

Good Carbz

A Solutions Based Approach

MMS Thermal Processing, LLC wasn't looking to be good. They were looking to be the best. Wanting to offer their customers solutions to manufacturing problems resulting from conventional heat treating methods, MMS turned to the unique marketing relationship of Surface Combustion, Inc. and Air Products to design, build and deliver innovative heat treating equipment and atmospheres.

With more than 14 decades of combined experience, Air Products and Surface Combustion worked with MMS to understand their requirements and develop a state-of-the-art solution.

Today, MMS has the most technologically advanced heat treating systems available in the industry. By utilizing Surface Combustion's Multi-Chamber Vacuum Carburizing System with VringCARB® technology and companion equipment, MMS can process a wide range of carburizing grade alloy steels as well as vacuum carburizing specialty grade stainless steels. The option of using MMS' 20 bar gas quench or vacuum oil quench allows flexibility—customers who are currently oil-quenching parts can explore the potential manufacturing benefits of gas quenching. The high-temperature, electrically heated vacuum chamber permits, among other things, processing high-speed M series tool steels and air-hardening grade cold-work tool steels.

The Surface Combustion vacuum carburizing furnace at MMS is unique to the industry because it utilizes stable, high-purity cyclohexane as the carburizing source. This novel technology produces a vapor distribution around the workload pieces, resulting in exceptionally uniform carburizing. When compared to conventional gases, cyclohexane offers significant resistance to thermal decay, greatly minimizing carbon dropout. Using cyclohexane allows for a very clean carburizing process, resulting in a contaminate-free furnace chamber and no discoloration of the carburized parts.



The innovative technologies from Air Products and Surface Combustion enable MMS to focus on what they do best—using their state-of-the-industry vacuum carburizing system to produce superior heat treated products.

Multiple Atmospheres—Complete Control

MMS' capabilities don't stop there. They offer their customers deep freezing (-120°F) and full cryogenic treating (-320°F). Air Products designed a custom nitrogen delivery system

for MMS that supplies high-pressure nitrogen at 360 psig, low-pressure nitrogen at 100 psig, and a vacuum jacketed line to deliver cryogenic liquid nitrogen. The supply system incorporates a special high-pressure vaporization system to reduce maintenance as well as an Air Products nitrogen supply monitoring system to help maintain capacity for safe furnace purging. Also incorporated is Air Products' TELALERT® telemetry system, which remotely monitors nitrogen usage and tank levels and

optimizes the schedule for prompt nitrogen delivery.

Strong Teamwork

In building their new facility, MMS Thermal Processing looked to bring the latest, most cost-effective solutions to their customers. By working in conjunction with Surface Combustion and Air Products, they've been able to do just that. "We plan to use our expertise, along with that of Surface Combustion, Air Products, and our customers, to design unique solutions that reduce the total cost of manufacturing gears, shafts, bearings, and other critical metal parts," said Bob Zattau, Sales Manager for MMS Thermal.



"Our work at MMS is a great example of how, together, Air Products and Surface Combustion can provide more than just gases or heat treating equipment. By combining our talents we offer the widest range of heat treat support in the industry."

Mark Lanham
Applications Engineer
Air Products

For More Information

Whether you are building a new facility like MMS or upgrading or improving your existing equipment, look to Surface Combustion and Air Products as your atmosphere source.

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“Our relationship with Air Products allows us to offer atmosphere solutions that are in the best interest of our customers rather than each individual company [Air Products or Surface Combustion]. Plus, now we can offer an equipment leasing option to help our customers with financing.”

*Bill Cleary
Regional Sales Manager
Surface Combustion*

