



Candela – the Evolution of Light

Designed by Francisco Gomez Paz, 2016

Continuing the long tradition of Scandinavian flame luminaires, Candela – which is Italian for candle – brings this classic product typology into the 21st century with the newest technology, turning the heat of a flame into electricity. It was designed by Argentinian designer Francisco Gomez Paz in a visionary collaboration with Astep. A shared passion for significant lighting solutions has led to a signature luminaire; a manifesto that addresses the evolution of design and technology. The evolution of light.

The use of fire to power LED lights simultaneously represents both the oldest and the newest form of illumination in a single product that is also environmentally friendly. Astep has developed a novel energy-harvesting system that generates electricity from the heat of the flame using the thermoelectric Seebeck effect, which was discovered by Thomas Johann Seebeck in the 19th century.

In Candela, four heat collectors working together with a large aluminum heat sink provide the necessary temperature difference to create electrical power. This generates sufficient power to provide ambient LED illumination while storing excess energy that can be used to charge mobile devices later.

A portable and self-powered luminaire, Candela is ideal for cafés, restaurants and lounges as well as private homes as a source of warm light and a stylish power port. Due to the smokeless flame, Candela can be used both indoors and outdoors.

Candela is assembled in Italy of recyclable materials such as opalescent glass and aluminum and a variety of advanced high-temperature thermal materials and powered by bioethanol, a clean, natural and renewable fuel made from plants.

Recharge – Light & Power

Candela is a sustainable lighting solution and design statement that enables you to recharge your devices via a USB cable. With an internal battery that charges whenever there is a flame, Candela can charge mobile phones and tablets even when powered off. The luminaire is easily ignited with a match or lighter. A full tank contains 260 ml of bioethanol – enough for five hours of use.

The Seebeck Effect – a Scientific Phenomenon

The Seebeck effect is a phenomenon in which the temperature difference between two different electrical conductors produces a voltage difference between the two electrodes. When heat is applied to one of the two conductors, heated electrons flow toward the cooler one. If the pair is connected in an electrical circuit, direct current flows through the circuit.

Regardless of the scientific significance of this discovery, the voltages produced by the Seebeck effect are small, usually only a few microvolts per kelvin of temperature difference. If the temperature difference is big enough, some Seebeck-effect devices can produce a few millivolts. However, by combining many Seebeck-effect devices it is possible to increase the output voltage and generate a useful, albeit small amount of electricity.

The Seebeck effect is named after Thomas Johann Seebeck, who discovered the phenomenon in 1821.

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For more information about Candela and high res images, please contact:

Birgitta Murga Thomsen

T: +45 5383 8290

E: birgitta@astep.design



Francisco Gomez Paz

Designer (born 1975)

Since 2004, Francisco Gomez Paz has had his own design studio in Milan. He was born in Argentina but moved to Italy after completing his studies in Industrial Design in Córdoba and is driven by a profound curiosity and understanding of sophisticated technologies and materials. He creates and designs in a particularly experimental hands-on creative process, striving for innovation, significance and the mysterious quality of beauty.

Francisco Gomez Paz has created furniture and lighting products for a wide range of leading design companies, among them Luceplan, with whom he has developed highly innovative and iconic lighting solutions, including the Hope chandelier, which he designed in partnership with Paolo Rizzatto.

He is also active in the field of research and education, giving lectures in Italy and abroad, and in 2000 he was appointed visiting professor at Domus Academy, a living laboratory for design, architecture and fashion in Milan.

He also holds a master's degree in Design from the Domus Academy.

Francisco Gomez Pas has received several international accolades for his work, among them the Good Design Award (2010), the prestigious Compasso d'Oro (2011) and the Red Dot Award (2010 and 2016). His Solar Bottle, designed together with Alberto Meda, was awarded first prize in the Index Award (2007) and was also selected for MOMA's Study Collection.