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DOING IT BETTER

50  
WE DO IT BETTER  
SINCE 1965

Dear Reader,

In this second edition of the Project Book we try to offer you other important best practices realized with our partners across the world.

The selected projects are just some examples of our expertise gained during the latest 50 years of activities. Indeed, this edition is even more important than the previous one: not only because we would like to demonstrate once again our expertise in lighting market, but also because this year is our Gold Jubilee, an important milestone as told by these and other important projects.

We strongly believe that light is a fundamental element for the life of human beings: that's why, during this year, already very representative for our company, we sponsor the International Year of Light, to highlight the company's commitment in favor of knowledge and awareness of every human being on the way in which the light-based technologies can promote sustainable development and provide solutions to global challenges, in energy, education, agriculture and health.

Enjoy the reading!

We do it better. We do it together.

Luciano Parravicini



*Chairman President Fael Spa*





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We sponsor the  
**INTERNATIONAL  
YEAR OF LIGHT  
2015**




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FRIULI ARENA  
*Italy*  
LM ONE  
6



ABU DHABI  
INTERNATIONAL  
AIRPORT  
*U.A.E.*  
LM MAX  
10



RHO-MONZA  
HIGHWAY  
*Italy*  
PROXIMO  
14




AL AIN EQUESTRIAN  
SHOOTING  
AND GOLF CLUB  
*U.A.E.*  
LM ONE  
18



METRO COLOMBO  
URBAN DEV. PROJECT  
*Sri Lanka*  
CHALLENGE /  
PROXIMO  
22



BATE BORISOV  
STADIUM  
*Byelorussia*  
LM ONE  
23



PALACE OF FENCING  
MAGINI  
*Italy*  
MACH 5 LED  
24



TAIPEI TIEN MU  
BASEBALL FIELD  
*Taiwan*  
LM ONE  
25



WESTPORTS  
MULTI-CARGO  
TERMINAL  
*Malaysia*  
MACH 5  
26



AFAS STADIUM  
*The Netherlands*  
LM ONE  
27




COMPLEXE SPORTIF  
PRINCE MOULAY  
ABDELLAH  
*Morocco*  
LM ONE  
28



POLIEDRO DE  
CARACAS  
*Venezuela*  
LM ONE  
28



SENEGAL  
INTERNATIONAL  
AIRPORT  
*Sénégal*  
LM 1000  
29



PANAMA CANAL  
EXPANSION  
*Panama*  
LM MAX  
29



UNIQUE, STUNNING WITHIN ITALIAN STADIA PANORAMA







## LIGHTMASTER ONE 2000W HF

### FRIULI ARENA

Udine, Italy



The main purpose of the project of the new Friuli Stadium is to create a modern, safe, sustainable sports facility to offer a unique experience to all users that can represent a positive hallmark for the morphology and architecture of the territory.

For the lighting aspect, the Udinese Calcio Company has chosen Fael LUCE to illuminate its own team. The proposed solution is perfectly in line with the objectives of the entire project and able to allow a reduction of the installed power, ensuring, maintaining the same levels of illumination, an energy requirement for night events lower than at present.

The professional lighting design has ensured compliance to all applicable standards and best practice. The on-site results also ensure high lighting performance, safety and energy efficiency, by providing the correct lighting levels at all game times.

Mr. Cogo, Fael LUCE's Lighting Designer, who made up the lighting design scheme throughout the project, explains: *"Lighting of the pitch complies to the highest standards as usual for Fael LUCE while the lighting of the stand is extremely comfortable for people watching the game."*



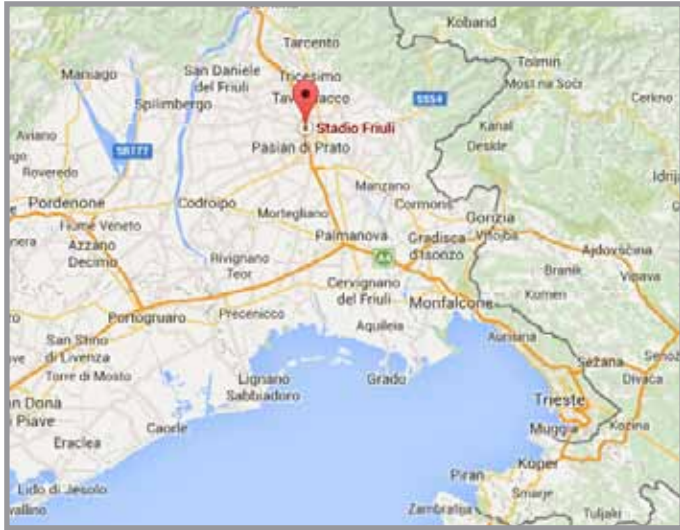
Fael LUCE is official supplier of Udinese Calcio Company.

Recommendation: FIFA Edition 2011



A result that goes far beyond the expectations, considering a level of illumination required by the project equal to 1500 Lux and also forwardlooking, as, from 2016, UEFA states that the average vertical illuminance should be 1650 Lux.





**THE SOLUTION**

In aggregate, Fael LUCE will deliver 410 LIGHTMASTER ONE, of 2000 and 1000W with a vertical average illuminance higher than 1800 lux. A result that goes far beyond the expectations, considering a level of illumination required by the project equal to 1500 Lux and also forwardlooking, as, from 2016, UEFA states that the average vertical illuminance should be 1650 Lux.

The renovation project includes four phases. The Phase 1, already completed in August 2014, a few days before the opening of the National Football Season, has provided for the demolition of the main and opposite stands, the removal of existing light towers and the provision of a temporary lighting system able to ensure 1500 vertical Lux, as required by UEFA. To achieve such objectives, Fael LUCE provided 214 LIGHTMASTER ONE of 1000 and 2000W placed on the edge of the arc of the main stand, under the cover and on three temporary light towers positioned on the opposite side of the main stand (each one with 24 floodlights, at an installation height of 27 meters).

The first phase of the project has proved to be even more delicate because the lighting value was intended to ensure the practicability of the stadium and enable television coverage by SKY, allowing the Udinese Calcio Company to carry out both home games of the National football season that any international matches. This stage was successfully passed, with the consent of the competent bodies (the Police, Public Entertainment, SKY TV and Udinese Calcio), which approved the system to be able to play the home football games.

Subsequent Phases 2, 3 and 4 provide the construction of the new NORTH covered stand, the construction of the grandstand (opposite the main stand) and the completion of the SOUTH covered stand in order to complete the arena for the upcoming National Football Season 2015/2016.

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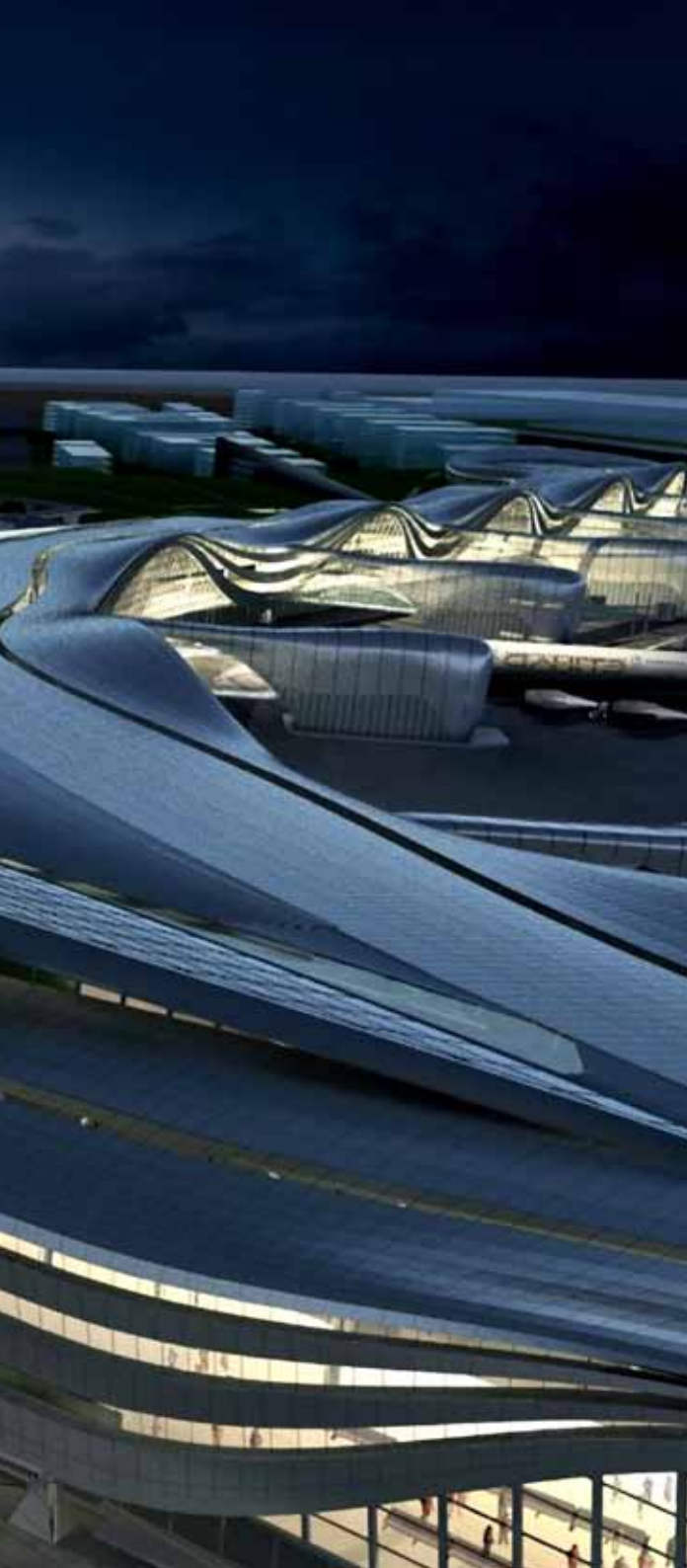
Floodlights type: **LIGHTMASTER ONE 2000W HF**

**KEY FIGURES**

<b>Horizontal Illuminance (Eh)</b>	2200 Lux	<b>Vertical Illuminance (Ev) main TV Camera</b>	2380 Lux
<b>Horizontal Uniformity</b>		<b>Vertical Uniformity</b>	
U1	0.83	U1	0.68
U2	0.92	U2	0.78

# AIRPORT'S MASTERPIECE





## LIGHTMASTER MAX 1000W

### ABU DHABI INTERNATIONAL AIRPORT

Abu Dhabi, U.A.E.



The Abu Dhabi International Airport, operated by Abu Dhabi Airports Company (ADAC), is the second largest airport in the UAE and one of the fastest growing airports in the world in passengers, new airline operators, and infrastructure development. Its expansion is part of the Abu Dhabi 2030 MasterPlan, aimed to transform the desert into the 'Garden of the Gulf' through a design that responds to its natural environment, while meeting the needs of the rapidly expanding capital.

Thought as the gateway to the city, the Midfield Terminal Building (MTB), so called for its placement between two runways, is the centerpiece of this expansion program. Raised up from the road level, it gives the appearance of sitting on its own plateau, a dominant and awesome structure silhouetted against the horizon.

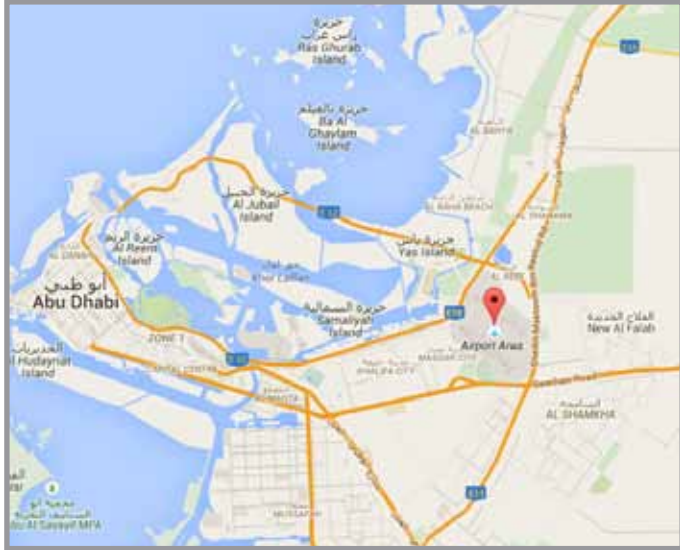
ADAC, with a strong Corporate Social Responsibility policy and mainly oriented in the development of a sustainable future in aviation, imposed project criteria totally focused on energy efficiency, low cost of ownership at a competitive pricing.



Recommendation: ICAO

Only the asymmetric floodlights allow to minimize to zero the emission of light output toward the sky up, thereby comply with the national and international recommendations regarding the light pollution.





### THE SOLUTION

Fael LUCE team, thanks to the several years of experience in lighting industry, suggested LIGHTMASTER MAX, the asymmetric solution aimed to clear the “obtrusive light”. This professional asymmetric solution satisfies any relevant design requirements, achieving highest lighting efficiency. The studies of specific asymmetric optics allowed to reach significant results and high luminous efficiency combined with elevated uniformity, that leads to obtain large energy savings in any facilities, in compliance with requirements of protection against light pollution.

Only LIGHTMASTER MAX allows to minimize to zero the emission of light output toward the sky up, thereby comply with the national and international recommendations regarding the light pollution.

Such solution allow the following benefits:

- More convenience in servicing and loading in terms of visibility and security;
- Does not cause glare in the eyes of the pilots, passengers and service personnel;
- Ensures lighting uniformity;
- Insures lighting values established by ICAO.

In this project, FAEL Engineering staff suggested an asymmetrical solution to meet perfectly all the requests of the International Hub to minimize zero spill light emission as well a comfortable illumination values for the different Aircrafts operations.

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Floodlights type: **LIGHTMASTER MAX asymmetric trapezoidal beam**



WE LIGHT UP THE ROAD TO EXPO 2015







**PROXIMO**  
**RHO-MONZA HIGHWAY**  
*Milan, Italy.*



“Feeding the Planet, Energy for Life”, as well known, is the theme of Expo 2015, the Universal Exposition that Italy, and in particular the city of Milan, will home from May 1 to October 31 2015.

The Site of Expo 2015, that covers about 1 million of square meters, is located just north-west of Milan, in the middle of a rich and integrated infrastructure system, further strengthened through the enhancing of Rho-Monza highway. This way of communication, along with the Milanese trait of the A4 Turin-Venice highway gives the access to exhibition site, thus representing an important and strategic crossroads as part of Expo 2015.

Fael LUCE, in collaboration with “Autostrade per l’Italia”, the European leader among concessionaire for the construction and management of toll highways, has provided for these two important traits, 835 pieces of PROXIMO streetlights, in order to ensure an effective transport system and an essential service to the mobility that, in this region, will play a crucial role from now onwards.

**THE SOLUTION**

Visual comfort, safety and energy savings are the main objectives of this lighting project, characterized by intense traffic flow, several junctions and connections. Therefore the safety requires an adequate level of illumination to ensure full visibility along the entire route.

In this framework, Fael LUCE provided PROXIMO with 42 and 49 LEDs, with a power consumption between 112 and 157W.





Visual comfort, safety and energy savings are the main objectives of this lighting project, characterized by intense traffic flow, several junctions and connections. Therefore the safety requires an adequate level of illumination to ensure full visibility along the entire route.



The streetlights are equipped with optic especially designed and patented in-house by FAEL Spa, which, in order to fully satisfy the CIE recommendations and the international street illumination engineering norms, and in accordance also with the recommendations against light pollution, developed a mixed refraction/reflection system.

In the perspective of a containment of the power consumption and intelligent management of the lighting systems, Fael LUCE streetlights have been provided with a wireless communication system, which transforms the lighting system in a real network, allowing the transmission and processing of millions of data and translated into real actions.

**BEYOND THE LIGHT**

The solution proposed by Fael LUCE therefore exceeds the border of traditional lighting, providing, thanks to lighting-technology combination, an integrated system that makes possible the remote control system, allowing adjustment of the light flux by time slots or in different situations (for example in cases of emergency, during the night or in road maintenance times of greater or lesser traffic), the constant emission of the luminous flux during the lifetime streetlights and the real-time detection of the power and possible faults for every single device.

The lighting system realized by Fael LUCE allows a saving of approximately 40% of electricity consumption, compared to traditional solutions with discharge lamps, ensuring an average life of the device four times higher, smart and less onerous maintenance, placing the project as part of the smart city and thus opening the door to new smart lighting scenarios.

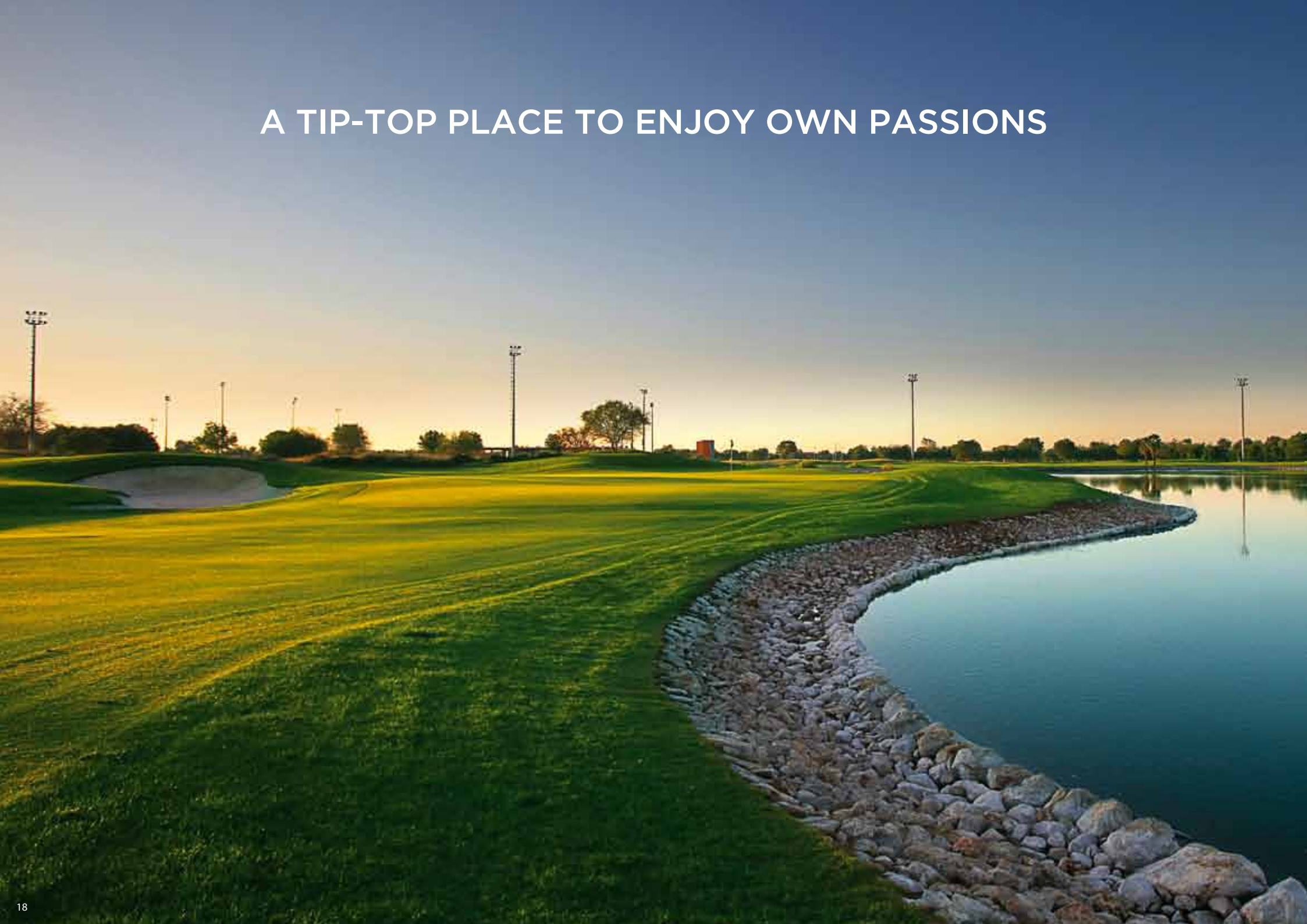
**WE DO IT BETTER - WE DO IT TOGETHER.**

Streetlights: **835 PROXIMO**

**KEY FIGURES**

<b>Average illuminance on the carriageway</b> > 1,5 cd/mq (Street lighting category: Me2).	Length of Rho-Monza: 9,2 Km.
<b>Pole installation height</b> (above the ground): 10 mt.	<b>Length of Milanese trait of the highway A4 Turin-Venice:</b> 11 km.
<b>Pole distance</b> (according to the characteristics of the carriageway): between 30 and 37 mt.	

A TIP-TOP PLACE TO ENJOY OWN PASSIONS





## LIGHTMASTER ONE 2000W

### AL AIN EQUESTRIAN SHOOTING AND GOLF CLUB

U.A.E.



Al Ain (meaning the eye) is the second largest city in the Emirate of Abu Dhabi and the fourth largest city in the United Arab Emirates, just south of Dubai and east of Abu Dhabi.

Known as the green city, because of its green cover, meaning 'The Spring' in Arabic, Al Ain city is fed by natural springs originating in the rocky heights that surround it. Set among lush oases and towering palm plantations, Al Ain – the Oasis City – is the emirate's heritage heartland and one of the world's oldest continually inhabited settlements and now a UNESCO World Heritage Site.

Here arises the Al Ain Equestrian, Shooting & Golf Club (formerly known as the Palm Sports Golf Resort), in fact a "small city" that covers a surface of 1.89 km<sup>2</sup> / 1500 yards and includes jumping horse, horse track, shooting, rugby facilities and one of the most complete and modern Golf Academies in the UAE, with 18 hole golf course and a 9 hole academy golf course. All facilities are under floodlights and so can be used from 6 am till 9 pm, even when play during nighttime is a necessity due to the extremely heat conditions of this region during day.

The golf course is set in the midst of the horse track and presents some unique views, that players can enjoy thanks to the lighting system provided by Fael LUCE.





**THE SOLUTION**

The Golf course has two very distinctive features: it boasts of the longest hole in the UAE -the par 5,10th hole that measures 678 yards from the championship tees and played into a head wind it feels more like a 720 yard, Par 5. The golf course is set in the midst of the horse track and presents some unique views, that players can enjoy thanks to the lighting system provided by Fael LUCE.

For this very variegated sports venue, indeed, Fael LUCE provided 1400 LIGHTMASTER ONE floodlights, with different circular optics with R2-R3-R4-R5-R6-R7-R9 beam and 200000 Lumen lamp, to assure the correct lighting values during night time, assuring, at the same time, the zeroing of glare or any other interferences between the different sports.

The solution, analyzed, studied and proposed, by Fael LUCE foreseen the installation of these floodlights on 53 high mast of 25 meters height.

Once again, Fael LUCE has demonstrated to fully satisfy the needs of the committee, assuring the correct lighting values and the right visual comfort to the players and spectators.

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Floodlights type: **LIGHTMASTER ONE 2000W**

**KEY FIGURES**

<b>Average horizontal illuminance</b> Tee and Green: 250 Lux	<b>Average vertical illuminance</b> Total area: 200 Lux
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### CHALLENGE / PROXIMO

#### METRO COLOMBO URBAN DEVELOPMENT PROJECT

*Colombo - Sri Lanka*

Sri Lanka needs competitive and dynamic cities to reach its aspiration of becoming an upper-middle income economy and a global hub. Therefore, the Metro Colombo Region, the international gateway to Sri Lanka, is on a path of rapid urbanization and The Metro Colombo Urban Development Project (MCUDP) is a key response to this need.

Fael LUCE is part of this beautification project, as a reliable partner for the public lighting installed in the heart of the administrative and commercial part of the city. CHALLENGE & PROXIMO, the newest LED streetlights designed by Fael LUCE, demonstrate indeed supreme engineering and seamless integration with the surroundings.

Streetlights:

**CHALLENGE 70 LED** - driven at 700mA - 148W

**PROXIMO 56 LED** - driven at 700mA - 120W



The Arena Football Stadium Borisov, designed by the Slovenian architects OFIS Arhitekti, has been built up to host football international matches of the local team FC BATE Borisov (Byelorussia).

This structure boasts an original architectural beauty: rounded lines wrapped in an aluminium' skin with oval openings along the façade, which makes it similar to a beehive completely surrounded by nature.

The design requirements dictated for a solution that would integrate seamlessly into the overall project. The results have been reached with the installation of 192 Floodlights LIGHTMASTER ONE 2000W HF (223000 Lumen). The used floodlights really accomplished all the needs in terms of lighting design National and International Games in presence of Color Tv camers (CTV).

Floodlights type: **LIGHTMASTER ONE 2000W HF**



### LIGHTMASTER ONE 2000W HF

#### **BATE BORISOV STADIUM**

*Borisov, Byelorussia*



Recommendation:  
FIFA- UEFA, International events





### MACH 5 LED

## PALACE OF FENCING MAGINI

Jesi, Italy



European City of Sport

Fael LUCE has provided a new illumination system at the Palace of fencing "Magini" in Jesi (ITALY), a hothouse of Olympic champions, with the provision of the new MACH 5 LED floodlights, in the sign of innovation technology and the sharing of values represented by that sport.

The lighting design was focused on two main points: the increase and improvement of current lighting values and the reduction in the general costs of the structure. Fael LUCE proposed to install 36 MACH 5 floodlights with the latest generation of LED lighting source, that would allow a value of adequate illumination and the decrease of the power consumption by at least 30% lower.

Floodlights type: **MACH 5 LED**





Taipei Tien mu Baseball Stadium was built in 1999 and it is located in Shilin District.

Originally designed as community ballpark, Tien mu Stadium is located in a rather high price residential neighborhood of Tien mu, and many sound and light restrictions in regard of the usage of the stadium are in place. Because of that, the lighting system chosen was LIGHTMASTER ONE, that allow to illuminate only where and when needed.

Floodlights type: **LIGHTMASTER ONE 2000W HF**



**LIGHTMASTER ONE 2000W HF**

**TAIPEI TIEN MU  
BASEBALL FIELD**

*Taipei, Taiwan*



### MACH 5

## WESTPORTS MULTI-CARGO TERMINAL

Port Klang, Malaysia

Westport is a multi-cargo terminal which handles all types of cargoes in containers, and other conventional cargoes. Located along the straits of Malacca, Westports (collectively with Northport as Port Klang) has become the 18th busiest seaport in the world.

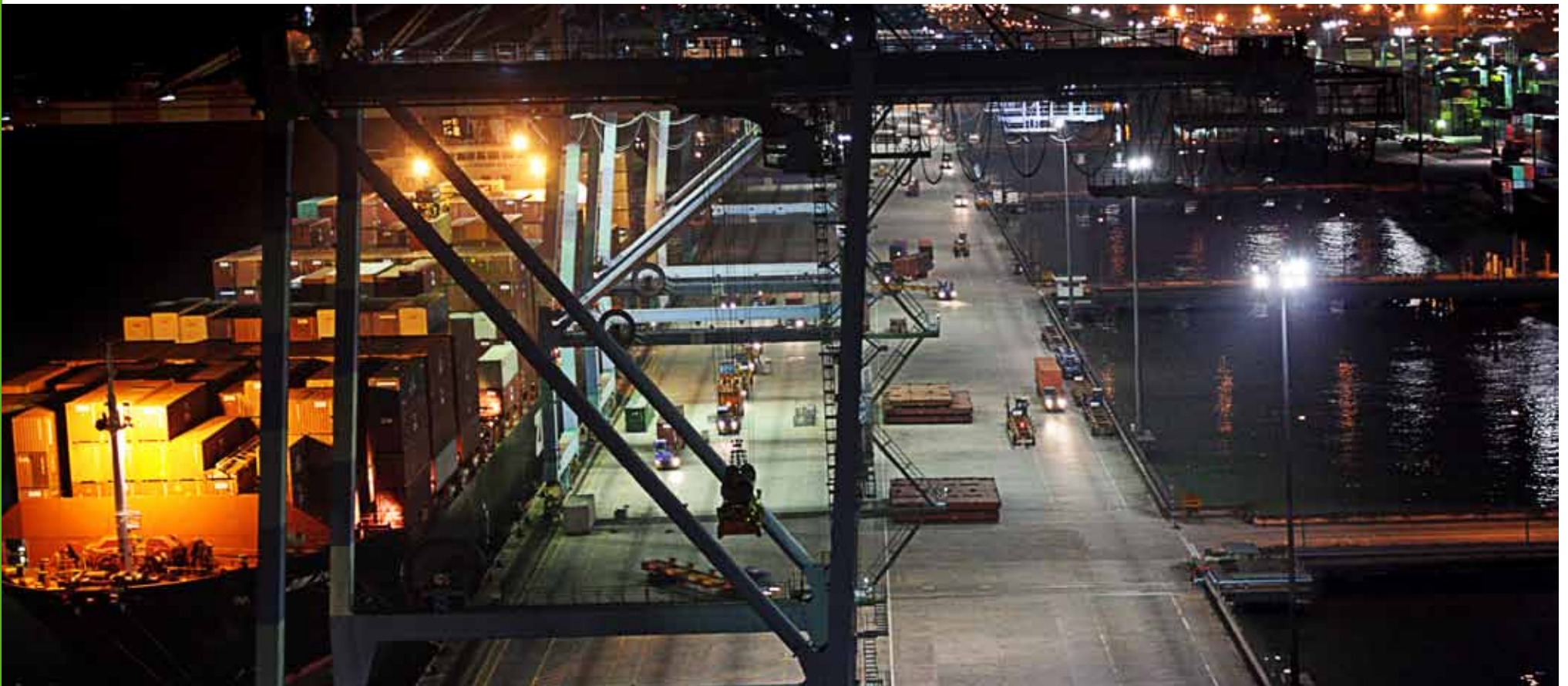
As part of the privatization exercise by the government of Malaysia in the early 1990s, Port Klang was subdivided into 3 terminals which are now known as Northport, Southpoint and Westports.

Located on the island of Pulau Indah (formerly Pulau Lumut), Westports have transformed the island's natural swamplands and sands into a multi-cargo seaport terminal. With the current quay length of 3.2 kilometers, which includes 5 container terminals, Westports have grown into a seaport terminal and helped Port Klang to be among the ports in the world.

Floodlights type: **MACH 5 COSMO WHITE 315W**

#### KEY FIGURES

Horizontal Illuminance (Eh)	Horizontal Uniformity
27.47 Lux	0,51





Alkmaar Zaanstreek, better known as AZ Alkmaar or simply AZ, is a professional football club from the north of The Netherlands. The club plays in the Eredivisie, the highest professional football league in this Country.

AZ plays the home games at the AFAS Stadion, located in the southern part of the city of Alkmaar. The stadium, which is owned directly by the club, was opened in 2006 and replaced the old Alkmaarderhout venue as the DSB Stadion. The stadium currently has a capacity of 17,023 people.

For this project, Fael LUCE provided 168 pieces of LIGHTMASTER ONE 2000W with Osram lamp HQI-TS 2000W/D/S 6100K, 210.000 lumen.

Floodlights type: **LIGHTMASTER ONE 2000W**

#### KEY FIGURES

<b>Lamp:</b> Osram HQI-TS 2000W/D/S 6100K, 210.000 lumen	<b>Vertical Value:</b> 1425 lux MainTVcam	<b>Horizontal Value:</b> 1871 lux
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#### LIGHTMASTER ONE 2000W

#### AFAS STADIUM

*Alkmaar and the Zaanstreek,  
The Netherlands*



UEFA-FIFA Class IV Regulations



### LIGHTMASTER ONE 2000W HF

#### COMPLEXE SPORTIF PRINCE MOULAY ABDELLAH

Rabat, Morocco



Fael LUCE has provided a state of the art lighting installation at the PRINCE MOULAY ABDELLAH sportive complex, the Rabat's largest stadium and second biggest in all of Morocco built in south-western outskirts of the city in 1983.

Today it is the home ground of FAR Rabat and currently used mostly for football matches and stage athletics. Since 2008, it is host of the Meeting International Mohammed VI d'Athlétisme de Rabat and in 2014 was also a venue for the 2014 FIFA Club World Cup.

Floodlights type: **LIGHTMASTER ONE 2000W HF**



Football Championship 2014-2016, Class V° - FIFA 2011



### LIGHTMASTER ONE

#### POLIEDRO DE CARACAS

Venezuela



For the main event of the International Basketball Federation (FIBA), the Poliedro de Caracas has been selected as the main venue to play the Olympic qualifying playoff.

This complex has been just renovated, being now a scenario of international standard, able to welcome 13.500 spectators.

For this project Fael LUCE provided LIGHTMASTER ONE floodlights with circular optics of R5, R6, R7, R9 beams, ensuring the achievements of amazing lighting values.

Floodlights type: **LIGHTMASTER ONE 2000W**



**FIBA**  
We Are Basketball

Homologation: FIBA LEVEL I  
Area dimension: 34x20 m  
Spectators: 13.500



### LIGHTMASTER 1000

#### SENEGAL INTERNATIONAL AIRPORT

*Dakar, Sénégal*



For this avant-garde Fael LUCE provided 529 LIGHTMASTER 1000 with asymmetric intensive optics, installed on 71 high mast from 20 to 25 m. height, able to offer a precise lighting technology: the proportion of scattered light emitted in the environment is greatly reduced, avoiding in this way light pollution.

The only defined surface is effectively illuminated, with a minimized influence on the environment. This floodlight is highly recommended specially for an upper spill light control in those areas, such as aircraft aprons, where the light pollution is an essential condition.

Floodlights type: **LIGHTMASTER 1000**



### LIGHTMASTER MAX 2000W

#### PANAMA CANAL EXPANSION

*Panama*



The enlargement of the existing Panama Canal is one of the largest and most important engineering projects in the world.

Fael LUCE has provided the floodlights to illuminate the building site that is working on the expansion of the Canal. This kind of lighting must ensure high standards of safety, so that the laborers, involved day and night in the realization of the enlargement, can work in a safety environment, properly lighted up.

The Panama Can will be completed in 2018.

Floodlights type: **LIGHTMASTER MAX 2000W**

**CHERNOMOREC STADIUM**  
*Ukraine*



**HANDBALL IZBOR**  
*Oman*



**PRUSZKOW NATIONAL VELODROME**  
*Poland*



**KONIAMBO NICKEL PLANT**  
*New Caledonia  
Australia*



**KOLUMNA CASTLE**  
*Poland*



**MAYBANK TOWER**  
*Singapore*



**KUANTAN COURT**  
*Malaysia*



**SVETICKHOVELI MONASTERY**  
*Republic of Georgia*

**EURO BASKET 2013**  
*Slovenia*



**SHA LU OVERPASS**  
*Taiwan*



**RED BULL X-FIGHTERS**  
*Egypt*



**FIAT DEALER**  
*Bari - Italy*



**COMMUNICATION ROUTES**  
*Italy*



**RECIFE ROUTE**  
*Brasil*



**AUTOSTRADE PER L'ITALIA**  
*Italy*



**CENTRO DIREZIONALE COLLEONI**  
*Italy*

**I PINI HORSE TRACK**  
*Follonica - Italy*



**STADE LOUIS II DE MONACO SALLE OMNISPORTS**  
*France*



**HONG KONG STADIUM**  
*Hong Kong*



**GIULIO ONESTI OLYMPIC SWIMMING POOL**  
*Rome - Italy*





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