

Technology Metals | Advanced Ceramics

AMPERSINT[®]

Atomized Metal Powders & Alloys

H.C. Starck 

H.C. Starck: Expertise, Quality and Customer Awareness

Whenever ideas are to be turned into successful products or applications, the first step is to find the appropriate material supplier. Hardly any other company worldwide meets its customers' material needs as precisely as H.C. Starck. We are a leading premium supplier of refractory metals such as tungsten, molybdenum, tantalum, niobium, and rhenium, high-performance ceramics, thermal spray powders and materials for powder metallurgy applications. Our core competence in powder metallurgy is the customer-specific design of chemical and physical properties, including precisely defined grain form and morphology, particle size and surface structure.

Furthermore, we continuously work on the innovative products of tomorrow with over 110 R&D employees around the world. H.C. Starck holds over 800 patents worldwide. These include high-tech materials, process-controlled production and customer-specific product solutions.

With innovativeness, a clear commitment to quality, and extensive technological expertise we work side by side with our customers along the entire value chain, supporting them as an expert partner in development and solution creation.

Please visit us on our website at www.hcstarck.com for further information.

High-Quality Partnerships

H.C. Starck is a renowned manufacturer of high-quality ceramic powders and high-alloyed metal powders. These products are commercialized under the brand name **AMPERSINT®**. We are a specialist supplier for gas and water atomized powders and offer one of the most extensive material portfolios in the industry for special and niche applications such as dental technology and automotive applications.

Support along the entire process chain

To turn ideas into successful solutions, we support our customers as a partner in the development and optimization of materials, products and processes.

Our application technology department has outstanding materials expertise, detailed knowledge of metallurgical and chemical processes and long-term experience in numerous innovative markets and technologies. Moreover, our accredited chemical analysis department monitors the manufacturing of our products to precise specifications in numerous innovative markets, application areas and technologies. We continuously work on integrated solutions together with our customers to improve their final product and production processes.



H.C. Starck is a member of the European Powder Metallurgy Association (EPMA) as well as a member of the working group for Additive Manufacturing, established by the Verband Deutscher Maschinen- und Anlagenbau (VDMA).



Arbeitsgemeinschaft
Additive Manufacturing

Tailored Product Solutions in Atomized Metal Powders & Alloys

H.C. Starck has a long history of developing and producing high-quality atomized powders. Our in-depth knowledge of metal powder production is well-known among our customers; we pay particular attention to specific requirements regarding controlled chemistry, precisely defined morphologies, and adjusted particle size distribution.

We design the material properties and related characteristics of our **AMPERSINT®** powders, e.g. low oxygen and carbon content, to achieve the optimum performance for our customers' products and production processes.

Our portfolio of high-alloyed AMPERSINT® powders covers an extensive range of different alloys, including standard alloys and customized materials with tailored particle size distributions:

- > **Cobalt based alloys**
- > **Nickel based alloys**
- > **Iron based alloys**
- > **Super alloys**
- > **Stainless steels**

Technologies Creating New Perspectives

Our high-alloyed standard and customized metal powders can be used in a broad scope of innovative technology processes:

- > **Additive Manufacturing (AM)**
- > **Hot Isostatic Pressing (HIP)**
- > **PM/ Pressing & Sintering**
- > **Metal Injection Moulding (MIM)**
- > **Plasma Transferred Arc (PTA) Welding**
- > **Laser Cladding**
- > **Metal Foams / Cellular Structures**

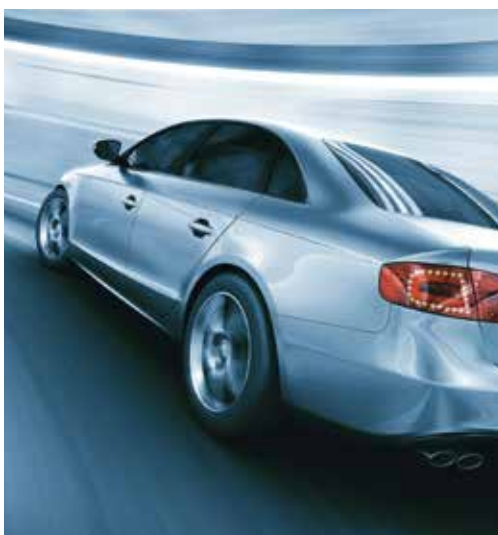


For more information regarding your relevant technology, please see the attached data sheet on the last page or contact us directly.

New Perspectives for Innovative Markets

H.C. Starck is an acknowledged high-quality powder supplier in the specialty chemistry in existing as well as new markets. In addition to sustainable quality, our flexibility empowers us to react to rapidly changing market trends and to develop solutions for special demands and innovations. The close collaboration with customers, together with our long-term metallurgical and technical expertise, enables H.C. Starck to produce outstanding high-alloyed **AMPERSINT®** metal powders, which are used in many industries including:

- > **Medical / Dental**
- > **Oil & Gas**
- > **Aerospace**
- > **Industrial Engineering / Tooling**
- > **Automotive**
- > **Electronics**



Typical applications of our high-performance **AMPERSINT®** atomized metal powders and alloys comprise

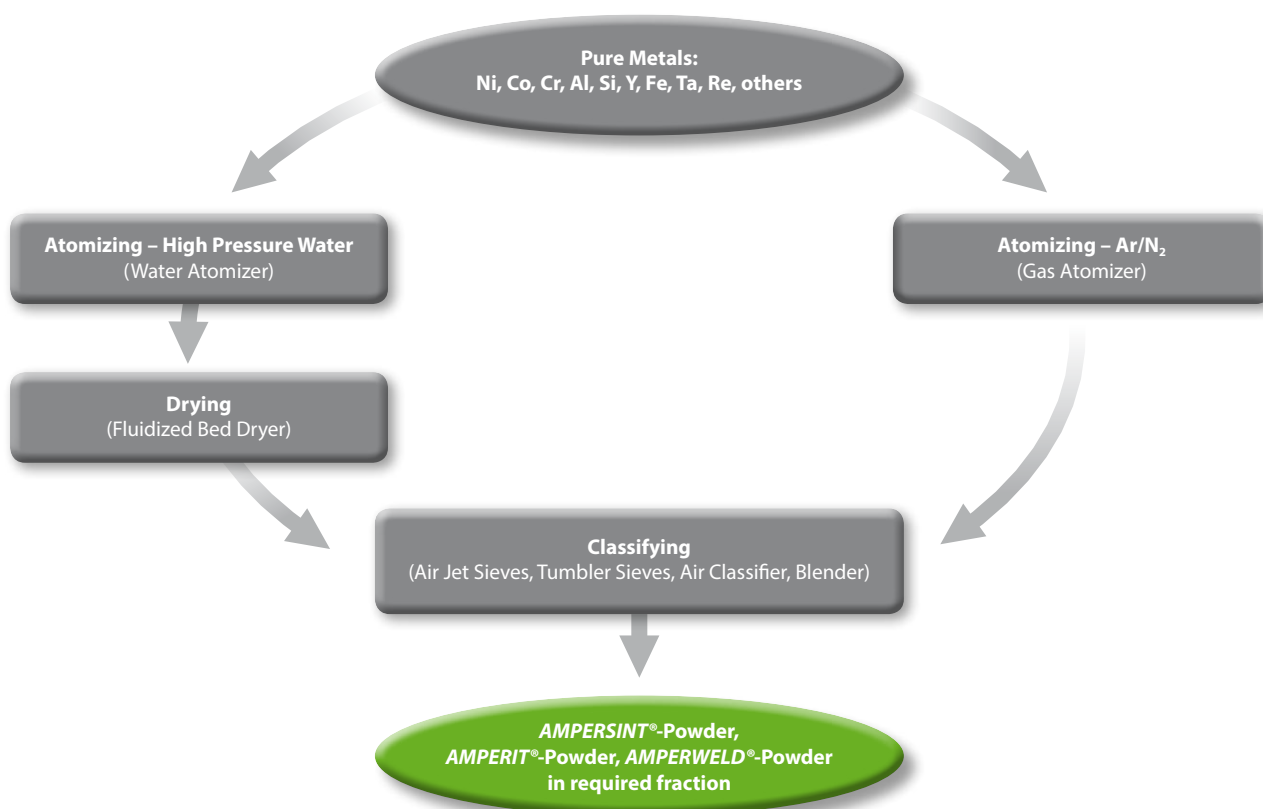
- > **Orthodontic brackets and dental prostheses**
- > **Medical implants and implantable medical devices**
- > **Valve housings, pump parts and surface coatings for wear and corrosion protection in the oil & gas industry**
- > **Valve seat inserts and diesel particulate filters for the automotive industry**
- > **Fuel cells for energy generation**
- > **Sputter targets in the electronic industry**

Unique Skills in Production Processes

The complexity and variety of our technology processes allow us to meet the unique demands of our customers through outstanding material solutions:

- > **Vacuum melting, gas atomization (various production scale levels)**
- > **Vacuum melting, gas atomization (R&D scale)**
- > **Air melting, water atomization**

The combination of our outstanding powder expertise, application knowledge and production flexibility makes us unique. We are able to produce according to the required powder characteristics in terms of chemistry, morphology and particle size distribution and our production capacity ranges from small R&D batches to bulk production.



In addition to our **AMPERSINT®** special metal powders, we also offer thermal spray powders under the name **AMPERIT®** and special powder solutions for welding applications under the name **AMPERWELD®** for the powder metallurgy market.

Satisfied Customers are Our Success

H.C. Starck has implemented various internal management systems, which are based on international standards. Among others we are certified for the Quality Management System (ISO 9001) and the General Requirements of Quality Management System and Functioning of Analyzing and Calibrating Laboratories (ISO 17025).

H.C. Starck is certified for:

- > **DIN ISO 9001: Quality Management System**
- > **DIN ISO 14001: Environment Management System**
- > **DIN ISO 50001: Energy Management System**
- > **DIN EN ISO/IEC 17025: General Requirements of Quality Management System and Functioning of Analyzing and Calibrating Laboratories**
- > **DIN EN ISO 13485: Management System of Design and Production of Medical Devices**
- > **DIN AS/EN/JISQ 9100: Quality Management System for Suppliers for the Aerospace Industry**
- > **OHSAS 18001 (British Standard Occupational Health and Safety Assessment Series) International Standard of Evaluation and Certification for Management System of Employment Protection**
- > **RSCM: Responsible Supply Chain Management System focused on avoidance of raw material deliveries from conflict regions**

H.C. STARCK'S GLOBAL FOOTPRINT – CLOSE TO OUR CUSTOMERS



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