

miniFactory | Ultra 2

MAKE IT RIGHT. EVERY TIME.



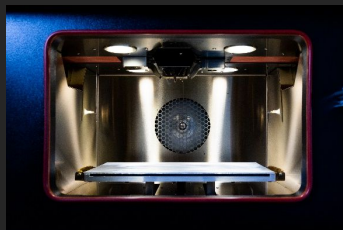
NEW **FEATURES**. MADE FOR VALUE MAKING.



FASTER

Improved technical solutions together with software optimizations enables increased output with well known miniFactory quality.

- **Real print speed up to 120mm/s for amorphous high-performance polymers**



STRONGER

Smart triple sensed heated chamber and optimized airflow ensure precise temperature management for stronger parts.

- **Smart Chamber (Triple sensing)**
- **Precise temperature management**



SMARTER

Real-time quality assurance technology together with automatic production supervision ensure high-quality manufacturing.

- **Real time quality assurance**
 - **Production supervision**
 - **On-board camera**
- **Smart maintenance intervals**
 - **Full system statistics**



SMOOTHER

Usability due simplified user interface equipped with remote control lets you control the printer anywhere. Industry 4.0 compatible system.

- **Remote control**
- **Industry 4.0 compatible**
- **New mF2 UI + 10" Touch screen**
 - **Integrated annealing**

NEW **ULTRA 2**. SUPERLATIVE OF PERFORMANCE.

OPEN MATERIAL SYSTEM ★

License free material validation program enables fast and easy integration of new materials.

250°C SMART HEATED CHAMBER ★

Unlocks the widest material range on the market and ensure the extreme stability of the printed parts.

INTEGRATED ANNEALING SYSTEM ★

Set the desired annealing cycle and increase the crystallinity of 3D printed PEEK or PEKK parts.

FAST PREPARATION TIME ★

It takes less than 30 minutes to heat the printing chamber at 220°C and start printing.



★ QUALITY ASSURANCE TECHNOLOGY

The quality assurance technology compares the data and confirms the repeatability of the production.

★ SMART MAINTENANCE INTERVALS

Automatic maintenance recommendations to keep the system in perfect condition.

★ ACTIVE MATERIAL DRYING CHAMBER

Ensures the optimal humidity control for filaments to reach the best printing quality.

★ SERVO DRIVEN TECHNOLOGY

High-end servo technology makes Ultra one of the most accurate FFF printing systems available.

MATERIALS **APPROVED** BY THE INDUSTRIES

With miniFactory you have access for the widest material range on the market without any additional licenses or fees. 50+ High-Performance materials.

From commodity and engineering polymers all the way up to the most demanding high-performance polymers and composites.
Material range is many times wider than in "closed systems" or in the systems with lower chamber temperature.



EXTREME PERFORMANCE WITH PEEK

Make valuable PEEK parts in-house with all materials of the PAEK Polymer family.



CARBON FIBER MATERIALS

Build strong and lightweight parts by choosing carbon fiber reinforced polymers to the metal replacement applications.



VALIDATED MATERIALS

Making parts for aerospace or motorsports?
Are you looking for a material compatible for EN45455 or UL94 V-0?

PRINTABILITY **COMPARASION** TABLE

250°C heated chamber unlocks the widest material range on the market and ensure the extreme stability of the printed parts.



| CHAMBER TEMPERATURE / MATERIAL | 90°C | 180°C | 250°C |
|---|------|-------|-------|
| TPI, CF-TPI | ✗ | ✗ | ✓ |
| PPSU | ✗ | ✗ | ✓ |
| ULTEM 1010, CF-ULTEM1010, ESD-ULTEM1010, GF-ULTEM1010 | ✗ | ✗ | ✓ |
| ULTEM 9085, CF-ULTEM9085 | ✗ | ✓ | ✓ |
| PEKK-A, CF-PEKK-A, ESD-PEKK-A | ✗ | ✓ | ✓ |
| PC, CF-PC, ESD-PC | ✗ | ✓ | ✓ |



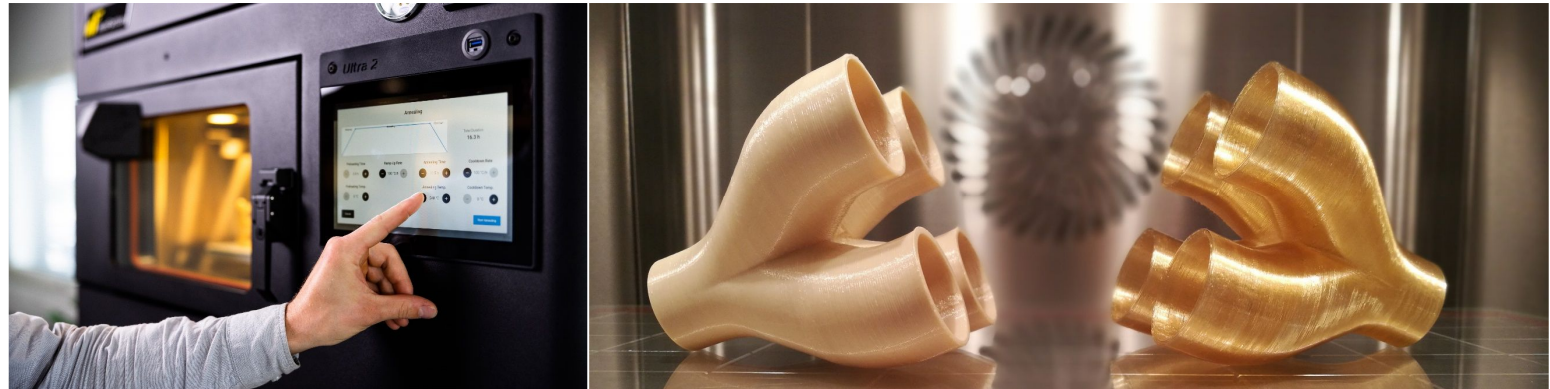
CAN BE PRINTED WITH OPTIMAL PROCESS TO ENSURE HIGH QUALITY AND ULTIMATE STRENGTH.



IF PRINTED, MAJOR RISK FOR DEFORMING, WARPING AND UNEVEN MECHANICAL PROPERTIES DUE **TOO LOW CHAMBER TEMPERATURE**.

INTEGRATED **ANNEALING** SYSTEM

Set the desired annealing cycle and increase the crystallinity of 3D printed PEEK or PEKK parts.



ACTIVE MATERIAL **DRYING** CHAMBER

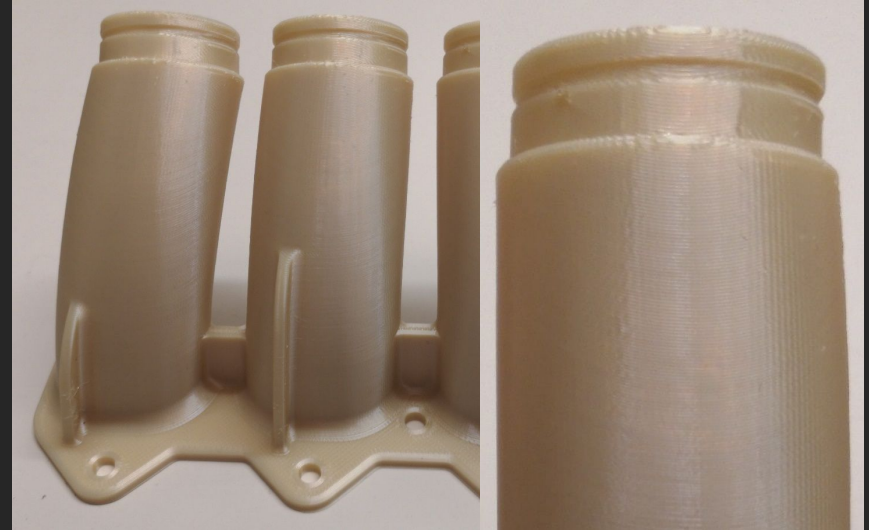
Active material drying is extremely important feature as moistured material will cause visual, and in worst case, mechanical failures for the printed parts.

Most of competing systems on the market use a separated, expensive filament drier or the temperature in the filament chamber is too low.
With both of these approaches, after few hours of printing the moisture problems most likely starts to ruin your prints.

WITHOUT ACTIVE MATERIAL DRYING



WITH THE MINIFACTORY'S ACTIVE MATERIAL DRYING



AARNI – QUALITY ASSURANCE TECHNOLOGY



WHICH **PART** WOULD YOU PICK?

MINIFACTORY QUALITY ASSURANCE TECHNOLOGY – A PREREQUISITE FOR RELIABLE MANUFACTURING.
CREATES TRUST AND TRANSPARENCY IN PART PRODUCTION AND ENSURE THE PART IS CERTIFIED AND COMPLETED AS DESIRED.

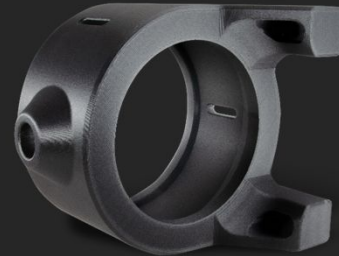
WITH MINIFACTORY QUALITY ASSURANCE TECHNOLOGY



MATERIAL HISTORY
OPERATOR INFORMATION
LAYER-BY-LAYER VISUALIZATION
PROCESS HISTORY
MANUFACTURING REPORT
MASTER SAMPLE – PROVEN QUALITY



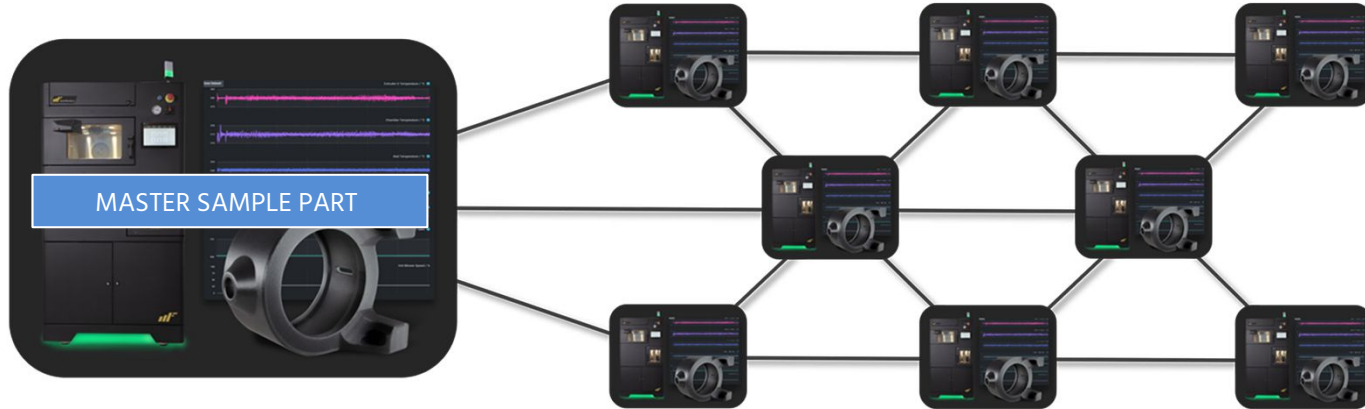
NO QUALITY ASSURANCE



ANYTIME. ANYWHERE. **VERIFIED.**

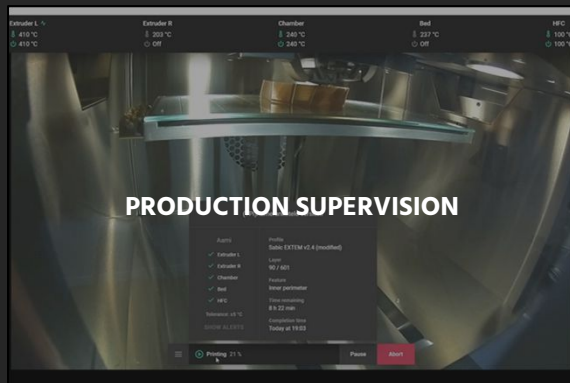
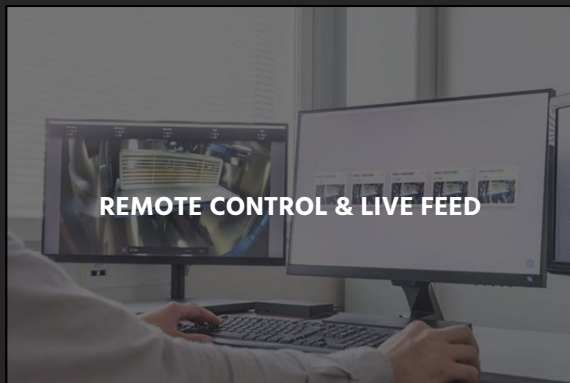
THE QUALITY ASSURANCE TECHNOLOGY COMPARES THE DATA AND CONFIRMS THE REPEATABILITY OF THE PRODUCTION.

STORE MANUFACTURING PARAMETERS ON DIGITAL “MASTER SAMPLE” DOCUMENT. TO ENSURE THE SAME QUALITY OF THE CORRESPONDING PARTS ANYTIME AND ANYWHERE IN THE FUTURE, THE QUALITY ASSURANCE TECHNOLOGY COMPARES THE DATA AND CONFIRMS THE REPEATABILITY OF THE PRODUCTION.



THREE-LAYER **QUALITY** ASSURANCE

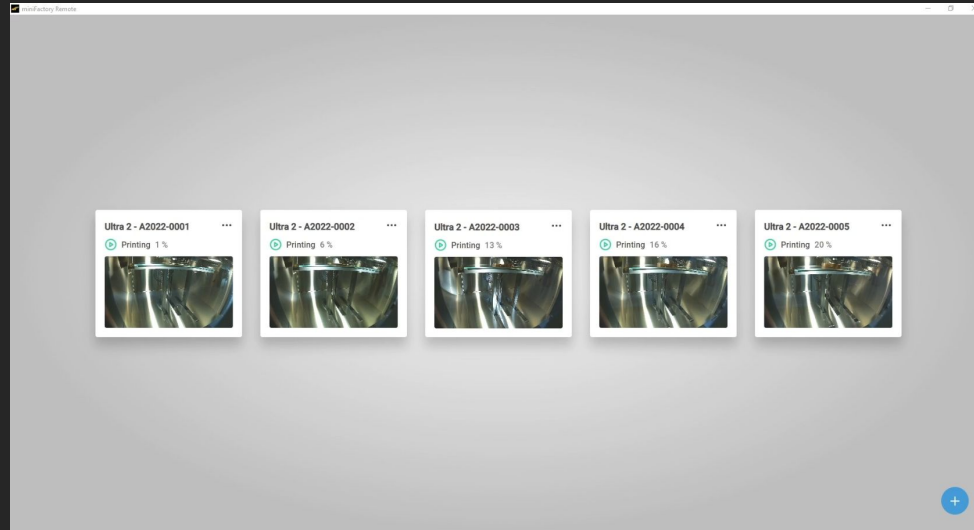
A COMPREHENSIVE QUALITY ASSURANCE TECHNOLOGY TAKES THE RELIABILITY OF 3D PRINTING TO A WHOLE NEW LEVEL.
ON DEMAND MANUFACTURING - UNLOCKED.



EVERYTHING **MANAGED** BY ONE USER

REMOTE CONTROL & LIVE FEED

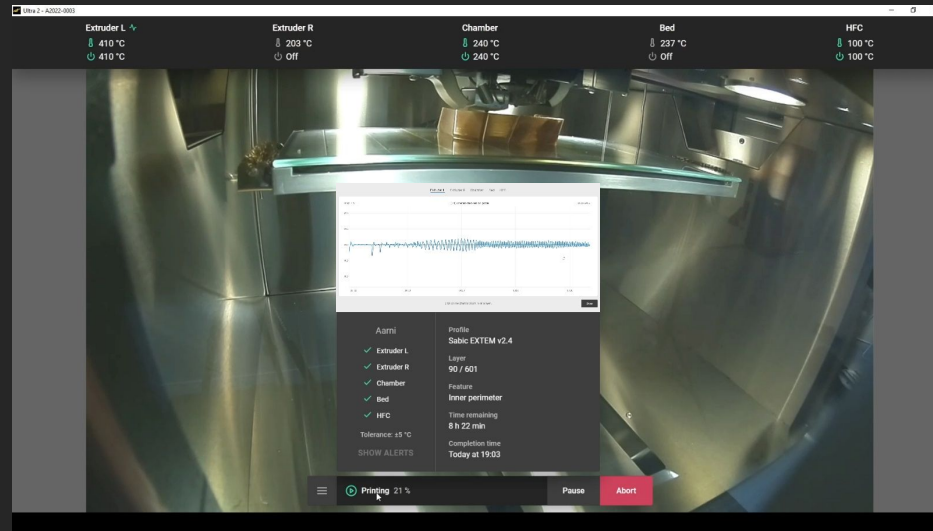
Install **Remote control software** on your computer and get complete control of your miniFactory ecosystem. The remote control software can be used to manage, monitor and plan production using one or multiple devices.



REAL-TIME MONITORING

PRODUCTION SUPERVISION

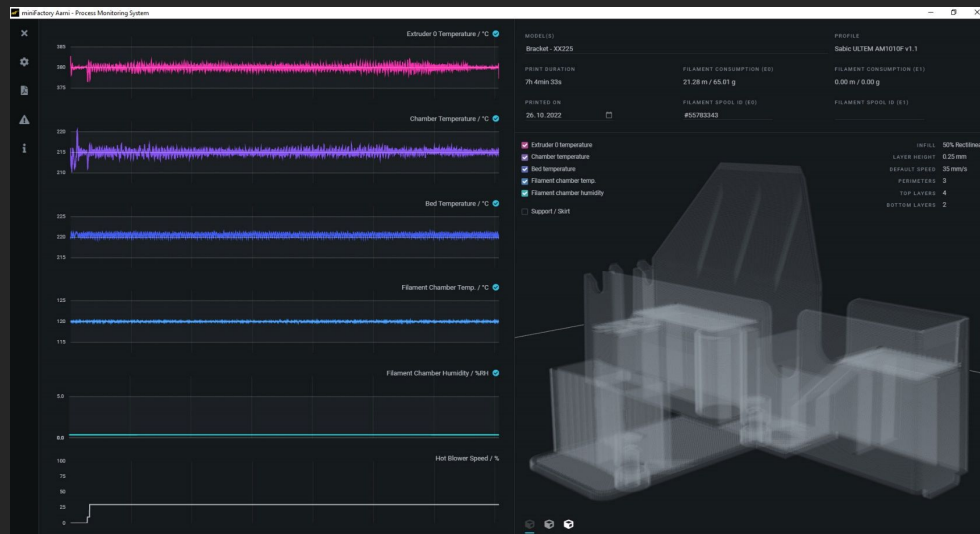
Real-time supervision is a completely new and unique feature that takes production monitoring to the next level. The software monitors quality and, thanks to the **Smart Command** feature, works independently in different situations.



AN UNPARALLELED QUALITY ASSURANCE FOR 3D PRINTING

LAYER-BY-LAYER INSPECTION

Layer-by-layer 3D printing quality assurance ensures that the process has been completed as desired.
Create a manufacturing document that highlights the entire printing process and proves the quality.



THE MAIN STEPS OF THE **WORKFLOW**

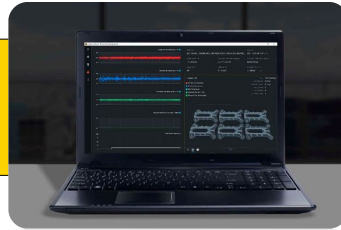
WITH AARNI YOU'LL SEE INSIDE THE PART YOU PRINTED AND GET INFORMATION THAT WAS NOT PREVIOUSLY AVAILABLE.

WHEN PRINTING IS COMPLETE, YOU HAVE ACCESS TO 3D VISUALIZATION WITH INTUITIVE AND EASY-TO-USE SOFTWARE INSTALLED ON YOUR COMPUTER. THE SOFTWARE VISUALIZES PRINTING LINE BY LINE AND LAYER BY LAYER.

1. PRINT THE PART



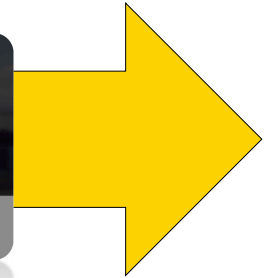
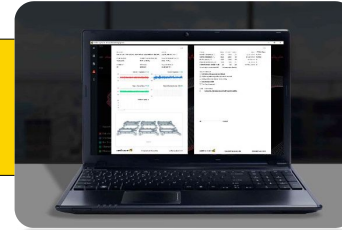
2. DATA OVERVIEW



3. LAYER BY LAYER VISUALIZATION



4. MANUFACTURING DOCUMENT



WITH MINIFACTORY, YOU KNOW **YOUR** PARTS

OUR MAIN GOAL IS TO MAKE 3D PRINTING A RELIABLE MANUFACTURING METHOD TO BE USED IN THE MOST DEMANDING INDUSTRIES AND APPLICATIONS.



3D PRINTING VS. CONVENTIONAL MANUFACTURING METHODS?

★ **FFF ONLY** - FFF technology is the best and the most cost-effective manufacturing method for high-performance polymers. High-performance polymer powders are not recyclable, making SLS economically unsustainable technology for such materials.

★ **NO LIMITED STOCK SHAPES** -> HPP stock shapes are extremely limited and expensive. By using FFF technology, manufacturing of parts can be up to 80% cheaper compared to conventional methods.

| Technology | Equipment investment | 1 pcs (lead time / price) | 10 pcs (lead time / price) | 50pcs (Lead time / Price) |
|-------------------|------------------------------|---------------------------|----------------------------|---------------------------|
| 3D printing | Ultra 3D Printer – 80k€ | 1d / 180€ | 10d / 1800€ | 50d / 9 000€ |
| CNC Machining | CNC Machine – 150k€ | 2d / 1 000€ | 5d / 10 000€ | 25d / 50 000€ |
| Injection molding | Inj. molding machine - 200k€ | 4d / 15 020€ | 4d / 15 200€ | 5d / 16 000€ |

The calculation includes set up cost + material cost.

- 3D Printing filament CFPEEK -> ~800€/kg
- PEEK CF raw material block 15 x 15 x 10cm -> ~1000€/piece
- Heatable mold for the part -> ~15 000€/mold



Example part –
CF PEEK part for aerospace
(size D12 x 9cm, weight 180g)

ULTRA 2 SPECIFICATIONS



CHAMBER TEMPERATURE
PLATFORM TEMPERATURE
EXTRUDER TEMPERATURE
MECHANICS
REPEATABILITY

250°C
250°C
470°C
AC-SERVO MOTORS & BALL SCREWS CLASS C5
0,025MM/400MM

EXTRUDERS
BUILD VOLUME

2, SEPARABLE EXTRUDERS
330MM X 180MM X 180 MM

MATERIALS

TPI, PEI, PEKK, PEEK, PPSU, PPS, PVDF, PA, PC, ABS + MORE
+ WIDE RANGE OF GF/CF COMPOSITES AND ESD POLYMERS

BUILD PLATFORM
LEVELING
UI
SAFETY

INTERNAL VACUUM SYSTEM
FULLY AUTOMATIC CALIBRATION
10" TOUCH SCREEN / MF2 UI
ACTIVATED CARBON FILTERING

FILAMENT DIAMETER
COOLING
SENSING

1,75MM
LIQUID COOLING & AIR COOLING
JAM & RUNOUT SENSORS

INTEGRATED FEATURES

AARNI – QUALITY ASSURANCE TECHNOLOGY
REMOTE CONTROL + ON-BOARD CAMERA
MATERIAL DRYING CHAMBER
SMART MAINTENANCE INTERVALS
FULL SYSTEM STATISTICS
INTEGRATED ANNEALING SYSTEM

SLICING SOFTWARE
CERTIFICATION
DEVICE MEASUREMENT
POWER REQUIREMENT

SIMPLIFY 3D, CURA
CE, UKCA
100 X 80 X 190CM – 320KG
400V/16A 3-PHASE

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THREE **REASONS** FOR MINIFACTORY

RELIABLE AND EASY WORKFLOW

We have packed our **10 years of experience** into the straightforward and **understandable usability of our products**, enabling you to produce successful 3D prints time after time.

As high-performance polymer printing is technology-intensive, it can easily become complex. However, thanks to our experience, we have succeeded in making the miniFactory Ultra printer **easy to use**.

WARRANTY UP TO 5 YEARS

Our technology is designed for daily industrial use. The assembly expertise, combined with high-quality components and a comprehensive service offering, enables a **warranty of up to 5 years**.

With our **optimized service plan** and authorized support network, you have **local partner to support you throughout the life-cycle of the system**.

SENSIBLE INVESTMENT AND SATISFIED CUSTOMERS

The miniFactory Ultra 3D printer is a unique solution that enables reliable 3D printing of high-performance polymers. Due to its durable features, it is **one of the most cost-effective solutions on the market**.

We have delivered miniFactory Ultra 3D printers to more than 20 countries. **Our customer satisfaction is top class all around the world**, as our equipment and services are supreme.



OUR TECHNOLOGY IS TRUSTED BY



ALSTOM



SAFRAN

SKF



ACC
AUTOMOTIVE CELLS Co



PERMASCAND

KIMYA
Additive Manufacturing by A.B. 3D-PCB



SME
Elektro-Group

UNIVERSITY OF
EXETER

ANLAUF
FABRIK

XAMK
South Eastern Finland
University of Applied Sciences



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