



**Your Partner for
General Metal Finishing**



Perfectly Matched Concepts for Every Requirement



*Dr. Martin Kurpjoweit,
Vice President GMF*

Each individual market has its own challenges. With comprehensive solutions, Atotech has become a leading partner for general metal

finishing all over the world. We provide perfectly matched concepts for equipment, chemistry and services. Our product range covers technologies for the entire spectrum of decorative and functional surface treatment for various materials from steel through aluminium to engineered plastics.

Atotech can supply the right process for every requirement, enabling our customers to stay at the leading edge of technological advances. We meet every need for decorative applications, functional plating, corrosion protection and wear resistance. Our consultancy and service are more reasons why our customers have made us one of the world's leading suppliers to the electroplating industry.

*Perfect solutions for
household accessories, ...*



... consumer electronics, ...

Our Commitment

“On the basis of our international presence we can offer an advanced product portfolio and excellent service – answering different customer requirements on all continents. Our significant investments in research and development – respecting environmental aspects to protect natural resources – increase productivity and profitability for the benefit of our customers.”

Because of years of experience with all kinds of applications, we have tremendous know-how of the overall performance and ways to improve the appearance and quality of virtually every surface you want to plate.

With customers on all five continents, Atotech proves its quality and dependability wherever brilliant finishes, corrosion protection and durability are required – as a partner for automotive, sanitary or electronics industries to jewellery or household accessories.



*... automotive industry,
and sanitary applications*



Atotech Worldwide

Americas

Canada
United States
Argentina
Brazil
Mexico

Asia and Australia

China
India
Japan
Malaysia
Philippines
Singapore
South Korea
Taiwan
Thailand
Australia
New Zealand

Europe

Austria
Czech Republic
France
Germany
Hungary
Italy
Netherlands
Poland
Russia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Turkey
United Kingdom

*Atotech Technology
Centers are located in
the USA, Europe and
Asia for the best
regional support
worldwide*

Decorative Plating Technologies to Solve Metal Finishing Challenges

Copper/Nickel/Chromium Technology

As a leading supplier of copper, nickel and chromium we can meet virtually every application need. Atotech has in-depth knowledge of the ways to improve the appearance and quality of your products.

We supply perfectly balanced, easy to operate acid copper solutions, where the best brightness and leveling is required. Our nickel systems range from satin finish to semibright and bright. A complete selection of nickel tools help you to overcome every practical problem. For decorative chromium, bright hexavalent chromium is the core technology. In addition, Atotech has developed specialised processes for almost every application niche.

Leading technology in plating on plastics

We have been involved in plating on plastics right from the beginning back in the Sixties. Today, Atotech supplies the most suitable process for every requirement within a broad range of products for the automotive, sanitary and domestic appliance industries and also for rather functional applications like consumer electronics including electromagnetic shielding.

Precious metals and electrophoretic coatings – Beauty and function

Atotech systems and processes for gold, silver, palladium and ruthenium provide a surface of lasting beauty for all kinds of products, from jewellery and bathroom fittings to noble spectacle frames and writing implements.

*Precious metals are
as aesthetic as they
are functional*



The tailor-made product properties of our specific processes in terms of appearance and functionality provide the product designer with almost unlimited creative freedom.

Atotech electrophoretic coatings have been successful by replacing conventional lacquering techniques. Decorative electrophoretic coatings are used to prevent oxidation on metal substrates and to increase wear and corrosion resistance at an economical price.



*Typical parts for plating
on plastics*



*Electrophoretic coatings
for economical excellence*

Corrosion Protection in Accordance with Today's and Tomorrow's International Standards

With years of experience in developing corrosion resistant coatings, we are experts when it comes to solving problems. We consistently focus on finding the best solution for each and every application. Toxic complexing agents are continuously replaced by non-toxic substances. This enables us to meet the increasingly high standards set by our customers and worldwide environmental regulations.

Atotech's wide array of zinc, zinc alloys, and post treatments provides the right combination of engineered systems to protect today's automobiles and trucks.

Zinc-iron alloys are economical coatings for effective corrosion protection. These surfaces are in high demand in the automotive industry.

Zinc-nickel alloys are used where extremely high corrosion protection is required. The nickel content ensures improved protection according to automotive industry specifications.

For complex components and parts, we provide a range of processes properly designed to guarantee economical and long lasting corrosion protection.

Hexavalent chromium free post treatment processes

The European Parliament's End-of-Life Vehicle Directive practically bans the use of Cr(VI) in corrosion preventative coatings. With a wide range of Cr(VI)-free processes including passivates, chromates and sealers for different corrosion protection requirements, Atotech can already supply solutions to keep your production competitive in the future.

Perfect solutions for thicker coatings – Mechanical plating

Mechanical plating is an economical method for applying zinc or other ductile metals on metal parts, usually iron. The deposit is slightly porous and semi-bright in finish, providing excellent corrosion protection without hydrogen embrittlement.

Acid zinc achieves brilliant zinc coatings of high ductility



Typical parts for mechanical plating (right)



*Automotive industry:
Door parts with Cr(VI)-free corrosion protection*





Highest corrosion protection with zinc-nickel alloys

Advanced Coatings for Superior Wear and Corrosion Performance

Atotech engineers coatings to deliver superior performance for critical automotive uses. Our wide range of hard chromium products and the DynaChrome high productivity plating system provide innovative and economical solutions for corrosion protection and wear resistance. Due to high hardness and excellent anti-corrosion characteristics, hard chromium processes give piston rings, engine valves and suspension parts excellent performance.

Electroless nickel plating provides ideal wear performance for applications such as brakes, fuel systems and steering components. These processes offer a high degree of flexibility to deliver just the right hardness and affinity for lubricants to reduce the wearing of highly mobile parts.

Perfect images at enormous speed

Rotogravure is a high quality printing process for high volume reproductions with superb colours and gloss. The design is engraved onto the carrier – a copper-plated hard chromium finished steel or aluminium base cylinder. The chromium layer provides necessary hardness and resistance to wear for printing.

Already there are developments to lighten the weight of the printing cylinder. One way is to employ aluminium, for which we already have a complete product range. The other way is plating on plastics. With our superb plating on plastics chemistries and well-proven track record, we will be able to supply customised processes for specific customer needs.

*Automotive parts with
hard chromium coatings*



*Hard chromium
application example*



*Rotogravure
cylinder for high
quality mass printing*

Functional Coatings and Precious Metals for the Electrical and Electronics Industries

With regard to function, efficiency, safety and reliability, demands for components and modules in the electrical and electronics industries are continuously increasing. Electroplated coatings with their wide range of surface finishes and specific properties make a significant contribution to fulfil these requirements.

Processes for electroplating electronic components

To meet the specific demands for solderability, bondability, electrical and physical deposit properties in the electrical and electronics industries, Atotech offers a wide range of products and processes for use in high speed and reel-to-reel machines as well as for conventional plating on racks and in barrels.

With copper, nickel, tin and tin alloy plating processes Atotech's functional electronic coating product line covers practically all needs of different industries from telecommunication to automotive engineering, household appliances, consumer electronics, medical equipment and data processing.

Wherever electrical and electronics components are used, Atotech products are enabling perfect function and operational safety.

Precious metals and high-tech applications

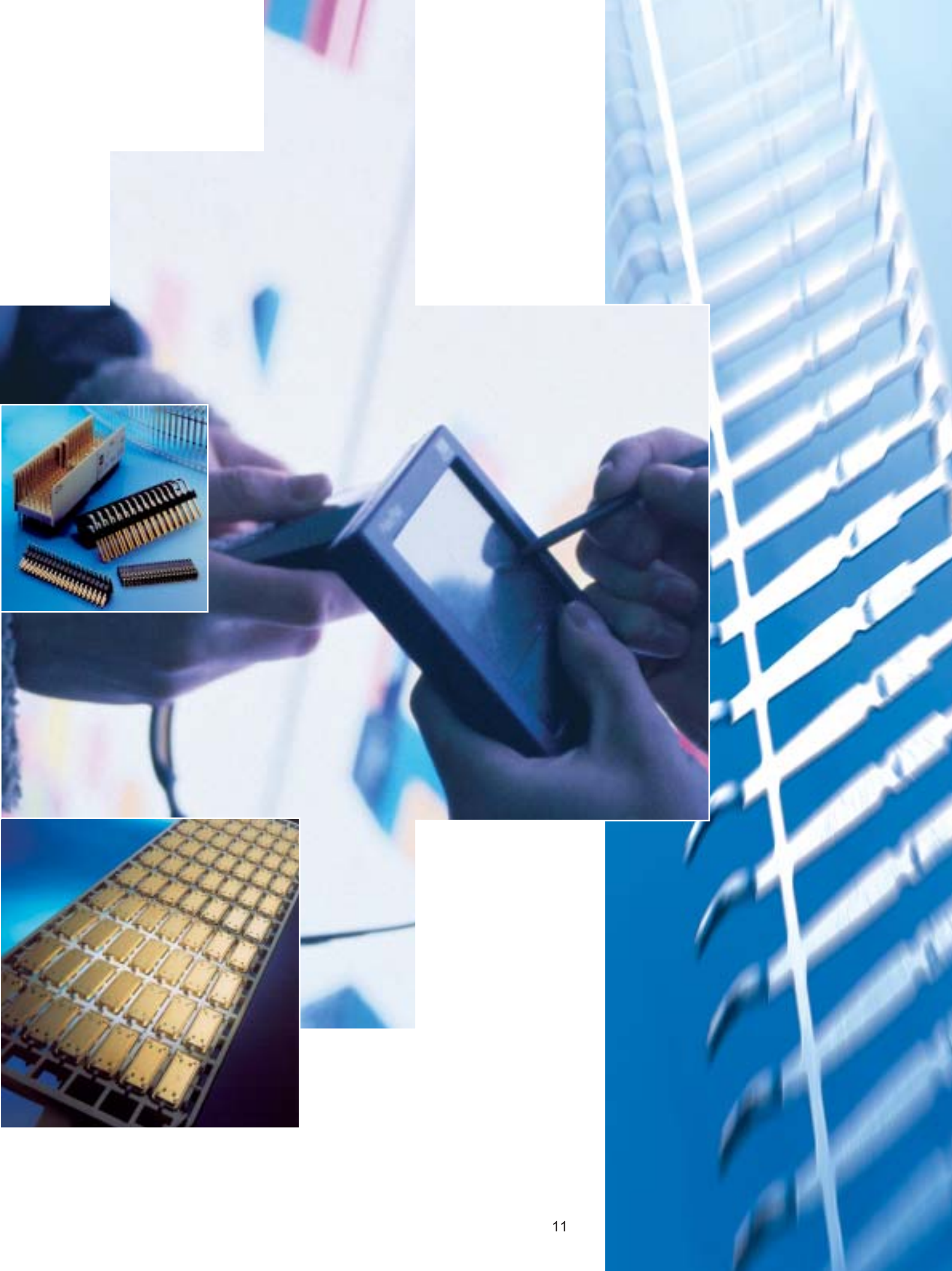
Precious metals, such as gold, silver and palladium have outstanding properties as electrical and thermal conductivity, wear and corrosion resistance even when depositing very thin layers. These characteristics of precious metal coatings are indispensable in the electronics and electrical engineering industries.

The variety of Atotech processes for precious metal plating also meets the requirements for a wide range of high-tech applications. With their exceptional quality our processes provide the economical use of costly raw materials.

Atotech develops, manufactures and supplies processes and products that not only meet our own stringent quality standards but are also in accordance with modern environmental protection regulations. Our standard policy is to avoid environmentally harmful raw materials including EDTA and solvents. Atotech products comply with all specifications and standards defined by electrical and electronic component manufacturers.



Reliable and functional coatings for plugs, connectors and contacts with products and processes from Atotech



Pretreatment Processes – Economical and Environmentally Responsible

Surface treatment begins with cleaning. This first step is so important because an absolutely grease- and oxide-free surface is a prerequisite for well-bonded metal coatings. The cleaning and activation processes must be carefully matched to the diversity of treated base materials, their surface condition and degree of soiling. Atotech offers conditioning systems from one single source.

The cleaner choice for pretreatment

Our UniClean program represents our vast know-how in pretreatment of different surfaces. For any base material and application we offer the best solution for adhesive metal deposits. With UniClean you can expect economical and compatible technologies for cleaning and activation. This ensures safe and reliable production.

Research and Development of “intelligent” cleaning

With UniClean Bio, Atotech has introduced a revolutionary approach to cleaning. This process combines bioremediation technology with a highly emulsifying surface system to consume and eliminate a wide range of oils and other complex organics from the working soak cleaner. The results are greater efficiency and significant cost savings.

Solutions for aluminium pretreatment

Our aluminium pretreatment program provides optimised solutions for every process step (soak cleaning, alkaline etch, acid etch and zincate). These processes offer optimum preparation of the aluminium surface. The pretreated layer is then suitable for plating with metals such as copper and nickel or alloys.

The most successful pretreatment processes are reliable, economical and environmentally responsible





Integrated Production Systems

Focussing on the Finished Product

Today's standard approach in GMF production is to match equipment and chemistry for the different production stages in order to establish continuous, controlled production with predictable results. As all process steps influence each other, this can only be reached through adjustments to improve throughput, quality and overall production efficiency.

The Atotech GMF systems approach takes this to another level. Our vision is to combine process chemistry, equipment engineering and environmental aspects to unique systems. These systems enable our customers to produce at consistent high quality at reasonable manufacturing costs and in harmony with the environmental demands of tomorrow. In comparison to conventional production methods, Atotech systems deliver superior plating results like uniformly even chrome thickness distribution of DynaChrome rods. Also, Atotech systems provide improved overall availability and minimised downtime as with EDEN, our continuous electroless nickel system with virtually unlimited solution life.

The system concept includes integrated environmental protection, which causes less waste and less consumption of energy. Using our world-wide experience with components of all sizes and complexity, our customers can count on unmatched know-how in process engineering and benefit from our resources in R&D, manufacturing, logistics and service.

Atotech proves that the systems approach successfully combines economy and ecology.



*EDEN system –
Long lasting electroless
nickel production*



*Nikotect system –
Ductile nickel plating
for unique brightness*



*DynaGlide system –
Economical horizontal
plating of racked parts*

*DynaChrome system –
Precise high-speed
deposition of hard
chromium*

Atotech – We Supply Solutions

Atotech is one of the world's largest suppliers of metallization production solutions for GMF (general metal finishing) PCB (printed circuit board) and semiconductor wafer applications. Atotech's international experience and market know-how provides you with:

- **Comprehensive Product Range**
Atotech's extensive knowledge and vast product offering gives you highly productive systems and single-source responsibility. Solid research and development combined with decades of field-proven processing is your assurance for the best metallization system solution in the world.
- **Highest Product Quality**
Atotech only works with certified suppliers to ensure the highest quality product with consistency second to none. Adherence to international quality standards is a way of life at Atotech.



- **Worldwide Service**
With manufacturing, sales and service locations throughout the world, Atotech is positioned to effectively assist you now and in the future.
- **Reliable Delivery**
Atotech's worldwide production and warehousing help to keep you in production, day after day, year after year. You'll save storage costs while protecting against lost production capacity.
- **Environmental Know-How**
Atotech is committed to providing products and processes that are environmentally responsible according to the most stringent requirements on a global base.



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