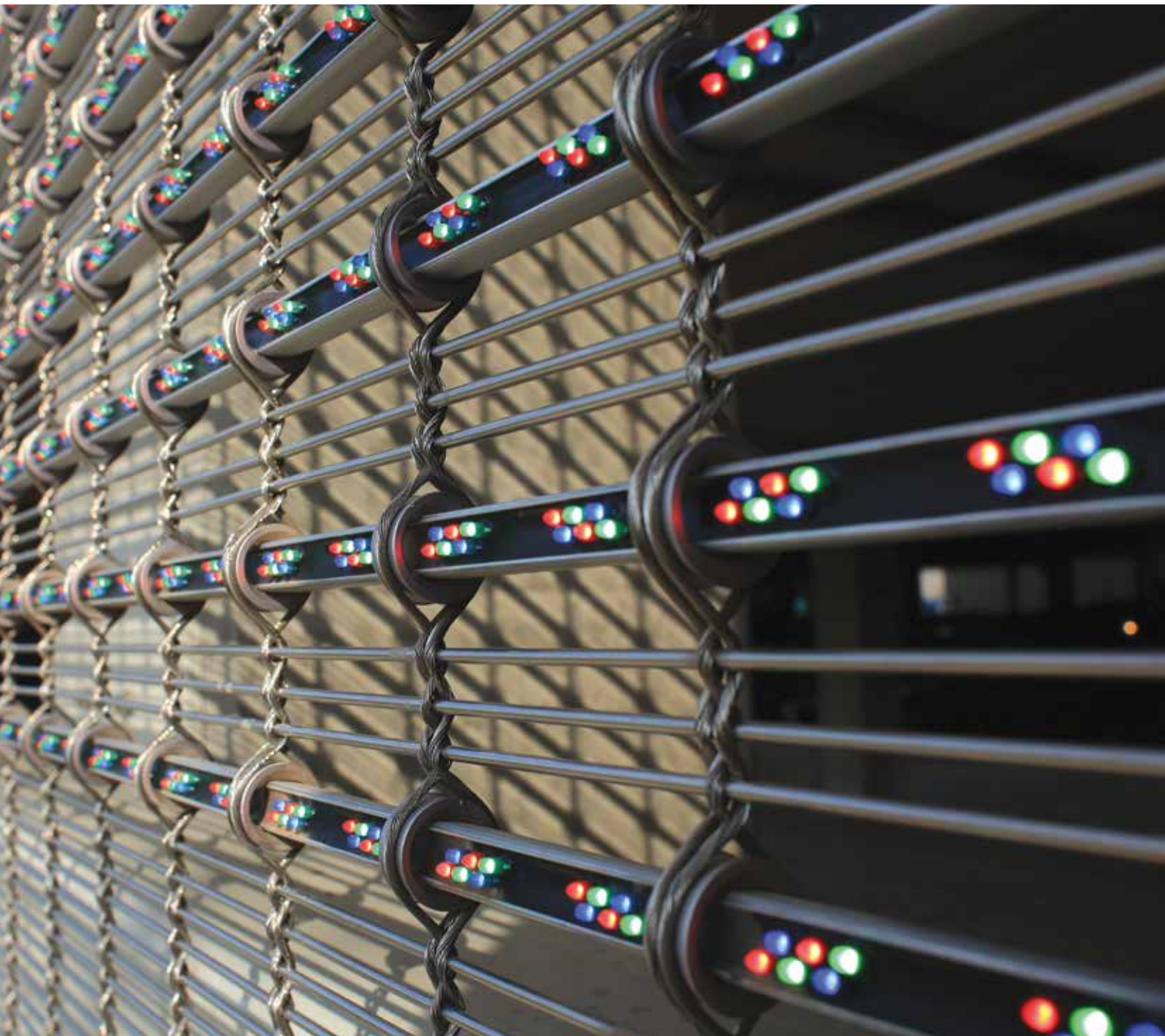


TRANSPARENT
MEDIA FAÇADES



TRANSPARENT MEDIA FAÇADES HIGHLIGHTS DURING THE DAY AND AT NIGHT

GKD media façades transform buildings and locations into high-class venues for media presentations. In combination with the corresponding media software, the bright rows of LEDs in the stainless steel fabric deliver high-resolution content both during the day and at night.

Transparent media façades with the very latest LED technology can be perfectly integrated into a wide range of architectural concepts. The high-grade fabric enhances building exteriors and sets a wide range of design accents, even when it is not in use as an LED façade. Transparent media façades from GKD are always attractive design elements – giving them a visible advantage over conventional LED displays.

Large degree of freedom to display varied content: whether large-format advertising, information that can be viewed from great distances, or impressive artistic staging, whether self-generating images or media-based interactions with the public. Transparent media façades provide dynamism and increase the value of an architectural structure at a reasonable expense.

GKD media façades are always tailor-made. Factors taken into account during planning and manufacture include the viewing distance, the size of the media façade, the required brightness and resolution, the planned content, and the architectural design. Media façades from GKD can do it all: from general upgrading of buildings, through targeted corporate and brand communication, all the way up to urban enhancement or art-in-architecture.



Mediamesh® - Selfcapes Milan / Italy



Mediamesh® - Cook Children's Hospital, Texas / USA



Illumesh - Indemenn, Inden / Deutschland

ARCHITECTURE & CONTENT SYSTEM BENEFITS

GKD is the world's leading provider of complete solutions in the field of architectural metal fabrics – and a highly innovative pioneer in terms of transparent media façades. The two patented systems Illumesh and Mediamesh® were developed on the basis of exacting international standards. They combine the benefits of GKD stainless steel fabric with high-grade LED technology. Thanks to the transparency of the fabric, it not only scores on the medialization of large-format façade areas. Transparent media façades also play out their benefits over conventional solutions when switched off, enhancing exteriors without visually obscuring them. Architectural impressions not only remain intact, but are extended and dynamized with the presentations of the media façade systems.

MEDIAMESH® // RICHLY DETAILED, DAY AND NIGHT

Interwoven LED profiles create powerful lighting for viewers. The small pixel size and the high pixel density of the energy-efficient LEDs associated with this ensure that even the finest of details are visible. The resolution is precisely matched to the circumstances and even huge façade formats are possible.

ILLUMESH // BRILLIANT AT TWILIGHT AND AT NIGHT

The LED profiles are positioned in front of the metal mesh and illuminate it, producing an enlarged, reflected projection of the pixels. This allows a media façade to be illuminated in full with relatively few pixels for medialization of particularly large areas.

MEDIAMESH® AND ILLUMESH THE BENEFITS POINT BY POINT

TRANSPARENCY



American Airlines Arena, Miami / USA



American Airlines Arena

- The building façade remains visible
- Interiors can continue to be used without restrictions – unencumbered outward views, free natural light transmission
- Unrestricted air circulation thanks to the open fabric
- Up to 60% fabric transparency

SIZE & PRESENTATION



Dynamic media presentation: American Airlines Arena

- Any size is possible (starting from approximately 30 m²)
- Exceptional color depth and fascinating vibrancy
- Buildings become dynamic carriers of communication
- Precise matching to the architecture and planned content

TECHNOLOGY & INSTALLATION



Hurricane Irene: media façade from GKD displays warnings for citizens of New York

- Patented systems comprising high-grade, modern LED technology and rugged stainless steel architectural fabric (total thickness below 25 mm)
- Extreme weather resistance: whether hurricanes, frost, or extreme heat
- Complete systems comprising façade screen and all installation components for optimum function and aesthetics
- Customized planning and manufacture: precisely matched to the content, viewing distance and angle, optimum fabric transparency, and display resolution
- Turnkey solutions, easy installation on building shells of all shapes and sizes

SUSTAINABILITY & COST EFFICIENCY



Torcé, France - Illumesh media façade

- 80% lower energy consumption than conventional LED displays
- Automatic control of LED light intensity for the best possible presentation, while also saving energy
- Transparent solar protection with unimpeded natural daylight transmission and air circulation reduces the energy consumption associated with room lighting, air conditioning, and ventilation systems
- Durable, reusable stainless steel fabric, only the LEDs need to be replaced at the end of their useful life

ILLUMESH - STAGING FOR LARGE FAÇADES AT TWILIGHT AND AT NIGHT

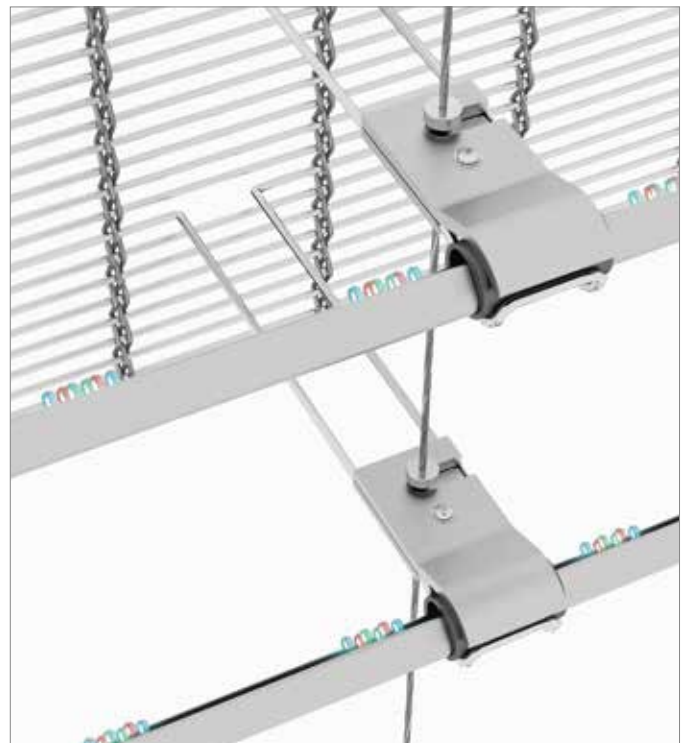
With the patented Illumesh media façade system, the LED profiles are mounted in front of the stainless steel fabric and project their content onto it. The projections, which can be seen from great distances, appear almost three-dimensional thanks to the special fabric structure. At the same time, Illumesh is particularly economical. Media façades can therefore display content across their entire area using few LED pixels relative to the display size. Illumesh is the ideal solution for large building façades requiring expansive illumination and staging during twilight hours and at night, where highly detailed projection is not the top priority.

SYSTEM PARAMETERS

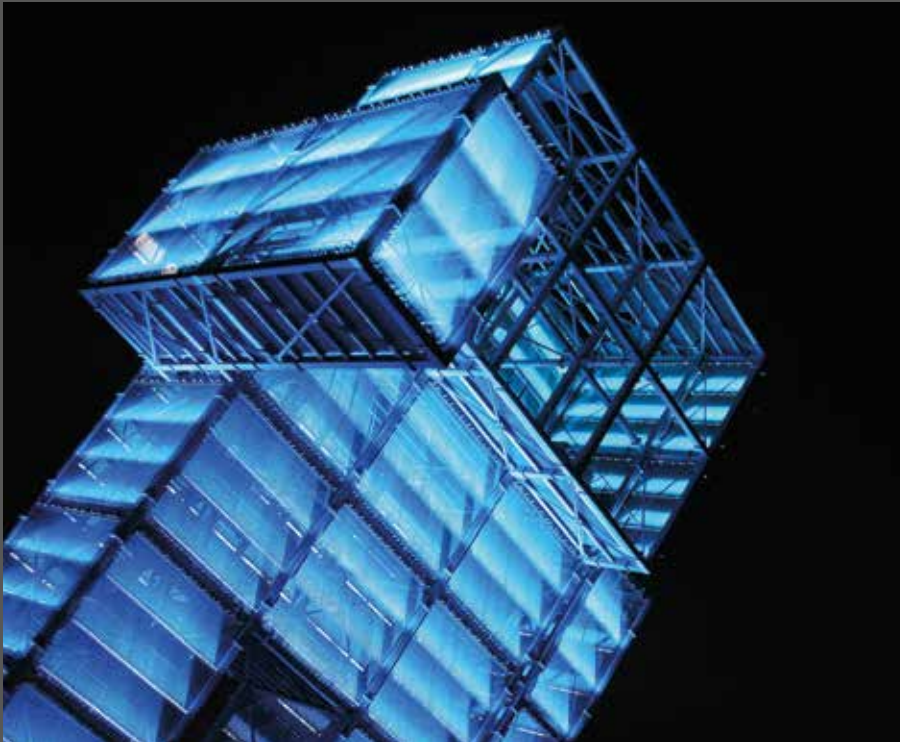
- Use during twilight hours and at night
 - Illumination of large building areas
 - Exceptional color depth, fascinating vibrancy
 - Transparent stainless steel fabric
 - Low weight
 - Easy installation
 - Minimum maintenance costs
 - Weather and temperature resistant
 - Sustainability thanks to the use of stainless steel as the carrier material and replaceable LED profiles
 - Lower energy consumption than with conventional billboards
-



Indemann, Inden, Germany

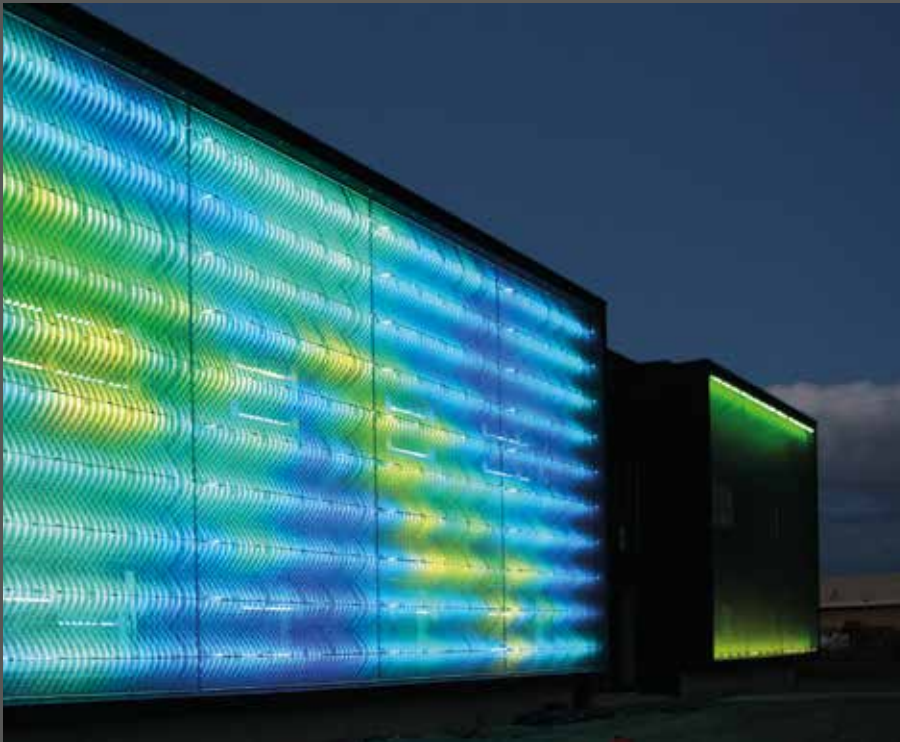


System: Illumesh



**INDEMANN,
INDEN / GERMANY**

System: **ILLUMESH**
Customer: GIS Düren GmbH
Total area: 1470 m²
Total number of px: 8,131 Px
Pixel pitch: Ver. 2000 mm /
Hor. 100 mm
Application: Outdoor
Brightness: 48 NITs
Completion: 2009



**PARC D`ACTIVITÉ
TORCÉ / FRANKREICH**

System: **ILLUMESH**
Customer: Communauté Vitré
Total area: 101,96 m²
Total number of px: 1,490 Px
Pixel pitch: Ver. 660 mm /
Hor. 100 mm
Application: Outdoor
Brightness: 132 NITs
Completion: 2007

MEDIAMESH® - RICHLY DETAILED CONTENT DURING THE DAY AND AT NIGHT

With the patented Mediamesh® system, the LED profiles are integrated in the carrier sleeves of the stainless steel fabric. The LEDs emit light forward toward the viewer. The high light intensity in combination with the high pixel density provides a richly detailed, refined presentation of a wide range of video content. Mediamesh® allows façades of all sizes to be transformed into high-class communication surfaces, with the content clearly visible both during the day and at night.

SYSTEM PARAMETERS

- Use during daylight hours and at night
 - Richly detailed presentation of a wide range of content
 - High luminosity, high pixel density
 - Exceptional color depth, fascinating vibrancy
 - Transparent stainless steel fabric
 - Low weight
 - Easy installation
 - Minimum maintenance costs
 - Weather and temperature resistant
 - Sustainability thanks to the use of stainless steel as the carrier material and replaceable LED profiles
 - Lower energy consumption than with conventional billboards
-

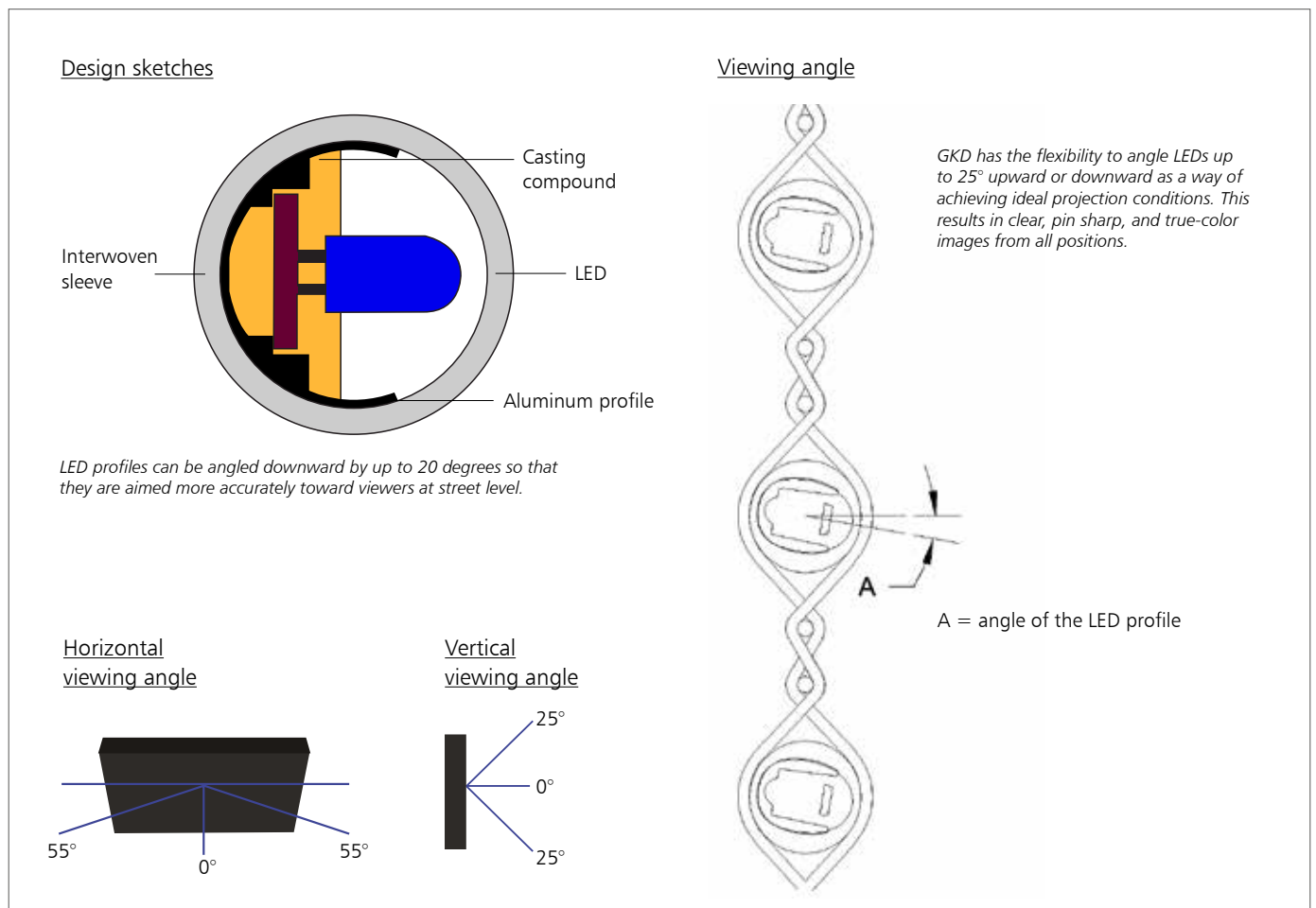


Port Authority Bus Terminal in New York City



System: Mediamesh®

INTERWOVEN, REPLACEABLE LED PROFILES LATEST TECHNOLOGY

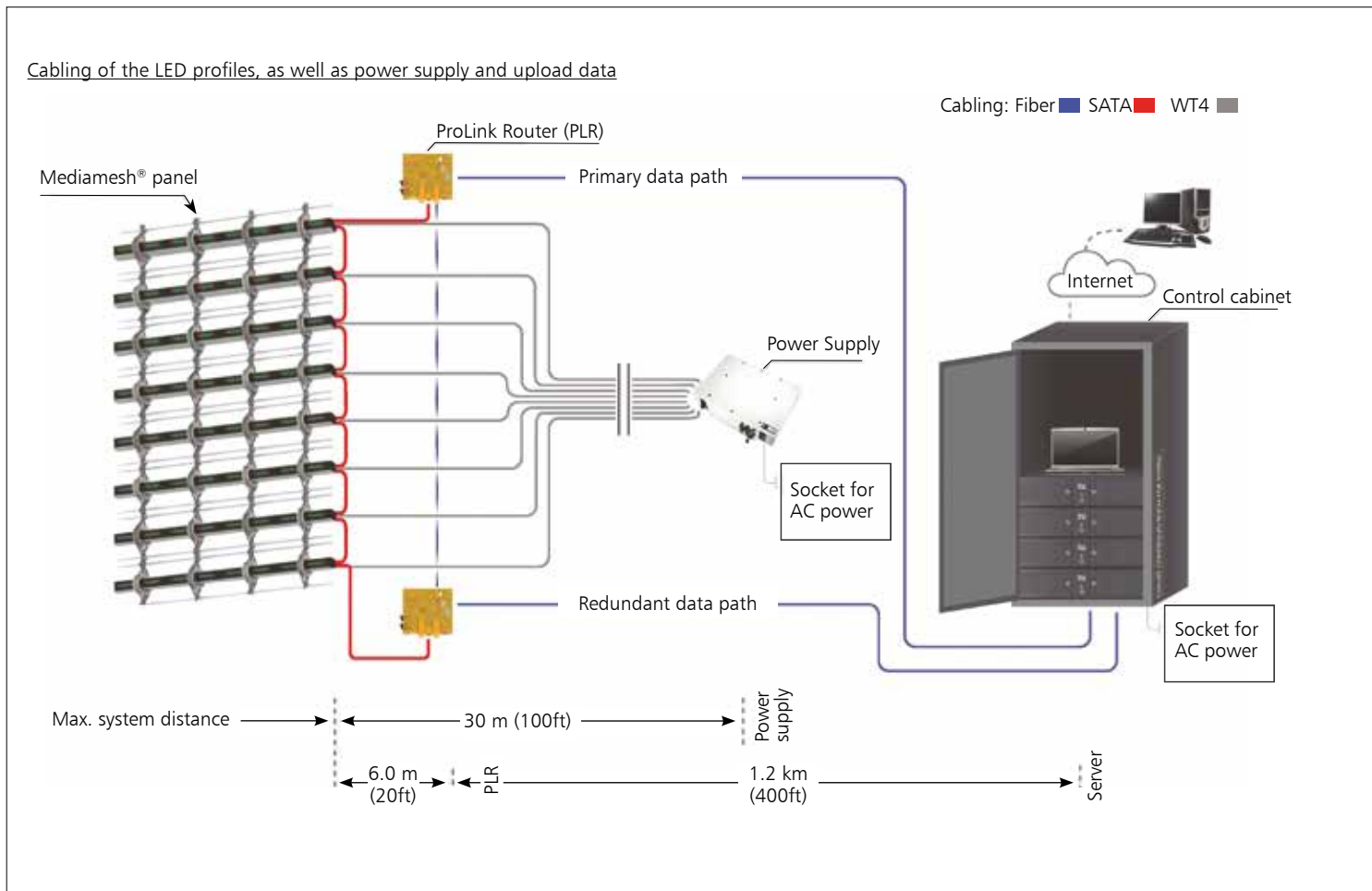


Each Mediamesh® solution is a tailor-made custom design. During production, the pitches of sleeves, warp wires, and horizontal pixels are optimally matched to one another to ensure that all pixels are projected without superimposition.

- Above a pixel pitch of 40 mm, the vertical resolution can be adjusted in 10 mm steps
- The default horizontal resolution employs a pixel pitch of 25 mm or 50 mm

- Technology and control system for graphics, animations, video clips, and data feeds in real-time
- Light intensity up to 8,700 Nits: high luminosity for vivid playback on the transparent fabric, even in extremely bright conditions
- High-grade LEDs that offer top performance and a useful life of more than 90,000 operating hours
- Brightness that is automatically adapted to the respective lighting conditions thanks to the photocell system

PLANNING & INSTALLATION OF MEDIAMESH®: FOUR BASIC PARAMETERS FOR TECHNICAL IMPLEMENTATION



Four basic parameters determine the technical configuration and subsequent implementation. These are **the viewing distance, the size of the media façade, the brightness, and the resolution**. The viewing distance has a key influence on the resolution required. The smaller the distance between the viewer and the media façade, the tighter the pixel

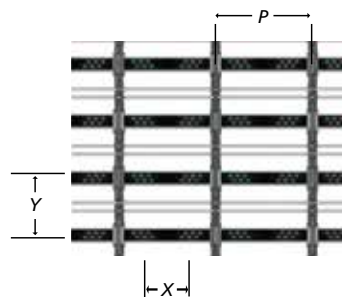
pitch must be in order to project a detailed and recognizable image. Freestanding buildings generally require media façades with a lower resolution than buildings in densely built-up urban environments, in which the viewing distance is typically shorter. Regardless of location, however, the most diverse of building geometries can be equipped with a visually



Fabric: Mediamesh®
 Material: Stainless steel
 Total fabric thickness: 25 mm
 Maximum fabric width: 4 m

Specifications	V4xH5.0	V5xH5.0	V6xH5.0
Vertical LED pitch	40 mm	50 mm	60 mm
Horizontal LED pitch	50 mm	50 mm	50 mm
NITs	8750 NITs	7000 NITs	5833 NITs
Open area	56.2 %	58.1 %	59.4 %
Viewing distance	35 m/115 ft	35 m/115 ft	42 m/138 ft
Kg per square meter	ca. 11.3 Kg/m ²	ca. 10.3 g/m ²	ca. 9.7 Kg/m ²
Rods between Tubes	1	2	3

Table data (as of November 2013)



P = Cable spacing
X = Horizontal pixel pitch
Y = Vertical pixel pitch

seamless Mediamesh® façade – thanks to the flexible characteristics of GKD stainless steel fabric. The actual size of the media façade is unlimited here and can be matched precisely to the building in question, the intended purpose, the available budget, and the requisite resolution. The brightness required can also be matched to any circumstances – whether

in terms of direction and position, increased use during daylight hours, at night, or content upload at any time. The control units from the power supply and electronic components are responsible for supplying both power and data. They can, for example, be integrated into the floor and ceiling construction and be connected to a central server in the building.

MEDIA FAÇADES FROM A SINGLE SOURCE: FROM PLANNING TO START-UP



When planning transparent media façades, we act precisely in accordance with specific customer requirements, the architectural circumstances, and the planned media content. Following manufacture, Mediamesh® and Illumesh are supplied in rolls, fully preassembled and ready for installation. The stainless steel fabrics are hooked in position



and tensioned as standard during installation. Once the fabrics are in position, the cabling is routed for both the power supply and the data source. If desired, we are happy to perform all work – including the installation and on-site initialization.

EXCERPT FROM THE SPECIFICATIONS

2.2 METAL FABRIC

A. Metal fabric:

Metal fabric made from stainless steel and its recessed round profiles, which are open along the front side for mounting LEDs.

1. Product: GKD Mediamesh or equivalent product
 - a. Mediamesh, flexible, unidirectional
 - b. Material: AISI Type 316 stainless steel
 - c. Minimum open area: To be defined
 - d. Nominal thickness: 25 mm +/- 1 mm
 - e. Warp wire: 3 x 2.0 mm cables
 - f. Weft rod: 3.0 mm
 - g. Warp wire pitch: 100 mm
 - h. Maximum width per panel: 4 m
 - i. LED grid spacing in vertical direction: x mm
 - j. LED grid spacing in horizontal direction: 50 mm
 - k. Candela/m² (NITS): To be defined

B. Media façade manufactured:

1. Product: GKD 6 LEDs-per-pixel Mediamesh or equivalent product
 - a. LEDs: LEDs installed in watertight round profiles recessed in the metallic fabric

You can find the complete tender documents in the Downloads section of the GKD website under Transparent Media Façades.

2. Properties:

Resolution: V X mm x H 50 mm

Description	Value	Unit of measurement
Display size:	To be defined	m ²
Display size (vertical):	To be defined	m
Display size (horizontal):	To be defined	m
Display height (from ground level):	To be defined	m
Pixel configuration:	2xred, 2xgreen, 2xblue	RGB
Pixel pitch (vertical):	To be defined	mm
Pixel pitch (horizontal):	To be defined	mm
Resolution (vertical):	To be defined	Vertical pix
Resolution (horizontal):	To be defined	Horizontal pix
Color processing:	48 (3x16)	Bit
LED refresh rate:	1,000	Hz
Pixels per square meter:	To be defined	Pix/m ²
Total pixels:	To be defined	Total pix
LEDs per square meter:	To be defined	LED/m ²
Total number of LEDs:	To be defined	LEDs total
Brightness:	To be defined	Cd/m ² (Nits)
Max. viewing angle (horizontal):	110	degrees
Max. viewing angle (vertical):	50	degrees
Min. viewing distance:	To be defined	m
Voltage:	100 to 240	VAC
Max. power consumption:	To be defined	Watt/m ²
Average power consumption:	To be defined	kWh
Max. power consumption, total:	To be defined	W
Protection class:	67	IP
Temperature limits:	-40 to 70	°C
Weight per unit area, average:	To be defined	kg/m ²
Weight of LED tubes:	To be defined	kg
Weight of fabric:	To be defined	kg
Weight of LED tubes+fabric:	To be defined	kg

**ATLÉTICO MADRID /
SPAIN**

System: **MEDIAMESH®**
Customer: Atlético Madrid
Total area: 148.8 m²
Total amount of px: 58,560 px
Pixel pitch: 5 cm vert. x 5 cm hor.
Application: Outdoor
Brightness: 7,000 Nits
Completion: 2017



**VARNER HQ,
BILLINGSTAD / NORWAY**

System: **MEDIAMESH®**
Customer: Varner
Total area: 144.0 m²
Total amount of px: 57,600 px
Pixel pitch: 5 cm vert. x 5 cm hor.
Application: Outdoor
Brightness: 7,000 Nits
Completion: 2016





**SAINT PAUL INTERNATIONAL AIRPORT,
MINNEAPOLIS / USA**

System: **MEDIAMESH®**
Customer: Saint Paul International Airport
Total area: 51.0 m²
Total amount of px: 26,000 px
Pixel pitch: 4 cm vert. x 5 cm hor.
Application: Indoor
Brightness: 8,750 Nits
Completion: 2016



**VCU JAMES BRANCH CABELL LIBRARY,
RICHMOND VIRGINIA / USA**

System: **MEDIAMESH®**
Customer: Virginia Commonwealth University
Total area: 37.0 m²
Total amount of px: 17,920 px
Pixel pitch: 4 cm vert. x 5 cm hor.
Application: Indoor
Brightness: 8,750 Nits
Completion: 2016

ZARA
TOKYO / JAPAN

System: **MEDIAMESH®**
Customer: Zara Japan
Total area: 71.0 m²
Total amount of px: 27,700 px
Pixel pitch: 5 cm vert. x 5 cm hor.
Application: Outdoor
Brightness: 7,000 Nits
Completion: 2016



MINISTRY OF EDUCATION,
KUWAIT CITY / KUWAIT

System: **MEDIAMESH®**
Customer: Alghanim
Total area: 240.50 m²
Total amount of px: 96,768 px
Pixel pitch: 5 cm vert. x 5 cm hor.
Application: Indoor
Brightness: 7,000 Nits
Completion: 2016





BROOKLYN ACADEMY OF MUSIC (B.A.M)
BROOKLYN, NY / USA

System: **MEDIAMESH®**
 Customer: 20 Lafayette Construction, LLC
 Total area: 61.5 m²
 Total amount of px: 24,000 px
 Pixel pitch: 5 cm vert. x 5 cm hor.
 Application: Outdoor
 Brightness: 7,000 Nits
 Completion: 2016



MELLON INDEPENDENCE CENTER,
PHILADELPHIAN / USA

System: **MEDIAMESH®**
 Customer: A2a Media
 Total area: 474.0 m²
 Total amount of px: 278,168 px
 Pixel pitch: 4 cm vert. x 4.25 cm hor.
 Application: Outdoor
 Brightness: 11,100 Nits
 Completion: 2015

**DALIAN CENTER EATON,
DALIAN, CHINA**

System: **MEDIAMESH®**
Customer: Eton, Dalian
Total area: 455 m²
Total amount of px: 177,276 px
Pixel pitch: 5 cm vert. x 5 cm hor.
Application: Outdoor
Brightness: 7,000 Nits
Completion: 2015



**CLEVELAND INSTITUTE OF ART,
OHIO / USA**

System: **MEDIAMESH®**
Customer: Cleveland Institute of Art
Total area: 146.6 m²
Total amount of px: 72,960 px
Pixel pitch: 4 cm vert. x 5 cm hor.
Application: Outdoor
Brightness: 8,750 Nits
Completion: 2015





**COLLEGE OF MEDIA & COMMUNICATION,
DOHA / QATAR**

System: **MEDIAMESH®**
 Customer: REC-HBK JV
 Total area: 294 m²
 Total amount of px: 135,240 px
 Pixel pitch: 5 cm vert. x 4.25 cm hor.
 Application: Outdoor
 Brightness: 7,800 Nits
 Completion: 2015



**NCSU – TALLEY STUDENT CENTER,
NORTH CAROLINA / USA**

System: **MEDIAMESH®**
 Customer: Rodgers Builders, Inc./
 North Carolina State
 Univ.
 Total area: 52.4 m²
 Total amount of px: 26,112 px
 Pixel pitch: 4 cm vert. x 5 cm hor.
 Application: Outdoor
 Brightness: 8,750 Nits
 Completion: 2014

**HAMAD INTERNATIONAL AIRPORT,
DOHA / QATAR**

System: **MEDIAMESH®**
Customer: SkyOryx JV
Total area: 975.4 m²
Total amount of px: 390,160 px
Pixel pitch: 5 cm vert. x 5 cm hor.
Application: Indoor
Brightness: 2,500 Nits
Completion: 2014



**KUNTSEVO, KUNTSEVO DISTRICT,
MOSCOW / RUSSIA**

System: **MEDIAMESH®**
Customer: ENKA INSAAT VE
SANAYI A.S.
Total area: 154.0 m²
Total amount of px: 51,200 px
Pixel pitch: 6 cm vert. x 5 cm hor.
Application: Outdoor
Brightness: 5,833 Nits
Completion: 2014





**KUA2, UNIVERSITY OF
COPENHAGEN / DENMARK**

System: **MEDIAMESH®**
 Customer: Bygningsstyrelsen
 Total area: 90 m²
 Total amount of px: 56,376 px
 Pixel pitch: 3.75 cm vert. x 4.25 cm hor.
 Application: Outdoor
 Brightness: 5,000 Nits
 Completion: 2014



**COOK CHILDRENS HOSPITAL,
TEXAS / USA**

System: **MEDIAMESH®**
 Customer: Cook Children's
 HealthCare System
 Total area: 89.6 m²
 Total amount of px: 52,640 px
 Pixel pitch: 4 cm vert. x 4.25 cm hor.
 Application: Outdoor
 Brightness: 8,400 Nits
 Completion: 2013

**BMW BRAND EXPERIENCE CENTER,
HUANGPU, SHANGHAI / CHINA**

System: **MEDIAMESH®**
Customer: **BMW**
Total area: **57.6 m²**
Total amount of px: **23,040 px**
Pixel pitch: **5 cm vert. x 5 cm hor.**
Application: **Indoor**
Brightness: **3,200 Nits**
Completion: **2013**



**LONG BEACH COURT BUILDING,
USA**

System: **MEDIAMESH®**
Customer: **State of California Adm.
Office of the Courts**
Total area: **60.0 m²**
Total amount of px: **30,000 px**
Pixel pitch: **4 cm vert. x 5 cm hor.**
Application: **Indoor**
Brightness: **8,700 Nits**
Completion: **2013**





**PORT AUTHORITY,
NEW YORK CITY / USA**

System: **MEDIAMESH®**
 Customer: A2a Media
 Total area: 560 m²
 Total amount of px: 256,800 px
 Pixel pitch: 5 cm vert. x 4.25 cm hor.
 Application: Outdoor
 Brightness: 4,956 Nits
 Completion: 2011



**WINSTAR WORLD CASINO,
THACKERVILLE OK / USA**

System: **MEDIAMESH®**
 Customer: Chickasaw Nation
 Division of Commerce
 Total area: 511 m²
 Total amount of px: 200,928 px
 Pixel pitch: 6 cm vert. x 4.25 cm hor.
 Application: Outdoor
 Brightness: 5,700 Nits
 Completion: 2011

**CONGRESS HALL TRIPOLI,
LIBYA**

System: **MEDIAMESH®**
Customer: System Insaat Ltd. Sti
Total area: 350 m²
Total amount of px: 204,900 px
Pixel pitch: 4 cm vert. x 4.25 cm hor.
Application: Outdoor
Brightness: 4,956 Nits
Completion: 2010



**AMERICAN AIRLINES ARENA,
MIAMI / USA**

System: **MEDIAMESH®**
Customer: AA-Arena / Heat Group
Total area: 312 m²
Total amount of px: 147,806 px
Pixel pitch: 5 cm vert. x 4.25 cm hor.
Application: Outdoor
Brightness: 4,730 Nits
Completion: 2009





**CROWNE PLAZA,
NEW YORK / USA**

System: **MEDIAMESH®**
 Customer: Crown Plaza
 Total area: 69.84 m²
 Total amount of px: 55,056 px
 Pixel pitch: 3 cm vert. x 4.25 cm hor.
 Application: Outdoor
 Brightness: 5,480 Nits
 Completion: 2009



**CENTRE DE DISSENY,
SITGES / SPAIN**

System: **MEDIAMESH®**
 Customer: Centre de Disseny, Sitges
 Total area: 12.50 m²
 Total amount of px: 5,950 px
 Pixel pitch: 5 cm vert. x 4.25 cm hor.
 Application: Outdoor
 Brightness: 2,340 Nits
 Completion: 2008

**MADDEN LIBRARY,
FRESNO / USA**

System: **MEDIAMESH®**
Customer: California State
University, Fresno
Total area: 50.76 m²
Total amount of px: 14,028 px
Pixel pitch: 6 cm vert. x 6 cm hor.
Application: Indoor
Brightness: 1,940 Nits
Completion: 2008



**ABDI IBRAHIM OFFICE BUILDING,
ISTANBUL / TURKEY**

System: **MEDIAMESH®**
Customer: Abdi Ibrahim, Istanbul
Total area: 27.83 m²
Total amount of px: 2,700 px
Pixel pitch: 10 cm vert. x 10 cm hor.
Application: Outdoor
Brightness: 600 Nits
Completion: 2007





**OPEL EXHIBITION,
VARIOUS MOTOR SHOW EXHIBITIONS**

System: **MEDIAMESH®**
 Customer: XL Solutions, Duesseldorf
 Total area: 195.30 m²
 Total amount of px: 46,102 px
 Pixel pitch: 6.5 cm vert. x 6.5 cm hor.
 Application: Indoor
 Brightness: 553 Nits
 Completion: 2007



**SELFCAPIES
MAILAND / ITALIEN**

System: **MEDIAMESH®**
 Customer: Urban Screen S.A., Milan
 Total area: 486 m²
 Total amount of px: 194,040 px
 Pixel pitch: 5 cm vert. x 5 cm hor.
 Application: Outdoor
 Brightness: 1,993 Nits
 Completion: 2007



WORLD WIDE WEAVE

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), metal fabrics (façades, safety and interior design made of metal fabrics) and Mediamesh®/ Illumesh (transparent media façades).

Close to the market around the globe with the headquarters in Germany, five other production sites in the USA, South Africa, China, India and Chile as well as branches in France, Spain, Dubai and representatives all over the world.

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