# boos

























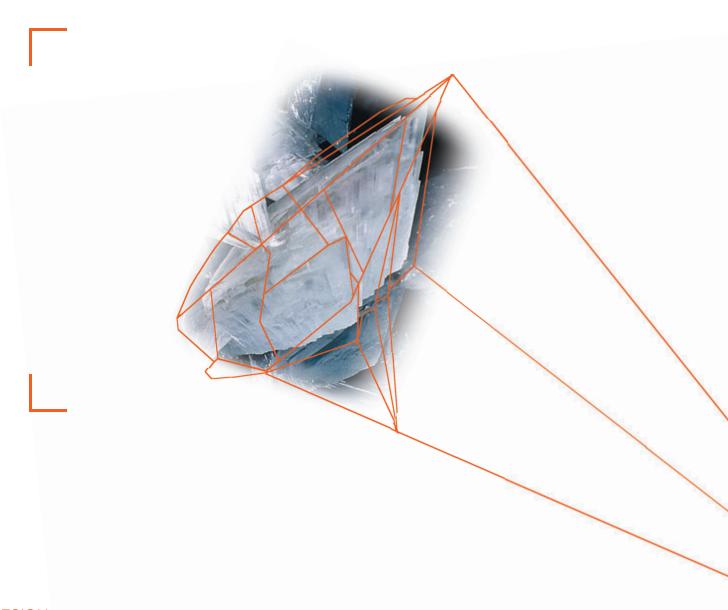
NAICA is a voyage to the interior of the earth but also to the interior of ourselves. It invites us to comprehend its true significance and also leads us to a relevant debate about our relationship with nature and our planet.

Its crystals, multi-faceted mirrors and images, lead to the various roads of knowledge and science; to understand the how and when of the creation of this work of nature, challenging us to develop the technology to survive and register in images its great beauty. They also lead us to the arts, so that we may share this natural heritage through the expressions of men and women sensible to its beauty and harmony, and the roads of philosophy and mysticism for the magic and peace that they convey.



NAICA Fitting: Exclusively Designed by JSM Design and Lighting Consultancy to reflect landscape and urban archtects' and planners' visions.





#### **DESIGN**

NAICA distinctive aesthetics is conceived to satisfy any architect firm and environmental planner. It has been designed to become graciously an element of the urban and interurban scene devoted to sustainable zero-manufacturing-fault, future-in-mind, timeless design, upgradable, best-in-class performance, versatile and easy-serviceable fitting, eligible for both new and renovation projects.

#### INNOVATION

The way BOOS articulates innovation advocates how to provide the best possible solutions to meet all existing and new requirements as well as anticipating future market needs. This is accomplished through a unique receipt: the sum of good design + best practices + reliable solutions + proved components that we make readily available to markets, governments and society.

#### **VERSATILITY**

Specially engineered model that bridges latest in high efficiency LED technology with cuttingedge modern mechanical design to provide a complete street lighting solution. NAICA is one luminaire for all possible outdoor lighting applications coming to your mind.

#### **RELIABILITY**

Designed as an incredible quality complete package assembly of optical, thermal, manufacturing and testing processes allows you to obtain exceptional reliable performance and the longest luminaire operation life ratio in the market, with minimal maintenance over the years.

#### **PERFORMANCE**

NAICA is to become the long-term precision performance reference luminaire in the market. Today's economic scenario requires a superior performance fitting that maximizes the Total Cost of Ownership of an installation due to the tight and limited budgets available. NAICA is the perfect travelling companion when a municipality and/or developer is planning long term investments for renovation or new lighting installations.

#### **SERVICEABILITY**

NAICA has been engineered to satisfy every installer's requirement. Naica's sustainable conception is based on long-term value added, manufacturing excellence, long-life-time control, easy upgradability to incorporate future technological advancements at any stage during the service life and tools-free installation, servicing and maintenance.





## NAICA for everywhere

Should the required fitting be wall, lateral or top mounted? Should it be tilted to throw the light where it is precisely needed? Should it have a plastic bowl to maximize glare control and increase visual presence and comfort? Should it prevent the backlight reducing intrusive lighting? Or should it be all this together and at the same time? This is what is NAICA about.

#### Transportation







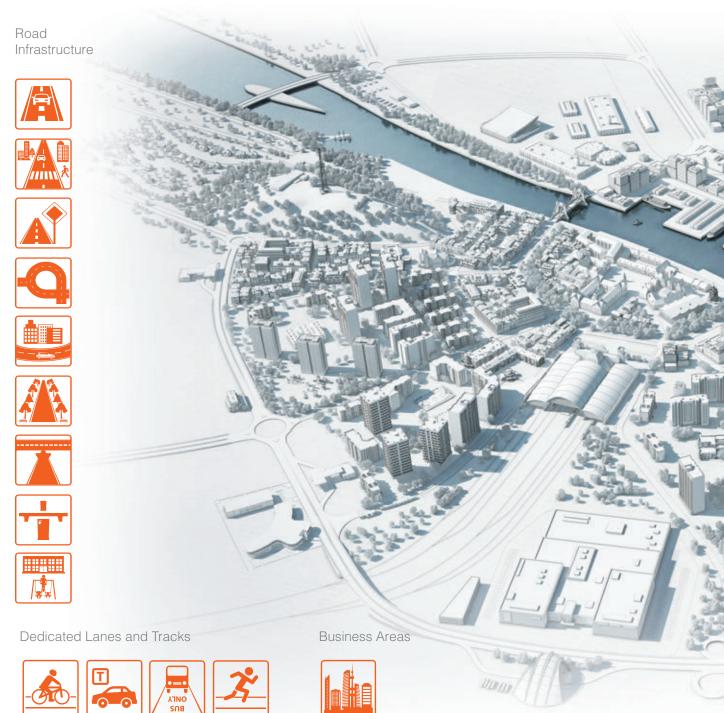












**Three sizes**, **three couplings**, **countless optica**l systems for particular needs (pedestrian, cycle paths) - higher vibration standard available-flat glass **anti-glare plastic bowl** cover, BOOS BackLight control system, BOOS MasterMind, Lighting Control Management and many other features make NAICA eligible for almost any possible new or renovation street and road lighting project.

Parks & Parking Areas

**Shopping Malls** 

Promenades and Corniches

















#### RETURN ON INVESTMENT FOCUS

NAICA grants that operating and servicing cost are minimized, and initial cost is only part of the equation that is being quickly amortized, since you will need less number of luminaires, lower wattage and / or the advantages of the countless functionalities and possibilities.

- ✓ **Own and proprietary lenses & optics and thermal reliable system** are the key factors to obtain lumens/watt. LED adjustable arrays and modules and electronic drivers proclaim a lifetime of up to 100.000 operating hours (L70).
- ✓ Easy plug-and-works technology minimizes initial installation cost. Optical systems and electronics systems can be replaced tools-free on-site at the end of its service life.



## ROI LED TEC

### **RANGE** OF INSTALLATIONS AVAILABLE

NIACA fulfils the widest variety of outdoor and street lighting tasks conceivable, enabling two or three lighting tasks to be performed at the same time.

- ✓ Three fitting sizes that allows to keep always proportion and combination for complex street profiles.
- √ Three different fixing systems: wall, side-entry and top mounted.
- ✓ Three different attachment's entrance diameter from 42 mm to 76 mm, easy (-10/+10) tilting to adapt any new or renovated pole and column diameter.
- ✓ **Symmetrical and asymmetrical proprietary optical systems.** Special and unique optics designed for pedestrian and roundabouts.
- ✓ Flat glass with ULOR 0%, and flat glass or polycarbonate 8-faces bowl. (only small NAICA)

CONFIGURATOR tool allows you to select for a given required lighting level (lumens) of your lighting system, three combinations of fitting's size, number of LEDs, intensity, LED patterns, and ROILight functionalities, that combined together might get an unbeatable number different lifetime guarantee and energy saving proposals.



#### **RELIABLE OWN INNOVATION**

NAICA innovation receipt is the result of the whole technological process mastery: the sum of perfect design + best practices + reliable solutions + proved components from first class manufacturers + own and proprietary lenses, optical and thermal management systems.

- ✓ A **timeless design** where the focus is on maximum heat control and dissipation, ensures that the LEDs and all the NAICA electronic components work under the most convenient and beneficial thermal conditions.
- ✓ **Durable and recyclable materials** and components that proclaims a Recyclability Ratio of 98%.
- ✓ Own and proprietary lenses that generate a **better optical performance package** with **fewer number of luminaires** and wider spacing between them.
- ✓ LED arrays and patterns contributes to configure countless possibilities to generate the better price-lifetime-performance-value proposal.

Top-quality materials used in the luminaire and faultless manufacturing excellence delivers exceptional and reliable performance with **minimal maintenance** for many years, keeping the essence of **ROI philosophy.** 

## **RESULT** OF OVER-STRESSED INTEGRAL FITTING'S ASSEMBLY

Innovative own designs and technology alongside with quality manufacturing processes and afterdelivery monitoring and service assures maximal and reliable fittings performance with minimal maintenance.

- **a. Best-in-class thermal management.** Perfectly engineered optical systems and full luminaire precise sizing design, enabling all luminaire parts and components working efficiently, securing the most reliable package over NAICA lifetime and beyond, maximizing its performance and granting colour stability.
- **b. Superior Optical performance.** NAICA maximizes lifetime, and energy savings and helps in granting the best Return of Investment to any public or private developer project. Light adapt maximizes fitting's performance, secures ULOR =0% and provides lighting sector leading position in glare control and visual comfort producing the maximum light (lumens) per watt, directing the light exactly and precisely where it is needed.
- **c. Manufacturing mastery to obtain zero-fault fitting consistency.** Die-casting and injecting experience, collaboration with prestigious suppliers, advanced designs and proprietary PCBs, lenses, gaskets, designs and test & laboratories (electrical, electronics, IP, IK, endurance and photometry) delivers a NAICA fitting characterized by long-term protection from dust, moisture, vibration and any other adverse environmental effects.



#### FLEXIFLUX

Due to the flexibility as a lighting source offered by the LED technology and our goal to deli to our clients and customers the most appropriate NAICA configuration, to meet all the requirements of their lighting systems, BOOS developed Flexiflux functionality.

Thanks to Flexiflux there will always be **more than three options of NAICA** fitting to choose, depending on the focus of the owner of the lighting system: **lifetime of the installation, size, performance, efficiency, price or Return on Investment.** 

#### LIGHTADAPT

Unlike many other competitors, BOOS installs inside its luminaires, own and proprietary lenses. Designing and manufacturing our lenses only by us and for us, allows that the light emitted by NAICA fitting adapts to an **uncountable number of lighting systems layouts.** 

#### TR (THERMALLY RELIABLE)

Functionality included in the LED PCB and in the driver that, by regulating the output current of the driver, **dims down** the driver or even turns off the fitting, when the system,occasionally or temporarily, reaches a **critical temperature** limit settled in-factory.

#### **XBIN**

XBin step MacAdam functionality shows the critical importance of delivering **consistent colour** and **colour maintenance** of the fittings during the whole life-time and beyond.

NAICA fitting secures that XBin for the whole range of colour temperatures from warm to neutral to cool to daylight.

#### 4K

A **surge protector** (or surge suppressor) is a built-in system that limits the voltage supplied to the electrical parts, from voltage spikes including those caused by lightning or standard operations in the power network. Our standard solution grants an optimal 4K protection.

#### **NIGHTBALANCE**

By means of in-factory programing before delivery of multi-step dimming of **up to 5 time-periods and up to 5 lighting levels**, NAICA grants countless possible light outputs to manage and monitor the requirements needed during peak-hours, middle of the night and all the transitional periods before, in between and after them.

Configuration stand-alone, high-efficient functionality that makes the fullest use of all the strengths of LED luminaires in maximizing the energy savings in off-peak hours. Future-proof functionality that can be reprogrammed in case of future upgrade of our LED arrays due to technological advancement.

#### **BLUEVOLT**

BlueVolt reduces the **light output** of the luminaire proportionally to the reduction of the amplitude of the **mains voltage**.

Pre-programmed cost beneficial 3-step dimming functionality that can help in granting the lifetime of the LEDs performance.









#### CLO (CONSTANT LUMEN OUTPUT)

Increasing power of the LED system inversely to lumen depreciation curve of the due to aging process of the LED, we can obtain energy savings, **extended lifetime** of the LED and the complete system and secure that the luminous flux is maintained over the time as designed initially in the project.

#### CI

Group of luminaires control system that allows the possibility of **reducing the fittings lighting flux**, and thus their consumption, in off-peak hours by means of a secondary 230V line. Following our flexibility philosophy, the reduced lighting level can be obtained both, when the Cl is activated or when it is not, as requested by the client

#### 1-10V

Continuous (step-free) analogue control-signal diming functionality. 1-10V allows to deliver **lighting levels** from 10% output current of the driver up to 100% without the need to set any single or multistep level. This functionality can complement our NightBalance functionality.

#### DALI

DALI'S NAICA functionality provides one more element to monitor and control the lighting levels providing continuous dimming thus minimizing energy consumption and reducing maintenance cost. Using open standard protocol DALI enhances flexibility and simplifies the design stage of the lighting project, and at the same time allows the implementation in our NAICA fitting of third company's management control systems.

#### **MASTERMIND**

**Telemanagement** system for monitoring, controlling, metering and diagnosing outdoor lighting systems



#### 1. HOUSING PARTS

**Canopy and frame** made of high corrosion resistant die-cast low cooper content aluminium alloy in dark grey Noir 2200 sable. As an option canopy and frame can be delivered in different colours.

Closing clip made of corrosion resistant extruded aluminium

**Silicone gasket** between the frame and canopy, together with silicone gasket all-around the glass that pressures it to the frame prevents any dust or water entering the luminaire and grants the **IP66.** 



replacement.

cable connections, LED module and driver

#### 3. OPTICAL SYSTEMS

LightAdapt consists of a block of LED PCBs, lenses, glasses and gaskets. Each individual LED is encased in its unique and in-house designed and manufactured lens and placed in an array of lenses that combines together in countless possible optical patterns, allowing each configuration provide the maximum possible light output

From 6 up to 144 high power LED PCBs from top-of-the-class brands, depending on the sizes and the requirements of the installation. Colour temperature available from 5700 K Cool White, to 3000 K Warm White. NAICA standard when not otherwise specified is 4000 K, but other special colour temperature setting can be supplied under request. LED arrays are framed by a white light flux recuperator plastic mask.

The frame of the NAICA incorporates a 4mm heat resistant tempered high transmittance IK08 flat glass (as standard) preventing any light thrown upwards (0% ULOR). As an option NAICA can be delivered with an impact-proof IK 10, eight-faces curved high-impact polycarbonate closing bowl that maximises glare control, visual comfort and light perception.

#### 4. MOUNTING / FIXING

Three different universal post-top and side-entry couplings for 42 - 48mm, 60mm and 76mm to make sure that NAICA can replace any existent luminaire in a renovation project. Fixed to the bracket, pole or column by two M8 stainless steel DIN 916 screws.

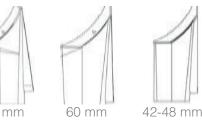
Coupling is supplied in the same finishing as the canopy and frame. As an option attachment can be delivered in different colour from canopy and frame or alternatively same colour as the canopy and different from the frame. Any RAL and/or Futura Collection colour available.

+10/-10 tilting side-entry and post-top to adapt to different installation layouts, maximize lighting performance, minimize glare and allow maximum spacing between fittings.

Mounting system has been designed and tested to proclaim the highest vibration test thus being NAICA eligible for installing in bridges and overpass applications.



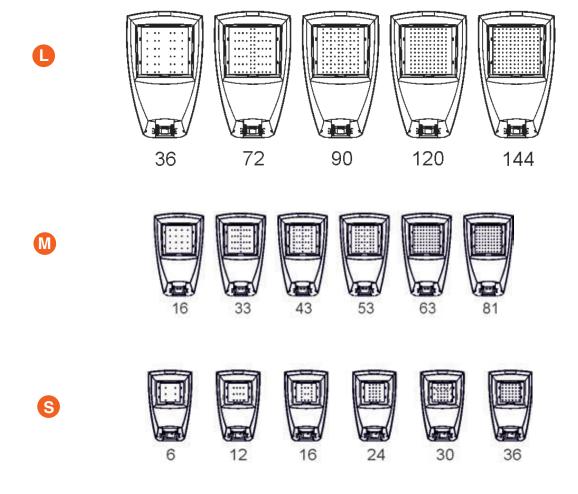




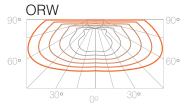


LIGHTADAPT consists of a package of LED PCBs array of lenses, glass and gaskets. Our optics have all been in-house designed and inhouse manufactured. From 6 up to 144 high power LED PCBs, depending of the sizes and the requirements of the installation.

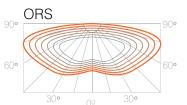
Every model's size has its own different LED arrays patterns according to the requirements of the lighting project. These patterns allow that the distance between LED and the disposition of the LED within the PCB will reduce the temperature inside the fitting thus maximizing heat dissipation and enlarging the lifetime of the fitting and its components, reducing the energy consumption and improving the luminaire efficiency.



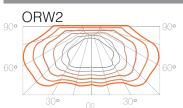




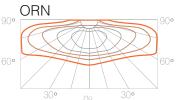




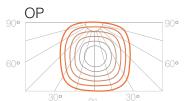




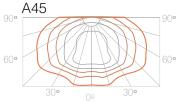




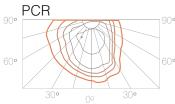




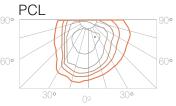












ORW: ME1-2 class road and street lighting

ORN: CE and S class street lighting, cycling and pedestrian paths

PCR: Pedestrian crossing Right

ORS: ME-CE class road and street lighting

OP: Squares, garden-parks, parking lots

PCL: Pedestrian crossing Left

ORW2: MEW class road and street lighting. High reflectance asphalt

A45: Roundabout and area square





#### BOOSBackLight

NAICA can be equipped with BOOSBackLight. This is a factory built-in one-extra-single-piece placed on top of the lenses that minimizes light sent behind the vertical plane of the fitting controlling and preventing the intrusive light-pollution and spill light sent to buildings and properties.

#### BOOSPedestrian

Specifically designed, developed and manufactured person-centred optical systems aiming to light spaces where the well-being and safety of people are critical.





NAICA maximizes lifetime of the fitting and energy savings, generate wider spacing between luminaires and/or more usable light with fewer number of luminaires and helps in granting the best ROI (Return of Investment) to any public project or private development.

#### Configuration:

Mounting height: 3.5 m

Spacing: 21 m

Weight: 2.5 m

Light class: S3

Others: Overhang: 0 m, tilt: 0, NAICA Small NAICA Small maintenance factor: 0.8, traditional lamp

**luminaires** 

maintenance factor: 0.67

#### Results:

HPS-T luminaire: 40 W

**NAICA Small** 

10W. 75% of energy saving.

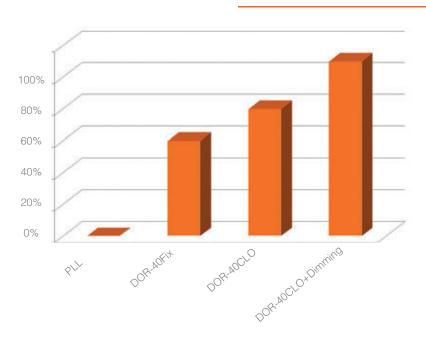
**NAICA Small** 

CLO: 7.5W. 81% of energy saving.

CLO + Dimming: 5.6W. 86% of energy saving.

## Energy and CO2 footprint saver











#### Configuration:

Mounting height: 8 m

Spacing: 32 m

Weight: Road: 7 m (3.5mx2), Kerbs: 1.5 m

Light class: ME3a in the street + S3 in the kerbs

Others: Overhang: -1 m, tilt: 5, LED maintenance factor: 0.8, traditional lamp luminaires maintenance factor: 0.67

#### Results:

HPS-T luminaire: lamp: 150 W,

Consumption: 172 W.

**NAICA Small** 

88 W. 49% of energy saving.

Medium Naica

72W. 58% of energy saving.

NAICA Small

CLO: 75 W. 56% of energy saving.

Medium Naica

CLO: 61 W. 65% of energy saving.

**NAICA Small** 

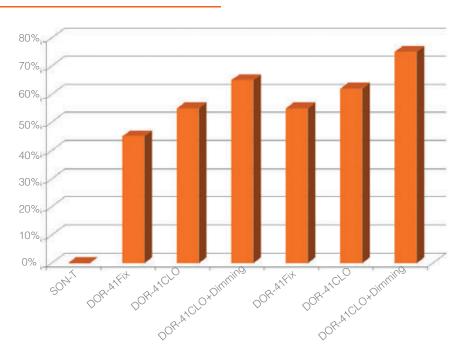
CLO + Dimming: 56 W. 67% of energy saving.

Medium Naica

CLO + Dimming: 46 W. 73% of energy saving.

## Energy and CO2 footprint saver







#### Configuration:

Mounting height: 15 m

Spacing: 60 m

Weight: Road: 7 m (3.5mx2), Median: 2 m

Light class: ME-1

Others: Overhang: -1m, tilt: 0, LED maintenance factor: 0.8, traditional lamp luminaires maintenance factor: 0.67

#### Results:

HPS-T luminaire: lamp: 400 W,

Consumption: 450 W.

**NAICA Big** 

300W. 33% of energy saving.

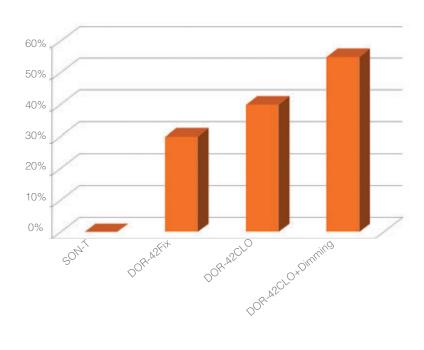
NAICA Big 255W + CLO. 43% of energy saving.

NAICA Big 191W + CLO.

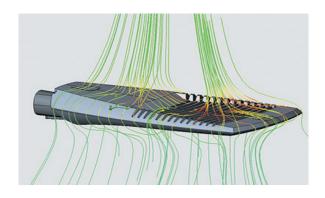
58% of energy saving

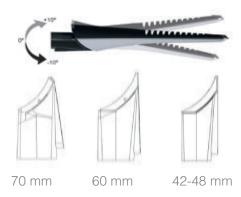
## Energy and CO2 footprint saver











Innovation in advanced LED street lighting is about removing the heat produced by high power LED arrays and power systems, enabling all luminaire parts and components working efficiently and securing the most reliable package over its lifetime and beyond.

BOOS ROILight TR (Thermally Reliable) functionality included in the LED PCB and in the driver, by regulating the output current of the driver, dims down the driver or even turns

off the fitting, when the system, occasionally or temporarily, reaches a critical pre-settled infactory temperature limit. Once the PCB and driver recovers temperature values below the settled critical barrier, the driver will be dimmed up or the fitting switched on.

This overheating protection system maximizes the useful life of the LED and PCBs, secures the reliability of the complete lighting package, and reduces servicing cost enabling the best possible of the proposal.

#### COLORS:

Die cast aluminium and aluminium pieces are chemically cleaned before applying a textured polyester electrostatically and thermally cured powder coating finish. This process grants that the external aesthetic appearance and the integrity of the fittings is long-life secured.



OTHER COLORS



NAICA has been designed and manufactured withdraws the most strictest street and outdoor lighting vibrating environments, and according to the international standards a 2G test has be applied on the fitting to grant the secure all been deployed in three different axes for the specified time lapses. Mounting system has been designed and tested to proclaim the highest vibration test thus being NAICA

eligible for installing in bridges and overpass applications.

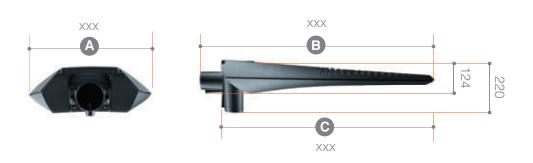
Special control and drivers tray fixation has to the electronics inside the luminaire when G" or more is required.

\*Please check all this is specified before making the order to BOOS.









	A	В	C
NAICA Small	330 mm	661mm	571 mm
NAICA Medium	420 mm	764 mm	674 mm
NAICA Large	492 mm	898 mm	809 mm



NAICA Small

DOR-40

NAICA Medium

DOR-41

NAICA Large

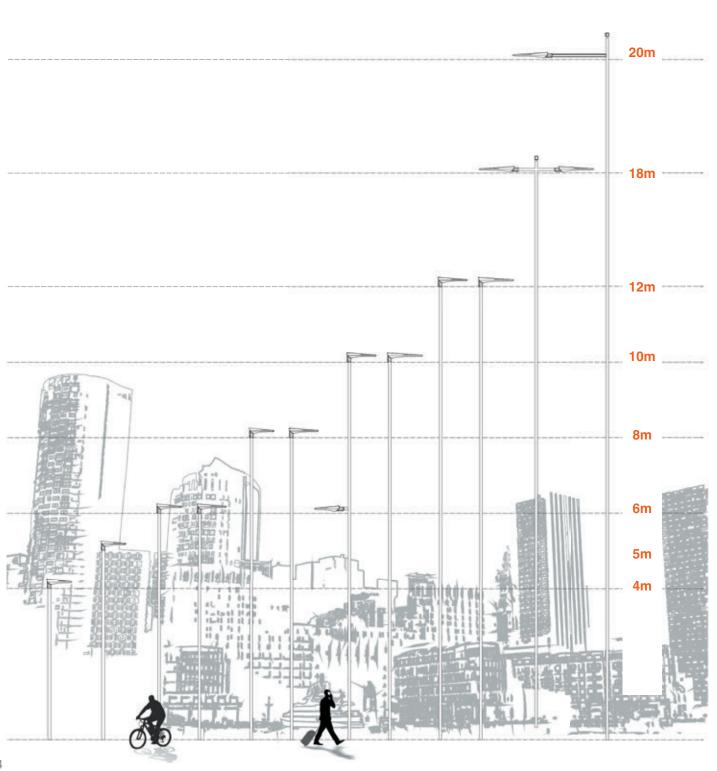
DOR-42



LED	COOL WHITE MIN/MAX LUMEN	NEUTRAL WHITE MIN/MAX LUMEN	WARM WHITE MIN/MAX LUMEN	SYSTEM POWER (W) MIN/MAX	L80B10 LIGHT SOURCE (KHRS) MAX/MIN	DRIVER LIFETIME (KHRS)
NAICA S	Small DOR-40					
6	800-2375	750-2250	600-1800	6-19	355-235	100
12	1300-3725	1250-3500	1000-2800	10-26	358-199	100
18	2000-6000	2000-5500	1600-4500	14-41	340-163	100
24	2500-10000	2500-9500	2000-7500	17-78	301-82	100
30	5000-12000	4500-11500	3500-9000	32-96	267-78	100
36	6000-15000	5500-14000	4500-11000	36-115	236-68	100
	Medium DOR-41					
16	1850-5050	1750-4750	1400-3800	13-39	364-202	100
33	3750-10500	3500-10000	2800-8000	23-72	334-145	100
43	4500-14000	4250-13000	3500-10500	28-94	320-130	100
53	6000-1700	5500-16000	4500-13000	36-116	302-112	100
63	7000-20000	6500-19000	5000-15000	44-137	286-96	100
81	8500-24000	8000-22500	6500-18000	52-159	281-92	100
NAICA I	Large DOR-42					
36	4250-11500	4000-11000	3250-8750	26-78	390-234	100
72	6500-23500	6000-22000	4800-17500	44-157	312-119	100
96	7500-32000	7000-30000	5500-24000	42-223	312-97	100
120	9500-39000	9000-37000	7000-29500	56-271	313-69	100
144	16000-47500	15000-45000	12000-36000	90-332	264-55	100

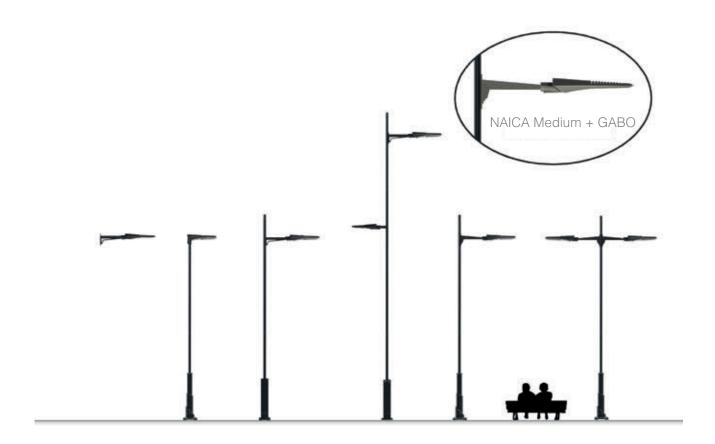


NA	AICA VERSION	RECOMMENDED HEIGHT MOUNTING (METERS)
S	NAICA	4, 5, 6, 8
M	NAICA	6, 8, 10, 12
	NAICA	10, 12, 15, 20





#### **GABO** bracket





## NAICA specification

PARAMETER	TECHNICAL DATA
Туре	NAICA S (up to 36 LEDs), NAICA M (up to 81 LEDs), NAICA L (up to 144 LEDs)
Light source	built-in LED module
Color temperature	4000 K (neutral white), 5700 K (cool white), 3000 K (warm white)
Color stability	3 or 5 MacAdam steps for all standard LED colors
Color Rendering Index	>70 (neutral white and cool white), >75 (warm white)
Luminous Flux (led flux @ Ta=25C outdoor)	from 600 to 47700 lm
Power	from 6 to 332 W
Luminaire efficiency	up to 145 lm/W
Lumen Maintenance (LM-80)	up to 200,000 hours at L80B10
Constant lumen output (CLO)	as standard
Optics	ORS, ORW, ORW2, OP, ORN, A60, PCL, PCR
Optical Cover	flat glass or Polycarbonates 8-faces bowl
ULOR (%)	0% for flat glass versions
Spigot diameter	42 mm, 60 mm, 76 mm
Luminaire tilt	-10°, -5°, 0°, 5°, -10°
Control inputs	DALI, 1-10V, different main voltage, Line control.
Inrush current driver	27W: 28A@150us, 40W: 27A@150us, 75W: 64A@190us, 150W: 70A@190 us 300W: 170A@220us
Dimming options	DALI, 1-10V, Line control (dimming when the line control is switch off, dimming when the line control is switch on), NightBalance (5 steps), BlueVolt and ready for radio frequency or PLC telemanagement control (Smat city)
Main Voltage	210-240 V / 50-60 Hz

PARAMETER	TECHNICAL DATA
Electrical class	class I and class II (According to IEC-EN 60598)
Color	Noir 2200 Sable (RAL or AKZO Future colors or two colors available on request)
IP rating	IP66
IK rating	IK08 (according to IEC - EN 62262)
Weight	NAICA Small: 6.8 kg, NAICA Medium: 9.8 kg, NAICA Big: 13.0 kg. (May vary depending on driver and options)
ScX	NAICA Small: 0.039 xx mm2, NAICA Medium: 0.039 xx mm2, NAICA Big: 0.044 xx mm2
Operating temperature range	-40°C <ta<40°c< td=""></ta<40°c<>
LED module thermal protection	Yes
Driver thermal protection	Yes
Surge protection	4kV (10kV available as an option)
Electrical connection	M20 cable gland (strain relief), cable 10-14 mm.
External dimming connection	M16 cable gland (strain relief)
Maintenance	Free tool open, Free tool gear tray replacement.
Options	Mini Photocell and NEMA socket, including cable
Certifications	CE, ENEC (in certification)
Material	Canopy and frame: die-cast aluminum Spigot: die-cast aluminum Cover: tempered glass; Gear tray: stainless steel Lenses: low loss and low yellowing polycarbonate.



BOOS is committed with innovation, continuous improvement processes, service flexibility and satisfaction of client's needs. On top of that we are always complying with any pertaining international standard in certification and safety of our products. As a result, details included in this leaflet as subject to change at any time.
For the most accurate information on NAICA or any other BOOS product, latest technology used, new features and specifications, lumens/watt packages, latest adaptations and/or modifications, please make sure you visit our web page www.boshlight.es or www.booslight.com before any firm order.
Please, verify the terms and conditions stated in our order acknowledgement and do not hesitate to contact us at anytime for any question or doubt you may have.