

## AT A GLANCE

**Company:** KVK Corporation  
**URL:** [www.kvk.co.jp](http://www.kvk.co.jp)  
**Location:** Gifu, Japan  
**Industry:** Leading manufacturer of faucet hardware for baths and kitchens

**Challenges**

Facing steeply rising manufacturing costs, KVK needed to make up the difference by saving time and money during development

**Solution**

- > Build on success of existing 3D design capabilities by bringing 3D prototyping in-house, using the Eden260™ 3D Printing System

**Results**

- > Shorter overall design time
- > Reduced development costs
- > More efficient checking of water discharge capabilities

“The Eden is a first-rate tool that improves the whole product development process”

Yoshiaki Nachi  
 Deputy Manager  
 Product Development Sec.2

## KVK uses an Eden machine to add flexibility, save time and costs of product development

Japan-based KVK Corporation is a top manufacturer of faucet hardware used in unit baths, system kitchens and similar equipment. Over the past few years, KVK has enjoyed considerable success in using three-dimensional CAD/CAM to reduce the time needed for product development. Now, facing steeply rising prices for materials, KVK has been forced to look for new ways to further cut back development time and cost. The company decided to leverage its initial 3D success by installing a 3D prototyping system, with the expectation that having onsite rapid prototyping capabilities would be cheaper and faster than working with a service bureau. Specifically, KVK looked for a solution that would enable them to do three key things: to build models earlier in the design process, to build transparent hollow models for water flow testing, and to use model materials that could be plated and painted to closely resemble the final products.

**Benefits throughout the process**

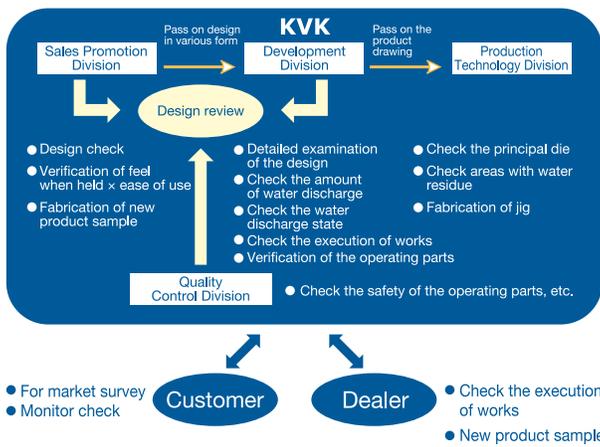
Following a thorough market survey, with benchmarking of available options, KVK selected Objet's Eden260™ 3D Printing System. Within just a few short months of installing the system, KVK has integrated models produced on the Eden260 in every aspect of product development. The company reports that it is enjoying a shorter development period and a more efficient design process. Additionally, the whole development process is less stressful, due to the ability to test designs early on and frequently. This reduces the risk that costly changes will be needed at more advanced stages of the development process.

At KVK, checking the water discharge state of the product is an important step in the design process. Using a model built by the Eden260, water discharge can be checked easily and quickly.

“Conventionally, the subcontracted prototyping period was long and costly, hence it was not easy to check the amount of water discharge and the water discharge state each time the shape was changed,” said Mr. Yoshiaki Nachi, Deputy Manager of Product Development Sec.2 in the Development Division. “Since installing the Eden system, we are able to do an accurate and fast checking operation, and changes in the shape can now be efficiently examined at a low cost.”



Model before the plating process (photograph – bottom) and model after the plating process (photograph – top)



### Methods for using the molded models

The models that were molded with the Eden260 have been used in a wide range from the upstream to the downstream of product development and have been found to be effective

### Less cost, more efficiency

KVK has not noticeably decreased the cost of prototyping, due to the fact that it now creates more prototypes per product. However, working with the Eden260 has cut the overall cost of product development – which is what really matters.

“Our manufacturing unit cost per model has now decreased considerably compared to when we subcontracted prototyping,” noted Mr. Nachi. “After installing the Eden260, a cycle was created of checking the model the day after the 3D data is prepared, carrying out the water discharge testing immediately and molding again with the corrected data.”

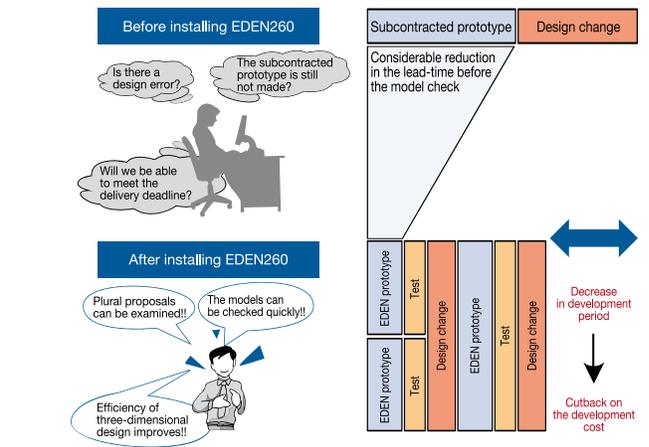
“With the improved prototyping process, we can do continuous model verification. This has greatly improved our work efficiency, and it has reduced stress on our designers and planners. Now we can refine the shape before ordering the die, which means there are fewer die errors – which are expensive and time consuming to fix,” he continued.

Summarizing the Eden260’s impact at KVK’s, Mr. Nachi said: “The Eden260 is a first-rate tool that improves the whole product development process.”

### About Objet Geometries

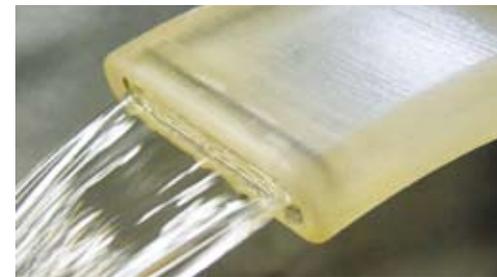
Objet Geometries Ltd., the innovation leader in 3D printing develops, manufactures and globally markets ultra-thin-layer, high-resolution 3-Dimensional printing systems and materials that utilize PolyJet™ Polymer Jetting technology, to print ultra-thin 16-micron layers.

The market-proven Eden™ line of 3D Printing Systems and the Alaris™30 3D desktop printer are based on Objet’s patented office-friendly PolyJet™ Technology. Connex500™ is based on Objet’s PolyJet Matrix™ technology, which jets multiple model materials simultaneously and creates composite Digital Materials™ on the fly. All Objet systems use Objet’s FullCure® materials to create accurate, clean, smooth and highly detailed 3-dimensional models.



### Comparison of before and after installation

Before installing Eden260, delivery of the prototype model took time there was a restriction in the prototyping frequency, and there was a feeling of anxiety. Now, constructive prototyping and design work of high precision can be carried out, the design efficiency has improved, and can achieve decrease in the development period



### Performance of water discharge test

A model that was molded with Eden was built into an actual part and water discharge test is being performed. The optimal water flow can be pursued by making molds from data while making small changes in the shape and the dimension of the water outlet

Objet’s solutions enable manufacturers and industrial designers to reduce cost of product development cycles and dramatically shorten time-to-market of new products. Objet systems are in use by world leaders in many industries, such as automotive, electronics, toy, consumer goods, and footwear industries in North America, Europe, Asia, Australia and Japan.

Founded in 1998, Objet serves its growing worldwide customer base through offices in USA, Europe and Hong Kong, and a global network of distribution partners. Objet owns more than 50 patents and patent pending inventions.

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