



# Schunk Group

Engineering competence in materials  
technology and mechanical engineering

# Welcome to the **Schunk Group**

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Dear Readers,

With its ten business units, the Schunk Group is a technologically differentiated provider serving its customers in a host of highly specialized markets across the globe by providing them with hightech solutions. Our engineering expertise in materials technology and mechanical engineering, as well as the professional knowledge of our 9,100 employees all around the world, make us

a technology leader in our markets. We place great importance on profitable growth, independence and a long-term orientation. In this company brochure, we would like to show you what Schunk stands for and what makes us tick. Get to know us!

Sincerely,

*Rollé Ulrich v. Hülsen Peter Manolopoulos*

## Our **Management Team**



**Peter R. Manolopoulos**

Member of the  
Executive Board

**Dr. Arno Roth**

Chief  
Executive Officer

**Dr. Ulrich von Hülsen**

Member of the  
Executive Board



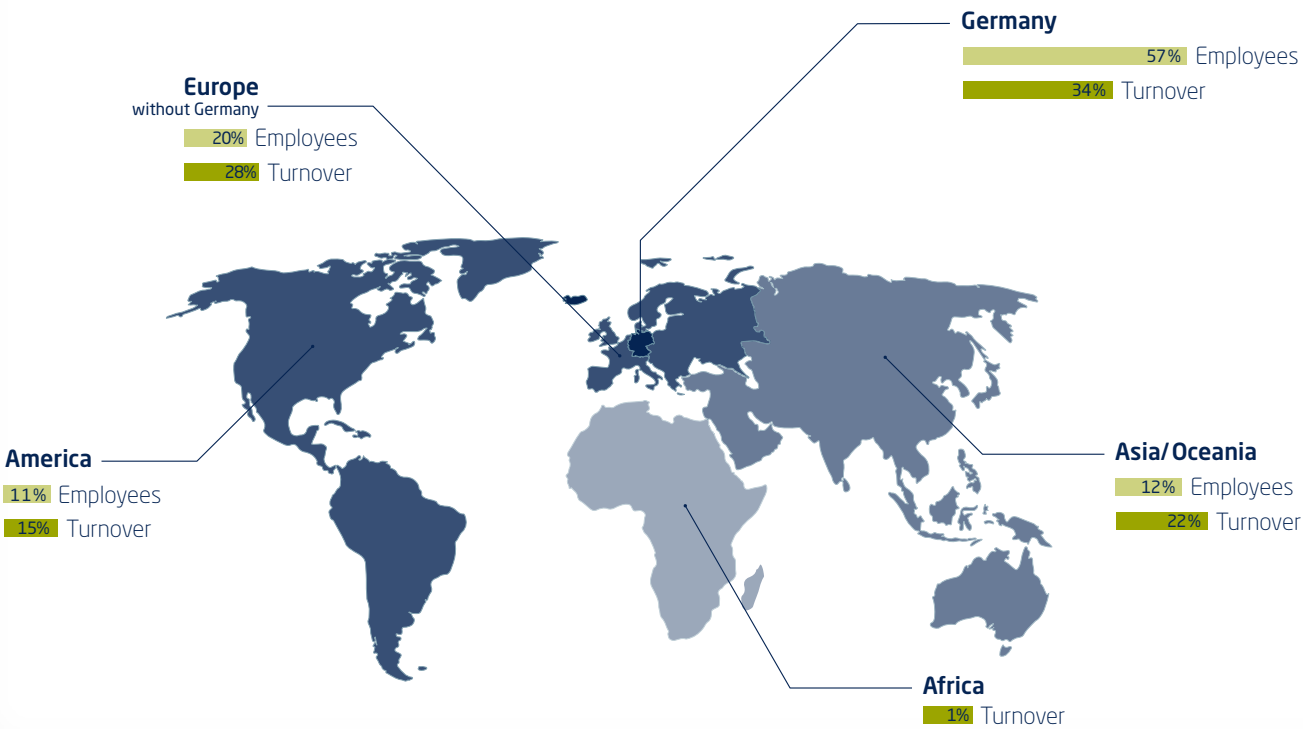
# Schunk Group

Schunk is a globally active technology group. Our expertise in the fields of materials and mechanical engineering provides a major boost for industries around the world. With more than 9,100 employees, we are available to customers locally in 29 countries.

- **Passion for technology.** We are competent and idea driven. This makes us an innovative technology leader and keeps us one step ahead.
- **We are pragmatic.** We provide rapid solutions and deliver efficient results. In doing so, our approach is entrepreneurial and collaborative.
- **Focus on the customer.** We empower our customers on their road to success. Together, we make a significant contribution towards a sustainable future.

## Our Team

Percentage distribution of employees and Sales figures for 2019 by continent



# Schunk Business Units

- Industry
- Microelectronics
- Technical Ceramics
- Transit Systems
- Mobility Carbon
- Sinter Metals
- Environmental Simulation
- Air Solutions
- Sonosystems
- OptoTech

## Schunk in Figures



## Our Success







Left side:  
Chemical vapor deposition  
(CVD) and infiltration (CVI)  
under clean room conditions

Right:  
Emission and performance  
testing chamber with roller  
dynamometer

Bottom:  
Corporate headquarters in  
Heuchelheim, Germany



**The Schunk Group stands for excellent competence in materials engineering and mechanical engineering**

As a globally active technology group, we are a leading supplier of products made of high-tech materials – such as carbon, technical ceramics, quartz and sintered metal – as well as machines and systems – from environmental simulation and air conditioning to ultrasonic welding and

optical machines. With more than 9,100 employees, we are available to customers locally in 29 countries.

**Future-oriented technologies for all industries**

With innovative products and future-oriented technologies, Schunk pushes industries all over the world. From automobiles, rail-based vehicles and electronic components to the pharmaceutical industry, electrical devices and wind power plants to light-emitting diodes, Schunk products ensure reliable quality, proven safety and great convenience. Our material specialists in carbon, ceramics, quartz and sintered metal and our experts in environmental simulation systems, air conditioning and clean room technology, ultrasonic welding technology and optical machines have been setting technological milestones for over 100 years.

# Technology leader through **competence in materials and mechanical engineering**





Passion  
for Technology

We are  
pragmatic

Focus on  
the customer

#### **Pragmatic and customer-oriented**

We provide fast solutions and efficient results. We act with entrepreneurial spirit and in partnership. In this way we pave the way for the success of our customers. Together with them we make a significant contribution to a sustainable future.

#### **Remain independent and grow sustainably**

The foundation of our success is the long-term orientation of the company. Many years ago, company founder Ludwig Schunk strove "to maintain the management of the company in such a way, that its healthy growth and the preservation of its independence comes to the fore." Our strategic orientation still follows the maxims of remaining independent and growing sustainably.



Company founder  
**Ludwig Schunk**



# Passionate about technology

„It’s a lot of fun to work at a high-tech company like the Schunk Group.“

Mohammad Karimi,  
mechanical engineer



**More than 9,100 employees all over the world are the basis for our success**

Every day, their motivation and service help us, as a leading technology company, to inspire customers all around the world. This is why we are always on the lookout for employees who are fully committed, think in an entrepreneurial

way and have the courage to strike out in new directions. We promote innovative approaches in a targeted way and offer a working environment in which employees can make their ideas a reality. Good ideas will continue to be a decisive factor in inspiring our customers with pioneering products in the future.

**Individual perspectives for common success**

Our solid foundation culture and sustainable growth-oriented company strategy make the Schunk Group a reliable employer. With a broad offering of opportunities for continuing education and qualification, we open up prospects for individual development for our employees, whether they are skilled workers or management personnel, in Germany or at one of our international locations.

**We are characterized by diversity and mutual respect**

Diversity is a fixed component of the Schunk culture, just like the sites, regions and areas of business we call home. By promoting interculturality, increasing female technical and management personnel and through cross-generational work and offerings for improved compatibility of family and career, we strengthen the diversity of our workforce in a very targeted way.



„I appreciate the open corporate culture at Schunk.“

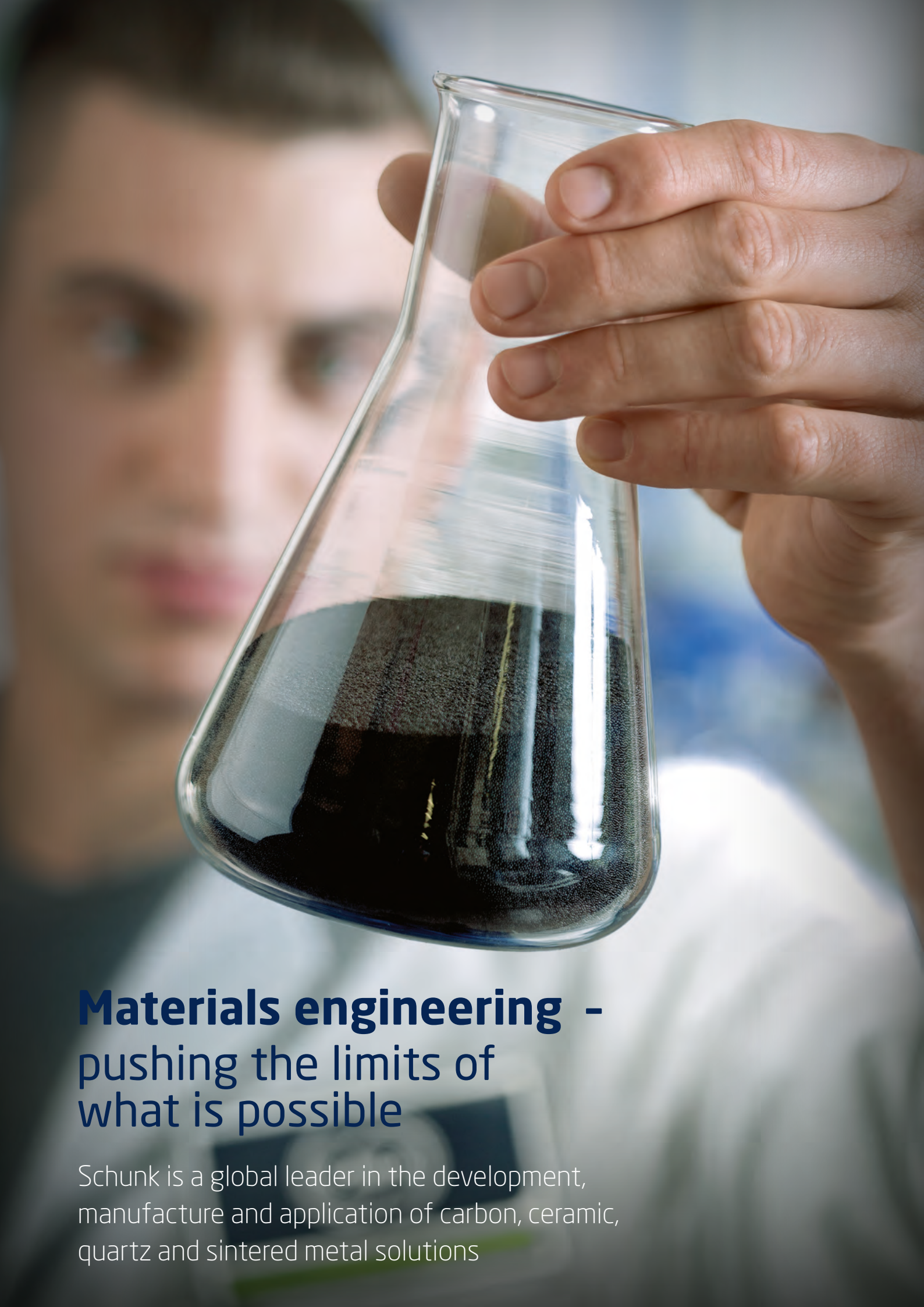
Si Shan,  
Participant in the  
Schunk Global Graduate Program



The Schunk Group –  
A global technology company







## Materials engineering - pushing the limits of what is possible

Schunk is a global leader in the development, manufacture and application of carbon, ceramic, quartz and sintered metal solutions



### **Every part, every component and every system is faced with technical limitations which are often the result of the material chosen for the job**

With our carbon, graphite, carbon-composite, silicon carbide, aluminum oxide, quartz and sintered metal materials, we develop innovative products that transcend the limitations of conventional materials in many different areas. Thanks to their special chemical, mechanical, electrical and thermal properties, our solutions are used in some of the most demanding applications. In addition to sound material expertise, this requires a deep understanding of the requirements and goals of our customers.

### **Always close to the customer**

Thanks to our highly specialized technology portfolio Schunk is able to offer solutions employing these technologies to every relevant industry. From automotive, rail, aviation and marine technologies to solar and wind energy to the process industry, medical and electrical technologies and the semiconductor industry, we've got you covered. Schunk combines its capacity for innovation and technological

expertise with exceptional customer service here. Thanks to its decentralized and flexible structure, the business units are precisely aligned with the markets and applications of our customers. Fast, uncomplicated and featuring flat hierarchies, we are always close to the customer, from development to the start of production.

### **Outstanding quality from raw material to shaping**

In developing and manufacturing materials, Schunk follows a consistent quality strategy from raw material acquisition to material preparation through to shaping and processing. Using sophisticated production and refinement processes, such as the high-temperature chemical vapor deposition of graphite, we achieve a market-leading level of quality. This puts us in a position to continually optimize the performance and process reliability of the systems of our customers.

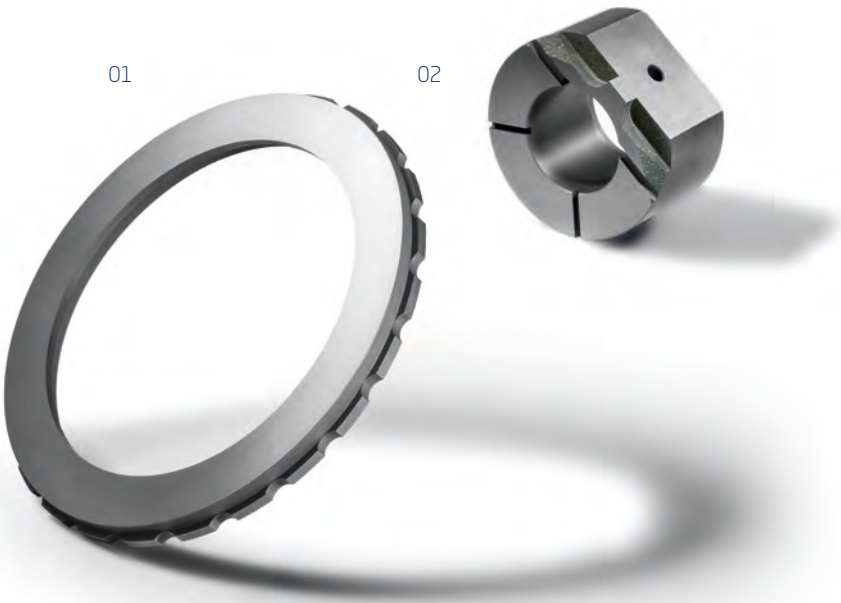
Left Side:  
Graphite as a raw material in the  
Schunk materials laboratory

Right:  
Wafer carrier for the  
semiconductor industry



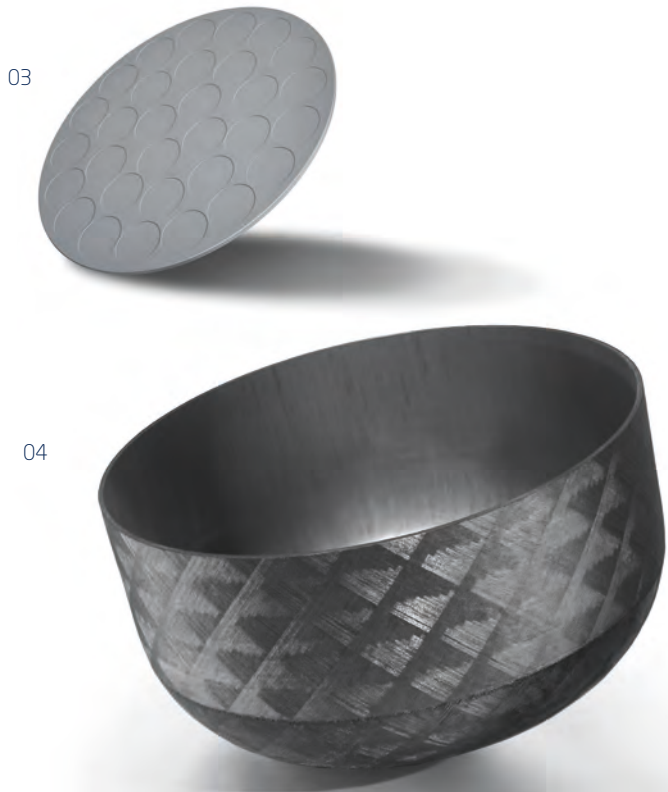
# Tribological applications

Schunk combines comprehensive expertise in development, production and processing of carbon and silicon carbide materials (SiC) and their tribological behaviors. Sealing rings, bearings and pump components made of our graphite and carbon materials, as well as SiC, are characterized by low friction coefficients and high wear resistance. The mechanical carbon products are used in sealing technology, as well as in machines, assemblies and systems in many industrial areas, such as the chemical and petrochemical industries, energy and supply engineering, the pharmaceutical and foodstuff industries, aviation and shipping and many more.



# High-temperature applications

Wherever high temperatures place extreme requirements on material properties, our carbon and ceramic products for high-temperature applications are the first choice, whether it's in furnace construction, heat treatment, glass processing, the manufacture of semiconductors and solar cells or in analytical technology. In addition to graphite, we produce components made of carbon fiber-reinforced carbons (C/C). A leader in the cleaning and coating (SiC, pyrocarbon etc.) of graphites and C/C, we are also able to offer extremely pure and high-resistance products. In addition, we offer our customers specialized solutions using quartz, graphite and high-performance ceramic for the semiconductor, solar and LED industries.



## Tribological applications

- 01 Gas seal ring out of high performance carbon graphite
- 02 Bearing out of a unique SiC-C-composite material

## High-temperature applications

- 03 LED conductive heated wafer carrier
- 04 C/C crucible for CZ-pulling

# Current transmission

Products from Schunk for efficient power transmission can be found in automobiles, trains, almost all industrial applications and a large number of consumer goods, whether they're carbon brushes, brush holders, slip rings and strips, contacts, conductor bands, pantographs or any of our many other products. Our ability to develop materials and components which suit a wide variety of precise needs and areas of use makes us the ideal technology partner for power transmission.



## Electrical carbon

- 05 Carbon brushes for electrical motors
- 06 Current collector for electrical buses



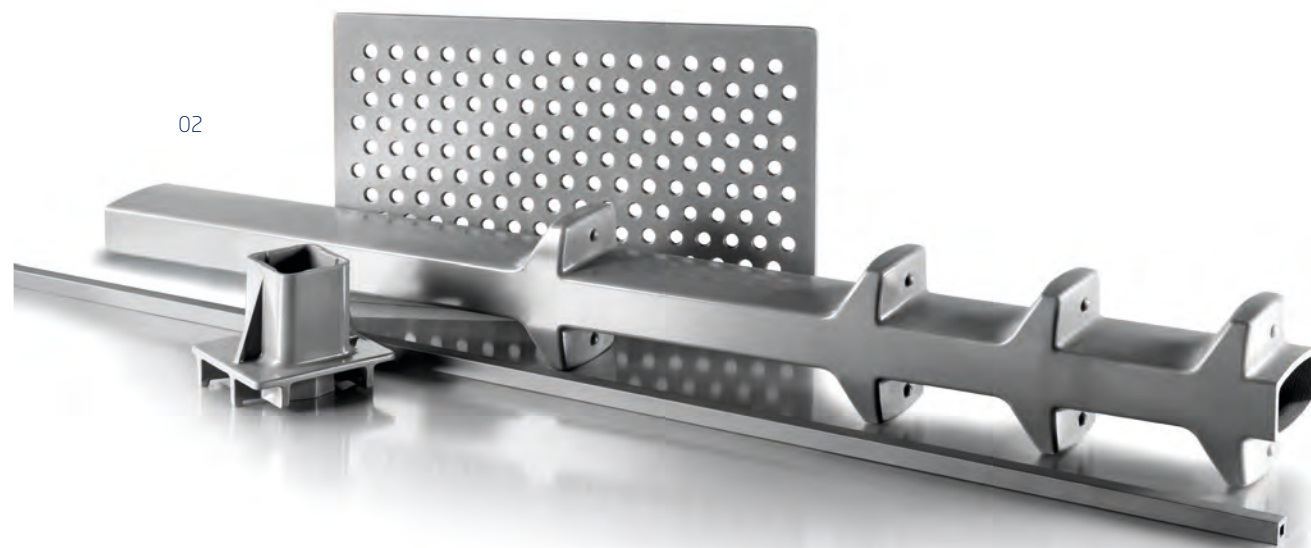
01



## Technical ceramics

Heat resistant, media resistant, non-wearing, extremely hard and bulletproof- no other material combines as many valuable features for industrial use as technical ceramics from Schunk. Schunk is the innovative specialist for ceramic materials and components made of silicon carbide (SiC) and aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) used in thermal processing technology, furnace and system construction and process engineering, among other things in burners for direct and indirect heating and for burning aids. Thanks to its outstanding features, our SiC is also used in ballistic protection.

02



### Technical ceramics

01  
Burner components, e.g. for heat-treatment furnaces

02  
Kiln furniture for the ceramic industry

## Sintered metal

Outstanding process reliability, from the first part to the last. Sintered structural parts and bearings as well as metal-injection molding parts made by Schunk Sinter Metals stand for reliability and confidence, for we live by the zero-defect philosophy. From the development stage, through production and all the way to quality assurance, we meet the highest standards of the automotive and aerospace industries. The sintered metal components manufactured with high precision stand for efficient, safe and environmentally friendly engines and drives.

03



04



### Sintered metal

03  
Helically cut output gear for electric parking brake

04  
Stator with chain wheel for camshaft adjuster

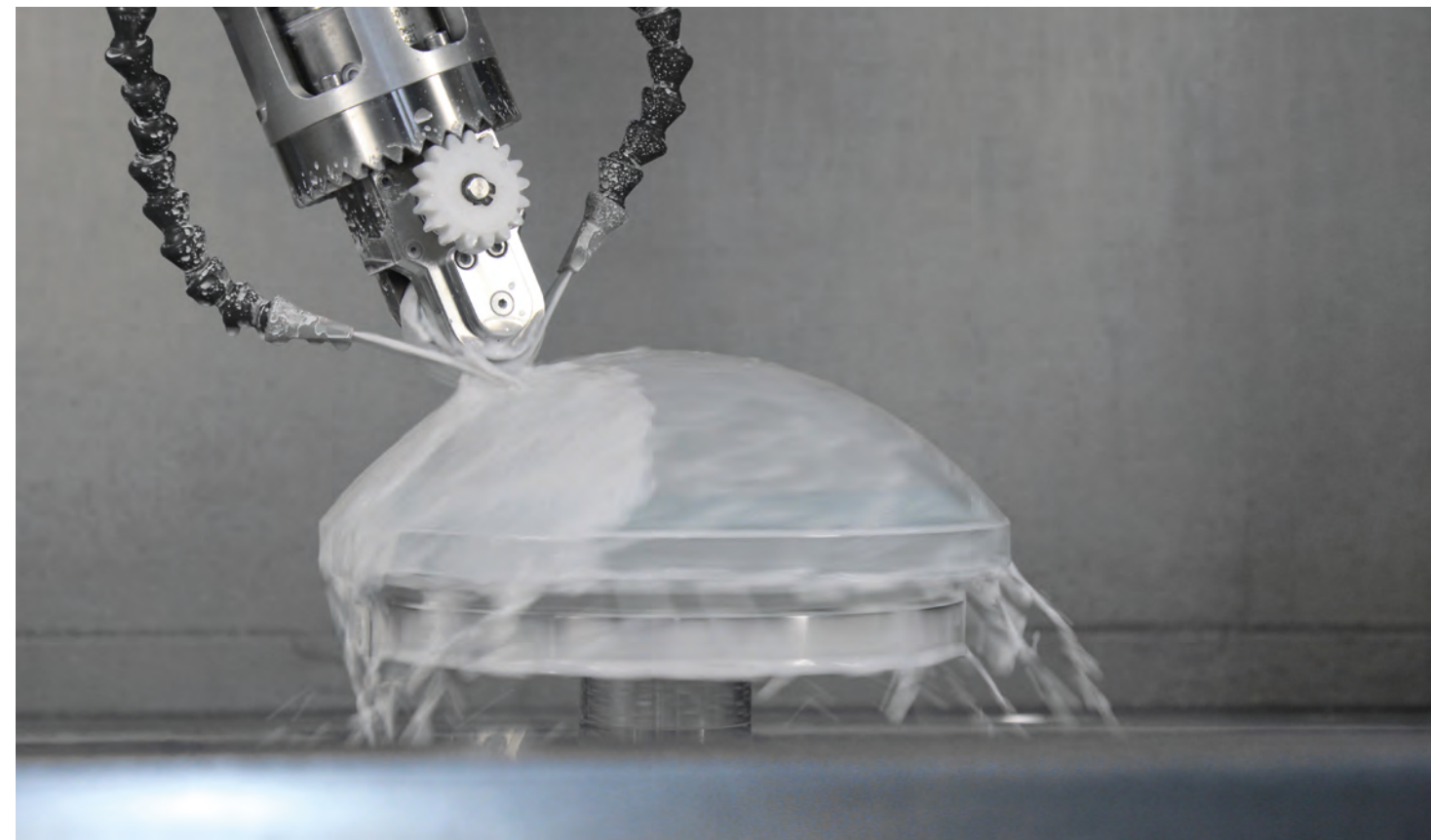






## Mechanical engineering - Innovative by passion

System solutions and components for all applications in the fields of environmental simulation, air conditioning technology, ultrasonic welding and photonics



### We work out the right solution for every task of our customers

Machines and systems from Schunk, **weisstechnik** and OptoTech are used around the world in research and development as well as in the production and quality assurance of numerous products. Our experts are ready to provide support to ensure high operational reliability of your systems.

Our specialized engineers in the field of environmental simulation, air conditioning technology, ultrasonic welding and optical machines, we support our customers even in the planning phase. We are familiar with the legal requirements, the practical needs and economic aspects which are needed to fulfil customers' individual requirements. With this know-how we develop targeted solutions for the individual needs of our customers.



Left Side:  
Emissions testing chamber with sunlight simulation and integrated roller dynamometer

Top:  
Polishing wheel for aspherical glasses

Bottom:  
OT clean-air canopy from weisstechnik for protecting patients and surgical staff



# Environmental simulation

**weisstechnik**, **vötschtechnik**, Climats and Cincinnati Sub Zero environmental simulation systems simulate a wide range of environmental influences in fast motion. Whether temperature, climate, corrosion, dust or combined stress testing: we have the right solution. We develop, produce and install systems in all sizes, from series production to customer-specific, process-integrated systems - for high reproducibility and precise test results. In the Fitotron product range, we also offer our customers innovative solutions that have been specially developed for scientific investigations in biological applications such as plant growth or insect culture.



01



02

Environmental simulation

Heat technology

01  
Climate test chamber ClimeEvent for environmental simulation tests

02  
Heat and drying oven HeatEvent

# Heat technology

Under the brand **vötsch**technik we offer a wide range of products in the field of heating technology. With an experienced team of engineers and designers we develop high-quality and reliable thermotechnical systems for almost every application. These include heating and drying cabinets, clean room dryers, hot air sterilizers, microwave systems and industrial furnaces. The product range extends from technologically sophisticated standard equipment to customer-specific solutions for individual production processes.

# Air conditioning technology

Air conditioning technology by **weisstechnik** is used wherever optimal climatic conditions for man and machine are required: in industrial production processes, in hospitals, mobile operation tents or in the field of information and telecommunication technology. As one of the leading suppliers of professional clean room, air conditioning and dehumidification systems, we deliver effective and energy-saving solutions and support our customers with sound expertise from the planning stage to the implementation of the projects.



03



04

Air conditioning technology

Clean air and containment

03  
CoolW@ll for energy-efficient air conditioning of data centres

04  
Safety workstation WIBObarrier economy

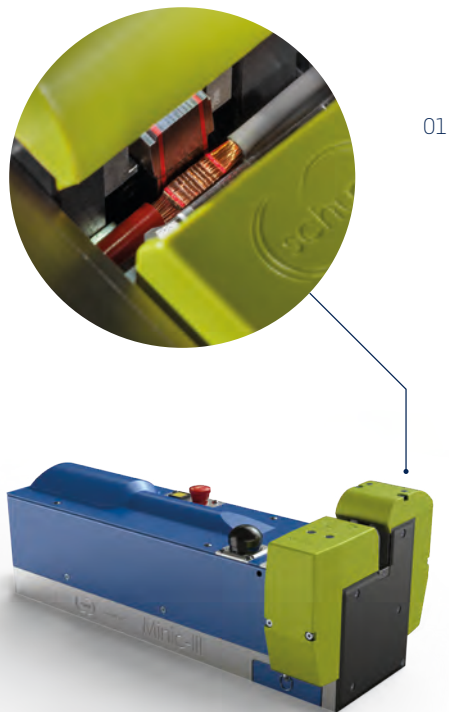
# Clean air and containment

Our sophisticated clean air and containment solutions are particularly appreciated by customers from the life science, pharmaceutical, chemical, cosmetics, food, electronics and medical technology industries. The product range of **weisstechnik** includes, among other things, systems for sampling, weighing and decanting, barrier systems, laminar flow systems, safety workbenches, isolators and air lock systems.



# Ultrasonic welding

Schunk is the worldwide technology and market leader for ultrasonic welding. The product range extends from welding systems for the cable harness industry to ultrasonic pipe welding tongs for the gas-tight sealing of cooling systems to complex special systems for the solar, electronics and semiconductor industries as well as for the manufacturing of batteries. Our systems are characterized by their flexibility of use, simple connection, low operating costs and comprehensive process monitoring. We offer our customers a comprehensive worldwide service for all system solutions: from standard ultrasonic welding machines to complex automation systems.



01



02

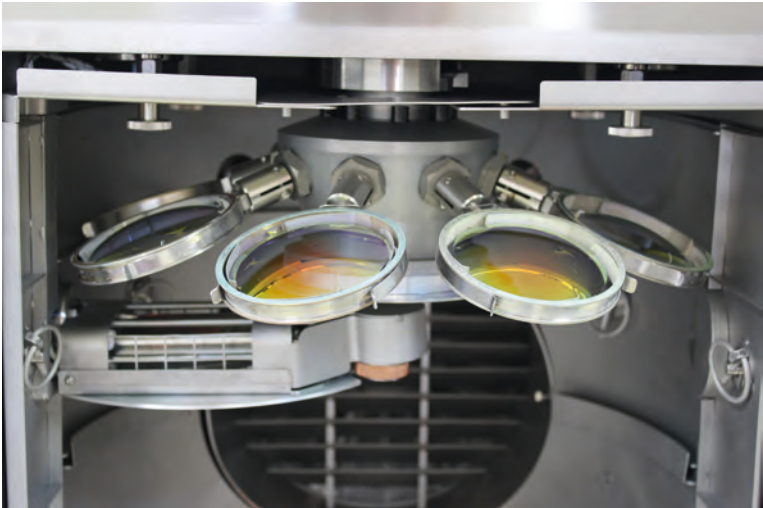
## Ultrasonic welding

01  
LS-C Universal welding system

02  
Minic-III wire welding machine

# Optical machinery

OptoTech, the optical machine manufacturer, is one of the technological and process engineering world market leaders in machines for processing fine and spectacle optics. The product range covers all production areas from supermicro-, micro- and macro- to plano optics and ophthalmic optics. OptoTech offers the complete production line from generating, edging/centering, polishing and measuring to finishing. In addition, OptoTech offers production solutions from surface processing to surface finishing.



03



04

## Optical machinery

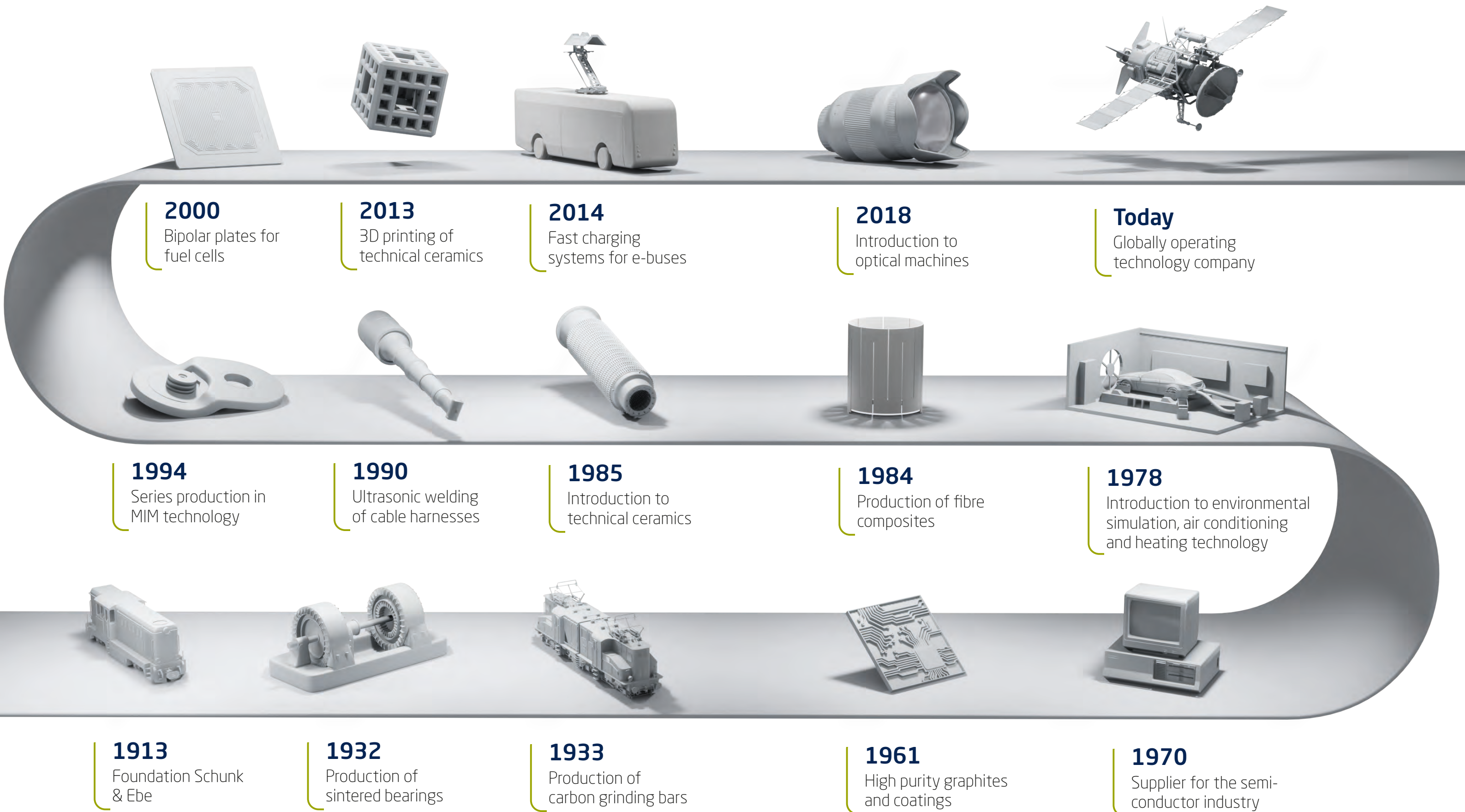
03  
Lenses with  
Mirror coating

04  
Grinding machine for  
precision-optical components



# A Schunk timeline

At Schunk, innovation is a tradition. Over 100 years of progress have made the company into a global player and, in many areas of business, a technology and global market leader. Over the decades, we have developed an infallible instinct for strong market trends and pioneering product innovation. Discover a selection of our most important milestones on this path.





Schunk  
Locations

Schunk  
Global

29

countries

5

continents

63

locations

>9100

employees





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