

Top 10 Considerations When Moving to the Digital Factory with Metal Additive Manufacturing



Finding the right solution for you

Knowing the right questions to ask is part of the challenge when considering new and innovative technologies. This Top 10 list offers a framework for considering a shift to the Digital Factory with metal AM and will help you identify and refine your needs and options.

10. The Right Application

Additive manufacturing is best suited for critical applications with high value that take advantage of the ability to produce components and features that would otherwise be impossible or prohibitively expensive to manufacture.



9. Additive Manufacturing Design Expertise

Reaping the full benefits of AM (i.e. lighter weight, better performance, reduced parts count, extended part lifetime) means designing for additive.

Optimizing your design to unlock the highest value requires the right mindset and software. When in doubt, consult with an expert.



7. Part Size and Accuracy



What is the maximum part size and minimum feature size you need to repeatedly achieve?

Not all AM solutions are capable of achieving large, seamless parts or high precision parts. Pay close attention to these aspects of any solution you are thinking about adopting.

8. Frequency of Use



What volume of parts do you need, and how often do you need them?

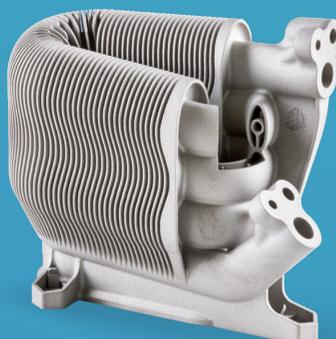
If your requirements can be met by ordering one-off or low volumes of parts, owning an AM factory solution may not be your most cost-effective option. You might consider exploring a parts provider like 3D Systems On Demand instead.

6. Material Quality

Are you sure you can you reliably achieve the expected material properties?

3D Systems' metal printers feature a vacuum chamber with an extremely low O₂ environment to guarantee consistent part quality and achieve maximum powder usage.

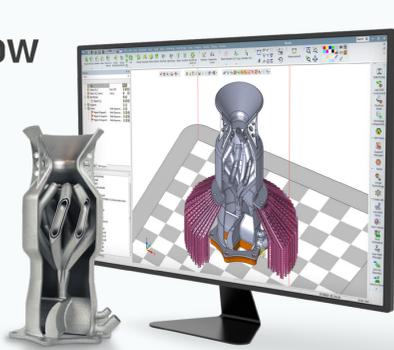
Combined with LaserForm[®] materials and extensive databases of thoroughly tested print parameters, 3D Systems customers are able to consistently achieve the material properties specified by LaserForm material datasheets.



5. File Preparation Workflow

Achieving a successful print sometimes requires more than having a 3D CAD model and a good 3D printer.

Understanding the right file optimization and preparation workflow is a critical component. An all-in-one integrated AM software like 3DXpert[™] can help maximize successful prints and printer uptime.



4. Integration with Traditional Processes

Does the metal AM solution integrate with your existing conventional equipment and protocol?

Together with GF Machining Solutions, 3D Systems is developing solutions to seamlessly integrate AM technology into the complete manufacturing process chain.

The DMP Factory 500 with its System 3R chuck with zero point referencing is optimized for use in additive manufacturing and significantly reduces setup and changeover time, enabling companies to produce at greater scale and efficiency.



3. Scalability and Throughput

Many metal AM solutions are available as single units, but some are modular and enable more cost-effective scaling.

If you need full-scale factory production or if you think you may want to expand your operation down the line, think ahead about what it will take to increase output. Be sure to ask how productive a system is as you do your research. There is a noteworthy difference between raw print speed and system productivity, or throughput.



2. Support



The last thing you want to do is bring on a new technology and find yourself stuck with unanswered questions. Ask about application support from AM experts who can guide you to the right purchase decision and implementation approach. Make sure you can also count on thorough training and future access to responsive support.

1. Total Cost



Transitioning to the Digital Factory offers some compelling advantages, but it may not be the answer for everyone. Analyze the value you stand to gain from innovating with metal AM and weigh it against the cost involved to implement it to determine if the AM factory is right for you.

Find out more

Want to learn more about the current state of metal AM solutions and the Digital Factory?

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