

## Prototyping success

How the Fortus 900MC 3D Production System empowers engineering companies to flourish in the new era of Indian industrial boom.

Located in the western part of India, the Nashik Engineering Cluster (NEC) is a non-profit organisation established under Industrial Infrastructure Up-gradation Scheme (IIUS) by the Ministry of Commerce & Industry. The technical cluster aims to provide R&D quality infrastructure and technical assistance to various industrial sectors, including, but not limited to, machinery, moulding and tooling, etc.

The establishment of the cluster is part of the government policy, yet the success of NEC depends much on its vibrant initiatives. NEC started with providing technical and design support through CAD and CAM software. While most of its clients come from the automotive sector, NEC also assisted the design and engineering of product development from aerospace, FMCG, defense and pharmacy industries.

In line with its founding objective to enhance the overall competitiveness of Indian engineering industry by introducing cutting-edge technologies and quality engineering support, NEC decided to implement 3D printing technology in its facility and started to provide commercial prototyping services, helping companies accelerate their product development process.

### Prototyping at the leading edge

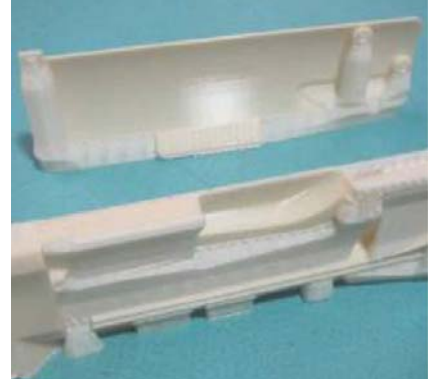
NEC has become a vital stop for thousands of engineering companies at Nashik in their design and prototyping stage of product development process. NEC's choice of 3D printing solution depended heavily on the technology capability to produce durable and stable quality of prototypes for functional testing as it can win the hearts of the customers, according to Mr Harsh Gune, the CEO of the technological cluster. For

this reason he invested in a Stratasys® Fortus® 900MC in 2007 for NEC's engineering department.

After receiving the CAD drawings with precise geometry from their customers, the NEC team converts the CAD file into compatible format and creates the prototypes from the 3D printers. The pre-processing time takes about an hour, with material also pre-selected by the customers based on NEC's recommendations. The dimensional accuracy provided by Fortus system is essential for design verification, explains Gune. The 3D printed prototypes are occasionally served as end-use parts after completing preliminary visual tests on the printed prototype for quality, form, fit and dimensions.

### Minimum hassles, maximised results

In one of NEC's assigned jobs, the team leveraged the FDM-powered 3D printer to prototype a customer's automotive dashboard. The part that was 3D printed in ABS thermoplastic is mechanically strong and stable over time, which could simulate the true automobile dashboard for multiple functional testing, such as ergonomic, assembly and fitment, and even crash tests. Comparing to traditional manufacturing method such as die and moulding



process that would require 8 weeks to build the same dashboard prototype, 3D printing slashed the time to 12-14 days.

NEC staff was able to use the Fortus system to shorten the average design cycle from 9 months to about 2 months. In light of the growing diverse needs among the city's engineering sectors, Gune adds, faster lead time also helps save cost by more than 50%. After all, the customers also benefit from it as their products can reach the market much earlier.

Today, NEC is well-received not only among the engineering companies in Nashik, but also from other parts of India and abroad. Customers are impressed with the concept and the support provided by the cluster. In 2014, the NEC expanded their service to establish a design clinic, helping the local Micro, Small and Medium Enterprises (MSME) sector through engineering and design support where 3D printing continues to play an integral part.

"Thanks to our in-house 3D printer, we can now serve customers needs faster, cheaper and better than before. We are excited about bringing more insightful projects in the future," concludes Gune. ■

(Pune-based DesignTech Systems Ltd worked with Stratasys to install the system at NEC)

