

Guidelines for Frontrunner Public Procurers

Directional LED lamps

Updated: June 2018



Why follow Topten criteria?

- Topten.eu Pro (www.topten.eu/professional) is a European web portal helping buyers, professionals, public procurers and large buyers to find **the most energy efficient products available in Europe**. The products are selected and updated continuously, according to their high energy and environmental performances, independently from the manufacturers.
- All non-directional lamps displayed on www.topten.eu meet the criteria contained in these guidelines. Procurers can therefore use the website to check the availability and assortment of products currently on the market, which meet the **Topten selection criteria**.
- Topten.eu Pro links to national partners Topten Pro websites and is developed under the Topten Act project, supported by the European Union through Horizon 2020 programme.

How much can you save?

The directional LED lamps, listed on www.topten.eu, can directly replace traditional lamps (incandescent and halogen). Models have different shapes and screws, have integrated control gear and some operate on main voltage (230 volts) or on low voltage (12 volts). Considering the following assumptions, it is possible to achieve the savings indicated in the next table.

- Assumptions
- Life time expectation: average 25.000h
 - Annual average use in offices: 3500h
 - Electricity cost: 0,20 €/kWh

	Topten model	Inefficient model	Topten model	Inefficient model
Type of lamp	LED GU10	Halogen GU10	LED GU5.3	Halogen GU5.3
Energy class	A++	D	A+	B
Luminous efficacy	97 lm/W	7 lm/W	89 lm/W	14 lm/W
Electricity consumption	21 kWh/year	175 kWh/year	25 kWh/year	175 kWh/year
Use cost (electricity in 15 years)	63 €	525 €	74 €	525 €
Savings in 15 years	88% energy / unit 462 € / unit		86% energy / unit 451 € / unit	

Topten models can consume about 90% less energy than comparable halogen lamps and can reach 460€ /unit in energy saving over their lifetime.

Another aspect to consider is luminous efficacy, expressed in lm/W, which translates the conversion efficiency from electrical power into light. In the examples above, the Topten LED lamps can be almost 14 times more efficient than halogen lamps.

The lifetime of Topten directional lamps ranges between 15.000 and 40.000 hours whilst inefficient models only reach 2.000 hours. This means that these would need to be replaced between 8 to 20 times during the lifetime of one Topten LED lamp.

Procurement criteria

The following criteria can be inserted directly into tendering documents. The Topten selection criteria and the product lists are updated regularly. The newest versions are always available at www.topten.eu/pro.

SUBJECT: HIGHLY ENERGY-EFFICIENT DIRECTIONAL LED LAMPS

TECHNICAL SPECIFICATIONS

1. Energy class

LED lamps must have energy efficiency class A+ or higher according to European Energy Label.

2. Luminous efficacy (lm/W)

The minimum luminous efficacy should be 75 lm/W.

3. Colour Rendering Index (CRI)

The minimum colour-rendering index 80.

4. Lifetime

LED lamp lifetime must not be less than 15.000 hours.

5. Switching cycles

The number of switching cycles must be higher than 20.000.

Verification

Bidders must supply a declaration regarding the compliance of their products with the above requirements, supported by technical data and results. Information must be compliant with EU regulations No. 874/2012, No. 244/2009 and No. 2015/1428. Where compliance with these criteria is dependent upon defined usage patterns or other factors these must be clearly identified in the declaration. Bidders must also prove compliance of their products with RoHS Directive No. 2011/65/EU and REACH Regulation No. 1907/2006.

NOTES ON IMPLEMENTATION

- There are different types (shapes, screws, luminous flux, etc.) and numerous models of LED lamps that comply with these criteria, available on the market and in the product lists displayed at www.topten.eu.

To increase savings and reduce environmental impact, procurers should evaluate life cycle costs when tendering for directional lamps. Thus, it is advisable to include in the tender a costing exercise - even if simple - for the product life cycle costs.

Example of a breakdown costs table, to be filled in by bidders:

	Information details	Different unit costs in € (excluding tax)	Total cost in € (excluding tax)
Delivery			
Installation			
Use*	Indicate power, in W, x n ^o daily hours in use x n ^o annual working days x n ^o years (<i>lifetime, in hours / average annual use, in hours</i>) x n ^o units	Electricity cost: 0,20 €/kWh**	
Maintenance			
Recycling and disposal			

* Example of how use costs can be determined. The variables for the costs calculation during the product lifetime can be stated by the procurer (according to the replacement rate of the lamps, their daily use, the number of days they are in use, etc.).

** This figure is just an example. The procurer can use the average electricity price paid during the last 2 or 3 years, and also include subscription fee and taxes.

Advice and support

If you would like further assistance in using the information presented here in your own procurement actions or more information on Topten Pro please contact your national Topten team (find the links on Topten.eu).

The European Commission's Green Public Procurement website also contains valuable legal and practical guidance together with procurement criteria for a range of commonly procured products and services.