

Hwaseung R&A Improves Product Reliability with ESI Visual-Environment



Challenge

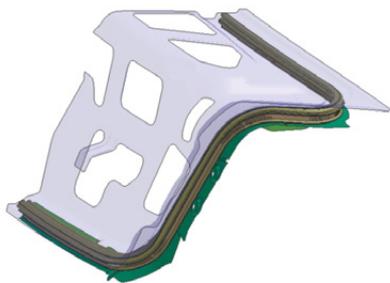
Hwaseung R&A needed a solution to correct a trunk seal, which deformed after assembly on the vehicle's body. As a solution, they considered injection of the seals onto complex three-dimensional surfaces of the car's body structure along trunk edge lines. This was a challenging exercise so they needed some assistance.

Benefits

With ESI Visual-Environment, Hwaseung R&A engineers could virtually simulate assembly of the trunk seal and evaluate its performance without real prototypes. The software allowed them to generate their input data completely automatically using only design parameters and geometric information.

"It becomes possible to analyze the contribution of steel insert design changes using a trunk seal assembly process simulation. ESI Visual-Environment is now used as a basic tool for deciding design parameters at the initial stage and also for solving problematic issues in production"

Chan-Soo Lee
Deputy Manager
HWASEUNG R&A Corporation



Interpreting vehicle door seal installation and door with ESI Visual-Environment

Story

Hwaseung R&A needed a permanent fix for their trunk seals, which became deformed or distorted at the corners after assembly. The trunk seal's function is to absorb trunk vibrations and to close the gap between the vehicle body and trunk assembly. When the seal has an irregular shape, its non-uniform pressure distribution on trunk panels causes issues such as increased noise, water leakage and even failure of trunk panels.

Engineers began seeking a solution using simulation software that offered **a fully automatic model creation process**, which led them directly to ESI Visual-Environment. With this tool they could build an automated process to reduce model creation time and facilitate performance evaluation and parametric studies within a short product development cycle. The process they developed uses only Computer-Aided Design (CAD) geometry, design parameters and sectional Finite Element (FE) mesh and creates ready-to-run 3D models automatically. Hwaseung R&A experimented with different positioning methodology for thread and ribbed shapes as well as various types of sectional shapes.

Not only was Hwaseung R&A able to correct the defect **and reduce their development time and costs** but they were so successful with process automation in Visual-Environment that it has been implemented as a standard in their design process for trunk and body seals. They are also using the solution to assist with initial conditioning for trunk and door closing simulation.



for more information
www.esi-group.com/visual-environment
www.hsrna.co.kr/hsrnaen

