Stratasys Technology Overview

Paul Tickle Product Specialist

– Laser Lines

laserlines

Stratasys At-a-Glance

FIRST CHOICE POLYMER 3D PRINTING PROVIDER

35
Years leading 3D Printing industry

1700+
Patents granted and pending

$651m
Highest revenues for any 3D Printing provider in 2022

$328m
Cash and equivalents and no debt

200+
Resellers

2000
Employees

MULTIPLE TECHNOLOGIES & COMPLETE SOLUTIONS FOR SUPERIOR APPLICATION FIT

5 Technologies Offering

Industry 4.0 Software Platform

GRABCAD SHOP
GRABCAD PRINT
GrabCAD SDKs
Identify3D
LINK3D
KeyShot
nTopology

Materials Partner Ecosystem

BASF
Henkel
covestro
KIMYA

CUSTOMERS ARE LEADERS IN MANUFACTURING, HEALTHCARE AND CONSUMER INDUSTRIES

GM
LOCKHEED MARTIN
Google
BOEING
SPACEX
MAYO CLINIC
TESLA
McLaren
NAVY
amazon
Medtronic

Largest Install Base of Blue-Chip Customers

Automotive

Aerospace and Defense

Industrial / Other

Healthcare

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Applications that
span virtually all Verticals …


AEROSPACE


TRANSPORTATIONS


AUTOMOTIVE


SPACE INDUSTRY


CONSUMER GOODS


CONSUMER ELECTRONICS

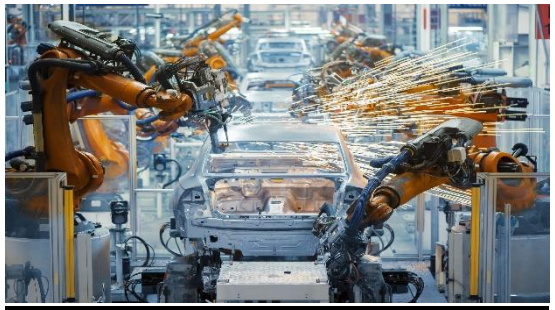

EDUCATION


FASHION


DENTAL


HOSPITALS


OIL & GAS


SHOP FLOORS AND ROBOTICS

Best-in-class portfolio for the entire product value chain

5 Leading Additive Technology Platforms

PolyJet	Stereolithography	Industrial FDM	Origin P3	SAF
				
Prototypes / Medical Modeling	**Prototypes / Tooling / Molds**	**Manufacturing Tools / Production Parts**	**Mass Production**	**Mass Production**
Detailed, multi color, multi-material realism 500,000 Pantone certified colours	Proven reproducibility and dependability with powerful industrial-grade materials	World-class accuracy and consistency, and unmatched material breadth	Highly intricate and accurate parts, and broad third-party material options	Cost-effective parts of all sizes with production control

Enterprise Application Integration for Industry 4.0 Scale

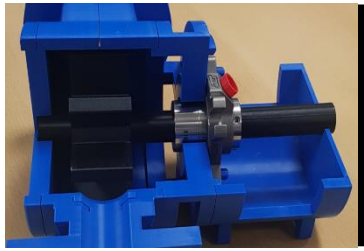
GRABCAD SHOP GRABCAD PRINT GrabCAD SDK **GrabCAD Software Development Partners**

Industrial Applications | Stratasys FDM

Prototyping

Large 3D part for prototyping

Functional prototypes



Models / Marketing (Commercial support)

Jigs, Fixtures & Tools

Pattern for sand casting

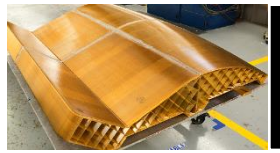
CNC **Fixtures**

Greasing **jigs**

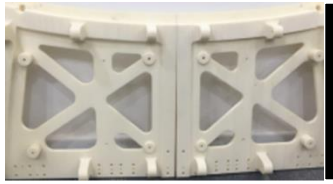
Production line **automation**

Protective parts in Nylon12CF™ or TPU 92A™

Low and high temperature masking (213C)



Composite tools



Gauges

Production

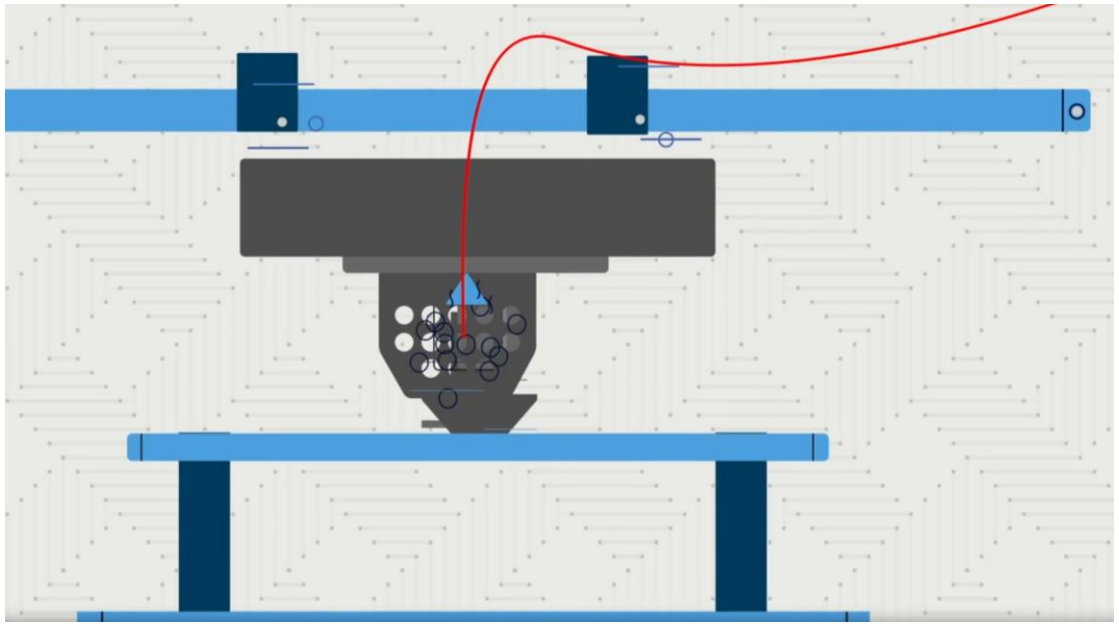
Replacement of metal parts with Nylon 12CF™

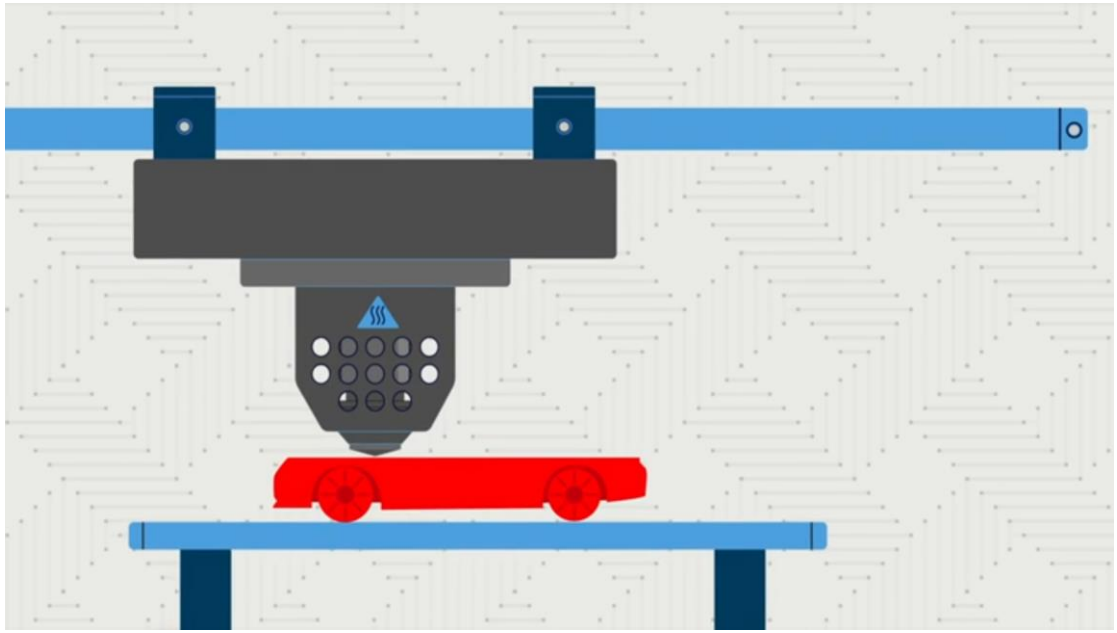
Spare **Parts**

Production of parts (volume <1000)

Fused Deposition Modeling (FDM)

Thermoplastic filament is heated to a semi-liquid state and extruded to build parts layer-upon-layer





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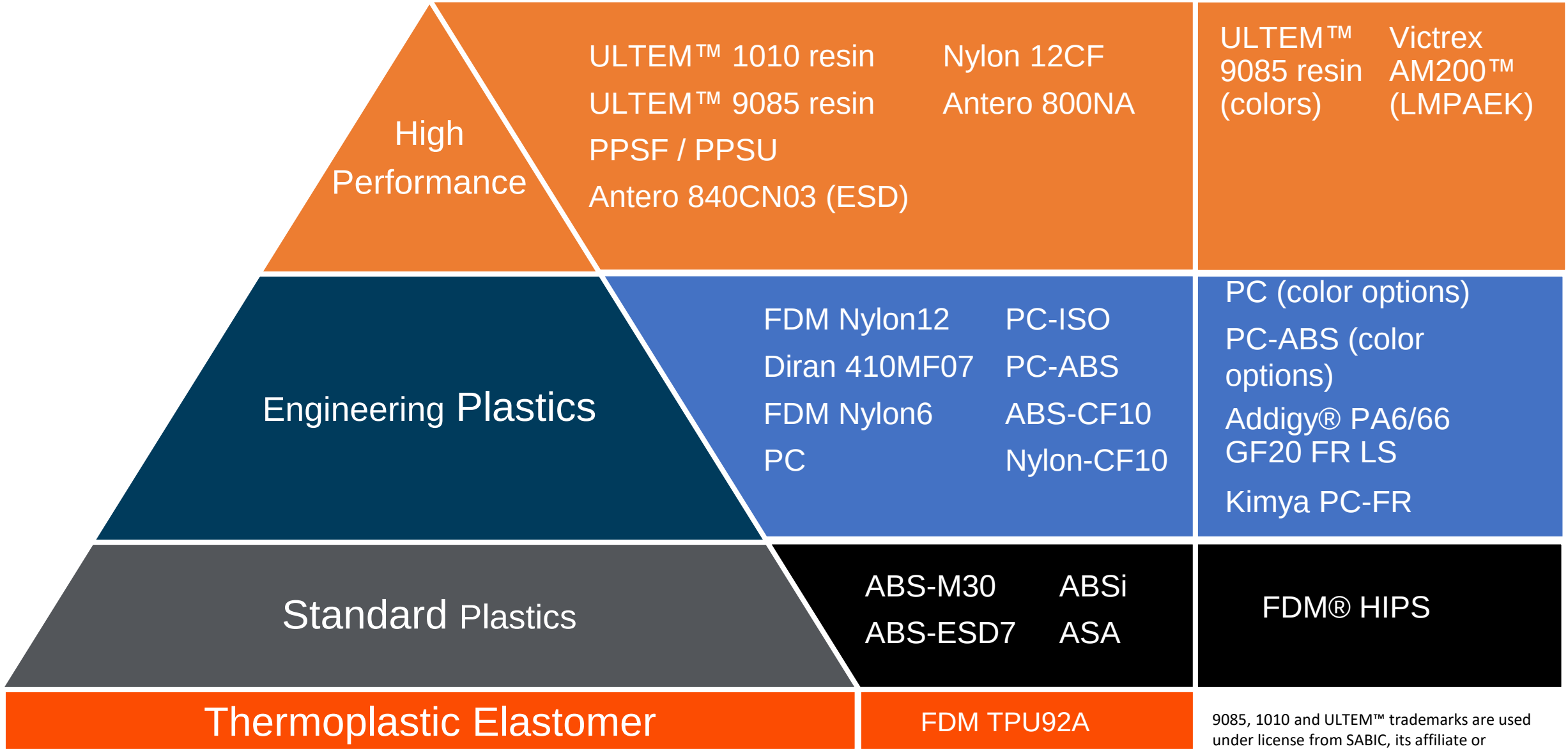
FDM Material Portfolio



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A revolution in experimental supersonic aircraft

Boom Supersonic printed hundreds of drill guides, fixtures and jigs.

Functional prototype as well as flying parts in ULTEM 9085

PolyJet

The World’s leading full colour, multi material systems

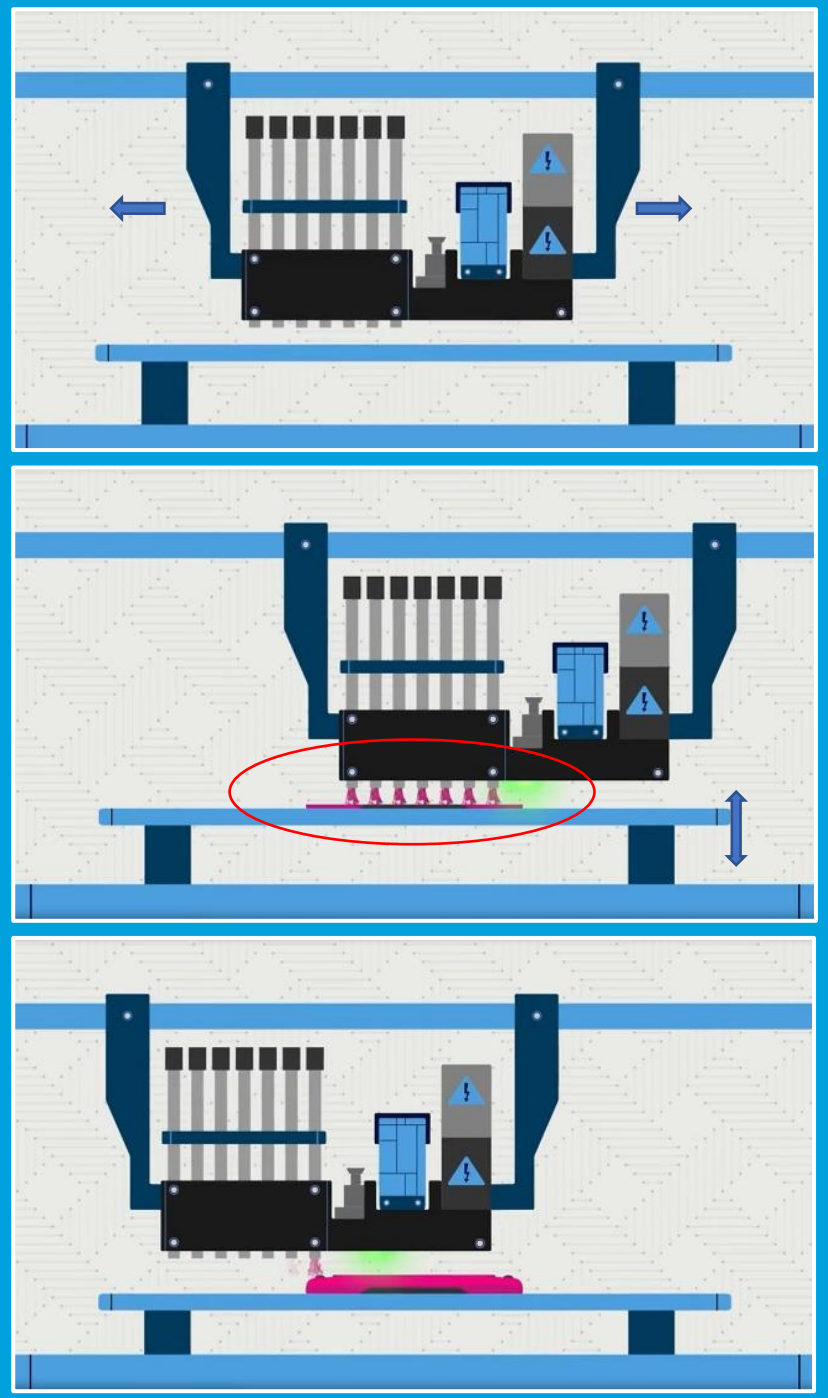
Leader in reproducibility and dependability

Endless material combinations

Pantone certified

Proven in the market with world’s leading manufacturers

POLYJET Technology



J8 PolyJet Technology

How does it work?

- The **printing block** moves along the X-Y axis in order to maximize the printing area coverage and reach the entire build platform.
- The **Build Platform** moves in z direction layer by layer in order to build the entire geometry.
- Drops of liquid **Photopolymer** are deposited on the building tray by the Printing Block, layer by layer.
- **Exposure to UV** light, initiates a very fast polymerization reaction turning the liquid photopolymer into a fully cured ready to use 3D model.
- PolyJet technology is based on Photopolymer resins, UV light and motion working simultaneously in order to produce precise full color and functional 3D models like no other technology.

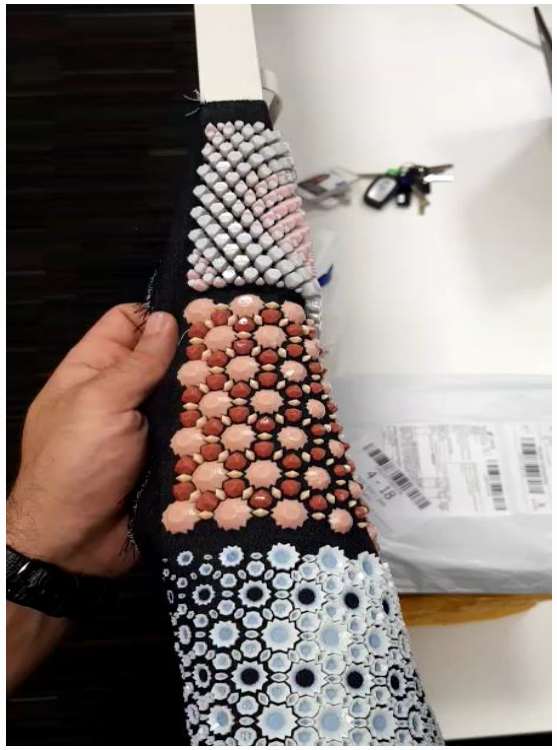
End-to-End Appearance

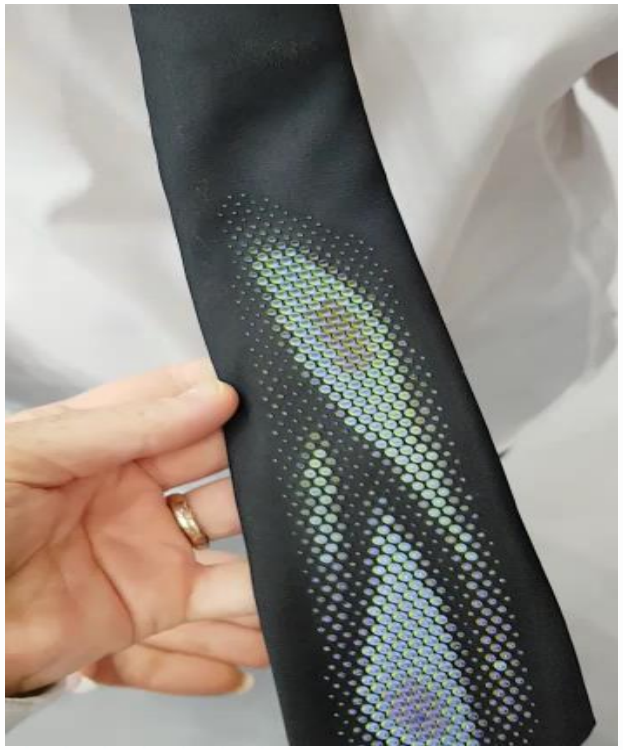
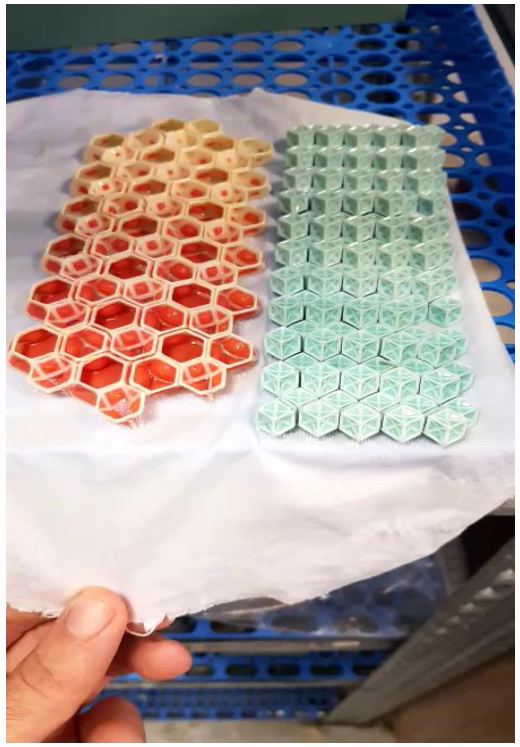
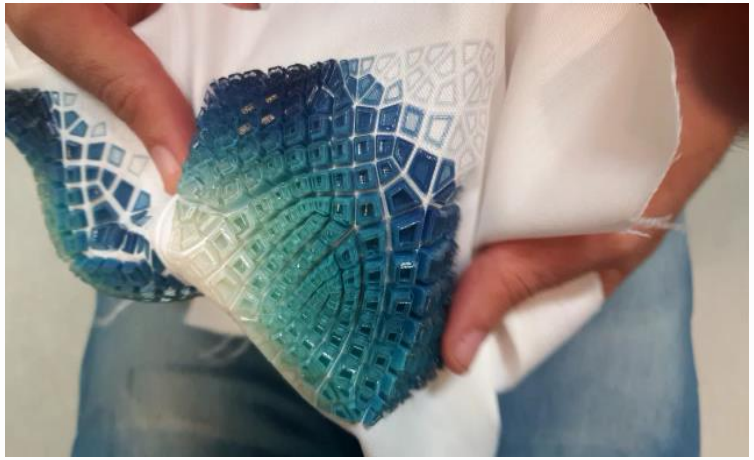
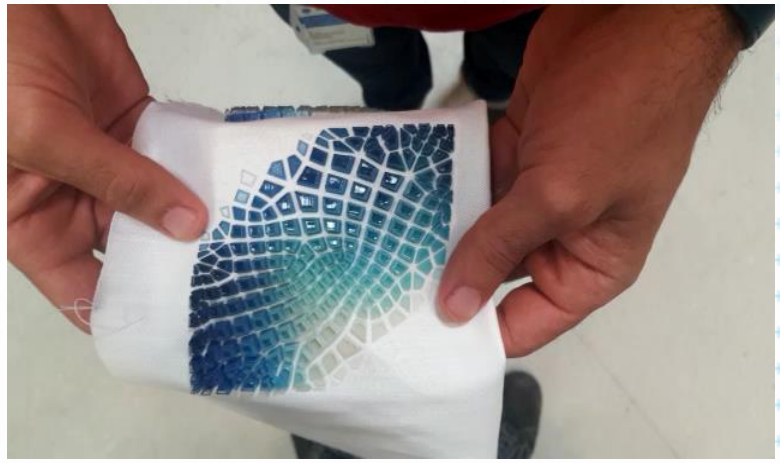
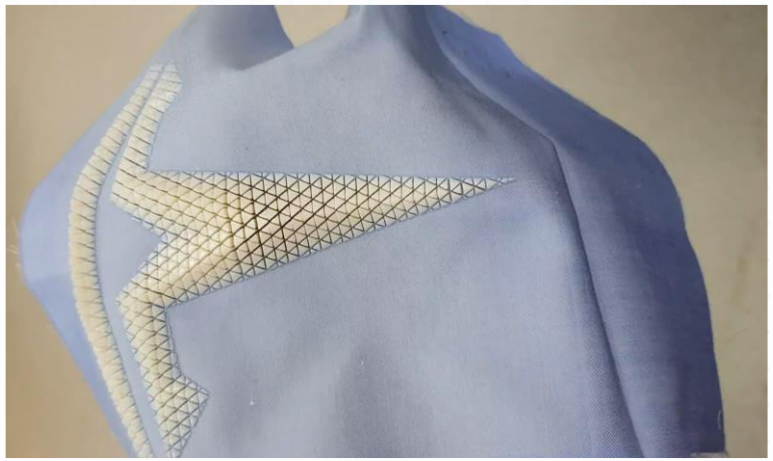
Simulating a wide range of visual attributes

Thick Transparent Plastic (4-8mm)	Pad Printed Label
Thin Transparent Glass (1-4mm)	Glued Label
Solid Color, Pantone	Shrink Sleeve
“Stained Glass”	“Liquid”
Spray Paint + Mask + Clear	All in one

Prototype all visual aspects of a package of any kind, including shrink sleeves and the liquid inside

Design Tools For 3DFashion™



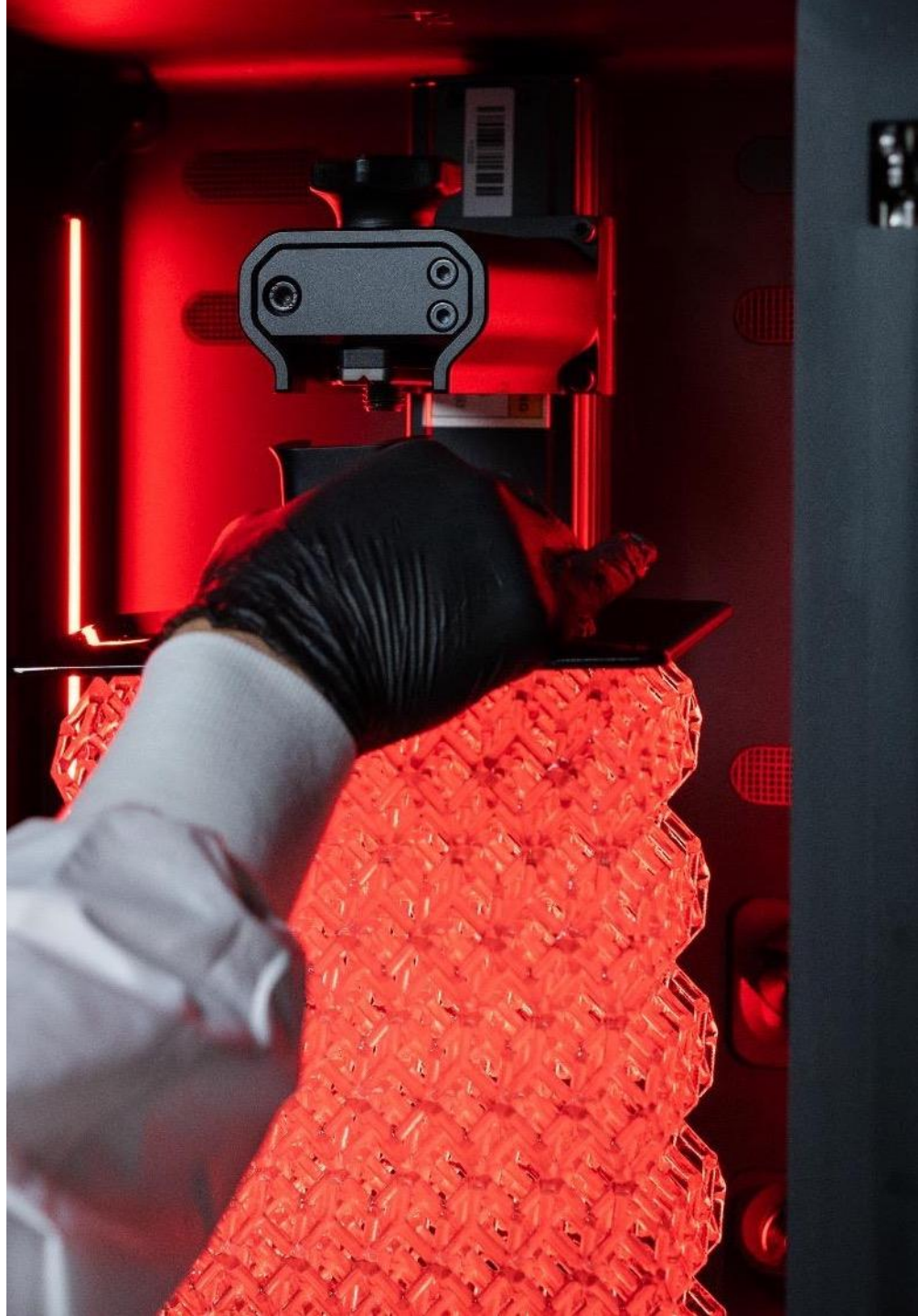
Origin and P3 platform

Programmable PhotoPolymerization

World-class accuracy and resolution

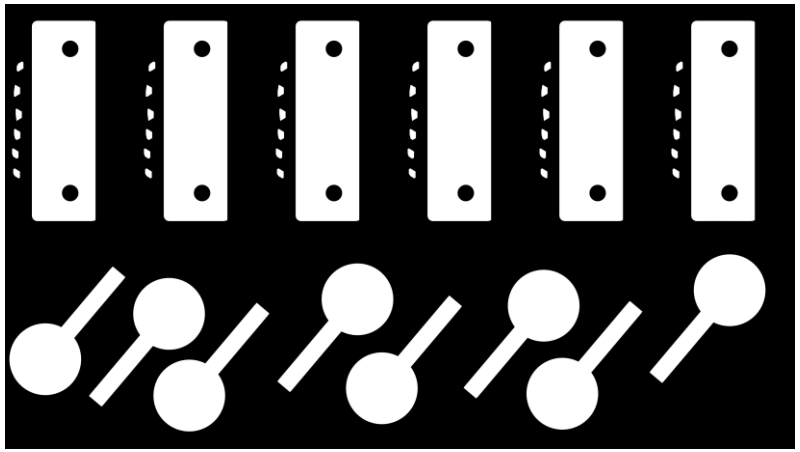
Unmatched material breadth

Cloud connectivity for performance and scale

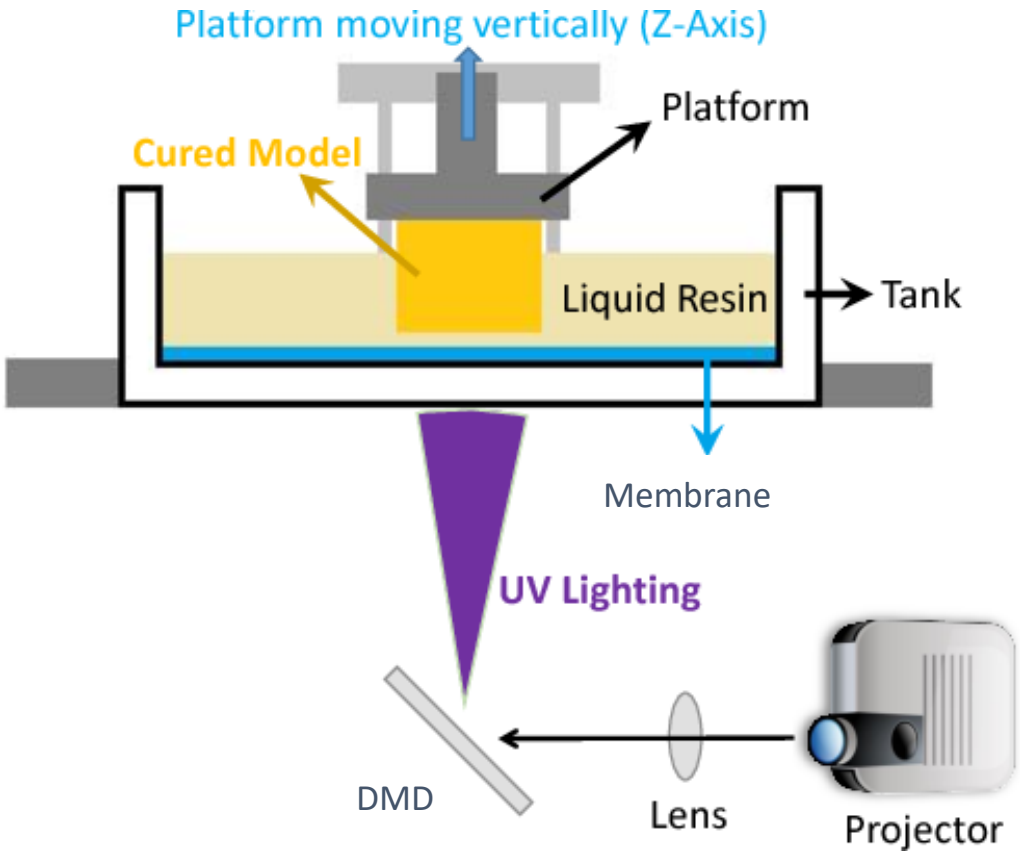


Introduction to Digital Light Processing (DLP)

- Vat photopolymerization technology
- Energy source is a UV projector coupled with DMD
- Utilizes a tray with photopolymer resin
- Operates a linear Z drive
- Reliable concept with few moving parts



DLP printers project an entire slice simultaneously



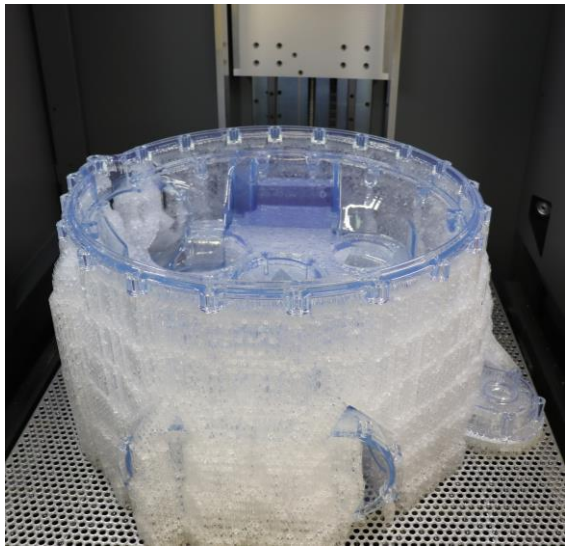
Stratasys NEO Range

Stereolithography

Industrial reliability and precision at a disruptive price point

Open Materials platform 355nm Resins

Best in Class Low Variability High Utilization



Neo Stereolithography

The Neo Stereolithography range are Industrial grade 3D printers which produce accurate parts, with superior surface quality, detail and repeatability.

They are for designers, engineers and part providers, who need a dependable system for high volume and large part printing.

Primary use cases include Single Material Concept Modeling and Prototyping, with secondary applications of rapid tooling.

Introducing the first SAF™ powered product

Stratasys H350™ 3D printer

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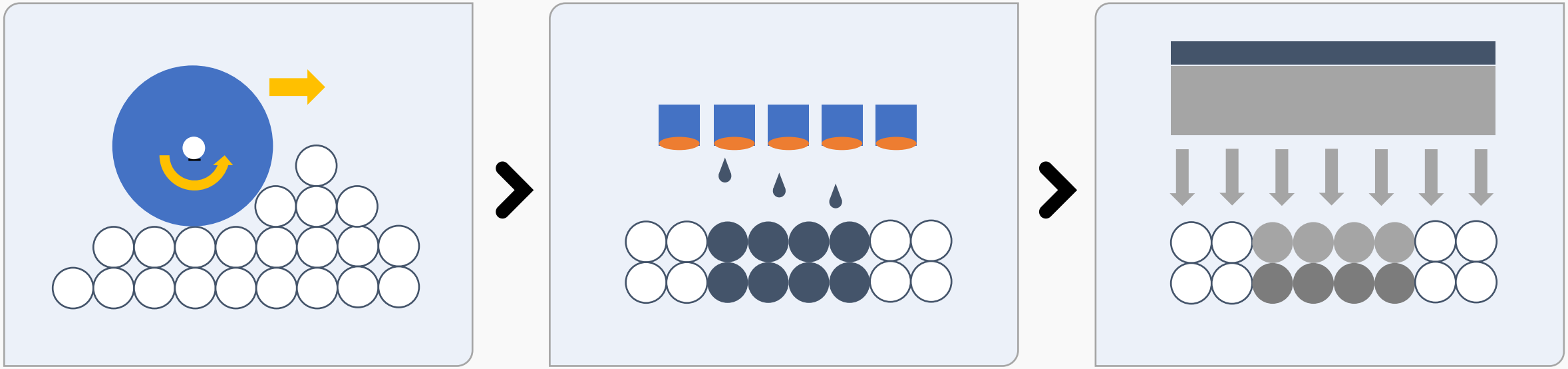
SAF technology

How it all began – 2003 in Loughborough University



A layer of **powder** is deposited by a counter-rotating roller

An **IR absorption fluid** is selectively jetted onto the powder by using industry-leading **piezo print heads**

An **IR lamp** passes over the surface, causing the printed areas to absorb sufficient energy to fuse underlying particles.
The material crystalizes during a cooling process

How does SAF technology work?

Print-head based powder bed fusion

HOMOGENEOUS FUSION

each process step happens in the same direction

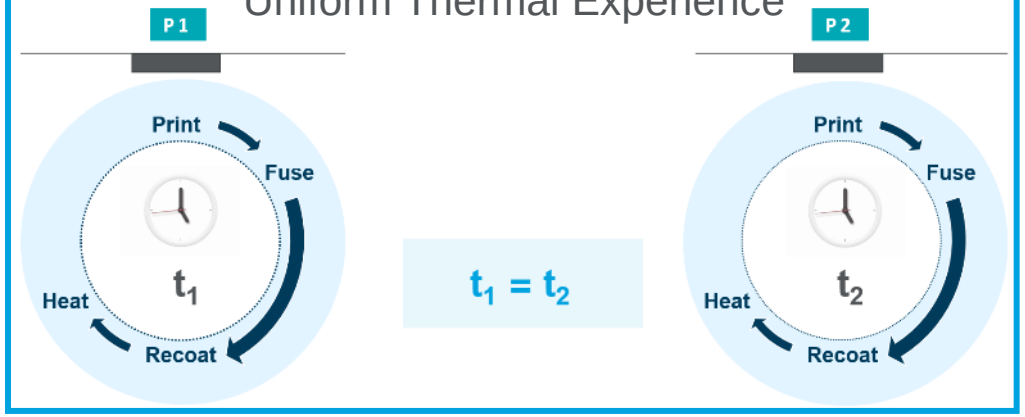
Recoat – Heat – Print - Fuse

UNIFORM TIMING

Recoat – Heat – Print – Fuse

all across the bed

Uniform Thermal Experience



SAF means Powder Bed-wide Fusion


stratasys | F900
stratasys | F770
stratasys | J850
stratasys | H350
stratasys
stratasys | J55
stratasys
ORIGIN ONE
Fortus 450mc
stratasys
stratasys | J35
stratasys | F370


Thank you