



Metal Improvement Company

Subsidiary of C. R. Leitch-Wright Corporation





Metal Improvement Company (MIC) is a global organisation specialising in metal and material surface treatments which enhance performance and extend the life of critical components, enabling component designs to achieve their maximum potential.

Established in 1945, MIC has over 60 operating divisions in Europe, USA, Canada and Asia with on-site processing worldwide.

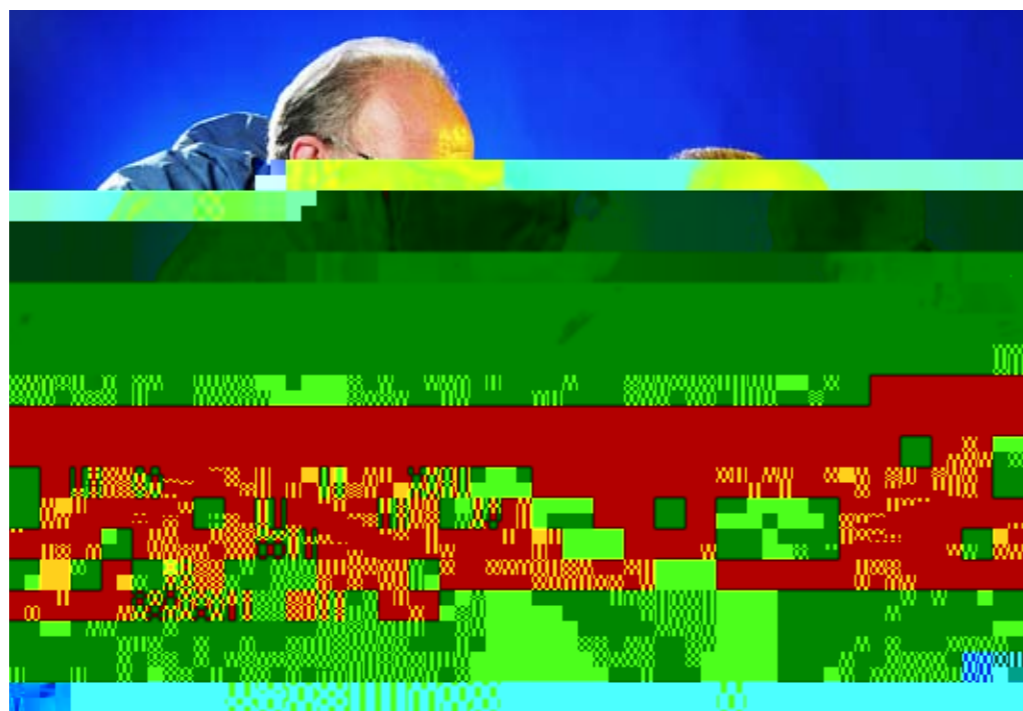
We offer a quality controlled and cost effective service, working in partnership to meet our customer's needs.

MIC division approvals, where appropriate, include: FAA, AS9100, NADCAP, ISO 9001:2000, ISO 9001:2008 plus other specific OEM, company and industry approvals as required.



Metal Improvement Company is a subsidiary of the Curtiss-Wright Corporation, a diversified international provider of highly engineered products and services to the Motion Control, Flow Control and Materials Treatment industries.

www.curtisswright.com



Typical failure modes are:

- Fatigue
- Corrosion
- Stress corrosion cracking
- Wear
- Mechanical failure
- Material degradation
- Surface damage
- Contamination
- Improper assembly
- Poor maintenance
- Environmental factors
- Manufacturing defects
- Design flaws
- Material selection
- Inadequate testing
- Poor quality control
- Lack of training
- Poor communication
- Inconsistent processes
- Limited resources
- Poor documentation
- Incomplete inspections
- Poor record keeping
- Lack of accountability
- Poor safety culture
- Inadequate risk management
- Poor change management
- Limited collaboration
- Poor project management
- Inconsistent leadership
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PROVIDING SOLUTIONS

Fatigue

• Fatigue is a failure mode that occurs due to cyclic loading of a material over time. It is a gradual process that leads to the formation of cracks and eventual failure of the component.

• Fatigue failure is characterized by a smooth, curved fracture surface that is perpendicular to the direction of the applied stress.

• Fatigue failure is a common cause of failure in many types of mechanical components, including bolts, shafts, and welds.

• Fatigue failure can be prevented by using materials with high fatigue strength, designing components to avoid stress concentrations, and performing regular inspections and maintenance.

Corrosion fatigue

• Corrosion fatigue is a failure mode that occurs due to the combined effects of cyclic loading and corrosion. It is a more rapid failure mode than fatigue alone.

• Corrosion fatigue failure is characterized by a rough, irregular fracture surface that is perpendicular to the direction of the applied stress.

• Corrosion fatigue failure is a common cause of failure in many types of mechanical components, including bolts, shafts, and welds.

• Corrosion fatigue failure can be prevented by using materials with high corrosion resistance, designing components to avoid stress concentrations, and performing regular inspections and maintenance.

Stress corrosion cracking (SCC)

• Stress corrosion cracking (SCC) is a failure mode that occurs due to the combined effects of tensile stress and a corrosive environment. It is a brittle failure mode that can occur at low stress levels.

• SCC failure is characterized by a brittle fracture surface that is perpendicular to the direction of the applied stress.

• SCC failure is a common cause of failure in many types of mechanical components, including bolts, shafts, and welds.

• SCC failure can be prevented by using materials with high SCC resistance, designing components to avoid stress concentrations, and performing regular inspections and maintenance.



Applications include

- Aircraft
- Marine
- Power Generation
- Chemical Processing
- Oil & Gas
- Transportation
- Industrial Machinery
- Construction
- Agriculture
- Mining
- Defense
- Aerospace
- Marine
- Power Generation
- Chemical Processing
- Oil & Gas
- Transportation
- Industrial Machinery
- Construction
- Agriculture
- Mining
- Defense

Extending the life of welded components

• Welded components are subject to a variety of failure modes, including fatigue, corrosion, and stress corrosion cracking. Extending the life of these components is critical to ensuring the safety and reliability of the system.

• Extending the life of welded components can be achieved through a variety of methods, including surface treatments, coatings, and design modifications.

• Surface treatments, such as shot peening, can improve the fatigue resistance of welded components by introducing compressive stresses into the surface.

• Coatings, such as zinc-rich coatings, can protect welded components from corrosion and extend their life.

• Design modifications, such as avoiding stress concentrations and using high-strength materials, can also help to extend the life of welded components.

Engineered coatings for pumps and valves

• Engineered coatings for pumps and valves are designed to provide superior protection against corrosion, wear, and erosion. These coatings are applied to the surfaces of pumps and valves to extend their life and reduce maintenance costs.

• Engineered coatings for pumps and valves are available in a variety of colors and finishes, including black, blue, and red. They are also available in a variety of thicknesses and formulations.

• Engineered coatings for pumps and valves are applied using a variety of methods, including spray, brush, and dip coating. They are also available in a variety of application methods.

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