

Dorco | Ultra 3D Printer

One of the first and still most successful applications of 3d printing is within the new product development process.

This case study illustrates how Korean company, Dorco has saved time and money by employing an EnvisionTEC Ultra 3D printer for design verification.

DORCO is a leading consumer company in the Korean razor blade, kitchen knives and stationery cutters market and has been manufacturing and exporting the highest quality products in its sector for 55 years to a global market. The company has had to adapt and improve its product development processes over the last decades to maintain its market position and continue to develop superior product ranges.



One of the most recent adaptations, which has seen tremendous results, was to embrace 3D printing within the new product development process. The company's 3D printer of choice was an EnvisionTEC Ultra, the scale and accuracy of which has dramatically improved the design verification process at DORCO and brought significant cost reductions due to less prototype tooling.

Before the implementation of the 3D printer, DORCO's traditional process involved designing a product in 3D CAD — in this case a razor cartridge and handle — and then manufacturing a Quick Delivery Mould (QDM).

After moulding the designs would need modification and subsequently another QDM tool would be manufactured and the parts analyzed once again. This process, of necessity, would be repeated several times — sometime as many as ten moulds would be created before the design was passed and a production tool manufactured!



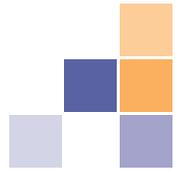
EnvisionTEC GmbH

Brüsseler Straße 51 D-45968
Gladbeck • Germany
Phone +49 2043 9875-0
Fax +49 2043 9875-99

EnvisionTEC USA

15162 S. Commerce Dr
Dearborn, MI 48120 • USA
Phone +1-313-436-4300 Fax
+1-313-436-4303

www.envisiontec.com info@
envisiontec.com



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This process would typically take between six and eight weeks, meaning that design agreement and final production would be held up and time-to-market delayed.

Beyond the timing, however, the cost for this repetitive QDM process for these two products alone would be in the region of 2,200,000 SK Won (£1315) for the Cartridge and 5,000,000 SK Won (£2988) for the handle.

In 2013, DORCO purchased the EnvisionTEC Ultra and immediately started using it to produce visualization models and functional models with the EnvisionTEC R5 material. By using the models directly from the machine for design review and assembly trial, DORCO has

eliminated the need for the QDM tools entirely as the parts are ready for use from the Ultra within hours. Instead of taking the previous 6-8 weeks to verify a design for production tooling it now takes approximately 10 days!

And the cost? It now costs 800 SK Won (£0.48) for the cartridge and 8,000 SK Won (£4.78) for the handle — a saving of over 7 million SK Won (or £4180) per design! Meaning that the 3D printer quickly paid for itself.



Furthermore, because of the savings in time, designers at DORCO have more time to experiment with new designs for electric razors.

EnvisionTEC GmbH
Brüsseler Straße 51 D-45968
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Fax +49 2043 9875-99

EnvisionTEC USA
15162 S. Commerce Dr
Dearborn, MI 48120 • USA
Phone +1-313-436-4300 Fax
+1-313-436-4303

www.envisiontec.com
info@envisiontec.com

Contact

Dorco Co., Ltd. (Head Office)
Seoul | Republic of Korea
Tel: +82-2-585-4245
dorco7@dorco.co.kr
eng.dorco.co.kr/

Distributor

SNC Korea
Goyang-City | Republic of Korea
0082-31-902-7113/7114
sncrp@naver.com
www.prototyping.co.kr/