METAL FABRICS
FOR ARCHITECTURE +
DESIGN

GKD METALFABRICS

COLORS + SURFACES

COATED, VARNISHED, BLASTED, ANODIZED AND PRINTED METALLIC MESH

AGAINST DRABNESS

The Bauhaus school inspired a purism that made white the ubiquitous color in architecture. Here it was highly common to work with white surfaces; if any additional color was needed, only grey would be considered. However, modern architecture is an altogether more colorful affair – in order to portray functionalities, represent dynamic change and innovation or forge a connection to nature and the environment. Color does not have to be bright; rather, the emphasis lies on bringing together color and form and combining them to form a unit. In modern architecture, color has become a material – signalling the end of a colorless era.

Metallic mesh was discovered as a colorful 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.

Title: *mesh: ALU 6010, anodized in color C33, project: Luna Apartments, Australia, architect: Elenberg Fraser /* ***1st:*** *mesh: Kiwi with digital print /* ***2nd:*** *mesh: Escale 5x1 anodized in gold, project: Court de Justice, Luxembourg, architect: Dominique Perrault Architectes /* ***3rd:*** *mesh: Omega 1520 with blasted surface, project: Male & Female Student Housing, Qatar, architect: Treanor Architects /* ***4th:*** *mesh: Special Escale 50x50 in bronze, project: Synagogue, Munich, architect: Wandel Höfer Lorch*

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 aluminum are also used. Different mesh types offer different degrees of penetrability and reflectance, which vary strongly in terms of effect and color on the building according to lighting and weather. These enable the creation of virtually invisible facades. Depending on the location, colored coatings produce different impressions and external appearances. A continuous process allows GKD to apply special color-true varnishes to metallic meshes – with flat and also round wire types.

The color samples illustrated in this brochure are representative only.

AVAILABLE COLORS

All RAL colors listed below, GKD Gold and Venezia Gold

The blue colour numbers indicate the standard RAL colors, which have a shorter delivery time.

1000	2000	3000		5000	6000	7000		8000	
1001	2001	3001	4001	5001	6001	7001		8001	9001
1002	2002	3002	4002	5002	6002	7002		8002	9002
1003	2003	3003	4003	5003	6003	7003		8003	9003
1004	2004	3004	4004	5004	6004	7004		8004	9004
1005		3005	4005	5005	6005	7005	7035		9005
1006			4006		6006	7006	7036		
1007		3007	4007	5007	6007		7037	8007	
	2008		4008	5008	6008	7008	7038	8008	
	2009	3009		5009	6009	7009	7039		
	2010		4010	5010	6010	7010	7040		9010
1011	2011	3011		5011	6011	7011		8011	9011
1012	2012	3012		5012	6012	7012	7042	8012	
1013		3013		5013	6013	7013	7043		
1014		3014		5014	6014		7044	8014	
1015		3015		5015	6015	7015	7045	8015	
1016		3016			6016	7016	7046	8016	9016
1017		3017		5017	6017		7047	8017	9017
1018		3018		5018	6018				9018
1019				5019	6019			8019	
1020		3020		5020	6020				
1021				5021	6021	7021			
		3022		5022	6022	7022		8022	
1023				5023		7023		8023	
1024				5024	6024	7024		8024	
					6025			8025	
					6026	7026			
1027		3027			6027				
1028					6028			8028	
					6029				
						7030			
		3031				7031			
1032					6032	7032			
1033					6033	7033			
					6034	7034			

COLORS FOR SPECIAL EFFECTS

All colors listed in the following. These colors can only be used indoors.

1035	2013	3032	4011	5025	6035	7048	8029	9006
1036		3033	4012	5026	6036			9007
								9022
								9023

Mesh: Escale 7x1 painted green, project: St. Pölten orientation system, architect: Zieser

COATED METALLIC MESH

Colored metallic meshes open up a wide range of colorful architectural textures for planners. GKD uses a special continuous process for color-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 color-coated and, depending on the mesh, enables dimensions weavable by GKD of up to 8 meters and virtually any length to be realized. 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 colors: black, white, red and gold are available as standard, and custom colors, i.e. any RAL color, are also available to anyone ordering large quantities. Practical analysis methods can be implemented for assessing color 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.

*] The color samples illustrated in this brochure are representative only

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 aluminum wires that can be coated is 4 mm (for Escale 5x1 in aluminum).

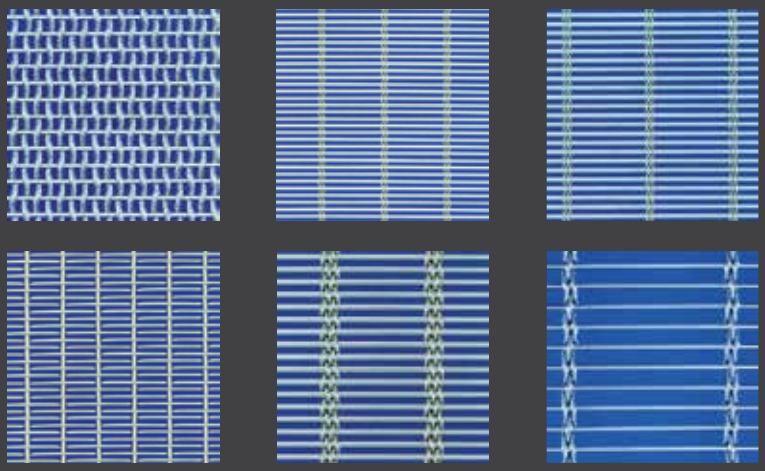
DIMENSIONS:
All weavable dimensions

POSSIBLE COLORS:
See left-hand flap

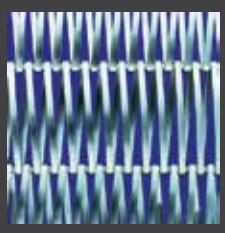
SUITABLE MATERIALS:
Stainless steel and aluminum

APPLICATIONS:
Suitable for both indoor and outdoor applications

Cable mesh: Baltic, Lamelle, Lago, Omega, Sambesi, Tigris

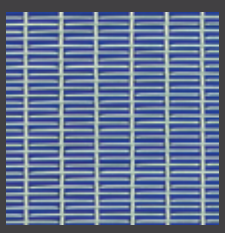


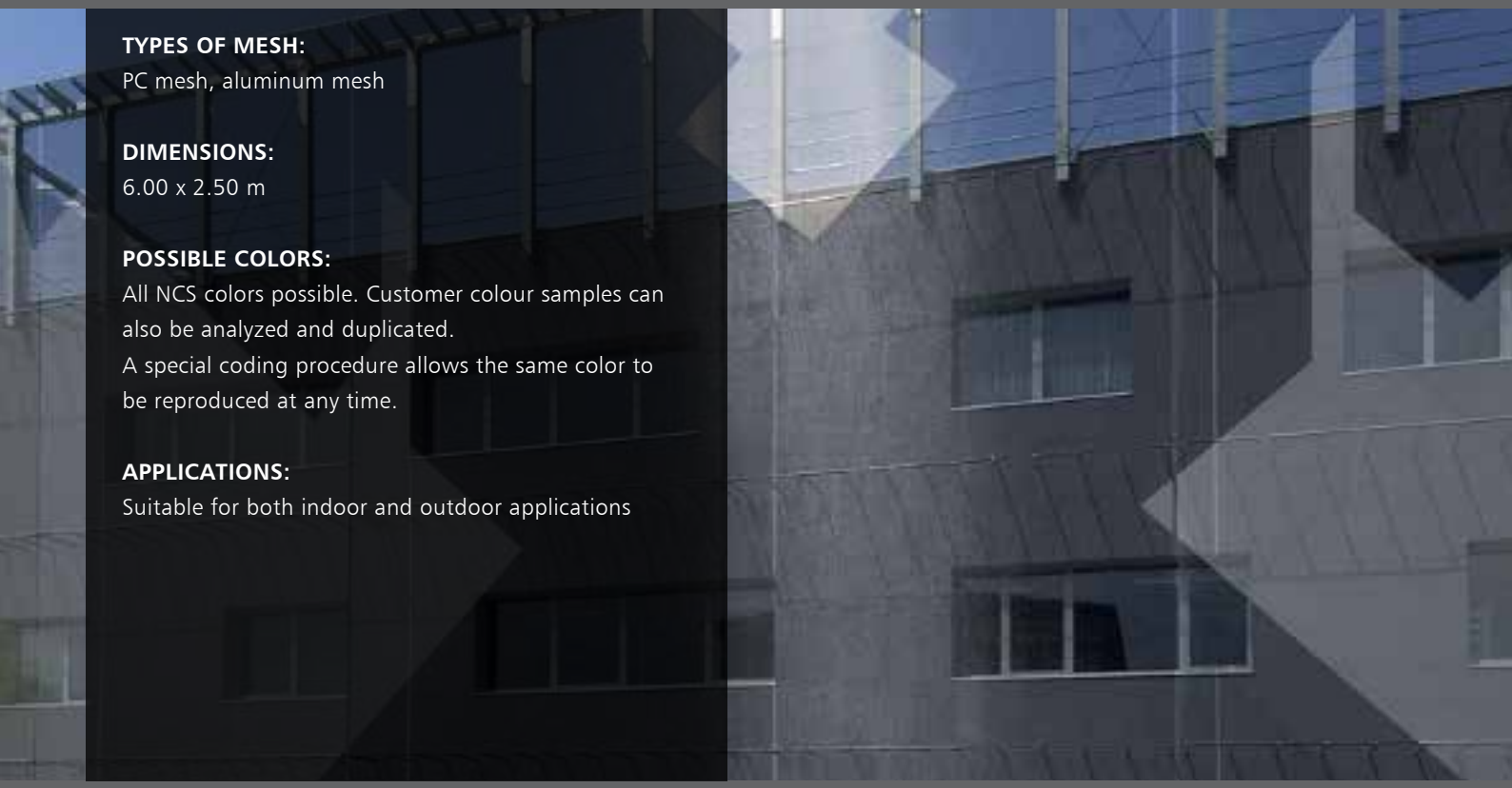
Escale



Licorne

PC mesh





TYPES OF MESH:
PC mesh, aluminum mesh

DIMENSIONS:
6.00 x 2.50 m

POSSIBLE COLORS:
All NCS colors possible. Customer colour samples can also be analyzed and duplicated.
A special coding procedure allows the same color to be reproduced at any time.

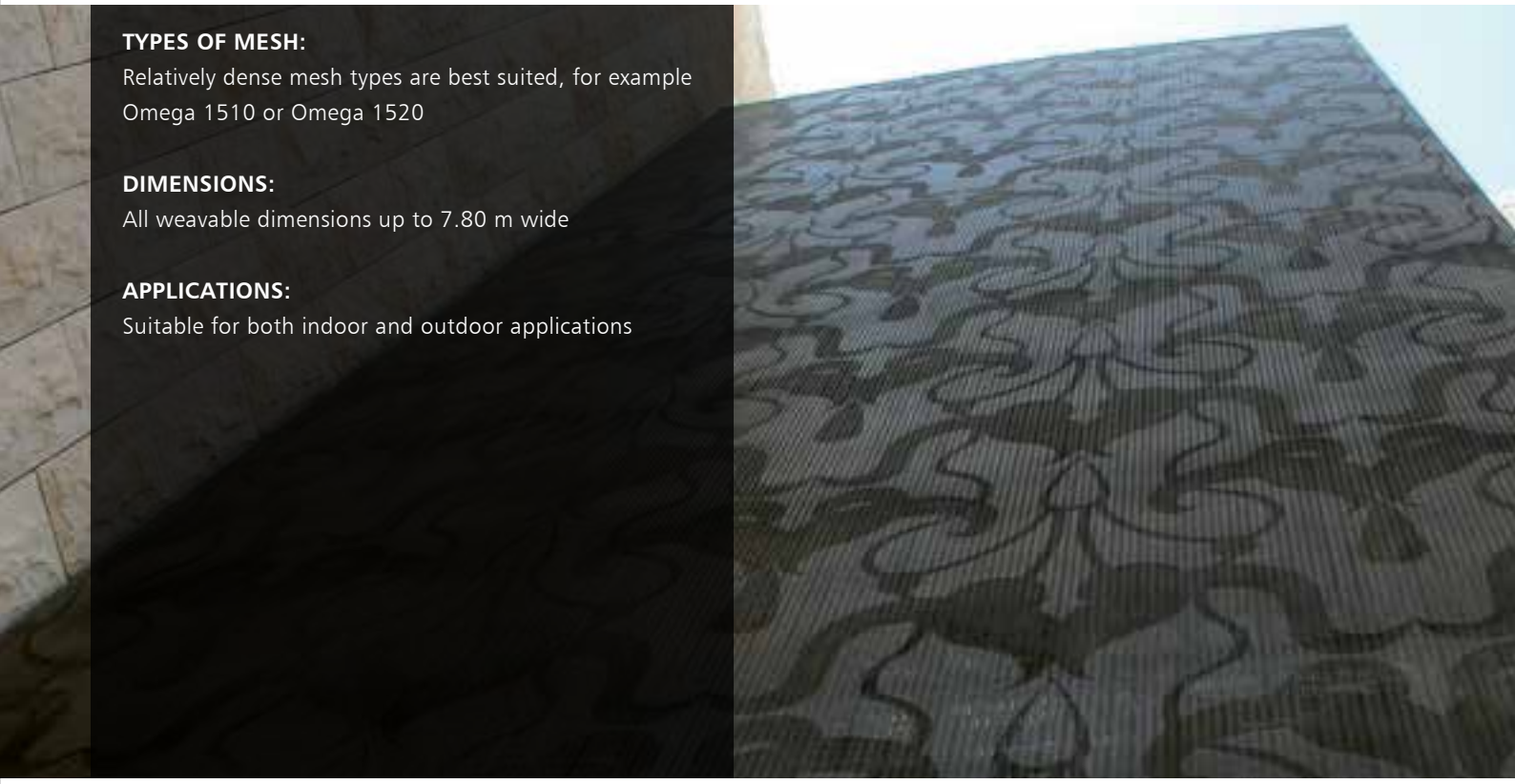
APPLICATIONS:
Suitable for both indoor and outdoor applications

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.

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 colors of the Natural Color System® (NCS), it is also possible to analyze individual color samples from the customer and reproduce them as varnish. Furthermore, the comprehensive range of colors used by the automobile industry can be used to produce metallic effects. Wet-coated meshes are suitable for both indoor and outdoor applications.



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

Mesh: Omega 1520 with blasted surface, project: Male & Female Student Housing, Qatar, architect: Treanor Architects

ETCHING
ABLATION PROCESS

Etching is a process that transfers graphic elements onto a metal surface. Because the graphic elements are etched directly in to 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. Al-most any design can be etched using this process. Results are unique and artistic, with appearance changing as the viewing and lighting angels change and as daylight yields to night.

SANODAL 4N GOLD
0,5 min*1

SANODAL 4N GOLD
5 min*1

SANODAL 4N GOLD
15 MIN*1

Mesh: Canisse with golden anodized wires, project: Bungalow, Stuttgart, architect: Dongus Architekten

ANODIZED ALUMINUM MESH
CONTINUOUS PROCESS

Aluminum is the ideal material for designing facades. The lightweight metal has a low, specific weight while at the same time offering high strength and good corrosion resistance properties. When exposed to air, aluminum gradually forms a natural protective layer that protects it from corrosion and gives it a matt-grey appearance. However, aluminum profiles or plates in facades are usually anodised to protect them from environmental influences and mechanical effects.

GKD uses anodization in a continuous process for coating flexible meshes. Here, an oxide coating is created on the metal using an electrochemical process. In contrast to the batch process (page 10/11), in this continuous process the wire is anodised prior to the actual weaving process and subsequently coloured. Even flexible coloring is possible by interweaving differently colored wires. Alongside its decorative properties, this type of coating also guarantees pro-tection against environmental influences such as UV radiati-on, temperature deviations or mechanical effects. A 6 to 12 µm-thick layer is formed that protects the aluminum from corrosion. Thanks to this layer thickness, the shades of gold pictured above can be used both indoors and outdoors.

*1 The color samples illustrated in this brochure are only representative

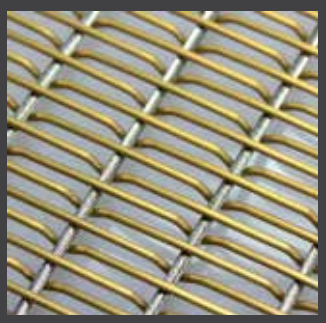
TYPES OF MESH:
Escale 5x1, Escale 7x1, Omega (only the aluminum wires can be anodized), Tigris (only the aluminum wires can be anodized, 4 mm wire diameter required for reasons of stability)

DIMENSIONS:
All weavable dimensions

POSSIBLE COLORS:
Only in the color „Gold Sanodal 4N" for indoor and outdoor applications. Color tolerances are possible due to the production process.

APPLICATIONS *[1]:
Suitable for both indoor and outdoor applications

Mesh: Escale 5x1 anodized in gold, project: Cour de Justice, Luxembourg, architect: Dominique Perrault Architectes



MESH TYPE: Omega 1520
COLOR: Golden anodized aluminum in weft wires
OPEN AREA: 50.6%
WEIGHT: 2.6 kg/m²

MESH TYPE: Tigris COLOR: Golden anodized aluminum in weft wires
OPEN AREA: 55.5%
WEIGHT: 3.0 kg/m²

MESH TYPE: Escale 7x1
COLOR: Golden anodized aluminum in spirals OPEN AREA: 36%WEIGHT: 3.90 kg/m²

These meshes are only an exemplary selection; more types are available (see **TYPES OF MESH**).

C35*1
C34*1
C33*1
C32*1
C31*1
EV3*1
EV2*1
EV1*1

Mesh: ALU 6010, anodized in color C33, project: Luna Apartments, Australia, architect: Elenberg Fraser

ANODIZED ALUMINUM MESH
BATCH PROCESS

Similarly to the continuous procedure, the batch process is also an electrochemical process for creating a protective layer on the aluminum 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 pre-assembled 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 aluminum parts are degreased and stained. For this purpose the thin, natural oxide layer of the aluminum is removed and a clean, matte, smooth surface is created. After further cleaning steps, the aluminum parts can then be colored 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, alu-minum content, etc. This allows us to meet a wide range of customer requirements.

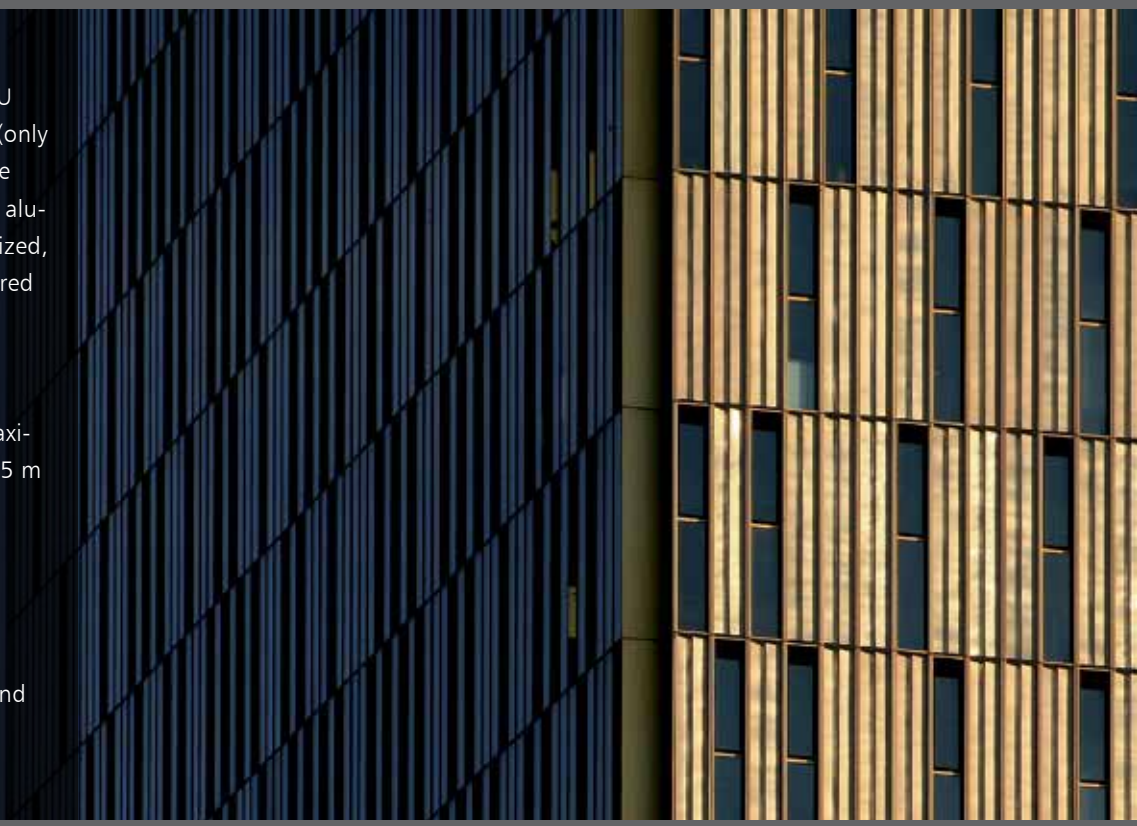
*1 The color samples illustrated in this brochure are representative only.

TYPES OF MESH:
Escale 5x1, Escale 7x1, ALU 6010, ALU 3540, Omega (only the aluminum wires can be anodized), Tigris (only the aluminum wires can be anodized, 4 mm wire diameter required for reasons of stability)

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

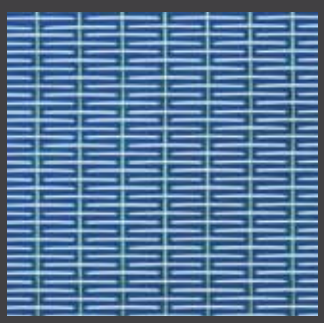
POSSIBLE COLORS:
See left page

Applications*[1]:
Suitable for both indoor and outdoor applications

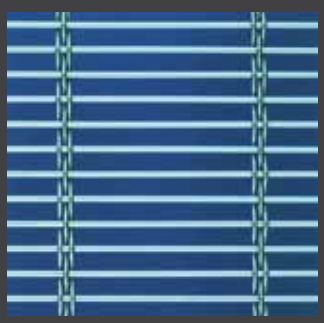


Mesh: ALU 6020, anodized in gold, project: Cour de Justice, Luxembourg, architect: Dominique Perrault Architectes

MESH TYPE: ALU 6010
OPEN AREA: 45.7%
WEIGHT: 2.5 kg/m^2



MESH TYPE: PC Omega 1520 in aluminum
OPEN AREA: 50.6%
WEIGHT: 2.25 kg/m^2



MESH TYPE: PC Tigris in aluminum
OPEN AREA: 36%
WEIGHT: 2.40 kg/m^2

*[1] Outdoor applications: The combination of aluminum / stainless steel can lead to contact corrosion

Mesh: Omega 1505 with screen print, project: Liverpool Catholic Club, Australia, architect: Wood & Day Partnership

PRINTED METALLIC MESH
SCREEN PRINTING 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 centimeters to several meters. 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.

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.

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

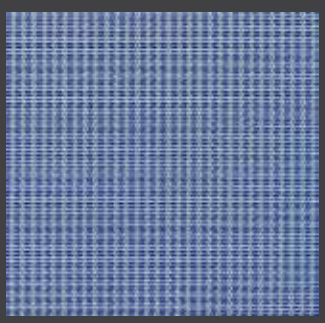
DIMENSIONS:
Max. 4.00 m wide x approx. 10.00 m long

POSSIBLE COLORS:
All colors can be printed. As blended colors 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

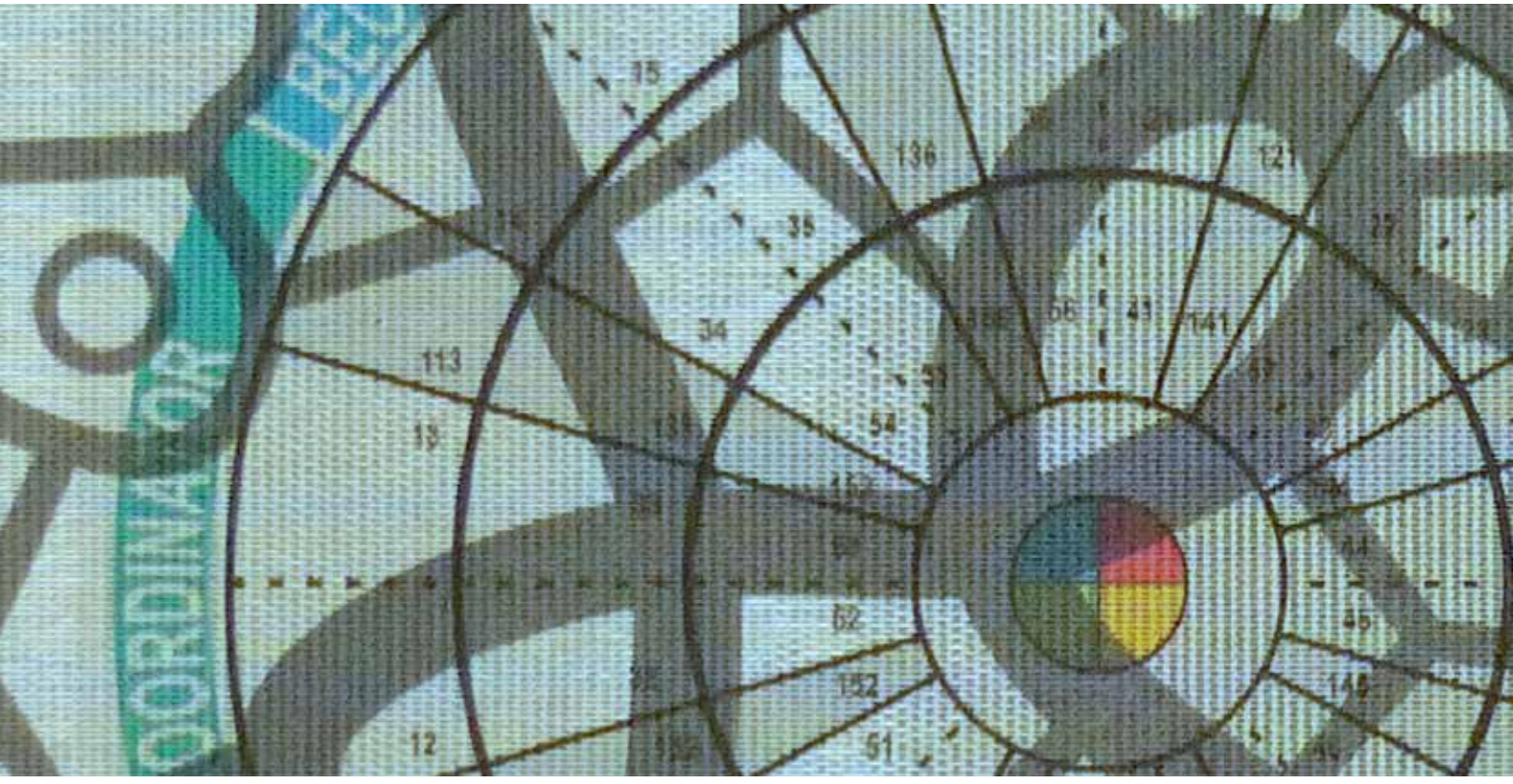
MESH TYPE: ALU 6010
OPEN AREA: 45.7%
WEIGHT: 2.50 kg/m²



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**).



Mesh: Kiwi with digital print

PRINTED METALLIC MESH
DIGITAL PRINTING METHOD

Alongside the various methods for printing solid colored 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 meters wide and 20 meters 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.

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 COLORS:
All colors 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 color 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

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:

Software	*up to version*	*vector*	*pixel*
Adobe Indesign	CS5	*.indd, *.pdf, *.eps	*.indd, *.pdf, *.eps
Adobe Illustrator	CS5	*.ai, *.eps, *.pdf	*.ai, *.eps, *.pdf, *.jpeg, *.tiff
Adobe Photoshop	CS	–> not available	*.psd, *.jpeg, *.tiff
Acrobat X Pro	CS5	–> not available	–> not available
Corel Draw	13	*.crd, *.eps, *.pdf	*.crd, *.eps, *.pdf, *.jpeg, *.tiff

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.

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