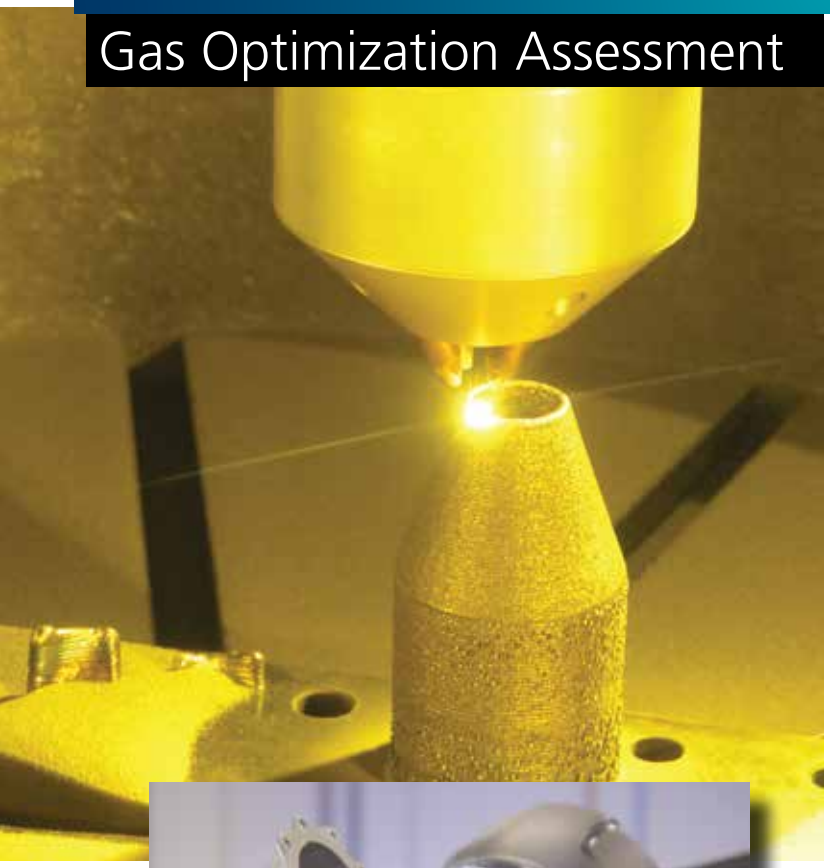
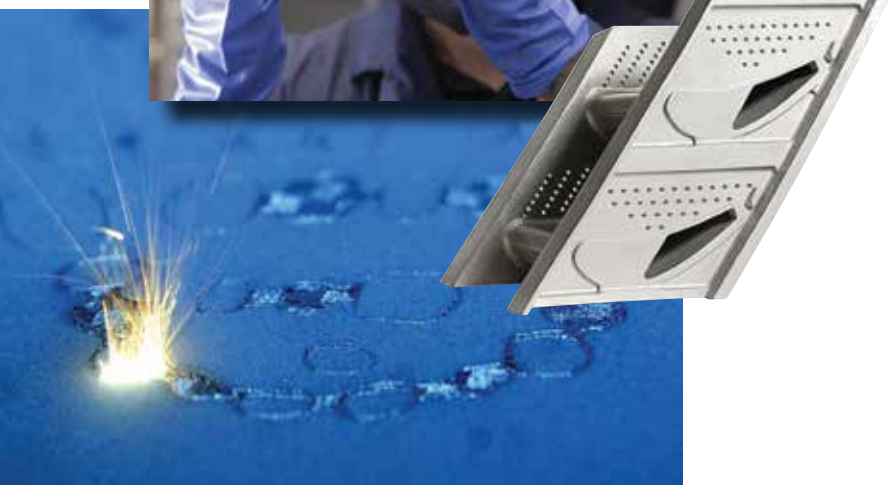
Metal Additive Manufacturing

Gas Optimization Assessment





Gas Optimization

GO for AM™

Gas Supply - Gas Control - Gas Safety

Industrial gases like Argon represent one of the largest expenditures in metal **Additive Manufacturing (AM)**. Yet, even for veterans in AM applications, **Gas Optimization (GO)** has remained in the background given multiple other operational challenges in metal AM. **Gas Optimization (GO)** can reduce gas costs, maximize powder life, and reduce cycle time. Additionally, it can help improve gas safety. For example, often overlooked are the potential hazards of discharging exhaust Argon gas in the plant.

MATHESON has introduced the **GO for AM™** Gas Optimization Assessment Program designed to help AM customers reduce costs and realize gains in the critical areas of Gas Supply, Gas Control, and Gas Safety. These include:

- Choosing the right supply mode (cylinders, liquid Dewars, micro-bulk, or bulk supply) to best meet current as well as future expansion needs.
- Selecting the right gas handling and storage systems, piping, and materials of construction to deliver specification purity at the point-of-use and ensure uninterrupted supply.
- Reviewing gas consumption, pressure, and flow throughout the AM process, and recommending improvements in gas purge cycle, leak detection, gas recirculation, and gas exhaust systems.
- Conducting training and making recommendations to improve gas handling safety and industrial hygiene.

The table on the back page details the Assessment Areas and identifies the significant impact the GO for AM™ Gas Optimization Assessment Program can have with AM customers. Email us at **GOforAM@mathesongas.com** to arrange an assessment at your site.

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Images courtesy of Sintavia and Optomec

	Assessment Plan		Customer Impact				
	Assessment Area	Assessment Value	Reduce Gas Cost	Increase Powder Life Cycles	Reduce Cycle Time	Improve Part Quality	Improve Gas Safety
I. Gas Supply							
A.	Supply Mode (cylinders, Dewars, micro-bulk, bulk)	Efficient gas supply based on consumption and growth plans	•				
B.	Piping and Connections, Materials of Construction	Reduction of gas handling impurities		•		•	
C.	Gas Control Panels and Manifolds	Uninterrupted supply of high purity gases during build	•				•
D.	Gas Purity at Printer Inlet	Match machine and process specifications		•		•	
II. Gas Control							
A.	Initial Gas Purging	Optimization of purge flow, time, cycles, and gas usage	•		•		
B.	Purifiers and Filters	Gas purity at point-of-use to match machine and process specifications		•		•	
C.	Gas Recycling	Economical re-use of gases	•				
D.	Gas Analysis	Gas purity at point-of-use to match machine and process specifications		•		•	
E.	Gas Blends	Improve part quality and cycle time			•	•	
III. Gas Safety							
A.	Gas Handling Practices	Elimination of potential gas hazards					•
B.	Personal and Industrial Safety	Assessment of confined spaces, exhaust systems, ventilation, and monitoring					•
C.	Safety Training	Awareness of gas safety practices					•
D.	Safety Information	Supporting material for gas handling and safety					•

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