

INNOVATORS IN TECHNOLOGY



**Metal Improvement  
Company**

Subsidiary of Curtiss-Wright Corporation

# Medical applications



Enhancing the performance  
of metals and materials

[www.metalimprovement.co.uk](http://www.metalimprovement.co.uk)

# Providing solutions to the medical industry



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 customers' 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.



MIC can offer you a wide choice of high quality and precision surface treatments which will enhance the performance and significantly extend the life of medical devices, tools and equipment. MIC has over 40 years technical experience and expertise to meet the stringent requirements of the medical industry.

Failures and reduced performance of metallic medical components and equipment often arise through the problems of stress corrosion cracking and fatigue associated with flexing and movement in critical parts. These problems can be resolved through the use of our controlled shot and laser peening processes.

Controlled shot peening is the bombardment of a surface with small high quality spherical shot in a technically defined and highly controlled way. Each piece of shot (steel, glass or ceramic) striking the metal imparts a small indentation into the surface, yielding the material locally in tension resulting in a beneficial residual compressive stress.

Laser peening is having a significant impact on critical industries following the transition from research and development into a reliable and production qualified technology. Laser peening induces a much greater depth of residual compressive stress than controlled shot peening and is ideally



suited to situations where contamination and/or media staining cannot be tolerated.

C.A.S.E.™ (isotropic) finishing is the process of controlled shot or laser peening followed by a highly engineered polishing technique. This technique provides a high degree of superfinishing for critical contact parts where a low surface roughness value is required. This process produces surfaces of extremely low peak to valley profiles with a minimum of material removal. The low Ra and Rdq/Rda (slope) of the surface has excellent wear characteristics whilst preventing surface contamination and crack initiation.



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](http://www.curtisswright.com)



## Peentex texturing and finishing

The Peentex process is applied by controlled shot peening to metal, glass, acrylic and wood surfaces which result in an aesthetically pleasing and hard wearing, non-slip practical decorative finish. The applications include medical devices, tooling and equipment and it is also used in the construction industry to protect external and internal architectural fittings.



### Medical applications:

- Surgical tooling and equipment
- Orthopaedic implants
- Dentistry tooling and equipment
- Low contamination equipment
- Lifting and mobility equipment

### Architectural applications:

- Internal and external cladding and fittings
- Hand rails, countertops and reception desks
- Signage and nameplates
- Mobility, lifting and transportation equipment
- Storage, cabinets and hospital surfaces

## COATINGS TECHNOLOGY

MIC are specialists in the application of highly engineered surface coatings to enhance the performance and protect a wide range of critical components. We have the expertise and facilities in place for the development and manufacture of bespoke in house solutions in addition to the standard technology available in the market.

### What coatings can MIC provide?

- Barrier coatings - protection against moisture, corrosion, temperature, chemicals, substances and contamination
- Lubricity and release coatings - to enhance performance, maintain critical operating torque and tension and release behaviour for surgical devices and tools
- Anti corrosion coatings - for protecting vital parts and surfaces in chemical, biological and environmental conditions
- Parylene conformal coatings - to effectively reduce friction, remove surface tackiness and protect against discoloration and contamination. They conform completely to the geometry of the part providing a consistent protective barrier only a few microns thick for implantable medical devices

These coatings not only provide protection to maintain performance in hostile environments but can also provide easy cleaning and decontamination properties for medical applications.

Ensuring correct preparation of any surface is essential to the life and performance of the applied coating. Our pre-coating treatments include controlled blasting, degreasing and phosphate preparation.

### Coating applications include:

- Surgical tooling and devices
- Medical needle free applicators
- Scissors
- Clamps
- Stents
- Biomedical implants
- Guide wires
- Cardiac assist devices
- Electrosurgical tools
- Mandrels and moulds
- Catheters
- Elastomeric seals
- Needles and epidural probes
- Medical Electronics
- Lifting and mobility equipment



## **MIC MARKETS INCLUDE:**

- **Aerospace**
- **Architectural**
- **Automotive**
- **Chemical & food processing**
- **General & structural engineering**
- **Marine**
- **Medical**
- **Military**
- **Off-road & earth moving equipment**
- **Oil, gas & petrochemical**
- **Power generation**
- **Railways**

## **MIC SERVICES INCLUDE:**

- **Controlled shot peening**  
induces engineered residual compressive stresses
- **Shot peen forming**  
creates curvature and corrects distortion
- **Laser peening**  
induces deeper residual compressive stresses
- **Engineered coatings**  
improves performance, prevents corrosion and aids lubricity
- **C.A.S.E.™ (isotropic finishing)**  
removes surface asperities reducing friction
- **On-site processing**  
provides services on customers' own premises
- **Peentex (architectural finishing)**  
creates decorative and aesthetic texturing
- **Surface texturing**  
applies a textured engineered finish
- **Peenflex mouldings**  
protects against processing and handling damage

## **EUROPEAN CORPORATE OFFICE**

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