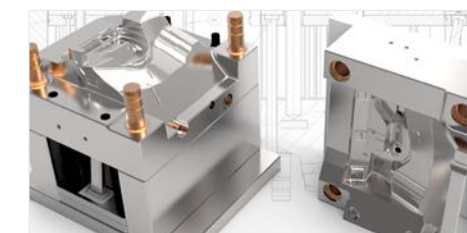


## Your CAM companion

PowerShape is the ideal modeling companion to use alongside PowerMill® and FeatureCAM®. Create additional geometry to help with CAM programming.

Sketch wireframe boundaries to control the extents of machining. Automatically produce capping surfaces that smoothly cover ribs and other features that will be produced with other manufacturing processes such as EDM.

Construct curves and surfaces to more precisely control the motion of 5-axis machines and industrial robots.



## Tool and die

Use modeling tools designed to meet the needs of mold, tool and die manufacturers. Interactively find more optimal line-of-draw to ensure tooling is more cost effective.

Quickly produce complex split lines, shut-out faces and convert designs into core and cavity halves. Identify undercut features and produce 3D sliding cores and lifters.



## Automated EDM electrode design, make and use

Access a suite of modeling tools for the design, manufacture, inspection, and utilization of electrodes for EDM.

Quickly extract burn regions and combine with holders from major suppliers. Output data to PowerMill for automated toolpath generation. Export scripts and macros to your shop-floor EDM hardware for more efficient datum setup and burning.

## 10 reasons to choose PowerShape

- Import models from all mainstream CAD design systems.
- Find and repair critical faults that could complicate downstream processes.
- Use modeling tools specifically designed to help mold and die manufacturers.
- Carry on working, even if the imported CAD model is not perfect.
- Work with any combination of surfaces, solids and large STL meshes.
- Split models into cavity, core and slides using a simple wizard.
- Manage the design, manufacture and utilization of electrodes for EDM.
- Connect directly to scanning hardware for reverse engineering.
- Reverse engineer complex parts using powerful point-cloud and mesh modeling.
- Send finished models directly to PowerMill or FeatureCAM for machining.

### **Make Great Products**

Autodesk manufacturing software helps you make better quality products, faster. Machine, print, inspect, and fabricate parts efficiently.

- Complete modular manufacturing solutions – CAM, additive, composites
- Manufacturing expertise to automate, optimize and integrate your manufacturing processes, in addition to your software
- Cloud-connected so you can collaborate and manufacture anytime, anywhere.

Learn more at [www.autodesk.com/MAKE](http://www.autodesk.com/MAKE).

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