



**Use PolyJet™ for Fast, On-Demand Jig  
and Fixture Production**

# Who is Stratasys?



## Product

Systems



MakerBot



Mojo



uPrint



Dimension



Solidscape



Eden



Connex



Fortus

## Technology Offering

Fused Deposition Modeling (FDM)  
Wax Deposition Modeling (WDM)  
PolyJet

Parts Services



Fused Deposition Modeling (FDM)  
PolyJet  
Wax Deposition Modeling (WDM)  
Stereolithography (SLA)  
Selective Laser Sintering (SLS)  
Direct Metal Laser Sintering (DMLS)  
Binder Jetting

Unmatched ability to meet customer's diverse additive manufacturing needs.

## Additive Manufacturing



Established / Traditional  
(Design)

Direct Digital Manufacturing  
(Manufacturing)

## Work-holding and more

- Guides, templates, gages
- Tools, devices
- Trays, bins, organizers

## Common need

- More of them
- Need recognized but time and cost prevents

## Stratasys follows its own advice

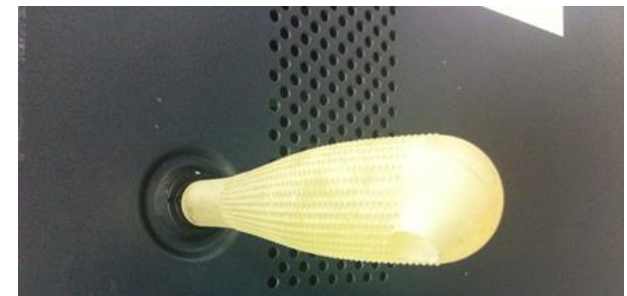
- PolyJet production
- FDM® production

Application compatibility:  
(0 – N/A, 1 – Low, 5 – High)

	Idea	Design	Production
PolyJet	-	2	3
FDM®	2	3	5



Pressure gage using Digital ABS™ and VeroClear™.



FC720™ door unlock tool.

Application Overview

Traditional Process

PolyJet Role

PolyJet Best Fits

Benefits

Customer Success Story



# Jigs & Fixtures: Application Overview

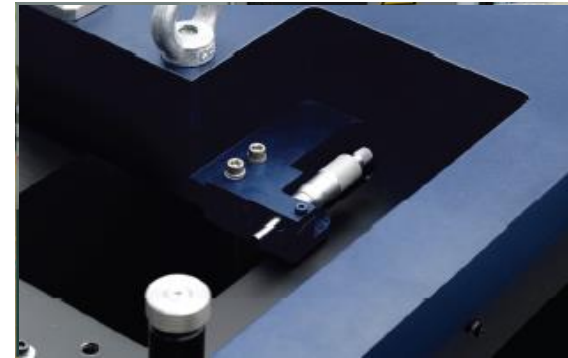
## Assembly and manufacturing

- Jigs
- Fixtures
- Drill guides



## Testing and inspection

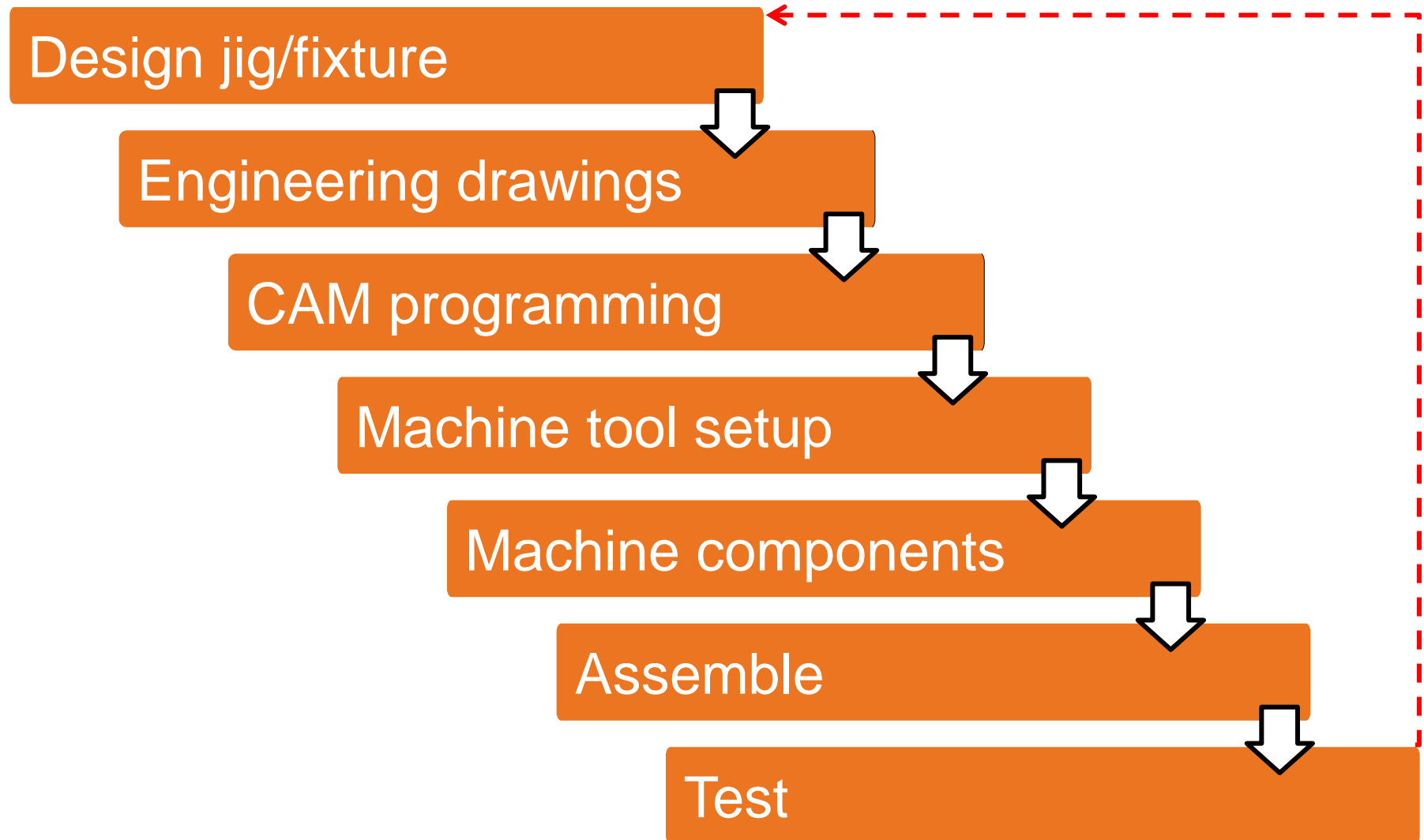
- CMM part fixtures
- Check gauges
- Engineering test fixtures



## Transportation and organization

- Part carriers
- End of arm tools
- Assembly line pallets





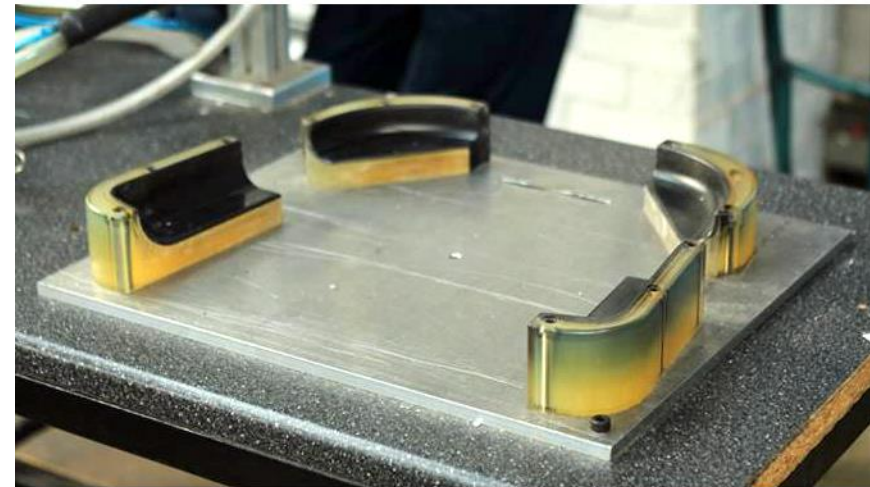
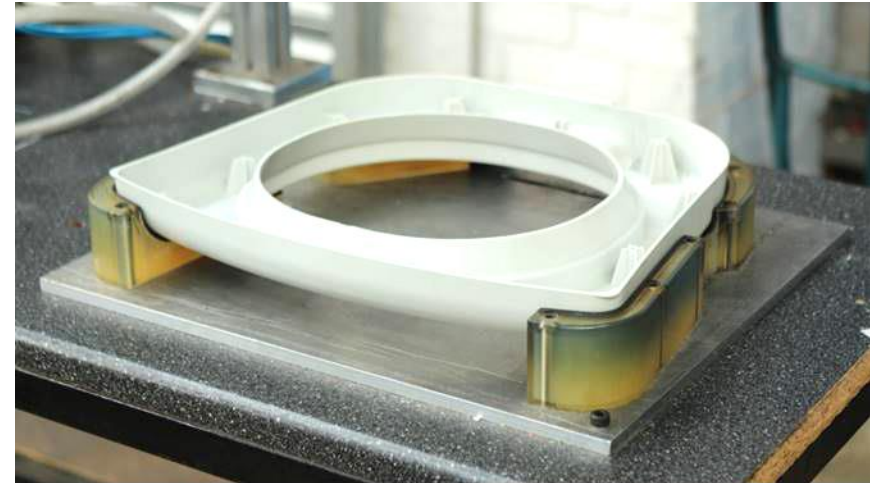


Direct production on PolyJet system

- Direct from STL - tool manufacturing
- Complex, organic shapes are feasible
- Integrate tool ID, part number, guides

Typical from concept to tool on floor:

- < \$100s
- 0.5 – 1.0 day
- Concepts in-house



FC720 fixture printed with TangoBlack™ interfaces.



# PolyJet is a Best Fit When:

## Size & quantities required:

- 1 to 100s
- 1 to 30 cm (0.4 to 11 in)\*

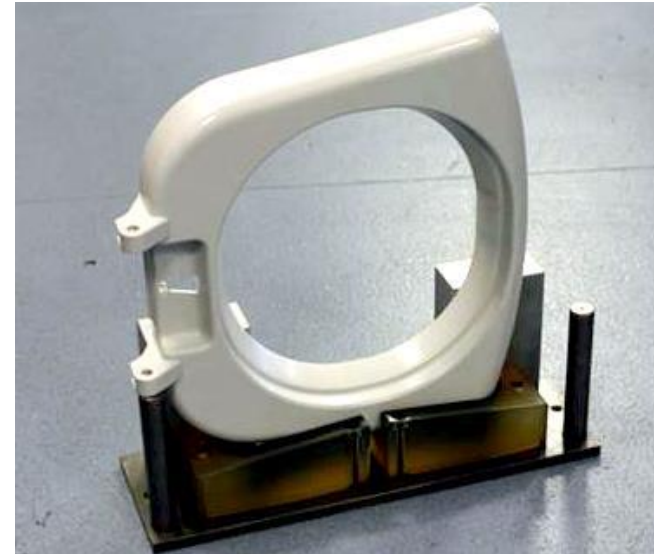
## Manufacturing requirements:

- Temperatures up to ~90 °C (194 °F)
- Moderate mechanical loads (70 MPa [10.1 ksi])
- No chemical exposure

## Design elements:

- Moderate to thick walls (5 – 13 mm [0.2 – 0.5 in])
- Frequent replacement or alteration
- Complex, intricate

*\* Larger parts feasible by building parts separately and bonding*



Assembly fixture printed with FC720 and TangoBlack.



Drill guide made from FC720 material.

Make when needed; deploy more

- Streamlined, fewer steps, automated
- Eliminate drawings, paperwork, POs

Lead time reduction:

- 60% - 90% savings
- Concept – deployment typically < 1 day

Cost reduction:

- 50% - 70%
- Lower part & non-value added activity costs

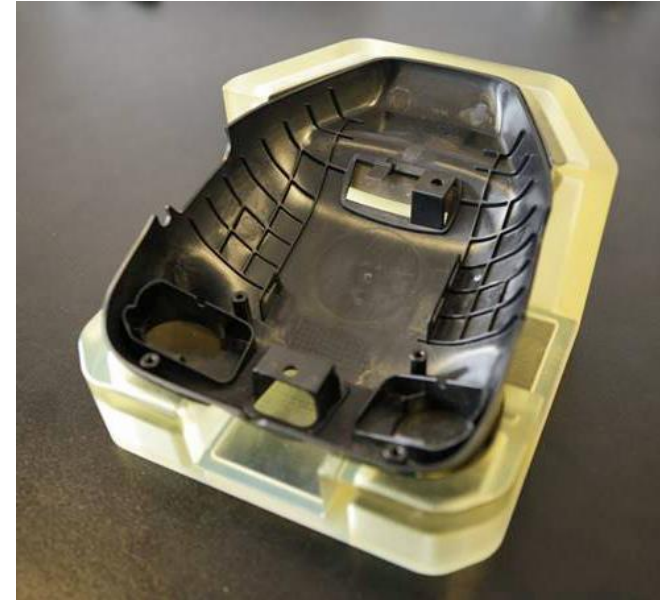
Design freedom

- Improve ergonomics & integrate hardware
- Consolidate multi-piece assemblies

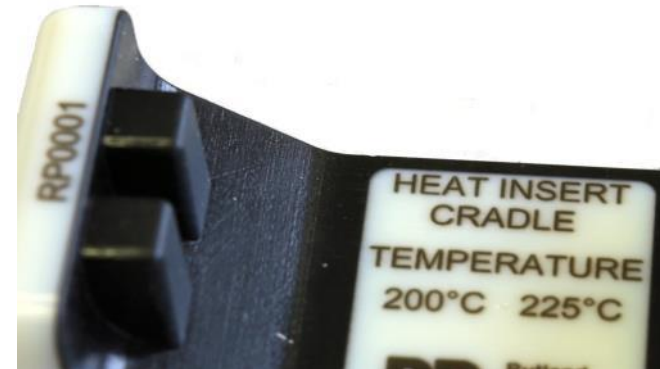
Digital inventory

- As needed, replace or revise
- Eliminate/reduce physical storage space

*Typical time and cost savings derived from numerous end-user analysis, testimonials and feedback. Actual savings may vary based upon numerous factors, including traditional time/cost, part geometry and utilized technology.*



Fixture for injection molded part.



Multi-material printing allows incorporation of text for fixture labeling.

# Case Study Rutland Plastics

## Custom injection molder

- Secondary operations require fixtures
- Fixtures custom for each job

## Machined fixtures

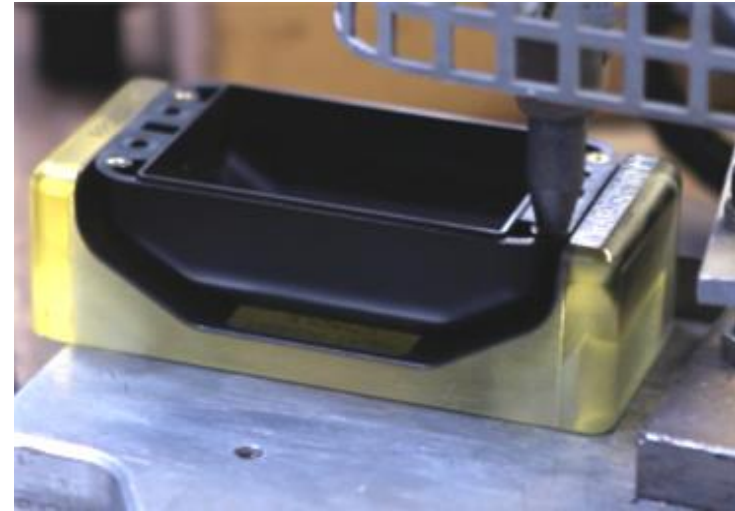
- Costly and time consuming
- Use CNCs needed for production molds

## PolyJet fixtures

- Free up production CNCs
- Multi-material for no-mar and labeling

## Benefits

- 67% faster & automated for efficiency
- 40% less expensive



Heat staking an injection molded part.

Method	Cost	Time
CNC*	\$1,500	3 days
PolyJet*	\$900	1 day
<b>Savings</b>	<b>\$600 (40%)</b>	<b>2 days (67%)</b>

\* Produced in-house.



# Jigs & Fixtures: Application Recap

Who

- Manufacturers

What

- Substitute PolyJet for machined jigs and fixtures

When

- Need overshadowed by hassle
- Designs limited by process

Where

- Manufacturing, assembly
- Quality control, packaging

Why

- Simple, easy, fast, efficient
- Better performance



PolyJet calibration tool.



Instructions and information incorporated directly on the tool.

[www.stratasys.com/webinar-PJJigsandfixtures](http://www.stratasys.com/webinar-PJJigsandfixtures)

- Download webinar slides & documents
- View webinar on-demand
- Request a benchmark
- Submit technical questions to engineer





# Questions?

[www.stratasys.com/webinar-PJJigsandfixtures](http://www.stratasys.com/webinar-PJJigsandfixtures)



# Thank you!