



WORLD WIDE WEAVE

Glittering product of creative technology:

Wire mesh with interwoven LED profiles

All over the world, architects and builders are fascinated by the textile-like structure of woven metal mesh: supple, scintillating and, depending on the angle of incidental light, either transparent or opaque. What was originally a purely industrial material has been celebrating unbroken success in the world of architecture for well over ten years now. As the latest result of creative innovation, GKD – Gebr. Kufferath AG in cooperation with the Cologne-based company ag4 media facade GmbH now present a visionary product development in woven metallic architectural and design fabric: MEDIAMESH® – a stainless steel wire mesh with interwoven LED profiles as a novel system for the medialization of architecture. Wire mesh made by CREATIVE WEAVE™, with an unadorned elegance of its own, can now be turned into a multimedia screen with pixels that can be individually triggered via the Internet. Unlike conventional LED-Boards, MEDIAMESH® allows the design of a transparent media façade which follows the lines of every architecture like an apparently seamless outer skin on the building. If desired, the view inwards into the building can be just as unrestricted as the view outwards from the inside. Apart from its fascinatingly versatile aesthetics, architects are also convinced by the technical properties of stainless steel wire mesh, like its practically unlimited service life, fire-resistance and easy maintenance. The already established range of use of the material as reliable protection against rain, wind and sun or as robust safety balustrading has now been given a new dimension by this innovative system for the medialization of architecture. Now, a building's second skin can be enhanced dynamically and functionally through specifically designed video displays operated via the Internet.



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LEDs breathe light and life into woven metal mesh

Developed as a system, MEDIAMESH[®] offers previously unknown possibilities. The lightness of the integrated technology supports the transparency and aesthetics of the stainless steel wire mesh, which has sleeves woven into its warp wires. After the weaving process, round profiles, open at the front, are inserted through these sleeves along the weft, i.e. horizontally. These profiles are equipped with waterproof LEDs set at defined intervals which depend on the required resolution for the desired media format. Up to 16 of these profiles are connected together linearly by cable. The MEDIAMESH[®], woven to a specified width and length and then filled, is produced complete with inserted LEDs and cabling, rolled, transported to the site and installed on the building. The corresponding control units are integrated into the building itself, for example into the ceilings. This simple installation makes maintenance really easy: there is no problem involved in replacing individual LED profiles or control units. As soon as the control units are connected to the pre-cabled mesh panels and to a central server in the building, the media façade is ready for operation and can be controlled via the Internet.

Precise control of resolution

Depending on how it is equipped, MEDIAMESH[®] makes it possible to present images ranging from simple graphics through to video quality, by day or night. The type of performance influences the costs, since graphics require a considerably lower resolution than video or even TV displays. Each image dot, also known as a pixel, is made up of at least three LEDs (red, green and blue). The more closely these pixels are packed together



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horizontally and vertically in the profiles, the higher the image resolution. The closer you get to the image, the closer the pixels must be to each other to ensure a good picture. Conversely, the further away you are from the picture, the greater the distance between the pixels can be. Even at a distance of viewing of five kilometers MEDIAMESH[®] is still display capable. In typical urban contexts, there is automatically a certain distance of viewing for which a sufficient pixel interval will ensure the transparent lightness of the woven metal mesh façade. The minimum viewing distance is 20 meters, but a minimum distance of 100 to 300 meters is recommended for an optimal relationship between media performance impact and costs. The particular fascination of media façades implemented with MEDIAMESH[®] lies in the sheer size of their projection surfaces, which ensures the electronic images an adequate presence in the urban context.

Retrofitting existing façades with animated lighting

For the creation of a lower budget media façade or for the retrofitting of existing woven metal mesh façades, GKD and ag4 have developed a second mesh type: ILLUMESH[®]. In this case, the same LED profiles used in MEDIAMESH[®] are attached by means of special fixtures to the front of the mesh, thus illuminating it indirectly. Depending on the angle of view, the illuminated surface area can be larger or smaller, the density of the illumination being determined by the horizontal and vertical intervals between the LED profiles. This opens a wide range of options: from simple changing colour effects through to complex animations of the façade – but in all cases an enhancement of the architecture is achieved at relatively low expense. And a combination of the two mesh types is especially interesting, allowing individual accentuation of the media design of very large-scale



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façades all the way up to video quality. Great attention is therefore paid to conceptualizing content for such installations. Only a display concept individually developed for the specific project can ensure an authentic harmony between the media façade and the respective architecture, and so achieve a perfect balance between expenditure and performance. Therefore the textual concept is of great importance for this new kind of media mesh. It is the individually tuned display which integrates the media façade authentically to a specific architecture and creates its effect, well-balanced between cost and performance. This makes tailor-made software alongside sustainable service essential elements for success.

Creating atmosphere in public places

Because they can be precisely and flexibly adjusted to any spatial and communicative context, MEDIAMESH® und ILLUMESH® open up previously unknown perspectives. Whether as media façades which draw public attention to their architecture or the individuality of their users, or as guidance systems in transit spaces: woven metal mesh with integrated LED technology infuses the anonymity of public spaces with dynamic façade illuminations, designed and individually controlled to fit every occasion.

GKD – WORLD WIDE WEAVE

Die GKD – Gebr. Kufferath AG ist als inhabergeführte technische Weberei Weltmarktführer für Lösungen aus Metallgewebe, Kunststoffgewebe und Spiralgeflecht. Vier eigenständige Geschäftsbereiche bündeln ihre Kompetenzen unter einem Dach: Industriegewebe (technische Gewebe und Filterlösungen), Prozessbänder (Bänder aus Gewebe oder Spiralen),



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Nähere Informationen:

GKD – GEBR. KUFFERATH AG
Metallweberstraße 46
D-52353 Düren
Telefon: +49 (0) 2421 / 803-0
Telefax: +49 (0) 2421 / 803-211
E-Mail: architekturgewebe@gkd.de
www.gkd.de

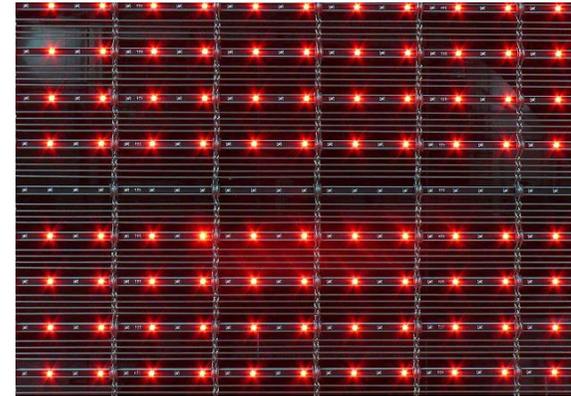
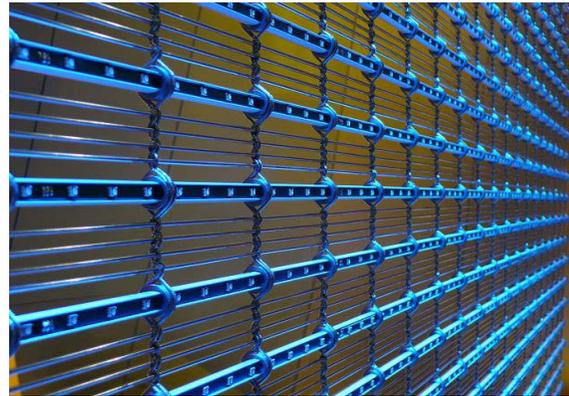
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impetus.PR
Ursula Herrling-Tusch
Charlottenburger Allee 27-29
D-52068 Aachen
Telefon: +49 (0) 241 / 189 25-10
Telefax: +49 (0) 241 / 189 25-29
E-Mail: herrling-tusch@impetus-pr.de

Transparent media façades: Illuminating architecture



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Picture 1-3: Thanks to interwoven LED profiles, MEDIAMESH® makes it possible to display electronic images on woven metal mesh façades via Internet.



Picture 4: Using special fixtures, LED profiles are attached to the front of the woven metal mesh: ILLUMESH®.



Picture 5 and 6: Graphic and color effects – combination of ILLUMESH® (left hand side of the building) and MEDIAMESH® (right hand side of the building).



Picture 1-4 © GKD/ag4

Picture 5, 6 © GKD/ag4/architecture by B. Romano

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Agentur für Corporate Communications GmbH

Ursula Herrling-Tusch

Charlottenburger Allee 27-29

D-52068 Aachen

Tel: +49 [0] 241 / 1 89 25-10

Fax: +49 [0] 241 / 1 89 25-29

E-Mail: herrling-tusch@impetus-pr.de