Dyndrite LPBF Pro

MATERIALS & PROCESS DEVELOPMENT

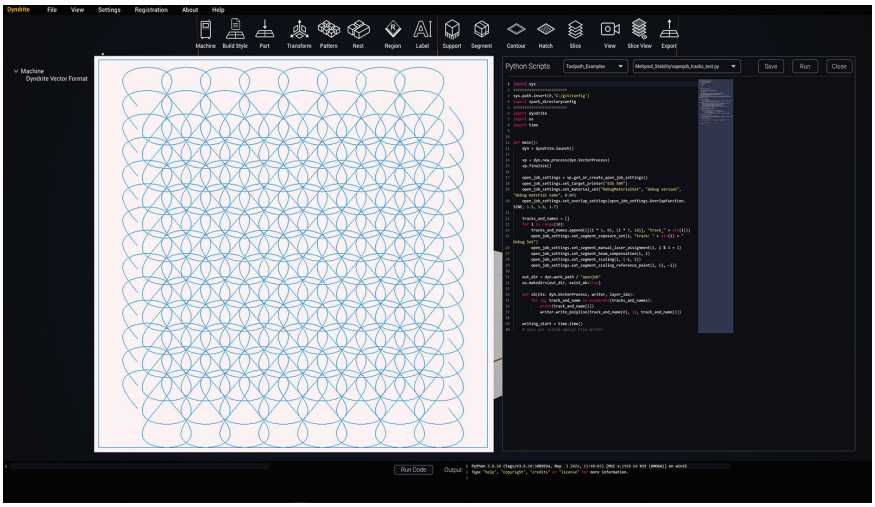
Dyndrite
Ignite your purpose.

You control the laser.

As a materials or process engineer, you know exactly what you're trying to accomplish. It all comes down thermal management - controlling the laser properties, toolpath geometries and sorting in a deliberately specified order. Dyndrite's tools enable you to marry our math, geometry and computing skills with your chemistry, physics, and mechanical skills. Dyndrite LPBF Pro part querying and toolpath control tools enable you to account for the physical effects of the laser-based 3D printing process. Create new material parameter sets and print what was impossible. Get the most flexible, controllable, and highest-performing toolpath generation tool available for maximizing the output of your industrial 3D metal printer. Any clever parameters sets and strategies you come up with is your own IP.

"Dyndrite's toolpathing API unlocked a new dimension of flexibility for our additive manufacturing processes. The additional control over our SLM machines enable us to achieve better material performance and cost productivity in a high-quality manufacturing environment."

SAMUEL MILLER, Director of AM Software | Divergent



Sophisticated scan path and process control enables better material properties. Dyndrite LPBF Pro provides the control necessary for you to develop custom parameter strategies for your application.

Get greater design freedom without extensive DfAM

- ✓ Complex geometries
- ✓ Intricate internal features
- ✓ Avoid part warping

Account for print features

- ✓ Extremely low print angles
- ✓ Horizontal inner diameter holes
- ✓ High aspect ratios
- ✓ Thin walls
- ✓ Fine surface finish

Improve 3D metal printer efficiency

- ✓ Increase build throughput rates
- ✓ Lase the core every Nth layer
- ✓ Design for multi-optic systems
- ✓ Use high layer height strategies

Sophisticated scan path control

- ✓ Develop custom parameter strategies
- ✓ Z-segmentation based on height
- ✓ Customized hatch vector generation
- ✓ Create custom gasflow-based sorting
- ✓ Develop multi-optic strategies

Open your world to new materials, part classes and build rates.

Overcome the physical challenges inherent in the physics of your laser-based manufacturing process. Accessible APIs enable you to generate scanpath geometry based on where you are in the part.

Expand Available Materials
New Materials, Alloys, and Multi-Materials

Enhance Build Rate
Large Layer Heights and Variable Print Rates

Increase Printable Part Types
Small Features, Thin Walls, Domes, and Cantilevers

Increase Part Quality
Material Homogeneity and Surface Roughness

Maximize Flexibility
Angle-Based Print Support Requirements

Get the most flexible, controllable, and highest-performing toolpath generation tool available for maximizing the output of your industrial 3D metal printer. Any clever parameter sets or strategies you come up with is your own IP.

Schedule a Demonstration
See how **Dyndrite LPBF Pro** can unlock your LPBF-based parts, materials, and processes. Reach out to us at ***dyndrite.com/vip***

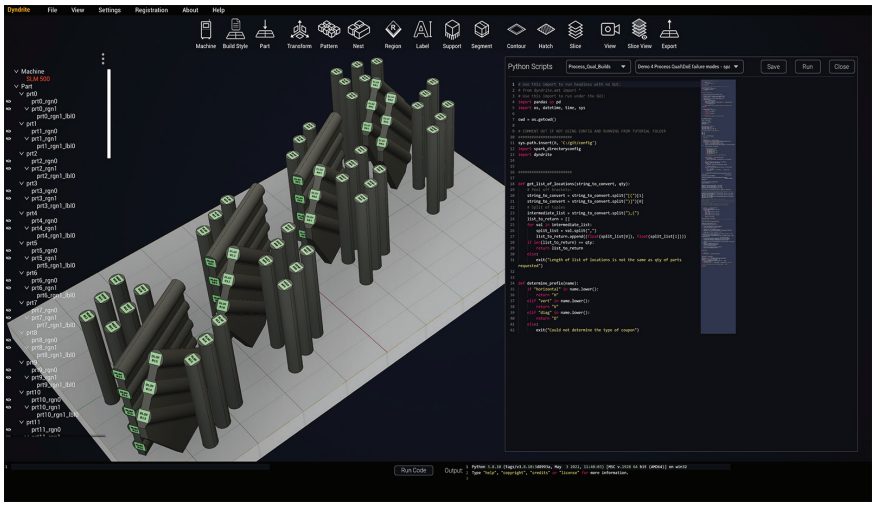
Why use Dyndrite LPBF Pro for your materials & process development?

Imagine having control over the entire process, down to the toolpath.

The aim is to improve the build rate, quality of parts, types of printable parts, and materials by applying the correct compensations and toolpath parameters. These compensations can be achieved by adjusting various parameters. This includes modifying laser parameters like scan velocity, focus, and laser power, as well as tweaking geometric parameters such as hatch distance, offset distance, stripe width, and the sort order of exposure.

Dyndrite LPBF Pro provides you with an accessible set of APIs that enables you to generate scanpath geometry based on where you are in the part, assign custom laser parameters to this geometry, and take fine control for what order that geometry is exposed to the laser. This enables you to make your own recipes based on geometry that can be applied on a layer-by-layer basis - per geometry, per feature, or within a special area in the geometry. Dyndrite provides total control of your geometry vector process, enabling compensations that ensure successful first-time prints, higher build rates, and better quality parts.

If you happen to develop innovative toolpath strategies during the process, it's advised to patent them to secure ownership of the intellectual property.

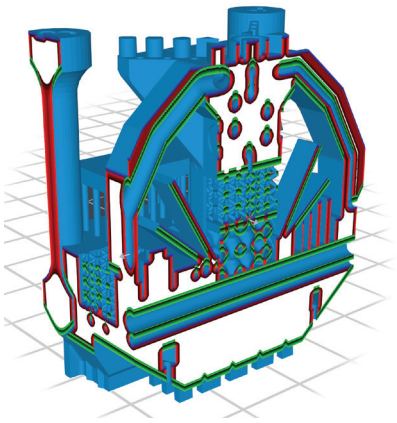


Dyndrite LPBF Pro enables you to marry our math, geometry and computing skills with your chemistry, physics, and mechanical skills. Leverage accessible APIs to easily create DoEs.

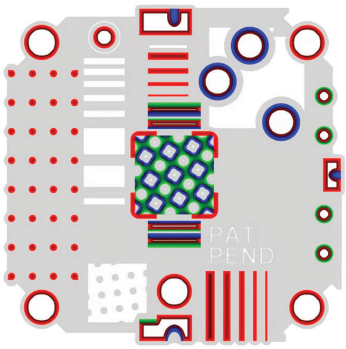
Dyndrite 3D Volumetric Segmentation

ADVANCED COMPUTING AT WORK

Dyndrite LPBF Pro enables users to volumetric segment and query 3D geometry to directly assign parameters. This approach surpasses the current 2-1/2D machine OEM approach which misses part features due to abrupt changes between layers. This computationally intensive but true 3D approach eliminates an unstable and error prone legacy method, and is just one example of new capabilities enabled by Dyndrite's GPU power.



Visualize parameter assignments in 3D



Visualize parameter assignments via 2D slices

Compensate for part geometry and machine configuration.

Compensations can stem from the machine's hardware (such as gas flow field and laser configuration), the condition of the raw material, and the geometry of the part itself.

Machine configurations vary greatly for different applications. Leveraging knowledge from one application to another is time consuming without tools and metadata that enable equivalency between activities including the location and orientation of part features within the process volume. Additionally, multiple layers of calibration must be managed for each part, material, machine configuration, and machine state.

See how Dyndrite LPBF Pro can unlock your LPBF-based parts, material, and processes. Reach out to us via **www.dyndrite.com/vip** for a personalized demonstration.

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