

NSTL Reduces Costs and Lead Times for Prototyping, With FDM 3D Printing

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NSTL is a premier laboratory of DRDO under the cluster of Naval Systems & Materials. The laboratory is equipped with several world-class facilities /infrastructures and also has expertise with immense domain knowledge in the areas of underwater systems design, development, critical studies, testing, evaluation and providing expert solutions in similar areas of technologies and applications.

To be the Centre of Excellence in the Design and Development of Torpedoes, Decoys, and Underwater Mines with Competitive and Cutting-edge Technologies, NSTL has setup a in-house Rapid prototyping lab which is equipped with Office Friendly Stratasys F123 series F170 3D printer. NSTL utilizes the 3D Printing machine design & development of Advance Autonomous Marine and Underwater Vehicles Prototypes which can be useful for design qualification of systems / subsystems suitable to be used for defines applications or any other applications which are complex and critical in nature.

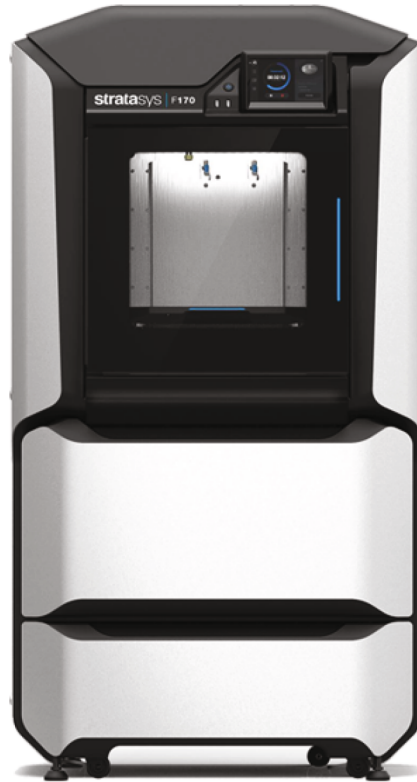
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“Stratasys FDM 3D printing solution helps us to print Prototypes and Scaled model of Sea-based systems without investment in tooling which cut down the prototyping time drastically.”

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Reduced Prototyping Lead Times And Costs

NSTL Vizag has harnessed the power of 3D printing technology to revolutionize its design iteration phase for sea-based systems. By swiftly creating concept models, they achieved


multi-design optimization and streamlined the integration procedure by cross-checking form and fitment aspects with parts made in Stratasys F170, a FDM 3D Printer

Moreover, FDM 3D printing played a pivotal role in developing scale-down models, drastically cutting down testing time by nearly 60% for hydrodynamic performance evaluation. By creating smaller, yet accurate replicas of their sea-based system components, using F170 3D Printing machine, NSTL can conduct rigorous testing and analysis in a much shorter timeframe. This reduction in testing time by nearly 60% allows them to iterate and fine-tune designs at a rapid pace, accelerating the overall development process.

One of the most remarkable advantages of scaled-down 3D printer models lies in its ability to fabricate complex components that were previously challenging or even impossible to achieve through traditional machining methods. Take, for instance, the intricate nose section of the sea-based system mock model. With its internal complex structure, traditional machining struggled to achieve the necessary precision, often requiring the component to be manufactured in multiple pieces and then assembled. However, with the ability to create one piece, scaled down 3D printer models, this complexity is seamlessly overcome, eliminating the need for assembly and significantly enhancing structural integrity of this sea-based systems. It helps the project teams in realizing the concept models within no-time which paved the way for multi design optimization. These parts processed in FDM 3D Printing machine primarily fit into the existing systems to cross check the form and fitment aspects prior to finalizing the integration procedure.

Stratasys F170 3D Printer





The F170 3D Printing machine allows designers to rapidly create and test their ideas on the same day. With a variety of 3D Printing materials, including TPU filament in addition to PLA, ABS-M30, ASA, and ABS-CF10. Inclusion of ABS-CF10 materials makes FDM 3D Printer stands out as an exceptional carbon fiber 3D Printer using fused deposition modelling technology, all with an affordable 3D Printer price tag. By including TPU Filament, it also enables elastomer 3D Printing, making it suitable for a wide range of 3D Printing applications involving flexible materials. Users can now reduce lead times and costs, improve product quality, and speed up time-to-market.

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Altem Technologies is a well-established 3D digital experience company that has been actively contributing to the industry for nearly 15 years. Initially rooted in PLM software and 3D Printing, Altem has successfully transformed into a prominent provider of comprehensive 3D digital solutions. Altem's 3D Innovation platform offers an extensive array of products catering to various applications, including design, reverse engineering, asset digitization, prototype manufacturing, life science, healthcare, culture and heritage, and consultancy services, among others.

With a diverse clientele spanning automotive, aerospace, manufacturing, healthcare, research academia, and more, Altem adeptly addresses the unique requirements of each industry through a combination of expertise and innovation. Our team comprises skilled professionals, including Scientists, Application Engineers, Designers, domain

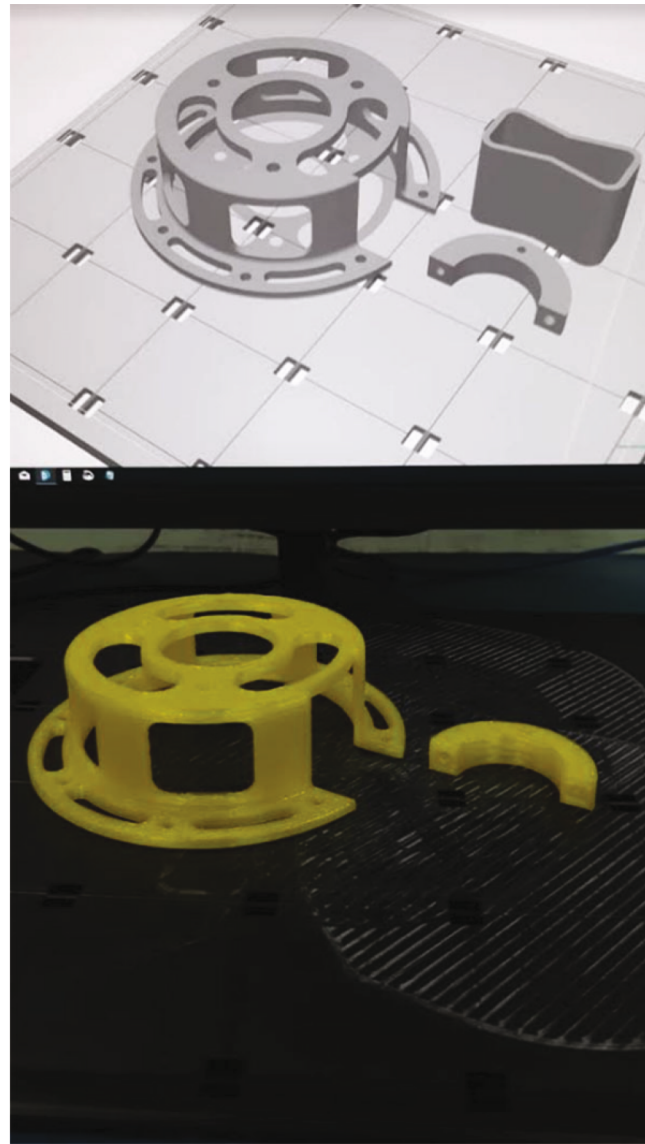
experts, and software specialists, all working collectively to deliver exceptional solutions to our valued customers.



Altem Technologies Pvt Ltd, besides being a major provider of 3D Scanning services in India, is also a leading provider of 3D Printing Services in India with 3D Printing technologies like FDM, Polyjet, DLP, Metal, etc. Altem offers a complete solution around 3D Digitization and Innovation, and has emerged as a one-stop-shop for all 3D Printing, 3D Scanning, CAE, PLM, and Life Sciences needs, offering a wide spectrum of products for engineering and life sciences companies in India

Prototype of Scaled model of sea-based system 3D printed on Stratasys F170 machine

Prototype of machine component 3D printed on Stratasys F170 machine



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