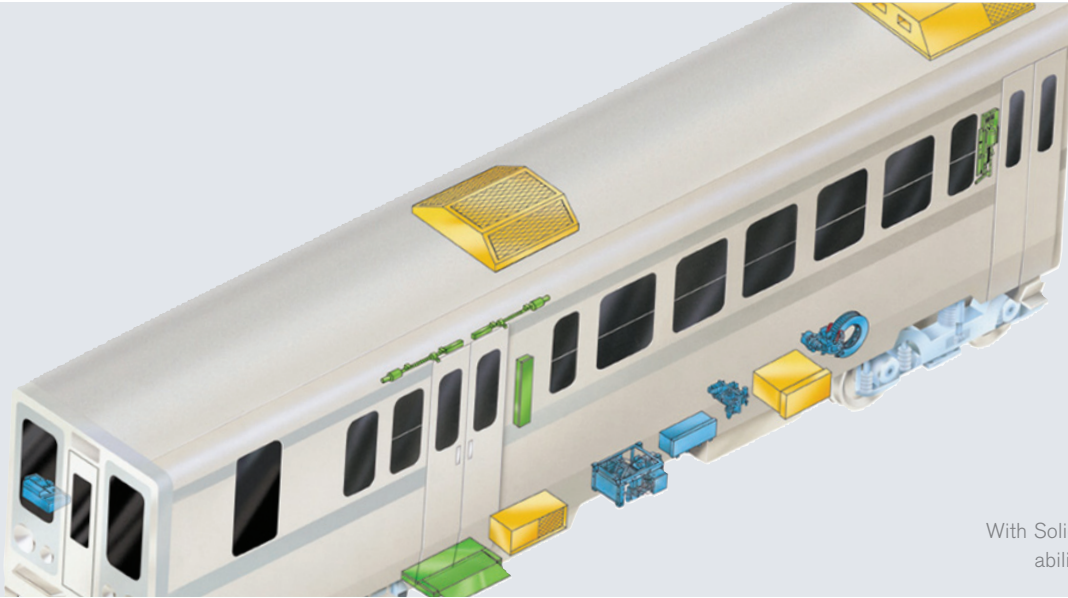


Vapor Stone Rail Systems

ADVANCING PASSENGER-RAIL VEHICLE DOOR DEVELOPMENT WITH SOLIDWORKS



With SolidWorks 3D CAD software, VSRS has improved its ability to handle large assemblies of sheetmetal parts.

- Accelerated development cycles
- Increased use of integrated analysis for design
- Reduced number of prototypes
- Improved design data management and communication

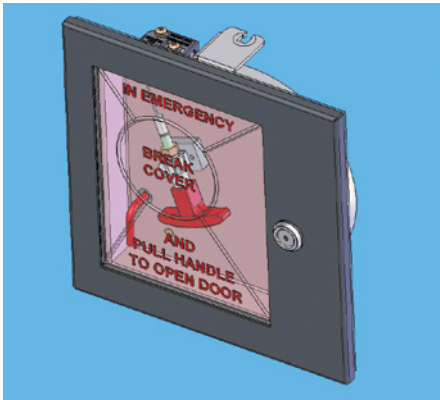
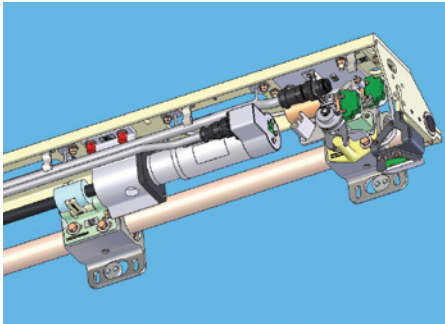
As a leader in the development of automated door systems for passenger rail vehicles, VSRS relies heavily on the use of 3D CAD and analysis technologies to create safe, durable, and reliable systems. Because its products control boarding and departing foot traffic on subway trains and other rail-based transit systems, rider safety and maintenance-free operation are critically important, demanding thorough product testing, analysis, and validation. For eight years, VSRS utilized the Solid Edge® 3D CAD package and the COSMOSDesignSTAR™ analysis system to support its product development needs.

In 2005, the company decided to re-evaluate its design environment to determine if it could improve its large-assembly, product data management, and design analysis capabilities, according to Pascal Choiniere, VSRS mechanical engineering manager. "We wanted to enhance our ability to handle large assemblies of sheet-metal parts," Choiniere recalls. "We decided to re-evaluate our 3D CAD solution not only because of our interest in more robust large assembly capabilities but also to determine if we would benefit from using a system that provides integrated PDM and analysis tools."

The company chose SolidWorks® Professional software, implementing 12 seats, because of its ease of use, large-assembly and sheet-metal design capabilities, integrated SolidWorks product data management software, as well as the superior support provided by SolidXperts, Inc. To support its more sophisticated analysis needs, VSRS added a seat of SolidWorks Premium software, which includes integrated SolidWorks Simulation analysis software.

“With SolidWorks software, we have seen improvements in large-assembly performance, which shortens the time it takes to design and produce parts.”

Pascal Choiniere,
Mechanical Engineering Manager



By moving to SolidWorks software, VSRS has realized additional benefits associated with using integrated PDM and analysis tools.

Better handling of large assemblies

Since implementing SolidWorks software in early 2006, VSRS has improved its handling of large assemblies – ranging from 700 to 1,500 components – and has accelerated its product development cycles. “With SolidWorks software, we have seen improvements in large-assembly performance, which shortens the time it takes to design and produce parts,” Choiniere says. “For example, with SolidWorks collision detection tools, we have sped up the development of assemblies with moving parts, while reducing the need for interference-related rework.”

Many VSRS assemblies include sheetmetal parts, and Choiniere estimates that roughly 30 percent of the company’s products utilize sheet metal. “With SolidWorks software, we have enjoyed superior sheet-metal design capabilities, especially within the context of our assemblies,” Choiniere explains. “We use these capabilities heavily to produce flat patterns and bends in an easy, automated fashion.”

Integrated analysis as a design tool

Another important benefit of VSRS’s move to SolidWorks software is the ability to use integrated analysis software. The company’s products must be safe to protect the welfare of passengers and must run reliably for at least two million cycles with very low maintenance.

VSRS engineers need to use analysis tools to predict deflections in key parts and meet stringent shock and vibration standards. Before moving to SolidWorks, analysis was a separate, nonintegrated process. Now, analysis is fully integrated within the SolidWorks 3D CAD system, and the company can use analysis both as a design tool and for design validation.

“Integrated analysis is a huge advantage for us,” Choiniere stresses. “Our designers use SolidWorks SimulationXpress as part of upfront design, which we could not do previously, and our engineer uses SolidWorks Simulation to conduct more challenging analyses. Integrated analysis gives us more flexibility and enables us to better utilize our engineering resources. It also has reduced the number of prototypes we need to produce and has streamlined our testing efforts.”

Managing and communicating design data

Transitioning to SolidWorks software not only has improved VSRS’s PDM capabilities, through the implementation of integrated SolidWorks PDM software, but has also enhanced the company’s ability to communicate design concepts in 3D to transit authorities and original equipment manufacturer (OEM) customers.

“With SolidWorks product data management software, our design data is more secure, controlled, and accessible,” Choiniere notes. “We do a better job of revision control because SolidWorks PDM software does not let you get sloppy. The software enables us to maintain references for all mates, components, and assemblies.

“SolidWorks eDrawings® files have helped us to communicate design concepts more effectively with customers and partners,” he adds. “We recently completed our first project in SolidWorks, and used eDrawings files to present our designs to our customer for preliminary and critical design reviews, which went very well.”



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