AC210

adira

LARGE METAL PRINTER SOLUTION

AC
ADDCREATOR

ADDITIVE MANUFACTURING

ENGLISH

APPLICATIONS

AERONAUTICS
To reduce weigth

MOTORIZED SPORTS
To overcame
performance limits

TOOLING
To speed up production

ENERGY
To decentralize production
and eliminate stocks

AEROSPACEL
To take us further

CHARACTERISTICS

WORLD'S LARGEST 3D
METAL PRINTER
Print envelope 1m x 1m x 0.5m
Laser Powder Bed Fusion Technology

INDEPENDENT
RECOATING SYSTEM

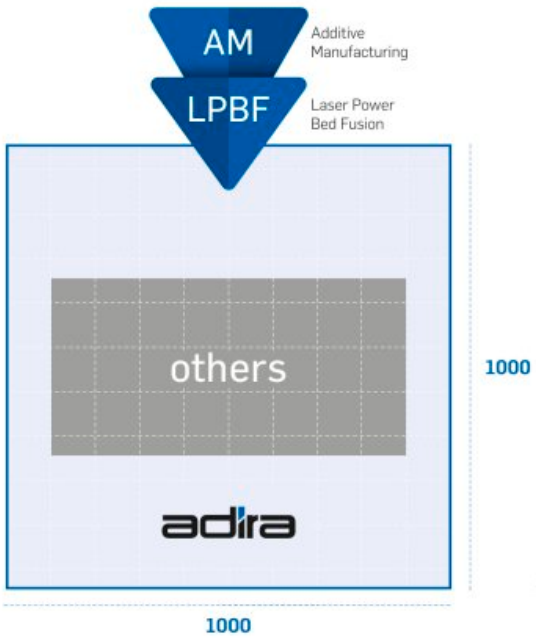
EXCHANGEABLE
POWDER BED

AUTOMATIC CLOSED POWDER
RECIRCULATION SYSTEM

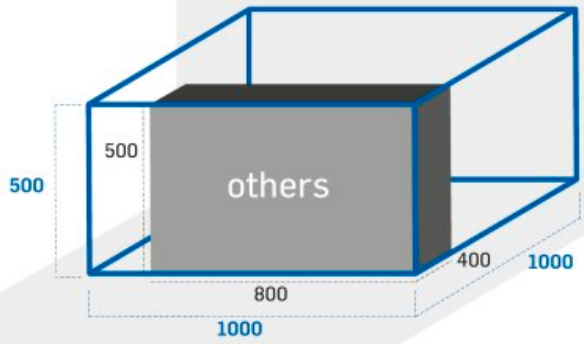
THIS REVOLUTIONARY METHOD IS BASED ON A MOVABLE PROCESS CHAMBER WHICH EFFICIENTLY ENSURES ALL THE CONDITIONS REQUIRED FOR THE LPBF PROCESS, WITH AN AREA MUCH SMALLER THAN THE POWDER BED. EACH LAYER IS DIVIDED INTO TILES WHICH WILL BE PROCESSED SEQUENTIALLY BY THE MOVABLE PROCESS CHAMBER.

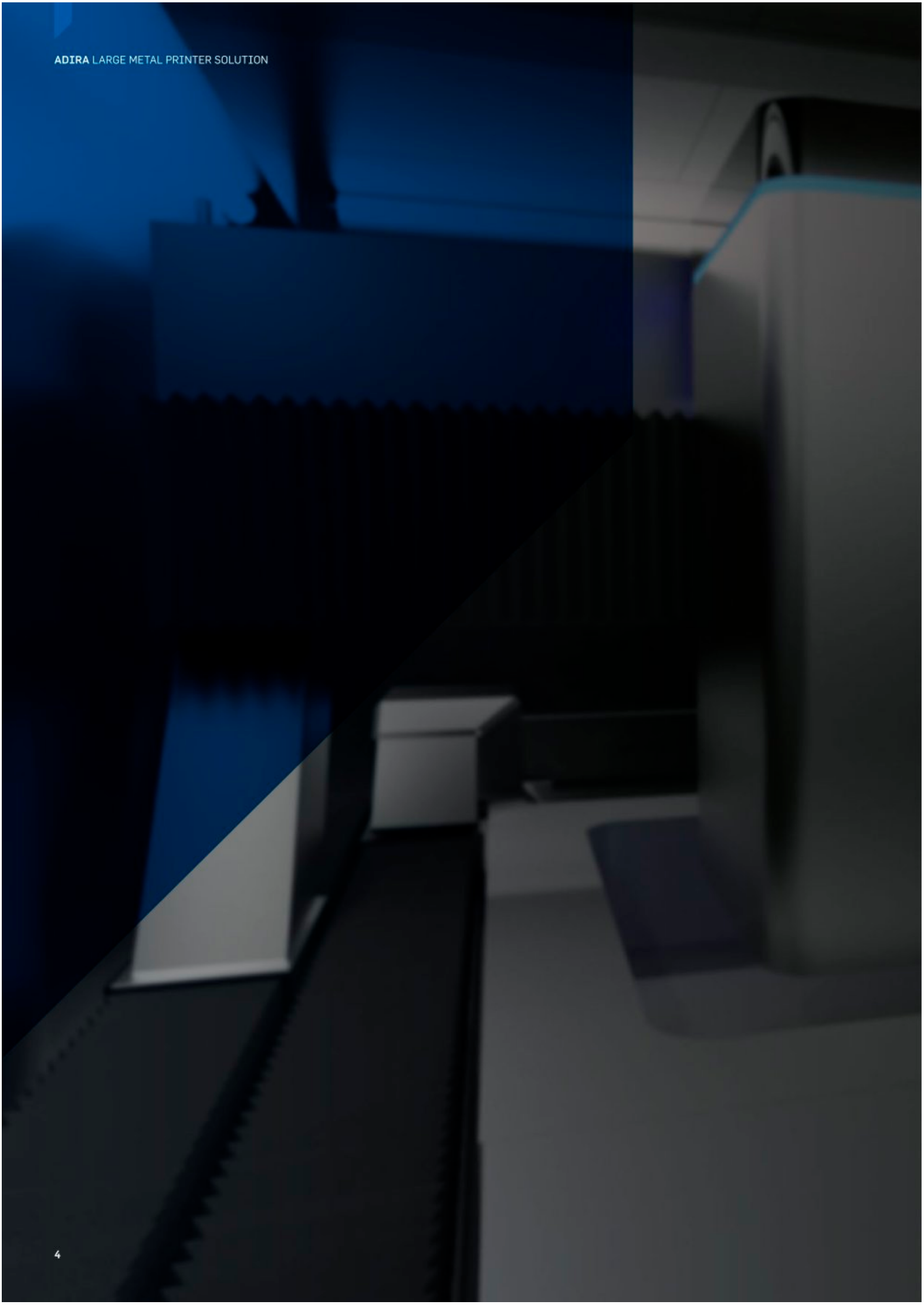
Apart from being able to carry out extra-large projects, using far more parts at once than a conventional LPBF machine, this method allows the parts to be built in a size that simply would not be possible with other machines.

CHAMBER FOR REFERENCE



Unique Machine Concept (TLM) to produce parts at least 3 times bigger than the 2nd biggest machine in the market!"

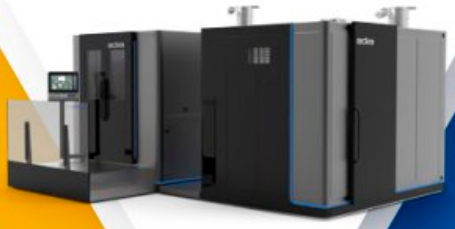




ON-THE-FLY
EXCHANGEBLE TABLE
MULTI-LASER

PRODUCTIVITY

ADD CREATOR

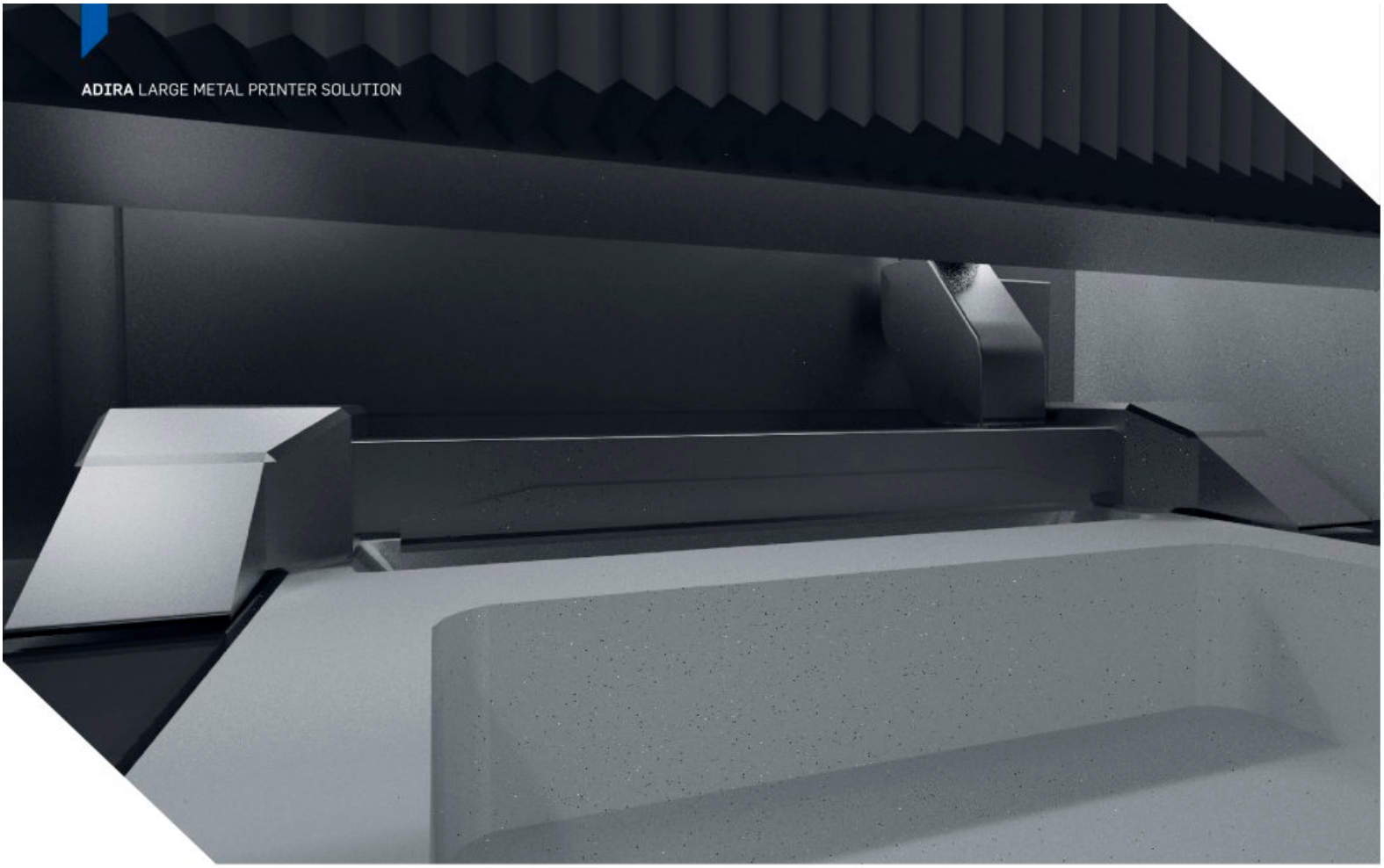


PROCESS
(MONITORING)
ATMOSFERE
BY-PRODUCTS

CONTROL

AUTO-POWDER
MANAGEMENT
AUTO-CALIBRATION
ROUTINES
PROPERTARY &
COMERCIAL SOFTWARE

EASY-USE



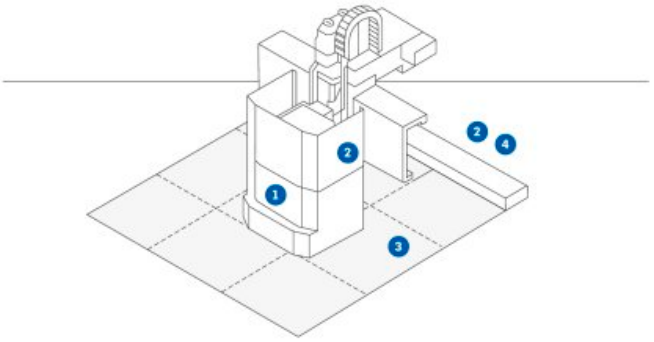
PRODUCTIVITY

ON-THE-FLY

The on-the-fly feature eliminates the idle time for moving the process chamber between tiles. In fact, there are no tiles anymore as the laser continues processing as the process chamber moves through the powder bed.

EXAMPLE OF GAIN IN PRODUCTIVITY
Idle time per move: 1,5s
Number of tiles: 9
Layer height: 20 m
Build job height: 500 mm

Allows you to earn up to 90h in processing one piece!



1. Controlled processing conditions
2. Modular Process Chamber
3. Powder Bed (Blocks)
4. Independent Layer Applicator

PRODUCTIVITY

EXCHANGEABLE TABLES

With the exchangeable table system of AddCreator, the processing of the next build can start just a few moments after the last job was finished:

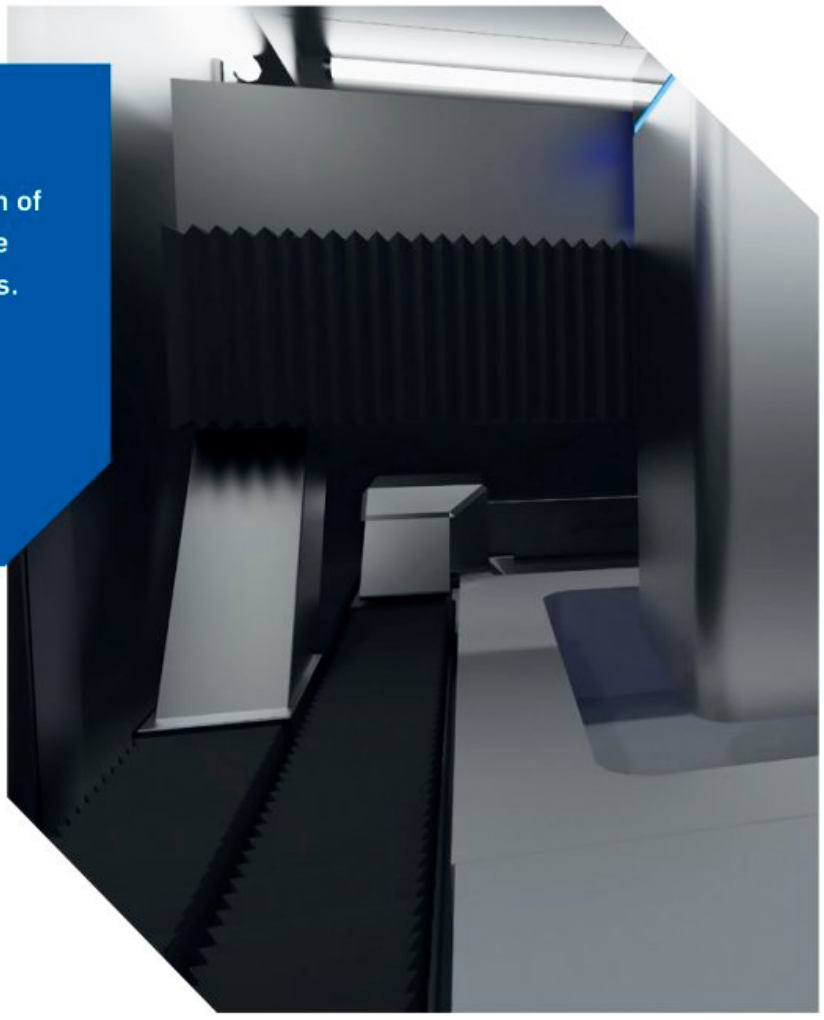
- No time waiting for the part to cool down
- Easier operations for cleaning and extraction of part as it can be done outside of the machine
- Faster and easier cleaning of the machine between builds

PRODUCTIVITY

MULTI-LASER

The use of the multi-laser system of addcreator allows to increase the speed of processing up to 5 times.

In a fabrication process where the majority of time is spent in the scanning stage, productivity skyrockets.



The scanner arrangement was carefully selected to optimize productivity for the most possible cases (all-rounder). The line arrangement allows for more than 50% overlap between scan fields, an extremely important feature to balance laser workload and heat input distribution.

EASY-USE

AUTO-POWDER MANAGEMENT

Besides the usual manual vacuum and machine cleaning, all powder management operations in AddCreator are automated in a closed-loop system. Sieving, storage, conveying, dosing, delivering and re-coating are all fully automated.

Powder management operations are monitored in real time and displayed in a HMI for an easy diagnosis by the machine operator.

EASY-USE

AUTO-CALIBRATION ROUTINES

AddCreator comes with an integrated optical vision system specially design to aid the operator in the process of calibration of scan fields. With a few easy steps, this system allows calibration operations to take place onsite, avoiding extensive machine downtimes.

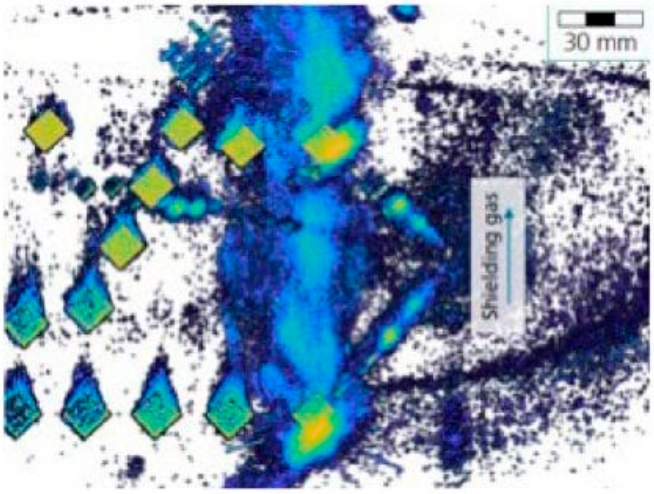
EASY-USE

PROPERTARY & COMMERCIAL SOFTWARE

ADIRA has developed a software module that complements the commercial LPBF pre-processing solutions most commonly used in the TLM process.

CONTROL

PROCESS



Well-optimized multi-laser processing strategies were developed for AddCreator

- Interaction between lasers and by-products are avoided
- Laser workload distribution optimized for heat dissipation

The integrated vision-system in AddCreator gives the opportunity for the machine owner to further analyze the distribution of the fumes of the process.

Monitoring of process by-products

CONTROL

ATMOSPHERE

The O_2 level is tightly controlled in AddCreator in two different levels:

Within the machine

The O_2 is kept at a few thousand ppm to preserve both part and powder qualities

Within the process chamber

The O_2 is kept at few hundred ppm to guarantee that the fusion process takes place in optimal conditions

CONTROL

BY-PRODUCTS REMOVAL

The AddCreator process chamber was carefully designed to handle the process by-products. A gas flow stream with very particular properties, efficiently removes fumes and ejected particles with no impact on the powder layer.

Process Technology	Laser Powder Bed Fusion – Tiled Laser Melting®
Dimensions	
Overall dimensions (LxWxH)	8000x8500x4000 mm
Build Envelope	1020x1020x500 mm
Chamber scanfield size	430x100 mm
Process	
Max. Build Rate	até 180 cm^3 /h*
Max. Scan Speed	9 m/s
Average Gas consumption	50 l/min
Layer thickness	20-100 m
Geometric Tolerances	100 µm
Positioning Tolerance (X,Y,W)	50 µm
Alloys	Stainless steel, Maraging steel, Nickel based alloys
Laser	
Laser Type	Fibra
Focus Diameter	95 +/- 10 m
Power	5x 500 W
Configuration	5 laser sources and 5 scanners

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