DIRECTED ENERGY DEPOSITION

MAGIC 800



Our flagship DED solution to build large parts, repair, and add features, with the industry leading process stability.

AddUp

THINK SMART. MANUFACTURE DIFFERENT.

MODULO 800

HIGH-VOLUME, HIGH-POWER PRODUCTION

AddUp is an Additive Manufacturing OEM, built from the legacy of industry leaders Michelin and Fives. We bring the latest multi-technology production systems, but we also come from the world of manufacturing.

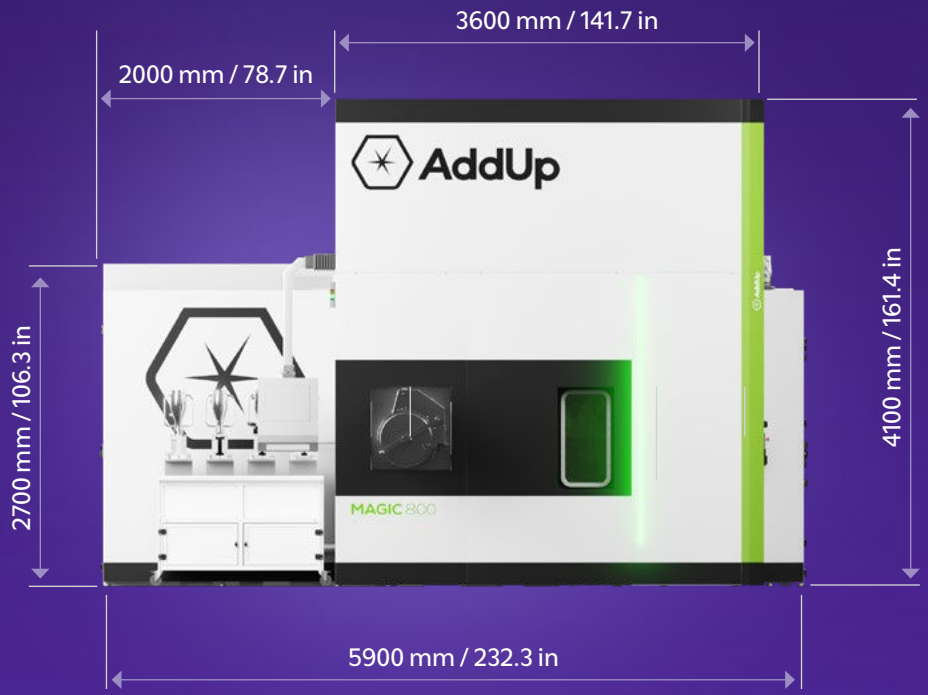
Born from the needs of the manufacturing world, we possess an intimate understanding of its nuances and challenges, having personally experienced them. We not only comprehend how to leverage it but also possess the capability to qualify and scale.

The Magic 800 is suitable for medium and large metal part rate production and repair without the need for support structures. Add additional features to preexisting structures to optimize cost, quality, and time.



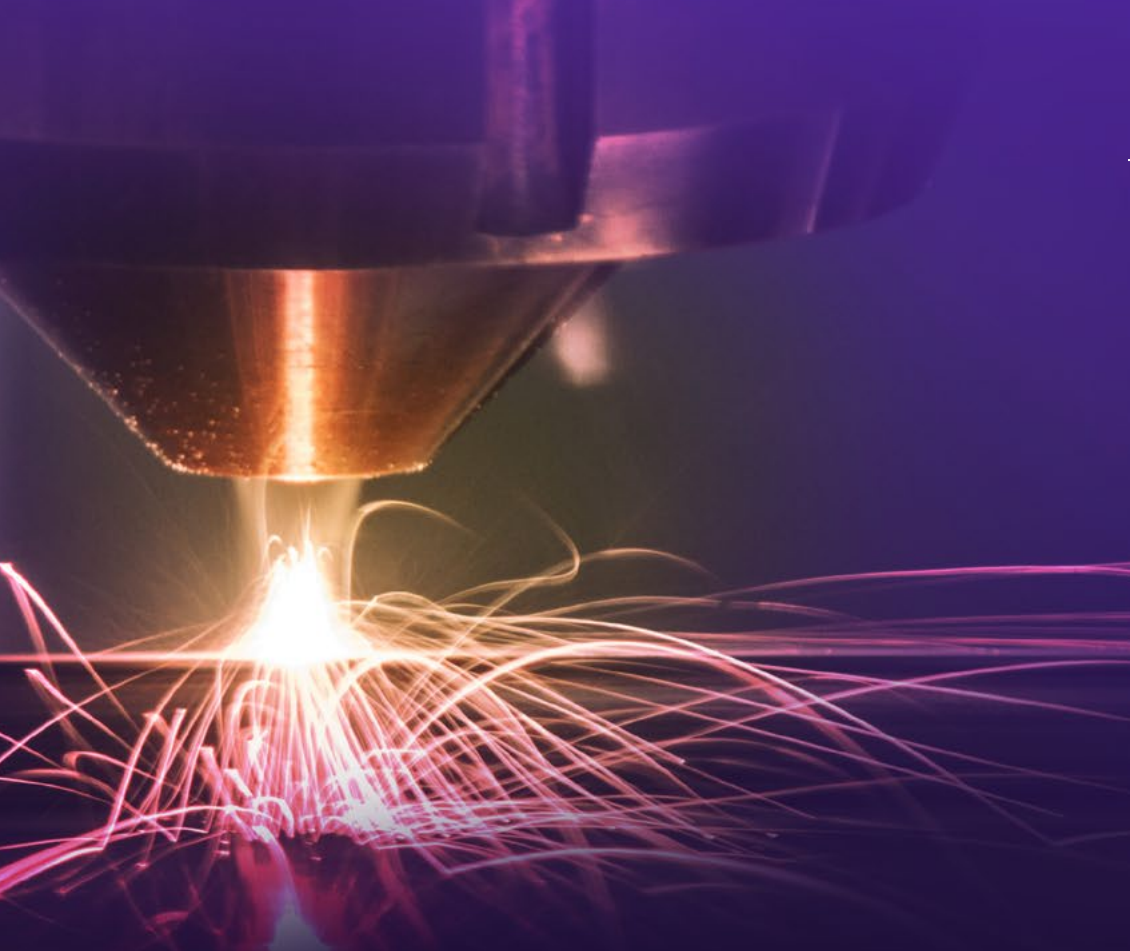
MACHINE LAYOUT





TECHNICAL SPECIFICATIONS

Dimensions	L 5.9 x W 7.2 x H 4.1 m (see layout)
	Global weight: ~ 20 T
Build volume (3 axis)	X=1000 x Y=1800 x Z=800 mm (~1440 L)
Number of axis	5 continuous axis (X/Y/Z/A/C)
Linear axis	Ball screw actuators with asynchronous motors (AC)
	Strokes:
	X = 1000 mm
	Y = 1800 mm
	Z = 1000 mm
	Maximum speed X/Y/Z: 30 m/min
	Precision X/Y/Z: ± 25 µm
	Repeatability: 25 µm
Rotary axis	Harmonic Drive Transmission
	Strokes:
	A = ± 110°
	C = ± 360°
	Maximum speeds:
	A = 50 rpm
	C = 100 rpm
	Accuracy A/C: 0.015°
	Repeatability A/C: 0.01°
Table (workpiece holding system)	Circular
	Ø = 700 mm
	Clamping element fixations: 6 T-slots
	Maximum admissible load 5 axis: 500 kg (incl. part holder)
	Maximum admissible load 3 axis: 800 kg (incl. part holder)
	Temperature monitoring sensor
Computer Numerical Control (CNC)	Version: SIEMENS Sinumerik One
	Touch control screen display / 19''
	Compatibility G-code



MATERIALS

All deposition parameters are modifiable, including the powder flow rate, deposition speed, and laser powder.

Our Directed Energy Deposition machines allow the use of many different types of metal powders. Here are some of our machine tested materials:

- Ti64
- Stainless steel 316L
- Stainless steel 17-4PH
- Maraging steel 300
- H13
- Inconel 625
- Inconel 718
- Hastelloy X
- R&D possible for other alloys

POWDER HANDLING

Deposition head 24Vx	Cord width: 1.8 to 2.2 mm
	Deposition accuracy: ± 0.2 mm
	Deposition rate: 90 to 130 cm^3/h
	Laser power range: 400 – 2000W
	Optical fiber type: Ytterbium
	Fiber diameter: 600 µm
	Laser wavelength: 1070 nm
	Laser power stability: ± 1% (typical) / Max. ± 3% over 4 hours
	Cooling: chiller air/water
Powder delivery system	Powder feeder technology: vibration
	Number of feeders: 2 (2 more optional)
	Capacity: 2.5 L (~ 13 kg of standard steel)
	Flowrate: 1 to 30 g/min
	Flowrate stability: ± 5%
Filtration and passivation	Automatic unclogging system
	Calcium carbonate passivation of residue
Controlled atmosphere	For reactive material:
	High level safety
	Better material metallurgical health
	Purification unit: 2 reactors (columns) with automatic scan/ purification cycle management
	Glove box on the front door
	Accurate measurement and traceability of O_2 and H_2O levels (ppm)
	Antechamber to load/unload small parts while maintaining the controlled atmosphere
	Max. concentration levels:
	O_2: 40 ppm
	H_2O : 50 ppm
	Regeneration time: 15 hours per columns
Antechamber	Manual Door
	Internal dimensions: 570 x 220 x 280mm
	Max. load : 12 kg

OPTIONAL UPGRADES

Deposition head 10Vx	Cord width: 0.8 to 1.2 mm
	Deposition accuracy: ± 0.1 mm
	Average deposition rate: 15 to 20 cm^3/h
	Laser power range: 200 – 500W
	Optical fiber: Ytterbium
	Spot diameter: 200 µm
	Laser wavelength: 1070 nm
	Laser power stability: ± 1% (typical) / Max. ± 3% over 4 hours
	Cooling: chiller air/air
Automatic tool changer	Integration of:
	10Vx deposition head
	24Vx deposition head
	Touch probe system
Touch probe	Renishaw RMP40

IN-HOUSE DESIGNED NOZZLES. THE CO-AXIAL DIFFERENCE.

Our in-house designed nozzles achieve a smoother finish, with better meltpool control, and less overspray for minimal post processing. Two different nozzles can be mounted on our DED machines: the 24Vx for productivity with up to 2.2mm width, and the 10Vx, perfect for working on fine parts with a deposition 0.8 to 1.2 mm deposition width.



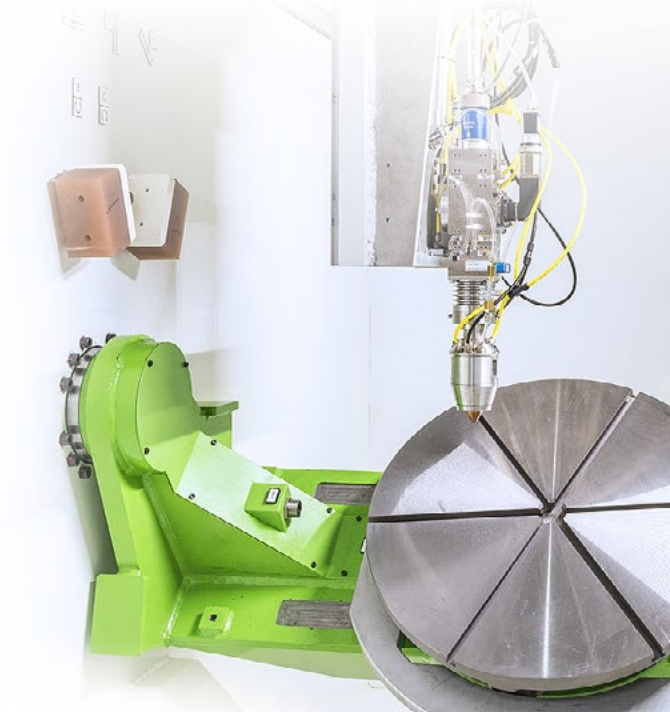
CONNECTIONS

Electrical	Voltage: 400 V – 50 Hz or 460 V – 60 Hz
	Power: 137 kW
	Current: 245 A
Extraction	3 filtration levels: prefilter, HEPA and chemical filter
	Flowrates:
	Ambient: 2000 m^3/h / 70629 ft^3/h
	Cont. atmos.: 250 m^3/h / 8828 ft^3/h
Environment	Temperature: 15 to 25°C
	Humidity: 30 to 60%
Gas	Type: Argon
	Min. purity: > 99.95% mini
	Recommended purity: > 99.998%
	Consumption:
	Purge / prod.: < 12 m^3/h / 423.8 ft^3/h
	Purification: 2 $m^3/24h$ / 247.2 $ft^3/24h$
	General pressure: 6 bar / 87 psi (pressure reducer integrated)
	Regeneration pressure: 1 bar / 14.5 psi

INERT CHAMBER

The inert chamber in our Directed Energy Deposition machines enables the use of reactive powders.

This feature makes our DED machines one of the few on the market capable of producing both titanium and aluminum parts.





A GOLD STANDARD OF SERVICE

When you choose AddUp, you're choosing a partner who will be with you every step of your journey. Experience best in class safety on a repeatable, reliable platform, with support at every stage to realize the full potential digital manufacturing has to offer.

BEFORE PURCHASE

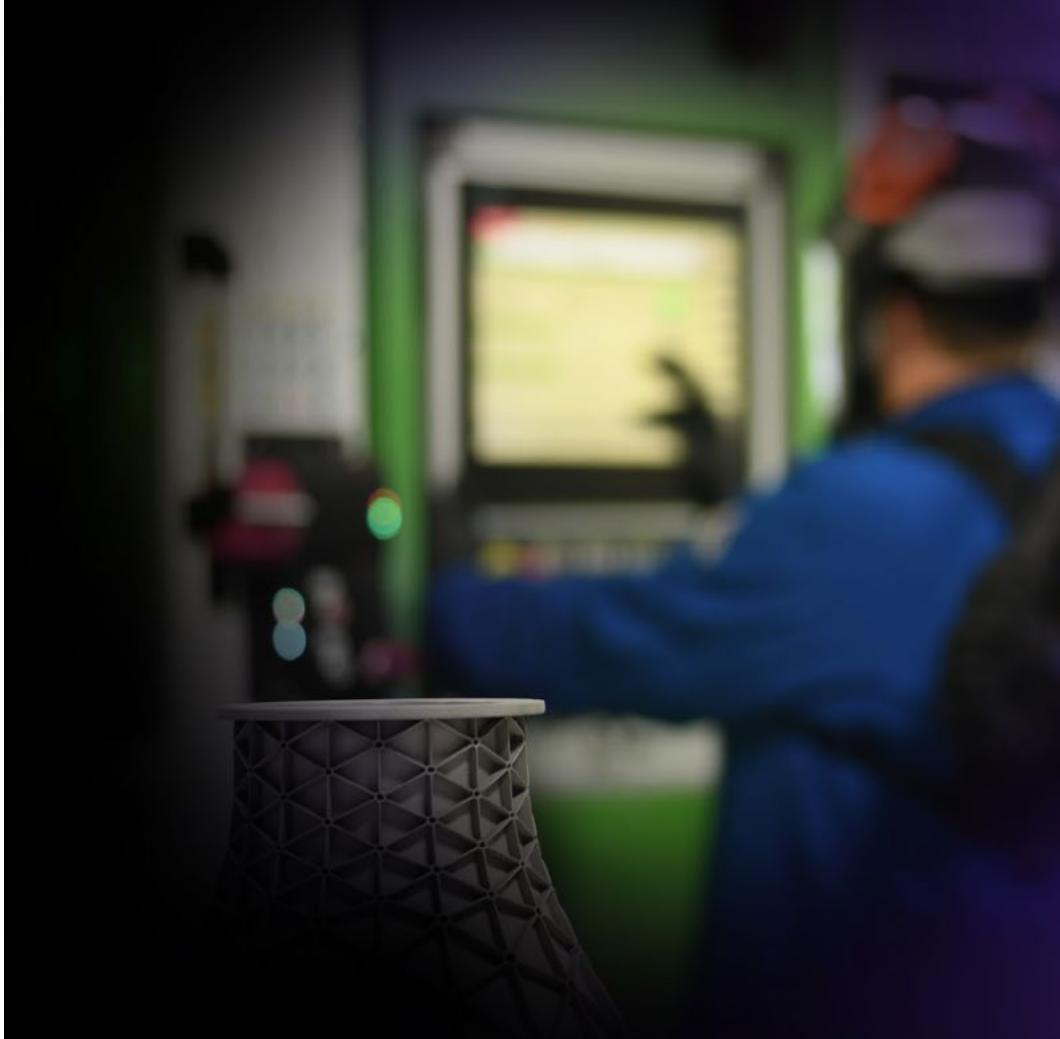
- Acquire basic knowledge in metal additive manufacturing
- Optimize parts for the L-PBF or DED process
- Produce your proof of concept
- Calculate your ROI and consolidate your business model
- Evaluate with on-site inspections
- Define your future additive manufacturing workshop

AFTER PURCHASE

- White-glove installation service to get you up and running in less than 2 weeks
- Operator training adapted to your employees
- Support services for the qualification of your application

AFTER INSTALL

- Rapid response times
- Maintenance contracts adapted to the needs of your business
- Spare part kits that allow you to restart quickly
- Process experts and application engineers available
- Material development services
- Support as your business grows by upgrading equipment
- A pathway to fully automate your AM workshop



OUR CERTIFICATIONS

We operate with a strong focus on quality, efficiency, and customer-centricity. Our processes and systems have been reviewed and validated for compliance to applicable ISO standards.

ISO 9001 2015 CERTIFIED

ISO 14001 2015 CERTIFIED

ISO 13485 2016 CERTIFIED

AS9100D CERTIFIED

CYBERSECURITY MATURITY MODEL CERTIFICATION

ITAR International Traffic in Arms Regulations Compliant

EN 9100 2018 CERTIFIED

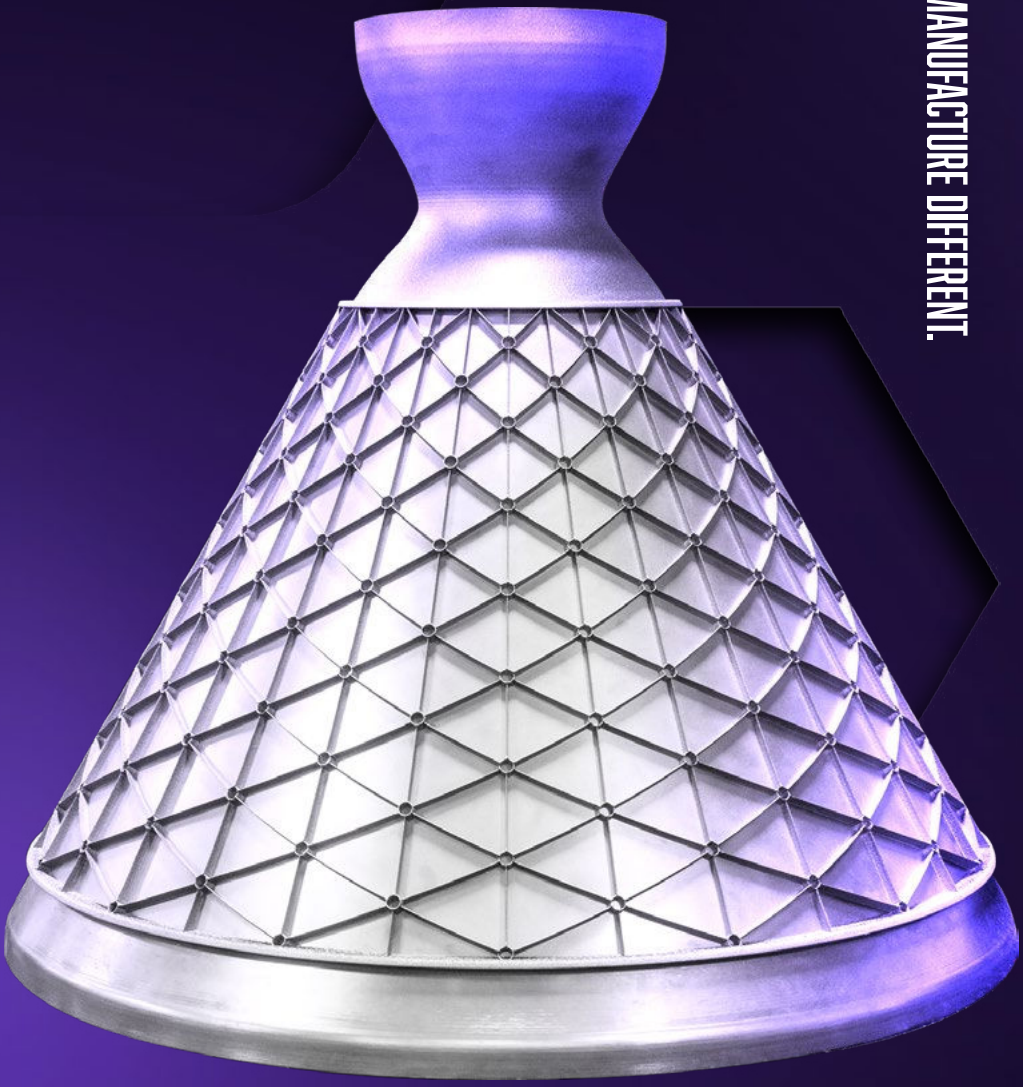
CONNECT

AddUp Solutions

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addupsolutions.com

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AddUp SAS
13-33 Rue Verte
ZI de Ladoux, 63118 Cébazat
France

+33 (0)4 73 15 25 00

AddUp Inc
5101 Creek Rd,
Cincinnati, OH 45242
USA

+1 (513) 745-4510

AddUp GmbH
Campus-Boulevard 30
52074 Aachen
Germany

+49 241 4759 8581

AddUp Solutions Pte. Ltd.
2 Cleantech Loop
#04-06 JTC Launchpad
@ Jurong Innovation District
Singapore 637144

+65 6909 9345

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