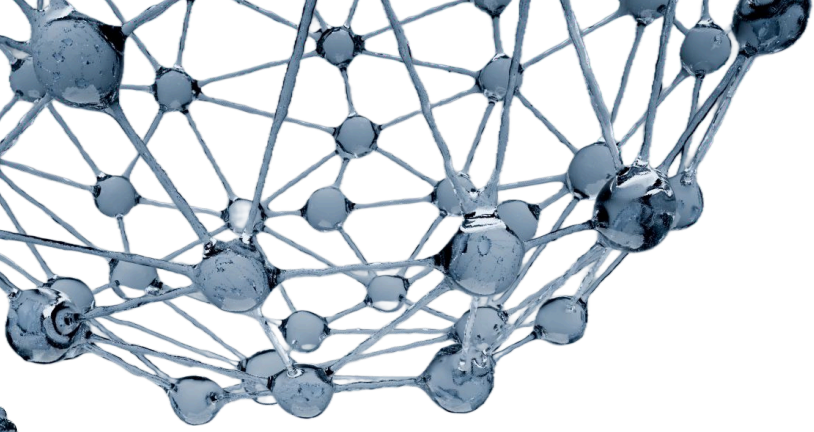
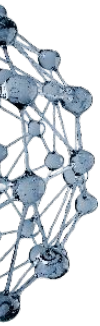
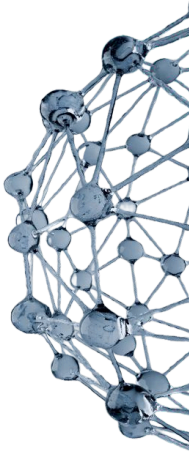


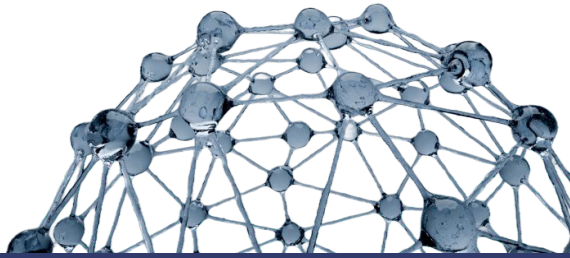




surpro
oberflächen in perfektion



Precious Metal Coatings



Surpro GmbH · Rumflether Straße 13 · 25554 Wilster · Germany · www.surpro.de



Perfect surfaces are not a decorative extra,

they are an economic necessity.

They last longer, work better and look better. They give you a competitive edge.

The demands placed on surface finishing are diverse. They range from the serial production of everyday objects and special coatings for medical technology to the handcrafted finishing of luxury accessories.

With more than 100 employees, we offer you complete product solutions, from development and design through a wide range of mechanical manufacturing processes and subsequent surface finishing to final assembly.

We do all this with passion.

Surfaces, perfected.

Nils Steffen & Matthias Jasper

From idea to serial production

Premium services from a single source

Four core services that make SURPRO a full-service provider for high-quality surfaces and manufacturing.

Surface coating & finishing

From precious metal coatings to cathodic dip coating: our finishing processes combine functionality and design. The result is products that stand out in the market for both performance and luxury.

CNC turning & milling

Precision, premium quality, production strength: that is our standard in CNC machining. Whether prototypes or serial production, we use state-of-the-art turning and milling technology to manufacture components with maximum accuracy and cost-efficiency in a wide range of base materials.

Mechanical processing

Grinding, polishing, engraving: decorative, functional and reliable. Our mechanical processing delivers premium surfaces that are aesthetically convincing while safeguarding the performance of your products.

Laboratory services & assembly

In our laboratory we safeguard the quality of our processes. Wear tests, bath analyses, corrosion tests, 3D microscopy and X-ray coating thickness measurement: all laboratory services are also available to external applicators.

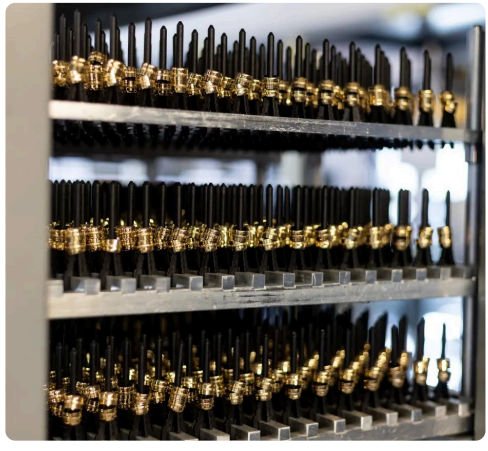
Our

surface finishing & coating

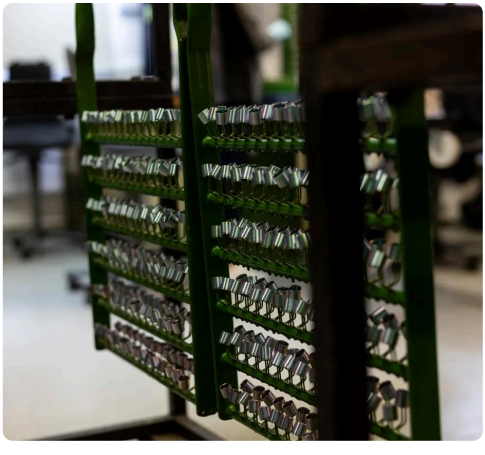
SURPRO's surface coating and finishing offers you tailored solutions for the highest standards. Our innovative processes guarantee not only outstanding durability but also an aesthetic upgrade of your products. Rely on our expertise to give your surfaces the perfect finish.



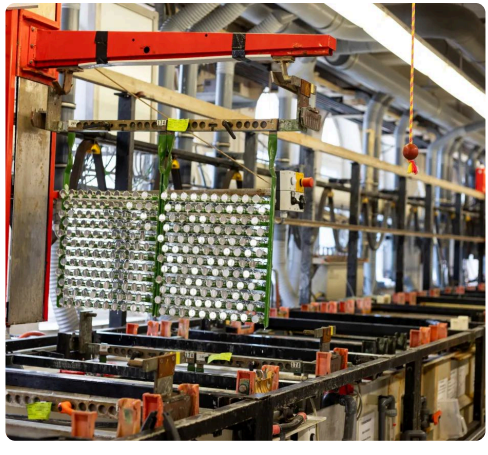
Platinum and palladium coating



Gold coating



Silver coating



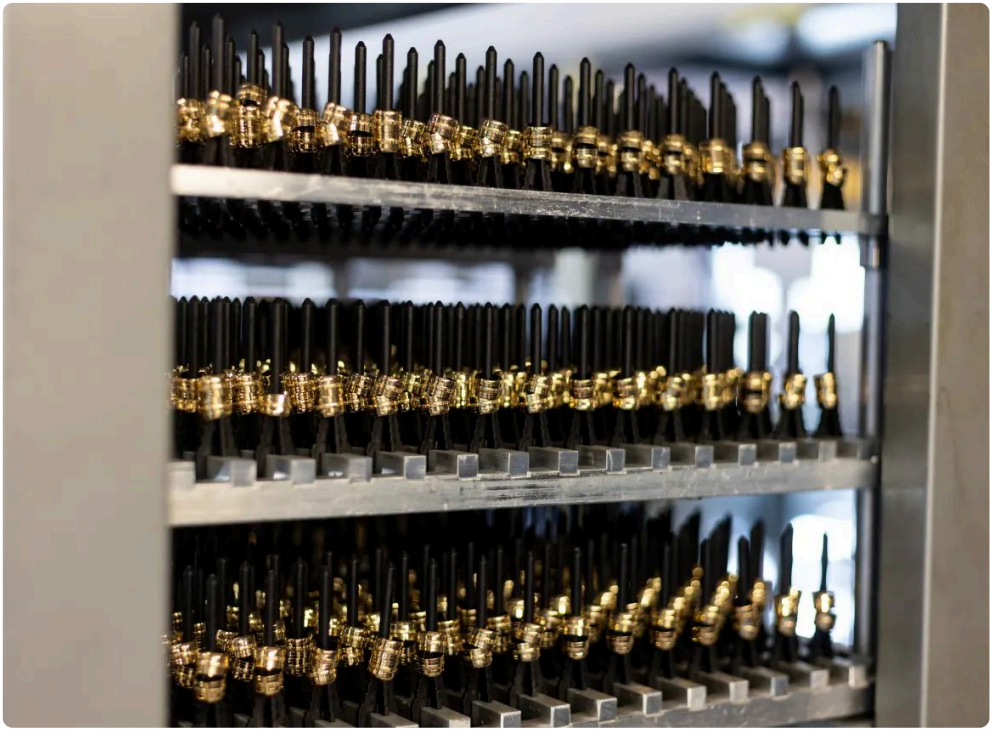
Cathodic dip coating (KTL)

- Precious metal plating
- Base metal plating
- KTL coating
- Etching
- Contract cleaning
- PVD and niobium coatings via network partners

For every application

the ideal gold coating

Decorative or technical: our gold coatings combine a premium look, maximum electrical conductivity and wear resistance. Together with you, we develop the right alloy for your component, whether in medical technology, electronics, precision engineering or the luxury segment.



Gold-iron (AuFe)
Gold-iron coatings combine high electrical conductivity with very good mechanical properties. They are characterised by high wear resistance and a uniform layer structure. This makes the coating particularly suitable for technically stressed contact surfaces in electronics, precision engineering and measurement technology, where reliability and long service life are crucial.

Gold-cobalt (AuCo)
Gold-cobalt coatings provide a particularly hard, abrasion-resistant surface combined with excellent conductivity. The cobalt content creates a fine-crystalline structure with high microhardness and very good corrosion resistance. Among other things, this coating is used for plug contacts, switch contacts and highly stressed functional parts.

Gold-nickel-indium (AuNiIn)
Gold-nickel-indium coatings combine outstanding corrosion resistance with stable tribological properties. They impress with a homogeneous appearance, high layer stability and very reliable contact performance, even under changing environmental conditions.

The benefits of electroplated
gold coating

Our gold coating is particularly gentle because we work with low process temperatures.

Gold is deposited on all sides extremely evenly, so that high layer thicknesses can also be achieved in our electroplating department, depending on the gold electrolyte used.

Gold-coated surfaces look particularly refined and underline the high-quality character of your product.

The multi-layer build-up with copper and nickel gives additional shine and a lastingly attractive appearance.

We also offer nickel-release-compliant and nickel-free coating systems.

- **Excellent corrosion protection**
- **Outstanding electrical conductivity**
- **Uniform, precise layer build-up**



Decorative and harder
our gold alloys

A special feature of our gold coatings: we work with alloys containing other metals. This allows us to achieve different shades of gold. As a rule, no more than 0.3 per cent by weight of other metals is added to the gold alloy.

Another plus: the gold layer has a higher degree of hardness, which is why we also speak of hard gold plating. A pure gold layer has a hardness of 80–90 HV (Vickers hardness). Our hard gold layers achieve a hardness of 180–250 HV.

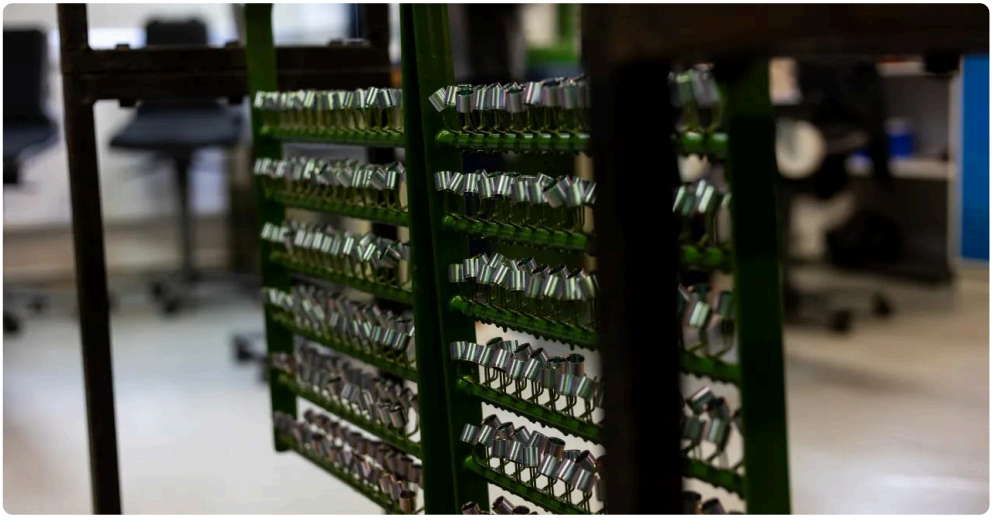
- **Refined looks with function**
- **Significantly higher wear resistance**
- **Resistant to abrasion and environmental influences**

For every application

the right silver coating

There are many reasons for coating objects with silver. First and foremost, of course, its refined appearance and high value. Silver is a sign of class, which is why silver coatings are particularly suitable for luxury goods and jewellery.

But silver also offers advantages in terms of materials technology: silver-coated objects are very durable, for example. Electrical engineering values its low contact resistance and excellent solderability. This is why we coat electronic contacts and connectors with silver in our modern electroplating plant.



Silver and its oligodynamic effect

The oligodynamic effect describes the antimicrobial property of metal ions even in the lowest concentrations. Thanks to its very high biocompatibility and strong broad-spectrum effect, silver is considered the preferred material for surface coatings. The effect is based on the continuous release of positively charged silver ions (Ag+) in a moist environment, which damage the bacterial cell wall, block essential enzymes and thus interrupt the energy production of the microorganisms.

Fine silver layers

Fine silver layers are often applied as a final finish on silver alloys to reduce tarnishing, as is typically known from silver cutlery. Silver alloys such as Ag 925 with approx. 7.5% copper or Ag 500 with approx. 50% copper are frequently used. The copper content increases the serviceability of the objects through a significant increase in hardness, but also worsens their tarnishing behaviour. Our fine silver layers significantly reduce tarnishing.

Silver and electrical conductivity

Of all the chemical elements, silver is the champion of electricity. Under standard conditions, it has the highest electrical conductivity of all metals, ahead of copper and gold. This high conductivity results from its electron configuration. We silver-plate electrical and electronic components for signal and power transmission.

The benefits of electroplated

silver coating

Our silver coating is characterised by its high purity and conductivity.

Silver is deposited precisely and evenly, ideal for electronic components and decorative elements.

Silver-coated surfaces offer excellent protection against corrosion and improve electrical conductivity.

As we can apply different layer thicknesses, we tailor the coating precisely to your needs.

- **High corrosion resistance**
- **Excellent electrical and thermal conductivity**
- **Precise and homogeneous layer build-up**



Brilliant and conductive

our silver alloys

A special feature of our silver coatings: we use special fine silver electrolytes.

Another plus: the silver layer is characterised by high electrical conductivity.

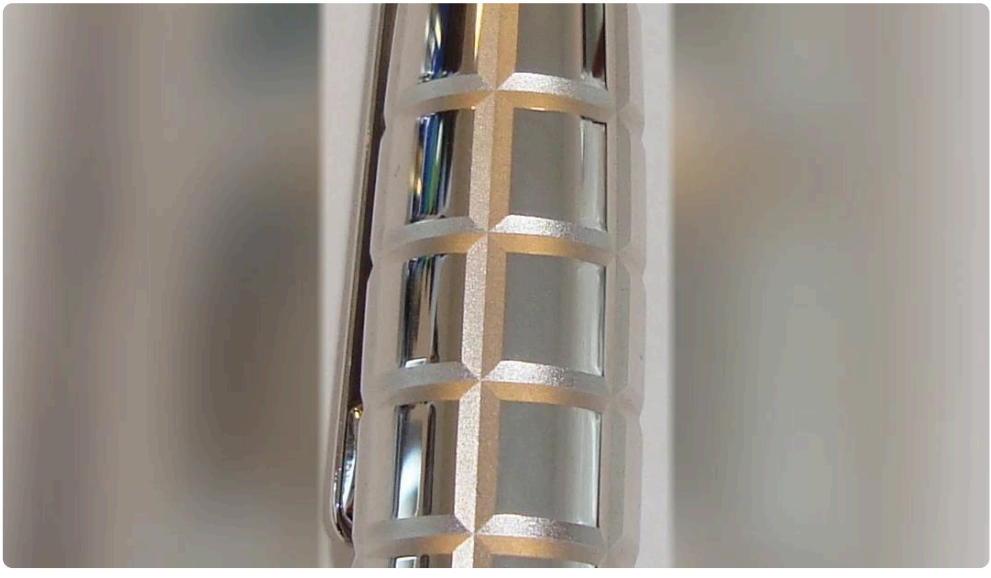
- **Excellent looks with function**
- **High electrical conductivity**
- **High reflectivity and solderability**

For special applications

the ideal platinum/palladium coating

Platinum and palladium coatings are valued for their outstanding chemical resistance and refined appearance. They are ideal for jewellery and high-quality consumer goods.

Platinum offers excellent protection against corrosion and wear and is used as a catalyst in a wide range of technical applications, while palladium offers high ductility and good solderability.



Platinum (Pt) as a catalyst

In chemistry, platinum is something of a “matchmaking genius”: it brings reaction partners together by drastically lowering the activation energy of a reaction without being consumed itself. Gas molecules adsorb onto the platinum surface, their bonds are weakened, the activated atoms form new bonds more easily, and the finished product detaches again. This capacity for heterogeneous catalysis makes platinum indispensable for exhaust gas purification in cars (conversion of CO to CO_2) and for fuel cell technology.

Palladium-nickel (PdNi)

Palladium-nickel coatings offer an excellent balance of hardness, corrosion resistance and cost-effectiveness. They impress with a homogeneous layer structure and high microhardness, giving a significantly longer service life than pure nickel or gold coatings. They are frequently used in connectors and switches and as a durable top layer on high-quality consumer goods.

Palladium-tin (PdSn)

Palladium-tin coatings combine very good corrosion resistance with excellent solderability and a fine, even surface texture. Thanks to their durability and bright appearance, they are found on decorative surfaces, for instance in the eyewear industry or on exclusive watch cases. In electronics, they are a proven alternative to pure gold.

The benefits of electroplated

platinum/palladium coating

Our platinum/palladium coatings are characterised by high precision and purity.

- **Maximum chemical resistance**
- **Excellent electrical properties**
- **Precise layer thickness control**



Functional and refined

our palladium coatings

A special feature of our palladium coatings is the use of alloys. This allows us to tailor their properties and reduce the use of precious metals.

We use palladium-tin (70/30) and palladium-nickel (80/20).

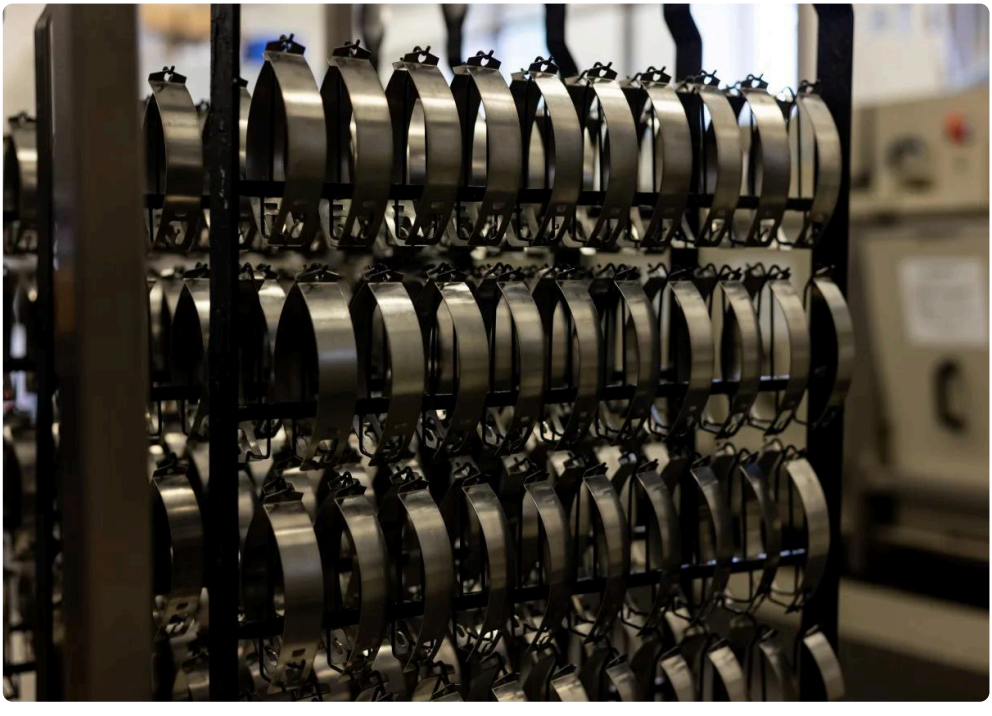
- **Perfect protection with added value**
- **Optimum wear resistance**
- **Resistant to aggressive media**

For every component

the right KTL coating

Cathodic dip coating (KTL) is a process that offers many advantages. First and foremost are the outstanding corrosion protection and the even coating of complex geometries. KTL is ideal for automotive parts and industrial components.

KTL also offers advantages in terms of materials technology, such as high resistance to chemicals and mechanical stress. The automotive industry values its high paint adhesion and resistance to environmental influences.



KTL thin-film system

We exclusively use an acrylic-based KTL thin-film system. Achievable layer thicknesses average around 10 µm. Our equipment is designed for coating small components, with bath sizes of max. 200 litres.

KTL clear and black

Two KTL paint systems are available: KTL black, a fully pigmented black paint with a glossy surface, and KTL clear, a transparent, colourless variant that leaves the base material, its colour and its surface topography visible.

KTL colour

Translucent KTL tinted with colour solutions. In a dipping process, the transparently coated component is post-treated in a colour solution, creating a semi-transparent, coloured surface. A wide range of shades can be achieved by varying the concentration of the colour solution and the dwell time.

The benefits of cathodic

dip coating

Our KTL coating is particularly environmentally friendly because we use water-based paints.

The paint is applied fully automatically and with high precision, so that even complex geometries are optimally coated.

KTL-coated surfaces are extremely durable and provide excellent protection against corrosion and environmental influences.

By combining it with various pre-treatments, we achieve optimum adhesion and a long service life.

- **Optimum corrosion protection**
- **Even coating of complex geometries**
- **High resistance to chemicals**



Decorative and versatile

our KTL variants

A special feature of our KTL coatings: in addition to KTL black, for which we use a fully pigmented acrylic-based KTL paint, we also offer transparent coatings that can be coloured as well.

Another plus: the KTL layer is highly resistant to chemical attack and is electrically insulating.

The standard KTL coating has a hardness of 3–4 H (pencil hardness).

- **Function with protection**
- **High durability**
- **Resistant to corrosion**

From raw material to precision part

Precision in every form

At SURPRO we combine state-of-the-art CNC technology with decades of experience:

Diamond turning & diamond machining

High-gloss diamond-cut surfaces for non-ferrous metals: decorative and functional, for products with the highest quality standards.

Bright turning

Flawless, high-gloss surface finishes through specialised bright turning on automatic lathes: our core expertise for 50 years.

5-axis simultaneous milling

Complex geometries, maximum precision: with simultaneous 5-axis machining we produce even the most demanding contours efficiently and to exact dimensions.

Deep-hole drilling

Precise deep-hole drilling with coolant supply for clean, burr-free results, even at great drilling depths and tight tolerances.

Perfect surfaces through bright turning

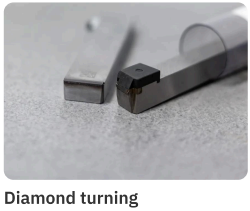
– for the highest standards in look and feel.



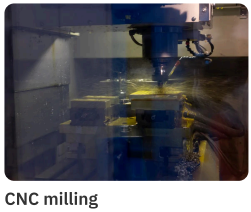
CNC Swiss-type turning



5-axis simultaneous milling



Diamond turning



CNC milling

SURPRO offers you a comprehensive range of CNC turning and milling services. From one-off parts to serial production, we realise your projects in a wide variety of base materials with maximum precision and efficiency. Rely on our many years of experience and know-how to manufacture your products optimally.

- **CNC Swiss-type turning**
- **CNC fixed-headstock turning**
- **CNC machining of non-ferrous metals**
- **CNC machining of steel**
- **CNC machining of plastics**
- **and much more**

Our

CNC turning and milling

For more than 50 years we have been your specialist for precise CNC machining. Our process-integrated quality management and state-of-the-art measuring technology guarantee maximum quality and accuracy.

- **CNC turning with sliding- and fixed-headstock lathes**
- **Deep-hole drilling with coolant supply**
- **Machining of brass, silver, gold, stainless steel, aluminium, plastics and more**
- **Serial production**
- **Prototyping**
- **Milling, turning, embossing, profiling**
- **5-axis simultaneous milling**



Diamond turning and diamond machining

Our

mechanical processing



Mechanical processing is a core service at SURPRO. We offer precise and efficient solutions for machining metal and other materials. Our experienced team uses state-of-the-art technology to ensure the highest quality and accuracy. Rely on our expertise to bring your projects to a successful conclusion.

- Laser engraving / laser marking
- Drag finishing
- Automatic & hand polishing
- Diamond cutting of non-ferrous metals
- Surface grinding
- And much more

For the further processing of components made of stainless steel, brass, silver, gold, aluminium and plastics, we offer a wide range of processes.

- Laser engraving / laser marking
- Drag finishing
- Automatic polishing
- Hand polishing
- Diamond cutting of non-ferrous metals
- Guilloché
- Vibratory finishing
- Satin finishing
- Surface grinding
- Decorative blasting
- Manual deburring
- Drilling
- Countersinking
- Embossing
- Mechanical engraving
- Contract cleaning in aqueous media and solvent systems

All processing and cleaning procedures naturally comply with legal requirements and environmental regulations.

From analysis to result

Precision and reliability from a single source

At SURPRO we combine state-of-the-art technology with the highest precision:

Functional & wear testing

We test the functionality and wear of your products to ensure maximum performance. Our tests give you detailed insights for optimised durability.

Corrosion testing

We offer comprehensive corrosion testing to ensure the resistance of your products. Our experts analyse precisely and reliably, so you can count on quality in the long term.

Our
corrosion testing



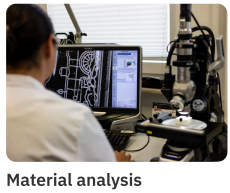
Salt spray tests



Constant climate tests



Chemical analysis



Material analysis

Corrosion testing at SURPRO offers you tailored solutions for the highest standards.

Our innovative processes guarantee not only improved durability but also an aesthetic upgrade of your products. Rely on our expertise to protect and finish your surfaces optimally. We offer:

- **Salt spray tests**
- **Constant climate tests**
- **Resistance tests**
- **Material analysis**
- **Coating thickness measurement**
- **and much more**

Our
external laboratory services

SURPRO offers you comprehensive external laboratory services tailored to your individual needs. Our experienced team ensures maximum precision and efficiency in every project.

From planning to evaluation, we support you in achieving optimal results. Rely on SURPRO for dependable, professional services.

- **Material testing**
- **Failure analysis**
- **Process control**
- **Quality control**
- **And much more**



Your partner for quality

Surface coatings

Technical surfaces

Tin-nickel (SnNi) (low-friction, solderable)
Copper (Cu) (acid + cyanide)
Nickel (Ni)
Palladium-nickel (PdNi)
Palladium-tin (PdSn)
Platinum (Pt)
Silver (Ag)
Gold (Au) (electronics, electrical engineering)

Decorative surfaces

Nickel (bright, semi-bright, matt)

Copper-nickel (Cu+Ni) (corrosion protection + decoration)

Copper-nickel-tin-nickel (corrosion protection + decoration)

Copper-nickel-palladium-nickel

Copper-nickel-palladium-tin

Copper-nickel-ruthenium (natural + black)

and many more

Ask us about nickel-release-compliant and nickel-free coatings!

Special coatings

Cathodic dip coating (KTL)

Wet-chemical etching (structuring)

Anodising

Combination coatings: paint + electroplating, electroplating + PVD

Precious metal coatings

Silver (fine silver)

Palladium-nickel (80 wt% Pd, 20 wt% Ni)

Palladium-tin (70 wt% Pd, 30 wt% Sn)

Gold (0.5N, 2N, 3N)

Ruthenium (natural + anthracite)

Medical technology

Oligodynamic silver coatings on implants
- antiseptic, anti-inflammatory
on titanium, CrCoMo steels and stainless steels

Coatable base materials

Non-ferrous / copper-based metals, all grades

Steels (all grades)

Stainless steels (all grades)

Titanium (with pre-treatment)

Aluminium (with pre-treatment)

Zinc die-casting (with pre-treatment)

PVD coatings

with network partners

There are countless ways to finish a surface.

Give us a call, we are happy to help!

Expert
technical advice

At SURPRO, personal relationships with our customers are particularly important to us. We are happy to support you during the development and subsequent serial production of your products.

Together we will find the right manufacturing process, finishing technique and further processing option for your product.

Talk to our experts.

- **100% precision**
- **Personal, direct, uncomplicated**
- **Broad range of services**



Stefan Lehnig
Head of Surface Technology & Development
+49 (0) 4823 77 49
lehnig@surpro.de



Ralph Homfeldt
Head of Sales
+49 (0) 4823 77 14
homfeldt@surpro.de



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We look forward

to your product!

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