Customer Success Story - Hankook Tire

3D System's ProJet® 660 the Ultimate Solution for Hankook Tire Concept Design

The design department at Hankook Tire uses a ProJet 660 3D printer by 3D Systems as a key part of its concept design process. 3D printing technology has helped the design team deliver better communication between departments, save on costs, and improve design data security.

Founded in 1941, Korea's Hankook Tire is currently both the seventh-largest tire manufacturer in the world and one of the fastest growing. Now selling in 185 countries worldwide, the company has developed a reputation for high-quality tires at reasonable prices. But the tire industry comes with intense competition, and Hankook takes design and development of new products seriously. As part of their commitment to provide top-notch tires, Hankook looks for the best ways to enable rapid development and testing of innovative tire designs while keeping those in-progress designs secret.

Myungjoong Lee , CAD professional at Hankook Tire's design department, with a full color 3D print of the concept design during prototyping.

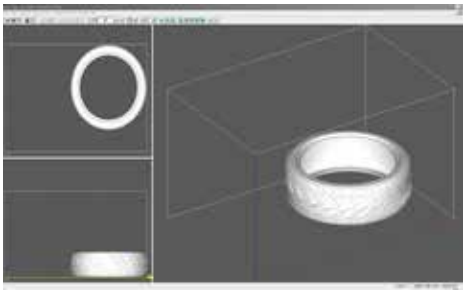
"3D printing has became part of my routine," says Lee. "It is very attractive technology that allows us to print whatever idea we have in mind, and produce it in full color."

With this in mind, the company invested in a 3D Systems ProJet® 660, a 3D printer that uses ColorJet technology (CJP) to create perfect full-color models that can be assessed for form and function.

Myungjoong Lee , CAD professional in Hankook Tire's design department, prints a tire design in the ProJet 660 before he leaves at the end of the day, and the final model will be waiting for him when he gets to work next morning. With the size of the models being created, it takes about seven to eight hours to build a finished mockup model overnight.

STEP 1: The designer sketches the pattern of the tire by hand.

STEP 2: Working from the sketch idea, the designer develops the design in CATIA.



STEP 3: The CAD data is saved to STL and into the 3D printing software where the designer can also define tire colors and size to print.

STEP 4: The first prototype of the design is created as a 3D print.

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Lee has found that 3D printing on the ProJet 660 has reduced the communication errors between the design and engineering departments. There can sometimes be friction between the two departments during the decision-making process. Now, with detailed, realistic 3D prints on hand—to touch, review and observe—communication and decision-making in this process has noticeably improved. Meeting times for this part of the process have also improved: they are about 70% shorter than before.

In addition, using the ProJet 660 in the design process has saved Hankook money. Prior to having a 3D printer, the design team built mockups through an external contractor. These mockups were handcrafted and very expensive, plus the design would have to be mocked up for a variety of different tire sizes. These handcrafted models would also never quite perfectly match the original CAD design.

"Now," says Lee, "the 3D print takes the exact dimensions of the CAD data and reproduces it perfectly."

As a final benefit, the team can now be more confident that its new design innovations are staying in-house and secure. With the internal workflow, they are no longer sending confidential data outside, thus reducing fears of having their intellectual property stolen and misused.