

**SuperDrecksKëscht®**



Aktioun vum Ministär  
fir nohalteg Entwécklung  
an Infrastrukturen  
mat de Gemengen,  
der Chambre des Métiers  
an der Chambre de Commerce



**Clever akafen!**

## **Long-life and energy-saving lamps**



**Guidelines with useful  
information for buying  
lamps**

## Choose the right lighting

Choosing the right lighting is getting increasingly difficult for consumers. The guidelines should assist you with this choice.

When buying lamps, watch out for the label „*Clever akafen* - Products recommended by the *SuperDrecksKëscht*®“ (*Clever akafen* - Produits recommandés par la *SuperDrecksKëscht*®). These products last longer and consume less energy as other lamp types.



Further information can be found on:

[www.clever-akafen.lu](http://www.clever-akafen.lu)

- recommendations for use
- list of recommended products
- ... and more
- product related criteria
- participating shops

## Watt, Lumen, Energy efficiency class,... What is behind this?

### Form of lamps

Lamps exist in a large variety of forms and sizes, for instance in pear shape or candle shape. In addition there are reflectors or spotlights.

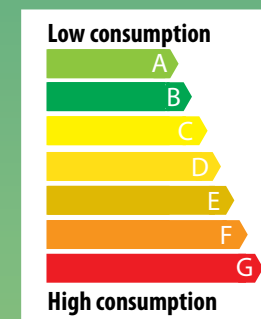


### Sockets

High-voltage LED lamps (220 V) come with E27, E14 or GU10 sockets. Low-voltage lamps come with GU5.3 and MR11 sockets.

### Energy consumption (W) and energy efficiency

Energy consumption of lamps is calculated in Watt (W). A high watt number means high energy consumption and hence high energy costs. The EU energy label shows the energy efficiency class of the lamp (or of another electrical appliance).



### Lumen (lm)

The brightness of lamps is measured in Lumen (lm). A bright lamp has a high lumen number. This unit denominates the quantity of light, a light source will provide in all directions (cf central part of the brochure).

[www.clever-akafen.lu](http://www.clever-akafen.lu)

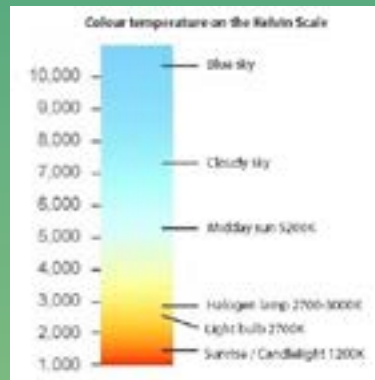
## Watt, Lumen, Energy efficiency class,... What is behind this?

### Lifetime

Producers provide the average lifetime of lamps in years or hours. LED lamps can reach a lifetime of 50,000 hours and more, normal light bulbs will last up to 1,000 hours.

### Colour temperature (K) and colour rendering (Ra)

Colour temperature is provided in Kelvin (K) and shows if a lamp will generate a warmer, red light (about 2700 K) or a colder blue light (about 6500 K). Lower values correspond to a warmer light with a high proportion of red and yellow (light bulbs). Warm light is comforting and calming while cold light is uplifting. For a better understanding, producers use terms such as "warm white" or "daylight white". The colour rendering index Ra varies between 20 and 100 and provides how close the artificial light source is to natural sunlight. The higher the index, the more the colours under the light correspond to the colours under sunlight. In summary, the higher, the better.



### Further information

The packaging contains further information, for instance if the lamp can be dimmed and how many times it can be switched on and off (i.e. 20,000 switch cycles).

## Pay attention when using low-voltage LEDs (12V)

Transformers are used to reduce voltage from 220 V - 230 V to 12 V. To work correctly, some transformers require a minimum charge (i.e. electrical transformers).

When replacing halogen lamps with LED lamps, you have to make sure the minimum charge of the transformer is reached. If this is not the case, LED lamps can work improperly or not at all. In the worst case, a short circuit or destruction of the lamp and the transformer are the results.

Thus, make sure your lamps are compatible with the transformer. Special LED transformers provide a continuous voltage, which is important for low-voltage LEDs to guarantee the lifetime of the product.

To avoid these problems, it is recommended to plan **220 V - 230 V spots** in larger renovation works or new constructions.



LED Spots 12 V with GU5.3 - Sockets



LED Spots 230 V with GU10 - Sockets

## Can LEDs be dimmed or not?

Not all LED lamps can be dimmed. Check on the packaging if the lamp can be dimmed. The absence of such indication means the lamp cannot be dimmed and may not be connected to a dimmer.

In general you should check that dimmers have a rather low minimum capacity (i.e. about 20 W), as not reaching this minimum charge can cause flickering or interruptions. LED that can be dimmed can also generate a continuous buzzing.

Source: [www.spar-helferchen.de](http://www.spar-helferchen.de)



[www.clever-akafen.lu](http://www.clever-akafen.lu)

## Cool LEDs - Cooling down LED lamps:

It is extremely important for LED lamps that the electronic parts have sufficient cooling. This may seem strange as LED lamps do not get as hot as light bulbs. However, inside the LED heat is generated which has to be evacuated from the appliance in order to avoid damage due to overheating. Most of the time, defects of LED lamps are not due to the lighting diodes but to a breakdown of the electronic parts (i.e. plug), which is frequently due to thermal overheating.

For this reason, LED lamps should have a sufficient cooling body made out of a heat conductive material (i.e. aluminium cooling or ceramic cooling body).

Source: [www.spar-helferchen.de](http://www.spar-helferchen.de)



LED lamps with sufficiently large cooling body made out of heat conductive material

[www.clever-akafen.lu](http://www.clever-akafen.lu)

## LED tubes

If you are using conventional ballast or low loss ballast, LED tubes can be powered without major changes with these ballasts. Only the starter has to be changed as provided in the instructions.

It is however recommended to remove or pass-by conventional ballast as else this will continue to consume electricity (5 – 20 W per ballast!).

If you are using electrical ballast, it is necessary to remove or pass-by this ballast and the lamp has to be connected as provided in the instructions.

Source: [www.spar-helferchen.de](http://www.spar-helferchen.de)



LED tubes

[www.clever-akafen.lu](http://www.clever-akafen.lu)

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**Clever akafen**  
Products recommended by the  
**SuperDrecksKëscht®**

The partners of this campaign:



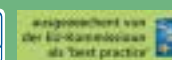
LE GOUVERNEMENT  
DU GRAND-DUCHÉ DE LUXEMBOURG  
Ministère du Développement durable  
et des Infrastructures  
Administration de l'environnement



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**info@sdk.lu**  
Tel. +352 488 216 1

Other **Clever akafen** products:



Environmentally friendly paints and lacquer - rechargeable batteries and chargers -  
ecological detergents - ecological school and office supplies

## A little help in the selection of lamps

### Reference:

Bulb		Halogen lamp		Energy saving lamp		LED lamp	
W	lm	W	lm	W	lm	W	lm
15	120	/	/	3	135	3	136
25*	220	18	170 - 217	5	250 - 270	4,5	200 - 250
40*	415	28	345 - 410	7 - 8	380 - 420	6 - 8,5	290 - 470
60*	710	42	630 - 702	11 - 13	620 - 720	12	650 - 810
75*	930	52	820 - 950	14 - 17	800 - 950	15	1055
100*	1340	70	1200 - 1326	18 - 25	1050 - 1440		

\* are no longer produced

Energy consumption of lamps is calculated in Watt (W). The brightness of lamps is measured in Lumen (lm). Choose your lamps after the brightness needed.

Further information:

[www.oekotopten.lu](http://www.oekotopten.lu)

[www.ulc.lu](http://www.ulc.lu)

[www.clever-akafen.lu](http://www.clever-akafen.lu)