

SOLIDWORKS PLASTICS

OPTIMIZE THE DESIGN OF PLASTIC PARTS
AND INJECTION MOLDS



VERIFY MANUFACTURABILITY

SOLIDWORKS® Plastics makes it easy for companies that design plastic parts or injection molds to predict and avoid manufacturing defects during the earliest stages of design, eliminating costly rework, improving quality, and accelerating time-to-market. Fully integrated with SOLIDWORKS CAD, this intuitive software helps part designers, mold designers, and CAE analysts optimize designs for manufacturability without leaving their familiar 3D design environment.

Simulation-driven design for plastics part production

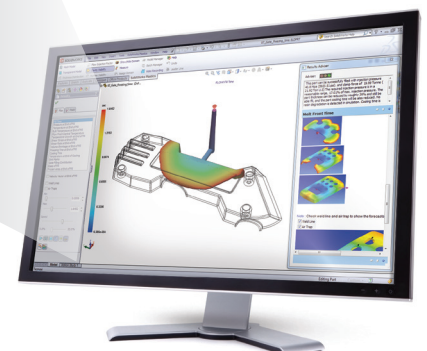
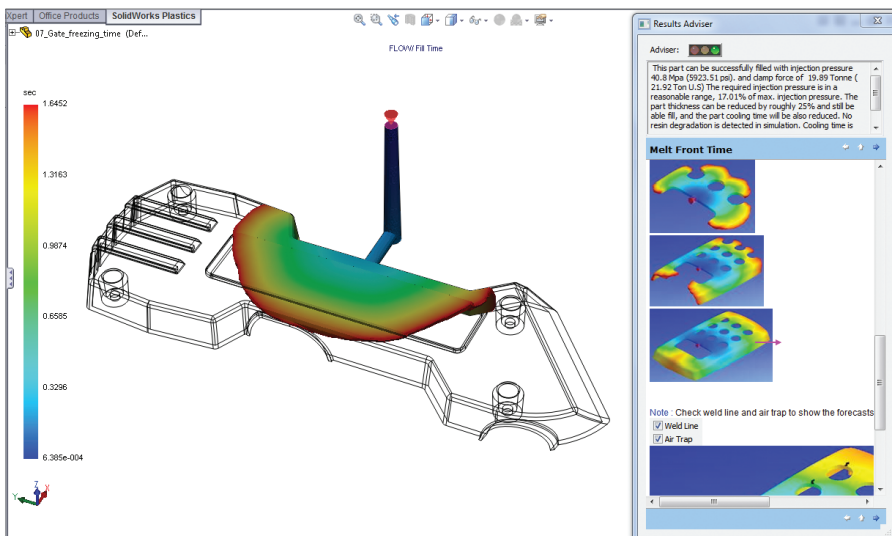
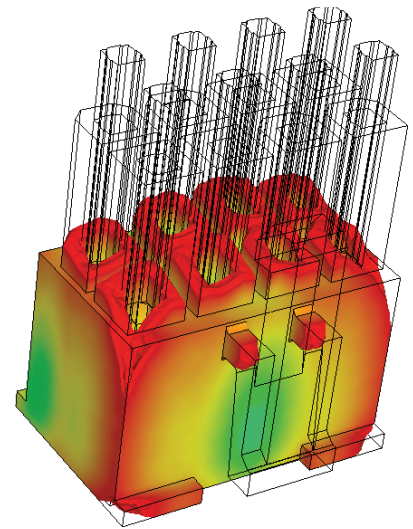
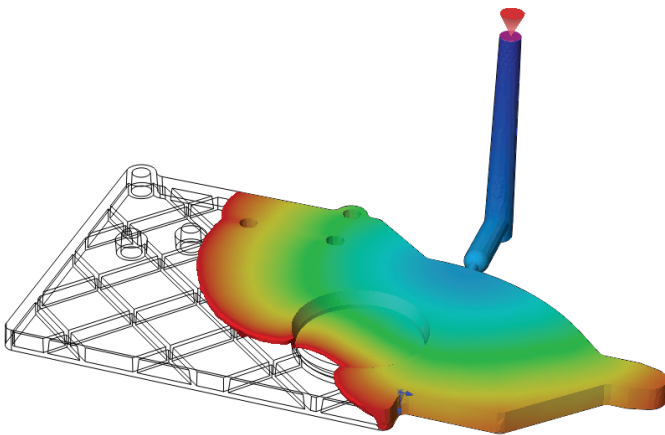
SOLIDWORKS Plastics brings injection molding simulation directly to designers of plastic parts and injection molds. You don't have to be an expert to easily identify and address potential defects by making changes to the part or mold design, plastics material, or processing parameters, saving resources, time, and money.

Intuitive workflow and design advice

SOLIDWORKS Plastics works directly on your 3D model, avoiding translation issues. You see the impact of design changes right away. Powerful and fast state-of-the-art meshing covers geometries from thin-walled parts to very thick and solid parts.

An intuitive interface leads you step by step. Guided analysis, intelligent defaults, and automated processes ensure correct setup, even if you rarely use simulation tools. The SOLIDWORKS Plastics material database contains thousands of commercial plastics and is fully customizable.

Part designers get rapid feedback on how modifications to wall thickness, gate locations, materials, or geometry can effect the manufacturing of their part, while mold designers can quickly optimize multicavity and family mold layouts and feed systems—including sprues, runners, and gates.



The Results Adviser provides practical design advice and troubleshooting tips to help diagnose and solve potential problems. This powerful information gives you tremendous insight into the injection molding process, leading to informed design decisions and better quality products.

“With 40 years in plastics development, I’m excited by SOLIDWORKS Plastics. Users will be able to optimize part and mold designs in the earliest stages of development.”

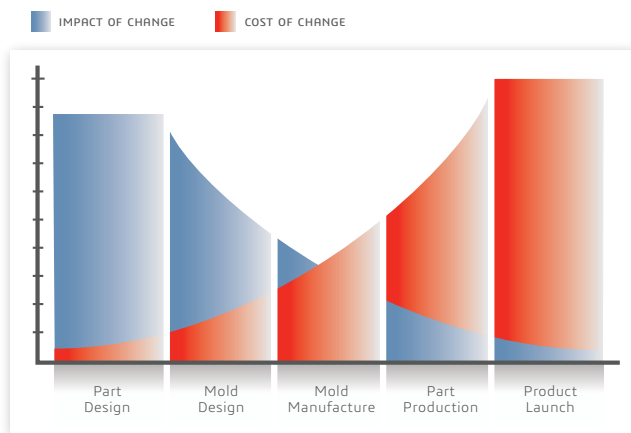
— Ed Honda, President, hondaDesign, LLC

THE COST OF CHANGE

While the cost of making changes is low in the early stages of product development, the impact is highest. The sooner you can optimize your plastic parts and injection molds for manufacturability, the better.

The challenge in plastics part production is determining how your part or mold design impacts manufacturing and how manufacturing will impact your design, and then communicating that information early and often throughout the design-to-manufacturing process.

SOLIDWORKS Plastics gives you the tools to quickly identify potential problems so you can make changes early in the design process.



PRODUCT DESIGN PROCESS

Design changes in the early stages of product development cost less and have the greatest impact on improving manufacturability. The cost of change increases substantially further downstream and can lead to significant time-to-market delays.

FOR PLASTICS PART DESIGNERS

SOLIDWORKS Plastics Standard

The most cost-effective time to optimize plastic parts for manufacturability is during the initial stages of product design. Skipping this step often leads to an inefficient mold design with an extremely narrow “good parts” processing window, resulting in high reject rates and time-to-market delays.

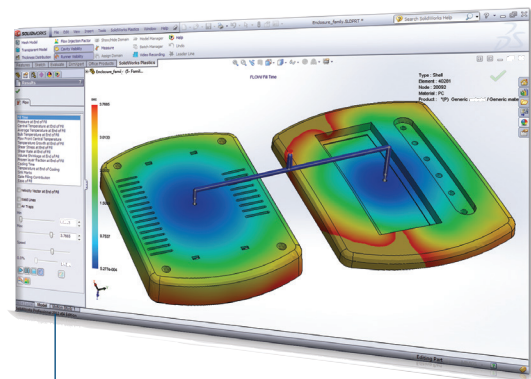
- **CAD-integrated:** fully embedded in the SOLIDWORKS 3D design environment so you can analyze and modify designs for manufacturability while you optimize for form, fit, and function
- **Easy to learn and use:** takes only minutes to learn and does not require extensive analysis or plastics expertise
- **Facilitates design team communication:** web-based HTML reports make it fast and easy to communicate simulation results and design advice to all members of the design-to-manufacturing team

FOR MOLD DESIGNERS AND MOLD MAKERS

SOLIDWORKS Plastics Professional

SOLIDWORKS Plastics Professional gives designers or builders of injection molds an accurate, easy-to-use way to optimize them. Quickly create and analyze single, multicavity, and family mold layouts.

- **Avoid costly mold rework:** ensure molds will work right the first time to avoid time-consuming, costly, and unnecessary rework
- **Optimize feed system design:** analyze sprues, runners, and gates to balance runner systems; optimize gate type, size, and location; and determine the best runner layout, size, and cross-sectional shape
- **Estimate cycle time, clamp tonnage, and shot size:** quote tooling projects quickly and accurately; size the injection molding machine for a given mold; optimize cycle time, and reduce plastics material scrap



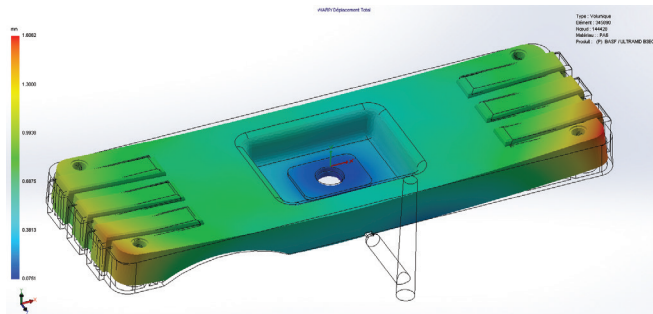
Unbalanced filling in family molds (as seen here) can be predicted and avoided with SOLIDWORKS Plastics.

FOR ADVANCED CAE ANALYSTS AND MOLD DESIGNERS

SOLIDWORKS Plastics Premium

SOLIDWORKS Plastics Premium includes everything in SOLIDWORKS Plastics Professional plus advanced simulation functionality that allows users to analyze mold cooling line layouts and predict molded part warpage.

- **Cooling line analysis:** Design and analyze simple or complex mold cooling line layouts
- **Reduce time and cost:** Optimize cooling system design to minimize cycle times and decrease manufacturing costs
- **Improve overall process:** Optimize part and mold design, material selection, and processing parameters to reduce or eliminate molded part warpage



D development

SOLIDWORKS PRODUCT DEVELOPMENT SOLUTION

SOLIDWORKS software creates an intuitive 3D environment that helps maximize the productivity of your design and engineering resources to create products better, faster, and more cost-effectively. See the full range of SOLIDWORKS software for design, simulation, technical communication, and data management at www.solidworks.com/products2015.

SYSTEM REQUIREMENTS

- Windows® 7 (preferably 64 bit) or Windows 8
- 2 GB RAM (minimum)
- 5 GB disk space free (minimum)
- Video board (certified recommended)
- Intel® or AMD® processor
- DVD or broadband Internet connection
- Internet Explorer® 8 or later

For additional details, visit www.solidworks.com/systemrequirements

LEARN MORE

To learn more about SOLIDWORKS Plastics, visit www.solidworks.com/plastics or contact your local authorized SOLIDWORKS reseller.

SOLIDWORKS PLASTICS MATRIX	SOLIDWORKS PLASTICS PREMIUM	SOLIDWORKS PLASTICS PROFESSIONAL	SOLIDWORKS PLASTICS STANDARD
CAD INTEGRATION			
SOLIDWORKS Native File Support	■	■	■
Associative with SOLIDWORKS	■	■	■
SOLIDWORKS-embedded	■	■	■
PLASTICS MATERIAL DATABASE			
4000+ Commercial Plastics	■	■	■
Customisable	■	■	■
MESHING			
Automatic	■	■	■
Boundary Mesh (shell)	■	■	■
Solid 3D Mesh	■	■	■
Global Mesh Refinement	■	■	■
Local Mesh Refinement	■	■	■
SIMULATION CAPABILITIES			
Filling Phase (1st stage injection)	■	■	■
Packing Phase (2nd stage injection)	■	■	
Automatic Gate Location(s)	■	■	■
Instantaneous Fill Time Plot	■	■	■
Runner Balancing	■	■	
Sink Mark Analysis	■	■	■
MOLD GEOMETRY SUPPORT			
Runner Design Wizard	■	■	
Sprues and Runners	■	■	
Hot & Cold Runners	■	■	
Multi-Cavity Molds	■	■	
Family Molds	■	■	
Cooling Lines	■		
Baffles & Bubblers	■		
Conformal Cooling Channels	■		
Mold Inserts	■		

SOLIDWORKS PLASTICS MATRIX	SOLIDWORKS PLASTICS PREMIUM	SOLIDWORKS PLASTICS PROFESSIONAL	SOLIDWORKS PLASTICS STANDARD
ADVANCED SIMULATION CAPABILITIES			
Co-Injection	■	■	
Multi-Shot	■	■	
Insert Overmolding	■	■	
Gas-Assist	■	■	
Fiber Analysis	■	■	
Reaction Injection Molding (RIM; Thermosets)	■	■	
Birefringence	■	■	
Valve Gate (sequential injection)	■	■	
Cooling Line Analysis	■		
Conformal Cooling Analysis	■		
Warpage Analysis	■		
RESULTS			
Fill Time	■	■	
Ease of Fill	■	■	
Results Advisor	■	■	
Pressure at End of Fill	■	■	
Flow Front Temperature	■	■	
Temperature at End of Fill	■	■	
Shear Stress	■	■	
Shear Rate	■	■	
Cooling Time	■	■	
Weld Lines	■	■	
Air Traps	■	■	
Sink Marks	■	■	
Sink Mark Profiles	■		
Frozen Layer Fraction at End of Fill	■	■	
Velocity Vectors	■	■	
Clamp Force	■	■	
Cycle Time	■	■	

SOLIDWORKS PLASTICS MATRIX	SOLIDWORKS PLASTICS PREMIUM	SOLIDWORKS PLASTICS PROFESSIONAL	SOLIDWORKS PLASTICS STANDARD
Volumetric Shrinkage	■	■	
Part Cooling Time	■		
Part Temperature at End of Cooling	■		
Mold Temperature at Cooling End	■		
Displacement due to Residual Stress	■		
Displacement due to Total Residual Stress	■		
Displacement due to In-Mold Residual Stress	■		
Displacement due to Thermal Stress (after ejection)	■		
REPORT GENERATION			
Microsoft® Word	■	■	■
Microsoft® PowerPoint	■	■	■
HTML	■	■	■

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