



KNIHA SVÍTIDEL

Zimní stadion BRUNTÁL

UMĚLÉ OSVĚTLENÍ

19.05.2020

H + H TECHNIKA, spol. s r.o.

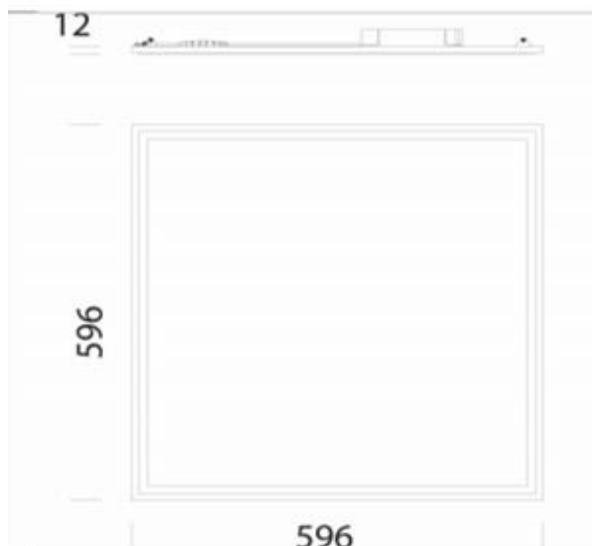
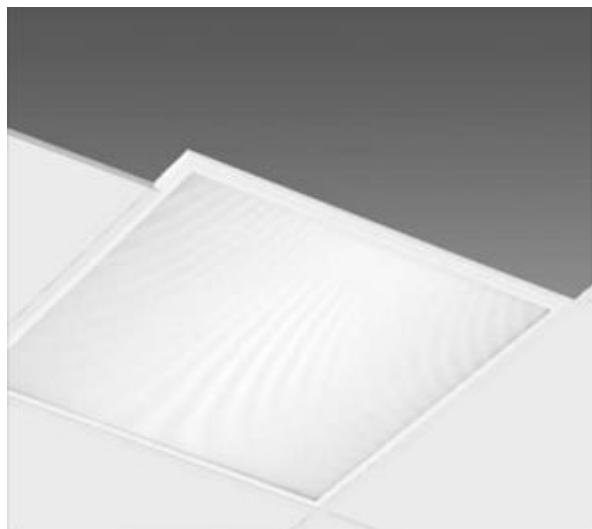
Čechyně 182, 602 00, 683 01 Rousínov, tel.+420 545 212 113, info@hht.cz, www.hhtechnika.cz

D.1.4.5.05

Projekt Zimní stadion BRUNTÁL

Označení v projektu A

Popis LED Panel 33W, 4000K, UGR<19, životnost LED L80B20 50.000 hodin



The superior quality of LED lighting is now more accessible thanks to a benchmark product that offers, at reduced costs, the ideal light for offices, shopping malls, hotels and in general all those spaces that need constant lighting. A simple solution to have the most updated technology in terms of interior lighting.

The integration of a LED source inside a lighting fixture is not always synonym with extraordinary performance. Long life and excellent light output are also guaranteed by the use of accurately tested, controlled and selected materials that can keep certain lighting and aesthetic qualities unaltered, such as lumen maintenance, perfect colour rendering, no glare and anti-yellowing properties. All this, combined with a well-known brand, will ensure reliability and efficiency over time.

However, we must not forget that the presence of a LED source is not enough to guarantee truly exceptional lighting performance levels, as well as long life and quality light output. Other equally important factors are necessary to determine true quality.

In the ours panels, a special slab is inserted between the LED source and the diffuser. This component is fundamental for ensuring the right quality and amount of light output: that is a polymer that keeps its characteristics unaltered in time and prevents the lens from yellowing, which is a phenomenon that is likely to occur in "cheaper" products that use polystyrene (PS) which is available at much lower prices. The result? Unlike PMMA slabs, the ones in PS become yellow after 6-8000 hours of operation, decreasing both the amount and the quality of the light emitted. And what's worse, even when the fixture is switched off, they can compromise the perfect integration of the white panel into the false ceiling, affecting the overall appearance of the installation. Thanks to the slab in PMMA, the ours panels is capable of taking full advantage of the lighting benefits ensured by the most advanced LED sources, keeping them unaltered over time: 80% lumen maintenance for 50000 h (L80B20), perfect colour rendering (CRI80 or CRI>90), no glare (UGR<19) and certified low flickering level. Housing and frame: housing in galvanised steel sheet, and frame in aluminium. Inner slab: in PMMA. Diffuser: extruded in prismatic engineering plastic with high thermal transmittance.

UGR glare index: UGR<19 (in any situation). - EN 12464. Power factor 0.95 Luminous flux maintenance 80% 50.000h (L80B20). Photobiological safety class: Exempt group.

Projekt **Zimní stadion BRUNTÁL**

Označení v projektu **A1**

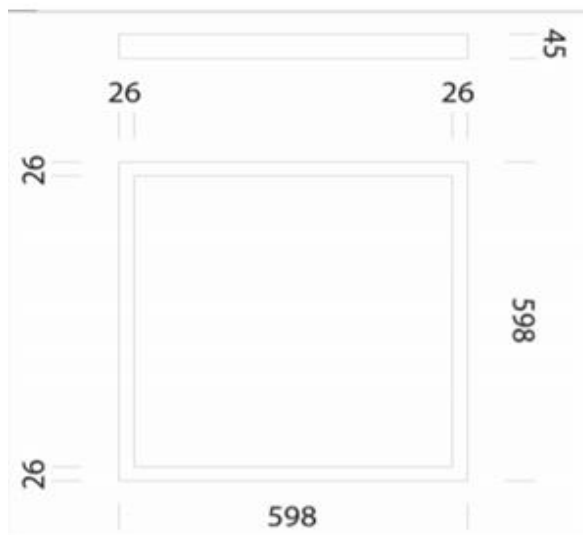
Popis **Přisazené LED 33W, 4000K, UGR<19, životnost LED L80B20 50.000 hodin**



The superior quality of LED lighting is now more accessible thanks to a benchmark product that offers, at reduced costs, the ideal light for offices, shopping malls, hotels and in general all those spaces that need constant lighting. Its shape guarantees uniform light distribution, while the white-light LEDs (3000/4000K) generate high light quality, ensuring the best visual comfort and perfect colour rendering (CRI80). All this comes with significant energy savings. Savings are even more significant if we consider the long life of LEDs (50,000 hours) and no maintenance after installation. In addition to practical advantages, the product's very slim and low-profile design combined with a housing in polycarbonate offers attractive aesthetics. A simple solution to have the most updated technology in terms of interior lighting.

Housing and frame: housing in galvanised steel sheet, and frame in aluminium. Inner slab: in PMMA. Diffuser: extruded in prismatic engineering plastic with high thermal transmittance.

UGR glare index: UGR<19 (in any situation). - EN 12464. Power factor 0.95 Luminous flux maintenance 80% 50.000h (L80B20). Photobiological safety class: Exempt group.



Projekt Zimní stadion BRUNTÁL

Označení v projektu B, B1

Popis Přisazené LED, 44W LED, mikroprisma, ČERNÁ, 1200x215x55mm, 4000K

SVÍTIDLO B provedení RAL9005 ČERNÁ, B1 RAL9003 BÍLÁ

ELEKTRICKÉ VLASTNOSTI

Příkon	44 W
Napájecí napětí	198 - 264 VAC / 190 - 280 VDC
Účinnost	0.98
Harmonické zkreslení	<10
Třída izolace	I
Energetická třída	A+
Stmívání	-
Počet na jistič C 16A	57 ks
Doba životnosti LED driveru	90 000 hod. @ $t_c=45^\circ$

OPTICKÉ VLASTNOSTI

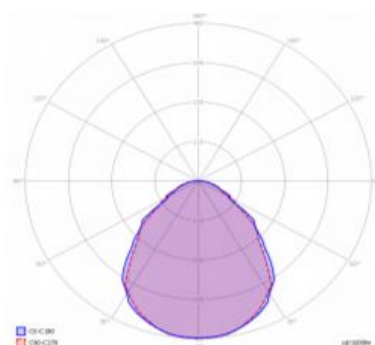
Světelný tok svítidla	5030 lm
Světelná účinnost	114 lm/W
Teplota chromatičnosti	3K / 4K / 5K
Index podání barev	80+
Tolerance barev	3 step MacAdam
Vyzařovací úhel	-
Činitel oslnění	19.5 / 19.2
Jas @65° < 3000 cd/m ²	ano
Doba životnosti LED	L80B20 = 110 000 hod.

MECHANICKÉ VLASTNOSTI

Rozměry	1200 x 215 x 55 mm
Hmotnost	4.2 kg
Provozní teplota	- 25 ~ + 25 °C
Stupeň krytí	IP 40
Materiál tělesa	lakovaný Fe plech
Materiál reflektoru	-
Materiál difuzoru	PMMA
Způsob montáže	přisazená nebo závěsná



POLÁRNÍ DIAGRAM



Projekt **Zimní stadion BRUNTÁL**

Označení v projektu **C**

Popis **Vestavné LED, 19W, 2000K, 4000K, IP44/20**



Fosnova offers a wide range of recessed luminaires designed to meet the increasingly demanding lighting needs of shopping centres, stores and museums.

Moreover, its extraordinary versatility, given a number of different dimensions, allows for simple application and makes them suitable to meet any need. In particular, a pre-existing system can be replaced without changing the entire structure.

Maintenance and installation are extremely easy.

Equipped with latest generation LEDs, studied for the optimisation of colour rendering. With a single LED source, it can achieve the visual effects of different colour temperatures, both 3000 K and 4000 K, guaranteeing a CRI value of 90.

Housing: in die-cast aluminium.

Diffuser: high-temperature resistant thermoplastic material. Painting: dust painted, using polyester epoxy paint to withstand UV rays.

Standard supply: Includes adjustable steel bracket.

Regulations: Manufactured in accordance with standards EN60598 – CEI 34 –21. Degree of protection in accordance with standards EN60529.

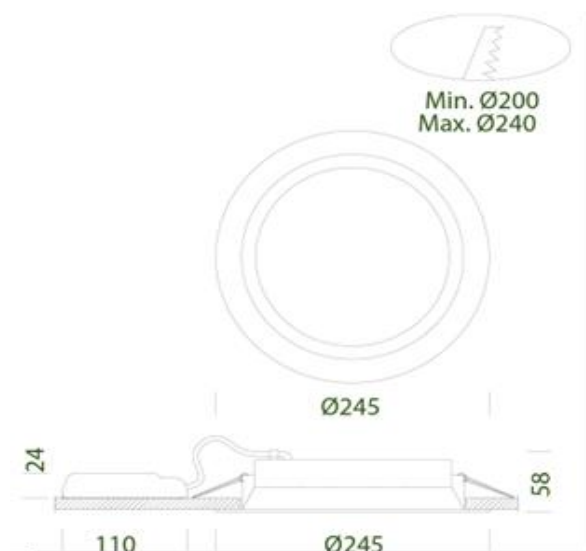
LED: High-efficiency light sources (CRI 90).

Power factor: ≥ 0.95

Photobiological safety class: Exempt group.

Luminous flux maintenance 80%: 55.000h (L80B20).

recessed $\varnothing 200/240\text{mm}$



Projekt	Zimní stadion BRUNTÁL
Označení v projektu	C1
Popis	Vestavné LED, 14W, 1400lm, 4000K, IP44/20



Fosnova offers a wide range of recessed luminaires designed to meet the increasingly demanding lighting needs of shopping centres, stores and museums.

Moreover, its extraordinary versatility, given a number of different dimensions, allows for simple application and makes them suitable to meet any need. In particular, a pre-existing system can be replaced without changing the entire structure.

Maintenance and installation are extremely easy.

Equipped with latest generation LEDs, studied for the optimisation of colour rendering. With a single LED source, it can achieve the visual effects of different colour temperatures, both 3000 K and 4000 K, guaranteeing a CRI value of 90.

Housing: in die-cast aluminium.

Diffuser: high-temperature resistant thermoplastic material. Painting: dust painted, using polyester epoxy paint to withstand UV rays.

Standard supply: Includes adjustable steel bracket.

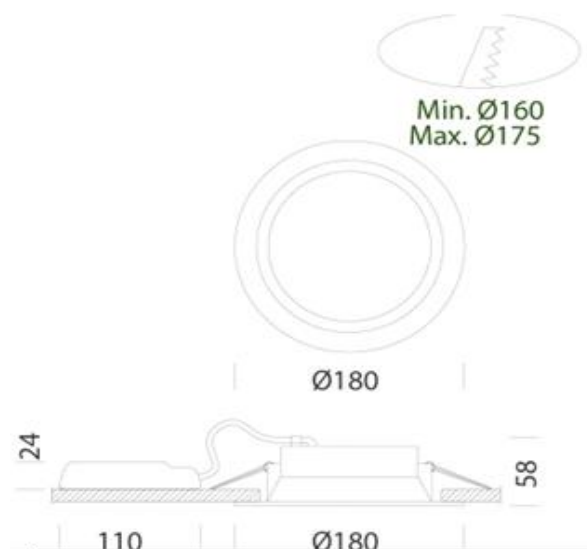
Regulations: Manufactured in accordance with standards EN60598 – CEI 34 –21. Degree of protection in accordance with standards EN60529.

LED: High-efficiency light sources (CRI 90).

Power factor: ≥ 0.95

Photobiological safety class: Exempt group.

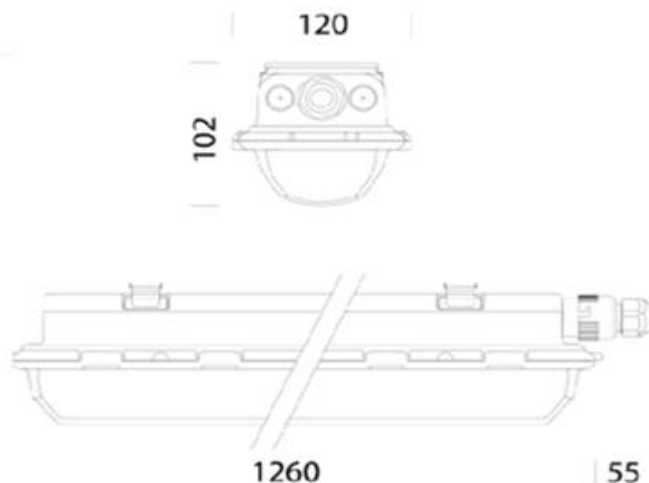
Luminous flux maintenance 80%: 55.000h (L80B20).
recessed $\varnothing$ 160/175mm



Projekt **Zimní stadion BRUNTÁL**

Označení v projektu **D**

Popis **Přisazené průmyslové LED 37W, 5094lm, IP66, IK08**



The high technological expertise achieved by the Disano Group in both the design and industrial manufacturing of lighting fixtures has resulted in the creation of a new watertight LED fixture. New Hydro LED features a modern design that blends well into any type of setting.

Housing: injection moulded, in grey polycarbonate, shatter-proof, UV-stabilised, highly resistant to mechanical impacts thanks to the reinforced structure with internal ribbing.

Diffuser: injected moulded in polycarbonate with internal ribbing for greater lighting control, in V2 self-extinguishing, UV-stabilised material; its smooth outer finish makes cleaning easier and increases lighting efficiency. Equipped with stainless steel screw clamping.

Reflector: in galvanised steel, previously stone-enamelled with UV-stabilised polyester resin. Clamping device manufactured directly onto the housing.

Dimensions: L 1260mm - 102mm - 120mm

Standard supply: eco-friendly and anti-aging expanded polyurethane injected gasket. The fixing brackets for ceiling and suspension mounting are in stainless steel. Socket-plug connector. The fixture is secured to the fixing brackets through quick connectors.

Regulations: manufactured in compliance with EN60598-1, EN60598-2-1. Degree of protection: pursuant to EN60598-1.

Power factor: ≥ 0.95

Luminous flux maintenance after 50.000 hrs: L70B20.

Photobiological safety class: exempt

Low Flicker Risk

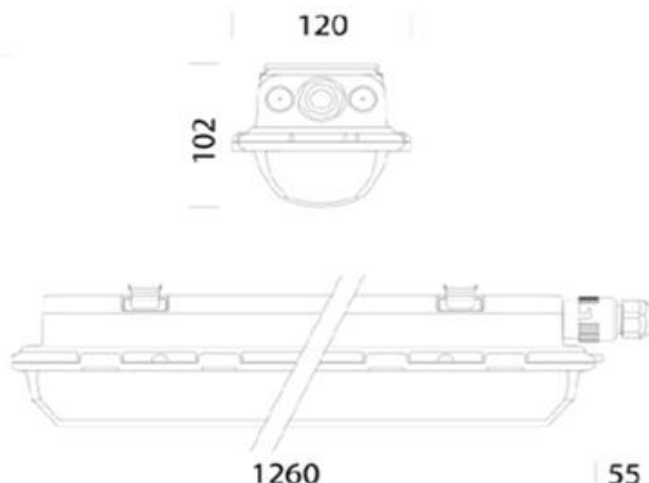
Ambient temperature: -30°C to $+40^{\circ}\text{C}$

EM Ambient temperature: $+5^{\circ}\text{C}$ to $+40^{\circ}\text{C}$

Projekt **Zimní stadion BRUNTÁL**

Označení v projektu **D1**

Popis **Přisazené průmyslové LED 50W, 6786lm, IP66, IK08**



The high technological expertise achieved by the Disano Group in both the design and industrial manufacturing of lighting fixtures has resulted in the creation of a new watertight LED fixture. New Hydro LED features a modern design that blends well into any type of setting.

Housing: injection moulded, in grey polycarbonate, shatter-proof, UV-stabilised, highly resistant to mechanical impacts thanks to the reinforced structure with internal ribbing.

Diffuser: injected moulded in polycarbonate with internal ribbing for greater lighting control, in V2 self-extinguishing, UV-stabilised material; its smooth outer finish makes cleaning easier and increases lighting efficiency. Equipped with stainless steel screw clamping.

Reflector: in galvanised steel, previously stone-enamelled with UV-stabilised polyester resin. Clamping device manufactured directly onto the housing.

Dimensions: L 1260mm - 102mm - 120mm

Standard supply: eco-friendly and anti-aging expanded polyurethane injected gasket. The fixing brackets for ceiling and suspension mounting are in stainless steel. Socket-plug connector. The fixture is secured to the fixing brackets through quick connectors.

Regulations: manufactured in compliance with EN60598-1, EN60598-2-1. Degree of protection: pursuant to EN60598-1.

Power factor: ≥ 0.95

Luminous flux maintenance after 50.000 hrs: L70B20.

Photobiological safety class: exempt

Low Flicker Risk

Ambient temperature: -30°C to $+40^{\circ}\text{C}$

EM Ambient temperature: $+5^{\circ}\text{C}$ to $+40^{\circ}\text{C}$

Projekt **Zimní stadion BRUNTÁL**

Označení v projektu **E**

Popis **Přisazené LED, 24W, 4000K, 2780lm, 330x55mm, IP65, IK07, třída II**



Oblò 2.0 represents the evolution of one of Disano's flagship products, now available in a renovated design and upgraded technology to ensure even lower energy consumptions and higher LED light quality.

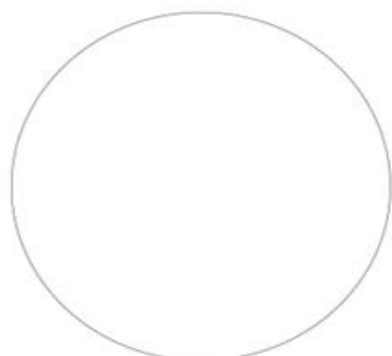
Oblò 2.0 includes a family of robust and reliable wall-mounted outdoors and indoors fixtures, featuring a self-extinguishing body in polycarbonate, with IP65 protection rating and double isolation.

The range of the Oblò fixtures includes lamps in different sizes and different power outputs to allow choosing the best solution for any need. High quality LED lighting, colour temperatures of 3000 K and 4000 K and good colour rendering (CRI 83) contribute to guaranteeing energy-efficient, visually pleasant and safe lighting.

The efficient use of light is further increased thanks to its presence sensor that makes the lamp work only when needed, hence further lowering energy consumptions.

Housing: vandal-resistant, self-extinguishing polycarbonate. Diffuser: In clear polycarbonate, anti-dazzle, vandal resistant. LED: Power factor >0.9. Luminous flux maintenance 80%: 33.000h (L80B20).

Photobiological safety class: exempt group.

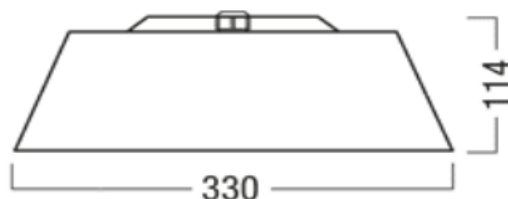


Ø 330



55

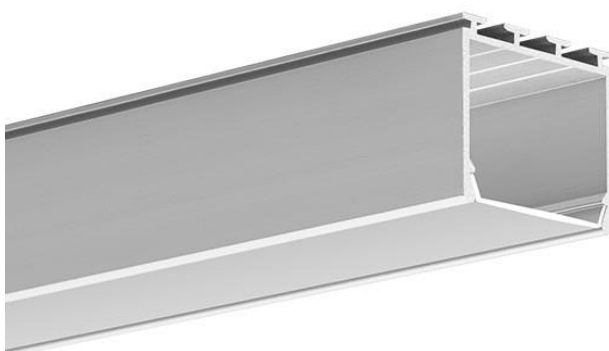
Projekt	Zimní stadion BRUNTÁL
Označení v projektu	H, Hn
Popis	LED, 34000lm, 4000K, PC, IP65



CRAFT L: L=680 mm

- Speciálně vyvinutá optika Wide Beam pro rovnoměrné čtvercové nasvícení bez tmavých míst (UGR < 22)
- Potlačení oslňování při variantě 26000 lm UGR < 22 a při 34000 lm UGR < 25
- Oblast použití: montážní a výrobní haly, sportovní haly, obchody stavebnin, přijímací haly
- Pro použití v prostředí, kde lze očekávat na svítidle usazování vodivého prachu
- Pouzdro z hliníkového výtlačně lisovaného odlitku v bílé barvě, s práškovým nástřikem s chladicími žebry
- Design svítidla s chladicími žebry, optimalizováno pro řízení tepla a zabraňující usazování prachu
- Životnost LED: 50000 hodin až do snížení světelného toku na min. 85 % (4000 K), resp. 90 % (6500 K) počáteční hodnoty
- Index barevného podání: Ra > 80 (4000 K), Ra > 70 (6500 K)
- Teplota chromatičnosti: 4000 K (LED840: neutrální bílá), 6500 K (LED865: studená bílá)
- Barevná tolerance mezi několika svítidly max. 3 MacAdam-ellipsy
- Krytí IP65
- Předem zkompleťovaný, 1,5 m dlouhý přípojovací kabel je součástí obsahu dodávky
- Svítidlo propojeno bezhalogenově a bez silikonu
- Provozní teplota okolí: -40 °C ... +55 °C, pro variantu 34000 lm: +45 °C
- Obecně vybaveno konvertorem říditelným přes DALI, který je vhodný i pro nouzový proud
- Hladina nouzového osvětlení je přednastavena na 15 % (z výroby naprogramováno na úroveň mezi 10–60 %)

Projekt	Zimní stadion BRUNTÁL
Označení v projektu	VO1
Popis	LED profil



AL profil pro LED pásek, osazený LED max.15W/m, profil zalitý, IP65, napájení externím zdrojem 24V DC

Projekt	Zimní stadion BRUNTÁL
Označení v projektu	VO2
Popis	Svítidlo LED 8129lm-4000K-CRI 70



Housing and cover: in die-cast aluminium and designed with a very small surface exposed to wind. Cooling fins are integrated into the cover. Pole connection: in die-cast aluminium and with gaskets to secure the frame according to different inclinations. Adjustable ranges: between 0° and 15° for side mount; and between 0° and 10° for mast-top mounting. Inclination pace: 5°. Suited for poles with a diameter 63-60mm. Diffuser: clear, tempered glass, 4 mm thick, resistant to thermal shock and impacts (UNI-EN 12150-1 : 2001). Coating: the standard powder coating consists of a first metal surface pre-treatment stage and of single layer of UV-stabilised, corrosion and salt resistant polyester powder coating. Standard supply: Automatic temperature control inside the device with automatic resetting. Electronic safety device to protect the LED module and the related ballast compliant with EN 61547. It works in two modes: - differential mode: surge between power cables and between the phase and neutral. - common mode: surge between power, L/N and ground cables or between the fixture's body if it is of class II and installed on a metal pole. Upon request: protection up to 10KV. Equipment: complete with IP67 airtight connector for mains connection. Supplied with double insulation switch that cuts off electricity when the cover is opened. Energy-saving: the possibility to choose the correct drive current for LEDs will allow you to have the right power under specific design conditions, and also help you deal with maintenance and retrofitting problems. Using a lower current will improve the efficiency of fixtures and therefore increase energy savings, whilst a higher current will result in a higher light flux so that you can reduce the number of fixtures. Optics: in PMMA, highly resistant to temperature and UV radiation.

LED: Ta-30+40°C life 80%: 80.000h (L80B20). Power factor >0.9
Regulations: Produced according to applicable EN60598-1 CEI 34-21 standards, degree of protection according to EN 60529 standards.

Upon request:

- with power supply 1-10 V dimmable with subcode 12.
- with power supply DIG dimmable with subcode 0041.
- with virtual midnight subcode 30.
- power line carrier remote control systems subcode 0078.
- Coating compliant with UNI EN ISO 9227 Corrosion tests in artificial atmospheres for aggressive environments.

Wind surface: L:139cm² F:400cm².

