# Flashlight Generation 1

Hella KGaA Hueck & Co.

## Requirement specification for a Hella flashlight

Internal development inquiry

07.02.2011

## Generals

### Introduction

For the company HELLA shall develop a flashlight. The flashlight shall be a advertising gift for customers and suppliers.

This requirements specification is intended as working documentation for departments participating in the project. Transfer to third parties is governed by stipulations concerning confidentiality in the contract.

Should the supplier detect errors or discrepancies in these requirements specification, the commissioning party is to inform immediately.

### Legal specifications

In the event, that the contractor is aware or becomes aware in the course of development work that the specifications in this requirements specification will lead to noncompliance with one or several of these regulations, the commissioning party is to be informed immediately in writing.

If further legal regulations or type approval regulations relevant to the development object are known to the contractor, the commissioning party must be notified immediately in writing.

### Cost target

The Hella flashlight shall be cheap but also robust. The cost per unit for the LED version must not be higher than 5 Euro with an annual absorption of 1.000 units. The cost per unit for the light bulb version must not be higher than 3 Euro with the same annual absorption.

The use of standard and common parts is desirable.

### Contact persons

Please fill in the project team members:

| Name | E-Mail | Phone |
|---|---|---|
| Project Manager | | |
| Developer | | |
| Sales staff | | |
| --- | | |

## References

**ID:** HTL 12
**Document designation:** DIN EN 60983
**Issue:** 2005-09
**Title:** Kleinlampen

**ID:** HTL 13
**Document designation:** VG 95341-4
**Issue:** 1982-11
**Title:** Elektrische Leuchten

## Abbreviations

HFL HELLA flashligt

## Properties and scope of development

### Requirements of from and design

The developed HFL shall be small, easy and habile. It shall be not bigger than 20 cm.

For the shank of the lamp would be a diameter of 4 cm desirable. But the ergonomics should be in the foreground.

The head of the lamp is to develop beveled. The diameter shall be 7 cm at the light exhaust port. With a clip it should be possible to fixing the HFL for example on a trouser waistband or a belt. The HFL (incl. power supply) shall have a maximum weight of 350 g.

The HFL should have following characteristics of color:

- At least the body surface must be RAL 1021 “Hella-yellow“.
- The rest of the body surface should be black.
- The reflector is to cover with a chrome-colored coat.
- At one cheek of the HFL should be well apparent the Hella logo. It should have the size 22 mm of 15 mm (length of height).


**Picture 1: Principle design of the Hella flashlight**

Note: The position of switch, caliper and clip as well as the coloring are exemplary. Leak-tightness against splash water must be permanently ensured.
Function noise must be entirely eliminated with suitable measures or reduced as much as possible.

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### Packaging requirements

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The components must be delivered completely assembled and pre-adjusted, including all light sources and power supply.

The packaging must ensure that the flashlight cannot be damaged during the transport. The packaging must be disposed in the normal household waste.

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### Recycling

The flashlight shall be designed to fulfill the general legal specifications.

Parts and components are to be designed such that recycling of materials can be carried out efficiently at the end of product life time.

### Technical requirements

#### Material selection

A resistance of material and coating against the influences of UV radiation, toxic gases and chemicals must be ensured for the life time of the flashlight.

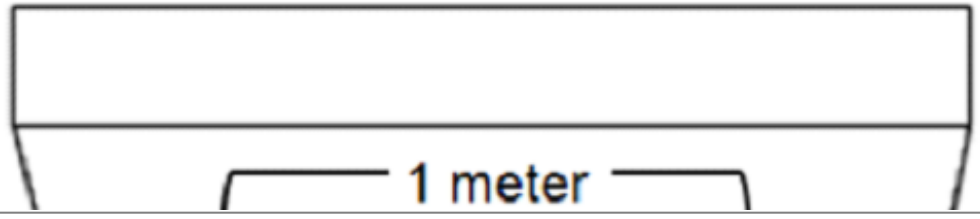
A change of properties / damage to the flashlight and its components during proper use throughout the entire product life is not permissible.

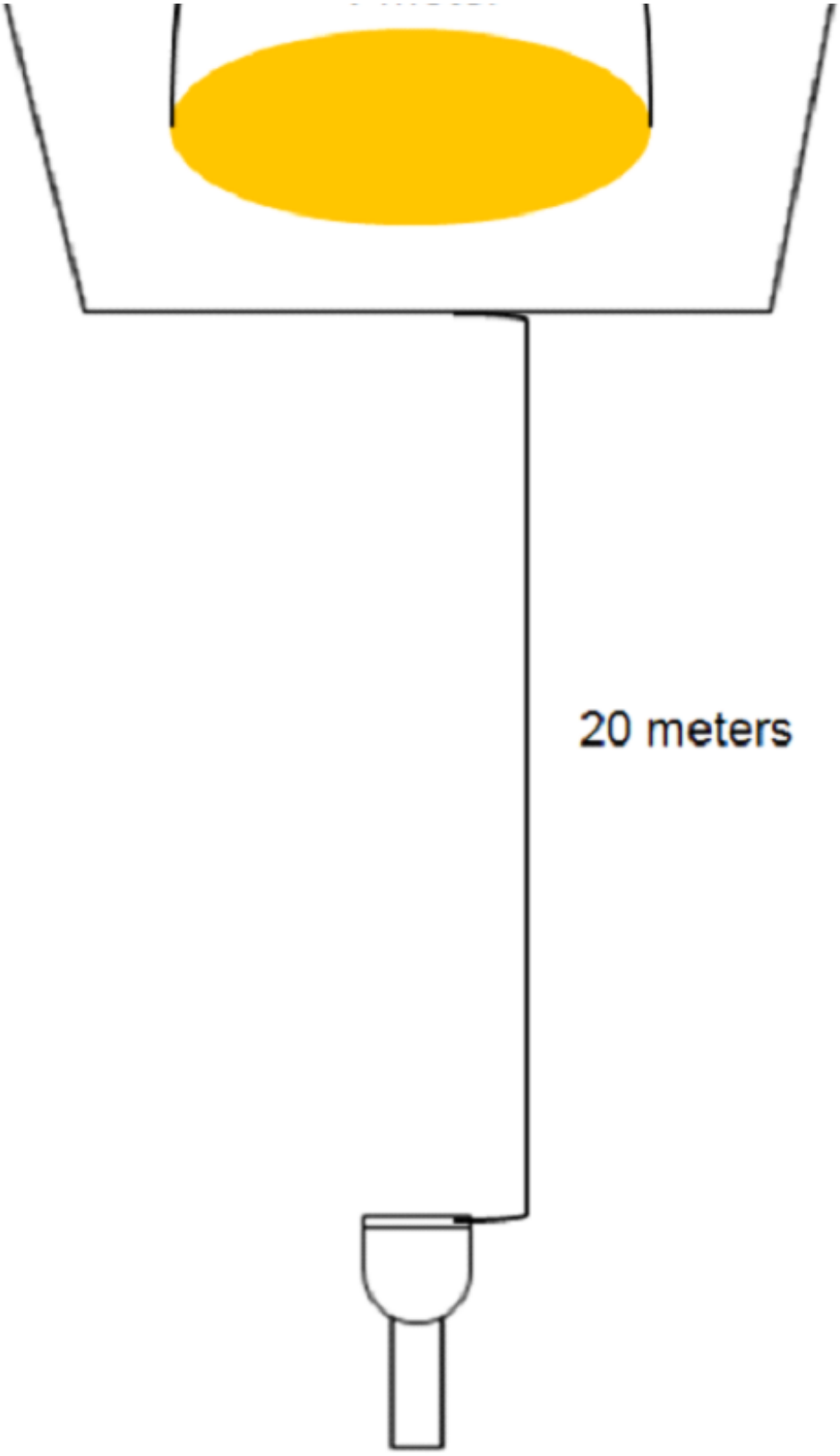
#### Functionality

The activation and deactivation should happen with a slide switch (on/off). With a caliper a Morse function should be possible.

The priority of the slide switch is higher as caliper.

If the power supply complete loaded, the HFL have to have a range of lights of 20 m. The light cone shall be homogeneous on a white wall and shall have a diameter of 1 m. The wall should have a distance to the HFL from 20 m. The illumination must be minimum 10 lx.



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**Picture 2: Installation of the test**

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**Power supply**

The power supply of the HFL has to happen with standard batteries or accumulators so that the use of the HFL is possible all times.

The power supply must have a service life at least of 10 hours without changes or loadings. The operating voltage must have at most 3 V.

The current of the lamp must have at most 500 mA.

**Maintenance by the user**

The changes of power supply and in the bulb version of the lamp shall be easy and without tools possible by the user. With adequate actions should be ensured that the user can get an electric shock. Further should be ensured that a damage of the lamp is not possible by an unwanted polarity of the power supply.

Handling surfaces must be free from burrs. Risk of injuries is to be excluded during installation, removal and service.

**Selection lamp for the light bulb version**

The lamps shall be commercially available.

The lamps shall have a lifetime at least of 100 h.

**Selection LED for the LED Version**

The LED shall be a standard LED. So that the supplier can guarantee, that the same LED type is using of the complete production time.

The LEDs shall have a light temperature of 2700°K.

The Supplier is in bond to told Hella which LED they choose.

**Requirements for durability, lifetime and stability**

The material for the HFL must be selected so that a lifetime of 2 years is ensured, excluded the lamp. of the bulb version and the power supply.

The body of the HFL must endure 10 free falls from a high of 1 m without a visible damage.