A new way of lighting

SAFESEC

LIGHTING DESIGN
AND ENGINEERING

The company

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Safesec is an engineering and lighting design company that specializes in magnetic induction technology. Thanks to its innovative application of this technology, **Safesec**'s customer can enjoy of an energy saving of 50% or higher. Therefore, its customers gain a quick return on investment over 12 to 18 months.

By now **Safesec** has established in Italy as a leading company in ultra-energy-efficient lighting industry. **Safesec** was founded in 2010.
Their constant commitment and investments in research and development allowed them offering innovative customer solutions.
All that let them a quick growth.
Over three years, **Safesec** has been able to build profitable partnerships with leading customers such as Highways, the Ministry of Economy and Finance, and the Public libraries in Rome.

A network of offices manages the quick growth of **Safesec**. After the first offices opened in Rome and London, the Company will open a new office in Dubai.
Moreover, **Safesec** is launching its products on new selected markets in the Middle East and Latin America through a range of partnerships.
Therefore, **Safesec** can work on the Italian and European markets, in additon to other important emerging markets.

The lighting design

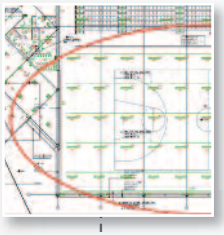
An in-house skilful team of engineers and architects develop for **Safesec** innovative design solutions such as customized lighting systems, including dimming electronic systems and remote controls.

The method adopted for Lighting Design includes the entire process: after an assessment of the customer, a physical lighting will be made.

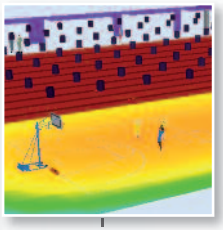
The 6 main phases are the following:

01 **The customer's needs**
Assessing the existing Lighting System of the customer and his/her needs.

02 **Brainstorming**
of the Conceptual Client Solutions and Creation of Innovative Ideas.



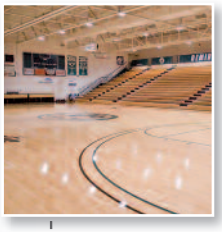
03 **Study**
Our lighting experts in collaboration with a team of consultants will research for different customized solutions.



04 **Computer simulation** of a selected lighting solution, assessing the solution that meets the customer needs, the efficiency of the lighting system, the energy saved and related costs of maintenance.

05 **Meeting with customers: Project Sharing**

- Costs and benefits (ROI).
- Lighting Project with specific software (DIALUX, OXYTECH), used to verify the compliance with lighting regulations and standards.
- 3D project rendering.
- Making light fixtures upon the customer's design.
- Approval and installation.



06 **Control and cerfication** that the installation was correctly made.

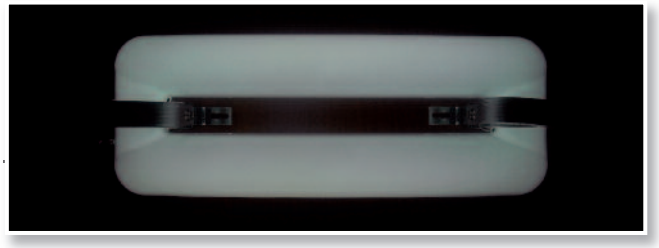
THE SERVICES

The Dimmer

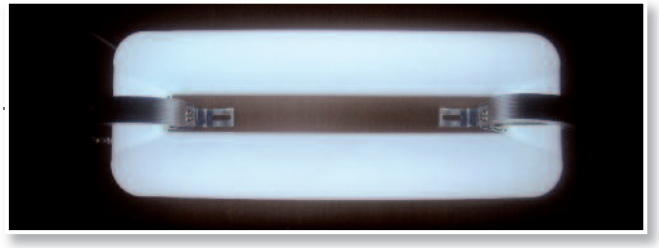
Safesec offers integration services for the use of other technologies such as DIMMING and REMOTE CONTROL, depending on the customer needs.

This system offers light **DIMMING** solution with a dedicated switch: **a device to adjust the light output** menaging the light intensity.
The dimming effect goes from 30% to 100%.

30% dimmer



50% dimmer



Indeed, this system allows adjusting the amount of light released and **reducing the power absorption** of the bulb with a higher energy saving, in addition to satisfy the different needs.

A dimmer can be connected to a remote control through a standard communication protocol such as **Digital Multiplex** (also called DMX), 0-10, Modbus.

The Remote Control System

In order to have a more efficient lighting system, **Safesec** proposes a remote **control system**.

A remote control system allows making a diagnosis of devices and facilities and improving the response time in case of failure and the service level directly from a remote management centre **highly reducing the maintenance costs**.

You can also adjust different operations, such as **on-off switching time, light lowering during the night and managing alarms**.

Moreover, the remote control manages additional functions such as the **video surveillance system, the Wi-Fi access and the information monitor** with variable-message signs. All these properties are components of the **"Smart Street Lighting"**.

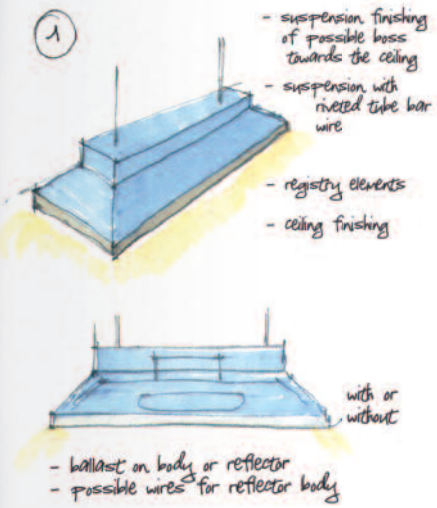
All these operations feature a **new concept of lighting as a well-developed complex network** thanks to the integration of functionalities providing a sustainable growth, innovation, change, efficiency and **improved life quality**.

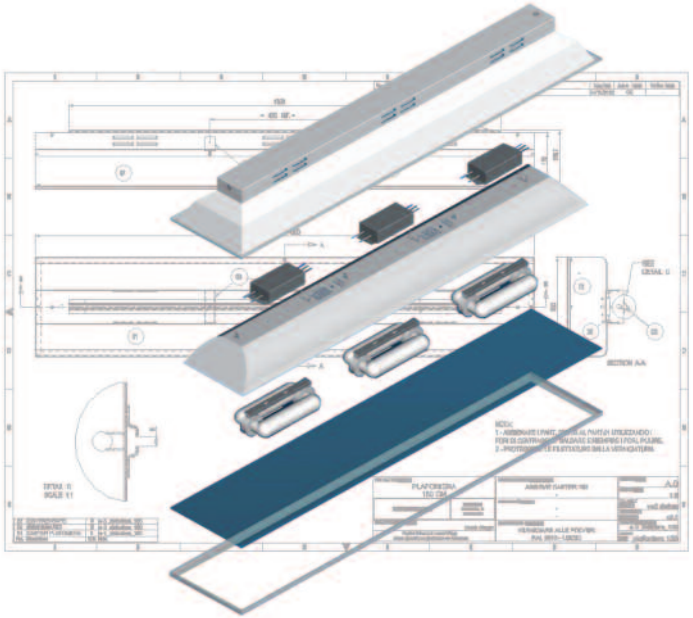
Audit
Tool Analysis for customer Energy Audit, not require invasive intervention.

THECUSTOMIZATION

The design of light fixtures

Our strong point is offering and making **customized solutions aimed at meeting the user's specific needs**.
From design to production integrating different technologies and making our investments profitable.





The design and implementation of projects based on magnetic induction lamps, with a very low environmental impact, allow reducing CO_2 emissions, whilst the light fixtures are easy to recycle, as they contain solid mercury amalgam.

Safesec has received UL - CU - CSA - CE and RoHS certifications of quality and safety.

Safesec complies with the strictest environmental regulations and approved by MEPA (Public Administration of the electronic market CONSIP).

Our solutions

INDOOR

Offices, Warehouses, Production Plants, Shopping Centre, Sports Centre, Schools, Hotels, Hospitals.

STREET/ROADWAY

Streets, Roadways, Tunnels, Parking Areas, Crossways, Highways, Historic Areas.

OUTDOOR

Parking areas, Stadiums, Garages, Roofed Areas, Walkways, Parks, Pools, Safety Areas, Aviation Lights, Gas Station, Flyovers, Lighting Tower.

EXPLOSION-PROOF

Fuel production plants, refineries, gas, mining.

The limit of today lighting systems

Today the most used lighting systems are the following:

- metal halide
- high-pressure sodium
- high-pressure mercury vapour
- fluorescent and incandescent
- LED

And their main limits are the following:

- **short life-span**
- **high energy costs** and constant maintenance
- **low yield** in terms of luminous efficiency (uniform, flicker and glow) and colour rendering
- risk of **broken glass** due to **high** operating **temperature**
- **low level of lighting perception** due to low photopic/scotopic ratio
- **high environmental impact**

The **main limits of LED lighting** are the following:

- **limited lighting** level of diffusion
- **glares** requiring the use of lenses
- **heat that must be eliminated t**o prevent the lamp from damages and not affect its light production

The Induction Lamp

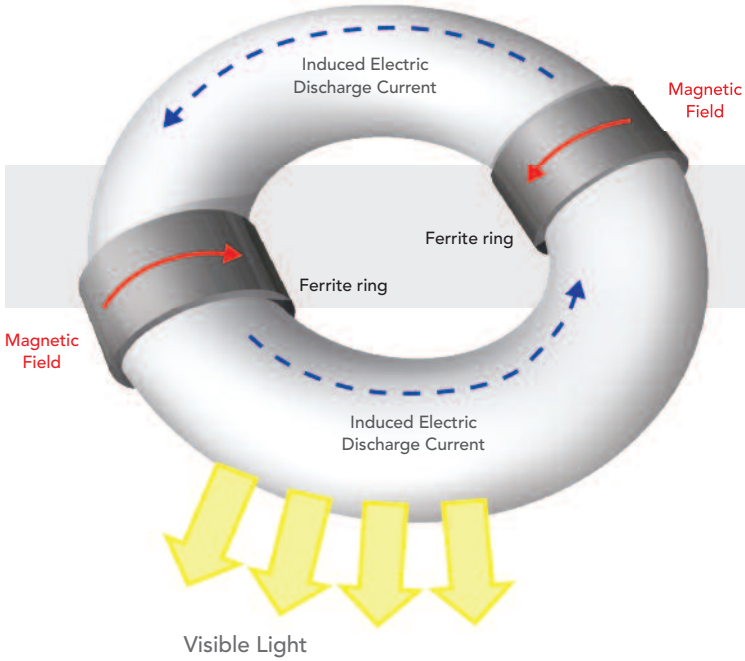
The induction lamp is a fluorescent lamp without electrodes.

Light is generated by gas discharge through magnetism.

Rings with metal coil (ferrite) create an electromagnetic field around a glass tube containing gas due to the high frequency generated by an electronic ballast.

The discharge path forms a closed loop that causes the acceleration of free electrons collide with mercury atoms and excitation.

This excitation produces visible light to pass through the phosphor coating.

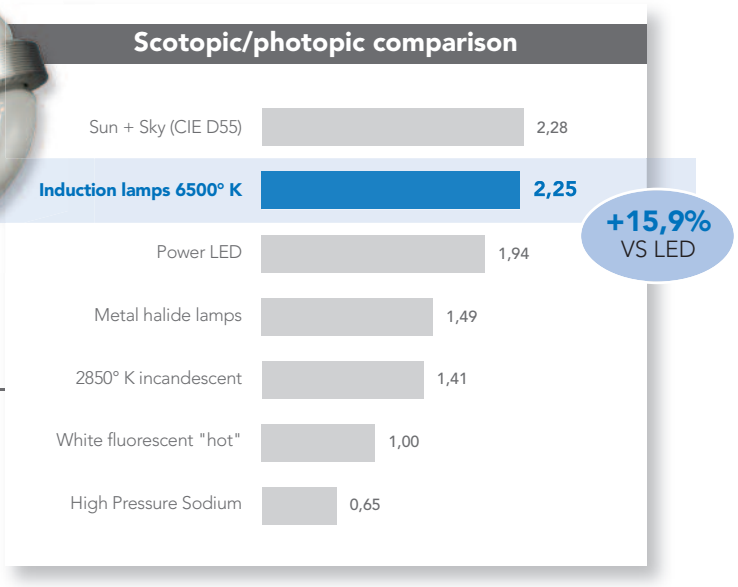


THEINDUCTIONLAMP

Induction Lamp's Features

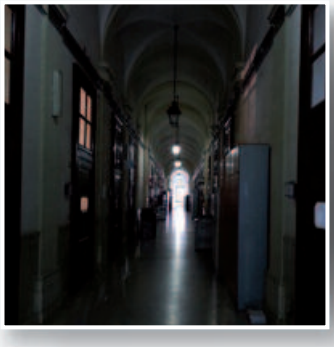
- **Brightness**: 80-85 lumens/watt
- **Colour Rendering Index:** Ra> 80
- **Power:** PF> 0.98
- **Lack of flicker effects**
- **Colour temperatures:** 2700 to 6500° K
- **Output constant:** the lamp power changes of less than 3% with power changes within a range of ± 20%
- **Resistance to self extinction:** the lamps are not switched off until the voltage decreases by 40%
- **Harmonic Distortion:** THD <10%
- **Operating Temperature:** between -40° C and +50° C
- **Electromagnetic Compatibility:** operating frequency 250KHz, meets international standards EMC/EMI
- **Lighting product "green":** amalgam mercury has an easily recyclable solid form

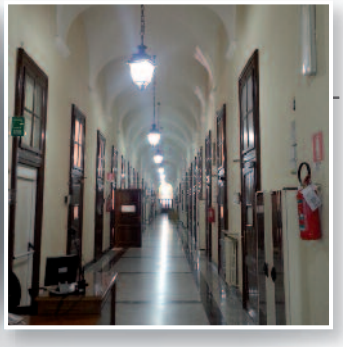
The scotopic/photopic report
This chart shows how eye cells perceive the light



Some examples of installation

Here below, some examples of **Safesec** projects
that were made and started.

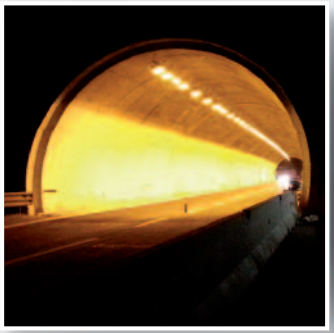




After

80W Induction

Before:
200 HPS and 150 Metal Halide



After

300W Induction
100W Induction

Before:
600W High Pressure Sodium
150W High Pressure Sodium

THE BENEFITS

The advantages of magnetic induction lamp

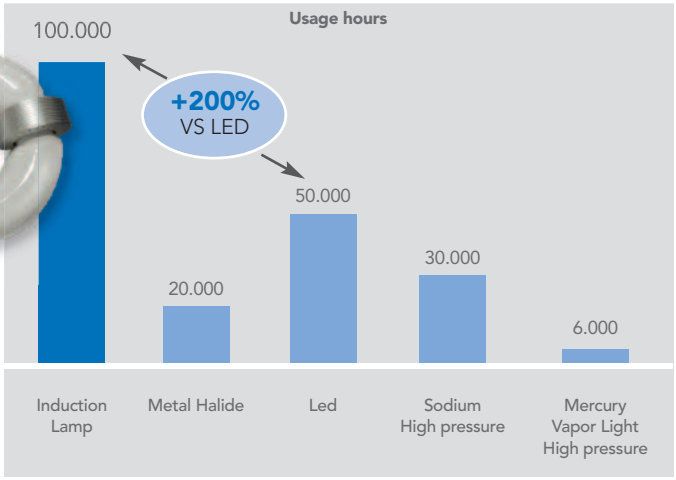
- **100.000 hours of life-span**
- **50% savings** in energy and maintenance costs
- **High luminous efficiency** and high colour rendering index
- **Ensures uniform and stable light** (no flicker and glow)
- **Reduced environmental impact =** low CO_2 emissions

Colour Rendering Index

Ra 60

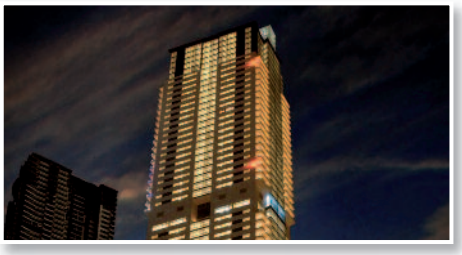
Ra > 80

Lamp life



Some references

Ministry of Economics and Finance



Tower Dubai - aviation light

Tunnels and highways lighting

Parking Lighting - Rome - Italy

Municipality of Rome - Cultural Institution Libraries of Rome

Towers Lighting Station Yards - Bari - Italy

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