

ADDITIVE MANUFACTURED TOOLING

FOAM EXPO

JUNE 24TH, 2025

ERIC NICKELL – LEAD PROJECT ENGINEER

CATALYSIS ADDITIVE TOOLING

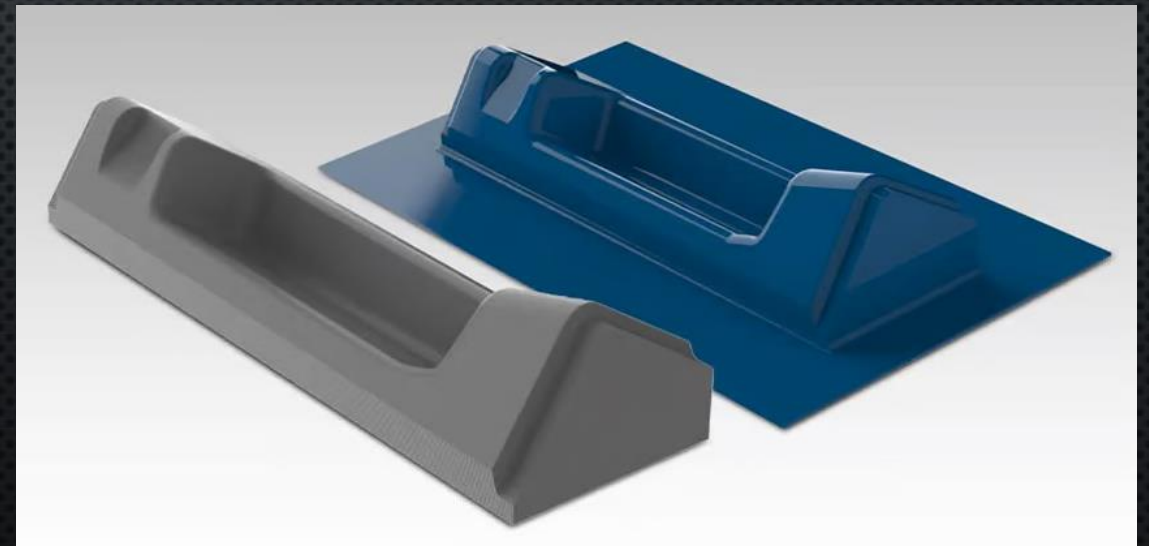
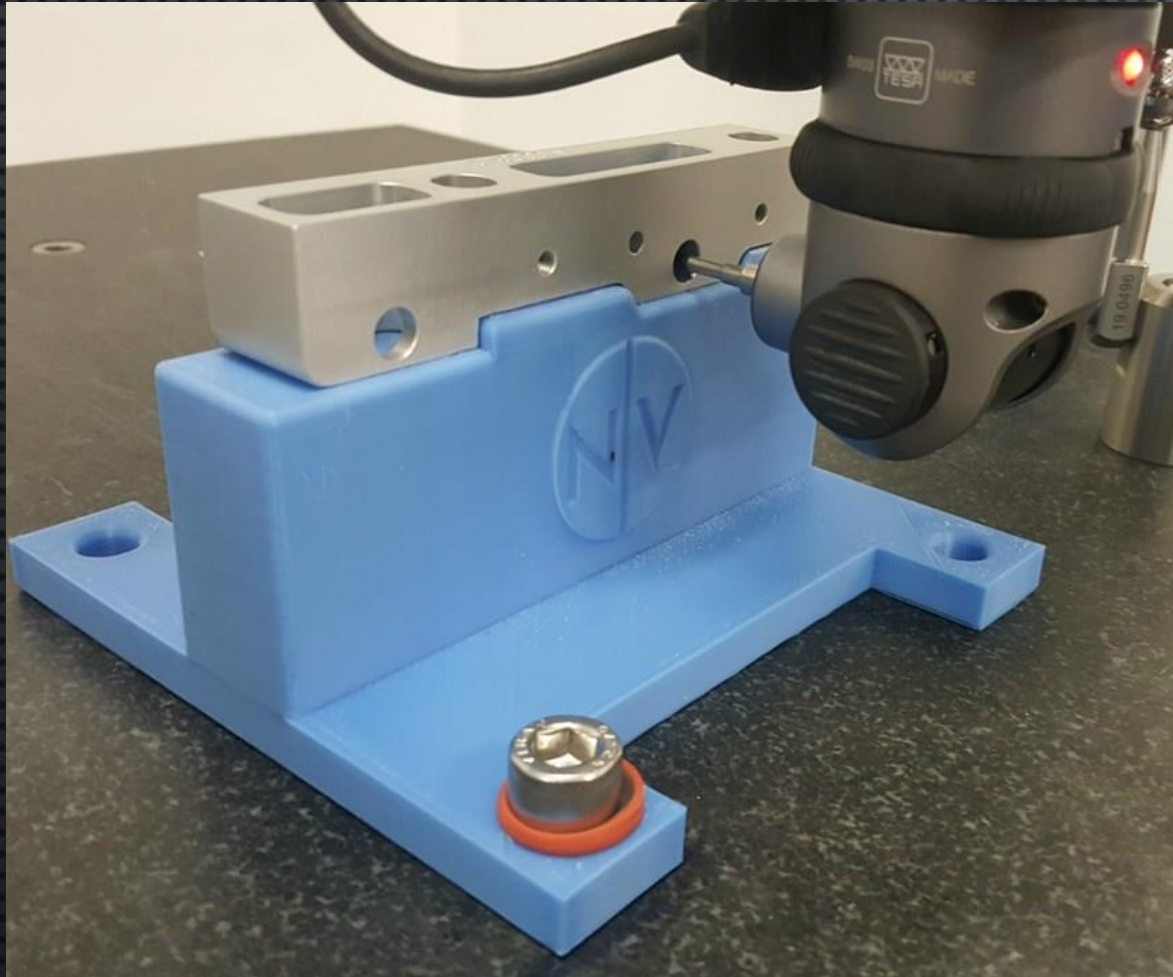
3D PRINTING TECHNOLOGIES

ADDITIVE MANUFACTURING TECHNOLOGIES



ADDITIVE MANUFACTURED TOOLING

CATALYSIS
ADDITIVE TOOLING

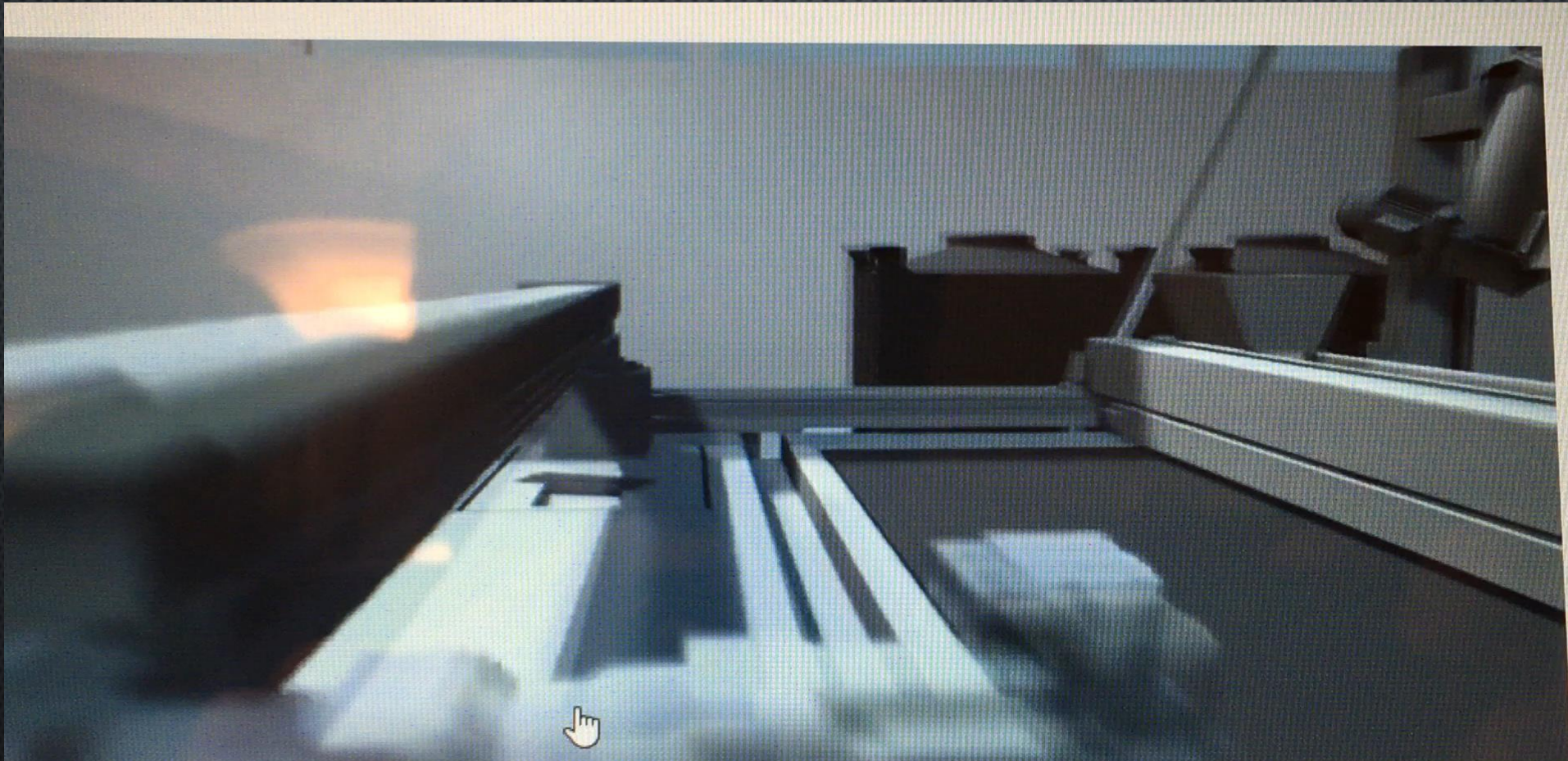


What 3D Printing Technology do we use?

Silica Sand Binder Jet Printing



3D Printing Binder Jet Technology - Printing

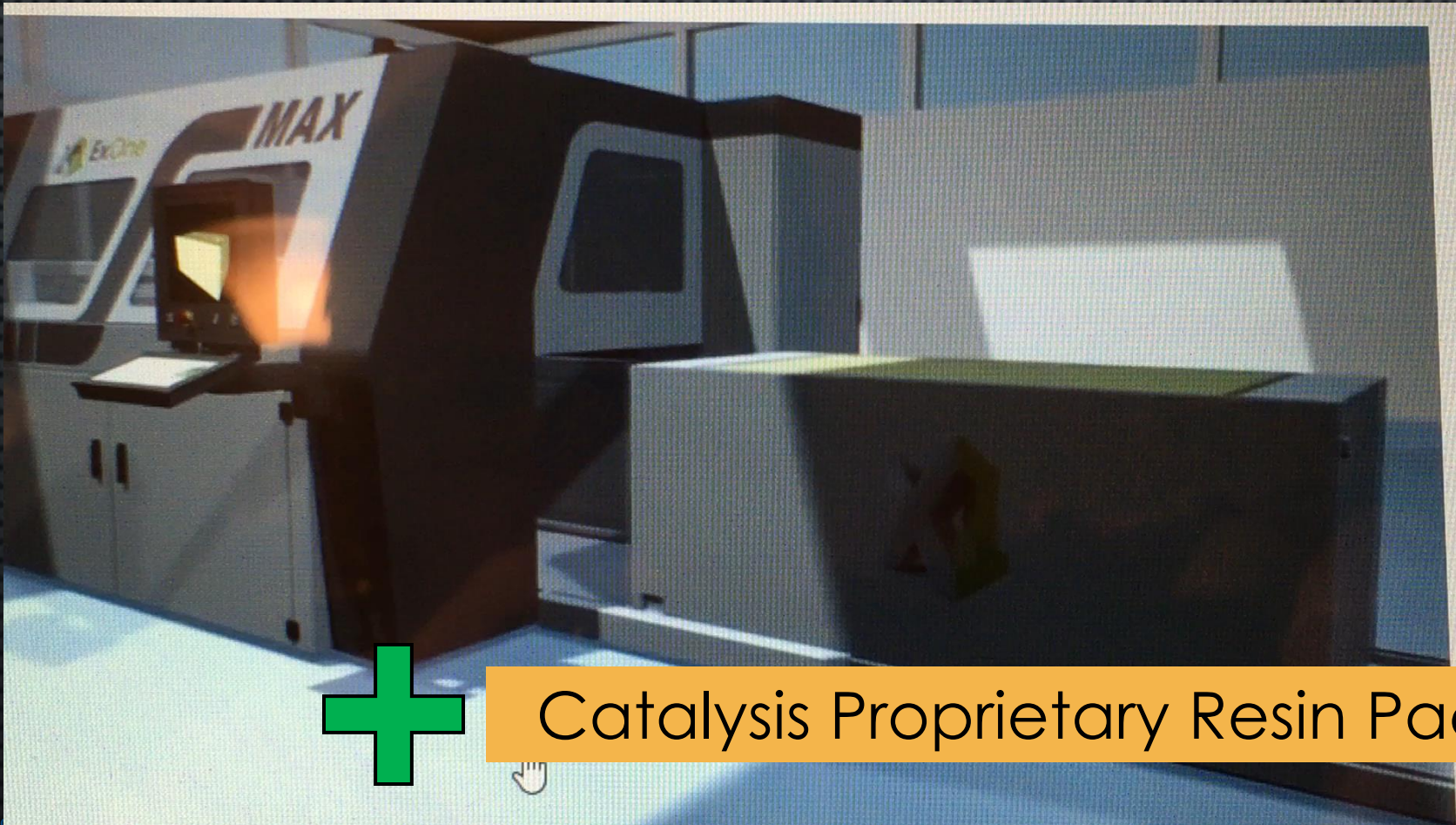


- Net Shape Printing (No post process machining)
- Fully Isotropic in strength (X-Y-Z)
- No Delamination

ADDITIVE MANUFACTURED TOOLING

CATALYSIS
ADDITIVE TOOLING

3D Printing Binder Jet Technology - Harvesting



- Net Shape Printing (No post process machining)
- Fully Isotropic in strength (X-Y-Z)
- No Delamination

Catalysis Proprietary Resin Package

WHAT IS UNIQUE TO A CATALYSIS TOOL?

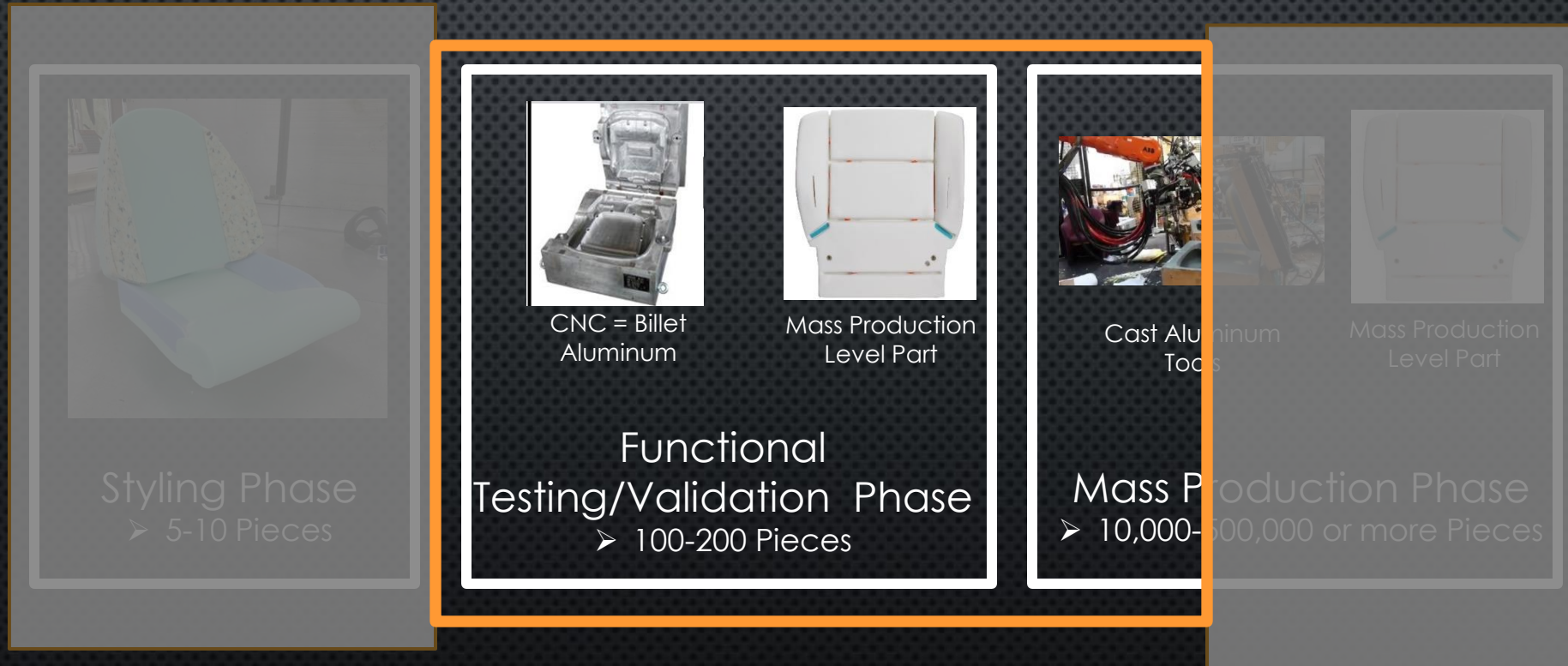
CATALYSIS
ADDITIVE TOOLING

- Half the Time; Half the Cost
- Allows for Designs to Mature Faster; Speeding Up the Development Cycle
- Fully Isotropic in Strength (Uniform Strength XYZ)
- 1,000s of Parts
- Tooling is 100% modifiable using the same methods as modifying traditional wood or aluminum tooling
- No post process machining.
- 70" x 39" x 27" Print Box (18 Hour Maximum Print Time) – Can Piece Multiple Prints Together
- Catalysis prints to +/- .012 inches over total 70" x 39" x 27" print box.



WHERE 3D PRINTED TOOLING FITS WITHIN THE FORMING PROCESS

Automotive Seating (Typical Tool Development Process)



ADDITIVE MANUFACTURED TOOLING FOR FOAM

Catalysis Seat Foam Tool Compared to a Traditional Tool

Conventional Seat Foam Tooling

(Automotive Seat Base)



- Machined solid billet aluminum
- \$25,000 tool cost
- 6-8 weeks tool manufacturing time

3D Printed Seat Foam Tooling

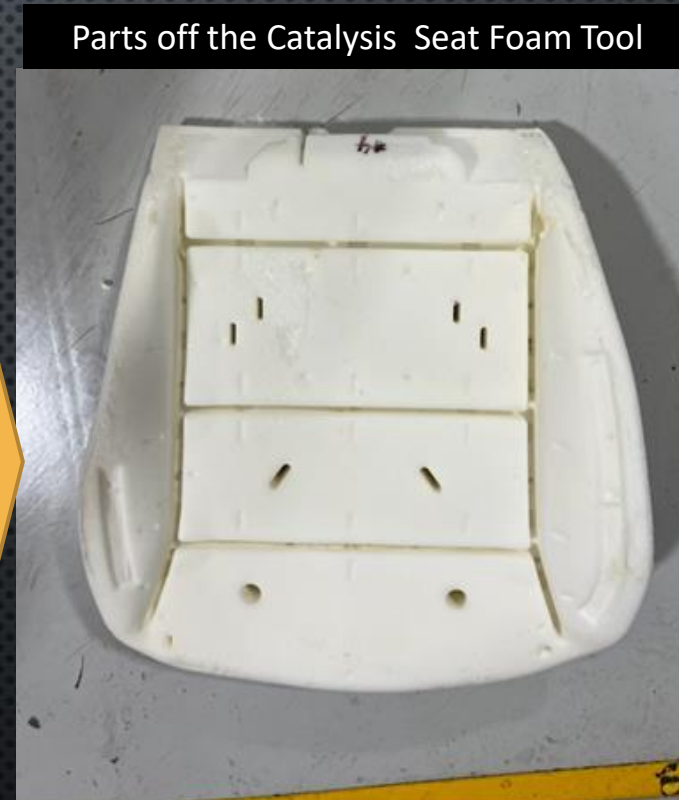
(Automotive Seat)



- 3D printed tool
- \$10,000-\$12,000 tool cost
- 3-4 weeks tool manufacturing time

ADDITIVE MANUFACTURED TOOLING FOR FOAM

Catalysis Seat Foam Tool Comparison



- Temperature Controlled with water lines for consistent thermal profile
- Includes Frame Design and integrated insert components holders and auto vents
- Low volume program of 100 foam pads with potential for additional pads
- Tool LT of 4 weeks for entire vehicle

ADDITIVE MANUFACTURED TOOLING FOR FOAM

CATALYSIS
ADDITIVE TOOLING

Foam Part Manufacturing Video



CATALYSIS
ADDITIVE TOOLING

ADDITIVE MANUFACTURED TOOLING FOR FOAM

CATALYSIS
ADDITIVE TOOLING

Manufacturing
Video



ADDITIVE MANUFACTURED TOOLING FOR FOAM

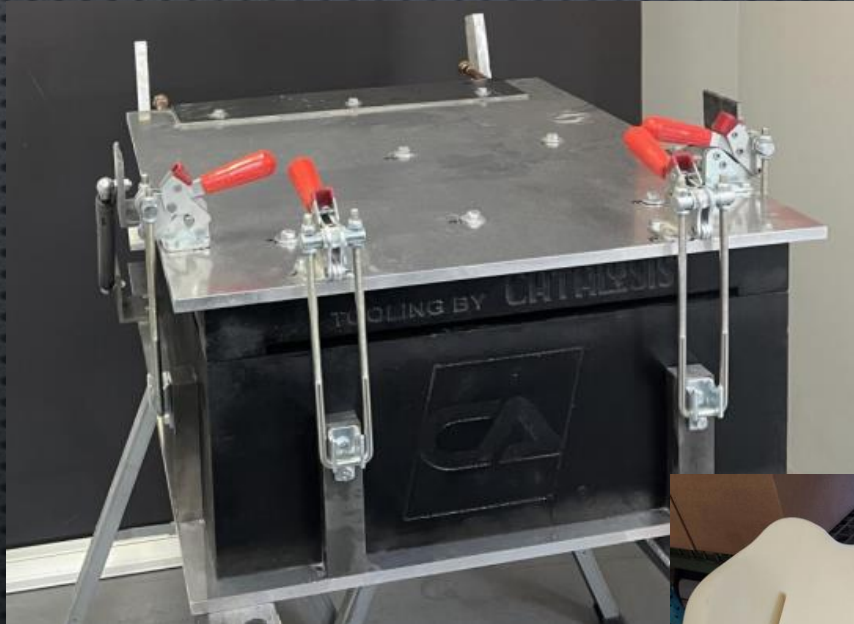
CATALYSIS
ADDITIVE TOOLING

Manufacturing
Video



EXAMPLES OF COMPLEX 3D PRINTED TOOLING FOR FOAM

CATALYSIS
ADDITIVE TOOLING



3D PRINTED TOOLING FOR FOAM FURNITURE PARTS

CATALYSIS
ADDITIVE TOOLING



OTHER INDUSTRIES WHERE 3D PRINTED TOOLING FITS

CATALYSIS
ADDITIVE TOOLING

