Unlock the Potential™
Low Cost, High Volume
Metal Additive Manufacturing
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About 3DEO

Unlock the Potential of Metal AM

3DEO’s breakthrough Intelligent Layering® technology unlocks high volume metal AM by drastically reducing final part cost. Despite the low cost, our parts meet the high industry benchmark MPIF Standard 35 while still achieving tight tolerances and an impressive surface finish. Intelligent Layering® will open metal AM to the majority of the industries that can’t afford today’s expensive options.

Leveraging its unique technology as a parts supplier, 3DEO sells high volume, high-value metal parts to manufacturers for a variety of applications across a wide range of industries. **3DEO is selectively accepting new high volume, high-value industrial applications of 100+ pieces.**

We obsess about three things: **PART COST, QUALITY, and RESPONSIVENESS.**
Benefits of Metal AM with 3DEO

› Repeatable, high volume production
› Dramatically lower final part costs
› Quality parts that meet MPIF Standard 35
› Complex, previously impossible designs
› Wide variety of industrial metals available
› Very short manufacturing lead times
› Fast, highly iterative development cycles
“3D printing could very well have a larger impact on manufacturing than any other technology.”

-Wohlers Report
Wohlers Associates, Inc.

“[Additive manufacturing] is really fundamentally changing the way we think about the company.”

-Mark Little, CTO at GE

MANUFACTURERS CURRENTLY ADOPTING AM
2/3

COST
#1
BARRIER TO ADOPTION

METAL AM GROWING AT
76%

EXPONENTIAL GROWTH:
GROWING TO
5M
UNITS SOLD IN 2019
WITH 250,000, UNITS SOLD IN 2015
Intelligent Layering® Technology

Intelligent Layering® is a fundamentally new metal AM technology that reduces final part cost by as much as 80%. The process, pictured to the right, follows six steps to build parts that meet MPIF Standard 35 for quality -- a first in metal AM.

There are three main factors that result in 3DEO’s industry-leading low production costs -- low machine cost, commodity materials, and creative software design. The entire build process was designed around lowering the per-part cost of metal AM.

Thanks to the low-cost and highly repeatable process, 3DEO is able to manufacture in high volumes that are economically unattractive to other metal AM technologies.
Layer of Powder
a thin layer of fine metal powder is spread over the build area

Binding Pass
a binder is applied to the entire layer being built

Cutting Pass
a cutter then shapes the perimeter of the part layer by layer

Next Layer Spread
the next layer of powder is spread to continue building

Sinter Furnace
the completed part is put into a high-throughput furnace for sintering

Finishing
depending on the application, a finishing process may be applied

1 2 3 4 5 6
Technical Specifications

FINAL PART PRODUCTION SPECIFICATIONS

Fit: Tolerances of +/- 0.005 in/in

Finish: Variety of physical, chemical, and mechanical finishing options available

Function: Engineered densities up to +97% relative to wrought

Feasibility: Lowest per-part cost in metal AM with high volume (100+ piece) potential

Material Possibilities

Currently manufacturing in stainless steel 17-4PH.

Other Materials Under Development
- Inconel, nickel alloy
- Cobalt-chrome
- Titanium
- Tool steels
- Low-alloy steels
- Soft magnetic alloys
- Controlled-expansion alloys
- Tungsten carbide
- Tungsten heavy alloy
- Bronze, copper and brass

Manufacturing Capabilities

Secondary Operations: We offer a variety of secondary operations, including heat treating, vibratory deburring, sizing/coining, machining, and steam treating.

Quality Control & Metallurgical Inspection: Complete mechanical testing facility including: optical metallographic equipment, vision system measuring center, CMM, optical comparator, micro-hardness and apparent hardness testers, gear checker, surface roughness testers, humidity chamber, and conductivity meter.
## Technology Comparison

<table>
<thead>
<tr>
<th>TECHNOLOGY</th>
<th>CAPITAL COST</th>
<th>COST PER PART (AVG)</th>
<th>COMPLEXITY</th>
<th>VOLUME</th>
<th>LEAD TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>3DEO</td>
<td>$</td>
<td>$</td>
<td>High</td>
<td>Low - Medium (100+)</td>
<td>Low</td>
</tr>
<tr>
<td>OTHER METAL AM</td>
<td>$$$</td>
<td>$$$</td>
<td>High</td>
<td>Low (1-100)</td>
<td>Low</td>
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<tr>
<td>SUBTRACTIVE MANUFACTURING / MACHINING</td>
<td>$</td>
<td>$</td>
<td>Low</td>
<td>Low - Medium (1-1,000)</td>
<td>Low - High</td>
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<tr>
<td>METAL INJECTION MOLDING (MIM)</td>
<td>$</td>
<td>$</td>
<td>Medium</td>
<td>High (20,000+)</td>
<td>High</td>
</tr>
<tr>
<td>CASTING</td>
<td>$</td>
<td>$</td>
<td>Low</td>
<td>High (20,000+)</td>
<td>High</td>
</tr>
<tr>
<td>HOT DROP FORGING</td>
<td>$$$</td>
<td>$</td>
<td>Low</td>
<td>High (20,000+)</td>
<td>High</td>
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</tbody>
</table>

Key advantages include lower part cost due to our proprietary technology, faster build times through Intelligent Layering®, and significantly higher volumes than other metal AM machines.

Stop losing money on outdated manufacturing and unlock the potential of metal additive manufacturing.
Industries

- Industrial
- Automotive
- Appliance
- Energy
- Medical & Dental
- Aerospace

Applications

- High volume
- High temperature
- High strength
- Complex designs
1
Initial Contact
Contact 3DEO to ask questions about our process or your application and requirements.

2
Design Review
Send us your design file(s). We will review and respond with detailed feedback, suggestions, and observations. If your part is a good fit for our capabilities, we will also provide a cost estimate.

3
Proposal
You review the estimate, and we confirm the project scope and submit a manufacturing proposal.

4
Evaluation
We deliver sample parts for your evaluation.

5
Purchase Order
After passing your QA process, a purchase order is signed for a full manufacturing run.

6
Manufacturing
We manufacture and ship the order.