



CASE STUDY: SCHRÉDER

Dow and Schröder team up for Eastern Europe's first LED-illuminated sports stadium

The challenge

Lighting is instrumental to the success of any sports venue or stadium. It supports the optimal performance of the sports teams and the most positive experience for fans in the seats. Consequently, when construction began on the 6,000-seat Hidegkuti Nándor Stadium in Budapest, Hungary, the facility managers sought the most cutting-edge lighting technologies to illuminate the field, according to criteria imposed by the Union of European Football Associations (UEFA) and Fédération Internationale de Football Association (FIFA). For high-quality TV broadcasts, the stadium's illumination also needed to provide 1,500 lux or better. Lastly, the stadium managers wanted to leverage dynamic lighting effects to bring the stadium to life during the games and create a new level of excitement.

These ambitious plans led the stadium's architects to seek help from Schröder, a lighting firm specializing in high-intensity lighting solutions for street and urban lighting, ambience, architecture, tunnels, sports and industrial applications. The Schröder team quickly recognized that an LED lighting design based on complex polymer lenses would best meet all demands for the Hidegkuti Nándor Stadium. However, they also recognized their design would need to endure high heat, intense lumen density and exposure to ultraviolet rays. This would require a lens material beyond conventional organic polymers like polymethylmethacrylate (PMMA) or polycarbonate (PC).

The solution

Schröder sought the help of Gaggione S.A.S., an innovative designer and manufacturer of advanced optical components. Gaggione proposed the use of SILASTIC™ MS-1002 Moldable Silicone, the material of choice for professional indoor and outdoor lighting applications — particularly those where stability against high heat and light flux are important.

The highly processable, two-part liquid silicone formulation enabled Gaggione to injection mold the complexly shaped silicone collimators and demold them easily. SILASTIC™ MS-1002 Moldable Silicone provides outstanding mechanical, thermal and optical performance, as well as significantly higher photothermal stability than organic plastics. It has demonstrated reliability in accelerated aging tests: up to 6,000 hours at high temperatures (150°C), as well as artificial sunlight (UV-A and -B) combined with heat (65°C).

The success

Schröder's solution is the OMNIBlast LED Floodlight. More than 200 of these fixtures are now installed along the roof of Hidegkuti Nándor Stadium, establishing the facility as the first major sports venue in Eastern Europe to be illuminated exclusively by LED light sources.

"We chose SILASTIC™ MS-1002 Moldable Silicone over optical PMMA or PC for its higher thermal stability, which allowed us to develop a more innovative and reliable LED solution for stadium lighting," said Vincent Lang, a research manager at Schröder. "Specifically, Dow's cutting-edge, optical-grade silicone allowed us to increase the thermal limitations for our lens that, in turn, gave us the option to either increase light output or reduce the weight of the heatsink."



Over 200 of Schröder's innovative OMNIBlast LED Floodlights are installed along the roof of Hidegkuti Nándor Stadium in Budapest, making it the first major sports venue in Eastern Europe to be illuminated exclusively by LED light sources."





OMNIBlast LED Floodlight is designed for professional and recreational venues, with entertainment lighting available in both color changeable and tunable white versions. It also offers optimized glare control, and a wide range of beams, from very narrow to asymmetric. Each module offers a one-to-one replacement for high-power applications, up to 2000W, flicker free lighting and high Color Rendering Index (85+).



Using SILASTIC™ MS-1002 Moldable Silicone, the complex lens design, made of eight individual collimators attached together, was high precision injection molded, enabled by Gaggione. The silicone delivered outstanding mechanical, thermal and optical performances, and demolded easily.

In addition to ensuring that Schröder's LED floodlight performs reliably despite prolonged exposure to cycling temperatures, high lumen densities and UV exposure, the SILASTIC™ MS-1002 Moldable Silicone also enabled Gaggione's complex lens design to shape the LED light with high precision. As a result, the OMNIBlast LED Floodlight meets the criteria for illuminating national and international football matches and supports the high color rendering indexes needed for superb TV broadcasts. At the same time, it contributes minimal light pollution in the heart of Budapest's urban landscape.

"Moldable silicone technology made the OMNIBlast LED Floodlight a reality," Lang added. "But Dow's close collaboration and support were instrumental to helping it achieve the best possible reliability and performance."

Learn more

We bring more than just an industry-leading portfolio of optics materials. As your dedicated innovation leader, we bring proven process and application expertise, a network of molding and optical experts, a reliable global supply base and world-class customer service.

To find out how Dow can support your lighting applications, visit consumer.dow.com/lighting.

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S2D 91376/E26584

Form No. 11-3890-01 A