Get more
Praxair Surface Technologies delivers more experience, more innovation, more options and more support
Get more with Praxair…

**Customized answers.** Praxair Surface Technologies EXTREME Protection™ and ProtectionPLUS™ family of thermal spray coatings and laser overlays provides the ultimate in flexibility, ensuring we have the right answer for your unique challenge.

**Design and application support.** Our coatings help bring out the best in your components, while you always have the confidence of knowing your parts have been through real-world simulations.

**Uniformity and repeatability.** Whether your parts are produced in the Americas, Europe or Asia, you know you’re getting consistent results you can rely on.

**Innovation.** Our scientists, renowned throughout the coating industry, rank among the most authoritative sources in application techniques, always looking for new surface enhancement options.
What does it mean to get more?
At Praxair, we go beyond the surface for individualized answers to your toughest problems

At Praxair Surface Technologies, we understand that your customers’ requirements demand more. That’s why we’re dedicated to helping you deliver more product life, more ways to reduce operating costs, more ways to improve performance, more risk mitigation. Partner with us and you get more than protective coatings—you get complete access to our exclusive global network of resources.

EXCLUSIVELY MORE: PRAXAIR’S INDUSTRY-LEADING EXTRAS

• Coating Design Optimization Unit
  EXTREME Protection™ and ProtectionPLUS™ Coatings
• Operational Excellence System
• Product Discovery Labs

More than half a century of leadership
Since the early 1950s, Praxair Surface Technologies has been partnering with original equipment manufacturers (OEMs), roll builders and steel company operations, and maintenance organizations to extend the life cycle and performance of critical rolls and components. Our expertise in wear-, corrosion- and thermal-resistant coatings has made us the preferred supplier in the industry.

Why does more matter?
When you get more, you can give more. Parts that include our advanced surface technologies help you improve component efficiency, performance and life—all of which enhance the overall performance of your product and the value you offer your customers while increasing your profitability. More matters.

1904 More tradition
Concentrated Acetylene Company (later known as Prest-o-Lite) is formed, creating headlights for early automobiles. Our work with acetylene would one day lead to the discovery of today’s surface coating technology. We don’t just date back to the beginning—we are the beginning.
Wide Range of Applications for Steel Producers

Blast Furnace
- Tuyeres

Cold Mill
- Bridle Rolls
- Deflector Rolls
- Mandrels
- Tensiometer Rolls

Finishing Line
- Bridle Rolls
- Deflector Rolls
- Flattening Rolls
- Leveler Rolls
- Mandrels

Galvanizing and Tinplating
- Bridle Rolls
- Deflector Rolls
- EGL Conductor Rolls
- ETL Conductor Rolls
- Furnace Rolls
- Pot Rolls
- Tower Rolls

Coatings for Furnace and Pot Rolls

You get more with Praxair Surface Technologies coatings for furnace rolls used in continuous annealing lines (CALs) and continuous galvanizing lines (CGLs) and pot rolls used in the molten zinc pots on CGLs. Our EXTREME Protection™ proprietary coatings reduce costs and increase productivity by providing cost-effective solutions for pickup, abrasive wear, profile loss, roughness loss, tracking and other wear-related challenges inherent in steel processing. Praxair’s wear- and corrosion-resistant coatings create and maintain the optimum surface and surface roughness to extend the service life of critical rolls and prevent unplanned outages.

www.praxairsurfacetecnologies.com
The first step to finding the right answer for your needs is determining not only what those needs are, but also how a surface coating can bring out the best in your component or part. That's where our Coating Design Optimization Unit comes in. It works with your engineers to integrate more than a half century of coating expertise. Partnering with our Coating Design Optimization Unit from the beginning ensures you get more produceable coatings, more protection, more customization and more performance.

Our team begins by identifying:

- Function of the coating (thermal insulation, wear/corrosion resistance, etc.)
- Geometry, composition and properties of the substrate
- Environmental and production impact (corrosion, temperature and operating environment)

Once we’ve narrowed down the possible coating alternatives, we test each coating on your part in environmental simulations that replicate your everyday operating environment. When this exhaustive testing process is complete, you’ll have more confidence knowing exactly how coatings will perform on your part day in and day out.

**Real-world environmental testing simulates:**

- Abrasion and impact wear
- Adhesion
- Bond strength
- Corrosion
- Fatigue
- Galling/sliding
- Oxidation and extreme temperatures
- Particle and water erosion
- Thermal shock

We customize our answers to fit your individual problem. For example, if wear and/or corrosion resistance is required at ambient or high temperature, we can tailor a coating to perform in either environment.

**1948 More explosive discoveries**

Explorations into acetylene detonations lead to the discovery of a new groundbreaking flame-plating process. The technique developed from this breakthrough—which uses a “detonation gun”—forms the foundation of the modern thermal spray industry. To this day, we are the only company that can offer D-Gun and Super D-Gun® coatings, both benchmarks of the industry.
There is no one coating answer to every surface problem. Your unique problems require unique answers. That’s why we created our EXTREME Protection™ and ProtectionPLUS™ lines of surface coatings.

Our EXTREME Protection™ proprietary coatings are designed to provide customizable answers you can’t get anywhere else.

Our ProtectionPLUS™ coatings are used throughout the industry and feature the additional, exclusive application techniques and knowledge-base of Praxair Surface Technologies. In fact, we originally developed and patented many of these methods and materials.

Engineered for steel
The steel industry presents unique challenges: Components need to withstand extreme environmental, thermal and wear conditions at exceptionally high temperatures and pressures. That’s why our surface enhancement solutions are designed with the toughest jobs in mind. Our advanced technology is designed to help you:

- Extend product life of critical rolls
- Reduce maintenance costs
- Improve performance
- Increase productivity

Answers in action:
We not only protect but also restore. We have in-house services that can strip, restore and remachine worn components.

More coating options

<table>
<thead>
<tr>
<th>COATING SERVICES</th>
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</thead>
<tbody>
<tr>
<td>Corrosion-resistant coatings</td>
</tr>
<tr>
<td>Oxidation-resistant coatings</td>
</tr>
<tr>
<td>Release coatings</td>
</tr>
<tr>
<td>Solid particle erosion-resistant coatings</td>
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<tr>
<td>Thermal barrier coatings</td>
</tr>
<tr>
<td>Wear-resistant coatings</td>
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1958 More exclusive innovations
The innovations continue as we develop our exclusive plasma coating technique—which once again revolutionizes the thermal coating industry, delivering an exceptionally versatile solution.

1962 More flexibility
A breakthrough coating process, high-velocity oxy-fuel (HVOF), is developed that introduces powders of metals or cerments into a high-temperature, high-velocity gas stream. The stream then heats and propels them against a prepared surface. The result is excellent wear and corrosion resistance.

www.praxairsurfacetecnologies.com
From the initial conversation to the final inspection, the application of your coating follows our strict Operational Excellence System. This process guides our industry-leading quality control programs and guarantees consistent, uniform results that are on time, every time.

At the core of Operational Excellence are Six Sigma quality tools and a complete set of lean manufacturing techniques. Instead of batch production, we focus on one-piece-flow pull production that improves quality and shortens cycle and changeover times—which greatly improves turntimes for your applications.

Operational Excellence also allows us to deliver uniform, repeatable results you can rely on. You can be confident that whether your part is coated in the Americas, Europe or Asia, the processes—and coatings—are indistinguishable. More usable parts, less risk.

**Vertical integration**

Praxair Surface Technologies controls the entire coating process from receipt of your component to completed coated part. Not only do we manufacture the gases and powders used to make the coatings, but we also invented many of the processes used to apply them.
At Praxair Surface Technologies, we have a long-standing tradition of excellence in innovation. Many of the materials and processes in use today throughout the industry began in our world-class Product Discovery Labs. The focus of these labs is singular: develop next-generation surface coating technologies that solve the performance problems you face today and tomorrow.

➤ **Top research scientists**

We provide access to the most renowned scientists in the coatings industry. These highly qualified professionals have published extensively and, in many cases, literally written the book when it comes to application techniques. Working with a staff of experienced lab technicians, specialists and research engineers, our scientists are continually developing new coating processes and products that are designed to find real-world, groundbreaking answers to even your toughest performance problems.

➤ **More discovery**

Coating processes that are the foundation of today’s surface technologies were invented by Praxair Surface Technologies, including:

- Detonation gun (D-Gun) coating process*
- Super D-Gun® coating process*
- HVOF (high-velocity oxy-fuel) coating process
- Plasma spray coating process
- Tribomet® electrodeposition coating process*

* Exclusive, proprietary Praxair Surface Technologies process

➤ **2009 More capabilities**

Praxair Surface Technologies expands its product and service offerings by acquiring Sermatech International and its line of SermeTel®, SermaLoy™ and ShorCoat® high-performance slurries. The partnership delivers coating options and capabilities unmatched throughout the industry.

Ongoing testing is critical for discovering new ways to solve your performance problems.
Coating processes

- Cold Spray – LOXPlate® coating
- Electrodeposition – Tribomet® coating
- High-Performance Slurries
  - SermaLon® metallic ceramic polymers
  - SermaGard® slurries
  - SermeTel® metallic ceramics
- High-Power Laser Processing
  - Laser Cladding/Hardfacing
  - Laser Hardening
  - Laser Welding
- Thermal Spray Coatings
  - D-Gun and Super D-Gun® coatings
  - High-Velocity Oxy-Fuel (HVOF)
  - Plasma Spray
  - Wire Arc Spray

Inspecting and testing

- Fluorescent penetrant
- Gaging and dimensioning
- Profilometer

Other service operations

- Abrasive blasting
- Aluminum oxide blasting
- Chemical stripping
- Electrolytic stripping
- Gaging and dimensioning
- Glass bead peening
- Grit blasting
- Mechanical stripping
- On-site services
- Sealing
- Shot peening
- Silicon carbide blasting
- Turnkey operations

Finishing and machining

- Brushing
- Honing
- Lapping
- Machining
- Polishing
- Precision grinding
- Sanding
- Super finishing
- Surface grinding
- Vibratory

What can more mean for you?
Let’s work together to find your answers

It starts with a conversation. It ends with an answer to even your toughest performance problems. The unmatched service, experience, innovation and dedication between those two points? That’s more. We offer more support, more coatings, more knowledge, more testing, more consistency. No one else even comes close. For answers to the tough problems, demand more.

Coating and other service options include, but are not limited to, those listed above. Capabilities listed not available at all production facilities.
Primary Metals

2,500 people, more than 35 facilities and 12 countries

Praxair Surface Technologies maintains additional coating and administrative facilities not listed above.