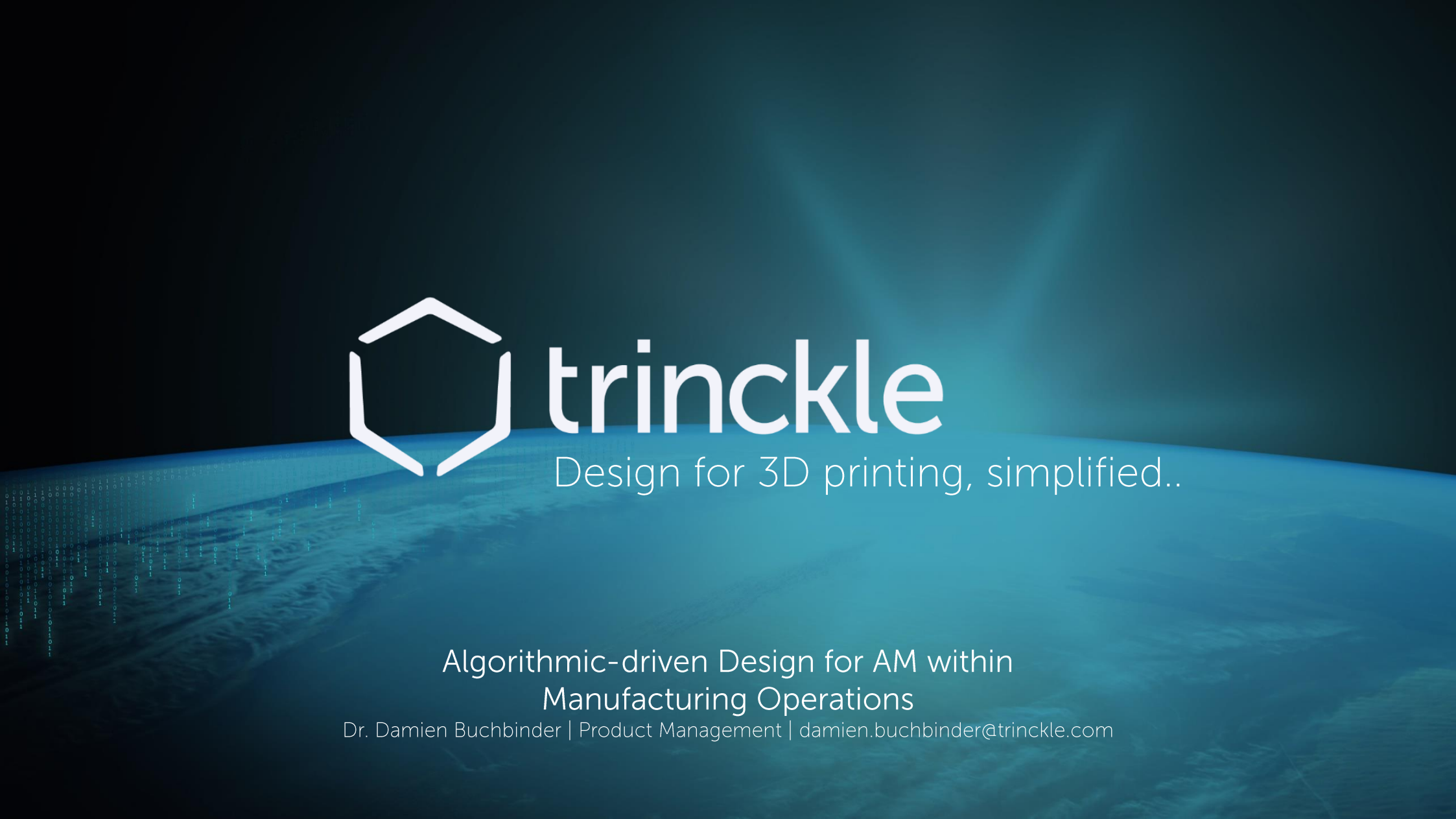
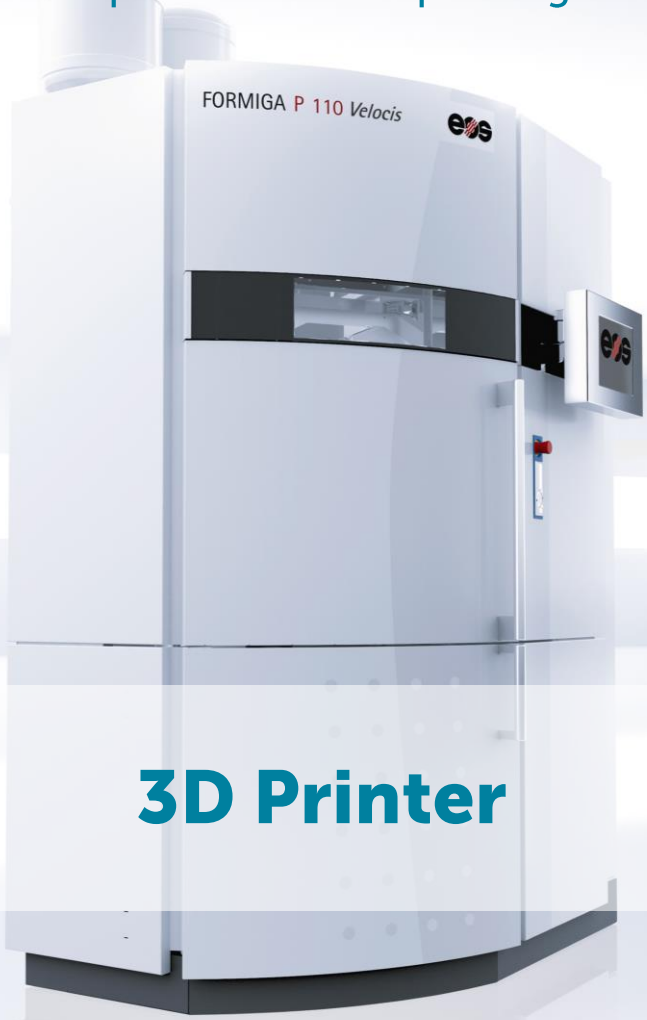


Algorithmic-driven Design for AM within Manufacturing Operations

Dr. Damien Buchbinder | Product Management | damien.buchbinder@trinckle.com

The basic components for 3D printing



3D Printer

Design

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The challenge: Manual CAD severely limits the potential of Additive Manufacturing

The Potential

The Bottleneck

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Evolution of production
From manual to fully automated production

	Manual	Automated
Goods		
Design		?

Solutions

We identified 3 approaches handling the Design Bottleneck

1. Approach
Increase the productivity of CAD engineers
by making CAD Software more powerful

2. Approach
Enabling Non-CAD Experts to design
by making CAD Software very simple

3. Approach
Fully automated Design-Processes
by making CAD-Software programmable

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Solutions

We identified 3 approaches handling the Design Bottleneck

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Fully automated Design-Processes
by making CAD-Software programmable

Focus of trinckle

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paramate

enables

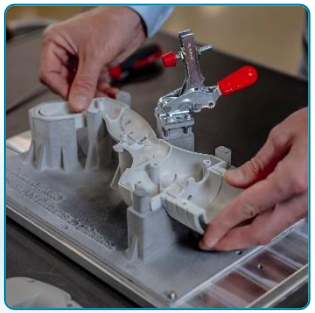
Design Configurators (for non experts)

and

Automated Design Processes

Manufacturing

Robotic grippers, Jigs, Fixtures and Tooling



Medical

Orthosis, Dental, Prosthetic, Implants, Surgical guides

Consumer Products

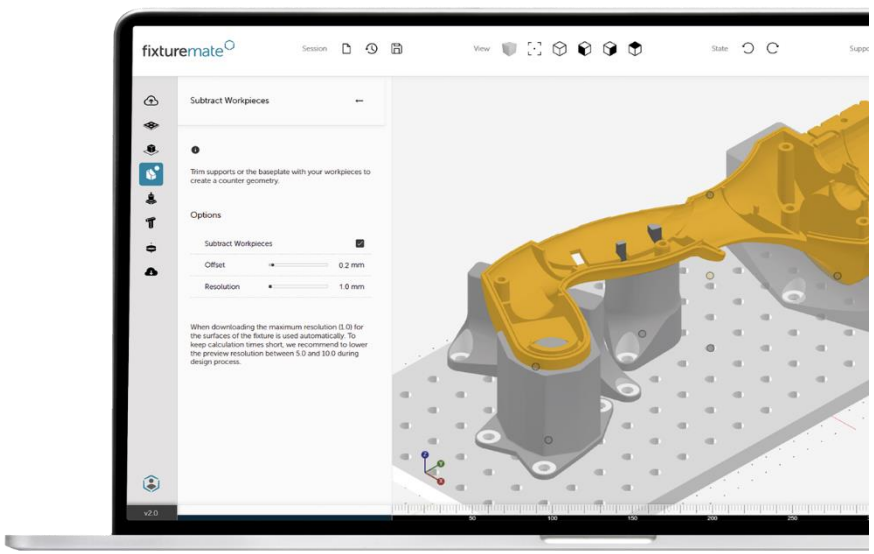
Custom eye wear, Jewelry, Wearables and Interior design

Our two offerings

NEW: Self Service Option

Custom Applications

(configurators and automated processes)



Standard Applications

(e.g. fixturemate, orthomate etc.)

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Automating our client's AM design workflows

SCHMALZ

PROTIQ
A Phoenix Contact Company

Ford

VOLKSWAGEN
AKTIENGESELLSCHAFT

cosmetics

AIRBUS
HELICOPTERS

Audi Sport

FRANKA EMIKA

PHOENIX CONTACT

MOWA
www.modularwalking.com

luxexcel

MECURIS

Aqtor!
Unlimited Freedom

MY MASK
MOVEMENT

DB

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Jigs, Fixtures, Tooling

The low-hanging fruits for AM in every industry

58% of companies with AM experience use the technology for tooling, jigs and fixtures*

*Jabil 3D Printing Survey 2023

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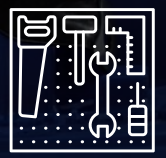
3D printed fixtures

What kind of 3D printed fixtures are used in the industry?

Assembly Fixtures

Machining Fixtures

Measuring Fixtures



Tool Organization

Bonding & Welding Fixtures

Inspection Fixtures

Carrier Trays

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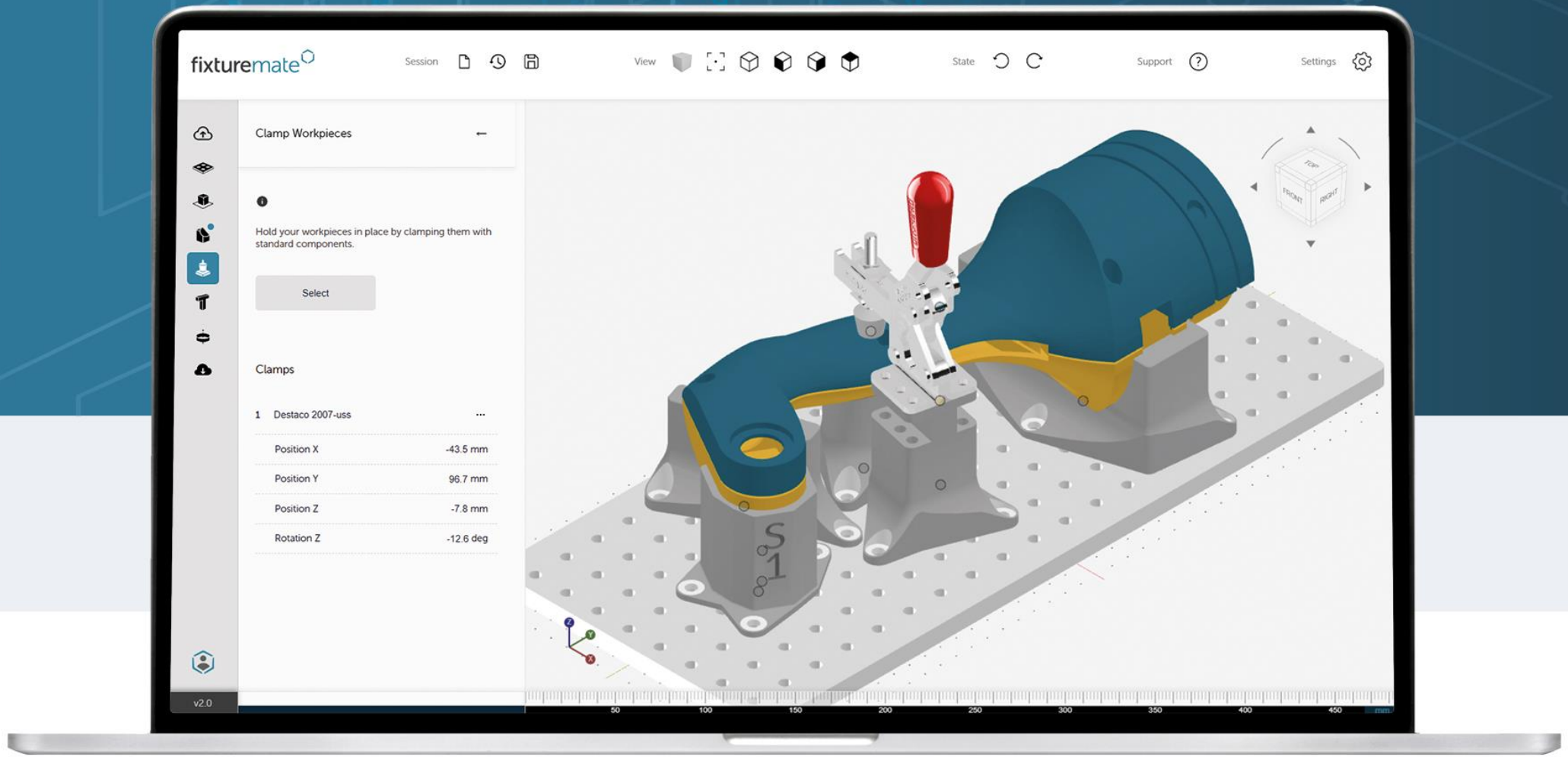
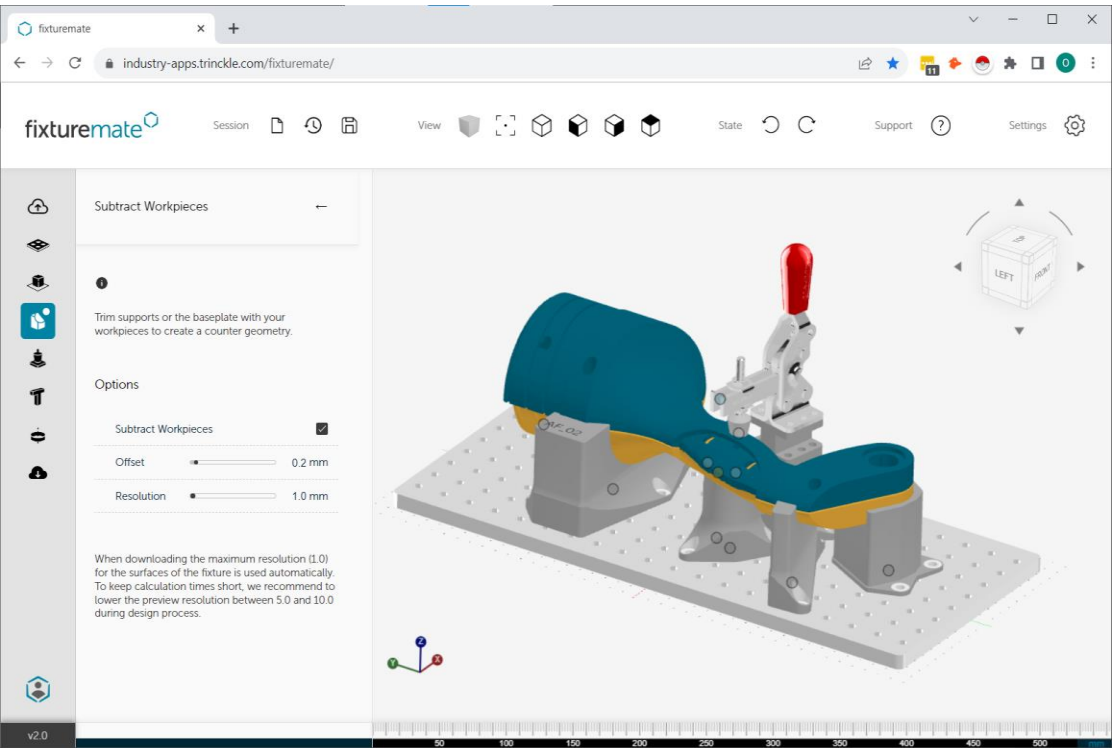


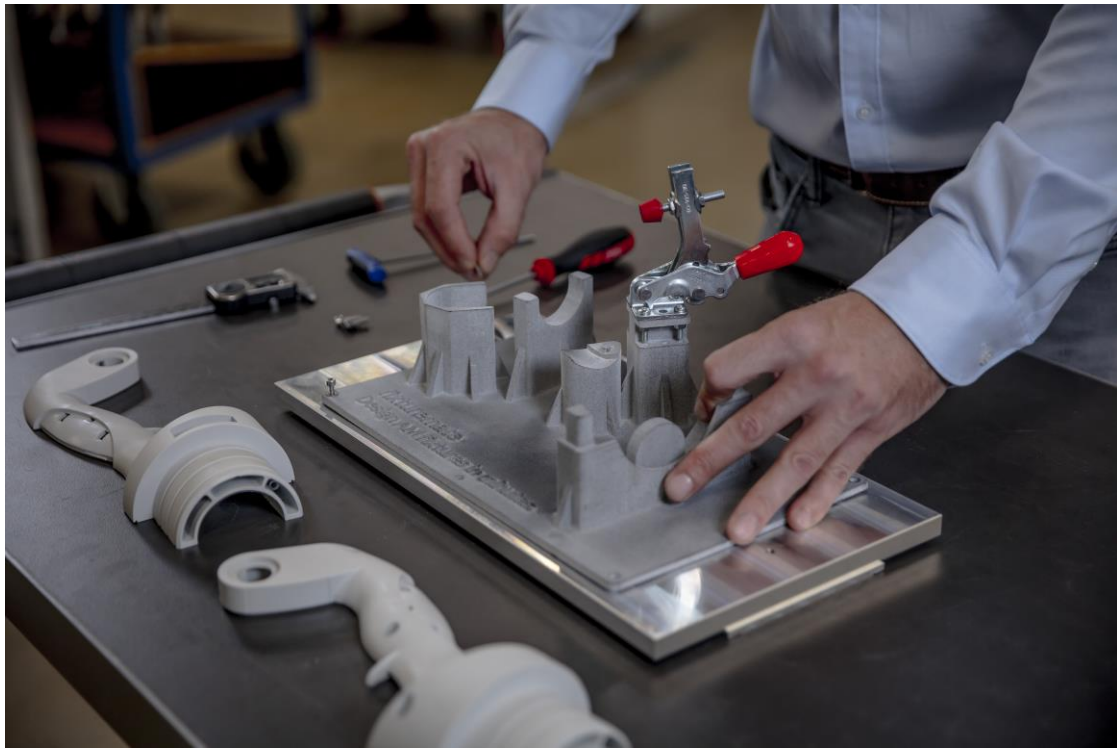
fixturemate

trinckle

Fixture design, simplified.
Design custom fixtures in under 20 minutes.
CAD expertise is optional.

Assembly





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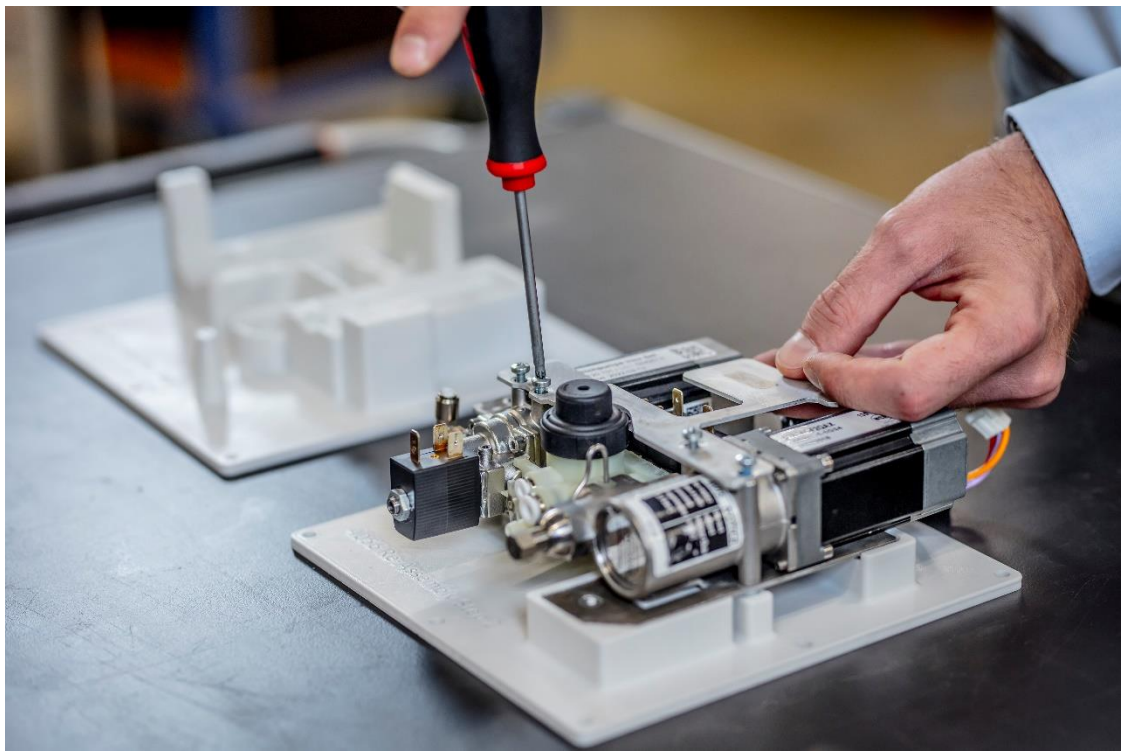
Board Bistro Maintenance

Dis-assembly and Re-assembly of a coffee machine component



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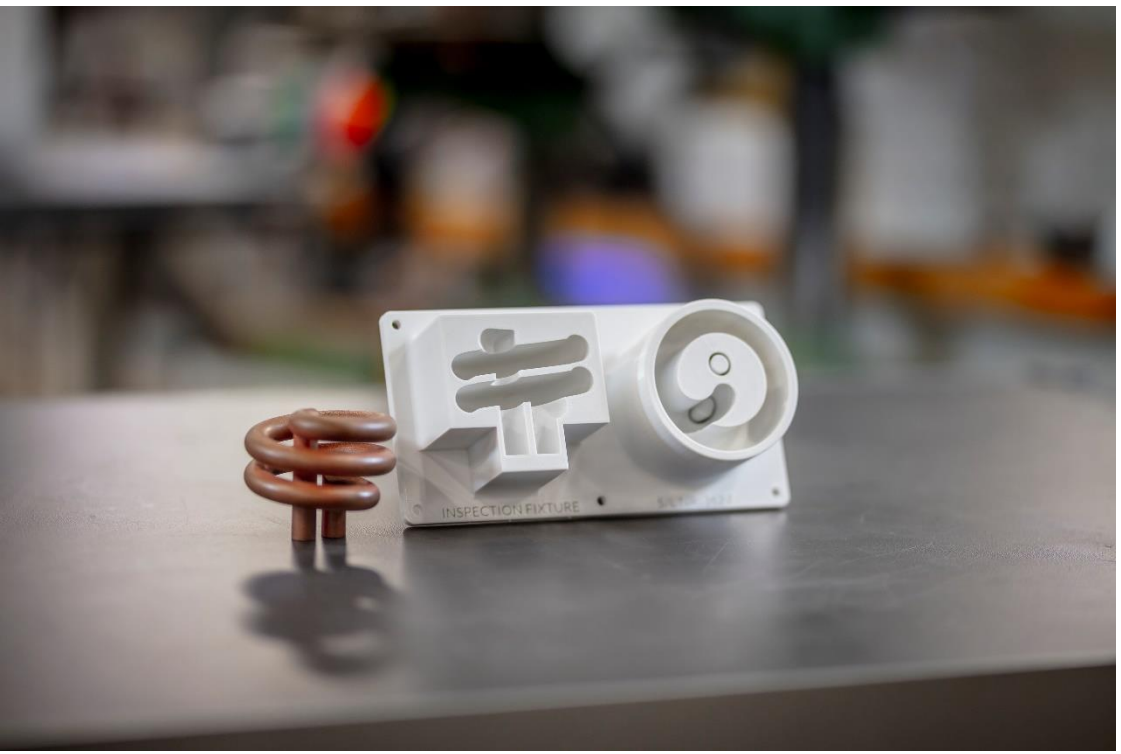
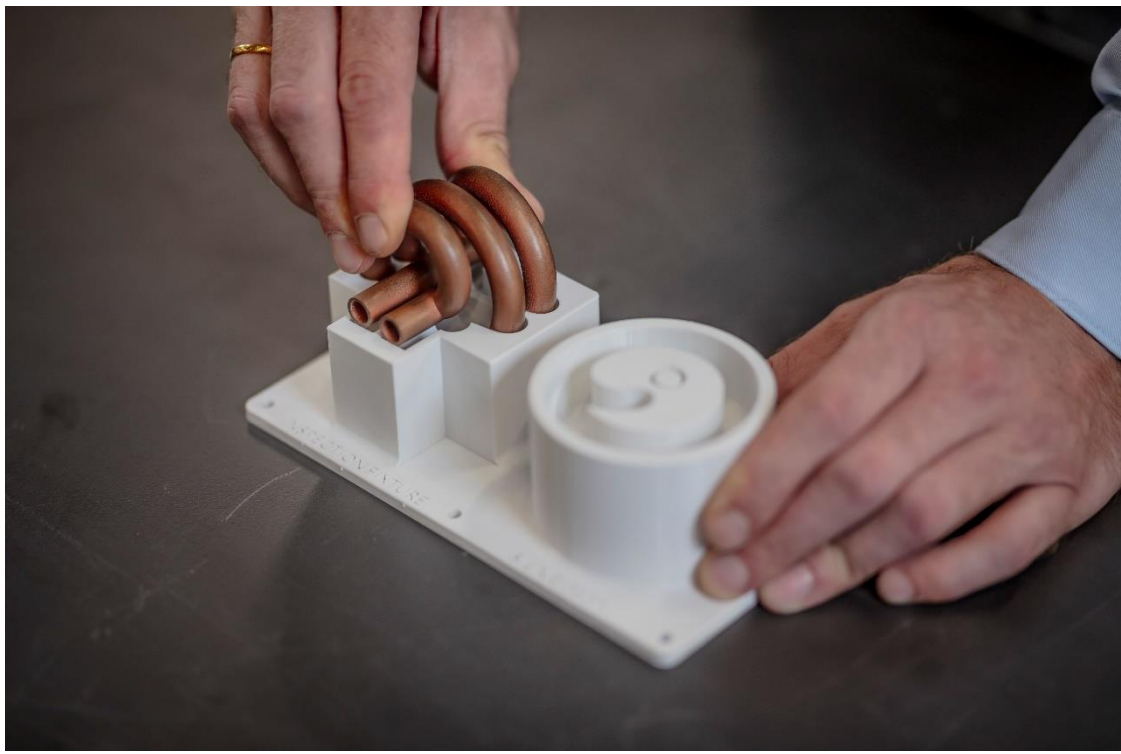
Go/No-Go Gauges





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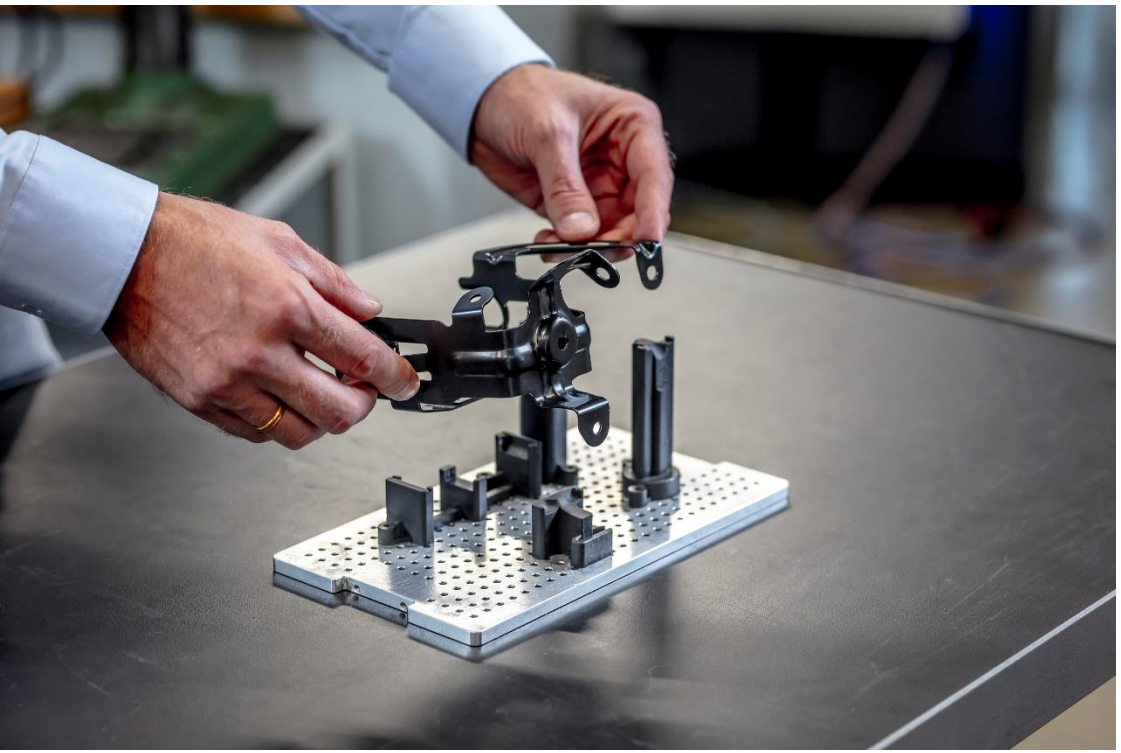
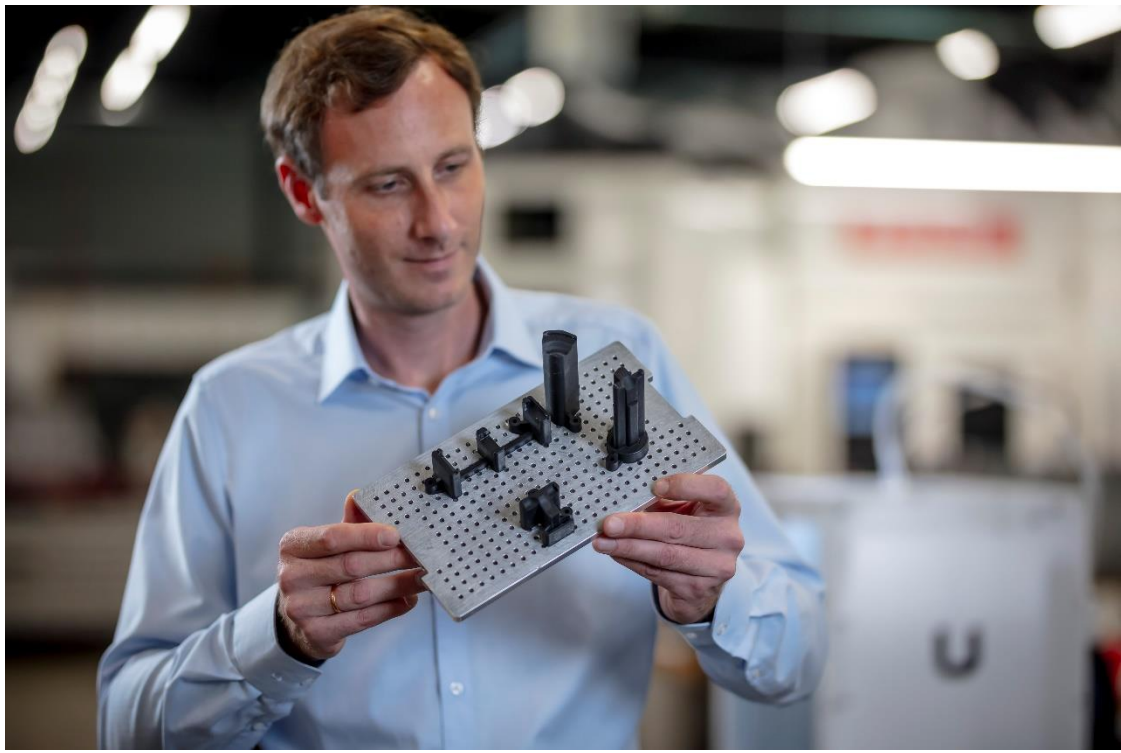
Go/No-Go Gauges





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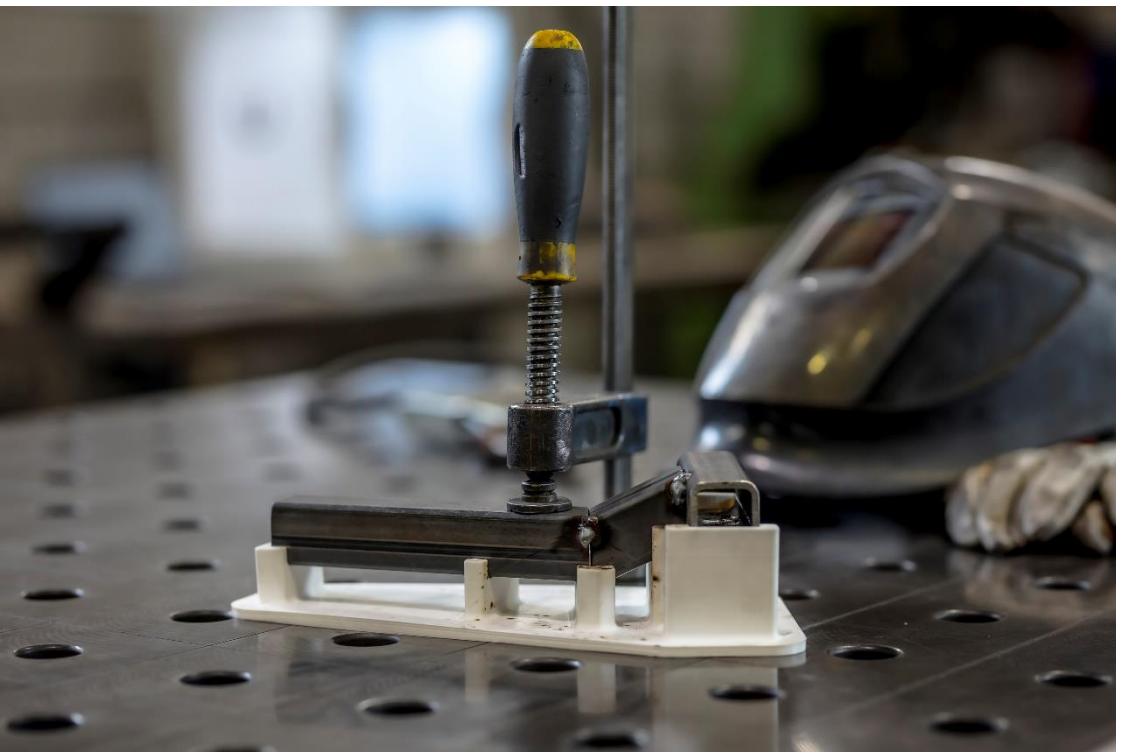
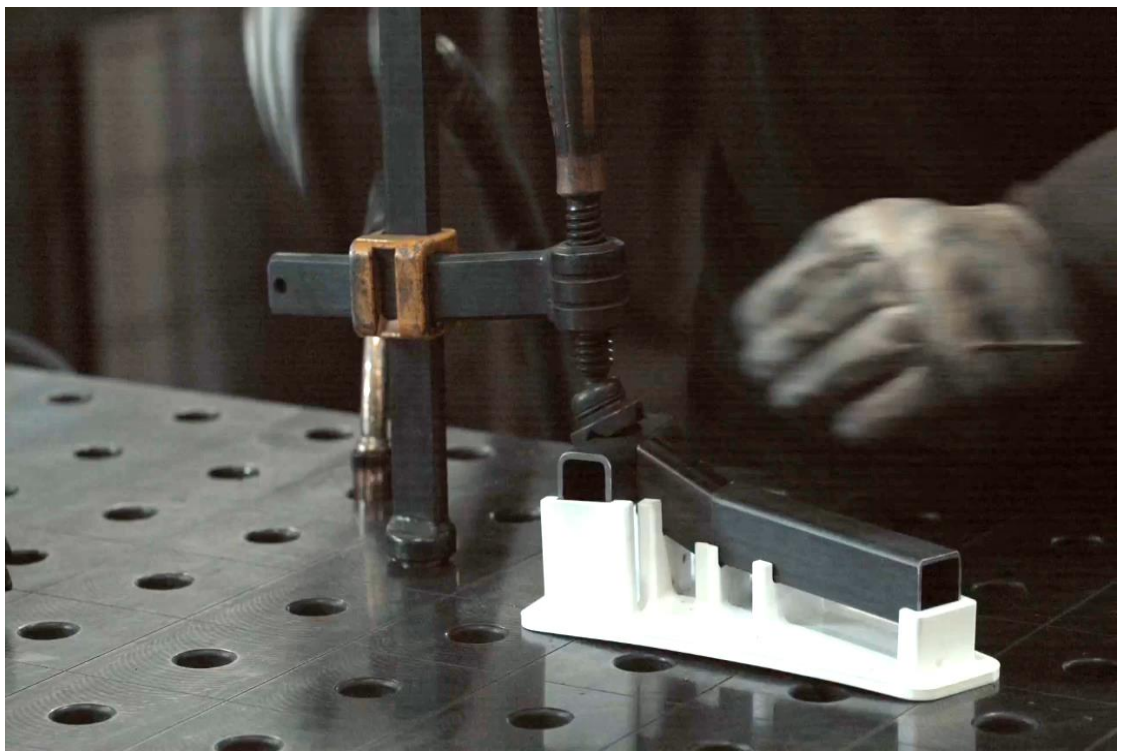
Welding

Shortcut for welding jobs under time pressure





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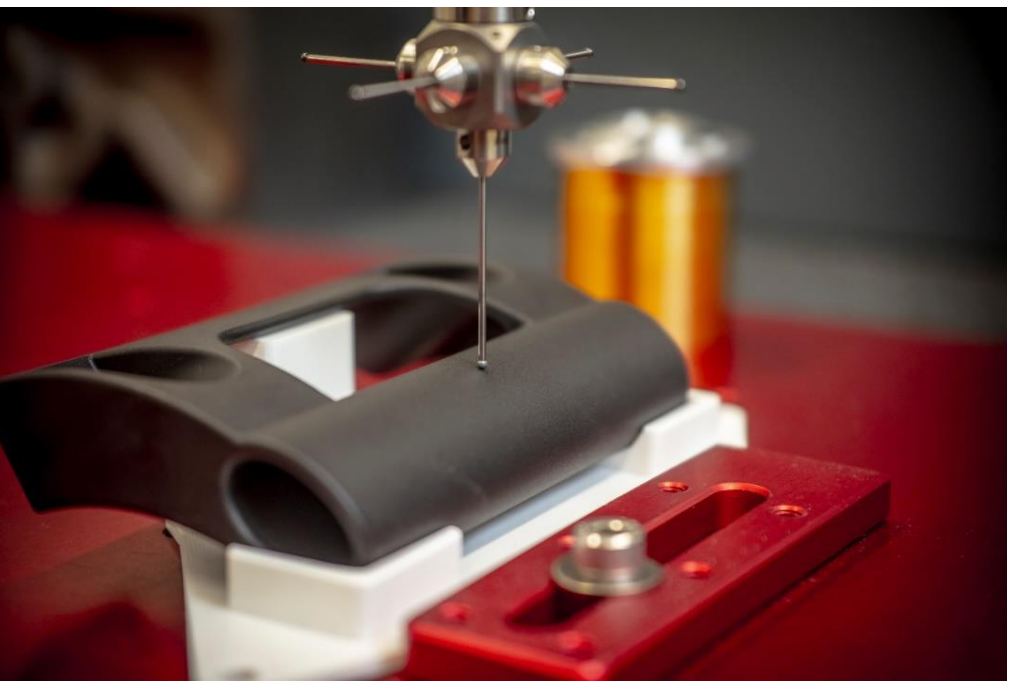
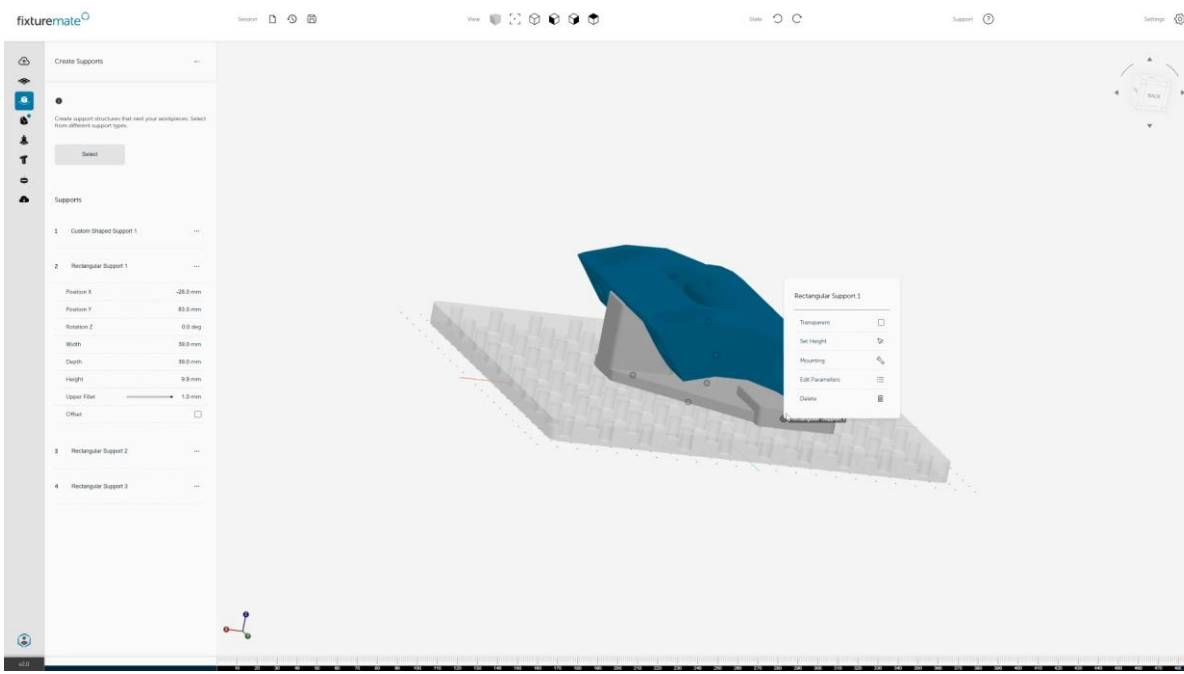
CMM Measurement





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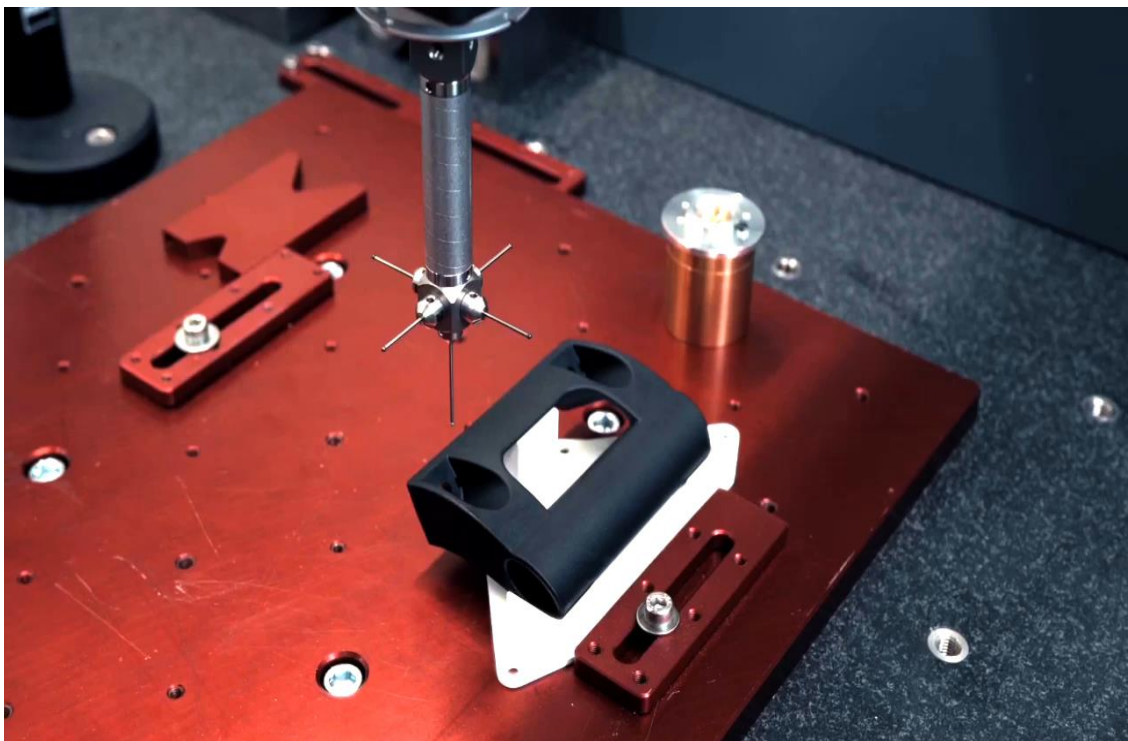
CMM Measurement



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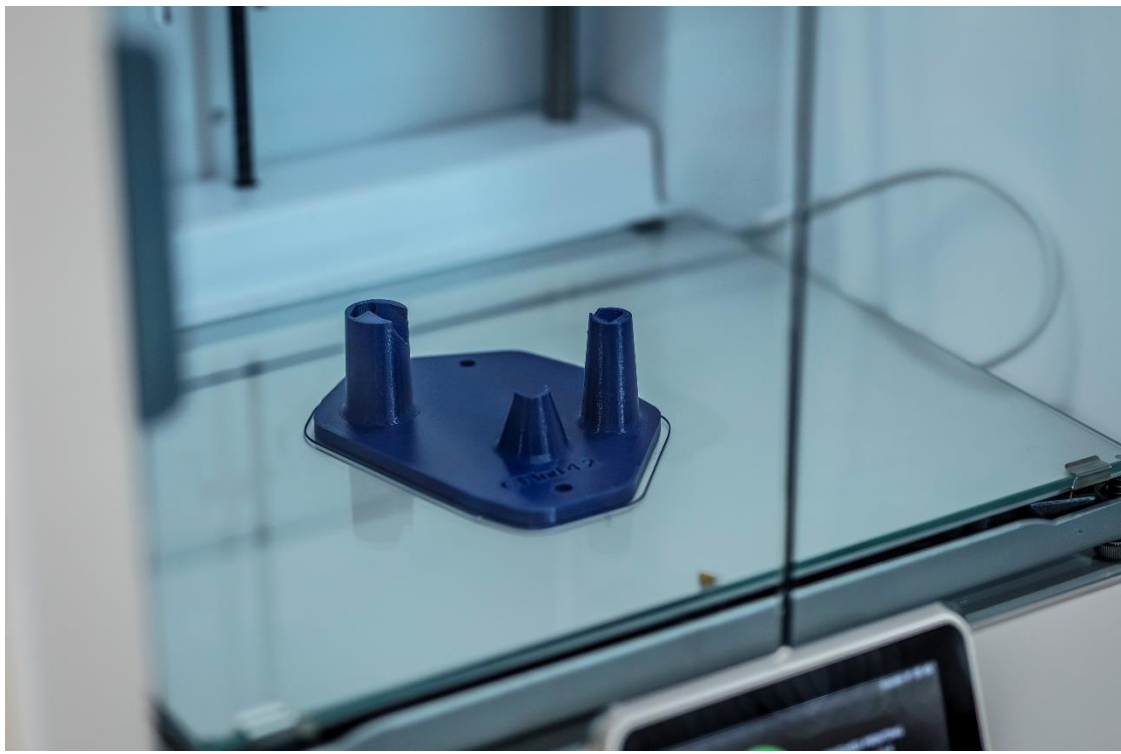
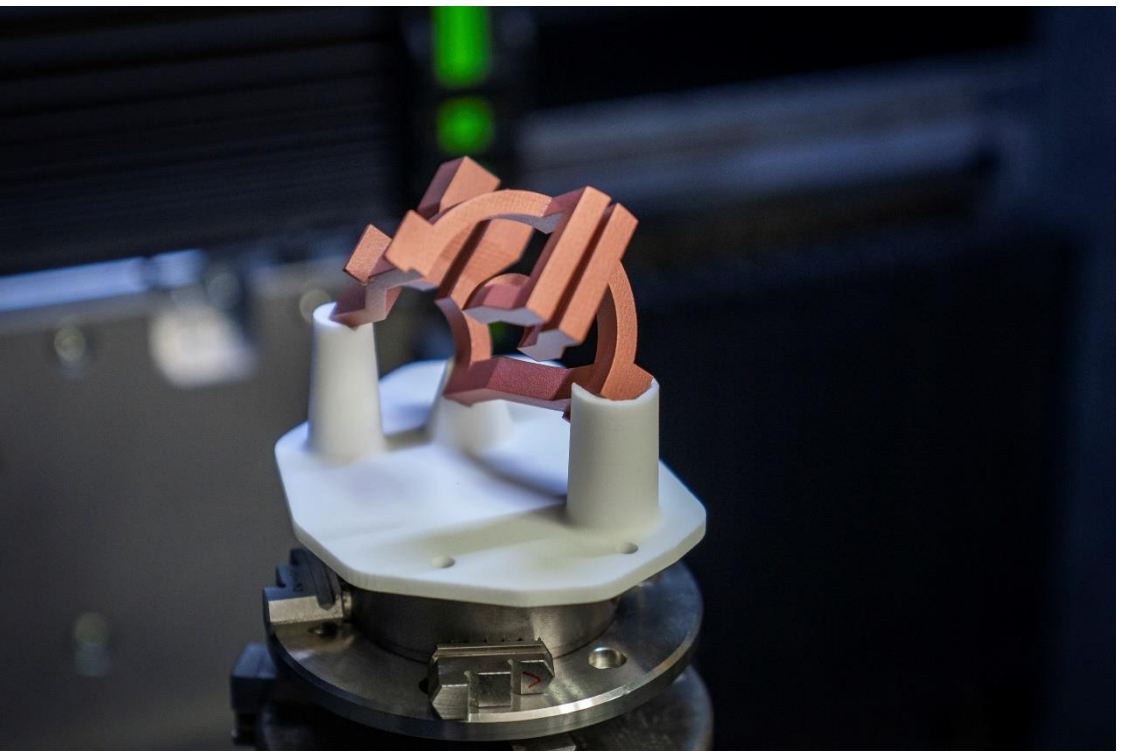
CT Scanning

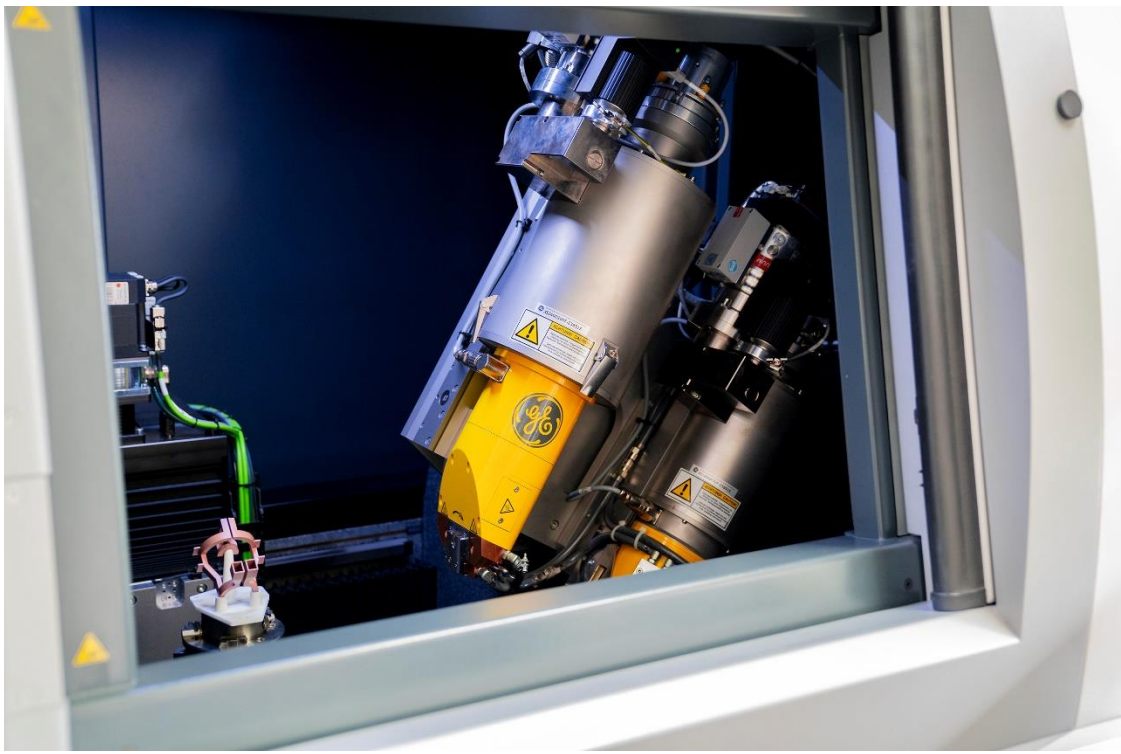
Holding Fixtures for reproducable CT-Measurements



trinckle

CT Scanning
Holding Fixtures for reproducable CT-Measurements





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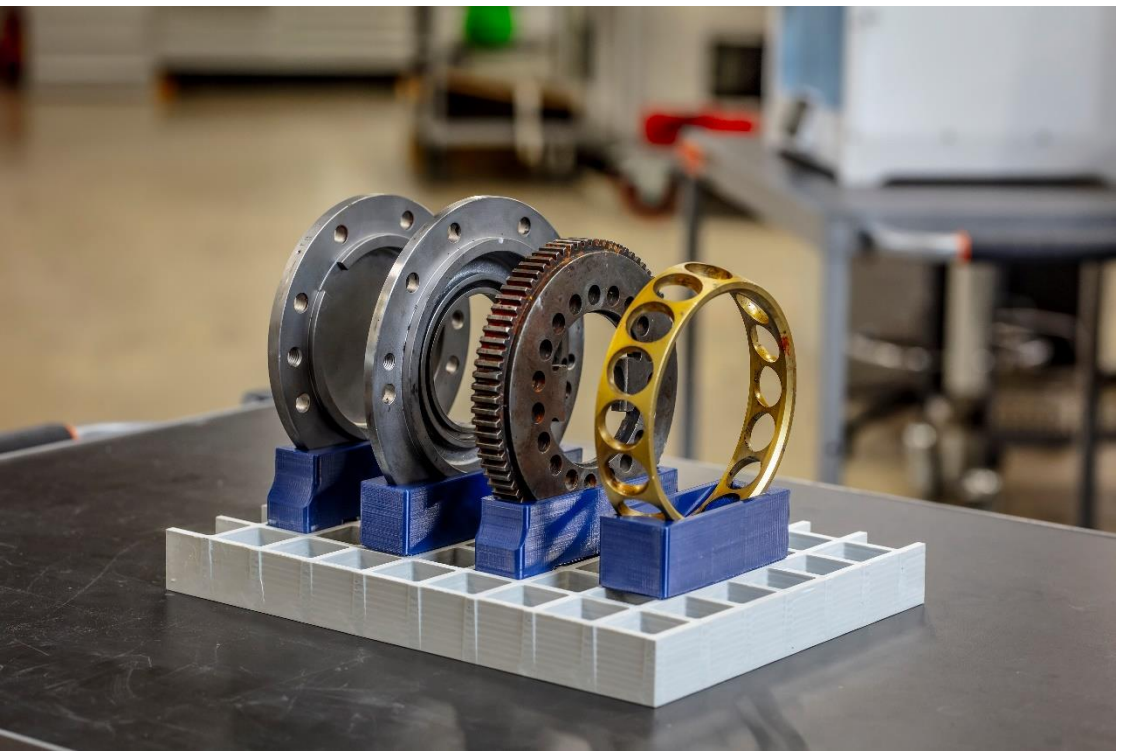
Logistics

Modular box inserts for sensitive items



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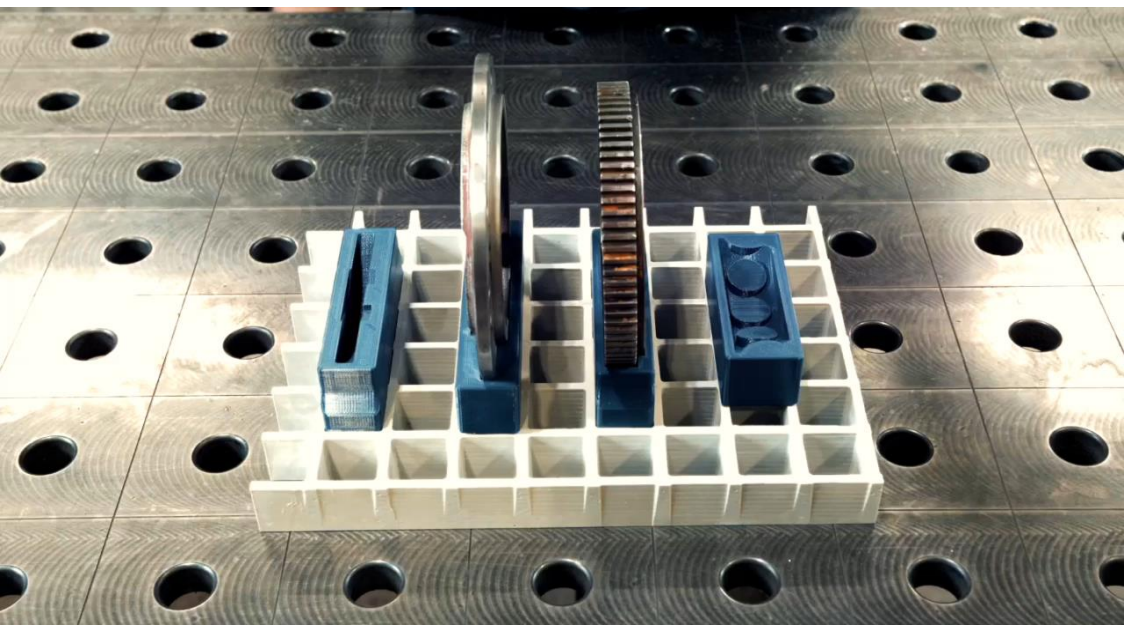

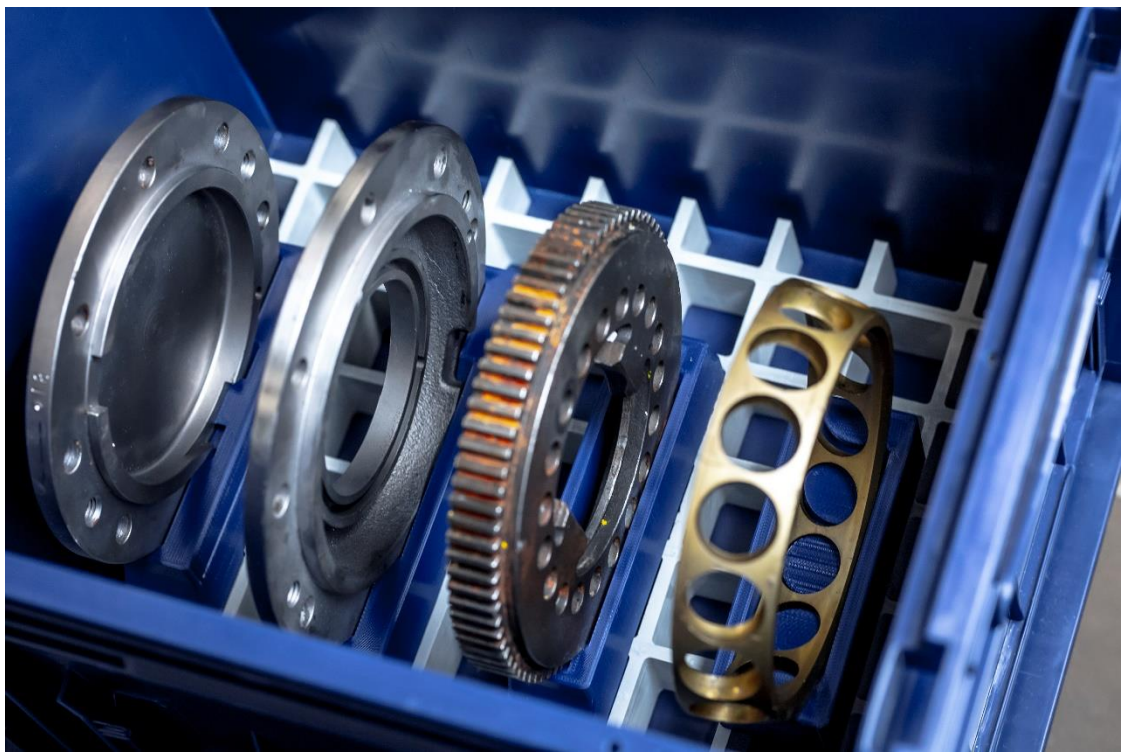

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Ready-to-license software: fixturemate

Design custom fixtures in under 20 mins.

Fixture design in CAD software is time consuming – even for experienced engineers. fixturemate is intuitive web-based software that allows anyone to design fixtures fast, whether you're familiar with CAD or not.

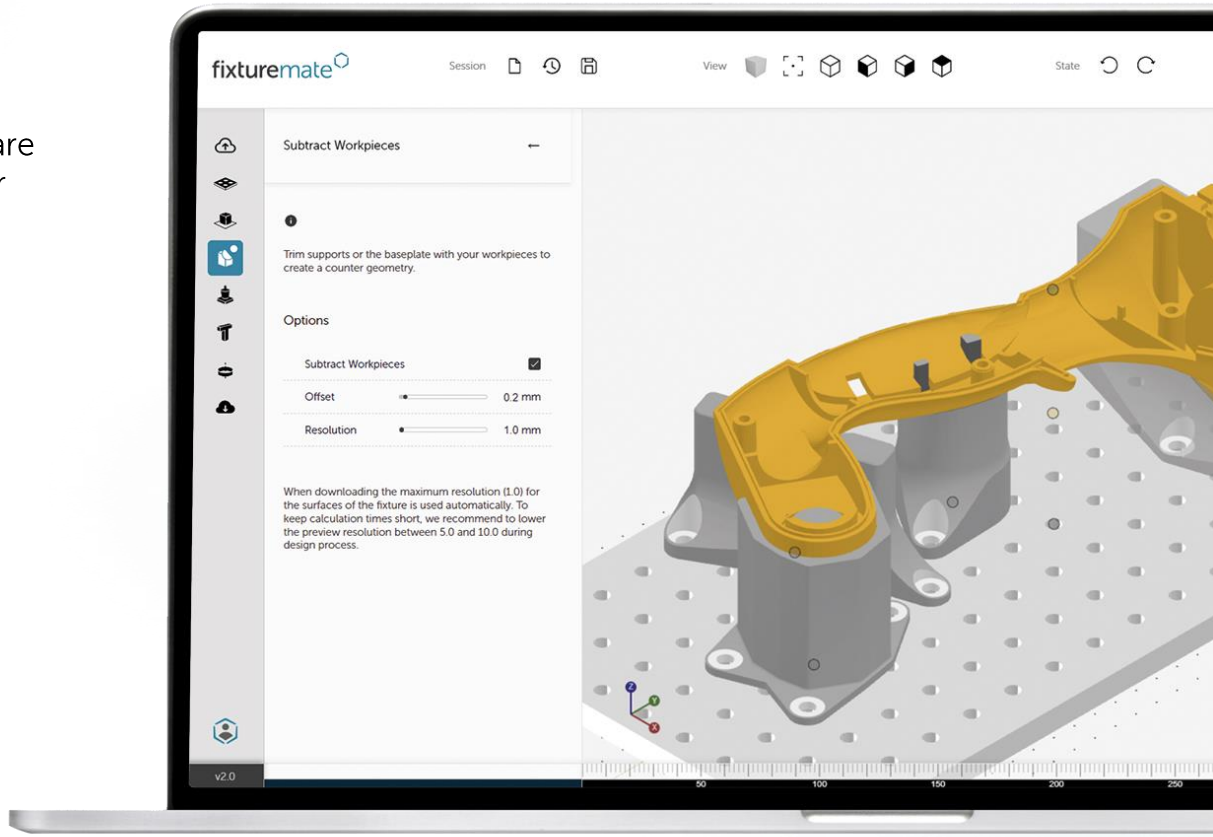
No CAD & AM expertise needed

80%

Significant reduction of manual work

Speed up replacement processes

Cloud-based usage in any facility worldwide



Learn more about fixturemate

Quick wins with fixturemate

83%

time savings in individual fixture design

Average based on comparison between solidworks (90 mins) and fixturemate (15 mins).

24 hr

Lead time. Design today, use it tomorrow

Based on average print time of 20 hrs with 250g material on Ultimaker S5.

< 1 hr

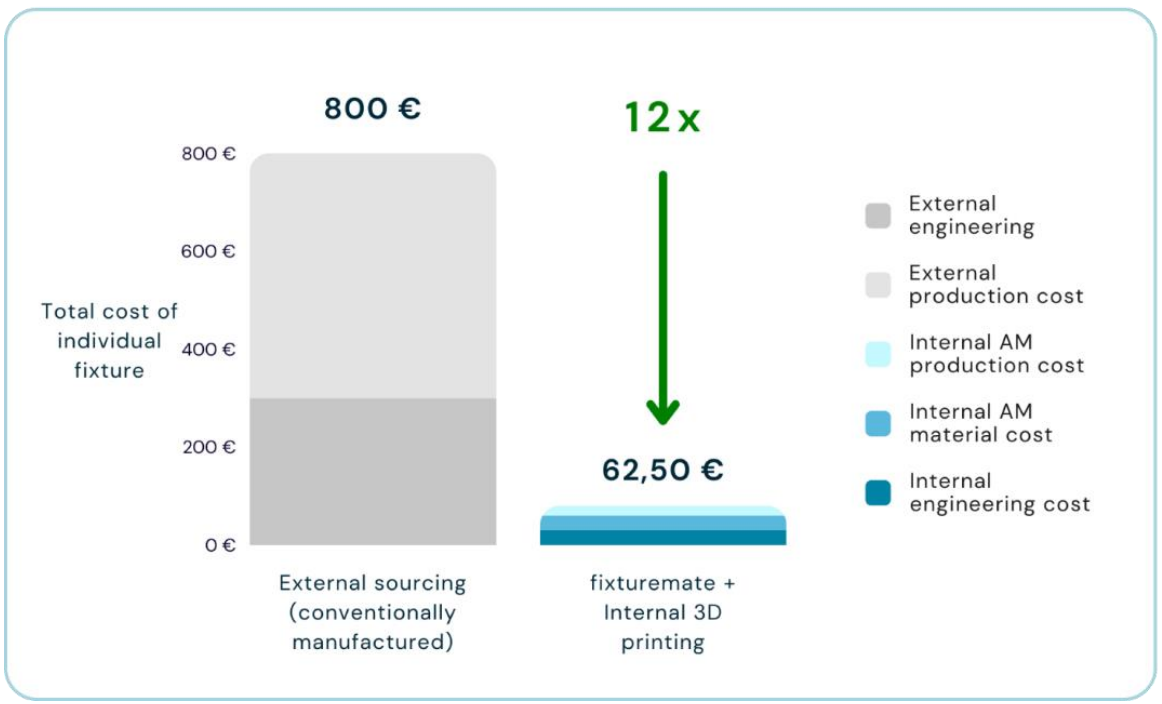
training time with any level of expertise

Based on average learning time from new users.

External sourcing versus fixturemate + internal 3D printing

Enormous cost and time saving potential

Reduce cost for individual fixture



Cost saved

72,000€

by 100 fixtures

Calculated for assembly fixtures

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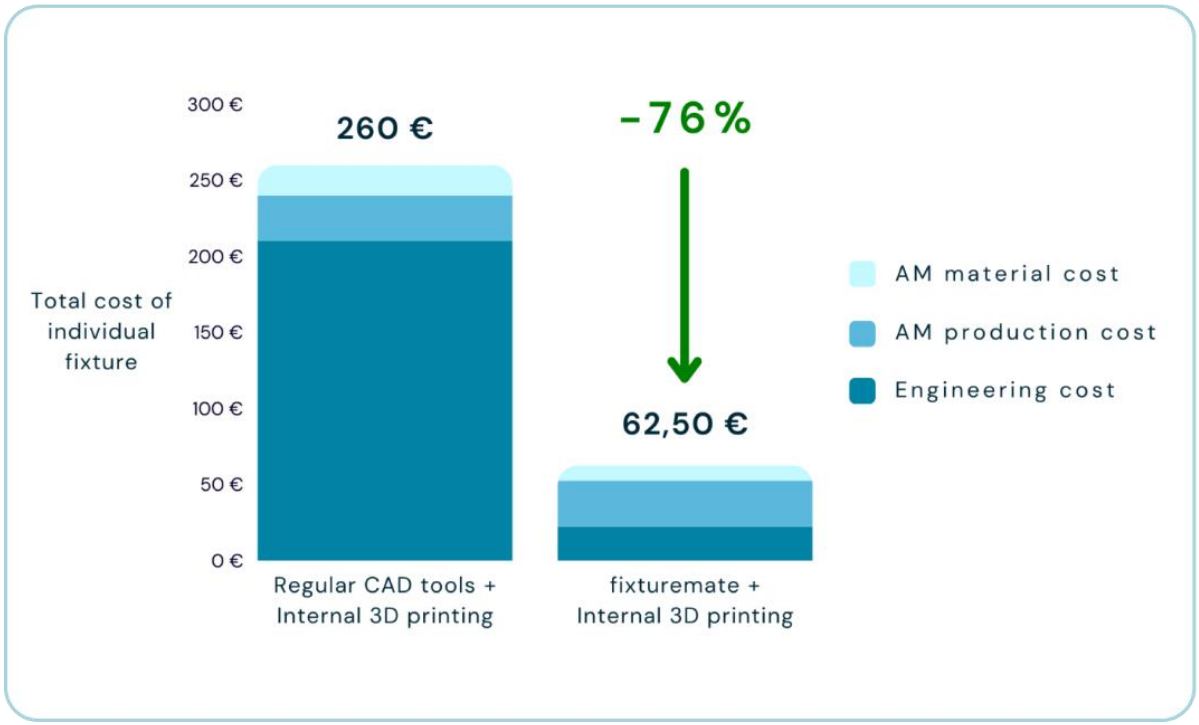
Traditional CAD versus fixturemate design process

Enormous cost and time saving potential

Reduce cost for individual fixture



Cost saved

18,750€

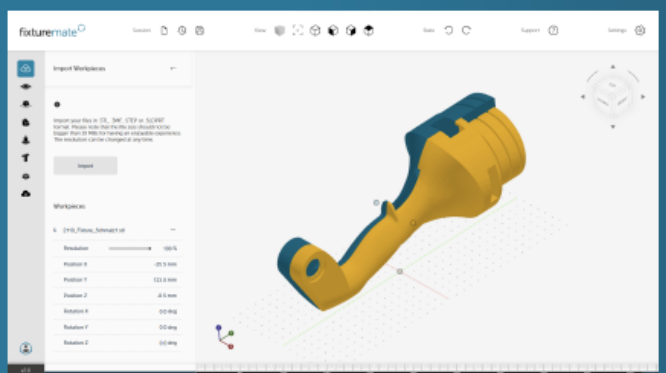
by 100 fixtures

Calculated for assembly fixtures

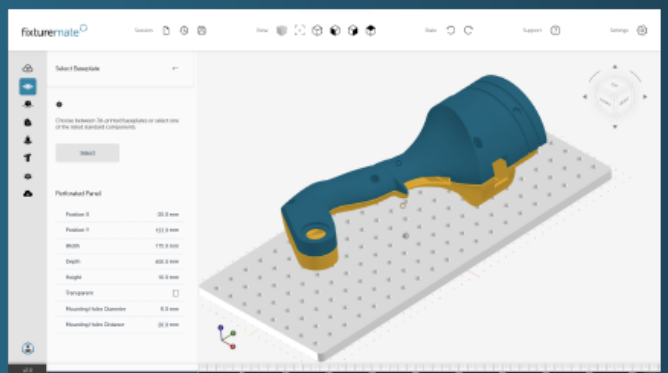
trinckle

DESIGN WORKFLOW

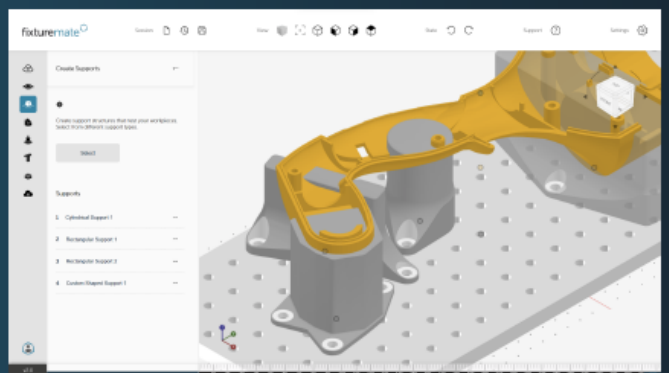
1. Import your workpiece

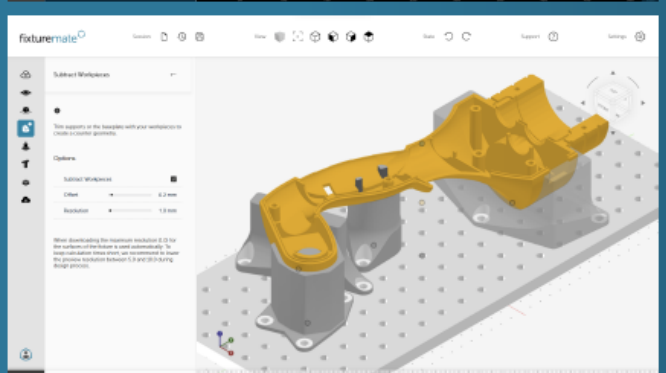


2. Define the baseplate

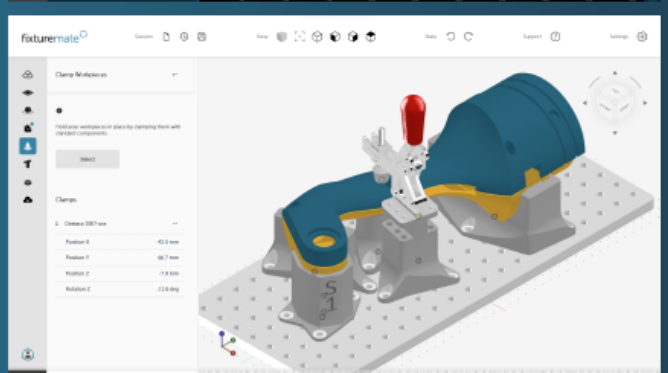


3. Create support structures

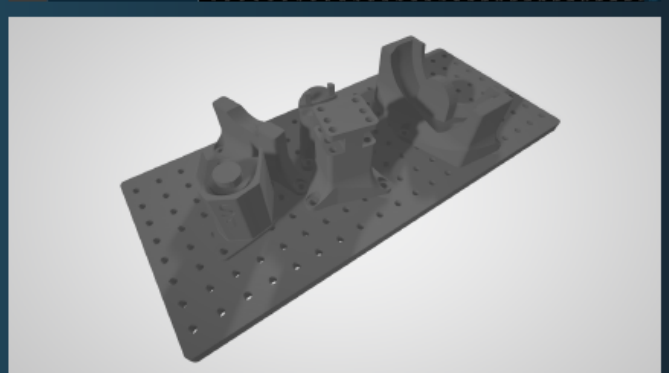




4. Generate the negative



5. Add standard elements



6. Download ready-to-print files

Thank you for your attention!

Dr. Damien Buchbinder
damien.buchbinder@trinckle.com

fixturemate

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