DON'T GET

BLINDED BY THE LIGHT

SPORTSBEAMS
LIGHTING UP THE SPORTS WORLD

LED GLARE

Any LED sports lighting fixture can look acceptable... when you are standing behind it. But, when you're the athlete searching the night sky for a pop fly or a fan looking across the pitch, it's a bit different.

With all of their inherent advantages, LED fixtures seem to be taking over the world. The sporting community, however, has been much slower to adopt LED technology. We believe that a major reason for this is the problem of glare. The new LED sports lighting fixtures are bright enough, but the light quality eliminates them from serious consideration.

Sportsbeams spent years developing it's patented single-optics technology. This brief will explain how our technology works and why our fixture is the only one on the market that can deliver the highest quality, glare-free light available.

THE SPORTSBEAMS SOLUTION

LED BOARD

All LEDs are laid out precisely to maximize output. We control beam angle through different LED layouts and by moving the board closer to or further away from the glass optic.

PARABOLIC REFLECTOR

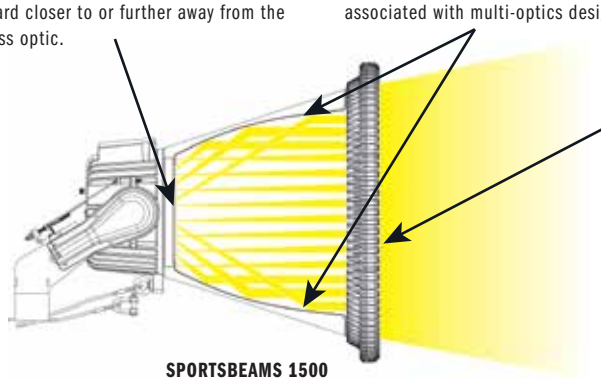
Our internal reflector helps shape individual beams so light exiting the aperture is even, completely eliminating the type of glare associated with multi-optics design.

SINGLE GLASS OPTIC

Our anti-reflecting, plated glass optics helps shape the exiting light into a tight, continuous beam with no hotspots.

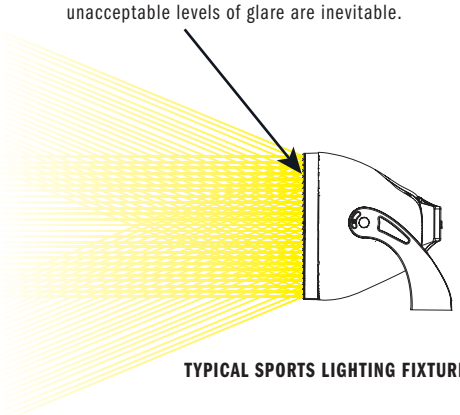
INDIVIDUAL LEDS WITH TIR LENSES

Intense light is forced through hundreds of plastic lenses. Without a significant phsysical distance between the LED and lens and no reflector shaping, unacceptable levels of glare are inevitable.



SPORTSBEAMS 1500

VS



TYPICAL SPORTS LIGHTING FIXTURE

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BRIGHT & EFFECIENT GLARE BOMBS

Sports lighting designers have recognized LED Technology's inherent energy savings for years. As the technology has matured, those savings have only increased along with the lumen output per watt. At the same time, however, there is a growing concern that the glare caused by the drive for increasing efficiency is making these lights less suitable for sporting venues.

DEFINING GLARE

What is glare and how does one quantify its effects? Glare is excessive and uncontrolled brightness. It is caused by the luminous intensity per unit area of light travelling in a given direction. This can cause visual discomfort and reduced visibility. Fans and players are starting to become very familiar with the uncomfortable sensation.

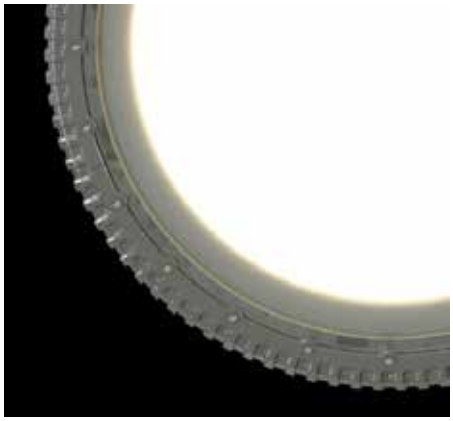
Glare is occurring with greater frequency, especially in sports venues, as manufacturers are doing everything they can to push as much light as possible out of a fixture. They accomplish this by utilizing higher efficiency LEDs and forcing light from those LEDs through small, individual TIR lenses and reflectors. The lenses concentrate the light for better delivery, but inevitably create unacceptable levels of glare.

QUANTIFYING GLARE

Evaluating glare in quantifiable terms can be difficult, but not impossible. It's not simply a measure of lux or foot-candles alone. Instead, one must measure light density over a given area, referred to luminance (how bright it appears to the human eye), which typically is measured in candelas per square meter (cd/m2) or nits. With sports lighting, lumen density per square inch can also be used to show relative glare factor.

MULTIPLE TIR LENSES VS. SINGLE GLASS OPTIC

TYPICAL SPORTS LIGHTING FIXTURE
Ultra Bright Multiple-Points of LEDs with 1275+ Lumens /sq. in



SPORTSBEAMS SINGLE OPTIC
Uniform Single-Point LED Distribution with 346 Lumens /sq. in

To accurately measure light density, *LED Magazine* recommended the following:

A common mistake in measuring LED luminaire luminance is measuring the entire fixture. Luminance must be measured at the luminous opening, in other words at the smallest point (without any breaks) that emits light out of the fixture. If one were to measure the entire LED luminaire, it would not account for the "shards" of light emitted from each individual LED. The light emitted from individual LED luminaire designs is more akin to a series of laser beams in contrast to the homogenous output of a traditional luminaire.

As illustrated on the left, many conventional LED sports lights utilize numerous small, plastic TIR lenses which condense and collimate light emitted by LEDs. In practice, such LEDs can produce over 1000 lumens each and can average a lumen density of 1275+ Lumens /sq. in. (with substantially higher peak lumen densities). Such concentrated, ultra-bright points inherently produce very noticeable glare.

SPORTSBEAMS' DESIGN

Sportsbeams took a different design approach. With over a decade of LED design experience in the movie industry, we knew that eliminating glare had to be a top priority. Our design incorporates a broad, single 27" glass lens to provide a much more uniform lumen density of 346 lumens/sq. in.

This design distributes light evenly over 50,000x the area of each individual LED light source, maximizing both the emitting area of luminaries and uniformly redistributing the originating ultra-bright points of LEDs. This greatly reduces the amount of glare.

Getting bright light from a sports lighting fixture is relatively easy. Designing a fixture that utilizes that light without producing unnacceptable levels of glare is physically impossible without incorporating our patented design. This design, in conjunction with other numerous features, makes Sportsbeams' Sports Lighting Fixtures the absolute best choice for all high-power lighting needs.

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