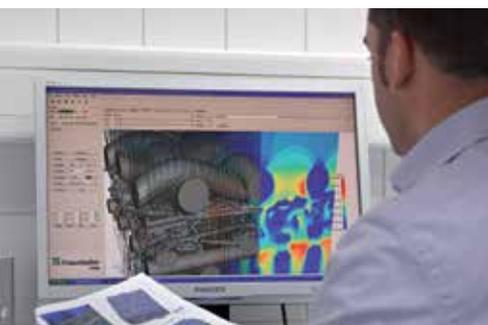
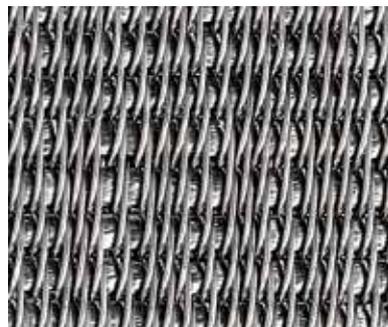
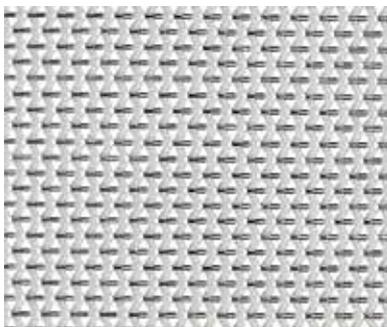
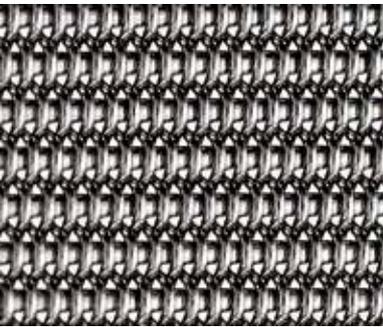


# TECHNICALLY IMPLEMENTING INNOVATIVE IDEAS





# INNOVATOR + WORLD MARKET LEADER

As a privately owned technical weaver, GKD-Gebr. Kufferath AG is the world market leader in metal, synthetic and spiral mesh solutions. Four independent business divisions bundle their expertise under one roof: **INDUSTRIAL MESH** (woven metal mesh and filter solutions), **PROCESS BELTS** (belts made of woven mesh and spirals), **METALFABRICS** (façades, safety and interior design made of metal fabrics) and **MEDIAMESH®** (transparent media façades). GKD continuously develops new fields of

application through its manufacturing technology and process expertise. We use GKD meshes to create efficient systems, equipment and components that are perfectly integrated into our customers' processes across all industrial sectors. GKD is active on the international stage from its headquarters in Germany, five further production sites in the US, South Africa, China, India and Chile, as well as branches in France, Spain, Dubai and representatives all over the world.



# PRECISE MESH + STATE-OF-THE-ART FILTRATION

**INDUSTRIAL MESH** stands for precise mesh made of metallic and plastic wires as well as technical fibres – ready for use in all industrial sectors. With these materials we develop and manufacture solutions for a wide range of industries and applications, including efficient mesh, components and filtration systems. We respond to ever shorter technology and demand cycles with continuous innovations. This long-standing process in development along with our process expertise and our consistent pursuit of an ideal value added ratio for our customers have made us the world's most sought-after partner in this area.

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## CORE COMPETENCIES

- CROSS-SECTOR APPLICATIONS
  - LEADING MANUFACTURING EXPERTISE
  - CONTINUOUSLY CERTIFIED QUALITY STANDARDS
  - PERFECTLY MATCHED PRODUCTS AND SYSTEMS
  - HIGHLY INNOVATIVE PERFORMANCE
  - CONTINUOUS ORIENTATION TOWARDS THE PROCESSES OF OUR CUSTOMERS
-



*Energy technology | Agroindustry | Petrochemistry and chemistry | Paper and cellulose industry | Food and drink industry | Automobile and vehicle manufacturing  
Plastics and polymer industry*

# CLOSE TO THE INDUSTRY + VERSATILE

Today, GKD mesh is fitted in complex technical systems for filtration, screening, ventilation, drying, purification or separation in numerous sectors all over the world. The industries we supply range from the food industry, the chemical, pharmaceutical, environmental and primary industries, classical machine and plant construction, the consumer goods industry, right through to the aerospace industry. GKD products

are therefore found in many of the process and production chains that affect our daily lives. In all industries we provide our customers with the very highest standard of consulting on the application of technical mesh. We always offer you the ideal products for the respective application. And what's more, all GKD employees possess many years of applications expertise spanning numerous industries and technologies.



*Aerospace | Mining and raw materials extraction | Shipbuilding | Pharmaceutical industry | Biotech | Medicine | Textile industry | Electrical industry | Environmental technology | Plant and mechanical engineering*

At GKD, we match every mesh to the requirements of our customers. In doing so, we are able to make use of a vast range of standard solutions, which we individually adapt to the respective application. This adaptability and our focus on solutions with an ideal value added ratio also make us a key player in niche markets.

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#### **APPLICATION EXPERTISE**

- HOLISTIC PRODUCT EXPERTISE
  - CROSS-SECTOR PROCESS KNOW-HOW
  - SYNERGIES FROM MANY YEARS OF EXPERIENCE
  - COURAGE TO DEVELOP NEW SOLUTIONS
  - COMPLEX INDIVIDUAL SOLUTIONS
-



*Micro mesh – manufacturing*

# MODERN PRODUCTION + CLOSE TO THE MARKETS

At six production sites around the globe we process all types of weavable materials and create customised solutions and products for various sectors. These facilities are spread across Germany (headquarters), the USA, Chile, South Africa, India and China, ensuring proximity to our customers. This proximity and our pinpoint logistics allow us to respond to the needs of our international customers promptly and flexibly at all times. Alongside proximity to the markets and in-house deve-

lopment, continuous investment in our production sites is another of GKD's commitments. With high-tech weaving and manufacturing equipment – most of which is developed in-house – we can realise the entire scope of industrial mesh and systems made from metal, plastic and technical fibres. We produce many of our products at our own sites while adhering to cleanroom standards.



*Equipment – prototype manufacturing*

#### PURPOSE-BUILT EQUIPMENT FOR OUR OWN PRODUCTION

A market leader that regularly designs technologically sophisticated systems or creates individual solutions for customers in niche markets is rarely able to simply employ standard equipment. This is why we at GKD mainly design and build our own equipment together with our partners. Only with this unique technology pool are we able to achieve our goal of creating versatile and high-quality mesh.

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#### **PRODUCTION EXPERTISE**

- PROCESSING OF ALL CONVENTIONAL MATERIALS
  - PROCESSING OF SUPERFINE WIRES FROM 16  $\mu\text{m}$
  - WEAVING WIDTH FOR FINEST MESH UP TO TWO METRES
  - WEAVING WIDTH FOR OTHER MESH UP TO SIX METRES
  - OWN PURPOSE-BUILT EQUIPMENT
  - JUST-IN-TIME MANUFACTURING
-



*Visual check prior to production release*



*Rapid prototyping*

# HIGH INNOVATION RATE + CLOSE COOPERATION

The continuous further development of our products is also reflected in GKD's rapid turnaround of innovative solutions. More than half of all the company's products are less than five years old. To achieve this high innovation rate, we at GKD have closely interlinked the entire process chain from the development of new products right through to production and quality control in our own laboratories. This enables our em-

ployees to utilise practical expertise from production and quickly integrate this into the continuous improvements implemented by our development department, thus allowing our customers to benefit from products of reproducible top quality. What's more, we have been successfully working together with renowned research institutions throughout the world for many years. And thanks to the use of the latest



*Simulation of loading requirements for meshes*



*Determining the flow data on the filter medium*

simulation software, we are also able to develop new products quickly and efficiently using rapid prototyping procedures. To guarantee top quality and to build on our market leadership in the future, we are continuously working on new technical meshes and filtration systems. Our customers can call on experienced GKD development and application engineers from the initial contact right through to the finished product and

beyond. Together with our customers, they define the detailed requirements of new meshes in order to then adapt tried and tested mesh types to the new requirements or alternatively design a new generation of meshes. During this process, modern simulations enable efficient, fast and cost-effective development even before the first mesh is woven in our pre-production.



SQUARE WEAVE



VOLUMETRIC WEAVE



OPTIMIZED DUTCH WEAVE



PLAIN DUTCH WEAVE



REVERSED PLAIN DUTCH WEAVE



REVERSED DUTCH TWILLED WEAVE



# EFFICIENT + ECONOMICAL MESH

The requirements placed on filtration meshes differ according to industry. We therefore adapt our products to individual requirements of our customers and continuously develop our products. Efficient and economical filter media are the result – whether as universally deployable products, components for series production or complex individual solutions. Volumetric mesh is an outstanding example of our innovative capacity in this area. On the basis of conventional square mesh we have created a new mesh with significantly increased volume porosity, permeability and minimised loss of pressure.

## MATERIALS

At GKD we produce a variety of high-quality industrial meshes based on metals, polymers and other sophisticated materials such as basalt, glass or ceramic. Depending on the respective requirements, we transform these materials into meshes, filters, filtration elements or wire mesh laminates using a precise and continuously reproducible process. Compound products are just as possible as high-precision mesh made of a single material. Over the last few decades, many of GKD's innovative product developments have since become industrial filtration standards.



DUTCH TWILLED WEAVE



GEKUPLATE



5-HEDDLE ATLAS WEAVE



TRIMETRIC WEAVE



POROMETRIC WEAVE



HYBRID WEAVE



MULTIBRAID WEAVE

#### WEAVE TYPES

The right weave type is at least as important for the quality, cost-efficiency and fitting accuracy of industrial meshes as the selection of materials. Our customers can place their trust in almost 100 years of experience in the manufacturing of industrial meshes: mixed constructions and multidimensional mesh structures are as conceivable as multilayer designs or mesh made from special alloys. The manufacturing of meshes under cleanroom conditions for special requirements is also a production standard at GKD.

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#### MESH EXPERTISE

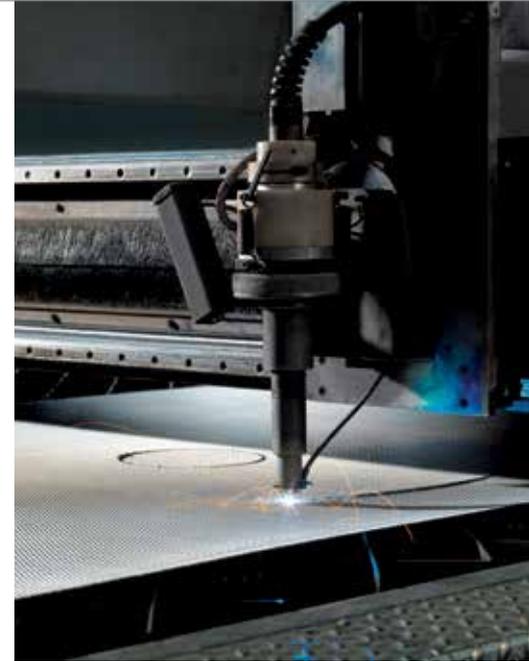
- CUSTOMISED PRODUCTS
  - SERIES OR CUSTOMISED PRODUCTION
  - FUNCTIONAL, EFFICIENT AND LONG-LASTING SOLUTIONS
  - BROAD, SOPHISTICATED RANGE OF MATERIALS
  - SINGLE-LAYER AND MULTIDIMENSIONAL FILTER MEDIA, MESH COMPOSITES AND LAMINATES
  - CROSS-SECTOR STANDARDS
-



*Surface treatment through calenders*



*Continuous thermal treatment*



*Plasma cutting*

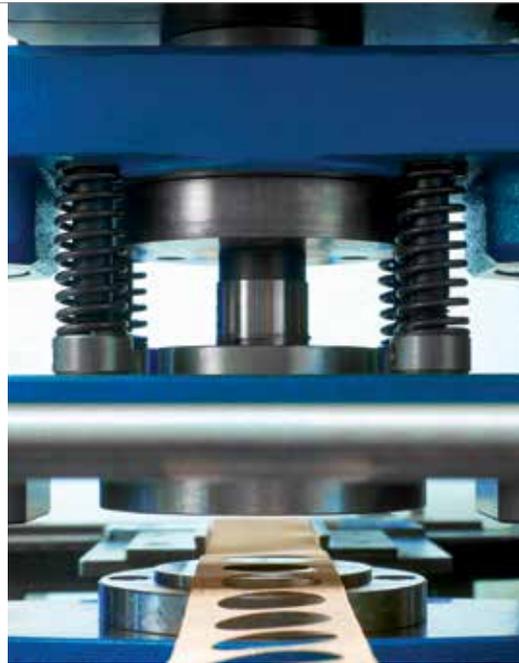
## OPTIMAL PROCESSING + PERFECT FINISHING

After weaving, 90% of all GKD industrial meshes undergo finishing operations or subsequent processing. This starts with cleaning in order to remove any foreign particles caused by the production process. We use thermal processes and coating to guarantee the desired material properties and mesh bond in the long term. The finishing phase is then rounded off by cutting and joining the mesh, a step that can be adapted according to the specific product. The result of all this is a reliable, durable and economical product for industry. These products either un-

dergo subsequent processing at GKD to create individual solutions or are delivered to our customers as semi-manufactured products. The ability to reliably integrate our products into all application processes is a matter of course for us at GKD. Alongside further processing of all meshes to create semi-manufactured or finished products for industrial deployment, we also create customer-specific products across all industries. As such, new components or modules are created quickly and efficiently on the basis of digital 2D and 3D models.



*Manufacturing of 3D components*



*Blank stamping*



*Continuous cleaning system*

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**FURTHER PROCESSING + FINISHING PROCEDURES (SELECTION)**

- COATING
  - JOINING
  - DEGREASING
  - INERT GAS ANNEALING
  - CALENDERING
  - MARKING SEAM JOINTS
  - GLUING
  - LASER CUTTING
  - SOLUTION ANNEALING
  - SOLDERING
  - PLASMA CUTTING
  - MECHANICAL CUTTING/STAMPING
  - CLEANING
  - SINTERING
  - WELDING
  - WINDING
-



*GKD filter plates*



*Process-specific cartridge filter design*

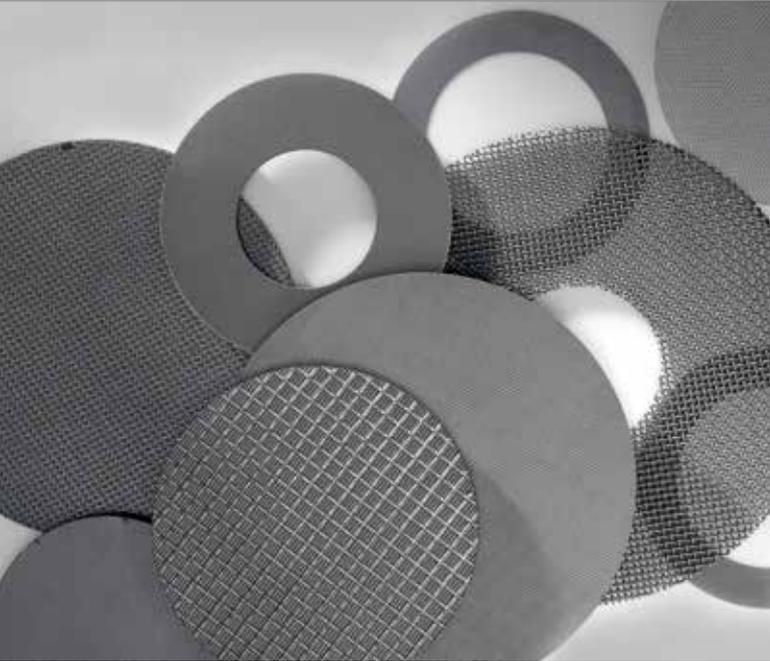
## TAILOR-MADE FILTER MEDIA + PRODUCTS

As well as manufacturing high-precision industrial mesh, GKD also focuses on immediately usable filter media for many fields of application. Whether horizontal pressure leaf filters, cartridge filters or one of the many other ready-for-use solutions: all systems are equipped with the versatile GKD meshes, making them a reliable and cost-efficient component in a large number of production processes the world over. In the manufacturing and finishing of industrial mesh, we also assemble ready-to-use products according to customer-specific requirements. Our customers thereby always benefit from high-quality filtration systems tailored to their processes.

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### PRODUCT EXPERTISE

- MODERN FILTER MEDIA
  - UNIVERSAL MESH STANDARDS
  - COMPLEX INDIVIDUAL SOLUTIONS
  - CERTIFIED QUALITY STANDARDS THROUGHOUT
  - PERFECTLY MATCHED PRODUCTS AND SYSTEMS
  - FUNCTIONAL, EFFICIENT AND LONG-LASTING SOLUTIONS
  - BROAD, SOPHISTICATED RANGE OF MATERIALS
-



*Stamped parts*



*Mesh strips as semi-manufactured product*

#### **APPLICATIONS / FILTERS**

(Selection)

Horizontal pressure leaf filters

Vertical pressure leaf filters

NeverLeak™ filter leaves

Cartridge filters

Disc filters

Spinneret filters

Drum filters

Centrifuges

#### **MARKETS**

(Selection)

- Chemical and pharmaceutical industry
  - Food and drink industry
- 
- Chemical and pharmaceutical industry
  - Food industry
- 
- Chemical and pharmaceutical industry
  - Food industry
- 
- Chemical and pharmaceutical industry
  - Food industry
  - Ballast water (shipbuilding)
- 
- Waste water treatment (environmental technology)
  - Mining
  - Paper and cellulose industry
- 
- Plastics industry
  - Textile industry
- 
- Waste water treatment (environmental technology)
  - Chemical industry
  - Plastics industry
  - Food industry
- 
- Chemical and pharmaceutical industry
  - Food and drink industry
  - Energy technology



*Reception inspection of raw materials*



*Visual check*

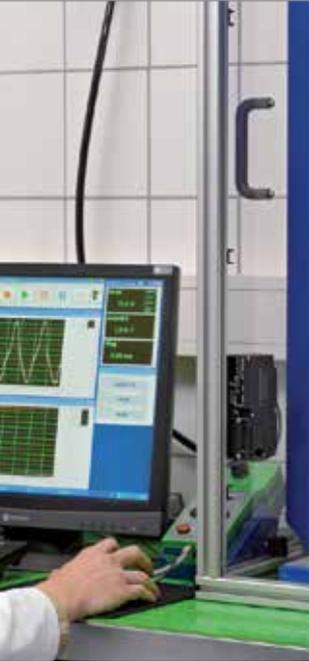


*Product monitoring*

## CONSISTENT QUALITY + UNIFORM STANDARDS

GKD also stands for constantly high and reproducible standards all over the world. This high production quality is the result of consistent GKD quality management. In order to respond more flexibly than other companies in today's globalised world, all our subsidiaries work to the same GKD standard. This allows our customers throughout the world to relax in the knowledge that they can always rely on the consistently high quality of all GKD products. Moreover, the standard also stipulates a responsible health and safety policy and sus-

tainable protection of the environment, as well as guaranteeing preservation of resources and constant cost optimisation. The GKD standard is based on seamless product and process monitoring. This begins with the complete checking of incoming raw materials and only ends when we have received feedback that all products also display the required properties in industrial use. If necessary we draw up customised inspection plans in close cooperation with our customers. And we are, of course, also certified to DIN EN ISO 9001:2008.



Checking mechanical values

Pre-delivery product inspection

**CERTIFIED GKD QUALITY**

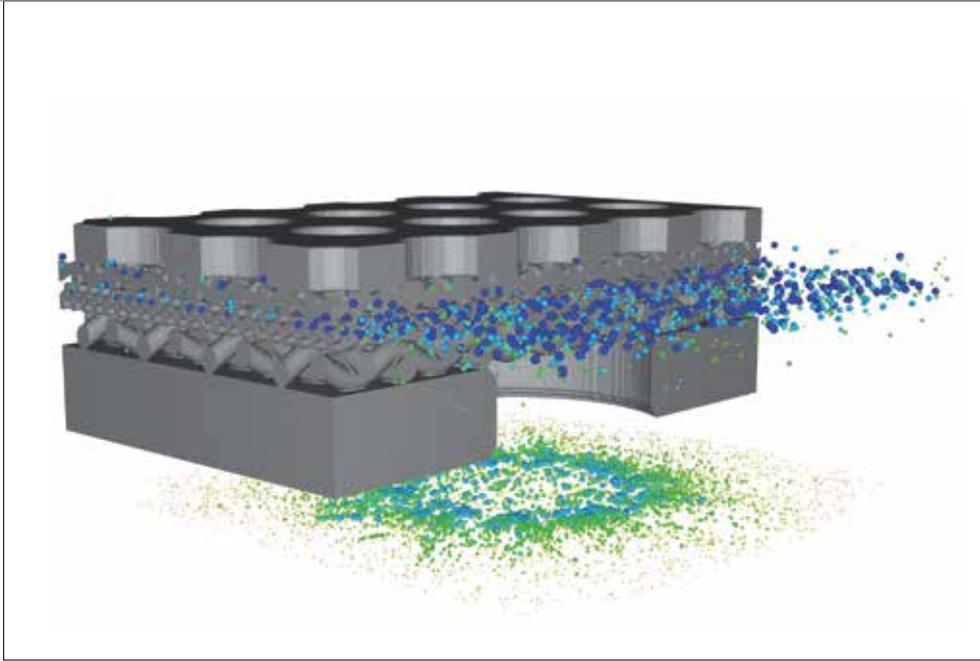
- DEDICATED STANDARDS FOR CONSISTENT PRODUCT QUALITY WORLDWIDE
- OPTIMAL REPRODUCIBILITY
- FULL TRACEABILITY OF ALL MATERIALS USED
- TRANSPARENT PROCESSES



**BG ETEM**  
 Energy textile electrics  
 media products  
 AMS certified company according  
 to VG and OHSAS 18001  
 reg.-No. 100199650000/147-1



*Process-relevant design of mesh geometry*

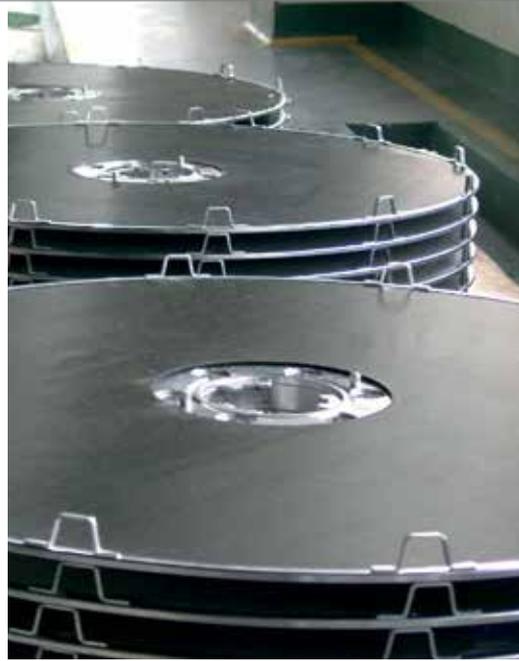


*Retention rate simulation of a multi-layered filter construction*

# VIRTUAL MODELS + REAL INNOVATIONS

GKD is not only the market leader when it comes to manufacturing technical mesh. In the development of new products, too, we break new ground with the advanced WeaveGeo software. This simulation environment reduces complex practical tests to a minimum when developing new meshes and filters. With WeaveGeo we model geometries of new or existing mesh – always adapted to the customer's individual process requirements. Using these virtual models, we employ CFD simulations to optimise the flow characteristics of cus-

tomers-specific set-ups and framework conditions. We can display and specifically modify crucial parameters such as porosity, filtration efficiency, permeability or maximum pore size. The result is a computer-modified mesh which in practical tests behaves in a virtually identical manner to that predicted during the modelling process. WeaveGeo is the efficient and already proven basis upon which existing products or new meshes are precisely matched to the individual requirements of our customers faster and more efficiently than ever before.



*On-site customer service*

# REAL + RELIABLE CUSTOMER PROXIMITY

Service is how we realise our closeness to customers – in a procedural, geographical and personal sense. We want to understand our customers' processes in order to improve them still further and continuously optimise them with our products. Geographically we are close to markets worldwide – with state-of-the-art logistics systems and just-in-time deliveries. We personally support our customers on-site from the definition of requirements right through to performing maintenance work. In doing so, we pursue clear goals: innovative products, reliable quality and an optimum value added ratio. After all, we don't just see ourselves as an efficient supplier, but also as a partner to our customers.

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## **SERVICE STANDARDS**

- PERSONAL CONTACT
  - WORLDWIDE NETWORK
  - REGIONAL CLOSENESS
  - DEFINED RESPONSE TIMES
  - OPTIMISATION OF EXISTING SYSTEMS
  - INTEGRATED LOGISTICS
-

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