GKD **INDUSTRIAL** MESH

FILTER MEDIA + COMPONENTS FOR THE **AUTOMOTIVE INDUSTRY**

Volumetric mesh

TECHNICAL WEAVERS FOR INDUSTRY AND ARCHITECTURE

As a privately owned technical weaving mill, GKD - Gebr. Kufferath AG was founded in 1925 and is the global market leader for metallic mesh, synthetic mesh, and spiral mesh solutions. With innovative manufacturing technology and massive process expertise, GKD continuously taps into new fields of application for its high-grade meshes and develops efficient systems and components that are optimally integrated into the customer process.

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
- **METAL**FABRICS: façades, safety and interior design made of metal fabrics
- **MEDIA**MESH®: transparent media façades

Filter components

WORLDWIDE EXPERTISE

Many well-known vehicle manufacturers and suppliers rely on GKD both as a development partner and series supplier of metallic mesh components. GKD meshes are used for reliable filtration of various substances, such as oil, coolant, fuels and exhaust gases. The meshes are also used in the field of energy storage and for EMI shielding. Our vast cross-sector expertise and experience really come to the fore here. With plants in Germany (HQ), USA, Chile, South Africa, India, and China, as well as worldwide branches and agencies, we are never far from the market. This global positioning allows us to offer reproducible standards and services on which our customers can rely.

1./2. EGR filter, 3. POC filter

GAS FILTRATION

In developing new exhaust gas systems, the automotive industry is facing an important challenge: how can both consumption and CO2 emissions of motor vehicles be further reduced at the same time? Our answer is Volumetric mesh, which we developed in-house for exhaust gas after-treatment (EGR filters/POC). Our mesh protects downstream components from damage here. In addition to this, our filter media for protection from particles are used in combustion chambers and gas tanks.

We use the innovative Volumetric mesh, as well as the proven square meshes or 5-heddle weave pattern meshes (TELA) to produce durable filter media, finished parts, strips, stamped parts, and mesh cylinders. It is also possible to use different mesh materials and produce the mesh in defined cleanroom conditions without any issues.

APPLICATIONS:

- Exhaust gas recirculation (EGR filters)
- Exhaust gas filtration (POC filters)
- Airbags
- Gas generators

FILTER MEDIA:

- Volumetric mesh
- Square mesh
- TELA mesh

SEMI-FINISHED PRODUCTS, 2D AND 3D COMPONENTS:

- Mesh strips
- Stamped parts
- Machined parts

ADVANTAGES:

- High throughput performance
- Low pressure loss
- Precise filtration rates
- Temperature-resistant materials
- Media-resistant materials
- Low space requirement

1./.2 Oil filter, 3. Injection filter

LIQUID FILTRATION

Durable liquid filters have many uses in modern vehicles. We therefore offer you a wide range of filter media, which are always tailored specifically to the various intended applications and deliver the best results. As we use the latest machines to produce our mesh, the finest filtration results and high throughputs are possible even with reduced filtration areas. Alongside square mesh, optimized dutch weave has also proven particularly useful for this in the field of liquid filtration due to its precise filter opening and high throughput. In addition, all GKD meshes benefit from temperature resistance, low pressure loss, resistance to foreign substances, and durability. We can also supply the meshes as DKS strips. Our production operations are aligned precisely to your require-ments. Use of various mesh materials and production under defined cleanroom conditions are also possible without any issues.

APPLICATIONS:

- Injection systems
- Valve train
- Transmissions
- Hydraulic systems

FILTER MEDIA:

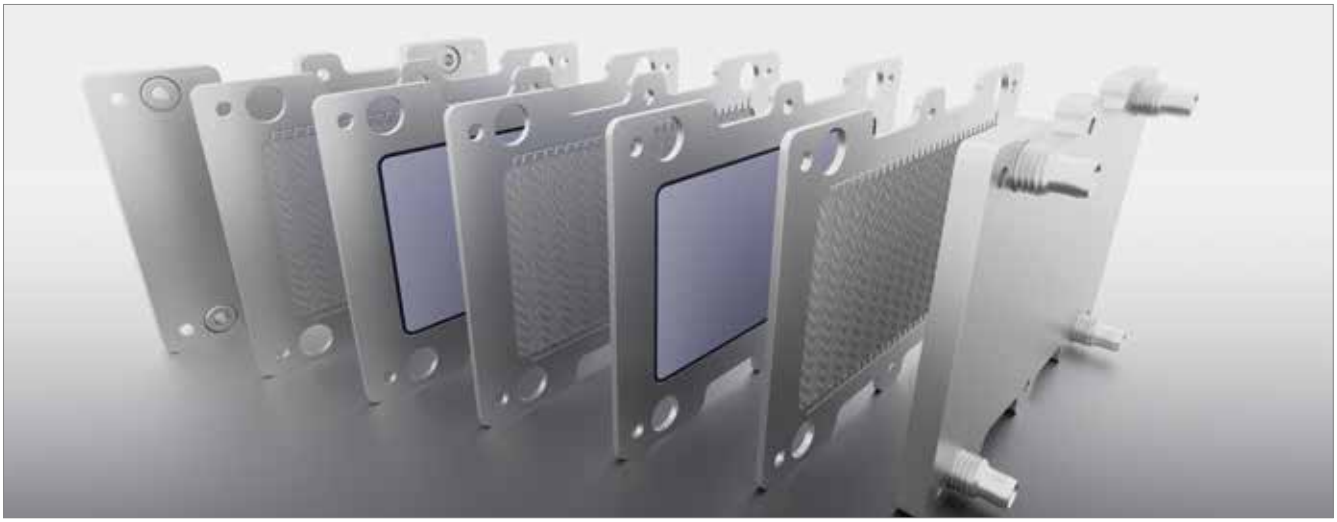
- Optimized dutch weave
- Porometric mesh
- Square mesh
- TELA mesh

SEMI-FINISHED PRODUCTS, 2D AND 3D COMPONENTS:

- Mesh strips (DKS)
- Stamped parts
- Machined parts
- Extruded machined parts

ADVANTAGES:

- Large dirt holding capacity
- Low pressure loss
- Precise filtration rates
- Temperature-resistant materials
- Media-resistant materials
- Low space requirement



Fuel cells - stack

ENERGY STORAGE

Our specially developed metal meshes are used in numerous batteries. GKD meshes made of nickel alloys are used as both the anode and cathode in the various fuel cell types for converting chemical energy into electricity. The deployment options of our meshes for battery and fuel cell technology are diverse: from thermal transfer pads or thermal conductivity media, through mechanical support for electrodes or membranes, all the way up to current collectors, drainage pipes, and retention structures.

APPLICATIONS:

- Fuel cell
- Battery

FILTER MEDIA:

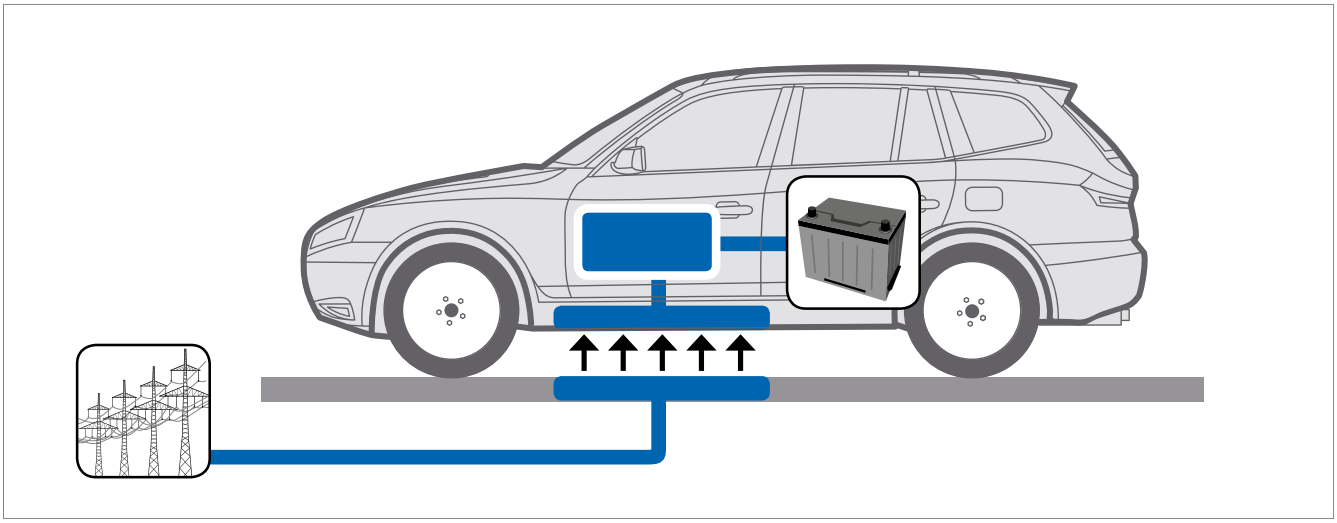
- Square mesh
- TELA mesh

SEMI-FINISHED PRODUCTS, 2D AND 3D COMPONENTS:

- Mesh strips (DKS)
- Stamped parts
- Machined parts

ADVANTAGES:

- Low pressure loss
- Precise filtration rates
- Temperature-resistant materials
- Media-resistant materials
- Conductive materials



Shielding

EMI SHIELDING

Due to their sensitivity to external electromagnetic radiation, electronic systems require the best possible shielding. Our meshes not only guarantee reliable shielding from external influences, they also significantly reduce radiation emissions from electronic or high-energy systems. Due to the rapid development of electromobility and the ever shorter charging times associated with this, focus is increasingly shifting towards protecting people from electromagnetic radiation. Transparent, easily malleable media can be produced using our wire meshes made from conductive metals. These are also easy to install. An effective Faraday cage is created through careful connection to the surrounding ground potential. Depending on the frequency of the respective radiation, shielding capacities of up to 60 decibels (1:1,000,000) can be achieved. For optimized shielding effectiveness, our metal meshes have increased specific conductivity. Stainless steel, aluminum, bronze, and copper can be used here.

APPLICATIONS:

- Electronic systems

FILTER MEDIA:

- Square mesh

SEMI-FINISHED PRODUCTS, 2D AND 3D COMPONENTS:

- Mesh strips (DKS)
- Stamped parts
- Machined parts

ADVANTAGES:

- Transparency
- Formability
- Media-resistant materials
- Conductive materials

Micro mesh – manufacturing

FURTHER PROCESSING + FINISHING

Our customers have strict requirements of our products. As a global market leader in the production of technical weave, we have repeatedly extended our portfolio of potential further processing steps over time as a way of adjusting our product portfolio increasingly effectively to the requirements of our customers – without having to involve additional partners. Starting with production-related processes to clean our products and moving through many different forming and joining processes, all the way up to thermal treatment to change various material properties. Should your requirements ever go beyond the limits of what we can achieve in-house, we are happy to bring in external experts. After all, our objective is always satisfied customers that can use our products directly in the respective production environment as semi-finished materials thanks to their high integration capacity. Our team is obviously also available to answer any questions you may have with regard to process integration.

Component manufacture

PROCESSING AND FINISHING PROCEDURES (SELECTION)

- DEGREASING
- CLEANING
- COATING
- BONDING
- SINTERING
- WELDING
- SOLDERING
- SOLUTION ANNEALING
- ANNEALING WITH THE SHIELDING GAS PROCESS
- WINDING
- CALENDERING (ROLLING)
- MECHANICAL CUTTING/STAMPING
- LASER CUTTING
- PLASMA CUTTING
- MARKING SEAMS
- PLASTIC OVERMOLDING
- DKS

Simulation (CFD, FEM)

RESEARCH + DEVELOPMENT

So that we can also continue meeting the requirements of our customers in the fastest and most results-oriented way possible in future, our Research department investigates concrete problems faced in and around metallic fabric/mesh, as well as its application, and provides the basis for development of new products. Thanks to rapid prototyping in the form of multiple 3D printers and special software for simulating meshes, we are capable of creating innovative solutions that stand up to real-world use. The direct connection to our laboratory facilitates direct verification of simulation results. The technical and scientific expertise is available to the entire team and also our customers.

- NEW DEVELOPMENT OR MODIFICATION OF MESHES
- RAPID PROTOTYPING
- SIMULATION (CFD, FEM)
- TECHNICAL SUPPORT
- FAILURE ANALYSIS

Physical-technical laboratory

LABORATORY + QUALITY ASSURANCE

Our physical-technical laboratory offers you top level services. You benefit from testing expertise, vast experience also in the scientific arena, as well as from our company-wide knowledge transfer. Beside physical and chemical tests, professional specialists use the latest laboratory equipment to perform a large number of product-related tests here. The focus is always on securing consistently high product quality. GKD is also certified to DIN EN ISO 9001, which allows seamless traceability of all products tested.

- MECHANICAL, PHYSICAL, AND CHEMICAL TESTING
- INCOMING GOODS CHECKS
- MESH/FABRIC TESTS
- TESTS FROM THE FIELD OF FILTRATION

Umweltmanagement ISO 14001 · Qualitätsmanagement ISO 9001 · Energiemanagement ISO 50001

BG ETEM
Energy textile electrics media products

AMS-certified company
in accordance with VG and OHSAS 18001
reg.-No. 100199650000/147-1

WORLD WIDE WEAVE

GKD-USA, INC.
825 Chesapeake Drive
Cambridge, MD 21613
USA
T +1 410 221 0542
F +1 410 221 0544
sales@gkdusa.com
www.gkdusa.com

GKD - GEBR. KUFFERATH AG
Metallweberstrasse 46
52353 Düren
Germany
T +49 (0) 2421 803 - 0
F +49 (0) 2421 803 - 233
industrialmesh@gkd.de
www.gkd.de

GKD FRANCE
Office Croisilles (near Paris)
Sophie Gautier
28210 Croisilles
France
T +33 (0) 672 18 40 75
sophie.gautier@gkd.de
www.gkd.fr

FINSA ARQUITECTURA, S.L.
Joan Monpeó 144
08223 Barcelona
Spain
T +34 93 786 1861
F +34 93 785 8359
finsa@finsa-arquitectura.com
www.finsa-arquitectura.com

GKD LatAm S.A.
La Estera 418
Lampa, Santiago
Chile
T +56 2 2489 1040
F +56 2 2489 1031
info@gkd-latam.com
www.gkd-latam.com

GKD MIDDLE EAST
Office 1308 Fortune Tower
Jumeirah Lakes Towers
P.O. Box 112410
Dubai
United Arab Emirates
T +971 4 375 70 70
F +971 4 427 04 20
dubai@gkd.de
www.gkd-middle-east.com

GKD GROUP SOUTH AFRICA:
GKD BUISMET (PTY) LTD.
GKD MANUFACTURING AND SERVICES (PTY) LTD.
GKD MINING AND INDUSTRIAL SERVICES (PTY) LTD.
18 Fiat Street
Randfontein
South Africa
1759
T +27 (0) 11 696 80 00
F +27 (0) 11 412 48 23
gkdrsa@gkd.co.za
www.gkd.co.za
P.O. Box 6175
Greenhills
South Africa
1767

GKD INDIA LTD.
52, Industrial Area Jhotwara
Jaipur - 302012, Rajasthan
India
T +91 141 710 51 00
F +91 141 710 51 99
query@gkd-india.com
www.gkd-india.com

GKD (QUFU) IND. TECHNOLOGIES CO., LTD.
West end of Changchun Road
West Economic Development Zone
Shandong Province
Qufu, Jining, 273100
China
T +86 537 453 05 68
F +86 537 453 05 69
gkd@gkd-china.com
www.gkd-china.com

GKD (BEIJING) IND. TECHNOLOGIES CO., LTD.
(SALES SERVICE)
Room 2619, Building 1
North Pearl Building, No.188
Litang Road, Dongxiaokou Town
Changping District
Beijing 102218
China
T +86 10 516 596 18
F +86 10 568 200 81
gkd@gkd-china.com
www.gkd-china.com

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