



MAANTEEAMET

KATSELISE KASUTAMISE LUBA

10.07.2020 nr 21-7/20/246

Ulukipeletusreflektori kasutamine

Juhindudes majandus- ja taristuministri 14. juuli 2015.a määrusega nr 92 kehtestatud „Tee seisundinõuete“ § 3 lõikes 2 esitatust annab Maanteeamet kooskõlastuse tähispostile paigaldatava „Ulukipeletusreflektori“ kasutamiseks. Lisas 1 ja 2 on toodud vastavad tootenäidised.

(allkirjastatud digitaalselt)

Ergo Tammel

Liikluskorralduslike nõuete koordinaator

Lisa 1: Beilharz tootenäidis.

Lisa 2: Beutha tootenäidis.

„THE GENERAL“ – WILD ANIMAL WARNING REFLECTOR

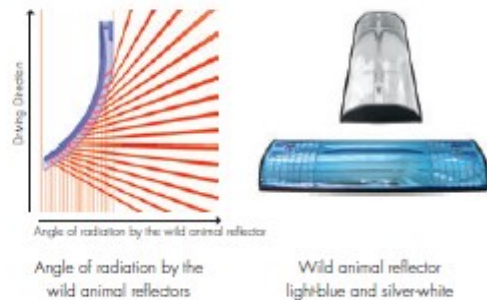


„The General“- wild animal warning reflector made by Beilharz is a real all-rounder, because he combines the advantages of all available systems on market. The semi-circle profile guarantees a circulating reflection and the used plastic reflector assures that the car light is getting reflected parallel to the road. Thereby an optical warning fence is build which prevents wild animals to cross the road.

TYPE

■ Wild animal warning reflector

| | |
|---------------------|--|
| Model | Wild animal warning reflector made out of impact-resistant plastic, steamed and sealed with aluminum on the back side. |
| Profile | Flattened semi-circle profile, length 250 mm – largest reflecting surface of all available wild animal warning systems |
| Colour | Light-blue, silver-white, special colours available |
| Type of application | All-purpose usable for all areas (flat area, slopes and falls) |
| Certification | Photometric audited by the LTI Light Engineering Institute University Karlsruhe |
| Resistance | Road salt resistant and weather resistant |
| Assembly | Later assembly with plastic housing or integrated variant in the delineator |



Your benefits at a glance

- Colour: by the combination of the blue-transparent or transparent body material with rear aluminizing the colours light-blue and silver-white are generated. These colourings guarantee a maximum of light reflection and an ideal optical cognition by the animals.
- Horizontal reflection: with a horizontal radiation angle of 120° the area behind the delineator is being lighted completely, causing a high level of barrier for wild animal.
- Vertical reflection: in the reflector integrated fins create light flashes and compensate slopes and falls from -20° up to +20° in the rear side area. Furthermore the slightly corrugated middle lens assures continuous, homogenous light on ground level.
- Form: the flattened form of the wild animal reflector with a smooth surface assures best possible self-cleaning effects and stability while the wild animal reflector is light weighted.

➔ Inventor and manufacturer

Signs from the Ore mountains

The German-based Schilderwerk Beutha company, established in 1953, is specialized in the production and installation of traffic signs, promotional signs, and signposting systems. With a broad variety of production techniques such as digital and screen printing, and a technology portfolio reaching from enamel to LED signs the Schilderwerk provides all kinds of solutions to modern guidance systems.

With its state-of-the-art production and its installation capacities, the Schilderwerk Beutha is able to implement a vast number of urgent orders. Also, due to its innovation approach, customers benefit from developments in the field of energy-efficiency and safety.



The complete Team



Company of SW Beutha

In order to solve all logistics problems optimally and to arrange all concerned application flows effective, a new dispatch hall was built on the premises in 2002.

Finally the colleagues of the Schilderwerk Beutha want to set indications also in the future.

The inventor Konrad Löhnert about himself

I'm game reserve owner, game keeper, and president of the hunting association Bayreuth. In this capacity, I became engaged with the problems of car accidents with wild animals. Originally, the presented solution was intended only for me and my hunting mates. In the meanwhile, 3.000 districts are equipped with it achieving such positive results, that I can definitely recommend this product.

Konrad Löhnert was acknowledged with a certificate of appreciation of the Bavarian State Department for Environmental and Health Protection by the president of the Federal Hunting Association Juergen Vocke for his commitment in the area of wildlife protection.



Your Contact

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Schilderwerk Beutha



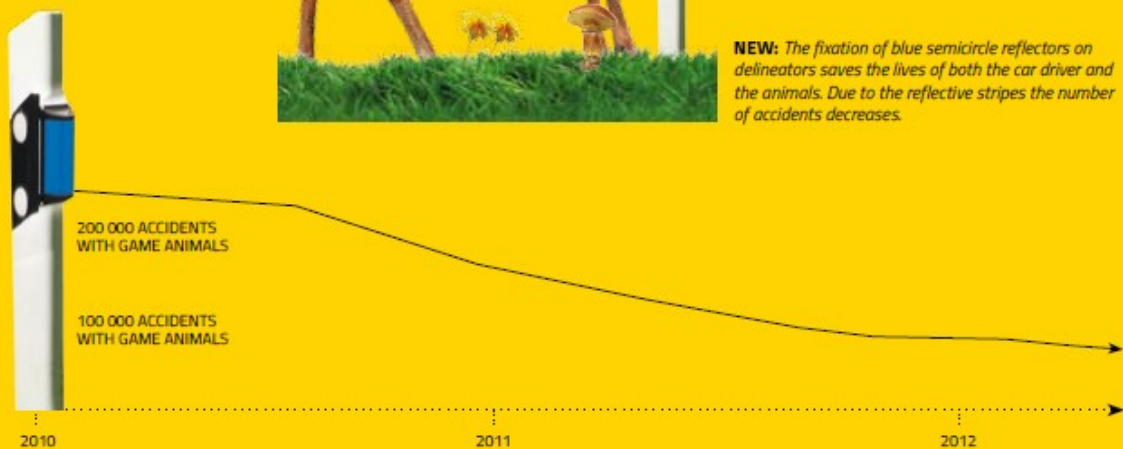
Halbkreisreflektor



**SCHILDERWERK
BEUTHA GMBH**



NEW: The fixation of blue semicircle reflectors on delineators saves the lives of both the car driver and the animals. Due to the reflective stripes the number of accidents decreases.



ACCIDENTS WITH GAME ANIMALS: Avoid them with blue semicircle reflectors!

→ Semicircle reflectors for more safety

(DBGM no. 20200409751.0)

Functionality

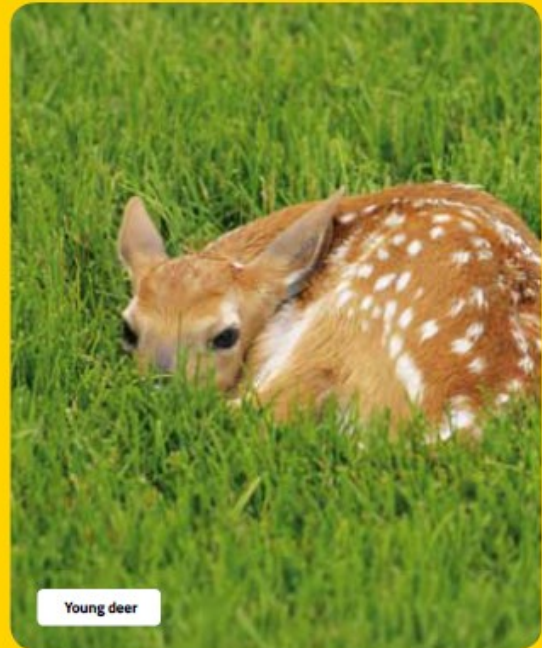
The semicircle reflector is fitted with a microprismatic reflex film such as it is known from reflecting road signs. With an angle of reflected beam of $1,5^\circ$ the light from the vehicle hitting the film creates a continuous high intensive light fence along the roadside. The even curve of the carrier material reflects the light in decreasing intensity further to the side without the whole surrounding area being lightened up unnecessarily.

Why blue?

Wild animals can only see and distinguish green and blue colours, yet the latter right into the UV sector! Red and orange are totally indistinguishable and only seen as different shades of green – which is why, on a hunt, we wear red high visibility clothing. For humans these garments have an intensive signalling effect, but for animals they just merge with the surroundings. In contrast, blue is a really terrifying colour as it does almost never appear in nature and is felt as strange, i.e. potentially dangerous. A number of scientific papers have been published in Europe and the USA about how animals see colours.



In the eyes of wild animals the red jacket, the green colour of the tree, the brown of the autumn leaves and the withered grass result in a mixture of green shades.



Young deer

Mesopic vision

(Sensitivity of light - dark contrasts)

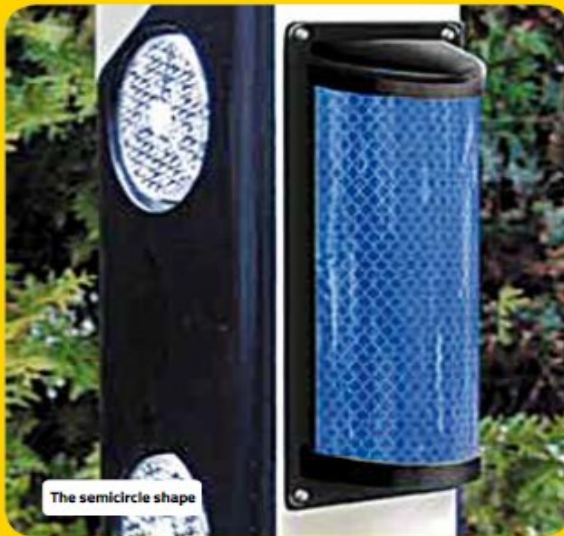
- The light sensitive rods in the eyes of hoofed game account for about 90% of the vision receptors. Only about 10 % ("cones") are responsible for colour vision.
- The openings of the hoofed game's pupils' are up to nine times larger than a human's.
- The rods responsible for mesopic vision perceive the light energy emitted by the blue colour as particularly bright - we see it as a dark blue.

Habituation effect?

On the basis of present experience there is no danger of habituation as, on the one hand, the colour blue will always remain disconcerting to the animal, signifying danger, and on the other hand there are new generations growing up all the time (the average life expectancy of roe deer, for example, is about 3 years as a lot of them will be shot while being young).

Reflector in the darkness

→ Descriptions of the semicircle reflectors



Why semicircle reflectors?

(DBGM no. 20200409751.0)

The semicircular shape has to do with the animals' **movement vision**. Herbivores in particular have their eyes on both sides of their heads in order to avoid enemies. They don't see very clearly, but they react very sensitively to any kind of movement (as hunters know from experience!) The semicircular shape of the reflector in combination with the cars' constantly changing angle of light impact simulates movement as in a hologram.

Conclusion from practical experience

The evaluation of more than 200 questionnaires concerning areas where semicircular reflectors have been installed for more than a year shows a decline in nocturnal road accidents with roe deer by 73%.

Technical description

Base body of weather-proof polypropylene copolymer. Heat resistant, good impact resistance even in low temperatures, no splintering. UV protection by carbon black.

Films: microprismatic reflecting film by 3M Scotchlite TM Diamond Grade

Dimensions of the lightreflecting module:

H 150, W 65, D 44 mm.

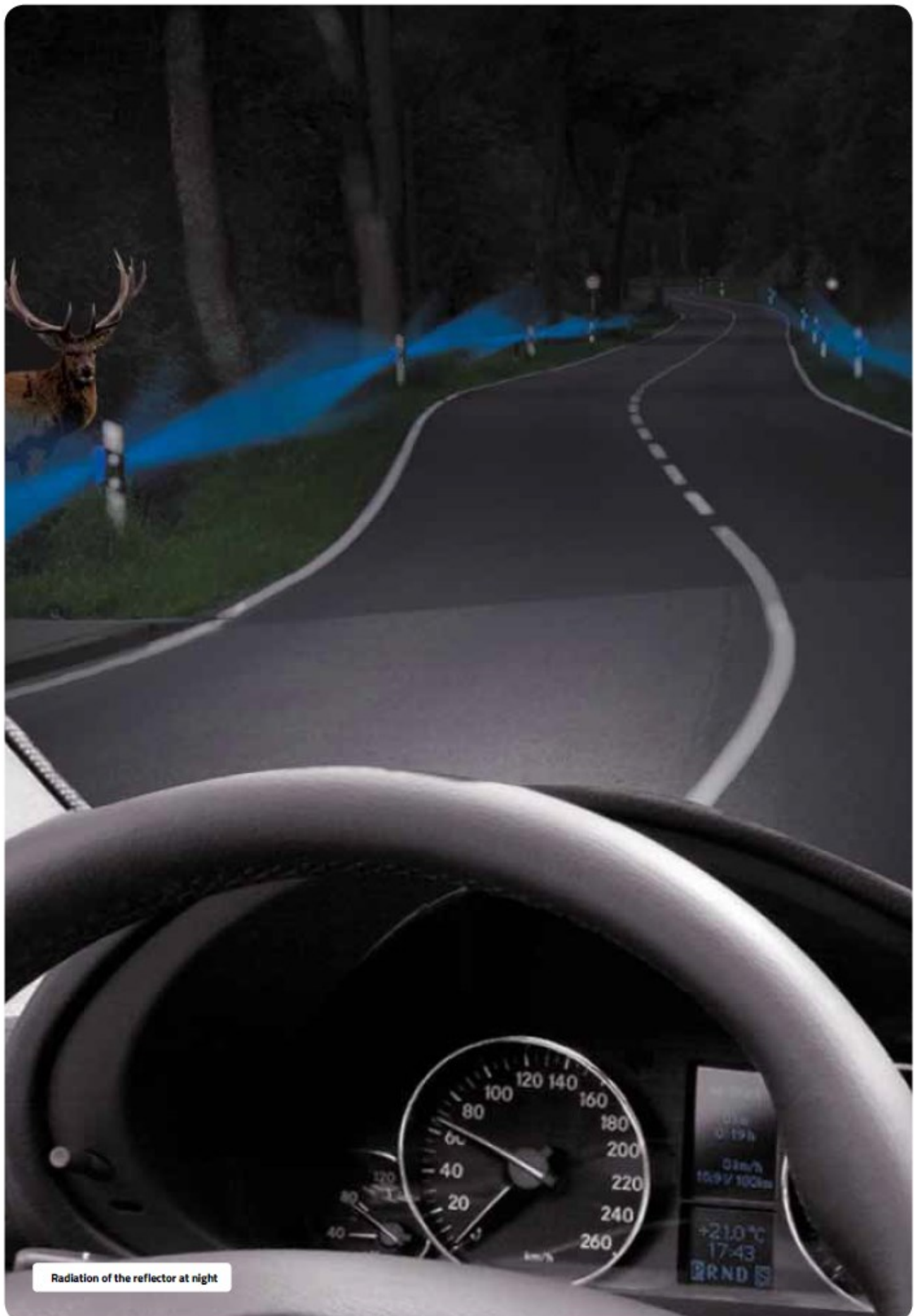
Weight: 70 g

4 screws enclosed

Adjustment of the reflector to the inclination angle of the terrain?

Not necessary. The moment the cars' light hit the reflector it lights up. A direct back reflection is not required to warn the animals, the blue light suddenly appearing is enough.





Radiation of the reflector at night



Reflector in the daytime

➔ Installation of the blue reflectors

Death on the road

(Accident statistics in Germany)

Death on the road Accident statistics in Germany
from April 2007 to March 2008

- ➔ 201 000 roe deer
- ➔ 23 000 wild pigs
- ➔ 3 800 fallow deer
- ➔ 2 300 red deer

These are just the accidents that were reported!
The Federal Statistics Authority published, for the year
2004, 24 road deaths and 3.328 seriously wounded persons.
This is what we want to avoid!

Installation without gaps!

It has become apparent that animals will cross just and
directly through an opening in a row created by missing
reflectors. Quote: "The reflectors are tremendously
effective! It has to be kept in mind, however, that game
tries to circumvent the "reflector fence" in the case of heavy
traffic". Therefore an occasional control is recommended.



Semicircle reflector in color "light blue"



Blue emicircle reflector in in production



**Weatherproof, splintering polypropylene; copolymer, heat resistant,
great impact in cold, UV-protection by black coloring, pasted with blue
micro-prismatic reflective tape**