Integrating 3D printing into quick-change mould system

Combining one company’s longstanding reputation in mould making with another’s pioneering expertise in 3D printing has resulted in an innovative system that offers mould-makers flexibility to quickly produce and switch inserts.

Mould-maker Hasco has developed a rapid, cost-efficient method to produce low volumes of injection moulded prototypes by integrating Stratasys 3D printing with its K3500 quick-change mould system. Utilising this innovative approach promises moulders a way to quickly change between inserts for different products, enabling them to cost-effectively produce low volumes of injection-moulded parts for samples, prototypes and small production runs.

The inserts are printed in Stratasys’ ultra-tough digital ABS material using the Objet500 Connex multi-material 3D production system. With a 3D printed mould insert taking only hours to produce, design modifications to the product can be made in a fraction of the time and for a fraction of the cost of traditional tooling methods.

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“With time-to-market cycles shorter than ever and production quantities dropping, our customers are now looking for solutions that enable them to deliver prototypes quickly and cost-effectively,” says Dirk Paulmann, executive vice president, sales and business development at Hasco.
Ready for mounting in a record time

Development followed Hasco’s work with a sealing plug for its industry-standard A8001 clamping fixture. The company had determined that the walls of the ABS plastic sealing screw would need to be 12 mm thick to seal the large number of threaded holes. Given this geometry, it was clear that the screw could not be produced using the conventional injection moulding process. Aware of the level of intricacy possible with Stratasys’ PolyJet 3D printing, Hasco redesigned the screw with a reduced wall thickness and then 3D printed a mould insert to the new specifications in order to test the integrity of the design before mass production.

Paulmann explains: “Using the Objet500 Connex 3D, we produced the parts of the cavity that shape the polymer – such as inserts and slides – in six hours compared to the 24 hours it previously took. We then worked with prototyping specialists Canto Ing, to finish the 3D printed inserts and test the sample mould. The result was, the first sealing screws were produced ready for mounting on our clamping unit in a record time of only four days.”

Using tried-and-tested standardised products

“Through the use of tried-and-tested standardised Hasco products and Stratasys 3D printing, the project has proved that it is possible to implement this innovative rapid-technology application within the injection moulding process. For the production of low-volume prototypes in the final product material, the ability to quickly change moulds with a 3D printed cavity offers a rapid, low-cost alternative to conventional methods,” Paulmann adds.

Nadav Sella, director, manufacturing tools vertical business unit at Stratasys, concludes: “We’re extremely excited about what this collaboration has done to advance the low volume injection moulding process and the resulting manufacturing efficiencies that can be achieved by moulders.”
Hasco 3D prints injection mould inserts with Stratasys PolyJet technology in a few hours and can make design iterations at a fraction of the time and cost of traditional tooling methods. (Source: Stratasys)