



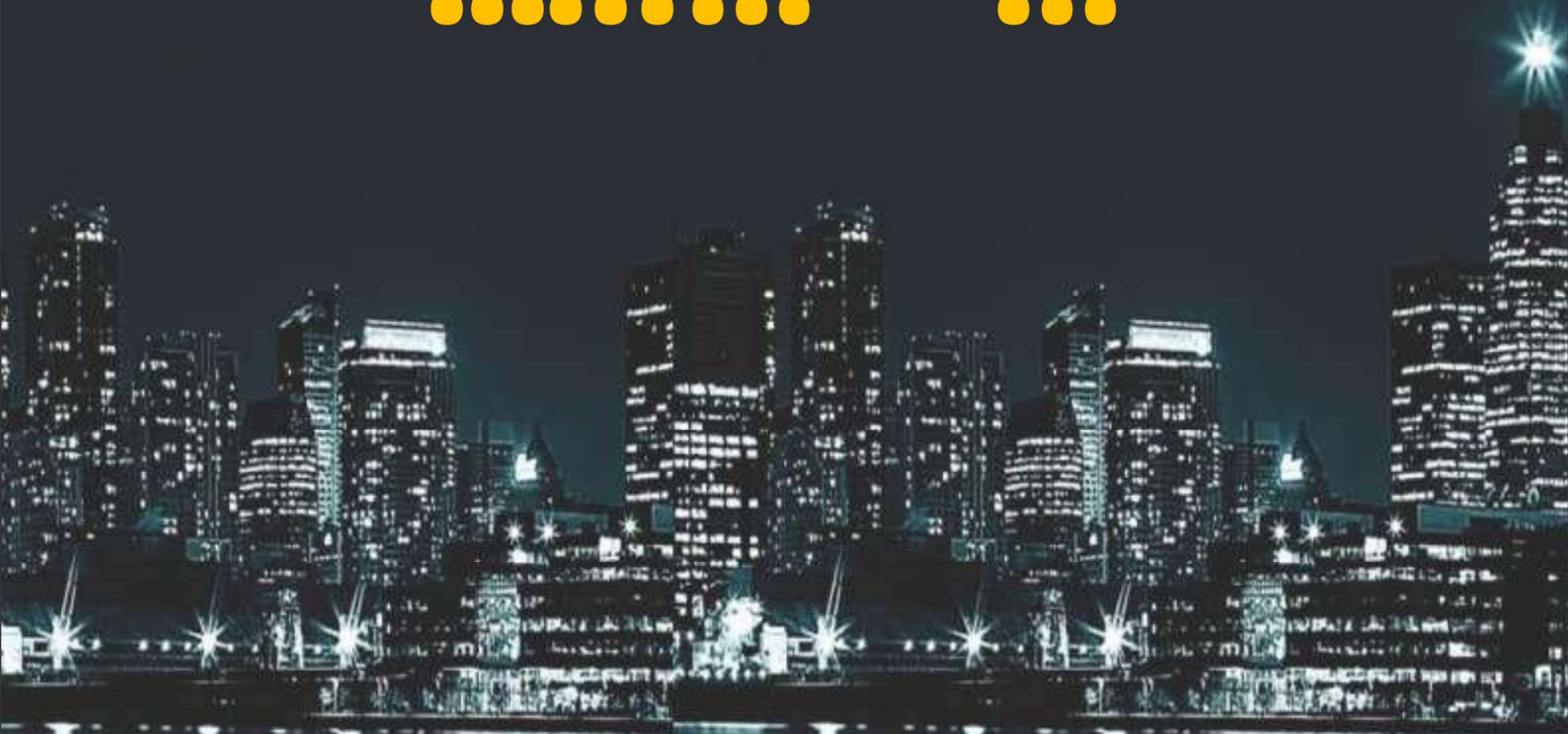
La Martini

Panache in Specialized Lighting

**TUNNEL, AREA &
SPORTS LIGHTING**



LA



MARTINI

LIGHTING



AREA LIGHTING

Crisp, Uniform and Efficient Professional LED Flood Lights for Area and Sports Arena

La Martini

Area Lighting

				
Aero flood- QUADRA	Aero flood- DAZZLE	Aero flood- DAZZLE DUO	Aero flood- STADIA-III	Aero flood- STADIA-IV

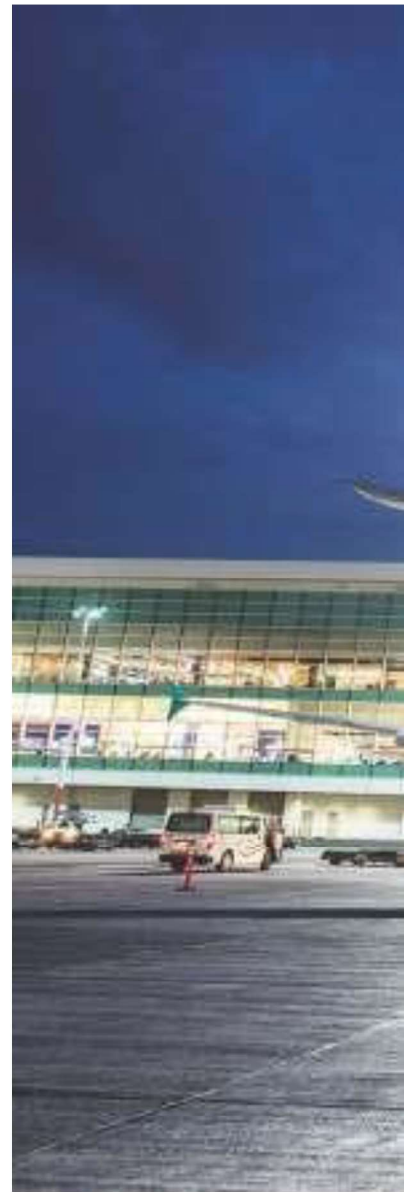


Flood Lights for Train stations, Airports & Container Terminals



Infrastructure

Train stations, airports and large transit areas are regarded as “landmarks”, i.e. well defined signs of a city’s ambition and desire for renovation. This is why the design of major infrastructure requires flexible optics and colour temperature options. Lighting should meet functional requirements and also enhance the challenging solutions chosen by the designers. Lighting becomes an integral part of these public works, giving them extraordinary visibility during the evenings. Proper lighting can increase safety, efficiency and energy savings and improve aesthetics.





Uniform, efficient and safe lighting for any design requirement



Applications

- A truly complete range of LED Flood Lights offering the best performance to meet all outdoor lighting needs for:
 - Building and facades, Industrial zones, Harbour areas, Railway Loading/Unloading bays, Public or private infrastructure, Airports, Metro stations, Car parks and transit zones
 - Stadiums, Indoor and Outdoor multi sports facilities (Tennis court, Basketball court, Swimming pool, Velodrome, Hockey ring, Volleyball court, etc.).

Performance and advantages

- Latest Generation LED Sources with excellent colour rendering and light output. The advanced LED sources, with colour temperature options of **4000K/5700K** and **CRI 70/80/90** are ideal to enable non televised or perfect high definition TV coverage.
- The remarkable performance of these flood lights facilitates their use in large areas as well as in stadiums or indoor and outdoor arenas, providing unprecedented performance in any setting
- The use of variety of PMMA/PC lens based optical system and the incorporation of the LED source into the floodlight guarantee precision and high performance non intrusive and low glare light for the benefit of visual well being of players and viewers alike.

NARROW BEAM				
	AEROFLOOD 10° SPOT 5700 K - 70 CRI		AEROFLOOD 15° NARROW 5700 K - 70 CRI	
SYMMETRIC BEAM				
	AEROFLOOD 25° MEDIUM 30° MS 4000 K - 70 CRI		AEROFLOOD 38° MEDIUM 40° MS 4000 K - 70 CRI	
	AEROFLOOD 60° WIDE 60° W 4000 K - 70 CRI		AEROFLOOD 120° EXTRA WIDE 40° M 4000 K - 70 CRI	
ASSYMMETRIC BEAM				
	AEROFLOOD 50° FORWARD ASSYMMITRIC		AEROFLOOD 24° X 90° BI SYMMITRIC	

Outdoor areas

The lighting of outdoor areas, such as loading / unloading bays, is a very delicate and difficult element in a lighting design project. The perfect visibility of outdoor areas must be guaranteed at any time of the night and under any weather condition.

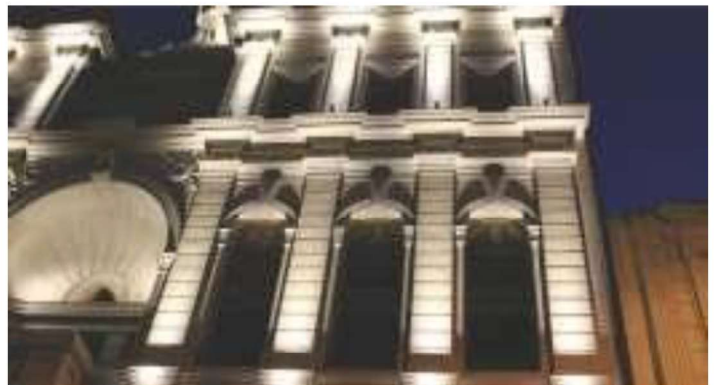
People must be able to quickly and safely orient themselves. Therefore in outdoor areas, lights should be sufficiently bright and above all without glare. The light emitted by the modular optical design makes La Martini LED particularly suited for this type of applications. Furthermore, thanks to different photometric distributions, it can adjust with great flexibility to any design requirement, because every outdoor area has different needs.



Buildings and facades

In the lighting of building and facades attention is placed on functional aspects, as well as on architectural and aesthetic elements.

First of all, it is important to ensure the perfect lighting of road signs and entrance areas in order to guide visitors easily and safely. Moreover, there is the need to enhance the building's architecture, highlighting those elements that make the building recognizable.



LED Types for outdoor use

Oslon Square



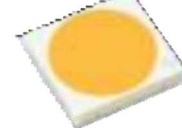
CREE 3535



Duris S8



Luxeon 5050



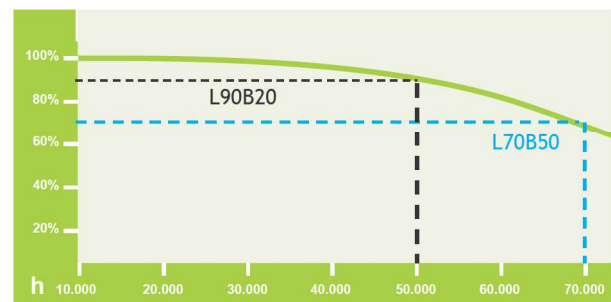
LED Life expectancy



LEDs, unlike traditional sources, will not turn off suddenly when their working life ends, but will slowly fade their initial luminous flux until they turn off completely.

In fact, LEDs do not break (except for manufacturing damages) but decay gradually and constantly. The decrease of LED flux is defined by the working life and is represented by the "L" mark (for example L70 which means that the flux is maintained up to 70% till the declared hours of operation). The "B" followed by a number ranging between 10 and 50 indicates the quality of the fixture and defines the LED percentage that is likely to fail up to the declared life.

EXAMPLE: LED declared L90B20=50000 Hrs. This means that when the LED reaches 50000 Hours of operation, 80% (B20) of the LED will have a luminous flux corresponding to 90% of the initial flux (L90). Similarly L70B50= 70000 Hours will indicate 70% of initial flux and 50% (B50) of LEDs operational at reaching 70000 Hours.



Aeroflood-QUADRA

IP66 IK08



Energy Label **A++**



LED FLOOD LIGHT

DESIGN FEATURES

- High pressure die cast Aluminium alloy housing
- Polyester powder coating with multiple color options
- Robust, Sleek design with excellent heat dissipation
- 360° Cradle movement for omnidirectional precise focusing
- 4mm Thick extra clear toughened glass
- Silicon moulded & Extruded gaskets for IP66 rating
- Separate integral driver compartment IP 66
- All stainless steel - AISI 304 grade hardware
- Minimised windage area (0.0676M²)
- **ON REQUEST:** Microwave Motion Sensor, Dimmable / DALI Versions, Daylight Sensor, Emergency Version through Lithium Ion Battery Pack, Mechanical Protection Guard.

THERMAL MANAGEMENT

- Generously designed radiator fins in vertical direction to ensure proper air convection
- Separate integral driver compartment for thermal isolation & not to affect LED compartment during maintenance, provided with brass PG9 cable gland

COMPLIANCES - LUMINAIRE

- As per IS 10322 (Part5/ Sec.5) 2012 & 2015
- IP66, IK08 as per IEC-EN 62262
- **ON REQUEST:** Surface coating resistant to salt spray tests pursuant to standard UNIEN ISO 9227.

LEDs

- High Efficiency (>145Lm/W) Outdoor illumination grade SMD LEDs, LM80 Certified.
- Low junction thermal resistance for long life and low lumen depreciation
- Luminous flux maintenance 80%, 50,000 Hrs (L80B20)
- High color rendering : CRI - 70/80/90
- Various CCT : 5700K/ 4000K/ 3000K/2200K

ELECTRICAL SYSTEM•

- Outdoor rated >90% efficiency constant current drivers with over Voltage (440V AC)/Undervoltage, Short circuit & Open circuit Protection 4KV / 5KV / 6KV Inbuilt surge protection
- Optional 10KV / 20 KV External SPD
- Low Current Harmonics : THD < 10%
- Low Flicker : <3%
- Ambient Temperature range : -30°C To 45°C

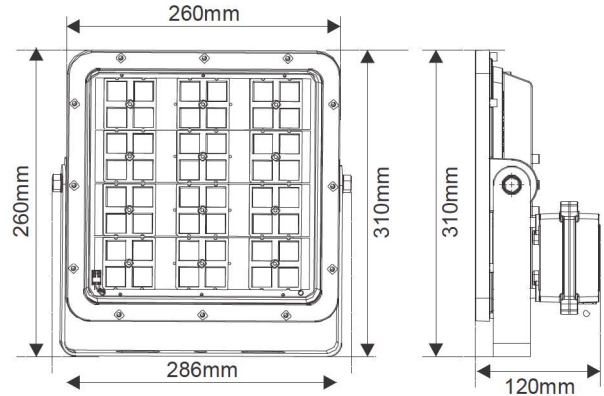
OPTICAL SYSTEM

- Variety of photometric beam options for - Area Lighting, Facade Lighting, Tunnel Lighting, Sports Arenas
- Structured on high performance optical grade lenses in PMMA / PC
- Photometric design data for all optics available



Aeroflood-QUADRA

IP66 IK08



AREA LIGHTING

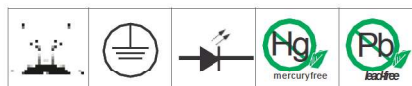
Technical Parameters

- Input AC Voltage : 140 to 277 VAC
- Frequency : 50 / 60 Hz
- Luminous Efficiency : 120 Lumens/Watt
- CCT (K) : 5700K / 4000K / 3000K
- Optics : Symmetric : 10° / 25° / 35° / 50° / 60° / 90°
Asymmetric : 20°x 90° Oval / FN - Forward Asymmetric
45° / Tunnel Counterbeam TF 55°
- Net Weight : 4.8Kg.

Technical Specifications

SERIES	ITEM CODE	SYSTEM WATTAGE	INPUT CURRENT	DELIVERD LUMENS	LIGHT BEAM	THD	PF	SURGE PROTECTION	CCT	CRI
QUADRA	LMFL-0075-757-60-00	75	0.325	9000	Symm 60°	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0100-757-25-00	100	0.436	12000	Symm 25°	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0135-757-60-00	135	0.592	16200	Symm 60°	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0150-757-20x90	150	0.655	18000	20° x 90°	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0150-757-25-00	150	0.655	18000	Symm 25°	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0150-757-60-00	150	0.655	18000	Symm 60°	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0200-757-20x90	200	0.857	24000	20° x 90°	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0200-757-FN-00	200	0.875	24000	AsymFN	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0200-757-25-00	200	0.875	24000	Symm 25°	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0200-757-60-00	200	0.875	24000	Symm 60°	<10%	0.95	4 KV	5700K	70

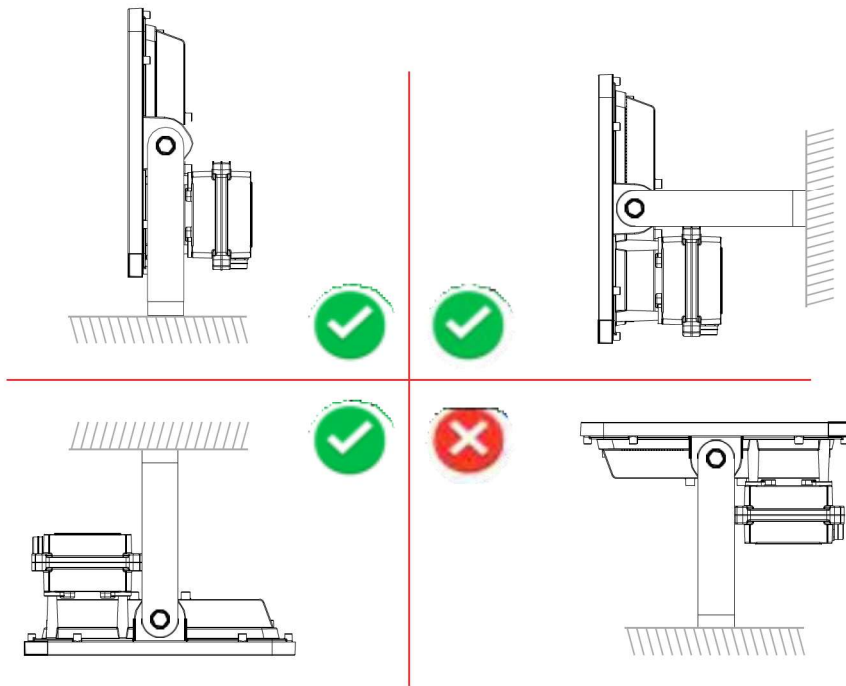
La Martini



Aeroflood-QUADRA

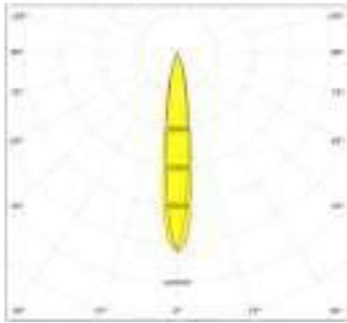
IP66 IK08

Installation Illustrations

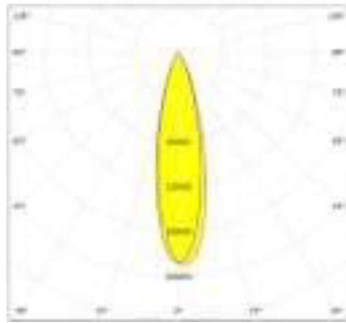


Polar Diagrams

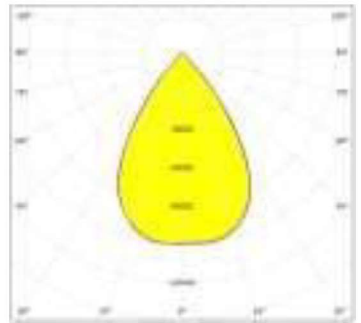
10° - 15° Narrow



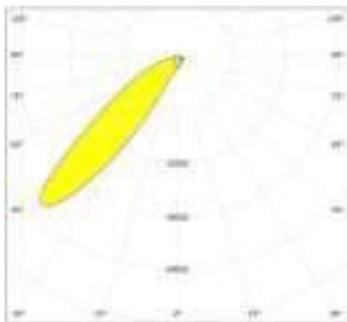
25° - 33° Medium



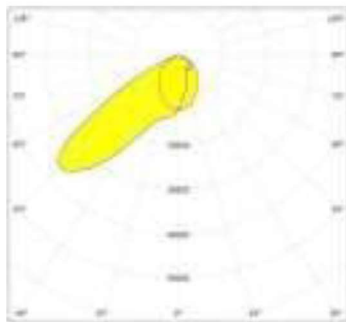
50° - 60° Wide



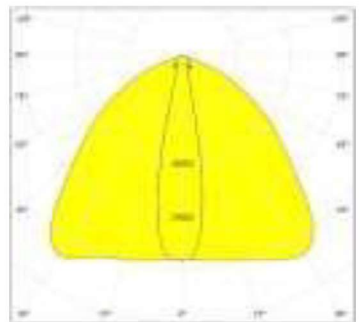
TF Tunnel Counterbeam



FN Forward Assymmetric



24° x 90° Bi Symmetric





Aeroflood-DAZZLE

IP66 IK08



Energy Label A++



LED FLOOD LIGHT

DESIGN FEATURES

- High pressure die cast Aluminium alloy housing
- Polyester powder coating with multiple color options
- Robust, Sleek design with excellent heat dissipation
- 360° **Cradle movement for omnidirectional precise focusing**
- 4mm thick extra clear toughened glass
- Silicon moulded gaskets for IP66 rating
- Separate integral driver compartment IP 66
- All stainless steel - AISI 304 grade hardware
- Minimised windage area (0.120M²)
- Anti condensation breather cum pressure equalization valve
- **ON REQUEST:** Microwave motion sensor, Dimmable/ DALI Versions, Daylight sensor, **Emergency Version** through Lithium Ion battery pack, Mechanical protection guard.

THERMAL MANAGEMENT

- Generously designed radiator fins in vertical direction to ensure proper air convection
- Separate integral driver compartment for thermal isolation & not to affect LED compartment during maintenance, provided with brass PG9 Cable gland

COMPLIANCES - LUMINAIRE

- As Per IS 10322 (Part5/ Sec.5) 2012 & 2015
- IP66, IK08 as per IEC-EN 62262
- **On Request:** Surface coating resistant to salt spray tests pursuant to standard UNIEN ISO 9227.

LEDs

- High Efficiency (>145Lm/W) Outdoor illumination grade SMD LEDs, LM80 Certified.
- Low junction thermal resistance for long life and low Lumen depreciation
- Luminous flux maintenance 80%, 50,000 Hrs (L80B20)
- High colour rendering : CRI - 70/80/90
- Various CCT : 3000K/ 4000K/ 5700K

ELECTRICAL SYSTEM•

- Outdoor rated >90% efficiency constant current drivers with over voltage (440V AC)/Undervoltage, Short circuit & Open circuit Protection 4KV / 5KV / 6KV inbuilt surge protection
- Optional 10KV / 20 KV external SPD
- Low current harmonics : THD < 10%
- Low flicker : <3%
- Ambient Temperature range : -30°C To +50°C

OPTICAL SYSTEM

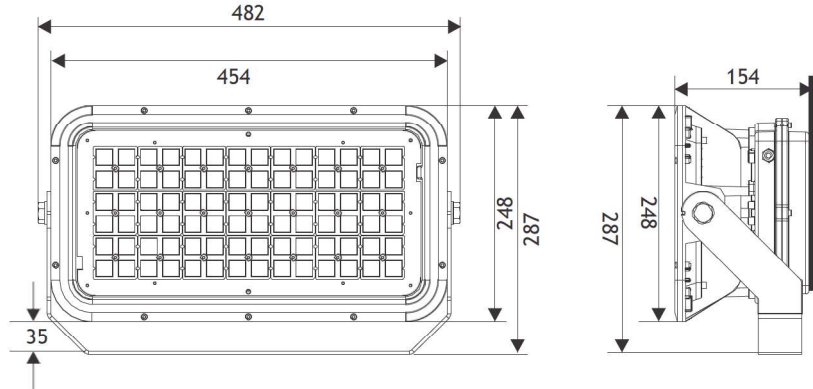
- Variety of photometric beam options for - Area Lighting, Facade Lighting, Tunnel Lighting, Sports Arenas
- Structured on high performance optical grade lenses in PMMA / PC
- Photometric design data for all optics available



Application image for reference purpose only →

Aeroflood-DAZZLE

IP66 IK08

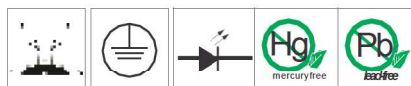


Technical Parameters

- Input AC Voltage : 140 to 277 VAC
- Frequency : 50 / 60 Hz
- Luminous Efficiency : 120 Lumens/Watt
- CCT (K) : 3000K / 4000K / 5700K
- Optics : Symmetric : 10° / 15° / 25° / 33° / 60° / 90°
Asymmetric : 20°x 90° Oval / FN - Forward Asymmetric 45° /
Tunnel Counter beam TF 55°
- Net Weight : 10.6Kg.

Technical Specifications

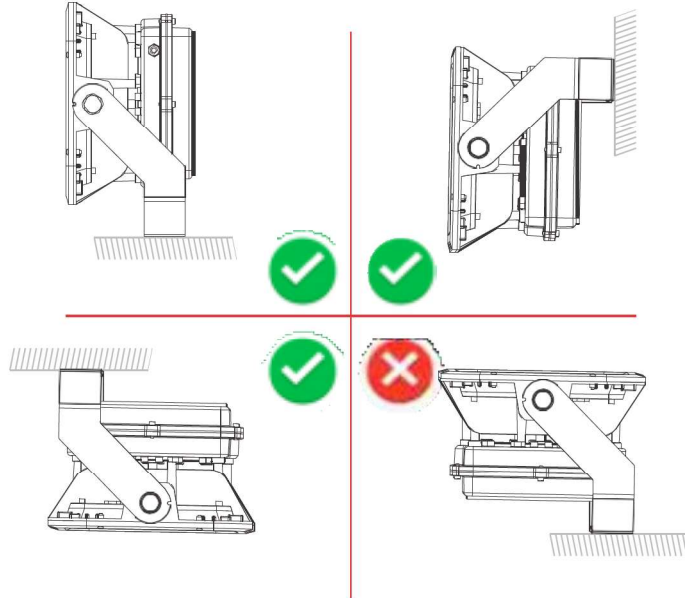
SERIES	ITEM CODE	SYSTEM WATTAGE	INPUT CURRENT	DELIVERD LUMENS	LIGHT BEAM	THD	PF	SURGE PROTECTION	CCT	CRI
DAZZLE	LMFL-0200-757-60-00	200	0.850	24000	Symm 60°	<10%	0.95	4 KV	5700K	70
DAZZLE	LM FL-0240-757-60-00	240	1.002	28800	Symm 60°	<10%	0.95	4 KV	5700K	70
DAZZLE	LM FL-0240-757-25-00	240	1.002	28800	Symm 25°	<10%	0.95	4 KV	5700K	70
DAZZLE	LM FL-0300-757-10-SP	300	1.275	36000	Symm 10°	<10%	0.95	4 KV	5700K	70
DAZZLE	LM FL-0300-957-10-SP	300	1.275	30900	Symm 10°	<10%	0.95	4 KV	5700K	90
DAZZLE	LM FL-0300-757-25-SP	300	1.275	36000	Symm 60°	<10%	0.95	4 KV	5700K	70
DAZZLE	LM FL-0300-757-60-00	300	1.275	36000	Symm 60°	<10%	0.95	4 KV	5700K	70
DAZZLE	LM FL-0300-757-FN-00	300	1.275	36000	Asymm FN	<10%	0.95	4 KV	5700K	70
DAZZLE	LM FL-0350-757-28-00	350	1.495	42000	Symm 28°	<10%	0.95	4 KV	5700K	70
DAZZLE	LM FL-0350-757-60-00	350	1.495	42000	Symm 60°	<10%	0.95	4 KV	5700K	70



Aeroflood-DAZZLE

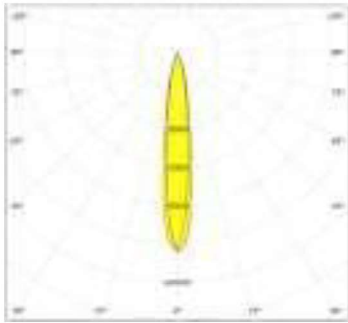
IP66 IK08

Installation Illustrations

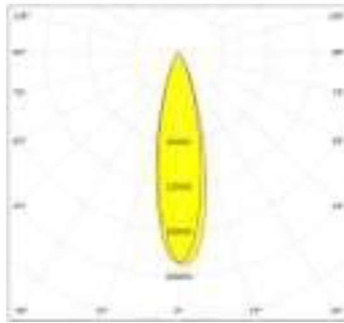


Polar Diagrams

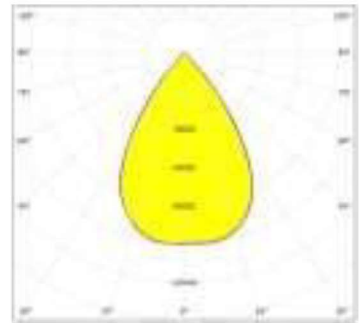
9.5° Spot



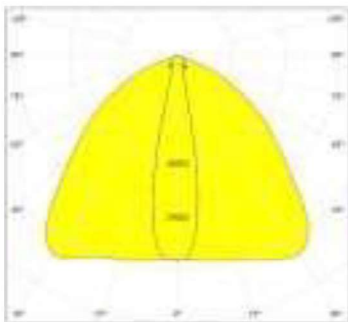
25° - 33° Medium



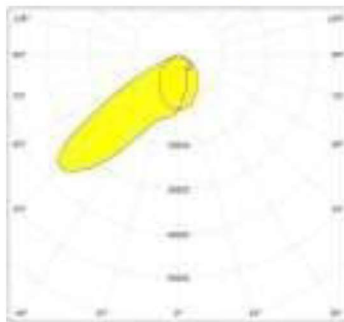
50° - 60° Wide



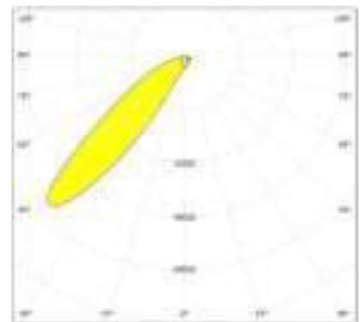
24° x 90° Bi Symmetric



FN Forward Assymmetric



TF Tunnel Counterbeam





Aeroflood-DAZZLE DUO

IP66 IK08



Energy Label **A++**



LED FLOOD LIGHT

DESIGN FEATURES

- High pressure die cast Aluminium alloy housing
- High tensile mild steel powder coated chassis
- Angle of each module fixed/adjustable(on demand)
- Polyester powder coating
- Robust,Sleek design with excellent heat dissipation
- 360° Cradle movement for omnidirectional precise focusing
- 4mm Thick extra clear toughened glass
- Silicon moulded gaskets for IP66 rating
- Separate integral/Non integral driver compartment IP 66
- All Stainless steel - AISI 304 grade hardware
- Minimised windage area (0.260M²)
- Anti condensation breather cum pressure equalization valve
- **ON REQUEST:** Microwave Motion Sensor, Dimmable/ DALI Versions, Daylight Sensor, Emergency Version through Lithium Ion Battery Pack, Mechanical Protection Guard

THERMAL MANAGEMENT

- Generously designed radiator fins in vertical direction to ensure proper air convection
- Separate integral/Non integral driver compartment for thermal isolation & not to affect LED compartment during maintenance, provided with brass PG9 cable glands

LEDs

- High efficiency (>145Lm/W) outdoor illumination grade SMD LEDs, LM80 Certified.
- Low junction thermal resistance for long life and low Lumen depreciation
- Luminous flux maintenance 80%, 50,000 Hrs (L80B20)
- High Colour rendering : CRI - 70/80/90
- Various CCT : 5700K/ 4000K/ 3000K/2200K

ELECTRICAL SYSTEM

- Outdoor rated >90% Efficiency constant current drivers with over Voltage (440V AC)/Undervoltage, Short circuit & Open circuit protection 4KV / 5KV / 6KV inbuilt surge protection.

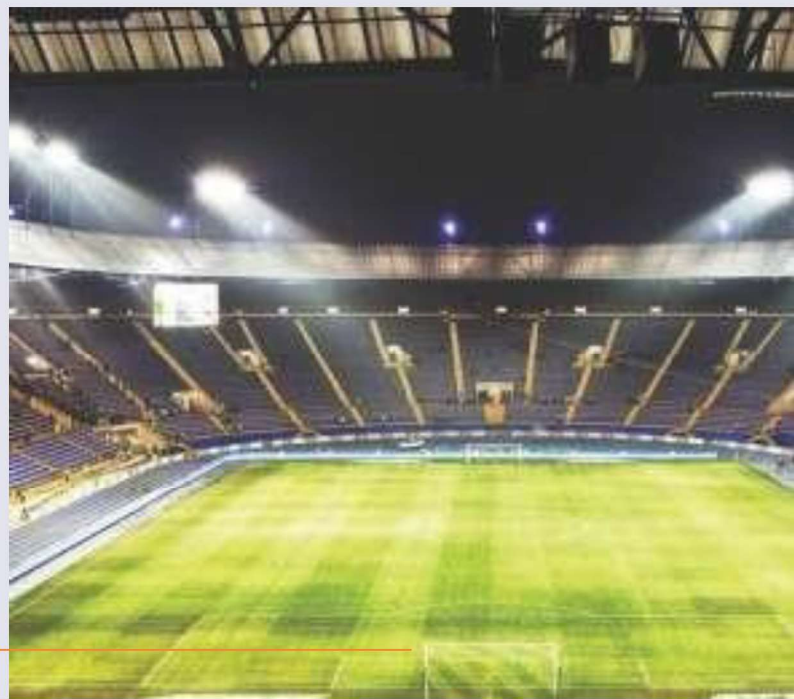
- Optional 10KV / 20 KV external SPD
- Low Current harmonics : THD < 10%
- Low Flicker : <3%
- Ambient Temperature range : -30°C To 50°C

OPTICAL SYSTEM

- Variety of photometric beam options for - Area Lighting, Facade Lighting,Tunnel Lighting,Sports Arenas
- Structured on high performance optical grade lenses in PMMA / PC
- Photometric design data for all optics available

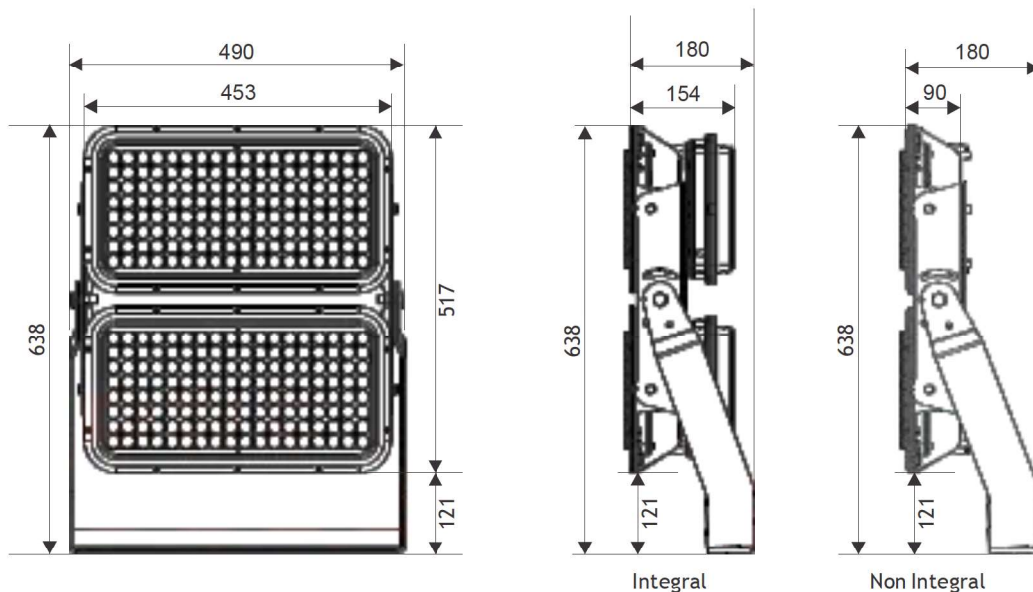
COMPLIANCES - LUMINAIRE

- As per IS 10322 (Part5/ Sec.5) 2012 & 2015
- IP66, IK08 as per IEC-EN 62262
- **On Request:** Surface coating resistant to salt spray tests pursuant to Standard UNIEN ISO 9227.



Aeroflood-DAZZLE DUO

IP66 IK08



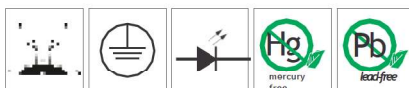
AREA LIGHTING

Technical Parameters

Input AC Voltage	: 140 to 277 VAC
Frequency	: 50 / 60 Hz
Luminous Efficiency	: 120 Lumens / Watt
CCT (K)	: 5700K / 4000K / 3000K
Optics	: Symmetric : 10° / 15° / 25° / 33° / 60° / 90° Asymmetric : 20°x 90° Oval / FN - Forward
Net Weight	: Asymmetric 45° : 23.5Kg.

Technical Specifications

SERIES	ITEM CODE	SYSTEM WATTAGE	INPUT CURRENT	DELIVERED LUMENS	LIGHT BEAM	THD	PF	SURGE PROTECTION	CCT	CRI
AEROFLOOD DAZZLE DUO	LMFL-0480-757-60-00	480	2.041	57600	Symm 60°	<10%	0.95	4 KV	5700K	70
AEROFLOOD DAZZLE DUO	LMFL-0500-757-60-00	500	2.120	60000	Symm 60°	<10%	0.95	4 KV	5700K	70
AEROFLOOD DAZZLE DUO	LMFL-0500-757-25-00	500	2.120	60000	Symm 25°	<10%	0.95	4 KV	5700K	70
AEROFLOOD DAZZLE DUO	LMFL-0600-757-10-SP	600	2.550	72000	Symm 10°	<10%	0.95	4 KV	5700K	70
AEROFLOOD DAZZLE DUO	LMFL-0600-957-10-SP	600	2.550	63000	Symm 10°	<10%	0.95	4 KV	5700K	90
AEROFLOOD DAZZLE DUO	LMFL-0600-757-25-SP	600	2.550	72000	Symm 25°	<10%	0.95	4 KV	5700K	70
AEROFLOOD DAZZLE DUO	LMFL-0600-757-60-00	600	2.550	72000	Symm 60°	<10%	0.95	4 KV	5700K	70
AEROFLOOD DAZZLE DUO	LMFL-0600-757-FN-00	600	2.550	72000	Asymm FN	<10%	0.95	4 KV	5700K	70
AEROFLOOD DAZZLE DUO	LMFL-0700-757-25-00	700	2.980	84000	Symm 25°	<10%	0.95	4 KV	5700K	70
AEROFLOOD DAZZLE DUO	LMFL-0700-757-60-00	700	2.980	84000	Symm 60°	<10%	0.95	4 KV	5700K	70

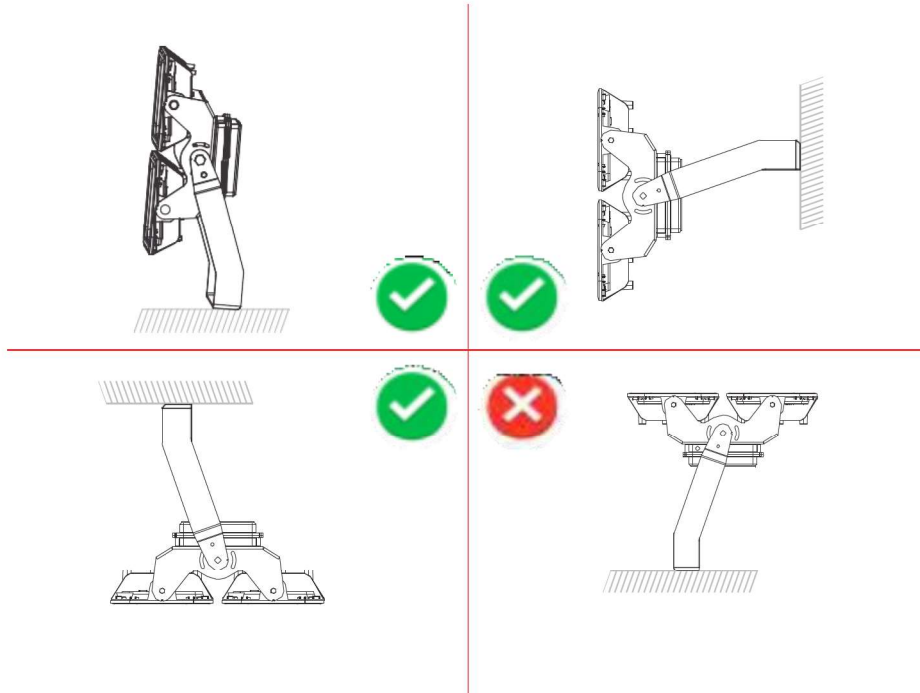


La Martini

Aeroflood-DAZZLE DUO

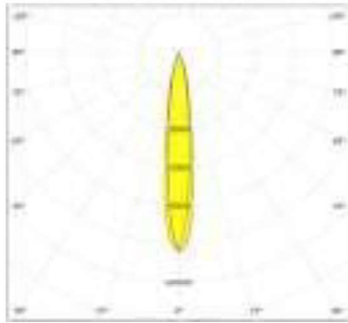
IP66 IK08

Installation Illustrations

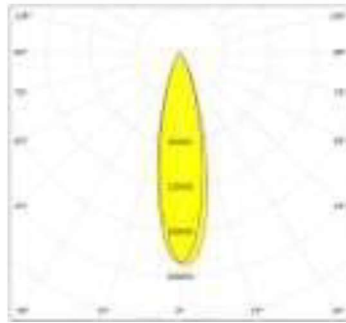


Polar Diagrams

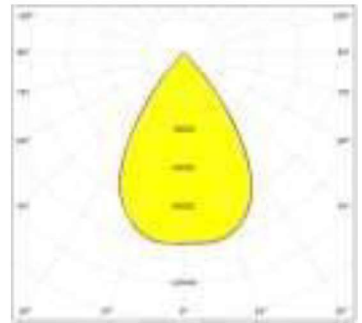
9.5° Spot



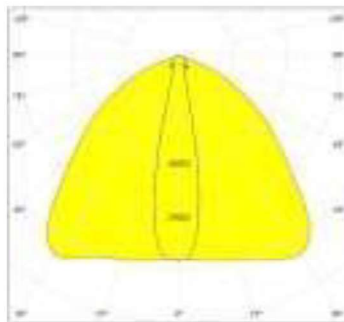
25° - 33° Medium



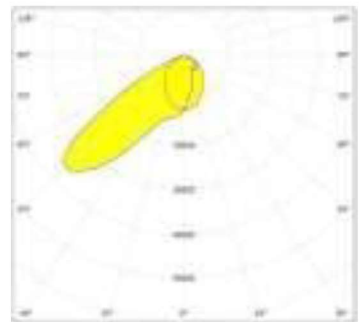
50° - 60° Wide




24° x 90° Bi Symmetric



FN Forward Assymmetric







PRO-SPORTS LIGHTS with consistent CCT, Very High CRI, Non compromised TLCI & R9 values upto 98 with high efficacy. TD Sheets available on demand.

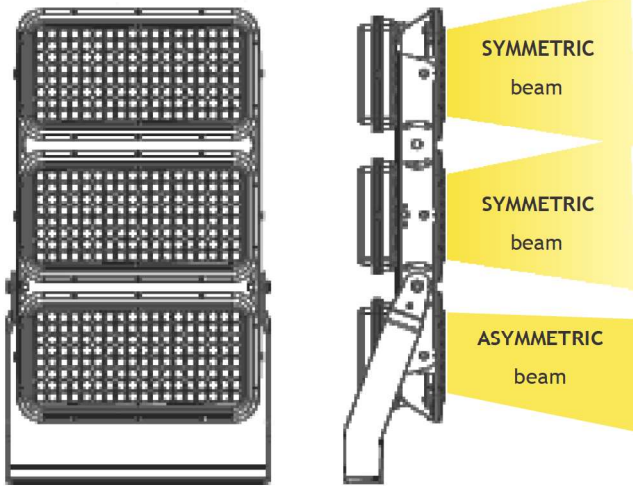


High design flexibility and combination of optics, Modular Scalability

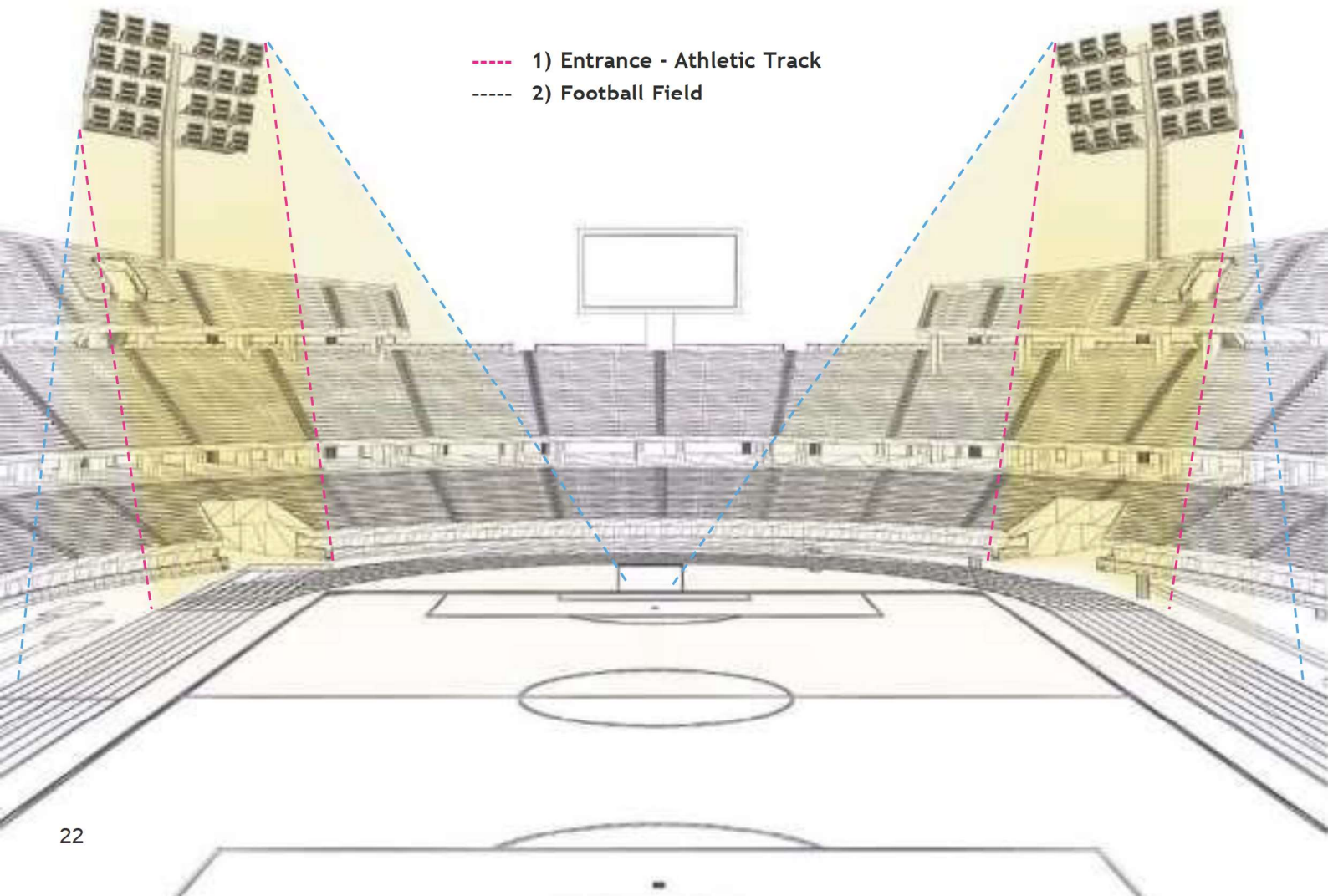


Lighting is ever more important in any setting. A lighting solution designed according to the most advanced standards reduces running costs and improves visibility, thereby increasing safety. The extreme versatility of the

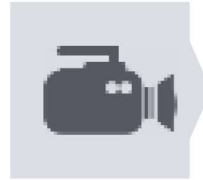
optics mounted in Aeroflood LED guarantees the fixture's suitability to all application needs, ensuring higher performance in any circumstance compared to projectors featuring traditional technology.



Upon request, it is possible to equip 2-3 module products with mixed optics, combining different lighting distributions in order to obtain the ideal lighting for any setting.



Quick reference for Sports Lighting Lux levels required



A modern stadium is a confluence of technology and theatrics

Light stability is a fundamental requirement for good quality TV resolution. Sport facilities are now multi-purpose venues, designed to host different types of events and built according to new environment friendly criteria, attracting an ever larger audience.

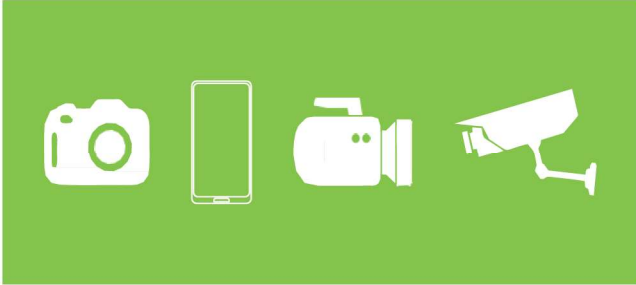
Below are the “Recommended values for indoor and outdoor sports lighting” (refer to Standard UNI EN 12193 / ICC / Other relevant standards for further details):

SPACES / SYSTEMS	Level (a)	OUTDOOR (A)			INDOOR (B)			Note
		Average illuminance (lux)	Average Uniformity (Uo)	Specific illuminance (lux)	Average illuminance (lux)	Average Uniformity (Uo)	Specific illuminance (lux)	
ATHLETICS	3	500	0.7	1000 (1)	500	0.7	1000 (1)	(1) fotofinish
	2	200	0.5		300	0.6		
	1	100	0.5		200	0.5		
SWIMMING POOL	3	500	0.7		500	0.7		
	2	300	0.7		300	0.7		
	1	200	0.5		200	0.5		
BASEBALL	3	750 (1)	0.7(1)		750(1)	0.7(1)		(1) infield
	2	500 (1)	0.5(1)					
	1	300 (1)	0.5(1)					
FOOTBALL	3	500	0.7					
	2	200	0.6					
	1	75	0.5					
CRICKET	3	2000-2500 (V)	0.7	1500-2000 (H)				V-Vertical H-Horizontal Pitch uniformity >0.9
	2	500- 750	0.5					
	1	250-300	0.5					
CYCLING	3	500	0.7	1000 (1)	750	0.7	1000 (1)	(1) fotofinish vert. plane (1) tee
	2	300	0.7		500	0.7		
	1	100	0.5		200	0.5		
GOLF	3-2	100 (1)	0.8	100 (2)				
	3				500	0.7		
	2				300	0.6		
GYMNASTICS	1				200	0.5		
	3	500	0.7		750	0.7		
	2	200	0.7		500	0.7		
HOCKEY (FIELD AND INDOOR)	2	200	0.7		300	0.7		
	3	500	0.7		750	0.7		
	1	100	0.5		300	0.5		
ROLLER SKATING	2	200	0.5		500	0.6		
	1	100	0.5		300	0.5		
	3	500	0.7		750	0.7		
BASKETBALL VOLLYBALL HANDBALL WRESTLING WEIGHTLIFTING JUDO	3	500	0.7		750	0.7		
	2	200	0.6		500	0.7		
	1	100	0.5		200	0.5		
BOXING	3				2000 (1)	0.8		(1) on the ring
	2				1000 (1)	0.8		
	1				500 (1)	0.5		
RUGBY	3	500	0.7					
	2	200	0.6					
	1	75	0.5					
EQUESTRIAN SPORTS	3	500	0.7		500	0.7		
	2	300	0.6		200	0.5		
	1	200	0.5		100	0.5		
MOTOR SPORTS	3	200	0.6	1000 (1)	200	0.6	1000 (1)	(1) fotofinish
	2	200	0.6		200	0.6		
	1	80	0.5		80	0.5		
ICE RINKS	3	750	0.7		750	0.7		
	2	500	0.7		500	0.7		
	1	200	0.5		300	0.7		
SQUASH	3				750	0.7		
	2				500	0.7		
	1				300	0.7		
TENNIS	3	500	0.7		750	0.7		
	2	300	0.7		500	0.7		
	1	200	0.6		300	0.5		
SHOOTING	3-2-1	200	0.5	500 (1) 300 (2)	200	0.5	500 (1) 300 (2)	(1) target (2) platform

N.B.: Level: (a) 1. Practice / Non professional level - 2. Competition / Local professional level - 3. National and international professional level and for HDTV Broadcast.

(b) All luminance values, except otherwise stated, refer to the horizontal plane that matches the surfaces where the activity takes place (water surface for swimming activities).

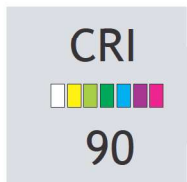
Quality light without glare for high-resolution Broadcasting.



Light with no glare

Lighting must meet the needs of international events in terms of efficiency and high-definition TV broadcasting, which require high levels of luminance, light uniformity, excellent colour rendering and greater attention to the visual comfort of spectators and athletes with a light without glare.

La Martini luminaires are compliant with IES LM-79-08 and BIS / IS-10322 / IEC 60598 standards tested at in house and NABL accredited labs like UL / INTERTEK



Best quality lighting

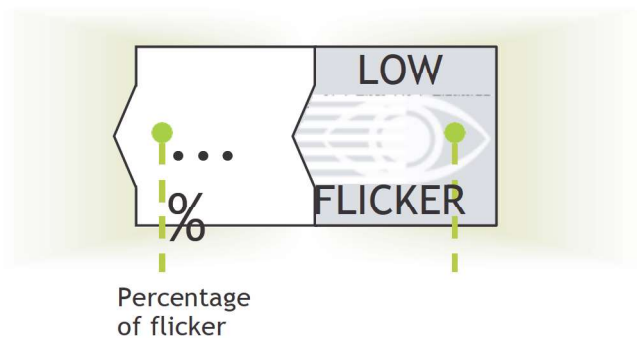
- Sports lighting also requires luminaires with High colour reproduction light for HDTV broadcast. This requires LED fixtures with CRI > 90.

The colour rendering index (CRI) indicates how the colours of an object is reproduced when illuminated by an artificial light source. It is a scale from 0 to 100, where 0 represents the lowest reproducibility and 100 is the maximum. Daylight is the best source of light from the physiological point of view thanks to the completeness of its colour spectrum; this is why the choice of fixtures with a high colour index is very important to enhance people's sense of well being and comfort and it is particularly needed in cases where a faithful reproduction of colours is required.

Aeroflood is equipped with LEDs in following options:

- CRI 70 (5700K) and CRI 90 (5700K)
- CRI 70 (4000K) and CRI 90 (4000K)
- CRI 80 (4000K)

The Low Flicker Pictogram (LF)



Flicker is a common issue with LED lamps. It can occur at frequencies below 60 Hz and depends on several factors, such as the ripple emitted by drivers. The notion of flicker-free is very different from that of ripple-free. Ripple is most commonly used by driver manufacturers. Furthermore, "flicker-free" does not mean "without" but rather "very low".

Following option on demand:

CRI	:	> 97
TLCI	:	> 97
R9	:	> 95



Quality LED drivers come with a sophisticated multistage circuit to power LED with an ideal current Source(one line),without overloads (Figure 1). By “ripple”we mean the dimension of the output waveform of a LED driver.



Despite the oscillation occurs at frequencies that cannot be perceived by naked eye, evidence shows that the human brain can perceive light oscillations up to 200 Hz (in LED drivers with ripple, this frequency is 100 Hz) Possible problems include headaches, eye strain, distorted vision and in some cases, even epileptic seizures.

Figure 2 shows the greatest impact on LED life at high temperatures: the LED appears to be overpowered in zone “A” and underpowered in zone “B”.

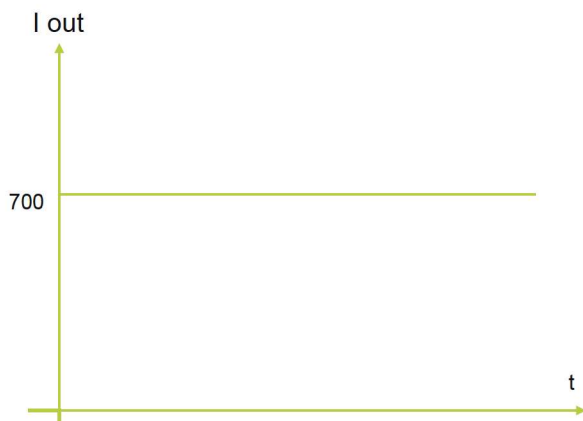


Figure 1. LED powered with ideal current

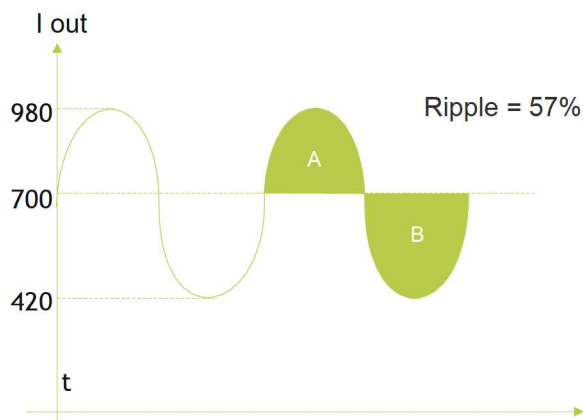


Figure 2. A: LED overpowered, B: LED underpowered

Figure 2: in the absence of a suitable heat sink, the excess temperature of area “A” is not balanced by zone “B”, with the result that the LED junction temperature will be higher than the temperature of a RIPPLE-FREE product.

Guidelines for TV broadcasts with LED lighting systems

During a broadcast it is not uncommon to perceive an annoying Flicker especially during slow motion. This Flicker is distracting and should be eliminated where possible. The circumstances that produce the Flicker vary upon the frequency modulation, voltage and camera frame rate. The table below provides a general rule of Flicker factor values produced by various lighting systems. A Flicker factor of less than 5% will generally not cause problems for slow motion replays at up to 150 frames per second. A lighting system with a Flicker factor of less than 5% will eliminate the perceived flicker at most frame rates per second used within the sports television industry. The acceptable level of Flicker factor (FF) is indicated in the Illuminance Category Tables.

Flicker Factor Reference Table	
Type of Illuminance System	FF value (guide only)
Daylight	0 %
LED Luminaires % of Flicker depends upon the type of LED power supply	<3 %
Discharge lamps with high frequency ballasts	<4 %
Discharge lamps with 3-phase magnetic ballasts for uniform light	8-20 %
Discharge lamps with single-phase magnetic ballasts	30-50 %

Aeroflood-STADIA-III

IP66 IK08



Energy Label **A++**



LED FLOOD LIGHT

DESIGN FEATURES

- High pressure die cast Aluminium alloy housing
- High tensile mild Steel powder coated chassis
- Angle of each module fixed /adjustable (on demand)
- Polyester powder coating
- Robust, Sleek design with excellent heat dissipation
- 360° Cradle movement for omnidirectional precise focusing
- 4mm Thick extra clear toughened glass
- Silicon moulded gaskets for IP66 rating
- Separate Non integral driver compartment / Tray
- All Stainless steel - AISI 304 grade hardware
- Minimised windage Area (0.408M²)
- Anti condensation breather cum pressure equalization valve
- **ON REQUEST:** Microwave Motion Sensor, Dimmable / DALI Versions, Daylight Sensor, Emergency Version through Lithium Ion Battery Pack, Mechanical Protection Guard

THERMAL MANAGEMENT

- Generously designed radiator fins in vertical direction to ensure proper air convection
- Separate Non integral driver compartment for thermal isolation & Not to affect LED compartment during maintenance, Provided with brass PG9 cable glands and IP68 inline connectors

LEDs

- High Efficacy (>155Lm/W) Outdoor Illumination grade SMD LEDs, LM80 Certified.
- Low Junction thermal resistance for long Life and low Lumen depreciation
- Luminous flux maintenance 80%, 50,000 Hrs (L80B20)
- High colour rendering : CRI - 70/80/90
- Various CCT : 3000K/ 4000K/ 5700K

ELECTRICAL SYSTEM

- Outdoor rated >90% Efficiency constant current drivers with over voltage (440V AC)/ undervoltage, Short circuit & open circuit protection 4KV / 5KV / 6KV inbuilt surge protection.

- Optional 10KV / 20 KV External SPD
- Low Current harmonics : THD < 10%
- Low Flicker : <3% / <1%
- Ambient temperature range : -30°C To +50°C

OPTICAL SYSTEM

- Variety of photometric beam options for - Area Lighting, Facade Lighting, Tunnel Lighting, Sports Arenas
- Structured on high performance optical grade lenses in PMMA / PC
- Photometric design data for all optics available

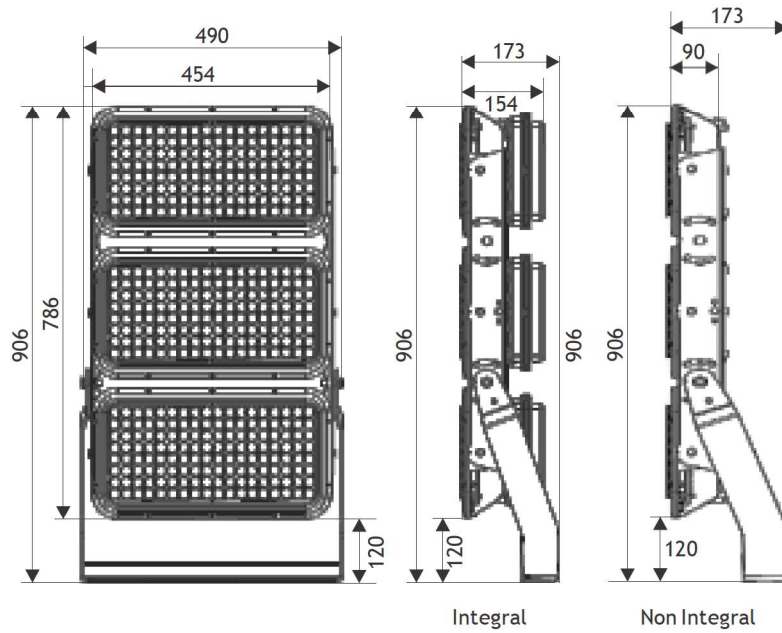
COMPLIANCES - LUMINAIRE

- As Per IS 10322 (Part5/ Sec.5) 2012 & 2015
- IP66, IK08 as per IEC-EN 62262
- **On Request:** Surface coating resistant to Salt spray tests pursuant to Standard UNIEN ISO 9227.



Aeroflood-STADIA-III

IP66 IK08

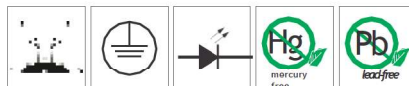


Technical Parameters

Input AC Voltage	:	140 to 277 VAC
Frequency Luminous	:	50 / 60 Hz
Efficiency	:	120 Lumens/Watt
CCT (K)	:	3000K / 4000K / 5700K
Optics	:	Symmetric : 9° / 15° / 24° / 33° / 42° / 60° / 90° Asymmetric : 20°x 90° Oval / FN - Forward
Net	:	Asymmetric 45°
Weight	:	34.4Kg.

Technical Specifications

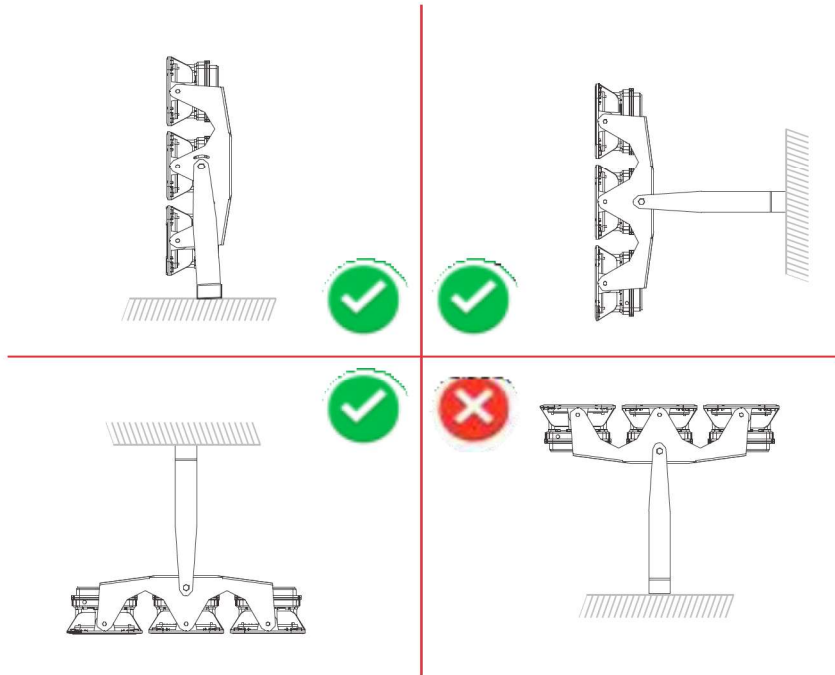
SERIES	ITEM CODE	SYSTEM WATTAGE	INPUT CURRENT	DELIVERED LUMENS	LIGHT BEAM	THD	PF	SURGE PROTECTION	CCT	CRI
STADIA-III	LMFL -0750-757-25-00	750	3.080	90000	Symm 25° <10%	0.95		4 KV	5700K	70
STADIA-III	LMFL-0750-757-38-00	750	3.080	90000	Symm 38° <10%	0.95		4 KV	5700K	70
STADIA-III	LMFL-0750-757-60-00	750	3.080	90000	Symm 60° <10%	0.95		4 KV	5700K	70
STADIA-III	LMFL-0750-757-10-SP	750	3.080	90000	Symm 10° <10%	0.95		4 KV	5700K	70
STADIA-III	LMFL-0900-757-38-00	900	3.820	108000	Symm 38° <10%	0.95		4 KV	5700K	70
STADIA-III	LMFL-0900-757-25-SP	900	3.820	108000	Symm 25° <10%	0.95		4 KV	5700K	70
STADIA-III	LMFL-0900-757-10-SP	900	3.820	108000	Symm 10° <10%	0.95		4 KV	5700K	70
STADIA-III	LMFL-0900-957-10-SP	900	3.820	94500	Symm 10° <10%	0.95		4 KV	5700K	90
STADIA-III	LMFL-1050-757-25-SP	1050	4.460	126000	Symm 25° <10%	0.95		4 KV	5700K	70
STADIA-III	LMFL-1050-957-10-SP	1050	4.460	110250	Symm 10° <10%	0.95		4 KV	5700K	90



Aeroflood-STADIA-III

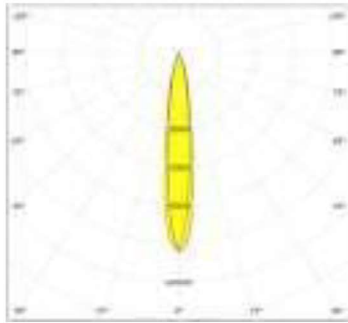
IP66 IK08

Installation Illustrations

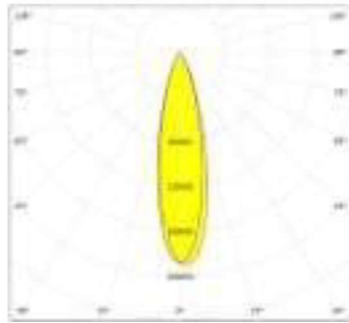


Polar Diagrams

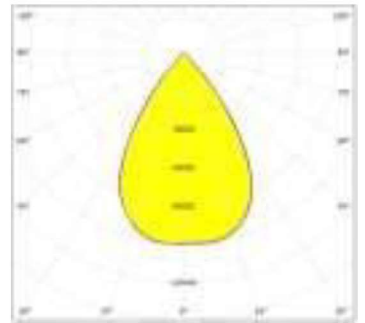
9.5° Spot



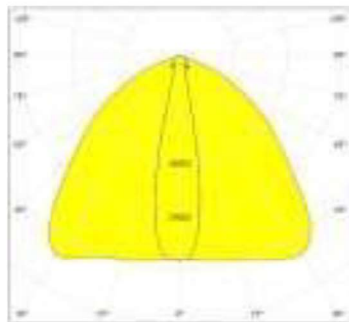
25° - 33° Medium



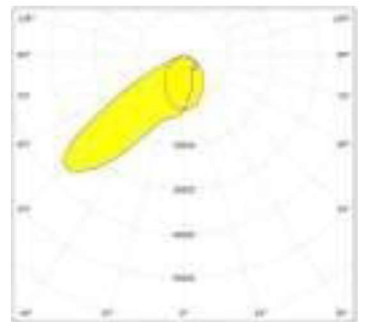
50° - 60° Wide



24° x 90° Bi Symmetric



FN Forward Assymmetric





Aeroflood-STADIA-IV

IP66 IK08



Energy Label A++



LED FLOOD LIGHT

DESIGN FEATURES

- High pressure die cast Aluminium alloy housing
- High tensile mild Steel powder coated chassis
- Angle of each module fixed/adjustable (on demand)
- Polyester powder coating
- Robust, Sleek design with excellent heat dissipation
- 360° Cradle movement for omnidirectional precise focusing
- 4mm Thick extra clear toughened glass
- Silicon moulded gaskets for IP66 rating
- Separate Non integral driver compartment / Tray
- All Stainless steel - AISI 304 grade hardware
- Minimised windage area (0.474M²)
- Anti condensation breather cum pressure equalization valve
- **ON REQUEST:** Microwave motion sensor, Dimmable / DALI Versions, Daylight Sensor, Emergency Version through Lithium Ion Battery Pack, Mechanical Protection Guard

THERMAL MANAGEMENT

- Generously designed radiator fins in vertical direction to ensure proper air convection
- Separate Non integral driver compartment for thermal isolation & not to affect LED compartment during maintenance, provided with brass PG9 cable glands and IP68 inline connectors

LEDs

- High efficacy (>155Lm/W) outdoor illumination grade SMD LEDs, LM80 Certified.
- Low junction thermal resistance for long life and low Lumen depreciation
- Luminous flux maintenance 80%, 50,000 Hrs (L80B20)
- High colour rendering : CRI - 70/80/90
- Various CCT : 3000K/ 4000K/ 5700K

ELECTRICAL SYSTEM

- Outdoor rated >90% Efficiency constant current drivers with over voltage (440V AC)/Undervoltage, Short circuit & open circuit protection 4KV / 5KV / 6KV inbuilt surge protection.

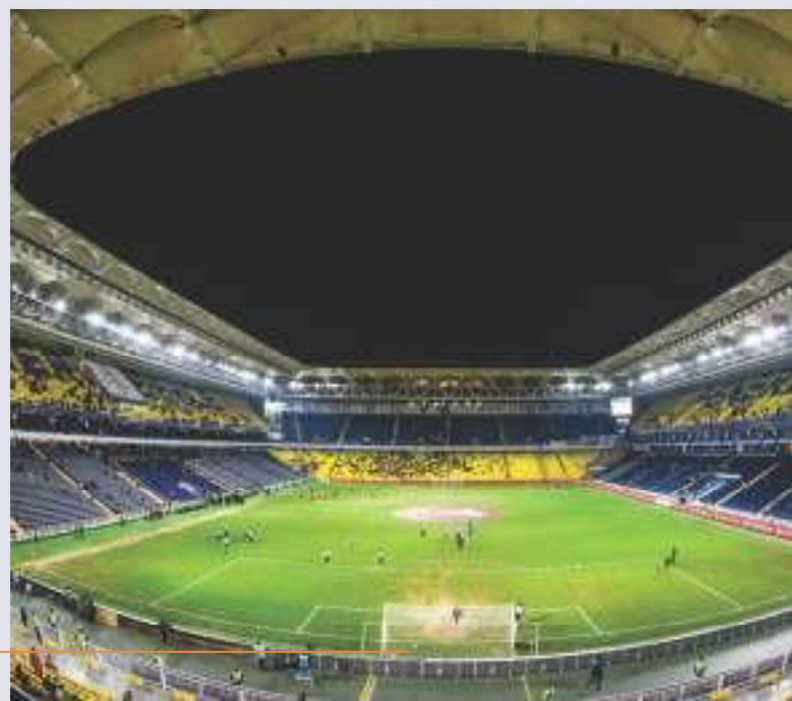
- Optional 10KV / 20 KV external SPD
- Low Current harmonics : THD < 10%
- Low flicker : <3% / <1%
- Ambient temperature range : -30°C To +50°C

OPTICAL SYSTEM

- Variety of photometric beam options for - Sports Arenas, Large Area Lighting.
- Structured on high performance optical grade lenses in PMMA / PC
- Photometric design data for all optics available

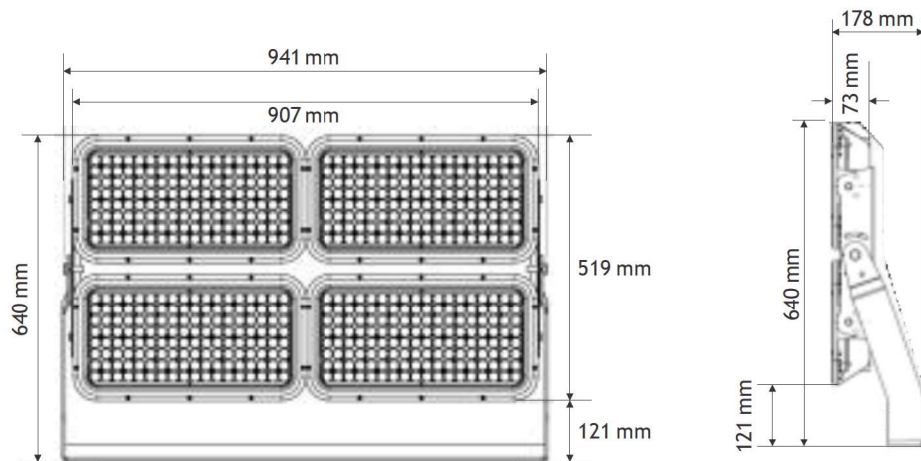
COMPLIANCES - LUMINAIRE

- As Per IS 10322 (Part5/ Sec.5) 2012 & 2015
- IP66, IK08 as per IEC-EN 62262
- **On Request:** Surface coating resistant to Salt spray tests pursuant to Standard UNI EN ISO 9227.



Aeroflood-STADIA-IV

IP66 IK08



Technical Parameters

Input AC Voltage	: 140 to 277 VAC
Frequency	: 50 / 60 Hz
Luminous Efficiency	: 120 Lumens / Watt
CCT (K)	: 3000K / 4000K / 5700K
Optics	: Symmetric : 9° / 15° / 24° / 33° / 42° / 60° / 90° Asymmetric : 20°x 90° Oval / FN - Forward
Net Weight	: 31.1Kg.(Luminaire), Gear Box : 8.2Kg.

Technical Specifications

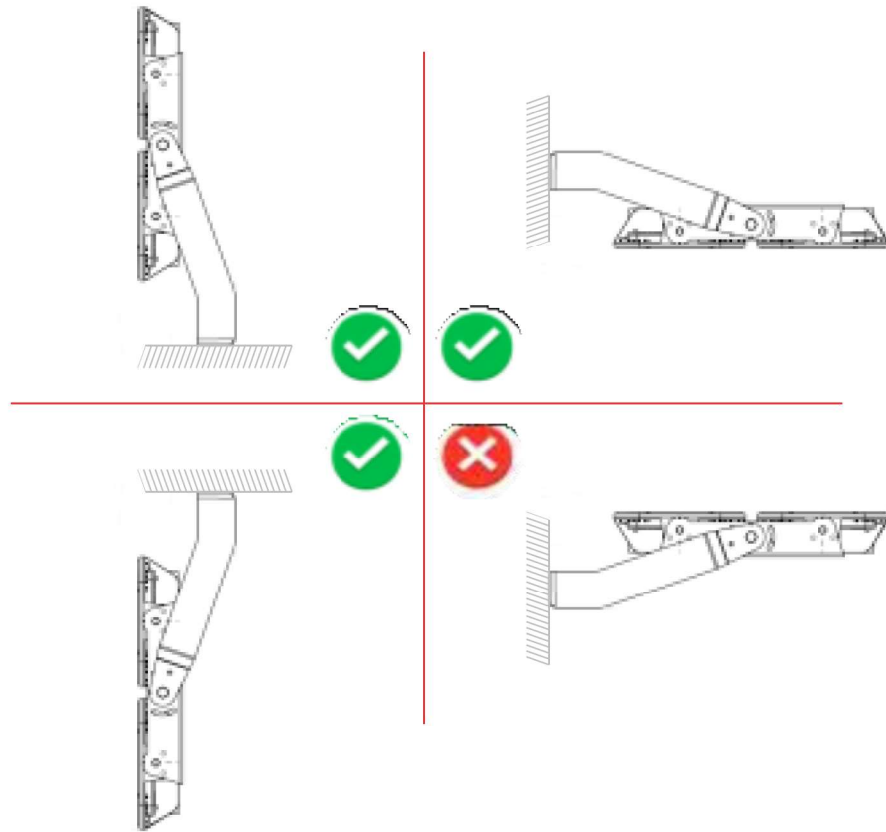
SERIES	ITEM CODE	SYSTEM WATTAGE	INPUT CURRENT	DELIVERED LUMENS	LIGHT BEAM	THD	PF	SURGE PROTECTION	CCT	CRI
STADIA-IV	LMFL -1000-757-10- SP	1000	4.23	125000	Symm 10°	<10%	0.95	4 KV	5700K	70
STADIA-IV	LMFL-1000-757-25- SP	1000	4.23	125000	Symm 25°	<10%	0.95	4 KV	5700K	70
STADIA-IV	LMFL-1000-757-42- SP	1000	4.23	125000	Symm 42°	<10%	0.95	4 KV	5700K	70
STADIA-IV	LMFL-1000-957-10-SP	1000	4.23	105000	Symm 10°	<10%	0.95	4 KV	5700K	90
STADIA-IV	LMFL-1200-757-10- SP	1200	5.08	150000	Symm 10°	<10%	0.95	4 KV	5700K	70
STADIA-IV	LMFL-1200-757-25-SP	1200	5.08	150000	Symm 25°	<10%	0.95	4 KV	5700K	70
STADIA-IV	LMFL-1200-757-42-SP	1200	5.08	150000	Symm 42°	<10%	0.95	4 KV	5700K	70
STADIA-IV	LMFL-1200-957-10-SP	1200	5.08	126000	Symm 10°	<10%	0.95	4 KV	5700K	90
STADIA-IV	LMFL-1400-757-25-SP	1400	5.92	173000	Symm 25°	<10%	0.95	4 KV	5700K	70
STADIA-IV	LMFL-1400-957-10-SP	1400	5.92	147000	Symm 10°	<10%	0.95	4 KV	5700K	90
STADIA-IV	LMFL-1400-957-25-SP	1400	5.92	147000	Symm 25°	<10%	0.95	4 KV	5700K	90
STADIA-IV	LMFL-1400-957-42-SP	1400	5.92	147000	Symm 42°	<10%	0.95	4 KV	5700K	90



Aeroflood-STADIA-IV

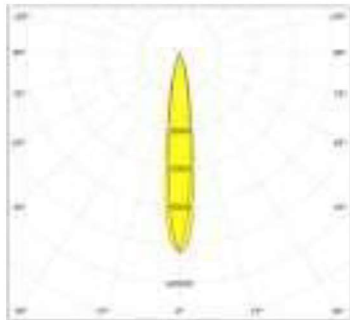
IP66 IK08

Installation Illustrations

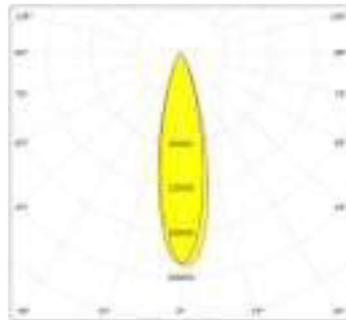


Polar Diagrams

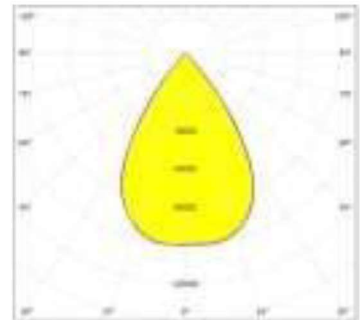
9.5° Spot



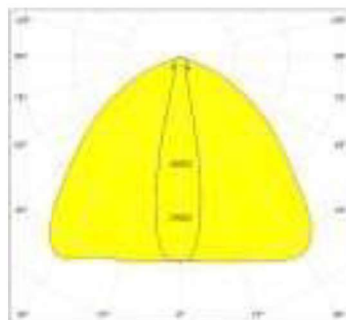
25° - 33° Medium



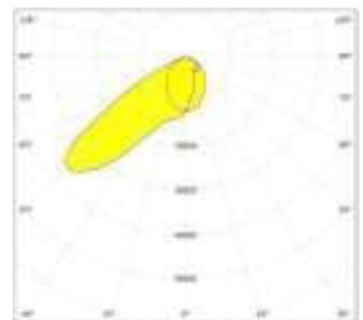
50° - 60° Wide



24° x 90° Bi Symmetric



FN Forward Assymmetric







TUNNEL LIGHTING

Tunnel LED lights for motorable roads, railways and underpass

Tunnel Lighting

				
Aeroflood DAZZLE	Aeroflood QUADRA	Aeroflood QUBIK-SURFACE	TUNELLO Minil	HYDROLED

Tunnel lighting criteria

Good tunnel lighting allows users to enter, pass through and exit the enclosed section safely and comfortably

The 5 zones of tunnel lighting

CIE guidance (CIE 88 1990) states that the amount of light required within a tunnel is dependent on the level of light outside and on the point inside the tunnel at which visual adaptation of the user must occur.

When planning the lighting of a tunnel, there are 5 key areas to consider:

1 Access zone

Not within the tunnel itself, this is the stretch of road leading to its entrance.

From this zone, drivers must be able to see into the tunnel in order to detect possible obstacles and to drive into the tunnel without reducing speed.

The driver's capacity to adapt in the access zone governs the

lighting level in the next part of the tunnel. One of the methods used by CIE to calculate visual adaptation is the L_{20} method, which considers the average luminance from environment, sky and road in a visual cone of 20° , centred on the line of sight of the driver from the beginning of the access zone (see below).

2 Threshold zone

This zone is equal in length to the stopping distance. In the first part of this zone, the required luminance must remain constant and is linked to the outside luminance (L_{20}) and traffic conditions. At the end of the zone, the luminance level provided can be quickly reduced to 40% of the initial value.

3 Transition zone

Over the distance of the transition zone, luminance is reduced progressively to reach

the level required in the interior zone. The reduction stages must not exceed a ratio of 1:3 as they are linked to the capacity of the human eye to adapt to the environment and, thus, time-related. The end of the transition zone is reached when the luminance is equal to 3 times the interior level.

4 Interior zone

This is the area between transition and exit zones, often the longest stretch of tunnel. Lighting levels are linked to the speed and density of traffic, as outlined in the table below.

Luminance to be maintained in interior zone

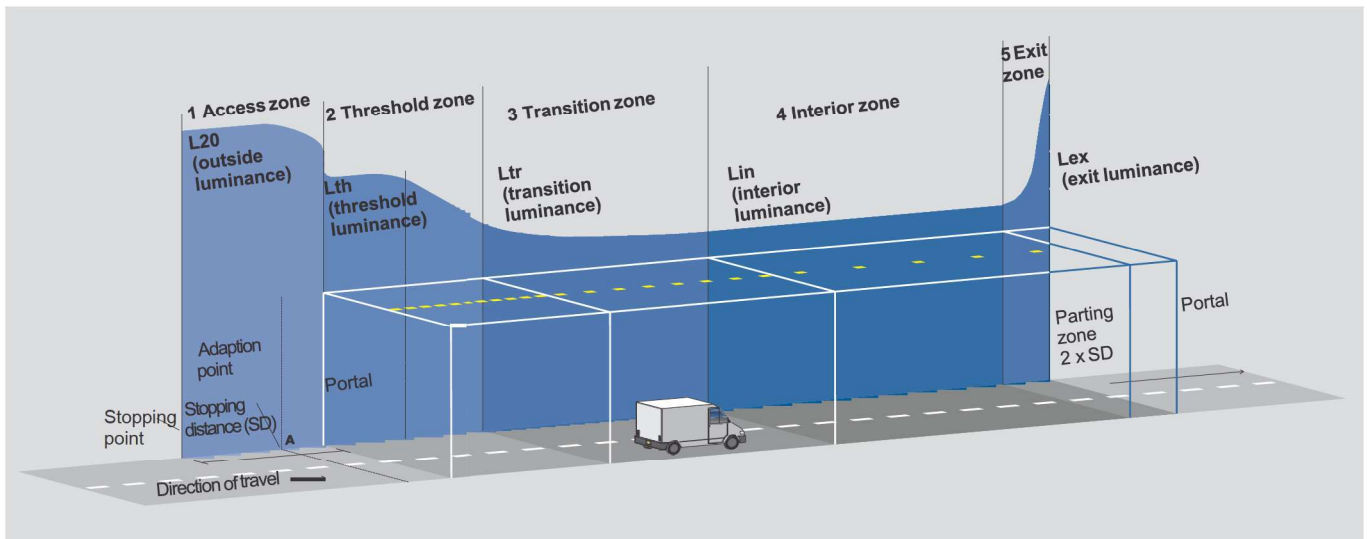
Extra urban, low traffic, low speed ($<70\text{km/h}$)	1.5 to 3cd/m^2
Extra urban, high traffic and/or speed ($>70\text{km/h}$)	2 to 6cd/m^2
Highway	4 to 10cd/m^2
Urban	4 to 10cd/m^2

5 Exit zone

The part of the tunnel between interior zone and portal. In this zone, during the day time, the vision of a driver approaching the exit is influenced by brightness outside the tunnel.

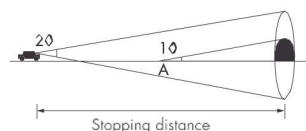
The human eye can adapt itself almost instantly from low to high light levels, thus the processes mentioned when entering the tunnel are not reversed.

However, reinforced lighting may be required in some cases where contrast is needed in front of or behind the driver when the exit is not visible, or when the exit acts as entrance in case of emergency or maintenance works where part of a twin tunnel may be closed. The length is a maximum 50m and the light level 5 times the interior zone level.

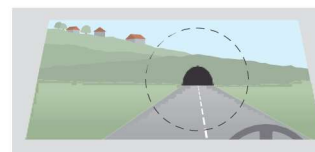


Visual adjustment

The visual adjustment from high luminance to low luminance while driving is not instantaneous. This is caused by 2 disability phenomena:



1. *Spatial adaptation*: the large difference in luminance between the outside and the inside of the tunnel will impede the vision of the driver when he is at the adaptation point (A, opposite). The Black Hole phenomenon engenders a feeling of discomfort and insecurity.



2. *Temporal adaptation*: human eyes need more time to adapt from brightness to darkness than the reverse. During this period of adaptation, the distance travelled is a critical factor.



Definitions

Access zone luminance L_{20}
The average value of the luminance in a 20° cone of the driver's visual field from the access zone and centred on the tunnel entrance.

Contrast revealing coefficient qc
The ratio between the luminance at the road surface and the vertical illuminance E_v at a specific location in the tunnel $qc=L/E_v$. The method of tunnel lighting may be defined in terms of the contrast ratio in three ways: symmetric lighting, counterbeam lighting and pro-beam lighting (see pages 6 - 7).

Entrance and exit portals

The entrance portal of the tunnel is the part of the tunnel construction that corresponds to the beginning of the covered part of the tunnel, or - when open sun-screens are used - to the beginning of the sun-screens. The exit portal corresponds to the end of the covered part of the tunnel, or - when open sun-screens are used - to the end of the sun-screens.

Exit zone

The exit zone is the part of the tunnel where, during the daytime, the vision of a driver approaching the exit is predominately

influenced by the brightness outside the tunnel. The exit zone begins at the end of the interior zone. It ends at the tunnel's exit portal.

Interior zone luminance (L_{in})

The average luminance in the interior zone which constitutes the background field against which objects will be visible to users.

Parting zone

The parting zone is the first part of the open road directly after the exit. The parting zone is not a part of the tunnel but it is closely related to the tunnel lighting. It is advised that the length of the parting zone equals two times the stopping distance. A length of more than 200m is not necessary.

Stopping point (SP)

The position within the access zone on the approach road at a distance equal to the stopping distance (SD) from the tunnel entrance.

Stopping distance (SD)

The theoretical forward distance required by a driver at a given speed in order to stop when faced with an unexpected hazard on the carriageway.

This takes into account perception and reaction time as well as road surface.

Threshold zone luminance (L_{th})

The average luminance in the threshold zone which constitutes the background field against which objects will be visible to drivers in the access zone between the stopping point and adaptation point.

Traffic flow

The number of vehicles passing a specific point in a stated time in stated direction(s). In tunnel design, peak hour traffic, vehicles per hour per lane, will be used.

Transition zone luminance (L_t)

The average luminance in the transition zone which constitutes the background field against which objects will be visible to drivers.

Veiling luminance

The overall luminance veil consisting of the contribution of the transient adaptation and stray light from optical media, from the atmosphere and from the vehicle windscreen.

Tunnel road lighting must provide comfort and safety and maximise the visual performance of users. **Types of tunnel lighting**

Symmetrical and asymmetrical lighting

Used generally for transition and interior zones for long tunnels, and in short tunnels, or low speed tunnels for all zones.

Asymmetrical lighting can also be a means of reinforcing the luminance level in one way tunnels.

Asymmetric counter beam lighting

To reinforce the luminance level and at the same time accentuate the negative contrast of potential obstacles. Counter beam lighting is achieved with asymmetrical light distribution facing into the traffic flow, both in the direction of the on coming driver and in the run of the road. The beam stops sharply at the vertical plane

passing through the luminaire. No light is directed with the flow of traffic. This generates negative contrast and enhances visual adaptation.

Pro beam lighting

In some circumstances, positive contrast must be reinforced, often in the exit zone where the exit is visible. In these cases, asymmetric light distribution is used in the same way as counter beam but *with* direction of the traffic and is called pro beam. In dual carriage way tunnels, counter beam at entrance can act as pro beam at exit.

This technique is not recommended as the road luminance is very low, creating too big a disparity between the exit zone and the parting zone.

Other factors

As well as the above, further factors must be taken into consideration when preparing tunnel lighting. These include the shape of the portal, type and density of traffic, traffic signage, contribution of wall luminance, orientation of tunnel, and many others. National, European and International legislation and guidance sets out minimum standards for tunnel lighting.

Relevant legislation

CEN TC 169/WG 6
Technical Report Final Draft 08.2001.

ETU

Dossier pilote des tunnels - November 2000.

CIE 88-1990

Guide for the lighting of roads, tunnels and underpasses.

DIN 67524:8 1992

Beleuchtung von Straßen-tunnels und Unterführungen Teil 1: Allgemeine Gutemerk-male and Richtwerte Teil 2: Berechnung und Messung.

SN 150915:1997

Öffentliche Beleuchtung Stra entunnels, - Galereinunterführungen.

NSV 1991

Aanbevelingen voor de verlichting van lange tunnels voor het gemotoriseerde verkeer.

BS 5489-2: 2003

Roadlighting Part 2: Code of Practice for the design of road lighting.

UNI 11095:2003

Luce e illuminazione - Illuminazione delle gallerie.

Day time lighting of tunnels for different lengths

(CIE-Guide for the lighting of tunnels and underpasses)

When lighting a tunnel, its length, geometry and immediate environment must be taken into account as well as traffic densities. Differing light levels are set for each project, according to the governing standards summarised below:

Length of tunnel	<25m	25-75m			75-125m			> 125m				
Is exit fully visible when viewed from stopping distance in front of tunnel?	-	yes	yes	no	no	no	yes	yes	no	no	no	-
Is daylight penetration good or poor?	-	-	-	good	good	poor	-	-	good	good	good	poor
Is wall reflectance high (>0.4) or low (<0.2)?	-	-	-	high	low	-	-	-	high	high	low	-
Is traffic heavy (or does it include cyclists or pedestrians) or light?	-	light	heavy	light	-	-	light	heavy	light	heavy	-	-
Lighting required	●	●	●	●	●	●	●	●	●	●	●	●

● No day time lighting

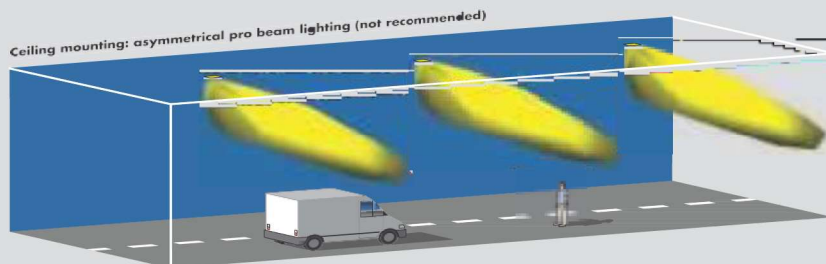
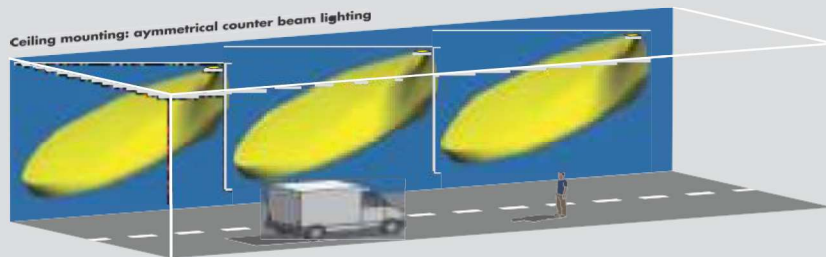
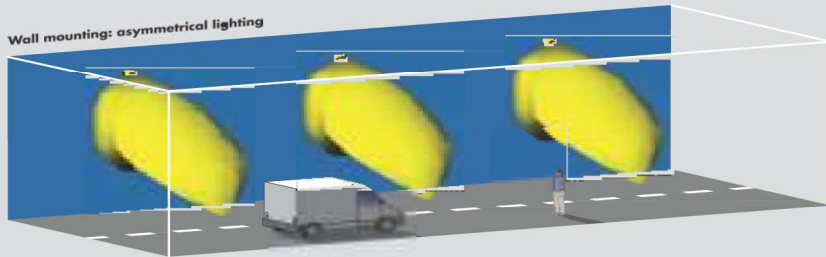
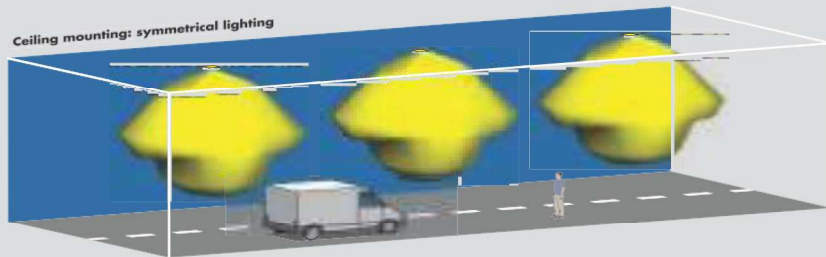
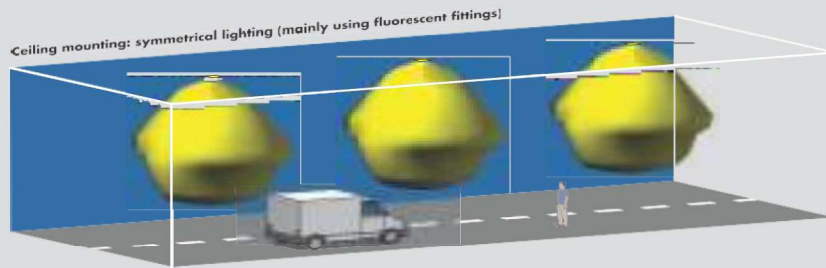
● 50% of normal threshold zone lighting level

● normal threshold zone lighting level

Typical tunnel lighting arrangements

The table below outlines some of the mounting options available and their respective advantages/disadvantages

	Mounting constraint	Arrangement type	Advantages	Disadvantages	Tunnel profile
Ceiling mounting	Enough spacing above legal and protection minimum height	Above road on several rows 	- best utilisation factor for luminaires - glare limited	- luminaires concealed by signs - heavy fixings	- Arched type with or without fan tubes - Framed type with or without fan tubes
		1 row above road 	- less investment and maintenance	- closure of carriageway required	
Side Mounting	Not enough spacing above legal and protection minimum height	Twin opposite 	- easier access to luminaires - 1 lane only need be closed	- utilisation factor downgraded - high glare	- Arched type with fan tubes - Framed type with or without fan tubes
		Single sided 	- less investment and maintenance	- beware trucks blocking light 	





Aeroflood-DAZZLE

IP66 IK08



Energy Label A++



LED TUNNEL & UNDERPASS LIGHT

DESIGN FEATURES

- High pressure die cast Aluminium alloy housing
- Polyester powder coating with multiple color options
- Robust, Sleek design with excellent heat dissipation
- 360° Cradle movement for omnidirectional precise focusing
- 4mm thick extra clear toughened glass
- Silicon moulded gaskets for IP66 rating
- Separate integral driver compartment IP 66
- All Stainless steel - AISI 304 grade hardware
- Minimised windage area (0.120M²)
- Anti condensation breather cum pressure equalization valve
- **ON REQUEST:** Microwave motion sensor, Dimmable/ DALI Versions, Daylight sensor, **Emergency Version** through lithium Ion battery pack, Mechanical protection guard.

THERMAL MANAGEMENT

- Generously designed radiator fins in vertical direction to ensure proper air convection
- Separate integral driver compartment for thermal isolation & not to affect LED compartment during maintenance, provided with brass PG9 cable gland

COMPLIANCES - LUMINAIRE

- As Per IS 10322 (Part5/ Sec.5) 2012 & 2015
- IP66, IK08 as per IEC-EN 62262
- **On Request:** Surface coating resistant to salt spray tests pursuant to standard UNIEN ISO 9227.

LEDs

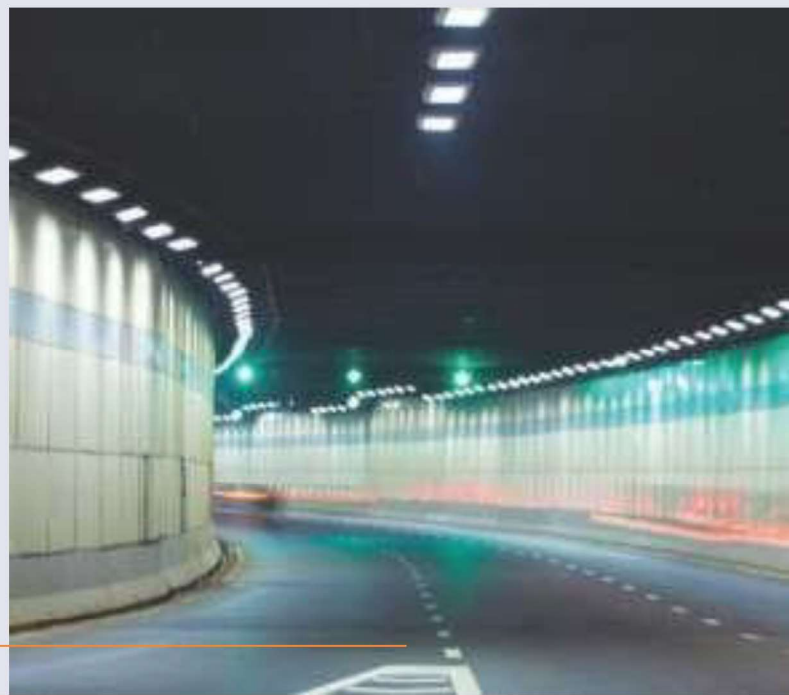
- High efficacy (>145Lm/W) outdoor illumination grade SMD LEDs, LM80 Certified.
- Low junction thermal resistance for long life and low lumen depreciation
- Luminous flux maintenance 80%, 50,000 Hrs (L80B20)
- High colour rendering : CRI - 70/80/90
- Various CCT : 3000K/ 4000K/ 5700K

ELECTRICAL SYSTEM•

- Outdoor rated >90% efficiency constant current drivers with over voltage (440V AC)/Undervoltage, Short circuit & Open circuit protection 4KV / 5KV / 6KV inbuilt surge protection
- Optional 10KV / 20 KV external SPD
- Low current harmonics : THD < 10%
- Low Flicker : <3%
- Ambient temperature range : -30°C To +50°C

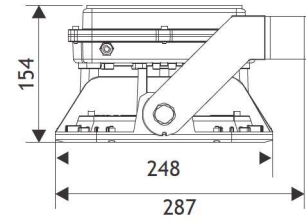
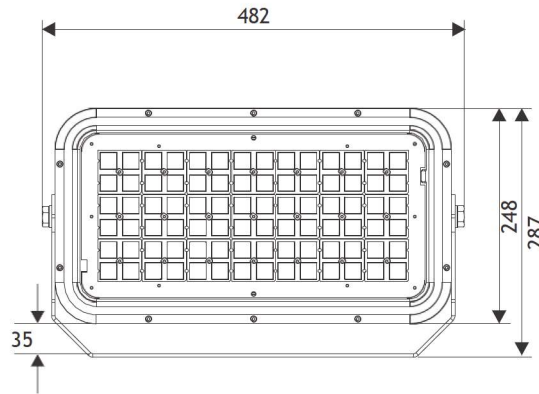
OPTICAL SYSTEM

- Variety of photometric beam options for -Tunnel Lighting, Area Lighting, Facade Lighting, Sports Arenas
- Structured on high performance optical grade lenses in PMMA / PC
- Photometric design data for all optics available



Aeroflood-DAZZLE

IP66 IK08

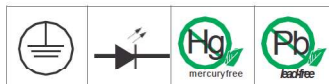
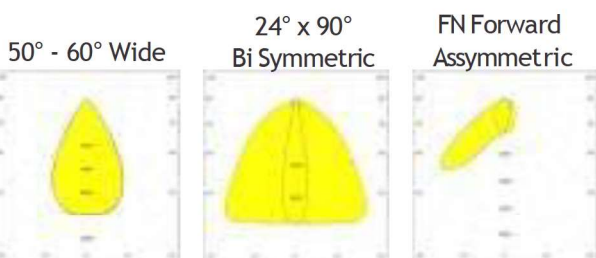


Technical Parameters

- Input AC Voltage : 140 to 277 VAC
- Frequency : 50 / 60 Hz
- Luminous Efficiency : 110 Lumens/Watt (min.)
- CCT (K) : 3000K / 4000K / 5700K
- Optics : Symmetric : 60° / 90°
Asymmetric : 20°x 90° Oval / FN - Forward Asymmetric
45° / Tunnel Counter beam TF 55°
- Net Weight : 10.6Kg.

Technical Specifications

SERIES	ITEM CODE	SYSTEM WATTAGE	INPUT CURRENT	DELIVERD LUMENS	LIGHT BEAM	THD	PF	SURGE PROTECTION	CCT	CRI
DAZZLE	LMFL-0240-757-FN-00	240	1.02	28800	Asymm FN	<10%	0.95	4 KV	5700K	70
DAZZLE	LMFL-0240-757-TF-00	240	1.02	28800	TUN TF	<10%	0.95	4 KV	5700K	70
DAZZLE	LMFL-0300-757-FN-00	300	1.275	36000	Asymm FN	<10%	0.95	4 KV	5700K	70
DAZZLE	LMFL-0300-957-TF-00	300	1.275	30900	TUN TF	<10%	0.95	4 KV	5700K	90
DAZZLE	LMFL-0300-757-20x90	300	1.275	36000	20°x90°	<10%	0.95	4 KV	5700K	70
DAZZLE	LMFL-0300-757-T4B	300	1.275	36000	Street T4	<10%	0.95	4 KV	5700K	70
DAZZLE	LMFL-0350-757-20x90	350	1.495	42000	20°x90°	<10%	0.95	4 KV	5700K	70
DAZZLE	LMFL-0350-757- FN-00	350	1.495	42000	Asymm FN	<10%	0.95	4 KV	5700K	70
DAZZLE	LMFL-0350-757-TF-00	350	1.495	42000	TUN TF	<10%	0.95	4 KV	5700K	70



Aeroflood-QUADRA

IP66 IK08



Energy Label A++

LED TUNNEL & UNDERPASS LIGHT

DESIGN FEATURES

- High pressure die cast Aluminium alloy housing
- Polyester powder coating with multiple color options
- Robust, Sleek design with excellent heat dissipation
- 360° Cradle movement for omnidirectional precise focusing
- 4mm Thick extra clear toughened glass
- Silicon moulded & extruded gaskets for IP66 rating
- Separate integral driver compartment IP 66
- All Stainless steel - AISI 304 grade hardware
- Minimised windage area (0.0676M²)
- ON REQUEST: Microwave motion sensor, Dimmable / DALI versions, Daylight sensor, Emergency version through lithium Ion battery pack, Mechanical protection guard.

THERMAL MANAGEMENT

- Generously designed radiator fins in vertical direction to ensure proper air convection
- Separate integral driver compartment for thermal isolation & not to affect LED compartment during maintenance, Provided with brass PG9 cable gland

COMPLIANCES - LUMINAIRE

- As Per IS 10322 (Part5/ Sec.5) 2012 & 2015
- IP66, IK08 as per IEC-EN 62262
- **ON REQUEST:** Surface coating resistant to Salt spray tests pursuant to Standard UNIEN ISO 9227.

LEDs

- High efficacy (>145Lm/W) Outdoor illumination grade SMD LEDs, LM80 Certified.
- Low junction thermal resistance for long life and low lumen depreciation
- Luminous flux maintenance 80%, 50,000 Hrs (L80B20)
- High colour rendering : CRI - 70/80/90
- Various CCT : 2200K/ 3000K/4000/5700

ELECTRICAL SYSTEM•

- Outdoor rated >90% efficiency constant current drivers with over voltage (440V AC)/Undervoltage, Short circuit & Open circuit protection 4KV / 5KV / 6KV inbuilt surge protection
- Optional 10KV / 20 KV external SPD
- LOW current harmonics : THD < 10%
- Low flicker : <3%
- Ambient temperature range : -30°C To 45°C

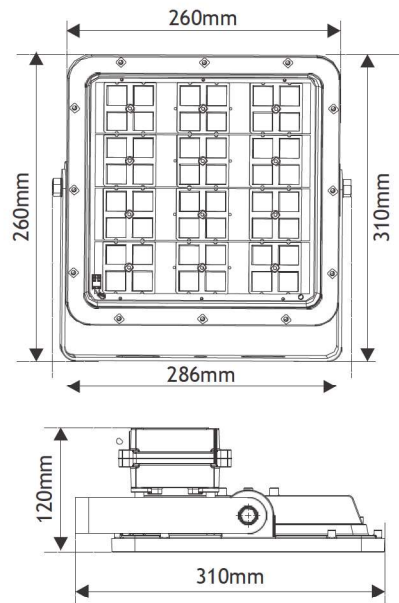
OPTICAL SYSTEM

- Variety of photometric beam options for –Tunnel Lighting, Area Lighting, Facade Lighting, Sports Arenas
- Structured on high performance optical grade lenses in PMMA / PC
- Photometric design data for all optics available



Aeroflood-QUADRA

IP66 IK08



TUNNEL LIGHTING

La Martini

Technical Parameters

Input AC Voltage	: 140 to 277 VAC
Frequency	: 50 / 60 Hz
Luminous	: 110 Lumens/Watt (min.)
Efficiency	: 2200K/ 3000K/4000/5700
CCT (K)	: Symmetric : 60° /90°
Optics	: Asymmetric : 20°x 90° Oval / FN - Forward Asymmetric 45° / Tunnel Counter-beam TF 55°
Net Weight	: 4.8Kg.

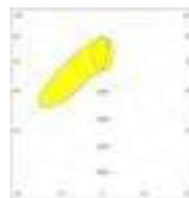
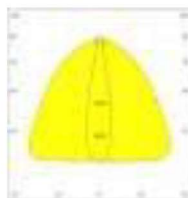
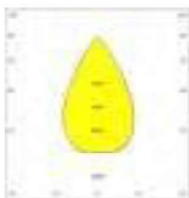
Technical Specifications

SERIES	ITEM CODE	SYSTEM WATTAGE	INPUT CURRENT	DELIVERED LUMENS	LIGHT BEAM	THD	PF	SURGE PROTECTION	CCT	CRI
QUADRA	LMFL-0075-757-FN-00	75	0.325	9000	Asymm FN	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0100-757-TF-00	100	0.436	12000	TUN TF	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0135-757-FN-00	135	0.592	16200	Asymm FN	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0150-957-TF-00	150	0.655	18000	TUN TF	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0150-757-20x90	150	0.655	18000	20°x90°	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0150-757-T4B	150	0.655	18000	Street T4	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0200-757-20x90	200	0.857	24000	20°x90°	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0200-757- FN-00	200	0.875	24000	Asymm FN	<10%	0.95	4 KV	5700K	70
QUADRA	LMFL-0200-757-TF-00	200	0.875	24000	TUN TF	<10%	0.95	4 KV	5700K	70

50° - 60° Wide

24° x 90°
Bi Symmetric

FN Forward
Asymmetric



Aeroflood-QUBIK-Surface

IP66 IK08



Energy Label A++



LED TUNNEL, UNDERPASS & VIA-DUCT LIGHT

DESIGN FEATURES

- High pressure die cast Aluminium alloy housing
- Polyester powder coating
- Robust, Sleek design with excellent heat dissipation
- 360° Cradle movement for omnidirectional precise focusing
- 3mm Thick extra clear toughened glass
- Silicon moulded gaskets for IP66 rating
- All stainless steel - AISI 304 grade hardware

THERMAL MANAGEMENT

- Generously designed radiator fins in vertical direction to ensure proper air convection
- Separate integral/Non integral driver compartment for Thermal isolation & Not to affect LED compartment during maintenance, Provided with brass PG7 cable gland

LEDs

- High efficacy (>140Lm/W) outdoor illumination grade SMD LEDs, LM80 Certified.
- Low junction thermal resistance for long life and low lumen depreciation
- Luminous flux maintenance 70%, 50,000 Hrs (L70B20)
- High colour rendering: CRI - 70/80/90
- Various CCT : 3000K/4000K/5700K

ELECTRICAL SYSTEM

- Outdoor rated >90% efficiency constant current drivers with over Voltage (440V AC)/Undervoltage, Short circuit & Open circuit protection 4KV/5KV /6KV inbuilt surge protection.
- Low current harmonics : THD < 10%
- Low flicker : <3%
- Ambient temperature range : -30°C To +50°C

OPTICAL SYSTEM

- Variety of photometric beam options for -Tunnel Lighting Facade Lighting, Area Lighting.
- Structured on high performance optical grade lenses in PMMA / PC
- Photometric design data for all optics available

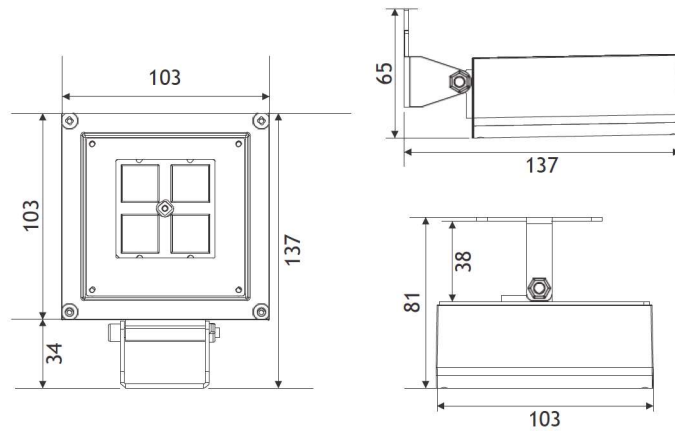
COMPLIANCES - LUMINAIRE

- As per IS 10322 (Part5/ Sec.5) 2012 & 2015
- IP66, IK08 as per IEC-EN 62262
- **On Request:** Surface coating resistant to Salt spray tests pursuant to Standard UNIEN ISO 9227.



Aeroflood-QUBIK-Surface

IP66 IK08

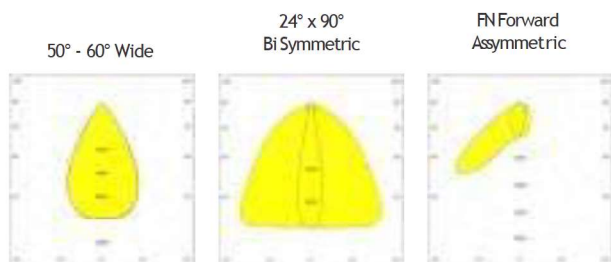


Technical Parameters

Input AC Voltage	: 140 to 277 VAC
Frequency	: 50/60 Hz
Luminous Efficiency	: 110 Lumens/Watt (min.)
CCT (K)	: 2200K/ 3000K/4000/5700
Optics	: Symmetric : 60° /90° Asymmetric : 20°x 90° Oval / FN - Forward Asymmetric 45° / Tunnel Counterbeam TF 55°

Technical Specifications

SERIES	ITEM CODE	SYSTEM WATTAGE	INPUT CURRENT	DELIVERED LUMENS	LIGHT BEAM	THD	PF	SURGE PROTECTION	CCT	CRI
QUBIK-S	LMFL-0018-757-FN-00	18	0.083	1800	Asymm FN	<10%	0.95	4 KV	4000K	70
QUBIK-S	LMFL-0018-757- T4B	18	0.083	1800	Street T4	<10%	0.95	4 KV	4000K	70
QUBIK-S	LMFL-0018-757-FN-00	18	0.011	2500	Asymm FN	<10%	0.95	4 KV	4000K	70
QUBIK-S	LMFL-0025-957-TF-00	25	0.011	2500	TUN TF	<10%	0.95	4 KV	4000K	70
QUBIK-S	LMFL-0025-757-20x90	25	0.011	2500	20°x90°	<10%	0.95	4 KV	4000K	70
QUBIK-S	LMFL-0025-757-T4B	25	0.158	3600	Street T4	<10%	0.95	4 KV	4000K	70
QUBIK-S	LMFL-0036-757-20x90	36	0.158	3600	20°x90°	<10%	0.95	4 KV	4000K	70
QUBIK-S	LMFL-0036-757- FN-00	36	0.158	3600	Asymm FN	<10%	0.95	4 KV	4000K	70
QUBIK-S	LMFL-0036-757-TF-00	36	0.158	3600	TUN TF	<10%	0.95	4 KV	4000K	70



TUNELLO Mini

IP66 IK08



Energy Label **A++**

LED TUNNEL, UNDERPASS & VIA-DUCT LIGHT

DESIGN FEATURES

- High pressure die cast Aluminium alloy housing
- Polyester powder coating
- Sleek design with excellent heat dissipation
- 360° Cradle movement for omnidirectional precise focus
- Polycarbonate diffused V2 self extinguishing
- using
- Silicon moulded gaskets for IP66 rating
- Integral/Non integral driver compartment IP66
- All stainless steel - AISI 304 grade hardware

THERMAL MANAGEMENT

- Generously designed radiator fins in vertical direction to ensure proper air convection

LEDs

- High efficacy (>150lm/W) outdoor illumination grade SMD LEDs, LM80 Certified.
- Low junction thermal resistance for long life and low lumen depreciation
- Luminous flux maintenance 80%,50,000 Hrs(L80B20)
- High colour rendering : CRI - 70/80/90
- Various CCT : 2200K/3000K/4000K/5700K

ELECTRICAL SYSTEM

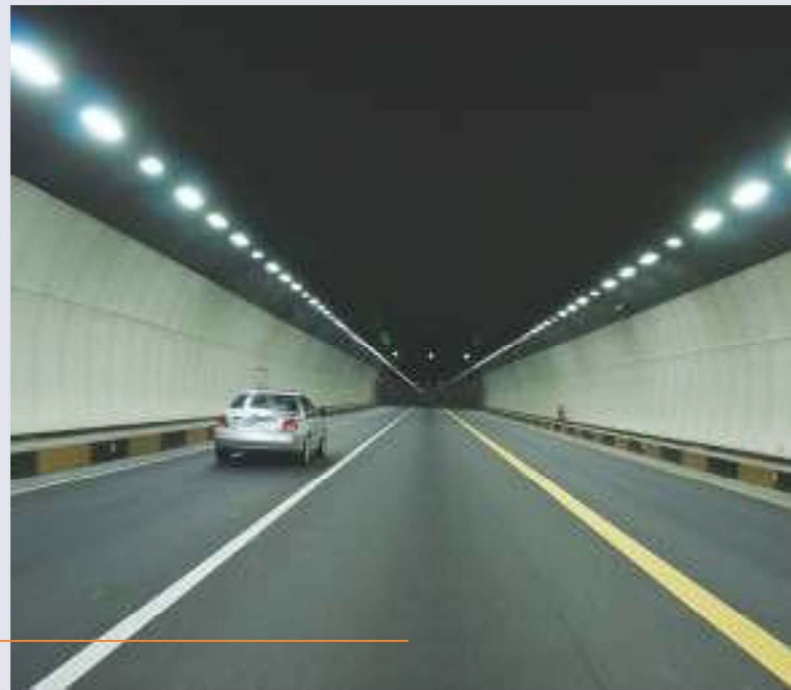
- Outdoor rated >90% efficiency constant current drivers with over voltage (440V AC)/Undervoltage,Short circuit & Open circuit protection 4KV/5KV/6KV inbuilt surge protection
- Optional 10KV / 20 KV external SPD
- Low current harmonics :THD < 10%
- Low flicker : <3%
- Ambient temperature range : -30°C To +50°C

OPTICAL SYSTEM

- Variety of photometric beam options for -Tunnel Lighting, Area Lighting, Facade Lighting
- Structured on high performance optical grade lenses in PMMA / PC
- Photometric design data for all optics available

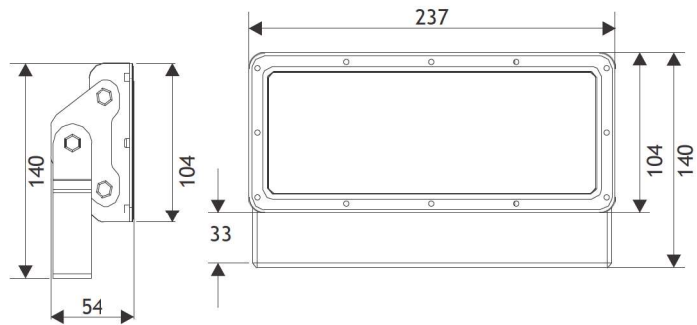
COMPLIANCES - LUMINAIRE

- As Per IS 10322 (Part5/ Sec.5) 2012 & 2015
- IP66, IK08 as per IEC-EN 62262
- **On Request:** Surface coating resistant to salt spray tests pursuant to Standard UNIEN ISO 9227.



TUNELLO Mini

IP66 IK08



TUNNEL LIGHTING

La Martini

Technical Parameters

Input AC Voltage	: 140 to 277 VAC
Frequency	: 50 / 60 Hz
Luminous Efficiency	: 110 Lumens/Watt (min.)
CCT (K)	: 2200K / 3000K / 4000K / 5700K
Optics	: Symmetric : /60° /90°/ Double asymmetric forward throw Tunnel counter beam/Street Light

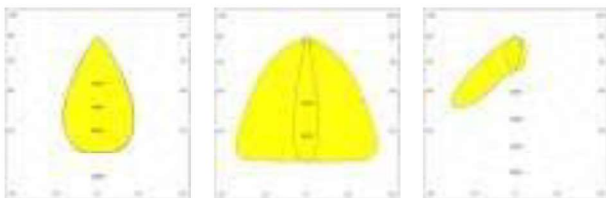
Technical Specifications

SERIES	ITEM CODE	SYSTEM WATTAGE	INPUT CURRENT	DELIVERED LUMENS	LIGHT BEAM	THD	PF	SURGE PROTECTION	CCT	CRI
TUNELLO	LMTL-0024-757-FN-00	24	0.105	2400	Asymm FN	<10%	0.95	4 KV	5700K	70
TUNELLO	LMTL-0024-757- T4B	24	0.105	2400	Street T4	<10%	0.95	4 KV	5700K	70
TUNELLO	LMTL-0024-757-FN-00	24	0.105	2400	Asymm FN	<10%	0.95	4 KV	5700K	70
TUNELLO	LMTL-0036-757-TF-00	36	0.158	3600	TUN TF	<10%	0.95	4 KV	5700K	70
TUNELLO	LMTL-0036-757-20x90	36	0.158	3600	20°x90°	<10%	0.95	4 KV	5700K	70
TUNELLO	LMTL-0036-757-T4B	36	0.158	3600	Street T4	<10%	0.95	4 KV	5700K	70

50° - 60° Wide

24° x 90°
Bi Symmetric

FNForward
Asymmetric



HYDROLED

IP66 IK08



Energy Label A++

LED TUNNEL & UNDERPASS LIGHT

SPECIFICATION

Housing : Polycarbonate V2 self extinguishing UV resistant

LEDs : Midpower LEDs with high efficiency

(>160lm/W), having luminous flux maintenance of 70% (L70 B20) at 50,000 Hrs.

Mounting : With stainless steel clips

Diffuser : Opal polycarbonate V2 self extinguishing UV resistant high transmittance

Driver : Integral driver with safety diode to protect the LED module against voltage peaks up to 4KV. P.F. > 0.95.

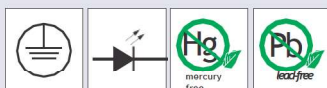
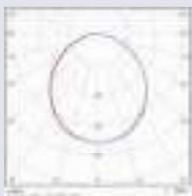
Ambient Temperature Zone : -30 °C to +50°C

Input Voltage Range : 100V – 280V AC, 50-60 Hz

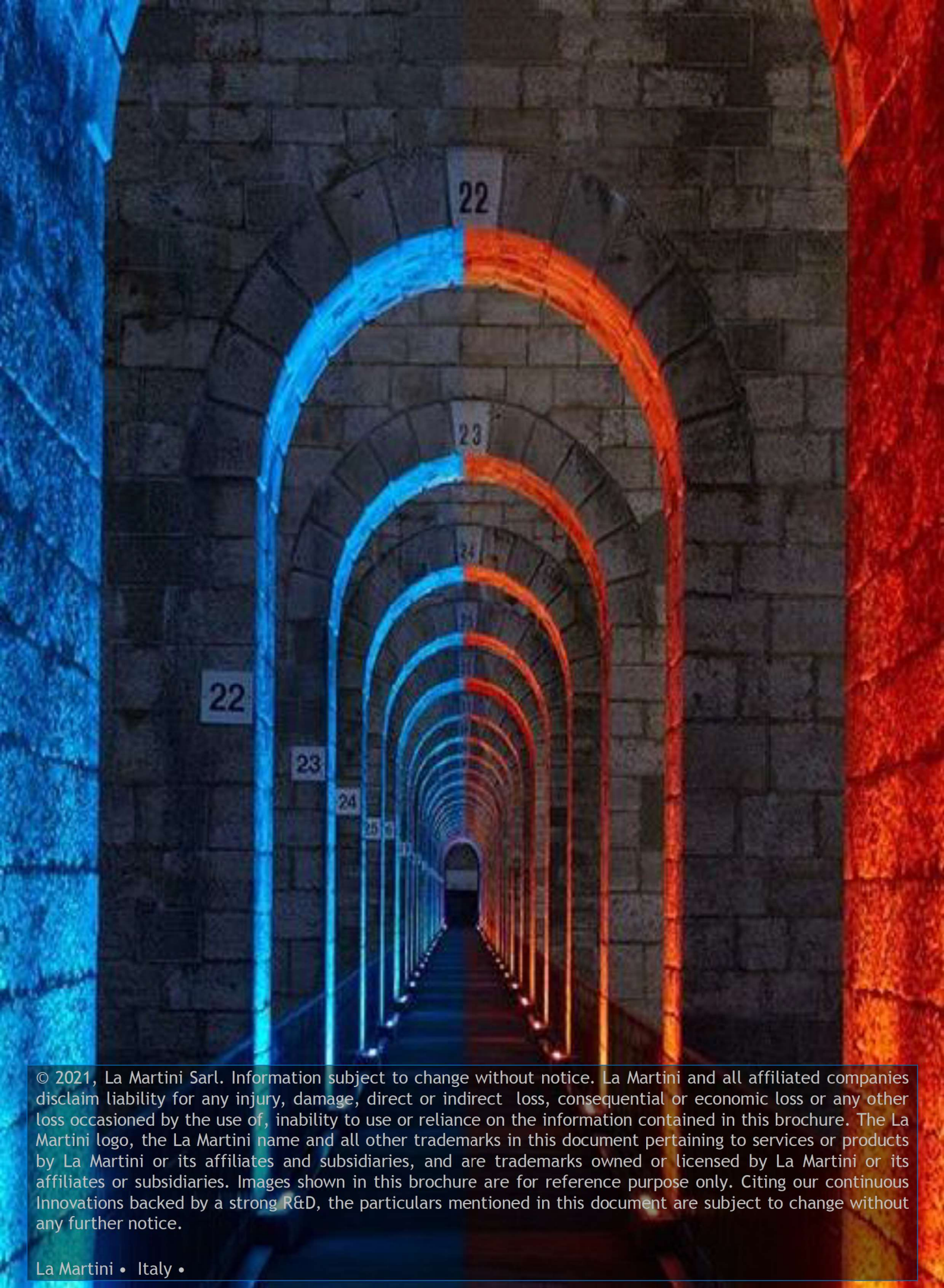


Technical Specifications

SERIES	ITEM CODE	SYSTEM WATTAGE	INPUT CURRENT	DELIVERED LUMENS	LIGHT BEAM	THD	PF	SURGE PROTECTION	CCT	CRI	DIMENSION (LxWxH)mm
HYDROLED	LMIG-0025-757-DIF-00	25	0.109	2250	DIFF	<10%	0.95	4 KV	5700K	70	590x86x66
HYDROLED	LMIG-0040-757-DIF-00	40	0.175	3600	DIFF	<10%	0.95	4 KV	5700K	70	1180x86x66







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