

MANUFACTURING GRADE METAL 3D PRINTING AT PRODUCTION SPEEDS

LightSPEE3D YOUR PARTS, YOUR WAY.

SPEE3D's mission is to make manufacturing easier. We do this by solving three key issues of 3D metal printing - cost, speed and repeatability. Introducing LightSPEE3D, the solution you've been waiting for; a truly revolutionary 3D Metal printer capable of production speed, at low cost.



LightSPEE3D is a world first metal based 3D printer utilising supersonic 3D deposition (SP3D). The technology manufactures fast, low-cost, near net shape parts suitable for commercial and industrial applications.

Ideally suited for producing parts currently designed for sand or die casting, the end applications include automotive, mining, commercial, HVAC and industrial.

The automated build process takes an STL CAD file and produces a near net shape part.

HOW IT WORKS

Rather than using heat to melt metal powders, SPEE3D's patented technology uses supersonic deposition in which a rocket nozzle accelerates air up to three times the speed of sound. Injected powders are deposited onto a substrate that is attached to a six-axis robotic arm. SPEE3D have called this process 'Supersonic 3D Deposition' or 'SP3D'. In this process the sheer kinetic energy of the particles causes the powders to bind together to form a high density part with normal metallurgical properties.

FEATURES

 Fully integrated design including enclosed build chamber, powder feeder, electronics and print head.
Touch screen HMI

• High speed robotics • Very high build rates – up to 100grams/minute.

FAST AND COST EFFECTIVE

LightSPEE3D produces metal parts in a fraction of the time and cost other metal 3D printers are capable of.



For example this copper flywheel took just 11 minutes and 38 seconds to produce, at a cost of \$6.85. The same part would take many, many hours to print and be prohibitively expensive for a single part using traditional metal 3D printing techniques.



COMPRESSED AND HEATED AIR

SPEE

- No use of expensive inert gases
 - Process operates using normal compressed air



METAL POWDER

- Readily available
- Currently qualified for aluminum and copper



PROPRIETARY CONTROL SOFTWARE

• Precision control of robotic arm and delivery of powder (pressure, temperature and volume)





FINISHING

• Part removed from machine can be handled immediately

• Removed from bed and finished machined, with less waste than casting



ROBOTIC ARM / PART BED

- Substrate attached to the robotic arm
- Moves above the powder spray nozzle to vary the angle at which the powder is deposited
 - Shape forms as powder particles fuse on impact with the bed and each other



POWDER SPRAY NOZZLE

- Rocket nozzle used to propel metal powder particles at supersonic speed onto substrate
 - Fixed to the base of the machine
 - 100 to 1,000 times faster than laser based 3D printing

SPECIFICATIONS

BUILD

Max part size 300 x 300 x 300mm Max part weight 3000g Materials Copper, Aluminium Deposition rate Up to 100g/minute max Substrate User defined Deposition spot size 4-7mm

LightSPEE3D

Electrical power supply 415V (3 phase), 50A socket Compressed air supply 30Bar, 1.0m³/min Noise < 85dBA @1m Machine foot print 3190 x 1460 x 2330 (L x W x H mm) Machine weight Approx 2500kg

SOFTWARE

CAD input STL format User Interface Touch Screen

EXTERNAL REQUIREMENTS

External compressor 30Bar, 15kW, 3 stage reciprocating **Air/Dust extractor** for undeposited powder

ULTRA HIGH SPEED

100 to 1000 times faster than traditional 3D printing

FLEXIBLE

With on-demand part numbers you can produce a run of 10,000 parts or a single part with ease

LOW COST

LightSPEE3D achieves a similar cost to casting and uses common materials (copper and aluminium)

STRONG

LightSPEE3D uses SP3D technology to produce high density parts with low thermal stress

EASY

No redesign or complex modelling required, just load your file and print one part... or many.



LightSPEE3D is a German Design Award Nominee 2018 Finalists for the Victorian Premier's Design Awards 2016 One of the winners of Tech232016 Winner of the Prestigious Bosch Venture Award 2015







