



TRIBO COATING

Engineering Manufacturing High Performance Coatings
Ion Implantation – NEW FOR SUMMER 2012

After years of Research and Development

TRIBO SURFACE ENGINEERING
IS PROUD TO ANNOUNCE

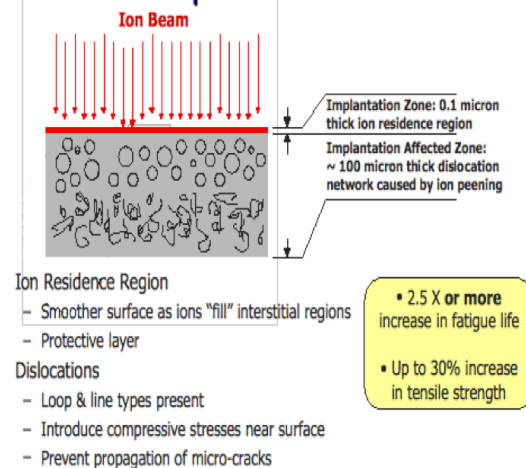
THE WORLD'S LARGEST HEAVY METAL ION IMPLANTER

METAL ION IMPLANTATION uses high energy to bombard individual metal atoms deep into other surfaces.

Ions into metals, ceramics, carbide, plastic or any other solid material.

This is the holy grail of surface engineering. It can give huge increases in the surface characteristics of metals and other materials, such as increasing hardness, fatigue life, and even increase tensile strength. It can improve surface conductivity of plastics and ceramics, and allow for catalysis behavior in materials for a fraction of the cost and material. By implanting chromium, for example, we can add corrosion resistance to almost any material. Easy to see why this is such a great leap in the field of surface engineering.

Metal Ion Implantation



more on P.2 >

Tribo has been serving the engineering community since 1989 providing coating, design and manufacturing solutions to Aerospace, Racing, Electronics, Automotive, Heavy Industrial, Railroad, Marine, Medical and a host of other demanding and leading edge industries.

Tell us what solutions you require. We are here to help.



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METAL ION IMPLANTATION IS NOT A COATING.

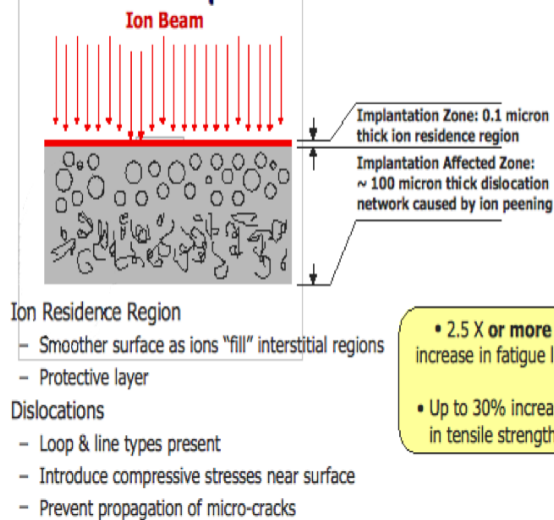
We are using high energy metal ions embedded in the material to ~ 1 micron. It is suitable for work-hardened or heat-treated metals and other materials. Because it is inside the base material, there is no dimensional change from the process and no need to remachine parts.

This process is the first to be on a production scale, with our beam implanting to a field of 8 sq. ft. By far the world's largest.

We can implant any conductive metal including heavy metals such as nickel, tungsten, titanium, chromium, platinum and silver. Our extensive research will attempt many other materials as we develop our science. Various metals can be implanted into a single part to add the specific characteristics desired from the process.

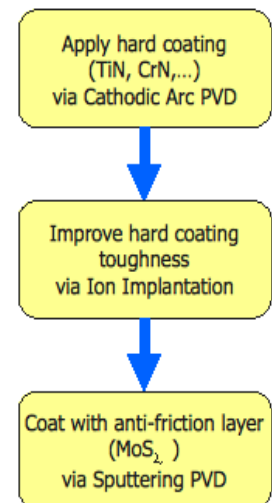
For example, in a gear life test comparing untreated, shotpeened and implanted carburized gears, we saw a 25x increase in gear life from implantation over the untreated piece. Tungsten carbide drills and endmills have seen 300% increases in lifetime and greater while cutting a variety of materials. Results were similar for steel and other high strength metals.

Metal Ion Implantation



Combinations

- Processing for maximum performance
- Additional research may yield further improvements



more on P.3 >

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Here's a (partial) list of potential applications:

Machining/Tooling punches,

Cutting/Drilling/Mining Applications - Cast Iron, HSS Steel, Stainless Steel, Titanium, Inconel, Aluminium, Phenolic, Hasteloy, Fiberglass, Kovar

Bearings

Bandsaw Blades

Automotive Cam shaft, valve/seats, piston, rings, crankshafts, rod, rocker arms, pistons

High Heat Applications

Military Ceramic/Kevlar Armors

Semiconductors

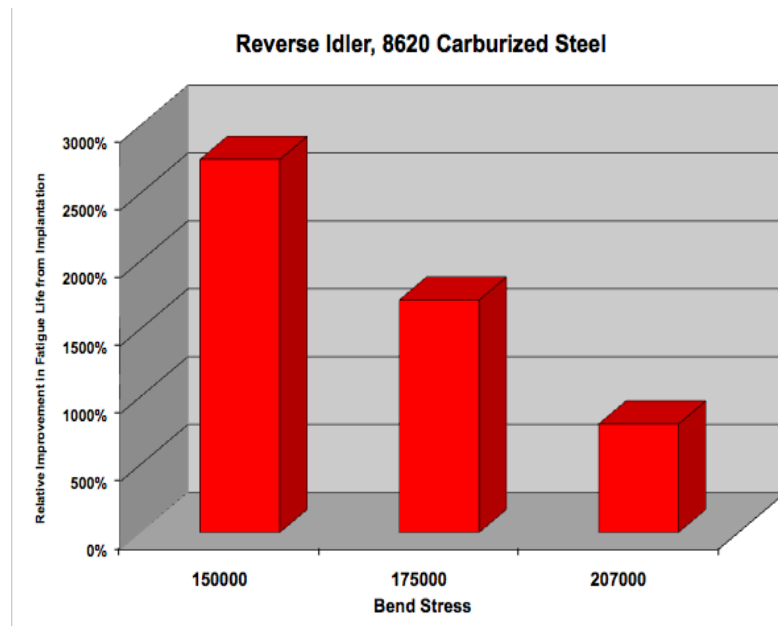
Medical Antimicrobial

Fuel Cells

Hybrid coatings

Virtually any object that experiences wear

Endmills, turning/grooving inserts, thread rolling, broaches, hobs, if you have some more ideas, talk to us.



more on P.4 >

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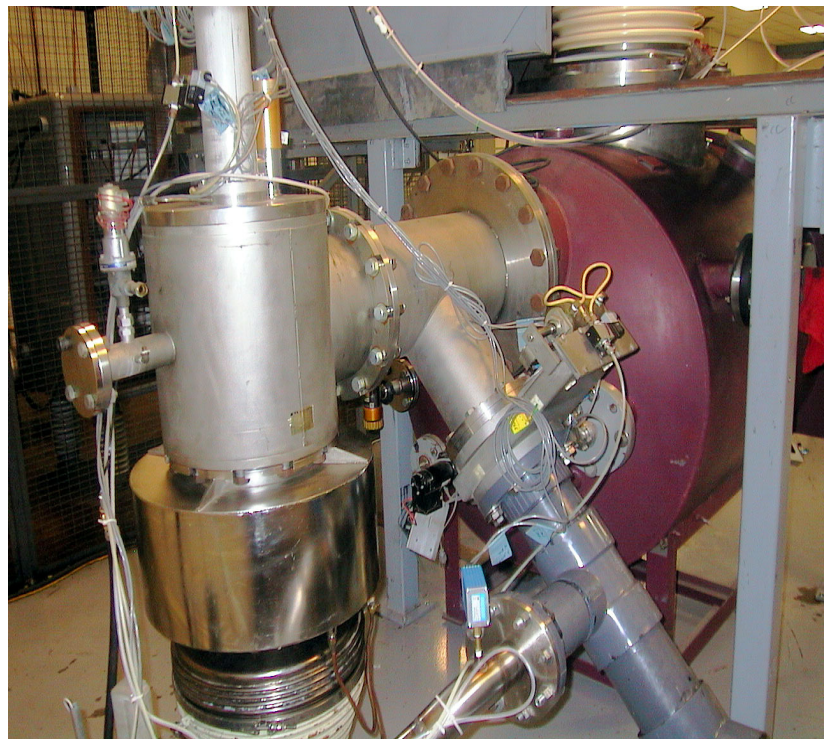
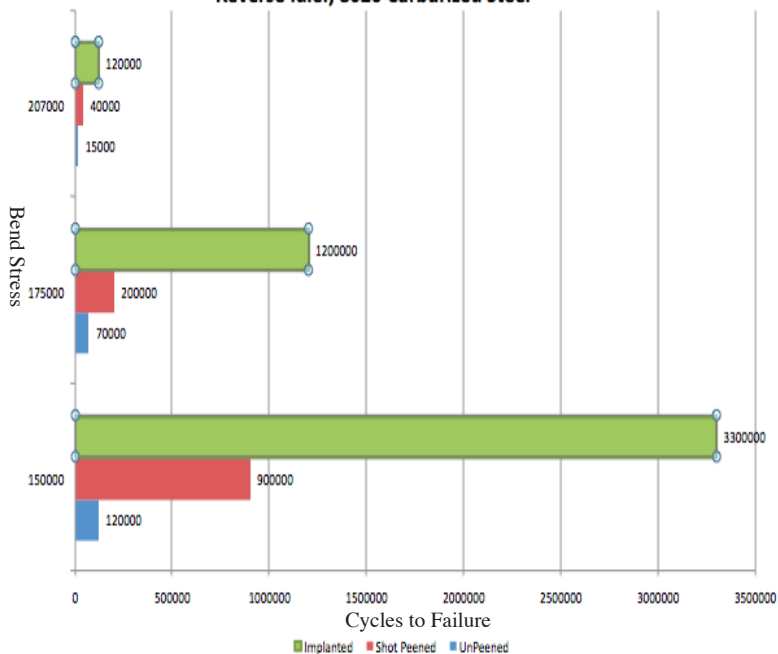
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A very small part of Tribo's Metal Ion Implaner

Fatigue Life
Reverse Idler, 8620 Carburized Steel



We'll post more info when it comes available. Keep checking our site, things are changing very fast at Tribo.

Creative research and engineering for innovative results.
Ask about our extensive fixturing design and manufacturing experience.

ONLY AT TRIBO SURFACE ENGINEERING...
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