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About 3DEO

Unlock the Potential of Metal 3D Printing

3DEO’s breakthrough Intelligent Layering® technology unlocks metal 3D printing 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 3D printing to the majority of the industries that can’t afford today’s expensive options.

Leveraging its unique technology as a parts supplier, 3DEO sells low-cost metal components on demand for a variety of applications across a wide range of industries. 3DEO is selectively accepting new part applications of 100+ pieces.

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

- Dramatically lower final part costs
- On-demand part manufacturing
- Quality parts that meet MPIF Standard 35
- Best surface finish in metal 3D printing
- Complex, previously impossible designs
- Digitize production to reduce inventory holding costs
- Repeatable, high volume production
- Fast, highly iterative product development cycles
“[3D Printing] is really fundamentally changing the way we think about the company.”

- Mark Little, CTO at GE

"3D printing could very well have a larger impact on manufacturing than any other technology."

-Wohlers Report
Wohlers Associates, Inc.

MANUFACTURERS CURRENTLY ADOPTING AM
2/3

METAL AM GROWING AT
76%

EXPONENTIAL GROWTH:
GROWING TO
5M
UNIT S SOLD IN 2019
WITH 250,000, UNITS SOLD IN 2015

COST
#1 BARRIER TO ADOPTION
Intelligent Layering® Technology

Intelligent Layering® is a fundamentally new metal 3D printing technology that reduces final part cost by as much as 80%. The process follows six steps to build parts that meet MPIF Standard 35 for quality -- a first in metal 3D printing.

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 3D printing.

Thanks to the low-cost and highly repeatable process, 3DEO is able to manufacture in higher volumes that are economically unattractive to other metal 3D printing 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
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 +99% relative to wrought

**Feasibility:** Lowest per-part cost in metal 3D printing 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/ coined, 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><strong>3DEO</strong></td>
<td>$</td>
<td>$</td>
<td>High</td>
<td>Low - Medium</td>
<td>Low</td>
</tr>
<tr>
<td>OTHER METAL 3D PRINTING</td>
<td>$$$</td>
<td>$$$</td>
<td>High</td>
<td>Low (1-100)</td>
<td>Low</td>
</tr>
<tr>
<td>SUBTRACTIVE MANUFACTURING / MACHINING</td>
<td>$</td>
<td>$</td>
<td>Low</td>
<td>Low - Medium</td>
<td>Low - High</td>
</tr>
<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>
</tr>
</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 3D printing machines.

Stop losing money on outdated manufacturing and unlock the potential of metal 3D printing.
Industries

➔ Firearms
➔ Medical & Dental
➔ Industrial
➔ Automotive
➔ Consumer Applications
➔ Energy, Power Generation
➔ Aerospace

Applications

➔ High volume (50-5,000 pieces/month)
➔ High temperature
➔ High strength
➔ Complex design possibilities
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.