

# Roboze

**Additive production with high performance materials**

**#PrintStrongLikeMetal**



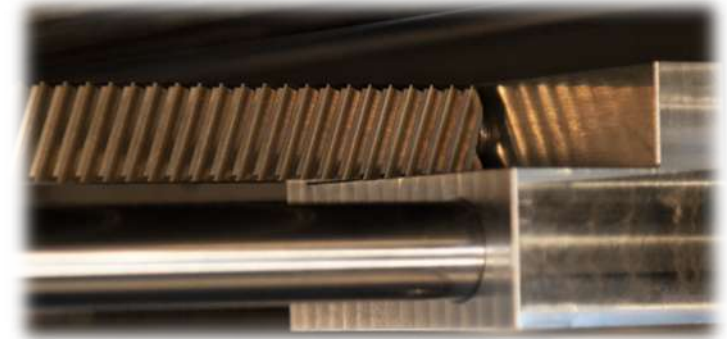
# Roboze Technology

## Three factors that make Roboze technology unique

The success of Roboze brand comes from the high quality of its products, the meticulous selection of its business partners and the accurate management of the post sales relationships: it offers its customers mechatronic know-how and advanced materials engineering.

All this represents the perfect mix for those who need a **high performance 3D printing**, that guarantees the best details and meets their real and current needs.

- **Beltless System**
- **HVP Extruder**
- **Materials Engineering**



# Patented Beltless System

The innovation that eliminated belts in 3D printing

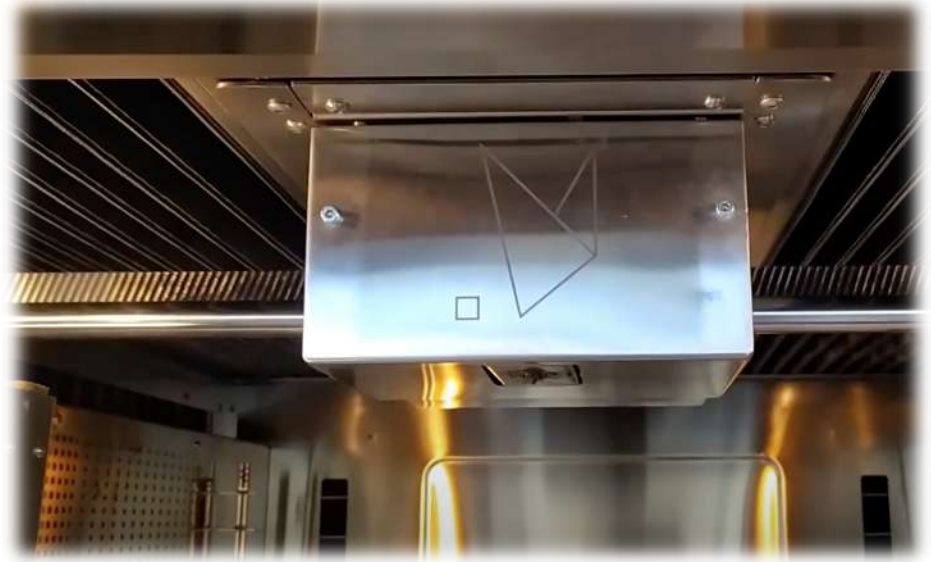
- 10 micron tolerances  
(in the Production solution)
- Mechanical Repeatability
- Low Maintenance



# HVP Extruder – patent pending

Designed and produced to print high viscosity polymers

- Temperatures up to 550°C
- Entirely made in **AISI303**
- Compressed air cooling system



# Materials Engineering

Specifically engineered for the most extreme sectors and able to guarantee unique performance

The **highest chemical, thermal and mechanical performance** are the result of the collaboration between Roboze R&D department with scientific partners and research centers, specialized in materials engineering.



# Commodity Polymers

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# PP

## Polipropylene

PP, polypropylene, is **a commodity polymer** used in a wide variety of common use applications and automotive components, thanks to its high bump, abrasion, and chemical resistance and electric insulation properties.



# Mid-Range Polymers

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# Mid-Range Polymers



## ULTRA-PLA

### Polylactic Acid

High surface quality  
Easy to print  
Hypoallergenic



## FLEX-TPU

### Thermoplastic elastomer

Abrasion resistance  
Fatigue strength  
Atmospheric agents and ozone resistance



## STRONG-ABS

### Acrylonitrile-butadiene-styrene

Good processability  
Impact resistance  
High surface energy



## PC-LEXAN™

### Polycarbonate Copolymer

High impact resistance and ductility at low temperature (up to  $-30^{\circ}\text{C}$ )  
Flame resistance



## FUNCTIONAL-NYLON

### Polyamide

Low wear  
Good chemical and mechanical resistance

# Ultra-Polymers

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Roboze

# Ultra-Polymers



## PEEK

### Polyether ether ketone

High chemical resistance  
High thermal resistance  
Self lubricating

#### Continuous Use Temperatures

Test Method: UL 746 B

Value: **245°C**

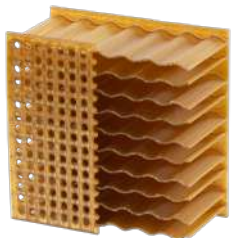


## ULTEM™ AM9085F

### Polyether imide

Thermal resistance  
Flame retardant

#### Aerospace certification



## EXTEM™ AMHH811F

### Thermoplastic Polyimide

Excellent flame-retardant properties  
Great resistance to high temperature  
Excellent dimensional stability

#### UL BLUE CARD Certified

Test Method: ANSI/UL 94, IEC 60695-11-10, -20

Value: **V0 @ 0,75mm**

# Composite materials

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# Composite materials



## CARBON PA

### PA + Carbon Fiber

High mechanical properties  
Good thermal resistance  
Good surface quality

### Tensile Strength

Test Method: ASTM D638

Value: **138 MPa**



## CARBON PEEK

### PEEK + Carbon Fiber

Carbon fiber improves the compressive strength, the stiffness and the PEEK load capacity.

Extraordinary properties, useful for metal replacement in the most extreme environments.

### HDT (load **1.82MPa**)

Test Method: ISO75

Value: **280°C**



## ABS-ESD

### ABS + carbon nanotubes

Electrostatic protection with a resistivity target  $10^7$  ohms electric (the typical range is of  $10^6$ - $10^9$  ohms)

# Industries and Applications

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# Aerospace



## Today's challenges

Weight saving

Supply chain efficiency

Materials certifications



## How Roboze solutions face them

Materials and process validation to increase quality

Reduction of flight costs thanks to lighter parts

Contributing to revolutionize and speed up the supply chain

Traceability, reliability and repeatability of the printed parts



# Automotive/Motorsport



## How Roboze solutions face them

Reducing the aircraft production costs thanks to lighter components

Innovation in more complex and integrated parts produced on demand

Fast iteration between projects

Acceleration of lead time

## Today's challenges

Less emissions due to weight savings

Faster time-to-market

Supply chain Optimization





# Manufacturing Industry



## Today's challenges

Warehouse dematerialization

Reduction of shipping costs

Personalization of jigs and tools

## How Roboze solutions face them

Functional parts according to operating tests of the tools

Optimization of the materials' parameters

Faster supply

Increased productivity



# Trusted by

**AIRBUS**  
GROUP

**RAFAEL**   
ADVANCED DEFENSE SYSTEMS LTD.

**SAFRAN**  
AEROSPACE · DEFENCE · SECURITY

**DAHER**

**EIBIT**  
SYSTEMS Ltd.



**CNH**  
INDUSTRIAL



**LEONARDO**  
AEROSTRUCTURES

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 **BOSCH**



**MERCK**

**SONY**

**Honeywell**

**dallara**



**CANDY**

**G.D**

# Overview of the systems

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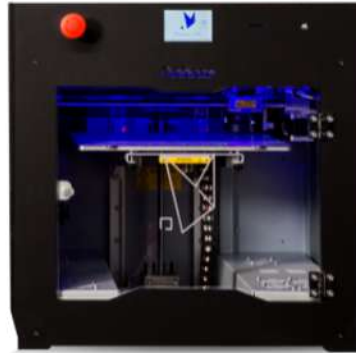
# DESKTOP SERIES

The most precise and versatile FFF 3D printers in the world

The best 3D printers in the world with a revolutionary **Beltless System**, selected by the top global AM players.

**25 micron** tolerances, technical materials, ease of use and low maintenance.

Roboze One+400, in particular, is equipped with the HVP extruder, able to reach 450°C for the PEEK printing.



# DESKTOP/PRODUCTION SERIES

High performance technology for the most extreme applications

Roboze desktop solutions evolve and a new generation of FFF 3D printers comes to light.

**More precise, more innovative** and with **more materials**, engineered and designed for the most extreme needs.

**15 micron** tolerances, advanced electronics and **4000 mm/min** printing speed.

Roboze One+400 Xtreme offers, in a office-friendly version, the same strength and materials of the production series, **CARBON PEEK** included.



# PRODUCTION SERIES

**From prototyping to the production of large scale finished parts**

ARGO 500 is the result of a deep analysis of the market needs, of intensive research and strategic partnerships with the best players of the additive manufacturing world.

The machine allows the **production of finished** parts with a **500x500x500mm** build plate in high performance technopolymers:  
**PEEK, ULTEMTMAM9085F, CARBON PA and CARBON PEEK.**

**10 micron** tolerances and **5000 mm/min** printing speed.

Get ready to produce strong like metal parts!





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