COLOURS + SURFACES
COATED, VARNISHED, BLASTED, ANODISED AND PRINTED METALLIC MESH
The Bauhaus school inspired a purism that made white the ubiquitous colour in architecture. Here it was highly common to work with white surfaces; if any additional colour was needed, only grey would be considered. However, modern architecture is an altogether more colourful affair – in order to portray functionalities, represent dynamic change and innovation or forge a connection to nature and the environment. Colour does not have to be bright; rather, the emphasis lies on bringing together colour and form and combining them to form a unit. In modern architecture, colour has become a material – signalling the end of a colourless era. Metallic mesh was discovered as a colourful and functional design element in architecture around twenty years ago. The project of the Bibliothèque Nationale de France in Paris in the 1990s was the first of its kind. Together with GKD – GEBR. KUFFERATH AG, Dominique Perrault developed deployment options for metallic meshes in the architecture and design fields. Since then, GKD has introduced architectural meshes to a wider range of applications worldwide. The company’s innovative capacity and quality are based on decades of experience in manufacturing technical meshes for filtration and separation technology as well as process belt technology.
GKD is the world market leader in this field. Alongside a striking visual effect, metallic meshes also offer an impressive array of functional advantages. Some buildings require an outer shell that permits air transmission – e.g. multi-storey car parks or stadiums – require ventilation. On other buildings, large glass surfaces need to be protected from the sun, driving rain, wind or passers-by looking in. Elsewhere, a connecting outer shell is desired in order to lend surfaces a sense of homogeneity. The robust, high grade metallic mesh is perfect for all these fields of application. Mesh types developed specially for architecture, design and function are manufactured from cables and wires, which are predominantly made of stainless steel, although other metals such as copper, bronze and aluminium are also used. Different mesh types offer different degrees of penetrability and reflectance, which vary strongly in terms of effect and colour on the building according to lighting and weather. These enable the creation of virtually invisible facades. Depending on the location, coloured coatings produce different impressions and external appearances. A continuous process allows GKD to apply special colour-true varnishes to metallic meshes – with flat and also round wire types.

* Further information on this issue is available from our brochure „Solar protection with metal mesh“.

The colour samples illustrated in this brochure are not necessarily true reproductions.
COLOURED METALLIC MESH

Coloured metallic meshes open up a wide range of colourful architectural textures for planners. GKD uses a special continuous process for colour-coating both flat and round wires. During this continuous process, high-grade special varnishes are applied and heated to create a powerful bond. The continuity of the process allows any quantity of wires to be permanently colour-coated and, depending on the mesh, enables dimensions weavable by GKD of up to 8 metres and virtually any length to be realised. Stress tests carried out by an independent institute guarantee the durability of the material.

Spiral and cable meshes can be coated in a variety of stylish colours: black, white, red and gold are available as standard, and custom colours, i.e. any RAL colour, are also available to anyone ordering large quantities. Practical analysis methods can be implemented for assessing colour accuracy. Other influencing factors such as the background, viewing distance and viewing angle as well as lighting and light reflections on the mesh have a particularly significant effect on the structure and mounted object. The influences can be further strengthened through these effects and constantly changing light conditions, such as daylight with varying sun positions and cloud cover, or artificial light from different light sources.

*1 The colour samples illustrated in this brochure are not necessarily accurate.
TYPES OF MESH:
Cable mesh: Baltic, Lamelle, Lago, Omega, Sambesi, Tigris (only wire is coated, cables remain uncoated); spiral mesh: Escale 5x1, Escale 7x1 (only spirals are coated, connecting wires remain uncoated); PC mesh: PC Omega (all wires are coated). The maximum diameter of stainless steel wires that can be coated is 3 mm. The maximum diameter of aluminium wires that can be coated is 4 mm (for Escale 5x1 in aluminium).

DIMENSIONS:
All weavable dimensions

POSSIBLE COLOURS:
See left-hand flap (slight colour variations are possible)

SUITEABLE MATERIALS:
Stainless steel and aluminium

APPLICATIONS:
Suitable for both indoor and outdoor applications
During this process, wet varnish is sprayed onto the workpieces using spray guns. This allows an even coating of the mesh with a high surface quality. As well as using the colours of the Natural Colour System® (NCS), it is also possible to analyse individual colour samples from the customer and reproduce them as varnish. Furthermore, the comprehensive range of colours used by the automobile industry can be used to produce metallic effects. Wet-coated meshes are suitable for both indoor and outdoor applications.

Mesh: Omega 1540 with coated logo, project: RAIKA Bruck, architect: Architekturbüro Tschom

PAINTED METALLIC MESH
WET COATING PROCESS

In wet coating, ready-cut meshes are subsequently coated using a paint spraying process. Primarily PC mesh with a size of up to 6 x 2.50 m can be completely coated on one or both sides using this procedure.
ETCHING

ABLATION PROCESS

Etching is a process that transfers graphic elements onto a metal surface. Because the graphic elements are etched directly into the surface, it is weather-resistant, durable, and fade-resistant. The result is stunningly attractive and unique.

Presenting a high quality image, these etched material fabrics also preserve the transparency elements. Daylight comes through and can be seen; add lighting and the effects are endless. The etching process begins with graphic files created in an AutoCAD program. These files are used to create masks which are then transferred onto grids and applied to the metal fabric for etching. Almost any design can be etched using this process. Results are unique and artistic, with appearance changing as the viewing and lighting angles change and as daylight yields to night.

TYPES OF MESH:
Relatively dense mesh types are best suited, for example Omega 1510 or Omega 1520

DIMENSIONS:
All weavable dimensions up to 7.80 m wide

APPLICATIONS:
Suitable for both indoor and outdoor applications
Similarly to the continuous procedure, the batch process is also an electrochemical process for creating a protective layer on the aluminium wires. However, this method differs in that it is only suitable for comparably rigid mesh types. The interwoven material is divided into mesh sections and immersed in individual tanks, where the divided and preassembled panels undergo various coating stages in a static tank system.

As is the case in the continuous process, the mechanical or chemical pre-treatment is retained: the aluminium parts are degreased and stained. For this purpose the thin, natural oxide layer of the aluminium is removed and a clean, matt, smooth surface is created. After further cleaning steps, the aluminium parts can then be coloured using a special batch procedure. The protective mechanisms for the treatment are the same here as for the continuous coating process and can be further reinforced by adding additional layers. What’s more, the oxide layers created can also be given highly individual properties with the selection of different electrolytes and bath parameters such as temperature, aluminium content, etc. This allows us to meet a wide range of customer requirements.

* The colour samples illustrated in this brochure are not necessarily true reproductions.
TYPES OF MESH:
Escale 5x1, Escale 7x1, ALU 6010, ALU 3540, Omega (only the aluminium wires can be anodised), Tigris (only the aluminium wires can be anodised, 4 mm wire diameter required for reasons of stability)

DIMENSIONS:
In accordance with the maximum tank size: 6.50 x 1.45 m

POSSIBLE COLOURS:
See left page, Variations in colour are unavoidable due to production processes.

Applications* 1:
Suitable for both indoor and outdoor applications

Mesh: ALU 6020, anodised in gold, project: Cour de Justice, Luxembourg, architect: Dominique Perrault Architectes

MESH TYPE: ALU 6010
OPEN AREA: 45.7%
WEIGHT: 2.5 kg/m²

MESH TYPE: PC Omega 1520 in aluminium
OPEN AREA: 50.6%
WEIGHT: 2.25 kg/m²

MESH TYPE: PC Tigris in aluminium
OPEN AREA: 36%
WEIGHT: 2.40 kg/m²

* 1 Outdoor applications: The combination of aluminium / stainless steel can lead to contact corrosion
COLOURS + SURFACES

The paint is applied on the mesh by a template on a frame; the paint hardens under UV light. Areas which are not to be printed are covered by the template. The desired print motif is thereby reproduced on the surface of the metal. This process creates a very thick paint layer, making screen-printed meshes perfect for indoor and outdoor applications. Prints with a maximum dimension of 4 m of width and 20 in length can be applied to the mesh in a single process.

Complex graphics on metallic meshes in outdoor deployments – such as facades – are applied using the screen printing technique. Depending on the application, the print format ranges from a few centimetres to several metres. One advantage of screen printing lies in the ability to vary the colour application by using different grades of mesh fineness. This results in very thick paint layers – five to ten times thicker than other printing methods.

PRINTED METALLIC MESH
SCREEN PRINTING PROCESS

Mesh: Omega 1505 with screen print, project: Liverpool Catholic Club, Australia, architect: Wood & Day Partnership
TYPES OF MESH:
Flat and dense mesh types are best suited, for example Omega 1510, Omega 1520, Lamelle, Lago, Kiwi or ALU 6010

DIMENSIONS:
Max. 4.00 m wide x approx. 10.00 m long

POSSIBLE COLOURS:
All colours can be printed. As blended colours cannot be printed, screen printing is more suited to full-surface graphics.

APPLICATIONS:
Suitable for both indoor and outdoor applications

Mesh: Baltic, project: Bulthaup, Seoul, architect: San Architects

MESH TYPE: ALU 6010
OPEN AREA: 45.7%
WEIGHT: 2.50 kg/m²

MESH TYPE: Kiwi
OPEN AREA: 37.2%
WEIGHT: 2.30 kg/m²

MESH TYPE: Lago
OPEN AREA: 44%
WEIGHT: 6.80 kg/m²

These meshes are only an exemplary selection; more types are available (see TYPES OF MESH).
Alongside the various methods for printing solid coloured mesh surfaces, UV direct printing allows complex graphics and even photographs with fine colour gradients to be printed onto meshes. Thanks to its structure and surface, the printed mesh is generally wind-permeable and robust in all weather conditions regardless of the weave type.

The digital printing process can be used to print mesh sheets up to 2.50 metres wide and 20 metres long. The motif is applied to the surface of the mesh using a large-format printer and is then immediately hardened with ultraviolet light. Therefore, the ink does not dry out through the ambient air – as is the case on paper – but is rather hardened immediately after its application. With mesh types such as Omega, Lamelle or Lago this produces impressive results. If the motif to be printed has a white background, the mesh surface is printed white in the first printing pass and the actual motif is applied in a second pass. GKD uses metallic mesh printed using a digital printing process solely for indoor applications. UV technology produces the best matt or glossy effects or a combination of the two.
WHICH GRAPHICS OR PHOTOS CAN BE PRINTED?

All graphics and photos can be printed providing the following conditions are met:

Software up to following version:

<table>
<thead>
<tr>
<th>Software</th>
<th>up to version</th>
<th>vector</th>
<th>pixel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adobe Photoshop</td>
<td>CC</td>
<td>-&gt; not available</td>
<td>*.psd, *.jpg, *.tiff</td>
</tr>
<tr>
<td>Acrobat X Pro</td>
<td>CC</td>
<td>-&gt; not available</td>
<td>-&gt; not available</td>
</tr>
</tbody>
</table>

Images must always be saved and used in CMYK, greyscale or bitmap mode. The image resolution should be 150 dpi for a 1:1 placement for CMYK and greyscale. Files with the CMYK, RGB or LAB colour spaces can be provided.

TYPES OF MESH:
Flat and dense mesh types are best suited, for example Omega 1510, Omega 1520, Lamelle, Lago, Kiwi or ALU 6010

DIMENSIONS:
Max. 2.50 m wide x approx. 20.00 m long, ALU 6010
Max. 3.00 m x 2.50 m

POSSIBLE COLOURS:
All colours excluding white can be printed in a single process. If a white background is desired, this has to be applied in a separate printing pass prior to the main printing process. If the colour white is not printed in an extra pass, all „white“ areas remain unprinted, producing a stainless steel look.

APPLICATIONS:
Suitable for indoor applications. Not recommended for outdoor applications.

Mesh: Omega 1510 with screen print, project: Billiton Perth, Australia, architect: Hassell Studio
GKD – GEBR. KUFFERATH AG
Metallwebstraβe 46
52353 Düren
Germany
T +49 (0) 2421 803 - 0
F +49 (0) 2421 803 - 227
creativeweave@gkd.de
www.gkd.de

GKD - GEBRÜDER KUFFERATH AG
As a privately owned technical weaving mill, we are the world market leader in woven solutions made of metal and plastic. Under the slogan GKD – WORLD WIDE WEAVE, our company groups four independent business divisions: SOLIDWEAVE (industrial mesh), WEAVE IN MOTION (process belt mesh), CREATIVEWEAVE (architectural mesh) and COMPACTFILTRATION (compact filtration systems). GKD continuously develops new fields of applications with manufacturing technology and process expertise. We use GKD meshes to create efficient systems, equipment and components integrated perfectly in the customer’s process across all industry sectors. With seven plants in Germany (headquarters), USA, United Kingdom, South Africa, China, India and Chile, GKD is close to the markets all over the world. More subsidiaries and worldwide representatives are also available to our customers in France, Spain, Dubai, Qatar and elsewhere.

BUSINESS DIVISION: CREATIVEWEAVE
Under the CREATIVEWEAVE brand GKD combines over twenty years of experience with a wide variety of architectural and design meshes. The scope of application is characterised by outstanding aesthetic and functional features: facades are transformed into shimmering building shells, that become sun protection systems with an improved energy balance or semi-transparent wind and rain filters. Sound-absorbing ceilings systems with improved room acoustics, semi-transparent room dividers structure areas and media facade systems project colour transitions or high-resolution content onto facades day and night. Alongside custom manufacturing, GKD offers system components that comply with standards. Since the beginning of the 1990’s GKD has become a growing force in internationally outstanding architectural projects. designers benefit from the company as a creative source of inspiration and a technical innovator.

GKD - PRODUCTS AND SERVICE CLOSE TO OUR CUSTOMERS, ALL OVER THE WORLD.

01 GKD GERMANY, Düren (HQ)
02 GKD UK, North Yorkshire
03 GKD FRANCE, La Roque d’Anthéron
04 GKD SPAIN, Barcelona
05 GKD USA, Cambridge, MD
06 GKD LATIN AMERICA, Santiago de Chile
07 GKD SOUTH AFRICA, Randfontein
08 GKD INDIA, Jaipur
09 GKD CHINA, Beijing
10 GKD MIDDLE EAST, Dubai
11 GKD MIDDLE EAST, Doha