



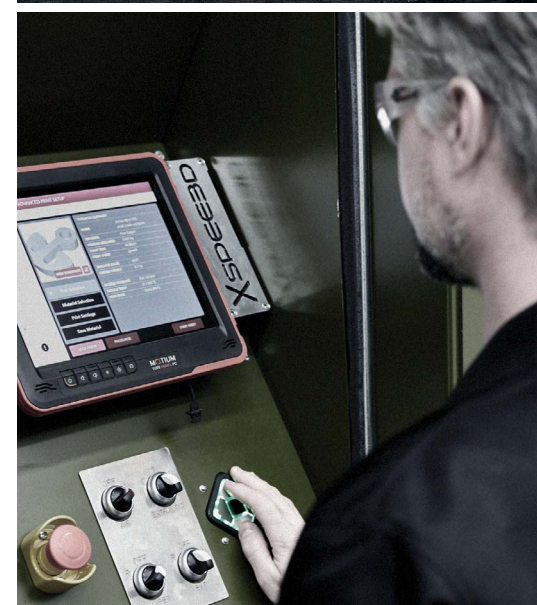
# A Revolution in Repair

**SPEE3D**

XSPEE3D

# Fast. Reliable. Deployable.

Introducing Cold Spray Additive Manufacturing (CSAM)—and the ability to easily, rapidly manufacture cast-equivalent spare metal parts on-site and on-demand. It's the innovation you need to accelerate battle damage repair from weeks and months to hours and days.



## Make the part. Complete the mission.

XSPEE3D—our expeditionary printer—gives defence organisations and the equipment manufacturers that support them everything they need to produce cast-equivalent metal parts in remote locations. Containerized, ruggedized, and easily deployed, it enables you to effectively reduce disruption and downtime in the field.

- Manufacture metal on-site in remote, austere environments
- Ensure material properties equal or superior to their cast counterparts
- Reduce the need for extensive training

## The right tech for fast results

Our CSAM technology enables you to manufacture cast-equivalent metal parts on-demand and on-site, reducing time-to-part from weeks and months to hours and days.

### TwinSPEE3D automation software

- Process 3D geometries automatically
- Identify unfeasible part features and incorporate design modification suggestions
- Generate print paths for printing or coating

### Phaser nozzle

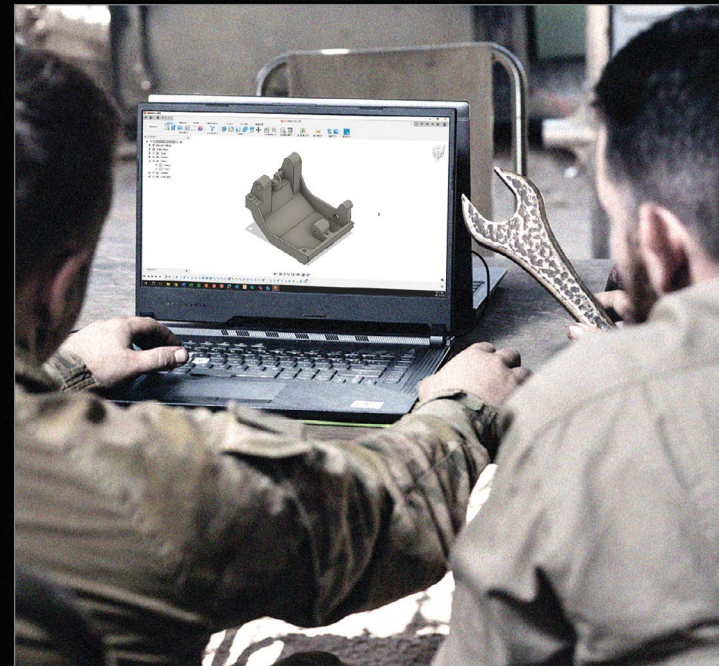
- Produce high-density metal parts
- Increase particle deformation
- Reduce the need for dangerous, expensive gases

### SPEE3DCell expeditionary post-processing and testing

- Heat treat, machine, and test parts in the field
- Transport with NATO in-service vehicles in a single 20-ft container
- Leverage the ideal complement to XSPEE3D in the field

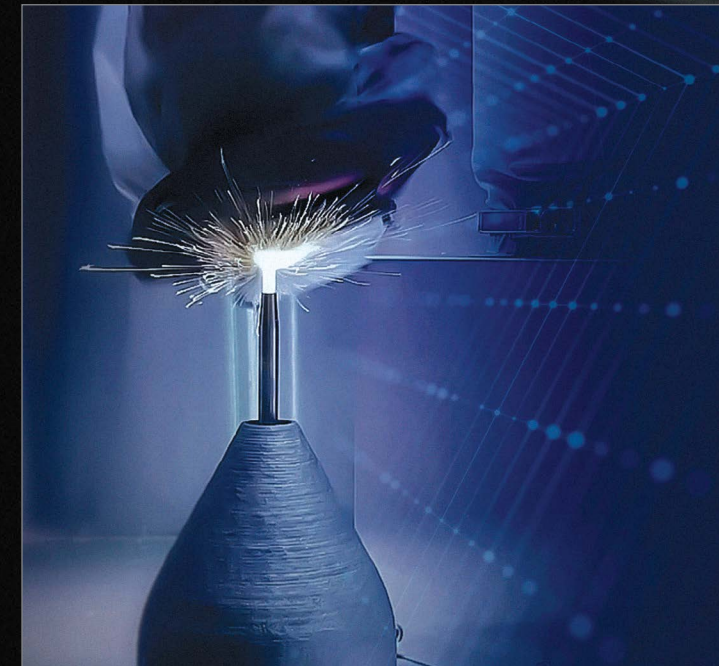
## How it works

In our highly automated process, metal particles are sprayed at supersonic speeds onto a substrate to build your part in layers. At such a high velocity, the sheer force of the kinetic energy causes the particles to bind together—creating denser parts with lower porosity and predictable material properties.



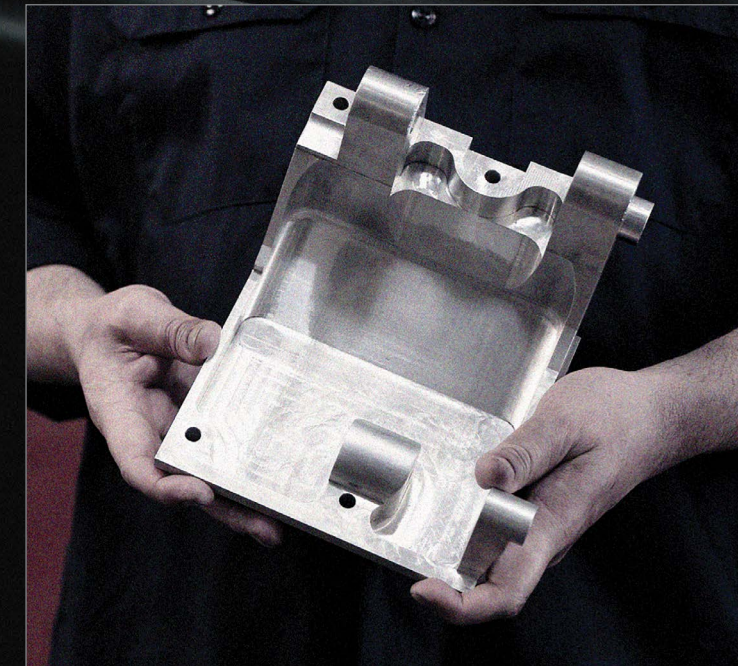
### 1. Design

Use our TwinSPEE3D automation software to create a tool path from your CAD file or scan, create a full simulation, and modify the design to correct anomalies before you start printing.



### 2. Print

Use our ultra-high energy phaser nozzle to spray metal powder at supersonic speeds onto a base plate using only compressed air to build your part in aluminum, aluminum bronze, copper, or stainless steel.



### 3. Cook & Cut

Use our SPEE3DCell expeditionary post-processing unit to heat treat, machine, and test your part before putting it to use.

## The power of CSAM

The XSPEE3D printer takes metal casting into the 21st century, enabling you to rapidly produce critical replacement metal parts on-demand directly at the point of need. It's fast, it's efficient, and it's revolutionizing battle damage repair.

### Speed

- Drive build rates up to 100g/minute (3.5oz/minute)
- Reduce time-to-part from weeks and months to hours and days

### Mobility

- Transport XSPEE3D in a single standard shipping container
- Supply power and begin fabricating immediately

### Flexibility

- Choose from aluminium, aluminium bronze, stainless steel, and copper—with other materials in development
- Print one or multiple parts at once up to 40g (88lbs) and  $\varnothing 0.9\text{m} \times 0.7\text{m}$  ( $\varnothing 35'' \times 30''$ )

### Automation

- Print directly from your CAD files or scans
- Create a digital prototype before you print your part

### Ease of use

- Reduce the need for inert gases or extensive trainig
- Simplify user experience with an intuitive Human Machine Interface (HMI) designed specifically for outdoor and red-light conditions



## Printed part examples

### Type C Camlock Fitting

<b>Print Time</b>	24 Minutes
<b>Material</b>	Aluminium 6061
<b>Weight</b>	660g (1.5lbs)



### M113 Wheel Bearing Cover

<b>Print Time</b>	29 Minutes
<b>Material</b>	Aluminium Bronze
<b>Weight</b>	2kg (4.4lbs)



### 316 Stainless Valve Handle

<b>Print Time</b>	60 Minutes
<b>Material</b>	316 Stainless Steel
<b>Weight</b>	1.2kg (2.6lbs)



### Bilge Pump Housing

<b>Print Time</b>	83 Minutes
<b>Material</b>	Aluminium Bronze
<b>Weight</b>	8.3kg (18.3lbs)



### Copper Rocket Nozzle Liner

<b>Print Time</b>	199 Minutes
<b>Material</b>	Copper
<b>Weight</b>	17.9kg (39.5lbs)



## Technical specs

### Part Build

**Maximum part size:**  
 $\varnothing 0.9\text{m} \times 0.7\text{m}$  ( $\varnothing 35'' \times 30''$ )

**Maximum part weight:**  
40kg (88lbs)

**Deposition spot size:**  
6mm (.24")

### Software & Interface

**Software:**  
TwinSPEE3D

**CAD input:**  
STL & STEP format

**User interface:**  
HMI Touch Screen

**Required operating system:**  
Windows 8 or higher

### Performance Specifications

**Deposition rate:**  
Up to 100g (3.5oz)/minute

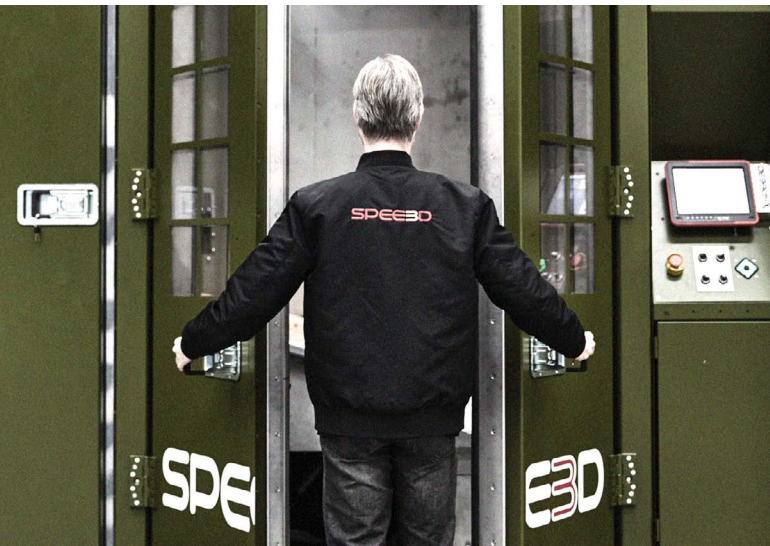
**Electrical power supply:**  
415V | 3 Phase | 50/60Hz | 18kVA

**Noise:**  
<80dBA @ 1m

**Footprint:**  
20ft container (doors closed):  
 $6.2\text{m(L)} \times 2.6\text{m(W)} \times 2.6\text{m(H)}$   
[20ft(L) x 9ft(W) x 9ft(H)] (approx.)

**XSPEE3D weight:**  
9980kg (22000lbs)

# Minimize downtime in the field



The expeditionary XSPEE3D metal printer puts the power of metal manufacturing right at your fingertips—so you can accelerate battle damage repair in the field.

- Containerized, ruggedized, and easily deployed
- Rapid build rates up to 100g (3.5oz)/minute
- No extensive training required



## SPEE3D

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