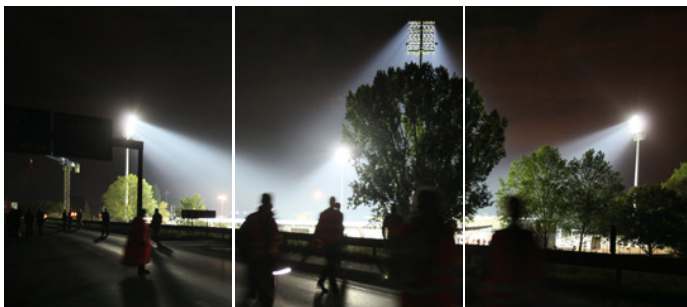


PRESS INFORMATION

Anti-glare lamellae instead of back light



In the Frankfurt Volksbank Stadium, Siteco high performance projectors provide optimal visual comfort for players and spectators, while a special anti-glare protection at the same time ensures safe vision for motorists on the nearby motorway.

On 23 July 2009 the time had finally come: following a 20 month construction period, a football could at last be kicked again in the Frankfurt Volksbank Stadium. A friendly match between FSV and Werder Bremen inaugurated an arena equipped in accordance with the stringent requirements of the German Football League (DFL). The DFL stipulations for second league clubs such as FSV require capacity for 15,000 spectators, adequate media workstations, a grass heating system, a fit-for-TV floodlight illumination and other criteria in addition. Illumination suitable for TV broadcasting created a significant degree of activity shortly before the inauguration of the stadium. A host of ideas and photometric expertise were called upon to equip the floodlight system in such a way that traffic on the nearby motorway was not disturbed.

Promotion for the stadium as well

The last May day of 2007 was a big day for the Frankfurt 1899 e. V. football club. At last after many years the club and its fans could celebrate promotion to the second national league. While such a promotion creates euphoria both on the playing field and in the spectator ranks, behind the scenes it means a great deal of effort of a non-sporting nature. As a result the City of Frankfurt and the FSV had to make the Volksbank Stadium fit for the higher league in terms of both technical and organisational requirements.

The planning involved included a new floodlight system. For the benefit of players, spectators and for TV broadcasting, the German Football League stipulates a minimum horizontal illuminance of

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800 lux on the playing field for second league matches. Professional television broadcasts also make stringent demands in terms of vertical illuminance, colour temperature (light colour) and colour rendition properties for stadium lighting. Criteria affecting the arrangement of luminaires are a high level of homogeneity, the avoidance of hard shadowing and absence of glare. For the Frankfurt Volksbank Stadium these demands were met with a four-mast system and a total of 144 Siteco Sicomact R3 Maxi high performance projectors mounted onto 40 metre high masts.

Glare-free as a matter of course

The R3 meets increased demands for performance, light quality and efficiency for stadium illumination. Its reflector consists of ultra-pure aluminium with a highest grade, refined surface processing. Reflector variations are available with seven different light distribution characteristics for uniform illumination of the playing field. Combined with the powerful short-arc lamps (HQL-TS 1000/2000 WDS), the custom-designed optic creates precise focusing of light guided onto the playing field, with almost no light spill. The result is an impressive light output ratio of 87%.

The R3 Maxi product developers placed particular importance upon glare reduction. When the projector is aligned horizontally a V-shaped, inner shield with sandwich construction prevents direct viewing of the lamp source. With steeper alignment angles the hexagonal faceted reflector optics lead to a further reduction of glare. But the Sicomact R3 Maxi not only represents an optimised solution in terms of lighting technology for the HDTV compatible illumination of sports arenas, it also convinces with a reduced design, a low windage area, a sophisticated sealing system suitable for rough weather conditions and low weight. Efficient thermal management also guarantees optimal cooling of the luminaire, thus increasing service life.

Making sense for the neighbourhood

For players in the stadium the best possible solution was achieved with the powerful, all-round glare-restricted projectors, but outside of the arena walls a particular challenge was awaiting the project participants. The A661 motorway runs directly adjacent to the Volksbank Stadium. A 300 metre section of the route is so close to the stadium that a fully switched on floodlight system would have disturbed traffic participants.

The district authorities responsible for the motorway demanded compliance to specific standards. A first suggestion for a solution envisaged installing a two kilometre-long luminaire system. By lighting the traffic route it was intended to compensate for the significant differences in luminance.

Estimated costs for the system totalled 2.5 million euros. But as the system would have been in operation for only a limited number of evenings each year when point matches took place in the stadium with maximum floodlight switching levels, the costs were deemed to be too high.

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A significantly more cost-efficient solution was achieved with shielding specially developed by Siteco and implemented within the beam path of the projector. In order to maintain the effectiveness and performance of the system and at the same time to achieve maximum glare reduction on the motorway, the lamellae were matched individually to each projector position. An anti-glare cylinder with inner lamellae is used. The Bartenbach lighting laboratory from Innsbruck calculated the floodlight installation in detail and also specified lamellae adjustments for each light point.

Excitement before the game

Excitement mounts as the shielding is installed five days before inauguration of the stadium. In the presence of experts from the Department for Road and Transportation Frankfurt, the inspectors stand on the closed-off motorway to determine the actual values. Together Klaus Petry, technical specialist, and Helmut Guggenbichler, project leader for Bartenbach, walk along the carriageway. They tow a four metre wide armature behind them and every five metres they measure the level of illuminance on the motorway at different reference positions. Four sets of measurements are carried out – one time without stadium light, one time with part switching of the floodlights (500 lux), once with complete power (800 lux) and once again in dark conditions. Punctually on the morning of the official stadium inauguration, approval from the Hessian Ministry for Economic Affairs and Traffic lands on the desk: the anti-glare lamellae fulfil their task reliably. The report was able to ascertain no exceeding of limit values on the motorway, meaning FSV kickers can play with full power.

Project coordination: WPV Baubetreuung, Frankfurt

Lighting design: Bartenbach LichtLabor, Aldrans/Innsbruck

Manufacturer: Siteco Lighting, Traunreut