



# Candela

Gonzalo Milá, 2009

THE CANDELA STREET LAMP IS CREATED WITH THE IDEA OF ADDING AN URBAN STREET LAMP TO OUR CATALOGUE TO LIGHT UP BIG ROADS AND AVENUES, WHICH COMPLEMENTS AND COEXISTS WITH THE RAMA STREET LAMP



## Life cycle of the product, design for dismantling

## Adjustment of the lamp

Possibility of adjusting the position of the lamp to modify the emission of light

- Position -1: Asymmetric type optics
- Position 0: Road optics
- Position +1: Type II optics

## Double IP protection

- IP 65 luminaire
- IP 66 Optical unit
- Pressure regulator to avoid condensation on the luminaire and on the optical unit

## For lighting of big roads, heights of 8, 10 and 12 m

- Flexible system (allows 2 luminaires to be positioned at the same or a different height)
- Arms of different length (75 and 150 cm), to help to adapt it to any space
- Optionally incorporates a 3 m arm with brace

## Easy maintenance

- Easy replacement of the lamp and of the units
- Convenient opening without tools
- Safety lock system



Project: Pla de Domeny (Girona)



THE ARM OF THE LUMINAIRE IS PRESENTED IN TWO SIZES (75 AND 150 CM) WITH THE AIM OF ADAPTING THE DISTANCE BETWEEN THE LIGHT SOURCE AND THE COLUMN TO THE TYPE OF ROAD TO BE LIT UP AND TO THE PRESENCE OF TREES OVERHEAD



## Candela Street lamp

Urban street lamp to light up big roads with basic and tested shapes, designed so that from the road it is seen as a homogeneous element integrated in the urban landscape. Its shape, designed for its function, contains the optical and electric units in an orderly manner, prevents light pollution and its easy handling aids its maintenance. It is manufactured in aluminium injection with a painted finish, recycled and recyclable material. The Candela street lamp coexists on the same column but at different heights with the Rama street light.

The CANDELA luminaire consists of three parts: a clamp which adapts to columns with a circular cross section, an arm with a rectangular cross section of different lengths, and the oval luminaire.

## Luminaire

The CANDELA street lamp incorporates an optical body for optimized street lighting for VSAP and HM lamps. It accepts lamps of up to 400 W with a luminaire efficiency of over 75%.

### • Optical unit

Reflector in high purity drawn anodized aluminium.  
Diffuser in toughened transparent glass with a thickness of 5 mm which incorporates a mouse sealing in EPDM.  
Possibility of horizontal adjustment of the position of the lamp which allows the light distribution to be modified:

• Position -1: Asymmetric type optics

## Materials and finishes

### • Body

The whole unit is manufactured in recycled aluminium with painted finish.

Body, lid and latch in aluminium injection finished with grey powder paint (RAL 9007). Reflector in drawn aluminium and diffuser in toughened glass.

### • Arm

The luminaire arm is presented in two sizes (75 and 150 cm) with the aim of adapting the distance between the light source and the column in accordance with the type of road to be lit up and the presence of trees overhead. On being aluminium extrusion, the arm can be adapted to any length between both measurements, or extend to 3 m, the latter incorporating a reinforcing brace.

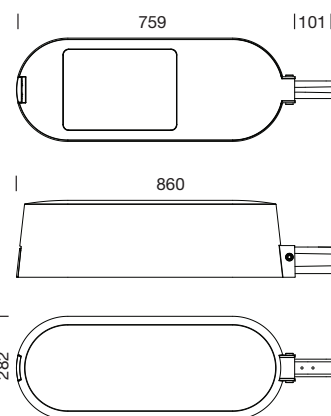
The arm incorporates an aluminium injection clamp at

one of its ends.

### • Columns

Columns with a height of 8.20, 10.20 or 12.20 m, with two sections of circular cross-section tube, the lower part Ø 168 mm and the upper part Ø 127 mm.

The columns are manufactured in hot galvanized steel and painted finish for 1 or 2 luminaires at the same or a different height. The 8.20 and 10.20 m columns are also manufactured in extruded aluminium.



## Lamp

### • 150 W / 250 W / 400 W HIT-CE

Lamp-holder E40

Power of the system 167 W / 275.5 W / 430 W

Luminaire efficiency >75%

Upper flux fraction 0.0%

### • 150 W / 250 W / 400 W HST-MF

Lamp-holder E40

Power of the system 170 W / 273.5 W / 434 W

Luminaire efficiency >75%

Upper flux fraction 0.0%

Power supply 230 V - 50 Hz

### • Degrees of protection

Pressure regulator to avoid condensation in the luminaire and in the optical unit.

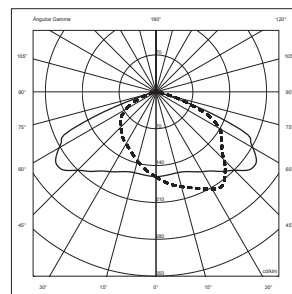
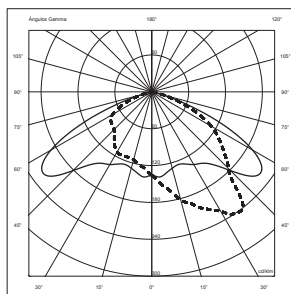
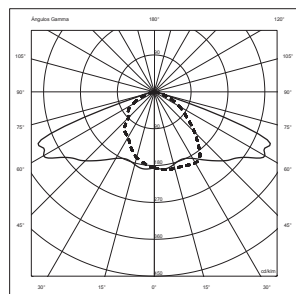
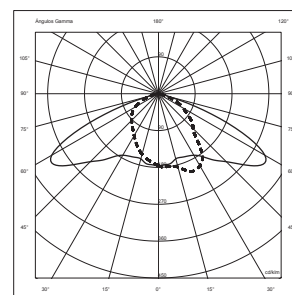
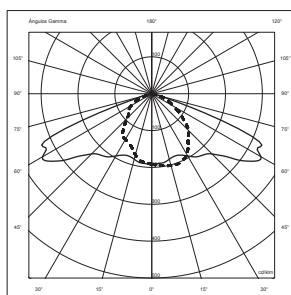
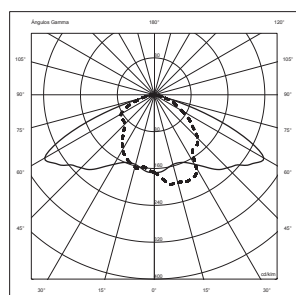
IP 65 luminaire

IP 66 optical unit

### • IK 09

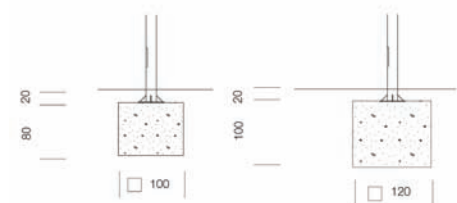
### • Electrical class I (Class II consult)

### • EC marking



## Models

- For lighting of big avenues, heights of 8, 10 and 12 m.
- Flexible system, allows 2 luminaires to be placed at the same or a different height.
- The clamp of the unit is adjusted to the diameter of the column of the Rama family of street lamps (127/129 cm), offering a lighting system at several heights which allows all kinds of urban projects to be tackled with an element which combines design and function.



1 **8,20 m**  
· 2 sections  
· 1 medium-arm luminaire

2 **8,20 m**  
· 2 sections  
· 1 long-arm luminaire

3 **10,20 m**  
· 2 sections  
· 2 medium-arm luminaires at different height

4 **10,20 m**  
· 2 sections  
· 2 long-arm luminaires at different height

5 **12,20 m**  
· 2 sections  
· 1 medium-arm luminaire

6 **12,20 m**  
· 2 sections  
· 1 long-arm luminaire

7 **8,20 m**  
· 2 sections  
· 2 medium-arm luminaires at same height

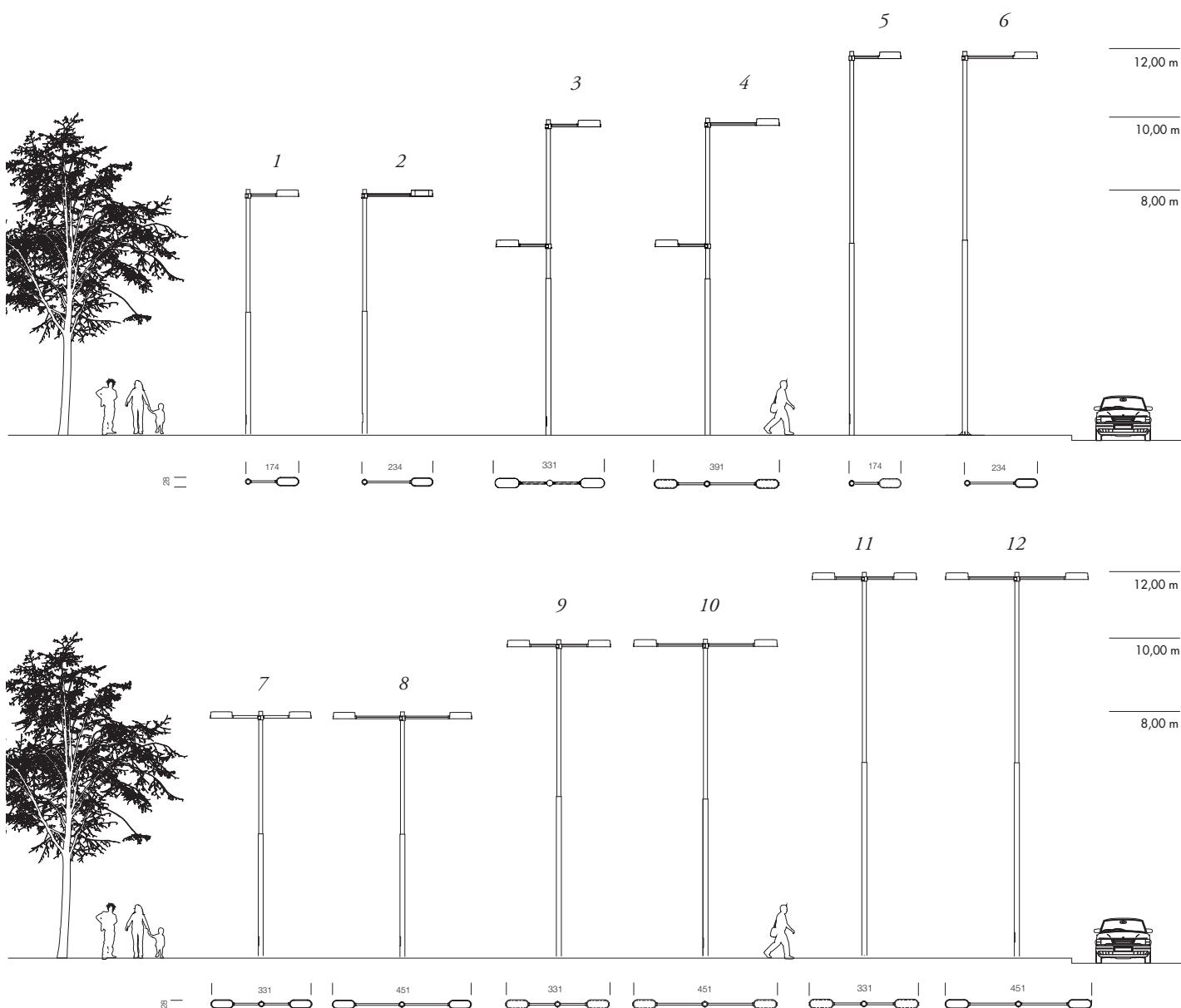
8 **8,20 m**  
· 2 sections  
· 2 long-arm luminaires at same height

9 **10,20 m**  
· 2 sections  
· 2 medium-arm luminaires at same height

10 **10,20 m**  
· 2 sections  
· 2 long-arm luminaires at same height

11 **12,20 m**  
· 2 sections  
· 2 medium-arm luminaires at same height

12 **12,20 m**  
· 2 sections  
· 2 long-arm luminaires at same height





## Maintenance

The change of lamp and the replacement of the units are carried out without the need for tools, in a fast and simple manner.

The opening of the body is carried out with a double-effect latch placed on the front part of the luminaire, and the cover stays open thanks to a gas piston.

## Installation

The element is delivered dismantled in four parts: the column, the luminaire, the arm with the front clamp and, finally, the rear clamp with the screws.

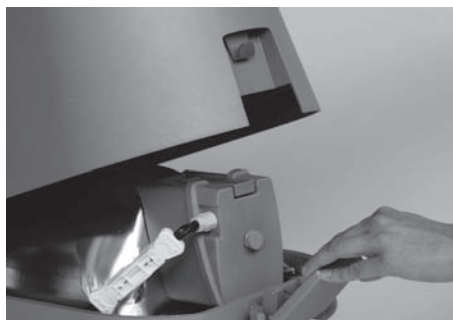
The column is fixed by means of a concrete bucket installed in situ and anchor bolts, 20/30 cm below the level of the finished paving. The foundations must foresee the groove for the electric connection. The template and the anchor bolts are delivered with the column.

## Weights

- **1 luminaire with medium arm and clamp**  
22,5 Kg.
- **Steel columns**  
140 Kg (8.20 m), 170.5 Kg (10.20 m) and 204 Kg (12.20 m)



1 Convenient, tool-free opening



2 Cover retention



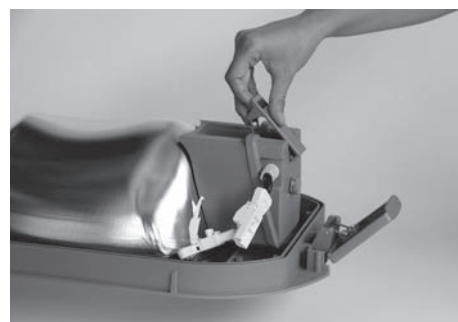
3 Inner assembly



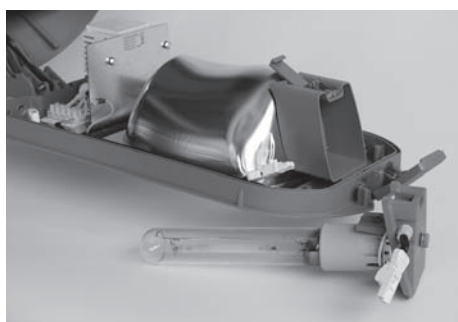
4 Connector latch release



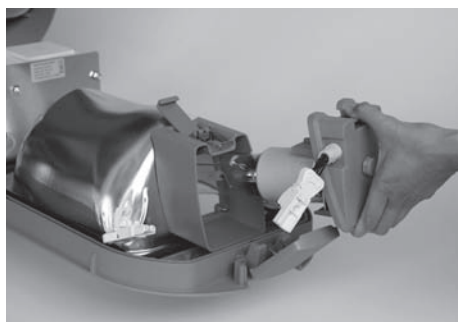
5 Lamp disconnection



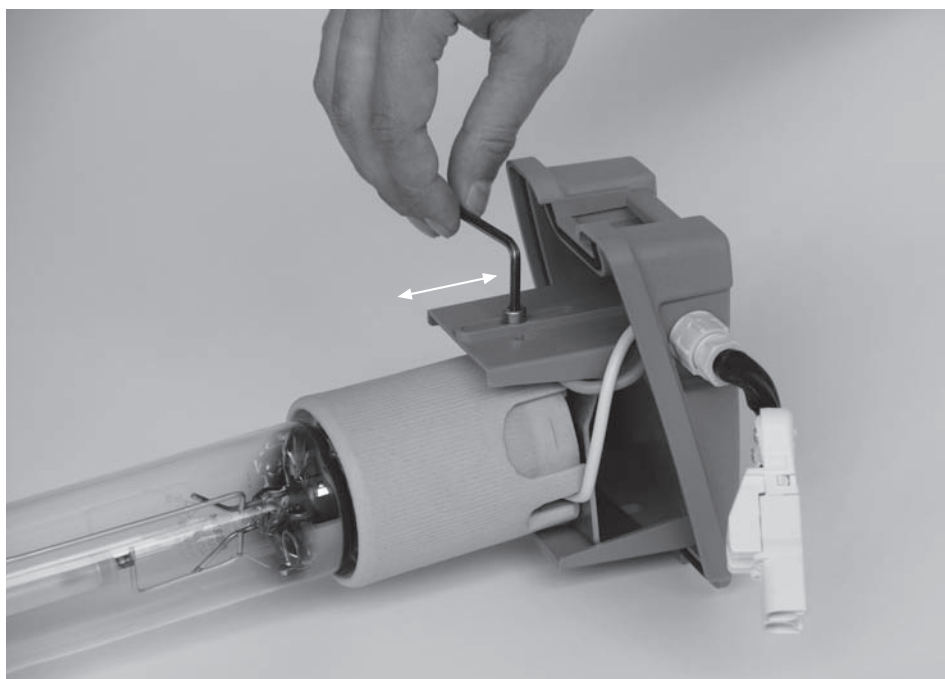
6 Optical compartment opening



7 Lamp replacement



8 Lamp housing



9 Lamp adjustment



## Life cycle of the product, design for dismantling

- The candela street lamp has been developed improving environmental and innovation aspects throughout the product's design, manufacturing and marketing process.
- The main aspects considered in the technical design of this product were: aid the maintenance as much as possible, be able to replace its components quickly

and simply and the recovery and reuse of the product's materials and components at the end of its working life. It is therefore a design conceived to optimize the production of all its components, and their subsequent assembly and dismantling.

- The material used, the geometry of the parts, the surface

finish, the grouping of its components and the assembly techniques limit the quantity of the element's production processes. A series of aspects have been considered which have allowed a manufacture adapted to environmental sustainability criteria:

### Use of a modular design

Three basic parts: housing, arm + clamp and optical unit. Combining different parts, we can generate a family of products (single luminaire or double luminaire with different arm lengths).

### Design to aid the manufacture and recycling of the parts

Aluminium injection used for three of its basic components: lid, base and clamp. Allows a reduction in thicknesses (less quantity of material), very precise tolerances, smooth surfaces and high resistance to the elements. Aluminium extrusion for the production of the arms which hold the luminaire. Means there can be different arm lengths using the same production process. The aluminium allows an easy and economical reuse.

### Design to aid assembly and dismantling

Use of mechanical joints, minimization of the variety of screws.

No use of adhesives (the joint and the glass are assembled by pressure).

All the electric components are assembled on the base, to aid the assembly and subsequent maintenance.

### Minimization of the quantity of components

We obtain the maximum functionality with the minimum quantity of pieces.

### Light source

Replacement components with easy maintenance.

Easy adaptation of the luminaire to LED technology, replacing just the cover of the luminaire with a lower one.

### Use of standard components

All the electric components are standard and easily replaceable.

### Packing

Packing made from "Bico" cardboard (70% recycled material and 100% recyclable).

The packing has been conceived to minimize the transport costs as much as possible, generating a minimum volume.

We can serve the different models offered by the product using only three types of packing.

THE CANDELA STREET LAMP HAS BEEN DEVELOPED IMPROVING ENVIRONMENTAL AND INNOVATION ASPECTS THROUGHOUT THE PRODUCT'S DESIGN, MANUFACTURING AND MARKETING PROCESS







