

Hyundai Rotem

Improving productivity and reducing costs with 3DVIA Virtools



Overview

■ Challenge

Efforts by Hyundai Rotem engineers to review 3D designs of the company's railroad and defense plants were hampered by the size of the data files.

■ Solution

Hyundai Rotem adopted 3DVIA Virtools to accelerate interference checking and decision-making using light, 3D models.

■ Benefits

With 3DVIA Virtools, Hyundai Rotem has optimized virtual facility layout and material flow using less expensive, lower capacity hardware.



"With 3DVIA Virtools, we no longer need to purchase powerful and expensive workstations to manage our data. Our productivity has also improved thanks to faster data access and review time."

H. J. Koo
Senior Researcher
Hyundai Rotem

Korean industry leader

A subsidiary of the Hyundai Motor Group, Hyundai Rotem is a global leader representing Korea in the railroad, defense, plant and environmental industries for more than 40 years. Hyundai Rotem's 3,800 employees, including 700 R&D professionals, develop and manufacture products ranging from high speed electric and magnetic levitation trains to a 5400-ton transfer crane and military ground vehicles such as K1 tanks.

Hyundai Rotem is pressing ahead with the development of advanced products such as the magnetic levitation train to help it expand into areas that cover electrical railroad devices, signaling systems, advanced logistics equipment and integrated turnkey engineering projects. The company is involved in a number of large scale projects and actively participating in Korea's national railroad and defense projects.

3DVIA Virtools for interference checking and simulation

Hyundai Rotem implemented Dassault Systèmes 3DVIA Virtools to help its engineers search and review the huge amounts of 3D data related to existing or proposed plant layouts. Hyundai Rotem's other 3D visualization solutions did not allow its engineers to effectively check for interference, which can arise when new equipment is added near existing installations.

Hyundai Rotem chose 3DVIA Virtools for its powerful interactive reviewing and simulation capabilities. The company uses 3DVIA Virtools to optimize facility and material layout as well as to evaluate the flow of materials. The latter is needed to minimize downstream problems in plant construction in areas such as vehicle fitting, painting, vehicle body flow and process layout design.



“The 3DVIA product line is extremely flexible and can be used for a variety of applications,” said ByungHae Park, manager of the Press Design and Engineering Team at Hyundai Rotem. “This is demonstrated in our day to day applications and many of our prospects ask to see how we have implemented 3DVIA Virtools.”

Easy manipulation of 3D data

The large amount of detail in a plant and the quantity of associated 3D data generated made it difficult for Hyundai Rotem to make virtual inspections without powerful hardware. By introducing 3DVIA Virtools and its 3DXML format, the company significantly reduced the volume and the size of its 3D data without CATIA data loss.

As a result, review of 3D plant design data is now possible using less expensive, low capacity hardware. For example, the quantity of data related to a seat assembly line representing 1 GB was reduced to 10 MB.

“With 3DVIA Virtools, we no longer need to purchase powerful and expensive workstations to manage our data,” said HJ Koo, senior researcher, Hyundai Rotem. “Our productivity has also improved thanks to faster data access and review time.”

Planned interface with other simulation systems

Hyundai Rotem plans to interface 3DVIA Virtools with its own material flow simulation program. The goal is to boost the strength of the flow simulation program using 3DVIA Virtools’ powerful VR technology. This will provide users with a single user interface and improve decision making by allowing anyone to easily view the overall layout of a plant.

Hyundai Rotem also has plans to use 3DVIA Virtools in its Plant Business Group (PBG). Currently, the PBG uses CATIA to digitally pre-assemble the automobile production facility, including the press station. The volume of CATIA data generated for these virtual facilities is approximately 5 GB. The use of 3DXML will result in a significant reduction in the volume of data -- by a factor of up to 100.

“The 3DVIA product line is extremely flexible and can be used for a variety of applications. This is demonstrated in our day to day applications and many of our prospects ask to see how we have implemented 3DVIA Virtools. Thanks to the imagination and creativity of our engineers, we are maximizing our use of 3DVIA Virtools every day.”

Byung Hae Park
Manager Press Design and Engineering Team
Hyundai Rotem



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