MSM Publishes Comprehensive Overlay Welding Resource

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Youngsville, Louisiana - March 03, 2026 -
Machine Specialty and Manufacturing, Inc. (MSM), a full-service welding and fabrication company headquartered in Youngsville, Louisiana, has published a comprehensive resource guide covering overlay welding techniques, applications, and methods used across industrial sectors.

The newly released guide, titled "Everything You Need to Know About Overlay Welding," provides an overview of the weld overlay process, which involves joining metals by welding them on top of another metal surface layer. The resource explains how overlay welding serves as a cost-effective solution for enhancing a component's surface properties by applying an expensive clad material to a less costly base metal rather than constructing an entire part from premium alloys.

"Overlay welding continues to be one of the most practical and economical approaches to extending the service life of critical components," said Max Hutson, Vice President of Operations at Machine Specialty & Manufacturing. "Our clients come to us because we have the equipment, the certifications, and the hands-on experience to match the right overlay process to the application, whether that means corrosion resistance for subsea components or hardfacing for high-wear wellhead equipment."

The guide details several key applications of overlay welding across heavy industry. Among the most common uses is the achievement of corrosion resistance, heat resistance, and wear resistance on the surface of metal workpieces. The technique is widely employed in machinery manufacturing, electric power generation, metallurgy, mining, construction, and petrochemical operations, where components face constant exposure to harsh service environments.

Component restoration represents another significant application covered in the resource. Overlay welding enables the repair of parts that have sustained damage or machining errors in factories and mines. By applying new material to worn surfaces, the process can restore and often improve the performance characteristics of the original component, reducing the need for costly full replacements.

The guide also addresses the manufacture of bimetallic machine parts through weld overlay. A common example involves turbine blades constructed primarily of carbon steel, which offers cost advantages but remains susceptible to cavitation. By overlaying stainless steel onto the carbon steel substrate, manufacturers create a bimetallic component with enhanced hardness and superior wear resistance.

Five distinct overlay welding methods are examined in the resource. Shielded metal arc welding uses a consumable, flux-coated electrode to create an arc between the electrode and the workpiece. Metal inert gas welding employs a continuous solid wire electrode fed into a weld pool while a shielding gas protects against contaminants. Tungsten inert gas welding utilizes a non-consumable tungsten electrode and is well suited for producing high-quality welds in applications such as ship fitting and vehicle manufacturing.

The guide further covers submerged arc welding, which forms an electric arc between a continuously fed electrode and the workpiece beneath a blanket of powdered flux that provides electrical conduction. Plasma transferred arc welding, described as a high-energy and low-heat inert gas process, is also explored in the resource. This advanced technique uses a tungsten electrode with externally supplied flux and can apply coatings up to three-eighths of an inch thick, making it particularly suitable for complex carbide alloy overlays and specialized surface engineering applications.

Machine Specialty and Manufacturing operates a full-service welding facility equipped with six CNC hotwire gas tungsten arc welding machines, a submerged arc welder, and three high-deposition gas metal arc welding spray manipulators. The company's equipment portfolio is designed to handle a broad range of overlay and cladding requirements for clients operating in demanding industrial environments.

MSM holds certifications including ISO 9001:2015, API Q1, API 6A, API 16A, and API 16C, reflecting the company's commitment to quality management and compliance with industry standards governing oil and gas equipment manufacturing. These credentials ensure that products and services meet the rigorous

specifications required by upstream and downstream energy operations.

For more information about overlay welding services and to access the full resource guide, visit www.msmmfg.com/everything-you-need-to-know-about-overlay-welding.

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Machine Specialty & Manufacturing, Inc.

Machine Specialty & Manufacturing Inc manufactures API flanges, weldments, fittings and specialty products that meet industry standards and significantly improve the time and cost of installing, operating and maintaining your system.

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