

# Be Amazed

## 3D Printing-An Introduction



OPEN UP  
THE POSSIBILITIES.

Welcome to limitless possibilities.



www.altem.com

# What is 3D

## What can a 3D printer do?

3D printing is revolutionizing manufacturing processes and changing the world. It may sound impressive, but are you aware of what it can do, or how it works? There is no doubt that 3D printing technology is amazing, but don't think that it is a black box. Understand the basics, and get a real feel for the ever-increasing possibilities that 3D printers can offer and seize the opportunities.



## RP

### What is Rapid Prototyping?



#### Rapid Prototyping

Rapid prototyping is a method for development of product or parts prototypes, that are printed by 3D printers through 3D computer aided design (CAD) software. 3D printers allow you to directly print three dimensional models from 3D CAD data, a method which is significantly less costly and time-consuming compared to making prototypes using conventional manufacturing methods.

With savings in time and money, designers can do design reiterations and functional tests with printed prototypes, resulting in higher quality end products developed within drastically shortened lead-time. Leveraging rapid prototyping, companies can gain significant competitive edge and create products that exceed the market's expectations.



Which printers are suitable for rapid prototyping?  
▶ Check out the Stratasys PolyJet systems.

### What are the benefits?

#### Reduced Development Costs

Reduce costs for prototypes and manufacturing molds development.

#### Better Communication

Speed up communication and reduce misunderstanding, with a physical prototype on hand.

#### Improved Product Quality and Design

Allow numerous design reiterations and form, fit and functional tests with multiple prototypes.

#### Shortened Product Development Cycle

Fast prototype development and designs can be put into production instantly, reducing time and money spent on e.g. outsourcing prototype development, or producing metal molds.

#### Improved Confidentiality

You will no longer risk leaking product information to outsourced prototyping companies.



# printing??



## DDM

What is Direct Digital Manufacturing?

### Direct Digital Manufacturing

Direct Digital Manufacturing (DDM) is a manufacturing process in which the end product is created directly by a 3D printer from 3D CAD data. This is an innovative manufacturing process – the part is 3D printed in a material that is fit for end-use. You can conduct functional tests using the same material as the final product, or manufacture low volume end-use parts without metal molds. Parts can be produced on demand in a timely manner, saving time, costs and freeing up expensive storage space.



DDM parts are very useful in producing low-volume products, such as tailor-made products or unique parts for aircrafts or automobiles. Using production-grade material with advanced properties, e.g. high chemical tolerance or flame resistance, the parts produced are of high quality and durability.

Which printers are suitable for DDM? Check out the Stratasys Fused Deposition Modeling (FDM) Systems.



## Further Possibilities

Further Possibilities



3D printing can quickly turn concepts and ideas into physical models, significantly enhancing the learning experience. Students will be more engaged and gain a deeper understanding of abstract concepts by touching and holding a physical 3D printed model.



3D printing technology can be applied in many medical applications, e.g. pre-surgical examinations and post-surgery assessments, durable customized tools to meet various needs in complicated operations, etc...

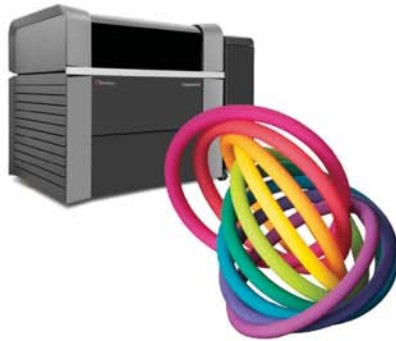




# Polyjet

## High precision, high resolution, rich texture.

Creating highly accurate models with layers as fine as 16 microns (0.016 mm), PolyJet 3D printing technology allows you to combine materials to create parts with a wide choice of color and material properties. You can create smooth-surfaced prototypes that closely resemble the end product. The Stratasys Connex Printer Series allows you to create models with over 1,000 different physical properties and colors.



### How does it work?

PolyJet 3D printing technology is similar to inkjet printing, but instead of jetting drops of ink onto paper, PolyJet 3D Printers jet droplets of curable liquid photopolymer onto a build tray where the photopolymer is instantly solidified by UV light. Ultra-fine layers are accumulated on the build tray to create a precise 3D model with smooth surface and fine details, making PolyJet 3D printers perfect for creating small and complicated models.



mechanism

## Comprehensive 3D printing solutions with two advanced printing techniques.

# Our Product lines

# FDM™

Fused deposition modeling

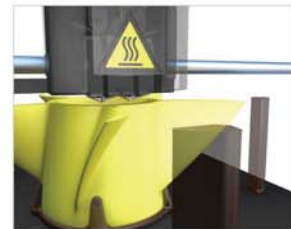
## Create end-use products with production-grade materials

FDM™ (Fused deposition modeling) technology was patented by Stratasys in the late 1980s. FDM allows you to create models with thermoplastics, such as ABS or polycarbonates (PC) – material frequently used in final products. Printed in materials that have the same mechanical, thermal, and chemical properties as the actual product, FDM printed models can withstand rigorous form, fit and functional tests. Production-grade material also makes it possible for you to use the printed items in real-life applications. One more application is DDM (Direct Digital Manufacturing), where you can directly 3D print tailor-made jigs and fixtures for use on factory floors.



### How does it work?

3D printers based on FDM Technology build parts layer-by-layer from the bottom up, by heating filaments and extruding semi-liquid thermoplastic according to software pre-set coordinates. FDM technology does not use any chemical or powdered substances in the printing process, making it environmental friendly and easy to use even in the office.



mechanism



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# Why ALTEM ?

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## Why ALTEM?

### ALTEM Technologies (P) Ltd

ALTEM Technologies (P) Ltd is a leading Product Lifecycle Management (PLM) Software VAR (Value Added Reseller) for Dassault Systemes and distributors of 3D Printers from Stratasys Ltd., in India since 2010.

At ALTEM, we believe in having tonnes of happy customers and we know, we can make customers happy only when all our employees are happy, enthusiastic and more importantly passionate in what they do. Hence here we are, an organization made of best and the brightest people, who move quickly to adapt to every customer's needs.

Altemates, not only match their customers' passion and agility at every turn, but also bring in new ideas and invariably find opportunities to improve. An Altemate, will not only deliver a top notch result but also have fun in building solutions and serving their customer.

Majority among hundreds of our Customers' include, today's leading Indian and Global companies across diverse segments viz automobile, architecture, aerospace, defence, medical, consumer durables, electronics, academia etc. For these organizations, happiness comes from bringing new ideas to the market faster and continuing to grow while keeping their teams productive. We passionately unite with such teams to take on today's challenges for our customers and help them in achieving their innovation goals faster.

With PLM Software solutions like CATIA, DELMIA, 3DVIA & ENOVIA from Dassault Systemes along with FDM (Fused Deposition Modelling) & Polyjet technology based 3D Printers from Stratasys Ltd., 3D Scanners from ARTEC3D and CAE solution from MSC software., we deliver a complete 3D Experience to our customers. We are head-quartered in Bangalore, India. ALTEM operates through the sales offices in Hyderabad, Chennai, Pune, Kolkata, Ahmedabad and New Delhi.

