3D ADDITIVE MANUFACTURING MACHINE

AHB

TOOLING & MACHINERY

COMPLETE METALWORKING SOLUTIONS

(800) 991-4225
ISO Certified

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customerservice@ahbinc.com

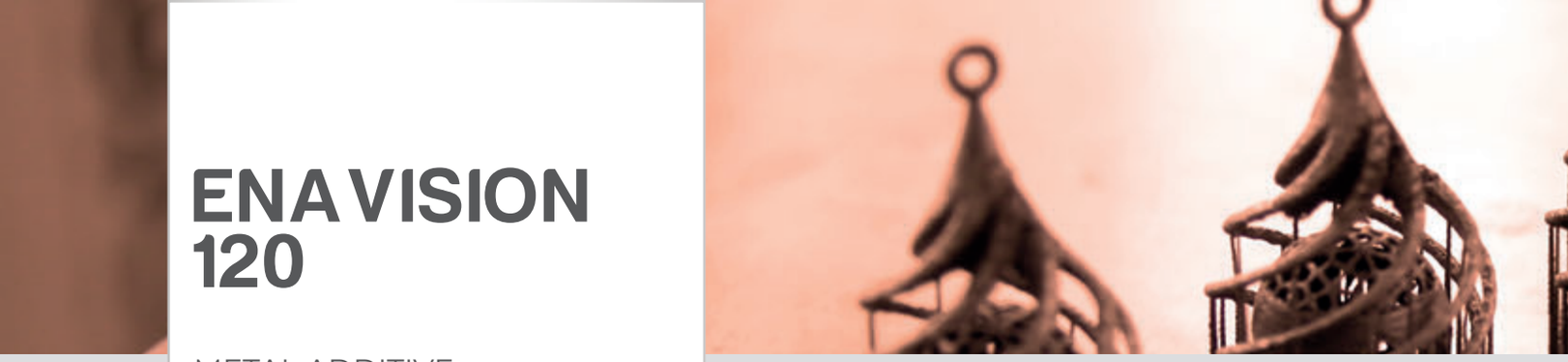
ENA VISION

ermaksan.com.tr


Think 3D

SHIFT TO FUTURE PRODUCTION WITH ENAVISION

Over 50 years of experience, we transfer our knowledge to AM technologies with different machine models that we have developed for sophisticated customer requirements. We continue to operate with the 21st century's innovative perspective, with the goal of becoming one of the world's leading producers in the fields of technology and R&D. Being the manufacturing technology of the future, ENAVISION 3D Metal Additive Manufacturing Machine provides a design revolution and also an industrial revolution in various industrial sectors such as aviation-space, energy, automotive, mould, marine, medical, dental, tools and consumer products. 3D Additive Manufacturing Machines enable companies to improve their "operational exellence such as, flexibility efficiency agility adaptability and sustainability." This technology is one of the core components of smart manufacturing. Ermaksan offers optimum solutions to meet different customer requirements in the most effective and efficient way in AM technology. While adding value to your company with AM technology, shaping the future manufacturing begins with THINKing 3D.



ENA VISION 120

METAL ADDITIVE
MANUFACTURING MACHINE

Achieve Your Big Ideas On Small Platform Size...

Thanks to its compact and robust structure, we highly recommend ENAVISION 120 model for stepping in additive manufacturing world. ENAVISON 120 offers fast, reliable, investor-friendly and high quality solutions with profitable investment. This model combines effective functionality excellent ergonomics and ease of commissioning. The system is particularly well suited for applications in dental and medical sectors, research institutes and some others.

ENAVISION 120 allows you fast and precise production with servo motor technology, helps you to increase the productivty and the efficiency of your manufacturing processes.

It provides to customers the freedom to optimize machine parameters according to parts geometry and production requirements. Users may control all process parameters for each material types.

- High-Precision
- Rapid Prototyping
- Cost-Efficiency
- Customized Design
- Functional Production
- Lighter Parts

EASE OF INSTALLATION

ENAVISION 120 is very user friendly, training and commisioning operations are easy to accomplish and requires only very short durations.

REMOTE SUPPORT

ENAVISION 120 is compliant with INDUSTRY 4.0. You can reach your machines from anywhere and can monitor you operations.

COMPACT DESIGN

The machine has a compact design with a size of 1200x900x1980 (mm: LxWxH) This makes it perfect for areas where space is limited.

SHORT PAY BACK PERIOD

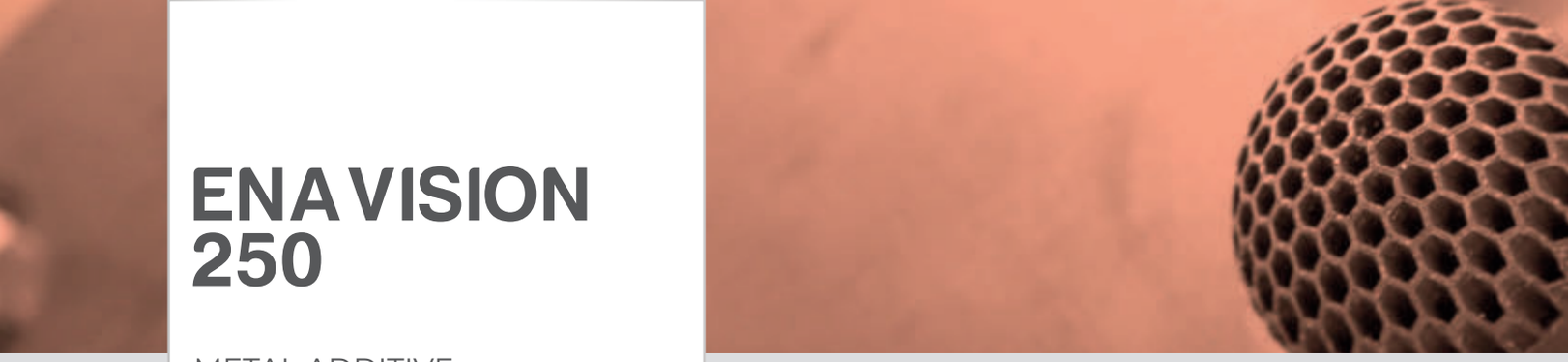
It will make you more competitive with low investment and operating cost. Due to the low initial investment, it is affordably many companies.

SMALL BATCH

Lower cost per parts for small batches with low gas and energy consumptions.

EASE OF USE

ENAVISION 120 has an intuitive man-machine interface that enables you to operate it nearly from the fist start.



ENA VISION 250

METAL ADDITIVE
MANUFACTURING MACHINE

ENAVISION 250 For Impossible Products to Manufacture...

Ermaksan is offering ENAVISON 250 to meet complex challenges in industrial Additive Manufacturing. With its open architecture, it enables to use different powder types in various industries.

Ermaksan offers powder bed fusion selective laser melting technology for metal additive manufacturing. In this technology, ENAVISION begins by setting an even layer of the desired metal powder on the build platform and a high-powered laser fully melts the metal in the exact areas dictated by the model. The next layer is set and ENAVISION continues to melt and fuse each layer until the print is completed.

The parts being manufactured by laser melting can be manufactured as to have the density over 99% and good mechanical specifications in the standard parts. The manufactured parts can be compared with the conventional production technologies. There are standard metals that continuously expand. The parts can be processed as any welding part. This process meets the customer requirement in various applications.

- Freedom in design
- Quick and precise production
- Optimization in product
- Low production cost
- User-friendly interface
- Environmentally friendly

FREEDOM IN DESIGN

The unique and unlimited designs that go beyond the dreams, are manufacturable with this machine.

QUICK AND PRECISE PRODUCTION

By manufacturing more than one part at the same time with the required precision, save both time and labour. The systems formed by more than one component now can be manufactured as a single part.

OPTIMIZATION IN PRODUCT

Geometry and weight optimization can be obtained without modifying the mechanical specifications of the products.

USER-FRIENDLY INTERFACE

Thanks to the easy-to-use interface, the user can operate the machine correctly and keep the process under control.

LOW PRODUCTION COST

Lower unit costs can be obtained by manufacturing several parts within the same procution cycle.

ENVIRONMENTALLY FRIENDLY

A real environmentally friendly product with low energy consumption and minimum waste of powder.

ENAVISION

STANDARD / OPTIONAL
SYSTEMS SPECIFICATIONS

CHILLER UNIT

2 separate outputs for laser power unit and optical system

• N.S.A. Total cooling capacity	: 5.5 kW
• Pump speed	: 5-50 1/min
• Pump power	: 750 W
• Tank capacity	: 30 lt
• Connection	: 3⁄4" BSP
• Maximum noise level	: 69 dBA
• Dimensions	: 760 x 760 x 1335 mm (29,9 x 29,9 x 52,5 inch)
• Total power consumption	: 4450 W / 11.7 A

Chiller unit (S)

FILTRATION UNIT

Designed for ENAVISION to achieve required build chamber conditions due to the desired O2 and humidity level.

- Embedded System
- Automatic filter congestion detection system
- Stainless steel piping
- Jet-pulse filter cleaning system
- Anti-static filter unit
- PTFE membrane, 0.5 micron filter unit

RECOATING SYSTEM

It is the system carrying the metal powders within the dust feeding chamber to the production chamber at any layer thickness. Since it can be adjusted sensitively, our production will be moderately sensitive, too. You can also optimize your production speed with its adjustable speed.

Powder laying system with liquid chamber (O)

PREPARATION MODE

STANDBY MODE

If the machine is ready for operation and no work has been initiated, then standby mode becomes active.

MANUFACTURING MODE

If a work file is loaded in the machine and a scanning work is performed, then the production mode becomes active.

WARNING MODE

When the emergency stop button of the machine is pressed or when the operator should be warned, the warning mode becomes active.

Manufactured by Russell Finex Ltd, UK (O)

OPTIONAL ERMAKSAN SEMI-AUTOMATIC SIEVE STATION

It is a powder circulation system that ensures the reuse of metal powders which will be re-used in the machine and transported to the sieve system and loading the sieved powders into the machine in a fast and safe manner.

Manufacturing by Ruwac (O)

INDUSTRIAL VACUUM CLEANER SYSTEM

It is a vacuum system that vacuums the metal powder filled air to collect it in the liquid filled collection tank and it is obligatory system when working with reactive metal powders.

- Body : Stainless steel
- Motor Power (kW) : 1.1 / 1.3 / 1.5
- Voltage (Volt) : 230
- Noise level (db(A)) : 60
- Air flow rate (m^3/h) : 135 / 145 (2288,4 / 2457,9 $inch^3/s$)

- Height : 755 (29,7 inch)
- Width : 480 (18,9 inch)
- Lenght : 705 (27,7 inch)
- Contanier capacity (lt) : 7
- Protection class : 65

ANTI-STATIC EQUIPMENTS

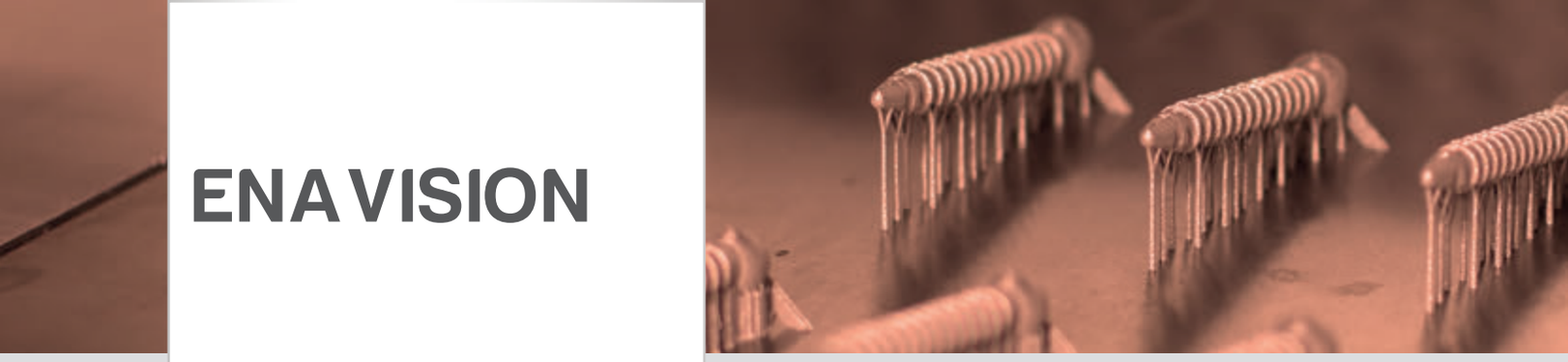
In Additive Manufacturing technology, the particle size of the powder varies according to the method for the production of parts ranging from 15 to 200 um. Powder Particle sizes at micron levels may enable the mixing of powder into the air. The use of protective equipment is mandatory to avoid exposure to airborne powder and allows the operator to produce longer times.

Anti-Static carpet (O)

Operator headed protection system (O)

Anti-Static gloves (O)

Anti-Static uniform (O)



ENAVISION

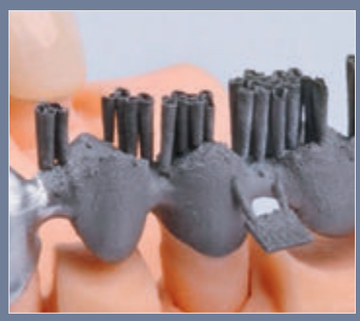
AREAS OF USE

UNIVERSITIES / RESEARCH INSTITUTES

Different companies give their projects to the universities / research institutes so they have a direct experience of working with the industry. Most of the world's research is done in universities / research institutes and most of them are now focusing on future technologies to get ahead of each other. Additive manufacturing is a production innovation that will be continued to revolutionize factories, mass production, inventory management and demand forecasting.

DENTAL

With the additive manufacturing method, the production of final dental products and processing the dental parts having high quality are possible. By means of this method, customized bridgeworks, removable partial prosthesis and implants can be manufactured and used in en effective manner.



MOULDING

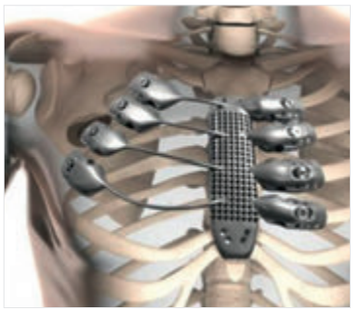
In the moulds manufactured by Additive Manufacturing method, direct integration can be provided in the mould attachments and cooling channels. Optimized heat distribution and shorter cycling periods in injection moulding processes provide improved efficiency and plastic product quality. Decreases the thermal tensile in the mould and extends the service lifetime.

Offers wide scoped solutions for the part manufacturing industries with layered manufacturing. The metal parts can be manufactured without requiring conventional processing methods and having no limit in the geometry. The first area of use of the metal layered manufacturing was the top level technology industries such as space and aviation practices. As the technology developed within the time, its use became wider and effective in the medical, automotive and casting sectors.

Flexibility offered by 3D additive manufacturing technology in design enables the improvement of the mechanical specifications of the parts manufactured with this technology and the quick production of the required part demands.

MEDICAL

As different than the conventional manufacturing methods, the additive manufacturing allows maximum design flexibility by making the implementation of innovative functions possible. In this sector, with CoCrMo and Ti6Al4V metal powder, biocompatible and light materials can be manufactured and so it is possible to realize the production of tooth impression and body-compatible prosthesis parts.

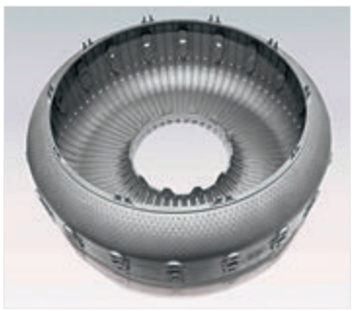


AUTOMOTIVE

A new approach is offered with innovative additive manufacturing ENA to overcome the current challenges faced by the automotive industry. The production of high-strength automotive parts and automotive mould parts with appropriate material and design to be selected being relieved in the automotive industry,

AVIATION

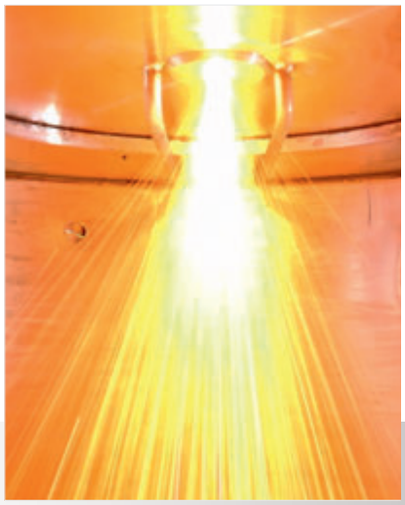
Since part manufacturing by using additive manufacturing does not cause any installation and tool cost, it is primarily preferred in the aviation sector. Relieved and resistant materials used provide fuel-saving in the aviation sector and also the required mechanical specifications are offered.



* The shown products are sample products selected for the areas of use.

POWDER TYPES

POWDER SAMPLES FOR ADDITIVE MANUFACTURING

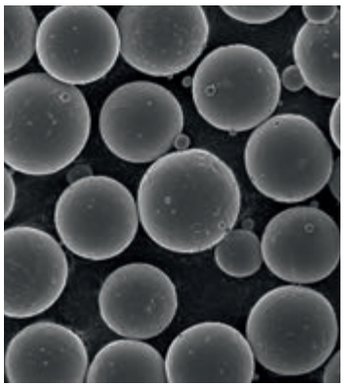


Metal Powder Types

Ermaksan recommends the utilization of its own metal powder series that have been researched and tested in a comprehensive manner in order to obtain the performance suitable for the metal layered manufacturing systems.

Titanium

Titanium (Ti) is a material that has a density approximately 56% less compared to the steel and a high level of tensile strength/density. Thanks to its high strength and perfect corrosion resistance, the titanium components are available in a wide application portfolio. Since it is a biocompatible product particularly in the space and aviation sectors, it has a wide usage area in the medical field too.
Ti6Al4V alloy is the most common titanium alloy in the world. Ermaksan realizes the powder production for Grade 5 and Grade 23 of these powders. Global Ti-6Al-4V titanium alloy powder offers high level of globality, low oxygen content, high density and controlled particle size.



Ti64 Powder Specifications

DENSITY		
Test	Density	Test Method
Visible Density	2,50 g/cm³ (0,09 lbs/inch³)	ASTM B212
Compressed Density	2,8 g/cm³ (0,1 lbs/inch³)	ASTM B527

PARTICLE SIZE ALLICATION	
D10	20 µm (0,0007 inch)
D50	33 µm (0,0012 inch)
D90	44 µm (0,0017 inch)

VISCOSITY		
Test	Time	Test Method
Hall Flow Test	30s	ASTM B212
Carney Flow Test	10s	ASTM B964

CoCr (Cobalt Chrome)

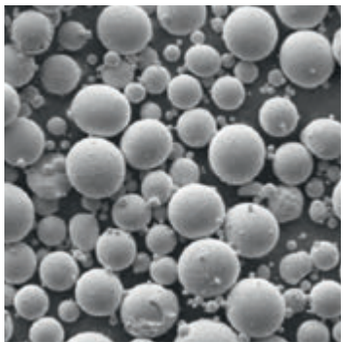
The parts manufactured with this powder are appropriate for the production of the surgical implants in terms of mechanical specifications and components. It is also used in the aviation applications since it is a stainless steel and temperature resistive material.

AlSi10Mg (Aluminium)

The parts being manufactured with this powder have high strength and hardness and also resistant to staining in terms of components. They are ideal for space engineering and automotive, etc. fields with its low material density and good electrical conductivity.

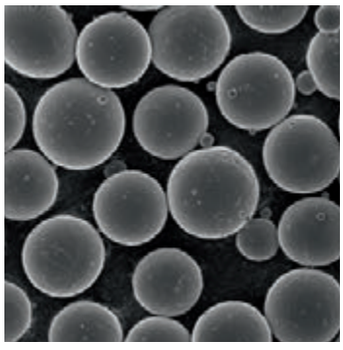
Inc 625 (Inconel 625)

The parts being manufactured with this powder are used in the places where high temperature resistance and corrosion resistance is required. Being commonly used in aviation and space industry, these powders are also used in the parts in contact with chemicals, tools and parts in maritime, nuclear reactor parts and rocket engine parts.



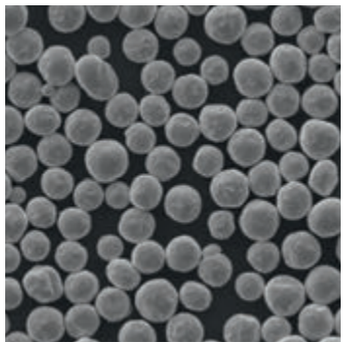
CoCr powder specifications

PARTICLE SIZE ALLICATION	
D10	18 µm (0,0007 inch)
D50	26 µm (0,001 inch)
D90	44 µm (0,0017 inch)



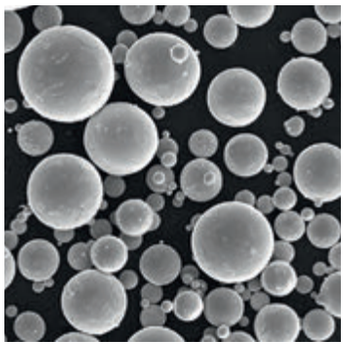
AlSi10Mg powder specifications

PARTICLE SIZE ALLICATION	
D10	22 µm (0,0008 inch)
D50	37 µm (0,0014 inch)
D90	44 µm (0,0017 inch)



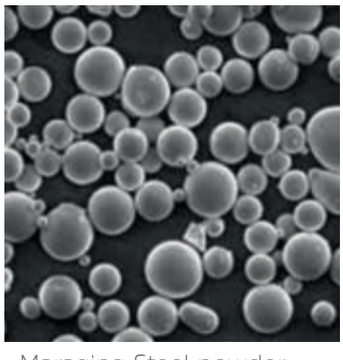
Inc 625 powder specifications

PARTICLE SIZE ALLICATION	
D10	17 µm (0,0006 inch)
D50	29 µm (0,0011 inch)
D90	45 µm (0,0017 inch)



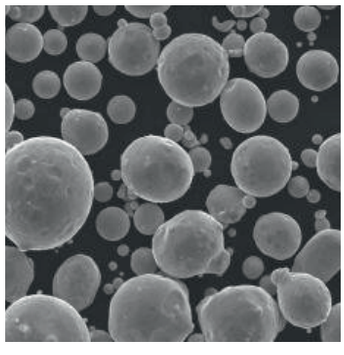
Inc 718 powder specifications

PARTICLE SIZE ALLICATION	
D10	17.91 µm (0,0007 inch)
D50	29.91 µm (0,0011 inch)
D90	45.95 µm (0,0018 inch)



Maraging Steel powder specifications

PARTICLE SIZE ALLICATION	
D10	18,25µm (0,0007 inch)
D50	30-38 µm (0,0011 - 0,0014 inch)
D90	42-50 µm (0,0016 - 0,0019 inch)



S316L powder specifications

PARTICLE SIZE ALLICATION	
D10	19 µm (0,00074 inch)
D50	30 µm (0,0011 inch)
D90	46 µm (0,0018 inch)

Inc 718 (Inconel 718)

The parts being manufactured with this powder are used in the places where high temperature resistance and corrosion resistance is required. Being commonly used in aviation and space industry, these powders are also used in the parts in contact with chemicals, tools and parts in maritime, nuclear reactor parts and rocket engine parts.

Maraging Steel

The parts that are manufactured with maraging steel powder having high yield strength and fracture toughness are ideal for aviation and injection mould productions. They are used in the gear box sets in automotive sector and production of press casting moulds in casting sector.

S316L (Stainless Steel)

The parts being manufactured with this dust are the steels that have high corrosion resistance and resistance against temperature and friction in terms of components. With these specifications, they are preferred in the production of sensitive parts in the automotive and aviation sectors.

- You can contact us on information for using different types of metal powders.
- The standard chemical composition values are provided for the manufactured powders.

ENA VISION

PRODUCTION
SOFTWARE

PART PREPARATION SOFTWARE WORK FILE FORMATION

Magics

• Besides time assumptions, volume and cost assumptions can be made, too.

• Production order can be sent to more than one printer at the same time.

• On a single production table, more than one different/same part can be scanned at the same time and different production parameters can be applied to each of them.

• There are more formats to be realized by loading part manually.

• Different sensitivities may be required in different regions on the part surfaces. One surface can be divided into different surfaces and different mesh structures can be obtained.

• Porous indoor structures can be formed with different geometry and adjustable parameters and so the part lightens and the rigidity is protected at a certain rate.

• The surface can be divided into different surfaces and different supporting surfaces can be formed and different supporting structures can be applied to these.

Import

• By using “Magics”, you can import various file formats together with the colour and format information and control your original data without losing them.

• You can import the following file formats with “Magics” RP:

o VRML (*.wrl, *.vrml, *.x3dv), Rhino (*.3dm), Sketchup (*.skp), OBJ (*.obj), 3DS (*.3ds, *.prj), PLY (*.ply, *.zcp), ZPR (*.zpr), FBX (*.fbx), COLLADA (*.dae), X3D (.x3d), 3MF (*.3mf), DXF (*.dxf), STL (*.stl)

Repair

• High-quality 3D design is required for a better result. Materialise Magics has the best tools developed for this purpose.

• The frequent problems can be solved by pressing a single button - “Autofix”.

• The Repair Wizard helps the solution of faced complex problems step by step.

• All control can be managed with hand tools.

• Model architectures can be repaired and thickness can be added with “ShrinkWrap” function. (all problems can be solved by wrapping the original model with a thin layer and compressing it.)

• Part Drawing

• Scaling

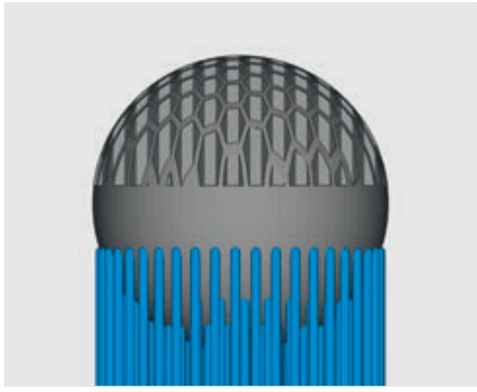
• Slicing

• Scanning and Ordering

TRAINING | MAINTENANCE | INSTALLATION | BASIC TRAINING | ADVANCED LEVEL TRAINING | PROCESS PARAMETER DEVELOPMENT TRAINING

SUPPORT FORMATION MODULE FOR METAL 3D PRINTERS (SG+)

- You can avoid deformation with heat allocation
- You can optimize the part orientation
- You can improve the usage of dust
- You can minimize the risk of the errors that may occur during production

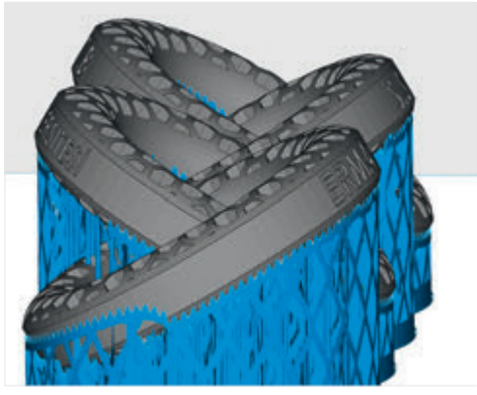


Support formation module (S)

ERMAKSAN BUILD PROCESSOR 1.1

To communicate your file to the ENAVISION 3D Metal Printer, you need a specialized software. The ERMAKSAN Build Processor is considered the standard software for communicating with and monitoring the machine.

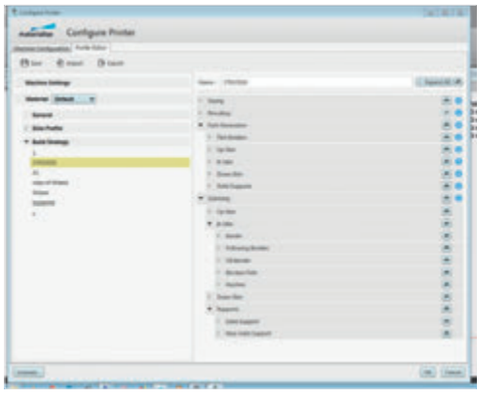
- Fully control your parameters through the flexible, extended R&D parameter structure
- Quickly handle very complex parts and platforms
- Control slicing and hatching with highly performant algorithms, connected to an advanced slice viewer
- Can pre-define build strategies



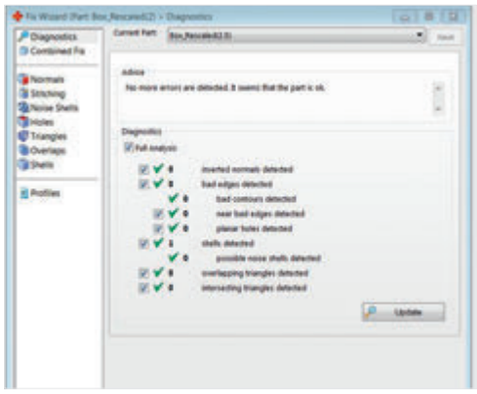
Multi-part support formation module (S)

Data Processing

- Processing compensation
- Delamination and layer based data
- Layer processing
- Supports as integrated



Parameter determination page (ERMAKSAN P.P.)



Repair wizard screen (ERMAKSAN P.P.)

ENA VISION

INDUSTRY 4.0

With its innovative approach and experience of more than half century, ERMAKSAN facilitates the industrial life with its 3D ADDITIVE MANUFACTURING technology, besides the engineering and software studies on INDUSTRY 4.0., in order to develop and perfect the intelligent manufacturing processes.

With ENA VISION 3D ADDITIVE MANUFACTURING technology, one of the technological elements of Industry 4.0, you can conveniently realize the production of your physical parts with complex geometry.

Being the manufacturing technology of the future, ENA VISION 3D ADDITIVE MANUFACTURING provides a design revolution and also an industrial revolution in various industrial sectors such as aviation-space, energy, automotive, medicine, tools and consumer products.

ACTIVE MACHINE CONTROL SCREEN

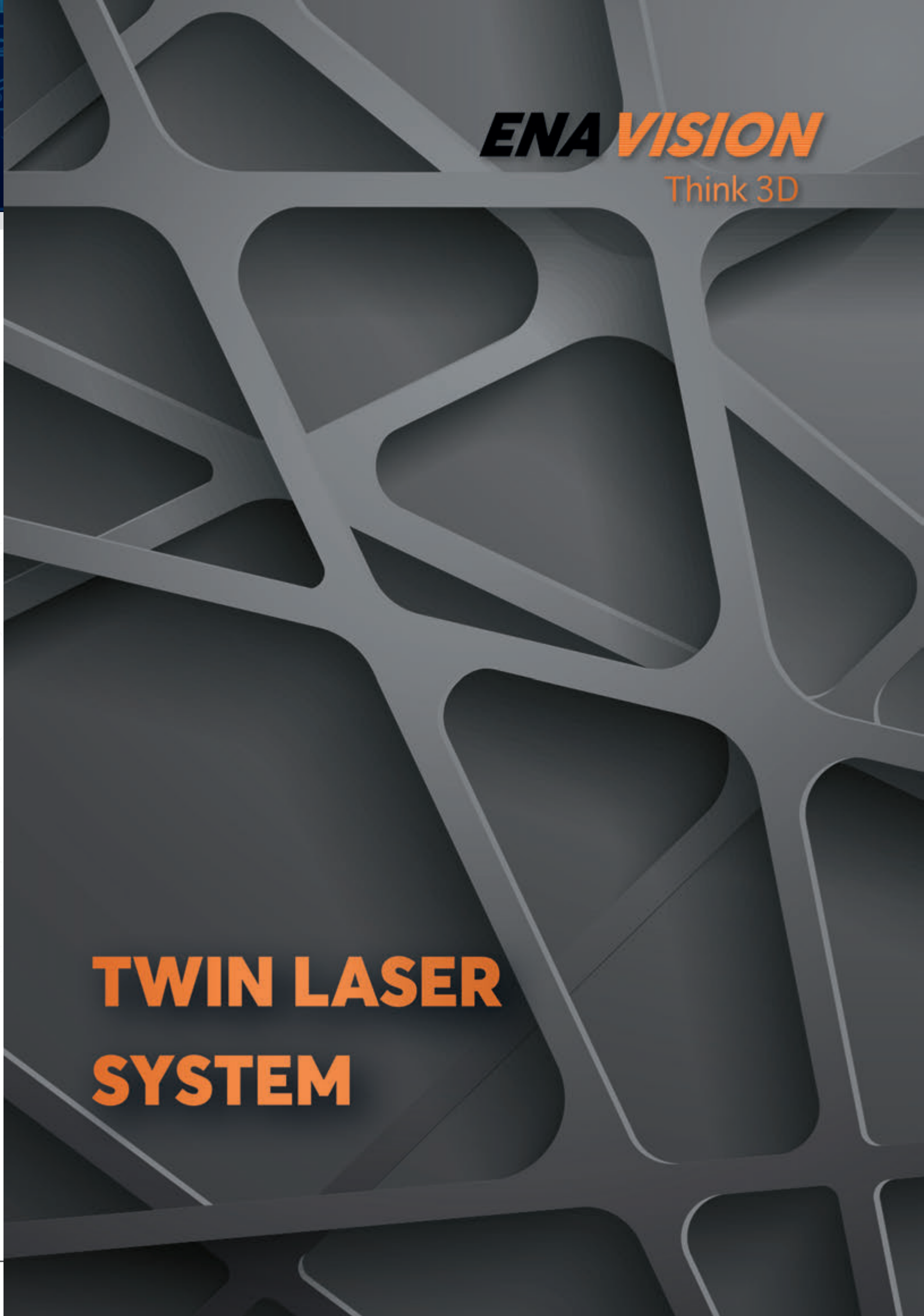
Enables the tracking of the error, alarm, efficiency, etc. data of all machines operating in the field on a single screen. So we contribute in the realization of production targets by our customers.

TECHNICAL DATA TRACKING SCREEN

Enables you to track of the type of the material in the machine, thickness, used nozzle, used gas, pressure, etc. technical data. So you can display the technical data of your machine remotely and prevent the possible errors.

MACHINE EFFICIENCY CONTROL SCREEN

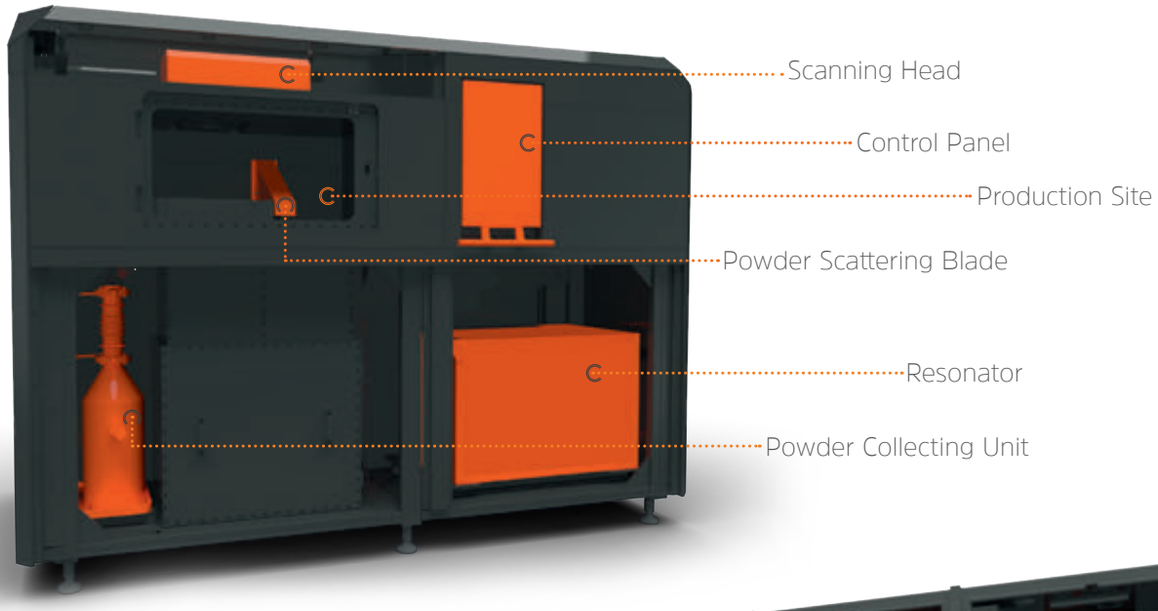
Enables the tracking of the performance of the machines, quality and availability data rates in a graphic form. So sustainability and efficiency is provided in the production.

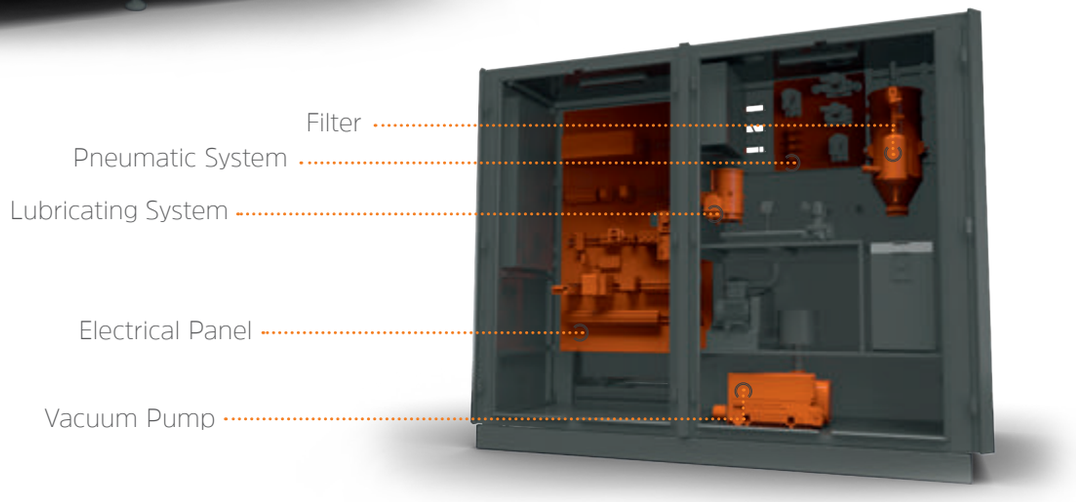

ENA VISION
Think 3D
TWIN LASER
SYSTEM

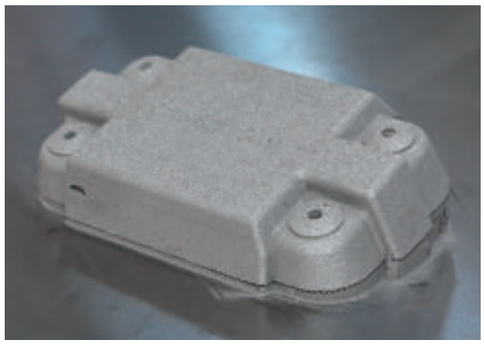
ENAVISION

TWIN
LASER SYSTEM

With ERMAKSAN's Modular Dual Laser technology, you can increase your productivity up to 90% at any time. You can have a faster production capacity up to two times in the first machine investment or in the second investment that you'll make thanks to modular system.







ERMAKSAN has worked on improvements regarding repeatability and efficiency of the machine having the ENAVISION Dual Laser Technology which developed. This machine having a Dual Laser system increases the productivity of laser systems and speeds up the production of parts, thus increasing the production rate and productivity.

HIGH SPEED

Speed up your production with Dual Laser Technology

HIGH PERFORMANCE

During Production, Dual Laser technology increases your performance up to two times.

DIFFERENT LASER POWER FLEXIBILITY

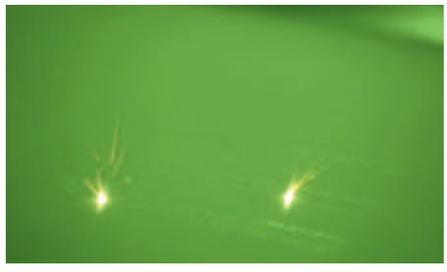
Two laser technologies with different powers provides flexibility in your productions.

WITH MINIMUM INVESTMENT, HAVE A SECOND MACHINE

Instead of production with two machines, a machine investment having a Dual Laser Technology completes your production without the need for a 2nd machine.

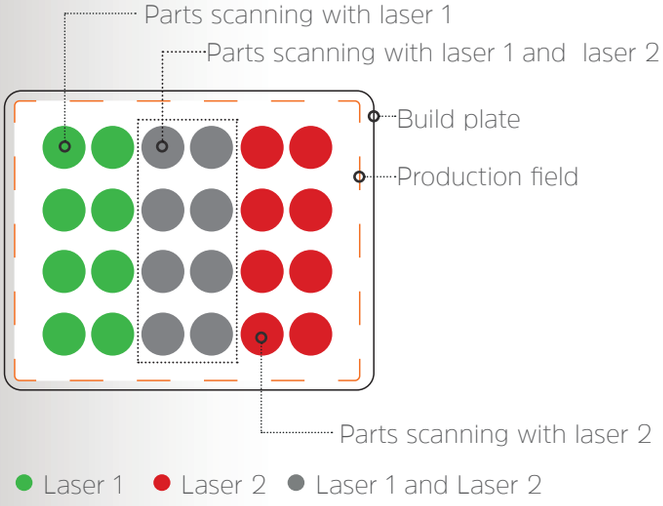
SPACE EFFICIENCY FOR CAPACITY AND PRODUCTIVITY INCREASE

With Increase in production field thanks to Dual Laser Technology production of parts is increased by 45%.

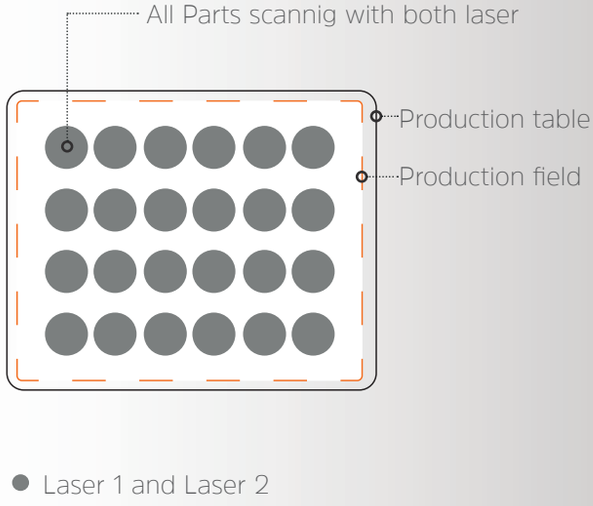


Dual laser production technology

ENAVISION TWIN 250 P



ENAVISION TWIN 250 F



Extremely efficient Dual Laser Technology can be used for producing parts without any deficiency in density of parts as well as a number of parts in a single parcel.

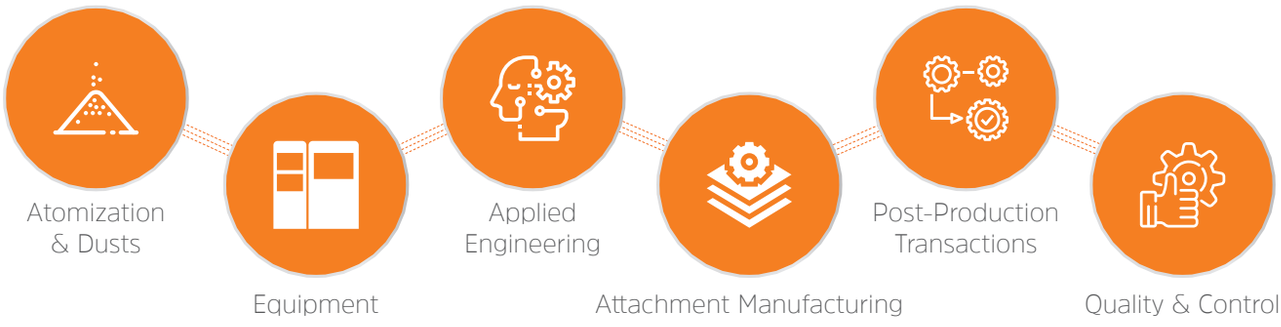
ENA VISION

WITH ERMAKSAN ASSURANCE

Inconel atomizer tower systems, Titanium (Ti6Al4VGr5) and Nickel-based super allow (Inc718 ve Inc625) powders are produced.

The characterization test transactions of Titanium (Ti6Al4VGr5) and Nickel based super alloy (Inc718 and Inc625) produced in Gas Atomizer Towers are carried out at these laboratories.

ERMAKSAN AT INDUSTRIAL ADDITIVE MANUFACTURING



✓ You have Ermaksan assurance at all the stages from manufacturing of metal dust and attachment manufacturing machines to qualification of the materials manufactured.

✓ Titanium (Ti6Al4VGr5) dust production system having a production capacity of 50 tons,

✓ Partnerships with global firms and universities,

✓ Partnerships with global dust companies,

✓ Dust quality confirmed with dust characterization laboratory,

✓ Nickel Alloy (Ti6Al4VGr5) dust production system having a production capacity of 10 tons.

EON LASER RESONATOR

Single mode EON LASER fiber laser technology developed for SLM*-SLS* technology is provided to the customers with high efficiency.

ROBUST DYNAMIC CONTROL

- Advanced technology laser control and laser driver
- Input / output units designed at industrial standards
- Flexible design control on G/C
- Control and tracking over Modbus
- Closed circuit power control management
- Superior error detection algorithm
- Ultimately efficient laser driver
- Real time control

UNINTERRUPTED LASER POWER

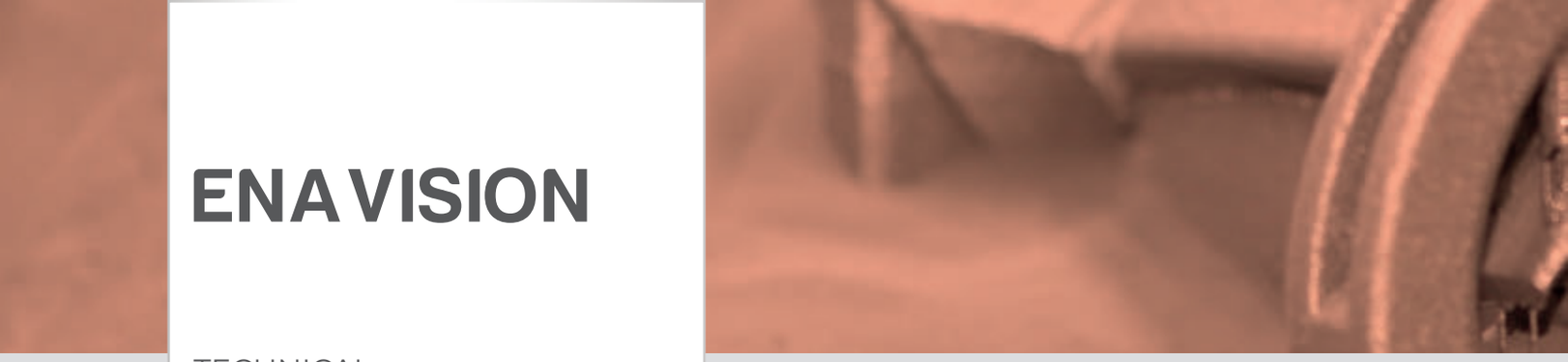
- High optical efficiency
- Correct power balancing
- Laser power: 500W/750W/1kW
- Fiber cable output dimensions: 20/50/10 µm (0,0007 / 0,0019 / 0,00039 inch)
- Power stability: %3-1
- Pulse frequency range: 10-0 kHz
- Laser wave length 1070 nm (0,00004 inch)
- Power range 100-5%
- Warning: Laser diode

LASER POWER SPECIFICATIONS

Power	: YGL 500W
Power	: YGL 750W (Optional)
Power	: YGL 1000W (Optional)
Laser wavelength	: 1070 nm
Operation mode	: Tek mode
Operation frequency range	: 0-10 kHz
Power range	: % 5-100
Power variability	: ± % 1-3
Fiber output	: Single mode
Beam quality of laser (M^2)	: < 1.2

- Highly efficient laser driver
- Critical response time
- Remote access
- High power efficiency
- Real time control
- Instant data adding
- Internal memory

* SLM : selective laser melting
* SLS : selective laser sinthering



ENAVISION

TECHNICAL
SPECIFICATION

GENERAL SPECIFICATION	ENAVISION 120	ENAVISION 250
Production Volume (mm^3)	Ø120x120	250x250x300 (9,8x9,8x11,8 inch)
Adjustable Layer Height	20-100 µm (0,0007-0,004 inch)	20-100 µm (0,0007-0,004 inch)
Laser Type	Fiber Laser	Fiber Laser
Laser Power	150W (300W Optional)	500W (1 kW Optional)
Scanning Speed	Up to 11 m/s (433,07 inch)	Up to 11 m/s (433,07 inch)
Scanning System	Hight Speed Scan Head F-Theta Lens	3D Dynamic Focused Scanning System
Dimension (LxWxH)	1200x900x1980 (47,25x148,15x79,9 inch)	2700x1440x2030 (106,3x56,7x79,9 inch)
Electrical Connection (Voltage)	230 V, 1 PH, 50/60 Hz	400 V, 3 PH, 50/60 Hz
Electrical Connection (Current)	25 A	32 A
Inert Gas	Argon / Nitrogen	Argon / Nitrogen
02 Level	<100 ppm	<100 ppm
Vacuum Pomp	Yes	Yes
Operating System	Windows 10 / X	Windows 10 / X
Network	Ethernet / Ethercat	Ethernet / Ethercat
Building Platform Preheat	-	Up To 200 °C

CONTROL UNIT		
Control System	Beckhoff Industrial PC	Beckhoff Industrial PC
Processor	Intel i5-i7	Intel i5-i7
Operating System	Windows 10 / X	Windows 10 / X
HMI	15,6 inch, Touch Operated	21,5 inch, Touch Operated

SOFTWARE		
Data Preparation Software	Materilliase Magisc and Modules	Materilliase Magisc and Modules
Data Processing Software	Ermaksan Build Processor	Ermaksan Build Processor
Supported File Types	STL, 3MF, AMF, DAE, FBX, VRML...	STL, 3MF, AMF, DAE, FBX, VRML...

* Catalog information is subject to change without notice.

ENAVISION TWIN 250 P	ENAVISION TWIN 250 F	ENAVISION 400 P
300x300x300 (11,8x11,8x11,8 inch)	250x250x300 (9,8x9,8x11,8 inch)	400x400x300 (15,7x15,7x11,8 inch)
20-100 µm (0,0007-0,004 inch)	20-100 µm (0,0007-0,004 inch)	20-100 µm (0,0007-0,004 inch)
Fiber Laser	Fiber Laser	Fiber Laser
2 x 500W*	2 x 500W*	2 x 500W*
Up to 11 m/s (433,07 inch)	Up to 11 m/s (433,07 inch)	Up to 11 m/s (433,07 inch)
3D Dynamic Focused Scanning System	3D Dynamic Focused Scanning System	1 Set
2700x1440x2030 (106,3x56,7x79,9 inch)	2700x1440x2030 (106,3x56,7x79,9 inch)	3200x1500x2030 (125,9x64,57x79,9 inch)
400 V, 3 PH, 50/60 Hz	400 V, 3 PH, 50/60 Hz	400 V, 3 PH, 50/60 Hz
32 A	32 A	40 A
Argon / Nitrogen	Argon / Nitrogen	Argon / Nitrogen
<100 ppm	<100 ppm	<100 ppm
Yes	Yes	Yes
Windows 10 / X	Windows 10 / X	Windows 10 / X
Ethernet / Ethercat	Ethernet / Ethercat	Ethernet / Ethercat
Up To 200 °C	Up To 200 °C	Up To 200 °C
Beckhoff Industrial PC	Beckhoff Industrial PC	Beckhoff Industrial PC
Intel i5-i7	Intel i5-i7	Intel i5-i7
Windows 10 / X	Windows 10 / X	Windows 10 / X
21,5 inch, Touch Operated	21,5 inch, Touch Operated	21,5 inch, Touch Operated
Materilliase Magisc and Modules	Materilliase Magisc and Modules	Materilliase Magisc and Modules
Ermaksan Build Processor	Ermaksan Build Processor	Ermaksan Build Processor
STL, 3MF, AMF, DAE, FBX, VRML...	STL, 3MF, AMF, DAE, FBX, VRML...	STL, 3MF, AMF, DAE, FBX, VRML...

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