

DELIVERING ADVANCED PRODUCTION
CAPABILITIES TO HIGH-TECH
INDUSTRIES WORLDWIDE



zortrax

INDUSTRIAL
ADDITIVE
MANUFACTURING
TECHNOLOGIES





zortrax

INDUSTRIAL ADDITIVE MANUFACTURING TECHNOLOGIES

Zortrax mission in building industrial equipment boils down to technological edge, modularity, and efficient management. Each of our industrial products brings significant innovations to the table, is capable of working as a part of a larger, fully scalable ecosystem, and can be managed remotely from anywhere in the world through Zortrax inCloud, a simple, secure cloud-based service.

This way, our customers can build additive manufacturing systems tailored exactly to match their specific requirements in various fields like advanced engineering, supporting traditional manufacturing lines, or bringing mass-customized products to the market.

Maximum
extruder
temp. 480° C

Maximum
chamber
temp. 200° C

Maximum
platform
temp. 220° C



CUTTING EDGE RESEARCH PLATFORM

Zortrax Endureal works in a number of advanced research projects. Developing a capability to 3D print composite models out of two high-performance materials in dual extrusion for the European Space Agency is one of the first to reach groundbreaking milestones.

DUAL EXTRUSION

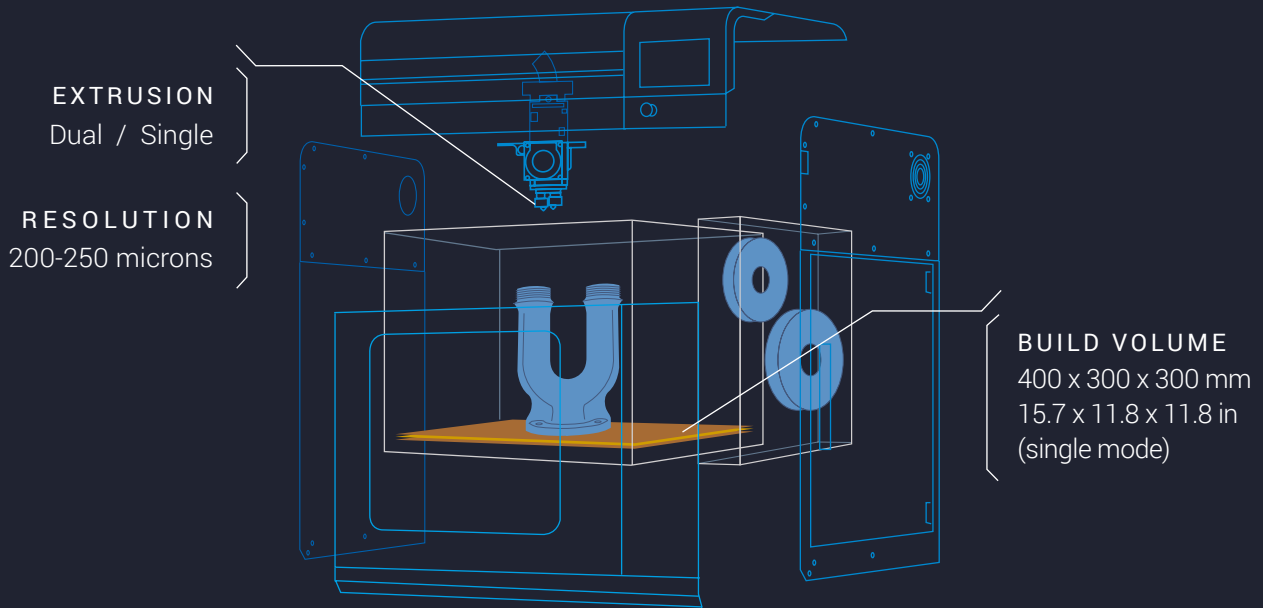
The LPD Plus dual extrusion technology used in the Zortrax Endureal has been traditionally used to print support structures out of different material than the model itself. But we wanted it to do way more than that, recognizing that there is an increasing demand for advanced composite parts 3D printed out of two high-performance polymers. This is exactly what we have achieved. Zortrax engineers used ESA's experimental blend of electrically conductive PEEK in combination with pure PEEK to print proof-of-concept models with simple electricity and data transfer features on the Zortrax Endureal.

ELECTRICALLY CONDUCTIVE PEEK

ESA engineers working at the European Space Research and Technology Centre have invented a blend of electrically conductive PEEK. This has been achieved by adding carbon nanotubes and graphite nano plates to standard poly ether ether ketone. What ESA ended up with was the 3D printing material with all the mechanical and thermal properties of PEEK which at the same time could transfer energy and data.

COTS HARDWARE

In the space industry, COTS stands for commercial-off-the-shelf-components which are widely available and more cost-efficient than custom made solutions used for space exploration in the past. The Endureal used for the ESA project had the same hardware configuration as the one present in commercially available machines. Customers can rest assured that the Endureal 3D printers they order come fully equipped to print composite parts once the technology reaches production level.

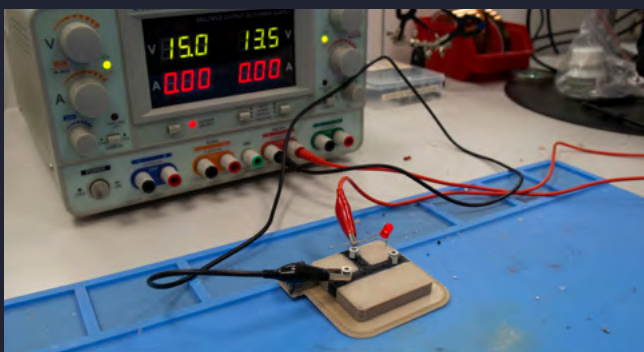
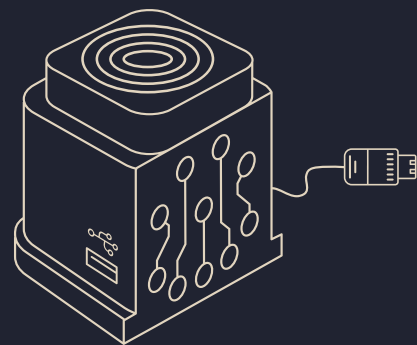


GROUNDBREAKING RESULTS



3D PRINTED DATA TRANSFER DEVICES

In a pioneering experiment, we have demonstrated the world's first successful data transfer over a device 3D printed in the LPD Plus technology entirely out of PEEK polymers. The connection has been made over the UART protocol between two computers with USB-UART converters. We have achieved a transfer rate reaching 115000 bit/s while sending a Mona Lisa image from one computer to the other which is more than enough for emergency communications in space exploration. Zortrax Endureal is therefore capable of 3D printing simple electronic devices exclusively with space-grade materials.



Composite component with electrical paths (black) 3D printed with standard PEEK body.

EMBEDDED ENERGY TRANSFER PATHS

The Endureal's capability to 3D print composite models pushes the boundaries of what is possible with extrusion-based additive manufacturing. Engineers in high-tech industries will be able to design smart components with built-in electrical circuits and 3D print them from the ground up in one go. We expect this to revolutionize the way people think about 3D printed models. Instead of focusing exclusively on shapes and geometries, it will become possible to build components with advanced features like wear detection, failure alerts, or even facilitating movement in response to either temperature or electric current.

THIRD GENERATION 3D PRINTER

Zortrax Endureal is a third-generation 3D printer enabling advanced model manufacturing with high-temperature PEI- and PEEK-based polymers. The machine incorporates many technological solutions which make it a unique tool aimed at high-tech industries and specialized fields.



THERMAL MANAGEMENT

The Endureal has been designed to create and withstand printing conditions necessary to process some of the most challenging high-temp filaments. During the printing process, the materials can be extruded in temperatures reaching 480° C, whereas model building is supported with temperatures as high as 200° C in the enclosed chamber and 220° C on the PEI platform. Such thermal parameters are crucial for model adhesion to the platform and for reducing possible shrinkage when printing sizable objects.

HIGH OPERATION SAFETY

The Endureal maintains full control over the printing process and key modules at every stage of model building. The unit is equipped with an array of sensors which tightly control the position of hardware components and can detect issues with overheating, filament shortages, or a power outage. At all times, it is possible to display a live footage from the heat-resistant camera installed in the main chamber and remotely check the printing progress. In the case of an emergency, the unit can immediately be switched off with the emergency button placed on the front.

ISOLATED COMPARTMENTS

The Endureal has been designed around three thermally isolated zones: the printing chamber, the extruder's compartment, and the filaments compartment. Temperature maintained in one of these zones have a minimal impact on the other two thanks to the insulating materials which are equivalent to those used in aerospace applications. The difference in temperatures between the chamber and the extruder's compartment may reach more than 100° C and this level of thermal isolation is crucial when printing with high-temp polymers. In addition, there are moisture absorbers in the filaments compartment which prevent moisture from deteriorating the quality of filaments during the printing process.

TWO OPERATION MODES

Being equipped with two separate hotends, the Endureal can facilitate the printing process in both single- and dual-extrusion modes. These methods allow the machine to use break-away or soluble support materials, depending on the used model material. Dual-extrusion mode makes it possible to print complex geometries, movable mechanisms, or shapes which single-extrusion mode printers would not be able to fabricate. The printer's potential is supplemented with a large build-space.

AUTOMATED MATERIAL TREATMENT

Processing high-performance filaments is fully supported before and after the printing with special treatment procedures. The Endureal has dedicated options for material drying and annealing, both of which can be performed in the main chamber. The first pre-printing procedure removes moisture from filaments to enhance thermal and mechanical properties of prints. During the annealing stage, prints are heated to their glass transition temperature, kept in this temperature for some time, and then slowly cooled down without changing their initial shape. This dissipates stresses in the models and improves their physical and mechanical properties.

MAINTENANCE FACILITATED

With the innovative design, the Zortrax Endureal proves to be a versatile machine that can perform all procedures required for processing the most challenging filaments. Its ease of use is also ensured, as most of maintenance and simple service work can be completed by in-house operators without voiding the warranty. The unit comes with a Maintenance Kit which contains tools and parts necessary to ensure uninterrupted operation. This significantly minimizes downtime as there is no need to wait for qualified service technicians.



EASY MAINTENANCE OF EXTRUSION SYSTEM

The Endureal's extrusion system has a modular design which enables easy maintenance when needed.

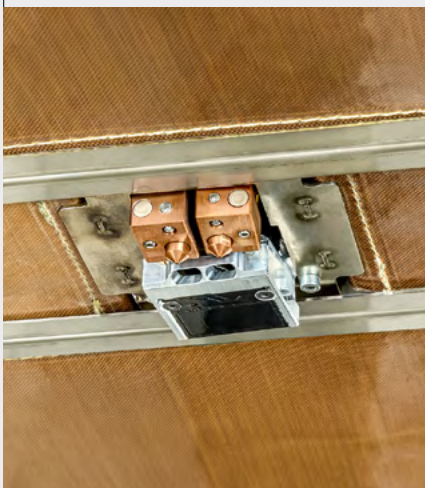
HIGH-PERFORMANCE COMPONENTS

Key components in Zortrax Endureal are designed for high-operating temperatures.



INTUITIVE INTERFACE

The printer can be operated with a simple touchscreen. In emergencies, printing can be stopped by hitting a clearly visible red safety button.



CONTROLLED FILAMENTS' COMPARTMENT

Filaments are stored in a secure, closed environment at temperature optimal for both high-performance and standard polymers the Endureal is designed to work with.

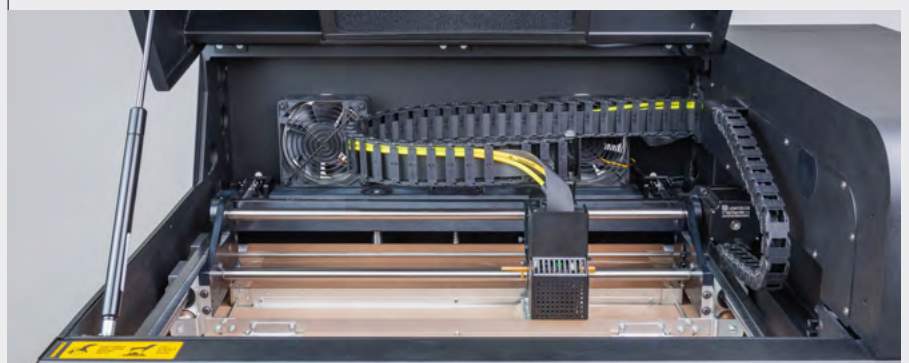
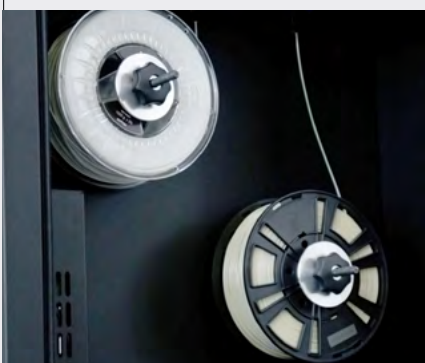


ISOLATED EXTRUDER'S COMPARTMENT

The extruder's compartment in the Endureal is thermally isolated from the printing chamber right beneath it.

ADDITIONAL STORAGE SPACE

The Endureal Station, a mobile stand for the Endureal 3D printer, offers additional storage for tools and materials.





TECHNICAL SPECIFICATION OF ZORTRAX ENDUREAL

DEVICE	
Build volume	400 x 300 x 300 mm (15.7 x 11.8 x 11.8 in)*
Nozzle diameter	0.4 mm (0.016 in)
Extruder	Dual material
Extruder cooling system	Two fans cooling the extruder; radial fan cooling the print
Hotend	High-temperature dual hotend
Platform	Heated, aluminum plate coated with PEI
Material Sensors	2 x mechanical endstop, 2 x material weight sensor
Connectivity	Wi-Fi, Ethernet, USB
Operating system	Android
Processor	Quad Core
Touchscreen	7" IPS 1024 x 600
Camera	Yes

TEMPERATURE	
Maximum printing temperature (extruder)	480° C (896° F)
Maximum platform temperature	220° C (428° F)
Maximum build chamber temperature	200° C (392° F)
Ambient operation temperature	17-30° C (63-86° F)
Storage temperature	0-35° C (32-95° F)

*In dual-extrusion mode project's dimensions cannot exceed 390 mm (15.35 in) in the X axis and/or 290 mm in the Y axis.

PRINTING	
Technology	LPD Plus (Layer Plastic Deposition Plus) advanced technology depositing melted thermoplastics with break-away and dissolvable support structures
Layer resolution	200-250 microns (for 0.4 mm nozzle)
Minimal wall thickness	450 microns (for 0.4 mm nozzle)
Platform levelling	Automatic measurement of platform points' height

ELECTRICAL	
AC Input	120 V ~ 13 A 50/60 Hz 200 - 240 V ~ 9.5 A 50/60 Hz
Maximum power consumption	120 V - 1600 W 200-240 V - 2300 W

SOFTWARE	
Software bundle	Z-SUITE
Supported input file types	.stl, obj, .dxf, .3mf
Supported operating system	Windows 7 and newer versions

FILAMENTS	
Dedicated for single extrusion	Z-ULTRAT Plus
Dedicated for dual extrusion	Z-PEI 9085, Z-SUPPORT ATP (soluble with Z-SUPPORT ATP Activator) Z-SUPPORT High-Temp (break-away), Z-ULTRAT Plus
Support	Mechanically removed - printed with the same material as the model; Break-away - printed with a different material than the model; Soluble - printed with a different material than the model
Filament container	Spool
Filament diameter	1.75 mm (0.069 in)

IN THE BOX	
3D printer, Z-SUITE, Starter Kit, Maintenance Kit, spool of model material, spool of support material, spool of high-temperature model material, spool of high-temperature support material, USB memory stick	



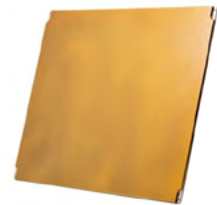
EXTRUDER



EXTRUDER FILAMENT GEARS



HEPA & CARBON FILTERS



PEI PLATE



HIGH-TEMPERATURE HOTEND MODULE



EXTRUDER CABLE



FILAMENT ENDSTOP

PARTS & ACCESSORIES DELIVERED WITH ZORTRAX ENDUREAL 3D PRINTER

PARTS & ACCESSORIES	DESCRIPTION
HEPA & Carbon Filters	2 sets of spare HEPA and carbon filters
Extruder	A dual-extrusion module designed to process filaments in a wide range of temperatures
Extruder Cable	The cable connecting the extruder with the motherboard
Extruder Filament Gears	2 spare gears facilitating filament feeding
Filament Endstop	2 optical sensors detecting the presence of filament
High-temperature Hotend Module	A heating module designed to process high-temperature polymers
PEI Plate	2 spare PEI plates to install on the heatbed

3D PRINTING THERMOPLASTIC FILAMENTS COMPATIBLE ZORTRAX ENDUREAL 3D PRINTER

FILAMENTS	DESCRIPTION	COLORS	SPOOL
Z-PEI 9085	A highly durable and flame-retardant filament widely used in aerospace industry	● Natural	Net weight: 1000 g ±5%
Z-SUPPORT ATP	A soluble support filament designed to withstand high temperatures	○ Natural	Net weight: 750 g ±5%
Z-SUPPORT High-Temp	A break-away support filament designed to withstand high temperatures	○ Natural	Net weight: 1000 g ±5%
Z-ULTRAT Plus	A versatile and highly resilient filament based on ABS	○ Ivory, ● Blue, ● Graphite, ● Pure Black	Net weight: 2000 g ±5%

Z-PEI 9085

An inherently flame-retardant high-performance polymer

Widely adopted in the aerospace industry for aircraft interiors

Airbus uses over 1000 parts 3D printed with PEI in each A350 XWB airliner.



Properties similar to aluminum 6061 with better strength-to-weight ratio

Very low FST (Flame, Smoke, Toxicity)

Great thermal stability

Great heat resistance (heat deflection temperature at 167° C)

Resistant to automotive fluids and alcohols

FLAME-RETARDANT FILAMENT

The material can be used for printing various parts like ductwork, electrical enclosures, or interior elements in aircraft and ground vehicles. It is also suitable for printing industrial components. We are currently working on the Z-PEI 9085 components for the Michelin factory in Olsztyn. Those components will be made to withstand high temperatures present in manufacturing tires.

Z-PEI 9085 AEROSPACE-GRADE FLAME-RETARDANT POLYMER

Z-PEI 9085 is a high-performance 3D printing filament made with a durable blend of polyetherimide commonly used in the aerospace sector. It has strength-to-weight ratio comparable to aluminum 6061 but with much better thermal shock resistance.

F.A.R. 25.853 CERTIFICATE

This certificate means that Z-PEI 9085 has very low FST (Flame/Smoke/Toxicity). The material does not release toxic fumes while burning which is particularly important in safety-critical closed spaces. Both NASA and ESA have also performed numerous outgassing tests with this blend of polyetherimide and qualified it for use onboard the International Space Station.

UL94-V0 FLAMMABILITY RATING

The material has successfully passed tests to obtain a commercial UL94-V0 flammability rating which means it can be safely used in aircraft interiors. This certificate guarantees that a vertically oriented sample of Z-PEI 9085 has extinguished within 10 seconds from when fire had been applied to it.

EXCELLENT STRENGTH-TO-WEIGHT RATIO

Polyetherimide used to make the Z-PEI 9085 filament has been proven to be strong enough for structural frames of nano satellites. The frame 3D printed with this material successfully passed demanding vibration, impact, and stress tests designed to simulate the launch onboard a rocket. It was also 46.77% lighter than an aluminum frame with the same geometry.



COCKPIT PANELS

Flame-retardant panels for an airliner.

GREAT THERMAL PERFORMANCE

Z-PEI 9085 can withstand high temperatures reaching 167° C which makes its thermal performance on par with aluminum 6061. This means Z-PEI 9085 can be used to 3D print components working in direct contact with automotive engine blocks which typically operate at temperatures between 90° C and 120° C. Moreover, the material withstands rapid temperature changes much better than aluminum.

AIR INTAKE MANIFOLD

A tubo air intake manifold designed to work in contact with an engine block heating up to 120° C.



FLAME-RETARDANT AEROSPACE COMPONENTS

Z-PEI 9085 has been tested in accordance with the stringent FAR 25.853 procedures.



HEAT-RESISTANT

The material's heat resistance is equal to aluminum 6061 which means Z-PEI 9085 retains its mechanical properties in up to 167° C.



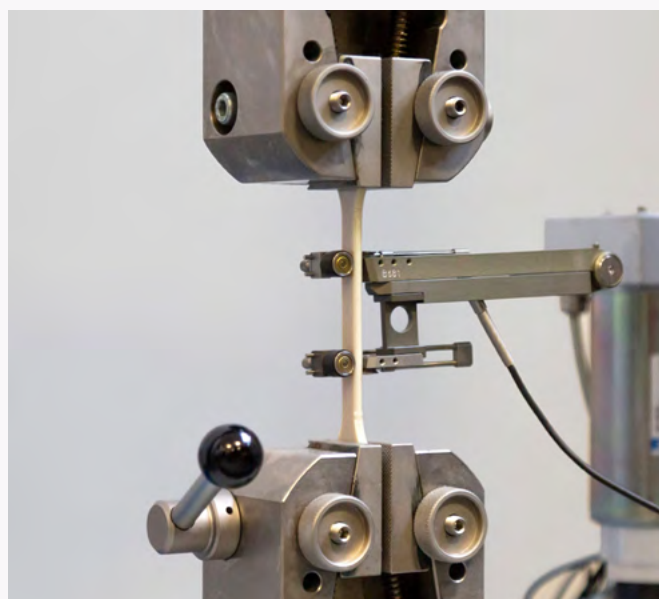
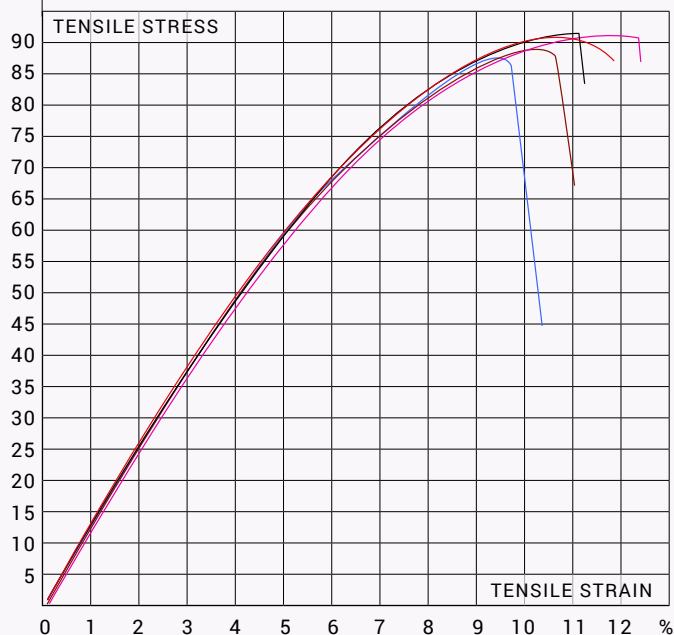
AEROSPACE-GRADE

Components exhibit properties comparable to their counterparts made with aluminum 6061.



FIVE SAMPLES ARE MARKED WITH DIFFERENT COLORS

All five samples have been 3D printed on the Zortrax Endureal out of Z-PEI 9085 and exhibited exceptional tensile strength values between 86.29 MPa to 90.23 MPa.



BUILD VOLUME
300 x 250 x 250 mm
11.8 x 9.8 x 9.8 in



AUTOMATED POST-PROCESSING DEVICE

Zortrax Apoller is an innovative device developed around a proprietary Smart Vapor Smoothing (SVS) technology with the EU ATEX certification, which smoothes the surface of FDM prints. This effect is achieved through vaporization of solvents that react with the thermoplastic used for 3D printing. The Apoller is compatible with filaments based on ABS, HIPS, and ASA, regardless of the manufacturer.

AUTOMATIC SMOOTHING PROCESS

The SVS technology revolves around automatic circulation of solvent vapors inside the chamber to post-process 3D printed items. Depending on the material of prints, the Apoller uses either pure acetone or pure butanone (MEK) during the procedure. Post-processing is fully automated and involves several stages, including solvent vaporization and condensation. Every stage is thoroughly managed in terms of temperature, pressure, and concentration of the solvent's vapors in the smoothing chamber. What users performed manually on their own can now be successfully substituted with the powerful capabilities of the machine.

DESIGNED FOR SAFE OPERATION

The Apoller is a desktop device offering industrial class performance with technologically advanced features introduced in its design. Solvent processing, which leads to the smoothing effect, is fully secured in the double-sealed chamber to provide safe operation. The device thoroughly retains used solvent vapors as well as entirely controls pressure differences that are induced at the beginning of the process. In addition, smoothed models are ready to be taken out of the chamber only when the device has fully decontaminated the chamber.

SMART MANAGEMENT

Each smoothing process takes place in a sequence of specially arranged cycles and lasts about three hours. During this period, the liquid solvent transitions into vapors, which are then atomized in the chamber, and finally distributed on models. Vapors circulate and partially cover the models placed in the chamber to ensure an equal smoothing effect that does not damage fragile and intricate details. For environmental and safety reasons, the solvent vapors are then effectively retracted and condensed. This way, the liquid can be regained and used for the next smoothing processes.

EU ATEX CERTIFICATION

The Zortrax Apoller has a certificate of compliance with the EU ATEX directive. The machine has been designed to incorporate safety systems that would meet the highest standards for the electrical equipment working with explosive chemicals. Moreover, the production process has undergone precise examination and each used component has gone through quality control tests to prevent the risk of explosions and maximize the device's safety. Every unit, however, requires an annual inspection conducted by the Zortrax Authorized Service to keep the ATEX certification valid and ensure the continuation of safe performance.



INDUSTRIAL POST-PROCESSING

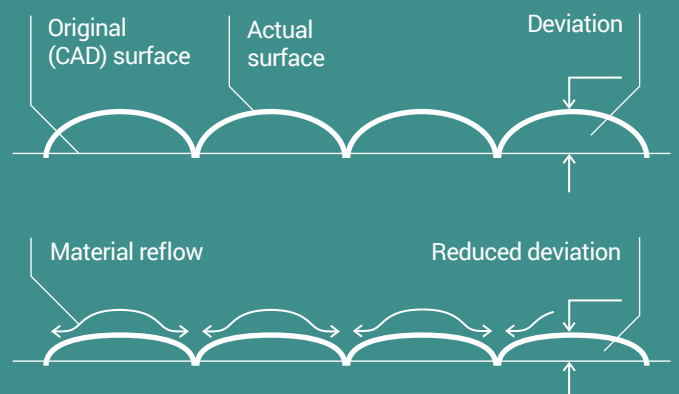
COST-EFFICIENCY THROUGH AUTOMATION

Zortrax Apoller has been designed as a support device for additive manufacturing systems working in low to medium series production. In one 8-hour long working day, the Apoller can post-process models made on 6 polymer extrusion 3D printers with typical build volumes measuring 200 x 200 x 200 millimeters.

INDUSTRIAL POST-PROCESSING WITH ZORTRAX APOLLER

With Zortrax Apoller, vapor-smoothing is a controlled, industrial process with high results repeatability and low sensitivity to human error. It is also faster and more cost-efficient than human labor. Here is a post-processing cost breakdown done for a series of 500 computer fan covers:

POST-PROCESSING METHOD	TOTAL TIME	COSTS
Human labor	54 hours	Cost of 54 man-hours dependent on average wages
Zortrax Apoller	6 hours	\$3 including costs of energy, acetone solvent, and amortization of the device



REDUCING LABOR

Each post-processing session in Zortrax Apoller lasts 3 hours. In one go, the Apoller can smooth 256 computer fan covers. This is why the entire batch of 500 units can be smoothed within one working day. Because the process is mostly automated, there is no need for human supervision apart from taking the models in and out of the smoothing chamber.

SUPERIOR SURFACE QUALITY

Surfaces with visible layering have always been a tell-tale sign that the component has been 3D printed. Now, with automated post-processing technology available in Zortrax Apoller, the quality of 3D printed models can be quickly and efficiently set on par with mass-produced, injection-molded products. All without compromising any of the versatility nor customization that come with manufacturing operations based on 3D printers.

FLAWLESS CONSISTENCY



ADVANCED GEOMETRIES



VARIABLE SURFACE FINISH



STUNNING LOOKS WITH SVS TECHNOLOGY

zortrax apoller



TECHNICAL SPECIFICATION OF ZORTRAX APOLLER

DEVICE	
Build volume	300 x 250 x 250 mm (11.8 x 9.8 x 9.8 in)
Connectivity	Wi-Fi, Ethernet, USB
Operating system	Android
Processor	Quad Core
Touchscreen	4" IPS 800 x 480
Solvent compatibility	Pure acetone or pure MEK only*
Available materials	Z-ABS, Z-ASA Pro, Z-HIPS, Z-ULTRAT, Z-ULTRAT Plus
External materials	ABS, ASA, HIPS

PROCESS	
Maximum working temperature	90° C (194° F)
Minimum working temperature	- 20° C (-4° F)
Minimum gauge working pressure	- 0.6 bar
Ambient operation temperature	15-30° C (59-86° F)
Storage temperature	0-35° C (32-95° F)

ELECTRICAL	
AC Input	110 V ~ 13.6 A 50/60 Hz; 240 V ~ 6.3 A 50/60 Hz
Power supply parameters	24 V DC @ 21 A, 500 W
Maximum power consumption	1500 W

IN THE BOX	
Device, Starter Kit	



COMPATIBLE MATERIALS

This table specifies Zortrax Materials that are prone to the smoothing process in the Zortrax Apoller, compatible solvents*, and final effect of the surface finish.

	ACETONE	MEK
Z-ABS	Glossy finish, layers on vertical surfaces are invisible	Glossy finish, layers on vertical surfaces are invisible
Z-ASA Pro	Semi-matte finish, layers on vertical surfaces are invisible	Semi-matte finish, layers on vertical surfaces are invisible
Z-HIPS	No reaction	Glossy finish, layers on vertical surfaces are invisible
Z-ULTRAT	Glossy finish, layers on vertical surfaces are invisible	Glossy finish, layers on vertical surfaces are invisible
Z-ULTRAT Plus	Semi-matte finish, layers on vertical surfaces are invisible	Semi-matte finish, layers on vertical surfaces are invisible

*Only pure acetone and pure butanone (MEK) are supported and safe to use. Using other solvents may be dangerous and should not be attempted. It will also result in voiding the warranty.

RAMPING UP MASS PRODUCTION

A Zortrax modular additive manufacturing system can be configured to cost-efficiently produce

600 lamps
HIGHLY-CUSTOMIZED
per month.

This capability can be achieved with no costs for retooling and minimal investment in storage, compared to traditional manufacturing technologies.

PRODUCING END-USE LAMPS

There are a few defining features of manufacturing systems built for fabricating end-use, customizable lamps.

- Relatively high production output is needed.
- Quality on par with injection-molding has to be maintained consistently.
- Products need to be customized on a per-unit basis.
- Low maintenance costs have to be kept.
- The system has to have low running costs.



\$1 per component
under **\$10**
per final product

Investment:
30x Zortrax
M200 Plus
3D printers,
3x Zortrax Apoller
SVS devices

Monthly output:
600 units



SUGGESTED SYSTEM CONFIGURATION

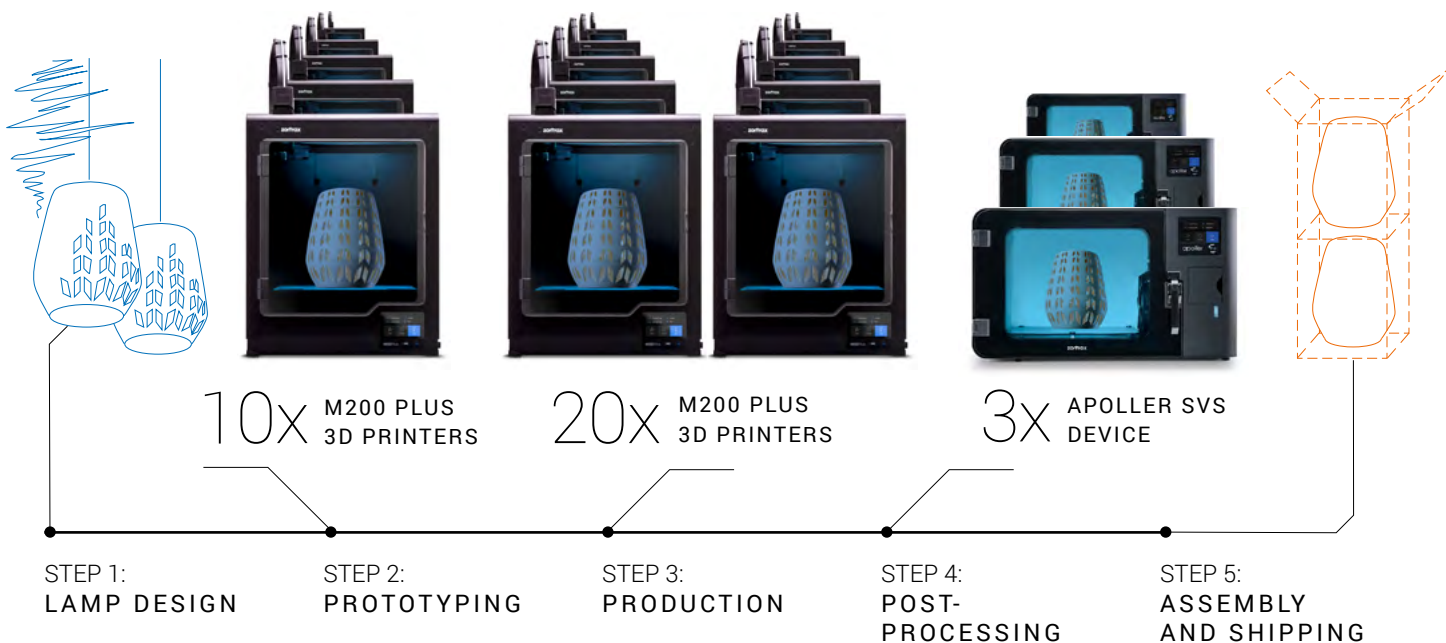
An example of Zortrax industrial system configured to meet these requirements consists of:

THIRTY ZORTRAX M200 PLUS 3D PRINTERS

The M Plus Series has been designed to offer high quality of prints, low maintenance and running costs, and industrial-grade reliability. Ethernet and Wi-Fi connectivity means that the entire 3D printing farm can be managed remotely.

THREE ZORTRAX APOLLER SVS POST-PROCESSING DEVICES

Zortrax Apoller SVS devices ensure that repeatable, high-quality vapor-smoothing can be performed on a daily basis. The process is mostly automated which brings the labor costs down. The Apoller meets the requirements specified in the EU ATEX directive which means it can be safely used in office spaces.



The idea for a new lamp originates internally or from the customer input.

All components for newly designed lamps are fabricated in a prototyping cluster of 10 M200 Plus 3D printers.

If everything works fine in a new lamp, the design is manufactured using a production cluster of 20 M200 Plus 3D printers.

Manufactured components are post-processed in 3 Apoller devices working in a post-processing cluster to achieve smooth surfaces and quality finish.

Post-processed components are assembled into end-use lamps and shipped to customers.



SUPPORTING ASSEMBLY LINES

Zortrax 3D printing systems can be configured in a setup efficiently supporting traditional assembly lines in large factories. Based on experience of Toyota and Bosch, our key industrial customers, we propose an additive manufacturing system for a large factory.

DIVERSITY OVER VOLUME

Building a 3D printing system for an assembly line has to be done with key requirements in mind.

- There is a wide spectrum of thermal and mechanical standards the 3D printed parts have to meet.
- Fabricating jigs and fixtures at a factory is more about diversity and flexibility than volume.
- System-wise cost-efficiency has to be achieved in both standard and high-performance components.

SUGGESTED SYSTEM CONFIGURATION

With all these requirements in mind, we have configured an example 3D printing system designed to support large factories.



ZORTRAX M300 DUAL

The M300 Dual is a dual-extrusion machine with large build-space capable of fabricating geometrically advanced jigs and fixtures intended for use in less challenging environments.



TWO ZORTRAX M300 PLUS

The M300 Plus machines are made for cost-efficient fabrication of less geometrically advanced tools and spare parts.



ZORTRAX ENDUREAL

The Endureal has been made for fabricating high-performance components out of durable and chemically resistant polymers like Z-PEI 9085.



ZORTRAX APOLLER

The Apoller SVS post-processing device can vapor-smooth components intended for use with oils and greases as the process performed in the Apoller reduces permeability of surfaces.

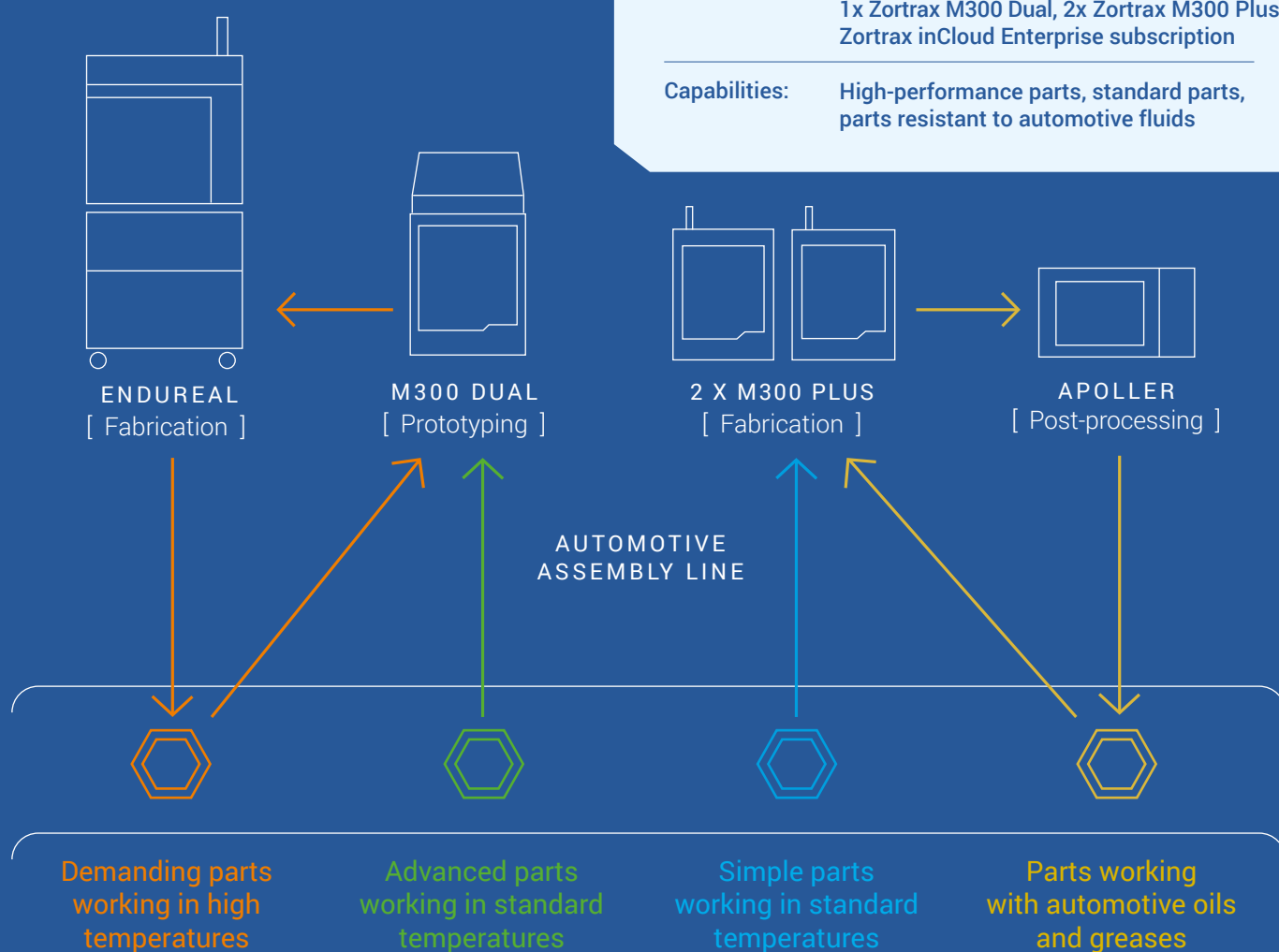


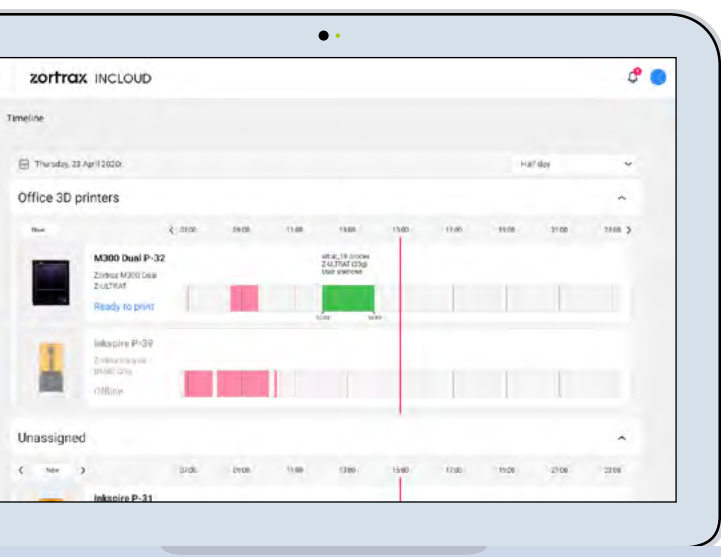
3D PRINTING AT A LARGE FACTORY

All 3D printers working in the system can be controlled remotely through the Zortrax inCloud service with an Enterprise subscription plan. They can also be used jointly to optimize costs. Here is how the system is arranged.

COST BREAKDOWN:

Manufacturing process:	3D printing with automated post-processing when necessary
Cost per component:	\$1-3 for standard components, \$15-40 for high-performance components
Investment:	1x Zortrax Endureal, 1x Zortrax Apoller, 1x Zortrax M300 Dual, 2x Zortrax M300 Plus Zortrax inCloud Enterprise subscription
Capabilities:	High-performance parts, standard parts, parts resistant to automotive fluids





CLOUD-BASED MANAGEMENT

Zortrax 3D printers with network connectivity can be managed remotely through the Zortrax inCloud service.

MANAGING RESOURCES

Zortrax inCloud enables adding multiple devices and users to the company's account. People can then be divided down into different teams. Finally, available 3D printers can be assigned to each team. This way it is possible to make sure that everybody in an organization has instant access to the right equipment for the job.

INSTANT PRINTING

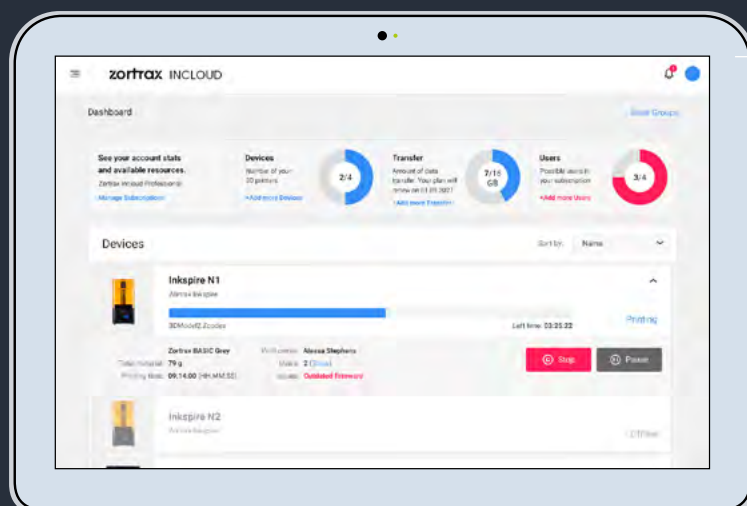
Multiprint option is a feature aimed at businesses looking for large production capacity. With just a few clicks, 3D printing a chosen model can be quickly initiated on all available 3D printers. Production can be therefore started immediately after the design is accepted by all the stakeholders.

ACCESSIBLE DATA

All the information on how the 3D printers at the organization have been used and by whom is stored and organized neatly in the „Timeline“ panel. It is possible to quickly check when each of the printers worked, for how long, with what materials, and whether they completed the assigned prints.

PRIVACY PROTECTION

Communications between users, Zortrax servers, and 3D printers are encrypted. Moreover, Zortrax do not store nor has access to the models sent through the inCloud service. Models are present on the servers only for the duration of transferring them to the printers. Once this is done, they are deleted automatically. This is particularly important for businesses with valuable intellectual property.



DASHBOARD
All inCloud features can be easily accessed from the Dashboard screen.

REMOTE MANAGEMENT

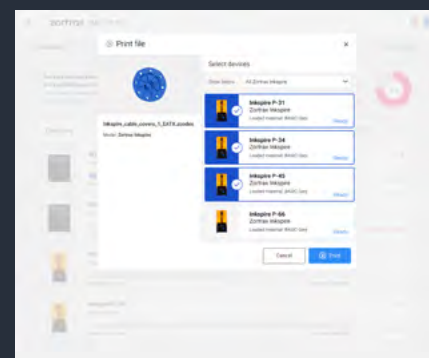
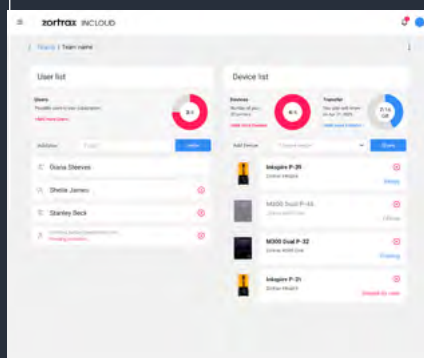
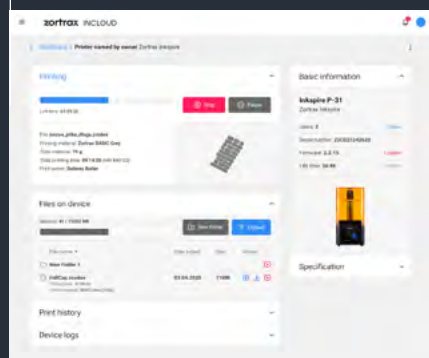
Every Zortrax 3D printer connected to the inCloud account can be managed remotely.

BUILDING TEAMS

Staff added to the inCloud account can be organized into teams assigned to different projects.

INSTANT MULTIPRINT

A single file can be instantly printed with multiple 3D printers added to the inCloud account.







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A Zortrax certified consultant
or Authorized Reseller can help
you set up an additive
manufacturing system tailored
to your needs and provide you
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