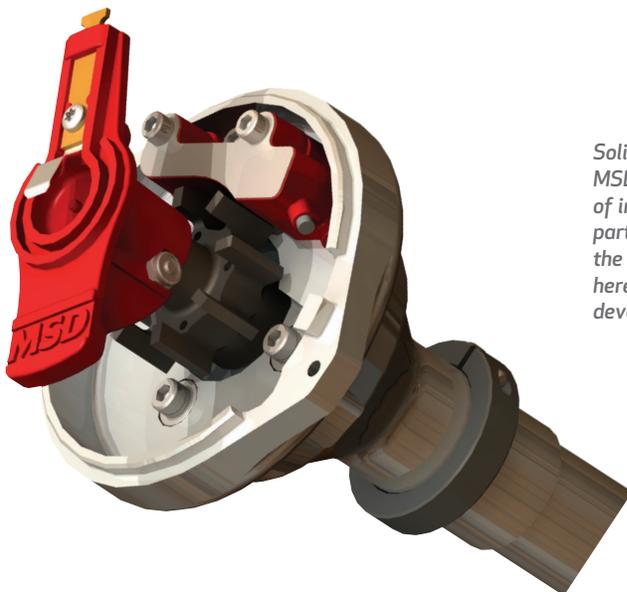


MSD IGNITION

Sparking ignition-component mold development with SolidWorks Professional



SolidWorks software supports MSD Ignition's increased use of injection-molded plastic parts, including some parts in the NASCAR distributor shown here, by providing greater mold development power.

MSD Ignition is the leading producer of ignition controls, distributors, and ignition accessories for professional racecars and high-performance street vehicles. Until 2003, the company utilized AutoCAD® 2D and Mechanical Desktop® 3D design software from Autodesk, Inc., to develop ignition control systems, as well as coils, timing accessories, spark plug wires, and other engine components. The increased need for automotive electronics applications has resulted in greater use of injection-molded plastic parts—for electromagnetic interference shielding and heat sinks—at MSD. To address increased mold development and production demands, MSD product development group decided to implement a parametric 3D CAD system, according to Doug Webber, plastic part/mold designer.

"We believed a 3D parametric CAD system could help us develop molds more accurately and efficiently," Webber recalls. "Because we used Autodesk products, we decided to upgrade to Autodesk Inventor®." Although Inventor software was an improvement over the company's previous design tools, it lacked the dedicated mold design and analysis capabilities that MSD Ignition engineers believed they needed to boost productivity. "There were innovative things I wanted to do that Inventor software would not accept, so many times I had to make compromises," Webber says. After using Inventor software for two years, MSD started looking for a 3D CAD package with greater mold development power.

"We wanted something that would help us with mold design," Webber recollects. "We had looked at SolidWorks® software a few years back, and were impressed with how far the software had come in a short period of time. In addition to a fairly drastic difference in modeling power, SolidWorks software included draft and mold analysis tools and surfacing capabilities that are better suited to mold development."

After purchasing a trial seat of SolidWorks software, MSD Ignition chose to migrate to SolidWorks Professional for all new product development in 2004, implementing 12 seats, because of its dedicated mold development tools, greater modeling power, higher quality support, and advanced surfacing and configuration capabilities. "Life got a whole lot easier when we moved to SolidWorks Professional," says John Clark, senior design engineer.

Results:

- Boosted mold throughput by over 25 percent
- Shortened mechanical/electrical systems integration time by 75 percent
- Improved mold quality
- Increased mold complexity and innovation

Greater modeling power for more complex, innovative molds

Since implementing SolidWorks Professional, MSD Ignition engineers have become more efficient and innovative. "When it comes to mold development, SolidWorks software can simply do more," Webber contends. "The main reason is the surfacing capabilities. By using lofted surfacing and by having good control of all surfaces, you can get more creative and develop more complex molds. We have definitely seen improvements in both the complexity and quality of our molds."

Using the configuration capabilities of SolidWorks software, MSD engineers can quickly develop changeable mold inserts, and efficiently produce different-sized parts from a single mold. "I used to spend a lot of time drawing the same part over and over again," notes Brandon Uhde, mechanical engineer. "With SolidWorks software, I only have to draw the part once, and can use design tables to create other configurations automatically."

Reducing development cycle, increasing product quality

SolidWorks software is also helping MSD engineers conduct more design iterations and develop more new product concepts within the confines of the company's annual product release cycle. "It used to take us 12 to 14 weeks to develop a mold," Clark explains. "With SolidWorks Professional, we have been able to cut our mold development cycle down to nine to 10 weeks. Plus, the quality of our work is much better, enabling us to bring out a raft of new products."

Webber says other improvements include using native SolidWorks software files to drive SURFCAM® machining software, instead of performing the IGES file conversions that engineers had to do in the past. Now, splitting a mold in SolidWorks software takes only about 15 minutes, a process that once required an entire day.

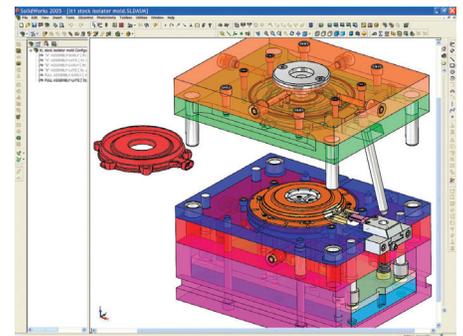
Realizing unanticipated benefits

While MSD Ignition engineers expected productivity improvements as a result of the greater modeling power in SolidWorks software, they have also realized some unanticipated benefits. "There are definitely some hidden bonuses with SolidWorks software," Clark notes. "We have the direct integration with SolidWorks product data management software for managing our design data, and we can now use electrical design schematics with SolidWorks software data. It used to take us 12 to 14 weeks to integrate mechanical and electrical systems. Now, it takes just three to four weeks."

Webber adds that he uses SolidWorks SimulationXpress to analyze mold-related stresses, evaluate how a mold will fill, and assess the different gating options.

"WITH SOLIDWORKS SOFTWARE, THE QUALITY OF OUR WORK IS MUCH BETTER, ENABLING US TO BRING OUT A RAFT OF NEW PRODUCTS."

John Clark
Senior Design Engineer



Because SolidWorks software provides dedicated mold development tools, such as draft analysis and surfacing capabilities, MSD Ignition engineers can be more innovative in the development of more complex parts and molds.



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