NOVAKRON LTD

AM MASS PRODUCTION

ADDITIVE MANUFACTURING MASS PRODUCTION

Copper 3D Printed Heat Exchanger
(NOVAKRON, 2024)

QUALITY QUANTITY REPEATABILITY

NovoStar Engineering Solutions & Services

Founded in 2015, **NovoStar** began with complex projects. Today, we specialize in **designing** precision mechanisms, jigs, plastic-metal-composite molds, hydraulic and pneumatic systems, space systems, valves, gauges, and RF systems.
Our capabilities include **static** and **dynamic simulations**, **CFD**, **flow analysis**, and expertise in **smart and advanced materials**. We also provide electrical circuit design, software development, control systems, and 3D modeling for complex parts.

Valentin Nov
CEO

NOVAKRON Additive Manufacturing Mass Production

NOVAKRON is at the forefront of **Additive Manufacturing** strategically focused on the **Mass Production** of components using advanced 3D Printing techniques.
The high complexity of **scaling up to mass production** with 3D Printing demands a professional approach: from CAD design, optimizing the build space, selecting and processing powders, training staff, and understanding of post-processing technologies.

Benyamin Gordon
Business Development Director

CORE

- **CAD Design** (Topology optimization)
- **Simulation & Analyses** (CFD, Static, Dynamics Analysis, FEA)
- **3D Printing** (Metals, Ceramics, Polymers, Composites*)
- **Post-processing** (Surface Plasma Coating, PVD, CVD, Heat treatment)
- **Materialscience** (Development and utilization of exotic materials)
- **Quality Assurance** (3D Scanning*)

PROJECTS

משרד הביטחון
MINISTRY OF DEFENCE

IAI
התעשייה האווירית לישראל

RAFAEL

Elbit Systems

תומר
חברה ממשלתית בע"מ

KRATOS
READY FOR WHAT'S NEXT

IWI

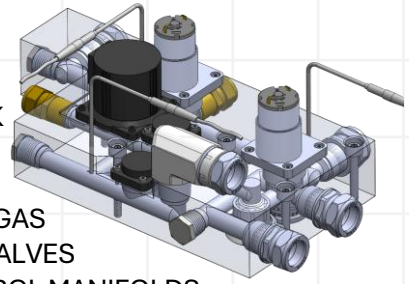
NovoStar Engineering Solutions & Services

Medical, Industrial & Product Design

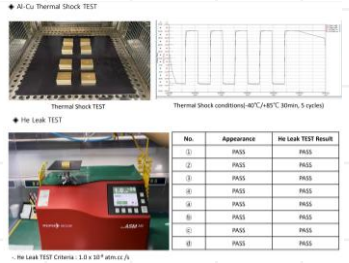
- PRESSURE/VACCUM Control Panel
- HYDROGEN SYSTEM H2S, KOH
- 4 HEAD 3D PRINTER
- ASM VALVE MIX FUELL
- BACTERIAL FILTER
- COMMUNUCATION BOX
- CLOSE SPACING
- INHALLER
- DENTAL TOOLBOX
- BABY FORMALA MACHINE
- TOTAL OCCLUSION Treatment
- SPEAKER For universal frequencies

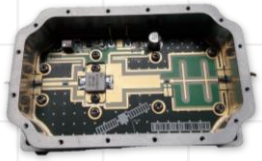
Military & Aviation projects

- FIN REGULATION SYSTEM
- PRESSURE REGULATING VALVE in TANK
- ULTRA LIGHT SPACE TANK "Low Cost"
- ANALOG SPACE FLOW CONTROL VALVE LIQUID/GAS
- PRESSURE REGULATING VALVES
- ULTRA LIGHT FLOW CONTROL MANIFOLDS
- SMA VALVE BASIC ON NITINOL "Low Cost"



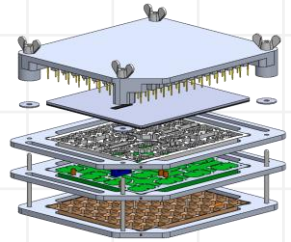
Electronic Projects /RF MODULE/





Jig For Assembly Process

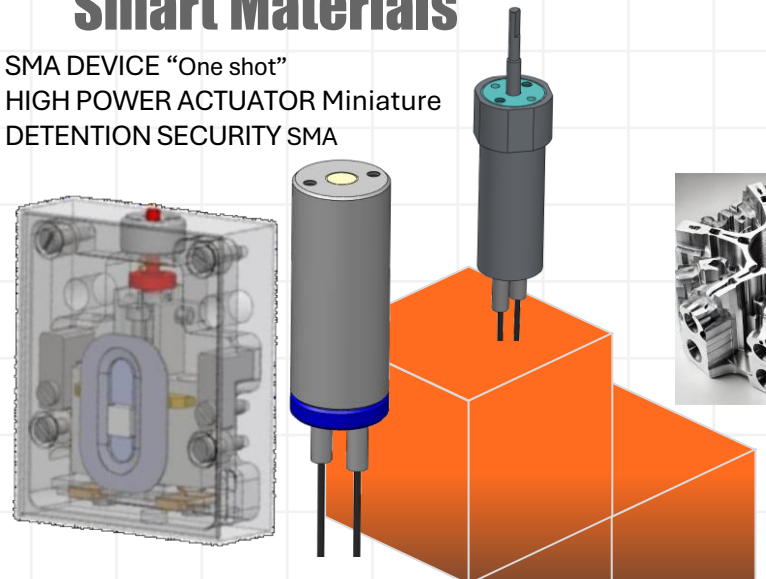
- MIMICs & COMPONENTS ASSEMBLY
- GRAPHITE JIG
- SST – JIG's



Vacuum Solder Reflow Station
High Vacuum Furnace
Wire/Ball Bonder

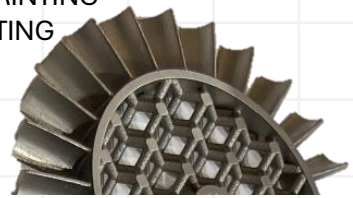
Smart Materials

- SMA DEVICE "One shot"
- HIGH POWER ACTUATOR Miniature
- DETENTION SECURITY SMA



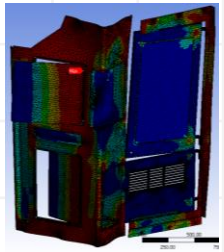
Production

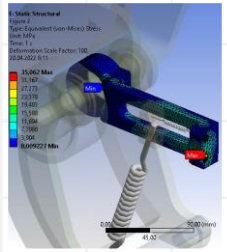
- CNC
- 3D PRINTING
- COATING



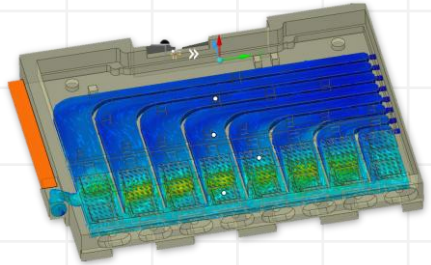
Analyses

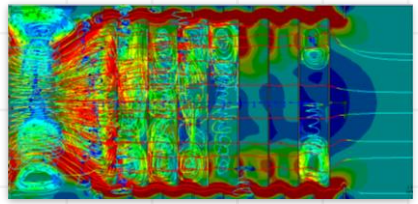
- TRAIN ELC-BOX SIMULATION
- ALTERNATOR SIMULATION
- MOTOR MODAL ANALYSIS
- CB BOX MODAL ANALYSIS
- CFD ANALYSIS
- CFD THERMAL ANALYSIS
- STRACTURAL ANALYSIS





FEA





Novakron Technological Strategy & Growth Framework 2025

NOVAKRON LTD
AM MASS PRODUCTION

Additive Manufacturing Capacity

Metal printing ~ 27 722 kg /year
Ceramic printing ~ 120 kg/year

Additive Manufacturing Facilities

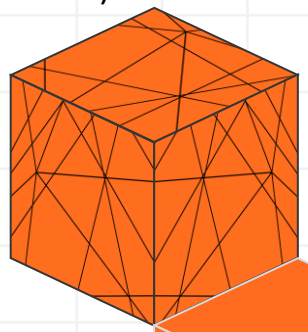
EOS M400-4
RenAM 500Q ULTRA
Hammer Pro40
CeraFab System S65

Additive Manufacturing Arsenal

Laser Powder Bed Fusion (LPBF)
Lithography-based Metal Manufacturing (LMM)
Lithography-based Ceramic Manufacturing (LCM)

Post-Procesing

Metal & Ceramic Sintering (up to 2000 C)
Coating (Functional Coatings, PACVD-CAPP)
Surface treatment
CNC



Additive Manufacturing Brands

EOS GmbH
Renishaw plc
Lithoz GmbH
Incus GmbH

Quality Assurance (QA)

3D Scanning Inspection
Particle Size & Shape Analysis
Mechanical testing

Novakron Equipment Map for AM Mass Production

NOVAKRON LTD
AM MASS PRODUCTION

EOS M400-4
March 2025

CeraFab System S65
July 2025

3D Scanning
April-May 2025

Post-Production Area
- *Heat treatment*
- *Removing support structures*
- *Surface treatment*
- *CNC*
- *Coating*

RenAM 500Q FLEX
July 2025

Hammer Pro40
August-September 2025

RenAM 500Q ULTRA

3D Prototyping
SLA/FFF

NOVAKRON LTD
AM MASS PRODUCTION

NOVAKRON Additive Manufacturing Base

EOS M400-4 /Metal Laser 3D Printing/

EOS M 400-4 is a high-performance industrial 3D printer designed for large-scale metal additive manufacturing. Equipped with four 400 W lasers, it delivers **high productivity** and speed, making it ideal for demanding applications in aerospace, automotive, medical and other industries.

TECHNICAL DATA

BUILD VOLUME	400 x 400 x 400 mm
LASER TYPE	Yb-fiber laser; 4 x 400 W
SCAN SPEED	up to 7.0 m/s
FOCUS DIAMETER	approx. 90 µm

EOS MATERIALS

1	Aluminium AlSi10Mg
2	Aluminium Al2139 AM
3	CaseHardeningSteel 20MnCr5
4	CopperAlloy CuNi30
5	MaragingSteel MS1
6	NickelAlloy HAYNES 282
7	NickelAlloy HX
8	NickelAlloy IN (625, 718, 939)
9	Stainless Steel (17-4PH, 316L)
10	Titanium Ti64 (Grade 22, 5)
11	Titanium TiCP

NOVAKRON LTD
AM MASS PRODUCTION

RENISHAW

NOVAKRON Additive Manufacturing Base

RenAM 500Q ULTRA/Metal Laser 3D Printing/

RenAM 500Q ULTRA is a high-performance industrial 3D printer designed for precision metal additive manufacturing. Equipped with four 500 W lasers and advanced process monitoring, it ensures exceptional **productivity and quality**.

TECHNICAL DATA

BUILD VOLUME	250 x 250 x 350 mm
LASER TYPE	Yb-fiber laser; 4 x 500 W
SCAN SPEED	2 – 10 m/s
FOCUS DIAMETER	approx. 80 µm

RENISHAW MATERIALS

1	Titanium Ti6Al4V
2	Aluminium AlSi10Mg
3	Cobalt chromium CoCr
4	Stainless steel 316L
5	NickelAlloy IN (625, 718)

NOVAKRON LTD
AM MASS PRODUCTION

incus

TECHNICAL DATA

BUILD VOLUME	200 x 150 x 150 mm
LAYER THICKNESS	10 – 100 µm
PRINTING SPEED	up to 700 cm^3/h
RESOLUTION	approx. 40 µm

NOVAKRON Additive Manufacturing Base

Hammer Pro40/Metal LMM 3D Printing/

Hammer Pro40 is an industrial 3D printing system for metal AM using **binder jetting technology**. Equipped with an advanced dual scrolling projector system and an expanded build volume of 200 × 153.6 × 150 mm, it delivers exceptional productivity and quality. With a printing speed up to 240 layers per hour, it is an optimal solution for serial production of complex metal components.

INCUS MATERIALS

1	Titanium Ti6Al4V
2	Cooper
3	Stainless steel 316L
4	Stainless Steel 17-4PH
5	Custom materials*

INCUS BINDERS

1	BMP18 Binder
2	BM101XT Binder
3	Customized Binder

NOVAKRON LTD
AM MASS PRODUCTION

LITHOZ

NOVAKRON Additive Manufacturing Base

LITHOZ CeraFab System S65 /Ceramic LCM 3D Printing/

CeraFab System S65 is a high-precision industrial 3D printer optimized for advanced ceramic additive manufacturing. Featuring state-of-the-art technology, it delivers exceptional accuracy and reliability, making it ideal for applications in aerospace, energy, and other high-tech industries.

TECHNICAL DATA

BUILD VOLUME	102 x 64 x 320 mm
BUILD SPEED	150 layers per hour
RESOLUTION	approx. 40 µm
LAYER THICKNESS	10-200 µm

LITHOZ MATERIALS

1	Alumina (350, 360, HP 500)
2	Aluminium nitride
3	Zirconia
4	Slicon Nitride
5	Silica-based
6	Tricalcium phosphate
7	Hydroxyapatite (400, 480)
8	Zirconia-Toughened Alumina
9	Alumina-toughened zirconia

LITHOZ FURTHER MATERIALS

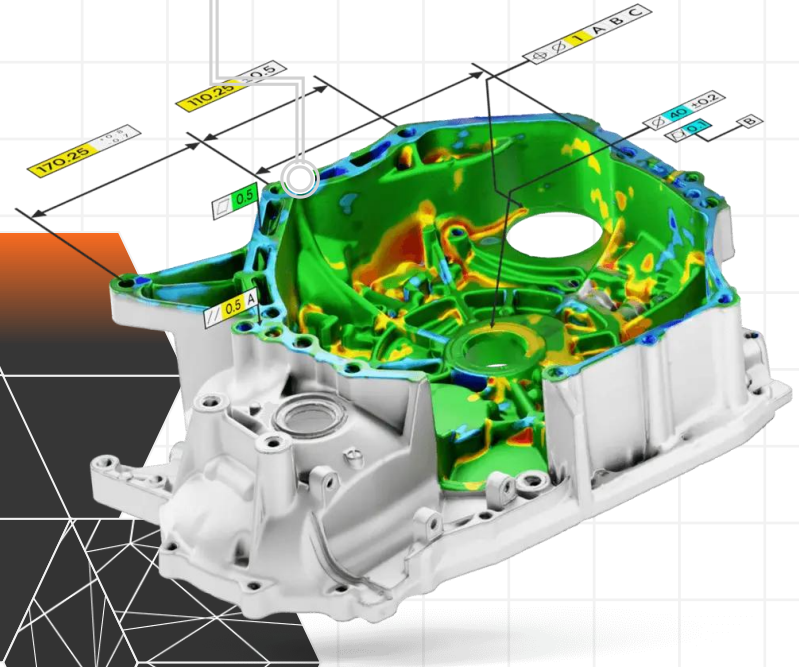
1	High-Dielectric Ceramics
2	Piezoceramics
3	Yttria
4	Transparent ceramics
5	LithaGlass
6	Lithium Disilicate

NOVAKRON Quality Assurance

Inspection of 3D Printed Parts Using a 3D Scanner

- Scanning the part to create a high-precision 3D model
- Comparing the scanned model with the original CAD design
- Generating reports on tolerances and deviations

Advantages	Capabilities
High measurement accuracy	Deviation analysis from the nominal model
Fast inspection of complex shapes	Detection of defects, cracks, and deformations
Low risk of errors during inspection	Support for reverse engineering processes
	Automated reporting and integration with quality control systems



Capabilities of 3D Scanner Analysis

Dimensional Accuracy Verification (Diameters, Radii, Distances)
Deviation Mapping (Fully color mapping of surface deviation)
Defect Detection (Cracks, warping, surface imperfections)
GD&T (Full verification of tolerances, fits and forms)
Reverse Engineering (Useful for creating digital twins of physical objects)
Airfoil Inspections (Full airfoil section analysis: Section mapping, TE and LE thickness, chord, throat area, max thickness)
Trend Analysis (Analyzing the repeatability of each dimension on parts)

NOVAKRON Post-Procesing Coatings

DLCPateks coating

Functional Coatings Surfacing/Spraying/Deposition

wear resistant against fatigue, cavitation and erosion	**heat resistant** maintaining material properties at high temperatures
antifriction to reduce friction between the contacting surfaces	**electrically conductive** providing the required conductive properties
friction for high coefficient of friction and roughness	**electrically insulating** to obtain specified dielectric properties
anti-adhesion promoting low adhesion with mating materials	**hydrophobic & hydrophilic** to change the wetting ability of the surface
adhesive used to improve adhesion between materials	**biocompatible** to reduce the risk of medical implant rejection
corrosion-resistant in air, water, aggressive, active and other environments	**antibacterial** glass-ceramic inhibiting the growth of microorganisms
inert protecting against the effects of chemically active substances	**special** with magnetic, optical and shielding properties
heat shielding to reduce heat transfer, and prevent overheating	**resizing and restoring** worn or damaged parts

PACVD by Cold Atmospheric Pressure Plasma (PACVD-CAPP)

Coating/Material	Application
Pateks (X-SiOCN)	**Tools & Equipment**: Stamps, molds, knives, saws, gauges, thread-cutting and grinding tools, pipeline fittings. Offers anti-adhesion, dielectric, and lubricating properties
SuperPateks (B-SiOCN)	**Metal Processing**: Cutting, stamping, cold working, extrusion, and pressing. Enhanced hardness and oxidation resistance
MultiPateks (H-SiOCN)	**High-Temperature Components:** Molds, glass-forming tools, threading tools, wear-resistant parts (cylinder liners, piston rings, cams, guides, locks). Low-friction coatings reduce wear and friction.
TriboPateks (Y-SiOCN)	**Bearings & Lubricated Parts**: Spools, rollers, clamps, and pushers under lubrication. Coatings minimize friction and temperature.
BioPateks (AgX-SiOCN)	**Medical & Orthopedic Applications**: Implants, surgical instruments. High biocompatibility and corrosion resistance.
DLCPateks (a-C:H-SiOCN)	**Bearings & Seals**: Rolling bearings, face seals, labyrinth seals, submersible pump components. Excellent tribological properties.
SilcoPateks (a-Si:H-SiOCN)	**Gas & Oil Systems**: Chromatograph elements, fuel combustion components, oxidative-resistant parts. Vacuum tech protects against chemicals, reduces carbon deposits, and minimizes contamination.

From Concept to Completion: Your Vision, Our Expertise

CONSULTING

R&D Collaboration

MATERIAL PROPERETIES & TESTING

R&D

DESIGN OPTIMIZATION & SIMULATION

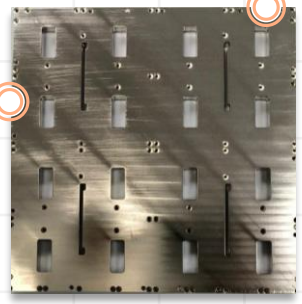
MASS PRODUCTION POST PROCESSING & QA

NOVAKRON LTD

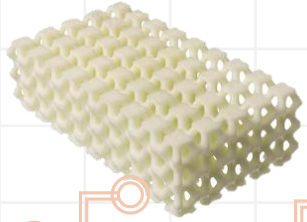
AM MASS PRODUCTION

PRODUCTION

SERVICE



Novakron - Geometry and Material Brainstorm for 3D Printing



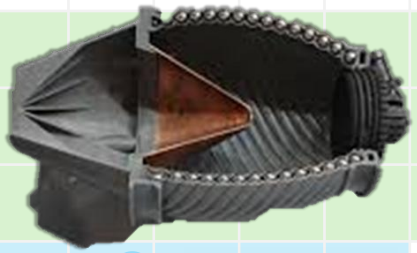
Zirconia

Alumina

AlN

Aluminium nitride

רש"קים



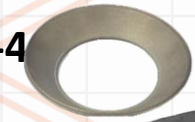
מיכלי לחץ נמוך/גבוה

Tungsten

Inconel 718

Ti64

PH17-4



Mar. steel

SS316

Invar

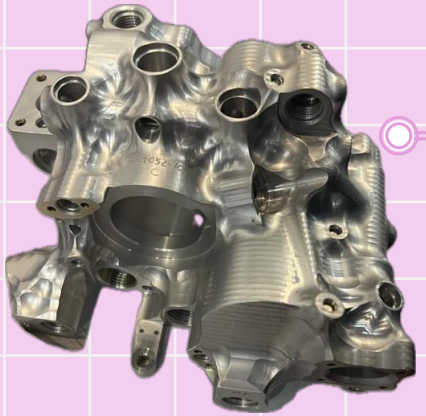
Silcon Nitride

ATZ

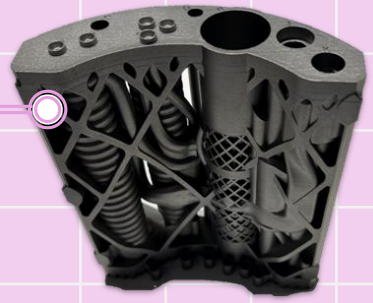
Alumina Toughened Zirconia

ZTA

Zirconia Toughened Alumina



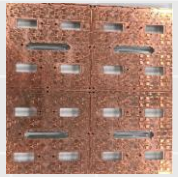
Manifold



AlSi10Mg

Cooper

CuNi30



Heat sink

The Israel Institute of Materials Manufacturing Technologies

TECHNION R&D COLABORATION

Israel Institute of Materials Manufacturing Technologies (IMT) at the forefront of **Innovation** in metal and ceramic **Additive Manufacturing**. Our focus on **Research and Development (R&D)** projects, specializing in advancing additive manufacturing technologies for metals, ceramics, and composites. We employ cutting-edge AM techniques: Electron Beam Melting (EBM GE-Additive Arcam A2X), Laser Powder Bed Fusion (LPBF by EOS M290), and Binder Jetting (BJP ExOne MFlex)

COMPITENCIES

More than 8 years of experience in 3D printing (EBM/SLM/BJP)
Proven expertise in 3D printing more than 30 materials
Materials Characterization and Failure Analysis
Fracture mechanic testing
Corrosion and Surface Technologies

PRINTING TECNOLOGIES

1	Electron Beam Melting	Arcam A2X
2	Laser Powder Bed Fusion	EOS M290
3	Binder Jetting	ExOne M-Flex
4	Stereolithography	
5	Fused Filament Fabrication	

SERVICES

1	Modeling
2	Prototyping
3	Small-Batch Production
4	Education and Research
5	Material Development
6	Heat Treatment
7	Testing

MATERIALS (METALS)

1	Inconel 718
2	SS316L
3	Ti6Al4V
4	Invar
5	Nitinol
6	PH17-4
7	Tungsten
8	Scalmalloy
9	Maraging steel
10	TiAl
11	Copper

NOVAKRON Cross-border 3D Printing Collaboration (Israel-UAE)

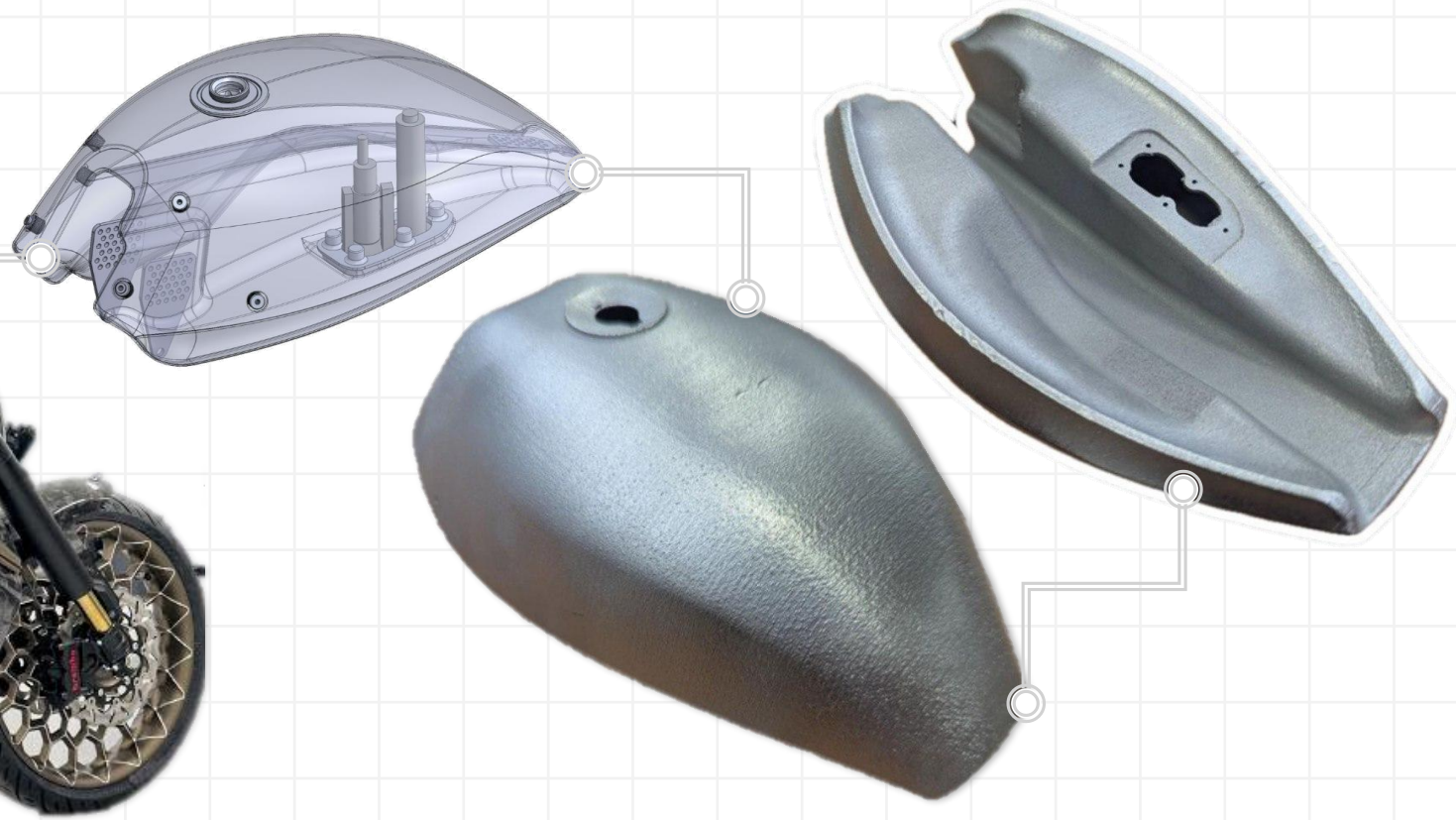
B 39 X

NOVAKRON LTD
AM MASS PRODUCTION

DRIVEN BY PASSION DEFINED BY INNOVATION

For 12 years, we've revolutionised motorcycle customisation, blending our unwavering passion with cutting edge innovation. We create bespoke rides that embody individuality, luxury. and the exhilarating pursuit of freedom on the open road.

"Where metal 3D Printing meets Motorcycles"



box39co

StainlessSteel 316L

NOVAKRON Cross-border 3D Printing Collaboration (Israel-Portugal)

TRITÃO

Tritão – lovely handbuilt titanium bicycles from Portugal

NOVAKRON LTD
AM MASS PRODUCTION

"Where metal 3D Printing meets Bikes"

TRITÃO
TITANIUM
CUSTOM

We can turn your bicycle vision into reality. Whether you need custom frame sizes, oversized tubes, unconventional components, custom anodizing, all-silver finishes, or varied tire widths, we have the expertise to deliver exactly what you envision.

Ti64

tritonbikes

NOVAKRON Israel 3D Printing Collaboration

Pro-Fit Wheelchairs

Custom lightweight wheelchairs
and other mobility solutions from Israel

NOVAKRON LTD
AM MASS PRODUCTION

"Where metal 3D Printing meets Wheelchairs"

Carbon + Ti64

profitwheelchairs

NOVAKRON Israel 3D Printing Collaboration

Laetitia Beck

Beck in 2018

Personal information	
Nickname	*Laetis*[1]
Born	February 5, 1992 (age 33) Antwerp, Belgium
Height	5 ft 9 in (1.75 m)
Sporting nationality	Israel
Residence	Caesarea, Israel
Career	
College	Duke University
Turned professional	2014
Current tour(s)	LPGA Tour
Former tour(s)	Symetra Tour
Best results in LPGA major championships	
Chevron Championship	T66: 2018
Women's PGA C'ship	T66: 2018
U.S. Women's Open	DNP
Women's British Open	CUT: 2014, 2016, 2018
Evian Championship	DNP

Medal record [hide]		
Maccabiah Games		
G	2009 Israel	Individual
G	2013 Israel	Individual
G	2013 Israel	Women's team

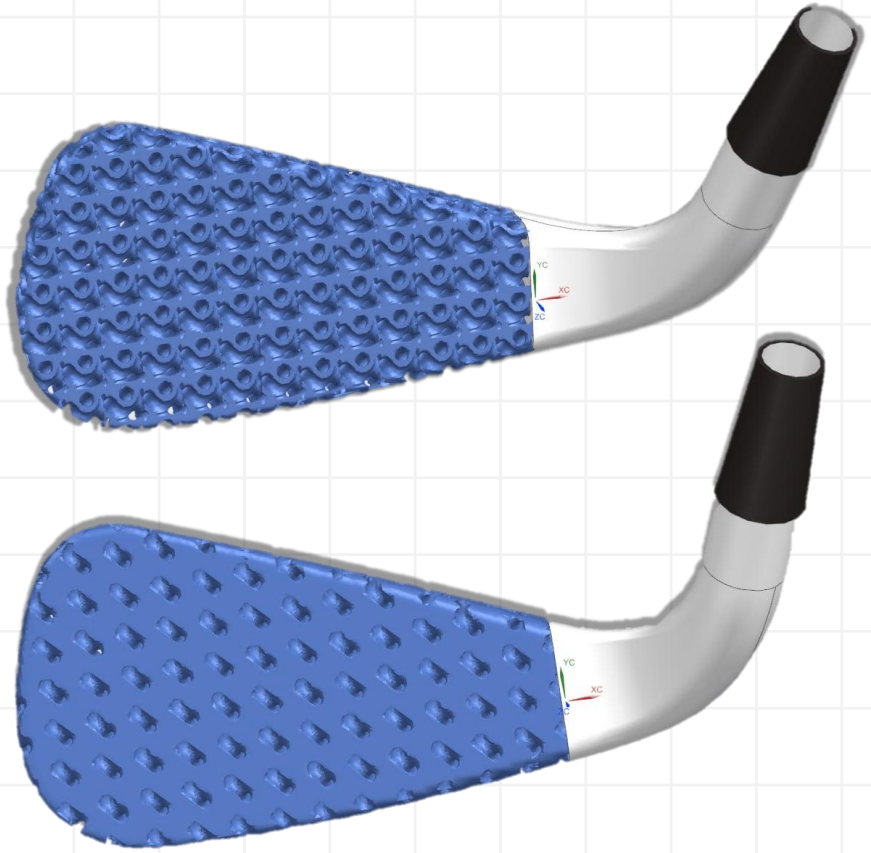
Laetitia Beck

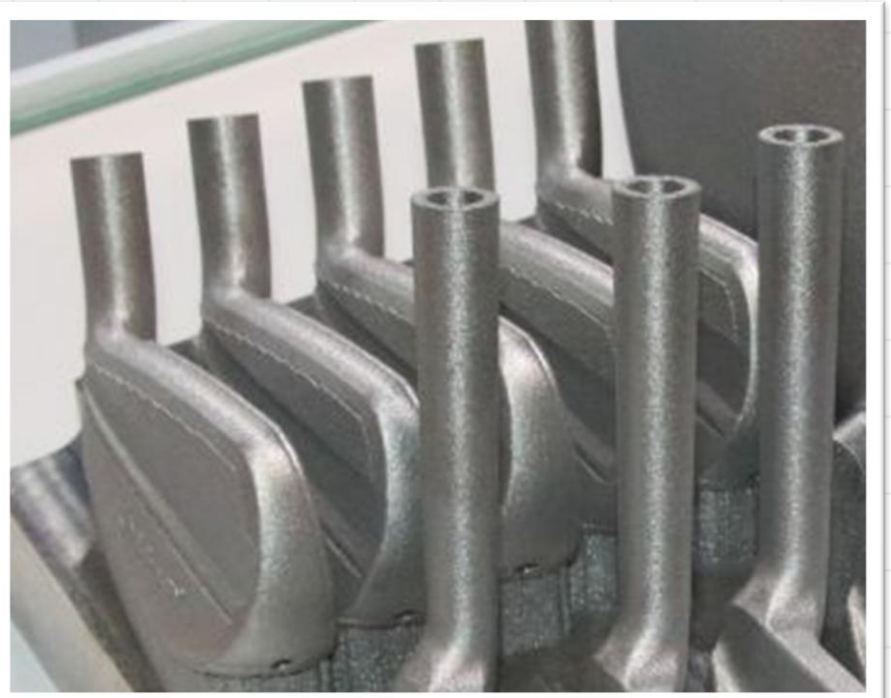
Israeli professional golfer

NOVAKRON LTD

AM MASS PRODUCTION

"Where metal 3D Printing meets Golf"



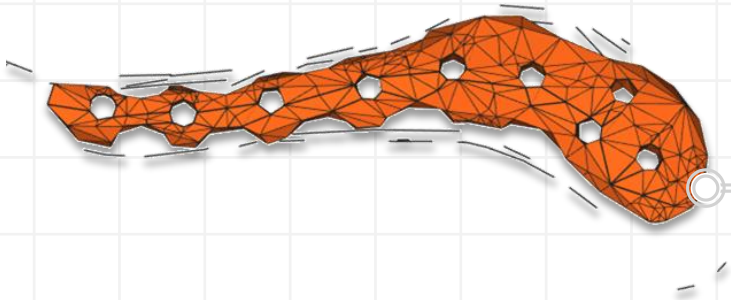


Carbon + Ti64

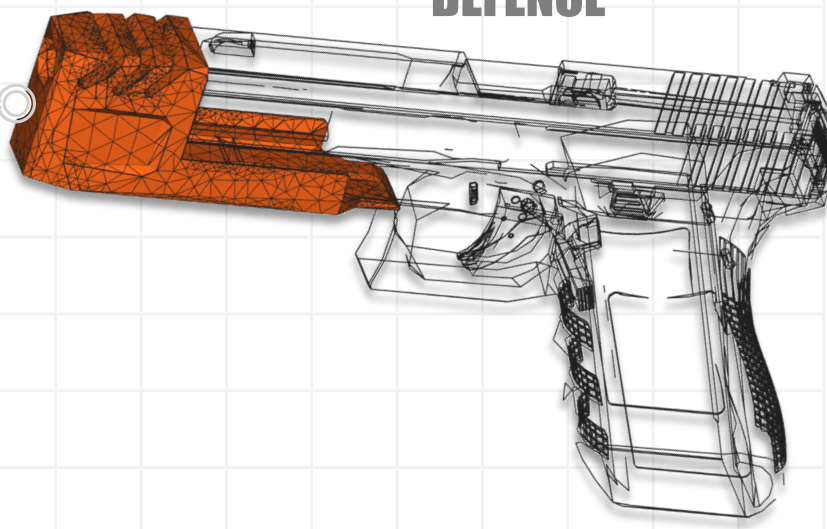
NOVAKRON LTD

AM MASS PRODUCTION

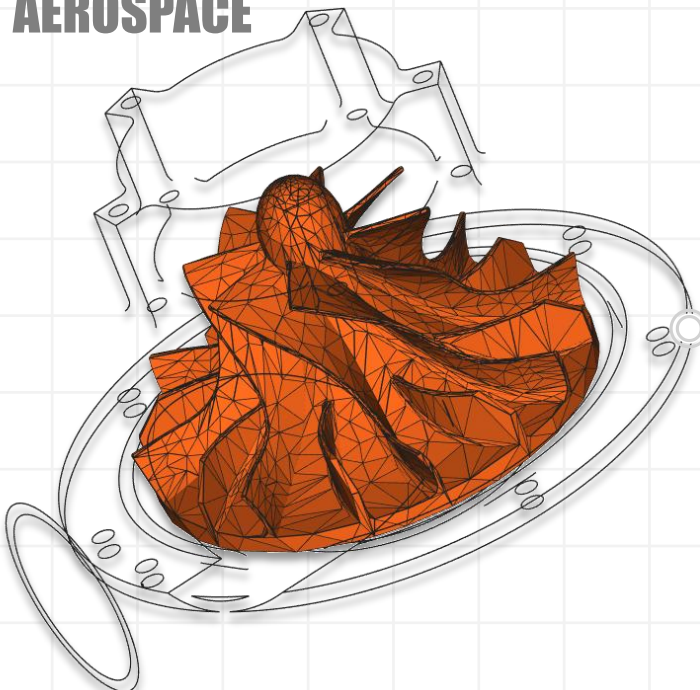
BIOMEDICAL



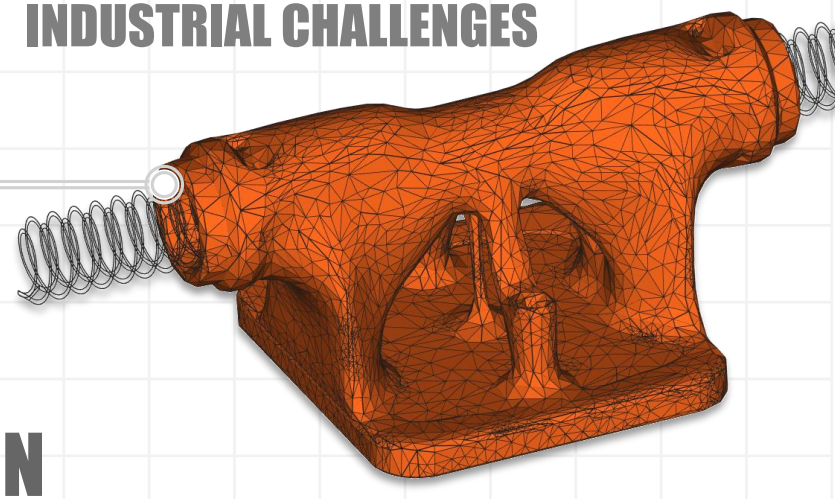
DEFENCE



AEROSPACE



INDUSTRIAL CHALLENGES



THANK YOU FOR YOUR ATTENTION