THE MOST EFFECTIVE ANTI-CORROSION PROTECTION IN THE WORLD!

International Metal Fusion d.o.o.
About Us: International Metal Fusion Corporation

Worldwide leader in field applied large scale metalizing

Headquarters: Fort Lauderdale, Florida, USA

Main Activity: Surface protection using our patented advanced metalizing technology.

Main Markets: Global market coverage is achieved around the world via our own branches, joint ventures, and with local partners.

Established in 1995, Metal Fusion Corporation and its partners have worked diligently and professionally to protect billions of dollars worth of equipment for our clients.
IMC provides the best anti-corrosion protection ever created.

IMC metalizing offers the best possible surface protection against the impact of:

- Salt
- Water
- High temperatures
- Chemicals
- Aggressive gasses
- Abrasion and wear
- Splash zones

Including steel or concrete construction of:

- Tanks
- Pipelines
- Ships
- Bridges
- Water walls
- and virtually any other kind of equipment and structure

IMC Works Everywhere:

- In the air
- Water
- Buried under ground
- During high temperature exposure
The IMC metalizing technology sold as Red Devil 888 is a scientifically advanced and fully patented electric arc metalizing process utilizing thermal spray applications.

Our Red Devil 888 technology is backed by more than 20 patents and provides a much higher quality surface protection than any other alternative, including traditional metalizing technologies like electric arc, plasma, flame, HVOF spraying, galvanizing, cladding or similar. IMC metalizing offers an impeccable surface protection solution that is far superior to any conventional epoxy or polyurethane paint coating systems.

Metalizing is the most effective long-term surface protection solution.

**Application:** The metalizing process melts metal or metal alloys using an electric arc and applies our patented Red Devil 888 coating by using compressed air to apply it on previously prepared surfaces.
Our process uses only electricity, air, and pure alloys.

Electrically isolated metalizing wires are oppositely charged by a Lincoln DC 1000 amp rectifier.

Dual wire control feeds enable a continuous arc and molten alloy is propelled, providing a substrate using 375 CFM compressed air.

The molten alloy rapidly cools on contact with the substrate to form a completely non-porous protective coating.

No additional cooling or curing of the coating required and your surface is ready for immediate use!
IMC metalizing offers long-term solution for:

- Corrosion
- Abrasion
- High temperatures
- Chemical resistance
- Corrosion Protection of Steel Rebar in Concrete
- Non-Slip surfaces
- Antifouling
- Building up pitted and corroded areas to original thickness
- Anodic protection

And many other surface protection purposes
Application of materials:

- 99% Zinc
- Inconel 625, 718, 939...
- Steel
- Titanium
- Aluminum
- Copper Nickel
- Stainless Steel
- Nickel
- 85/15 Zinc Aluminum
- Hastelloy
- Tin
- Nickel-Chromium

And many other metals and alloys depending on your needs or requirements
The Advantages of IMC’s patented technology:

- Significant savings in perpetual maintenance costs, labor and materials
- More than **50 years lifetime**
- Less than **1%** porosity
- **Resistant** to abrasion and the impact of chemicals, gasses, salt, water or soil, including high temperatures!
- Short application time leads to a much shorter downtime and a surface that is instantly ready for use
- Adhesion strength is much stronger than paint
- Metalizing lasts **40 times longer** than paint and other coatings
- **Anodic and cathodic** protection provides full coverage of your underlying surfaces. For example Zinc metalizing is applied to concrete surfaces and provides cathodic protection for rebar in the concrete
- Does not degrade when exposed to thermal cycling
- Application is possible in extreme conditions, independent of outdoor temperature, extreme cold or heat, and independent of humidity in the air or whether the structure is wet
Additional IMC metalizing advantages:

- Enjoy a significant reduction of the indirect damage your businesses face from equipment shutdown and loss of production
- Metalizing coatings are not affected by UV exposure
- Unlimited thickness of application - we have applied thicknesses over 25,000 µm
- Creation of permanent “non-stick” and antifouling surfaces
- Repair corrosion damage
- Build up pitted and corroded areas to original thickness
- Capable of spraying any metal or alloy
- All equipment is mobile and not limited by the surface shape or size
- The base chemical structure of the materials remain unchanged
- Materials that can be metalized include: metal, concrete, plastic, fiberglass and more
- May be used alone or with other coatings
- Eco-friendly: No volatile organic compounds or chemicals
IMC metalizing advantages compared to cladding:

- 100x higher productivity per operator
- Apply a thickness ranging from 0.1 mm to several cm
- There is practically zero diffusion of the base materials into the applied layer
- Low temperature loads protect the base material properties from deformation
- Greater heat transfer coefficient
- Due to the minimal thickness required, the weight of the structure is often reduced
- No constraints on application due to the shape of the construction
- Even complete overhauls can be done in the field without any dismantling or transportation to the shop required
- Significant reduction of equipment shutdown time and productivity loss
- Large cost savings of materials, labor, equipment, time and production loss as well as a major reduction of deadlines improves your ROI significantly
Certificates

The IMC Metalization process “Red Devil 888” is certified by institutions including the American Bureau of Shipping, Det Norske Veritas, the Federal Highway Administration, the United States Navy, Exxon Mobil, United States Army Corps of Engineers, influential corporations and laboratories worldwide.

IMC has obtained certifications for our anticrosive protection and anodic protection of steel structures, bridges, shipping structures, shipyards, refineries, pipelines, power plants, hydroelectric power plants, railways, petrochemical plants, aerospace infrastructure, oil & gas production plants and more.

Our services have also been certified to build up pitted and corroded areas, marine and offshore seawater ballast tanks in all types of ships and double-sided skin spaces in accordance with IMO PSPC requirements.

Micrographs for zinc porosity at 0.25% and aluminum at 0.50% are also available for our clients.
Supported Standards:

- Metal Sprayed Coatings for Corrosion Protection Aboard Naval Ships: MIL-STD-2138A
- Thermal Spraying -Practice, Theory, and Application: American Welding Society
- ISO 14918: Approval testing of thermal sprayers
- ANSI/AWS C2.18.93: Guide for the Protection of Steel with Thermal Spraying Coating of Aluminum and Zinc, American Welding Society
Service life expectancy

The Service life expectancy of the metallized surface is **more than 50 years**. Depending on the thickness of the application, material used and the environment to which the structure is exposed, durability may also be significantly longer.

For example, when metalizing a steel structure in a splash zone, **zinc consumption is 2–3 µm per year**. If the thickness of the metalizing zinc coating is 250 µm the protection provides an **expected lifespan of between 85 and 125 years**.

The service life expectancy of metalizing has been thoroughly tested under various conditions by prominent institutions including: the American Welding Society Subcommittee on Metalizing, SINTEF, the U.S. Navy, ECCS, St. Andrews Lock and Dam Corrosion Protection System, the U.S. Air Force, SAIC, German Southern North Sea Program Study, Bethlehem Steel Corp., LaQue Center, the Norwegian Institute for Air Research, the U.S. Army, the National Cooperative Highway Research Program and more.

Full details and test results can be found on our website:
Fields & Industries of application:

- Metal industry (steel structures, pressure vessels, bridges)
- Energy (power equipment)
- Petroleum and petrochemical industry
- Chemical industry
- Shipbuilding
- Construction
- Military industrial

- Food industry
- Tourism (cruise ships, passenger ships, yachts, boats)
- Aerospace
- Automotive industry
- Decorative industry
- Municipal infrastructure
- Waterworks
Surfaces with or without IMC metalizing

Caribbean Dockyard, Port Chaguaramas, Chaguaramas, Trinidad i Tobago

During a comparison of a steel surface partially protected by IMC, reporting showed that after 3 years of exposure in severe corrosive conditions there has been significant corrosion and damage to the unprotected surface. The non-corroded surface was protected with IMC metallization. No damage or corrosion occurred after 3 years in the same environment.
Cost Effectiveness of IMC Metalization - NASA

NASA radar systems showed a comparison of relative costs based on 20 years. 67 different satellite antennas have been metalized and account for a total savings of more than $20,000,000.00 for NASA.
References: ExxonMobil Baton Rouge, USA - oil refinery
Steel Bridges
Oil tanks 80,000 m², Janaf d.d., Terminal Omišalj, Croatia
Concrete Bridges
Dry Dock metalizing, Grand Bahamas Shipyard, Bahamas
Steel and concrete parts of bridges, Lake Champlain Bridge, USA
Oilrigs, ExxonMobil
Shipbuilding, Inconel 625 metalizing, MSC Cruise ship
Military Ship plating, United States Navy

Decks, United States Navy
Dam barriers and gates, Panama Canal

Power Plants, North Carolina Power, USA
Military Vessels, USNS Fisher (T-AKR-301), United States Navy
Tanks and pipelines, Disney Parks, Orlando, Florida, USA
NASA - Radar

Ballast tanks
Nuclear Power Plants, Kalinin Nuclear Power Plant, Russia
Viaducts, Providence Viaduct, Rhode Island, USA
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THANK YOU!

International Metal Fusion d.o.o. - Presentation prepared by Toni Vlaić

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