SLOVENSKI STANDARD

SIST EN 12899-2:2008

01-marec-2008

Stalna vertikalna cestna signalizacija - 2. del: Signalizacija z notranjo osvetlitvijo (TTB)

Fixed, vertical road traffic signs - Part 2: Transilluminated traffic bollards (TTB)

Ortsfeste, vertikale Straßenverkehrszeichen - Teil 2: Innenbeleuchtete Verkehrsleitsäulen (TTB)

Signaux fixes de signalisation routière verticale - Partie 2 : Bornes lumineuses

Ta slovenski standard je istoveten z: **EN 12899-2:2007**

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EUROPEAN STANDARD

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English Version

Fixed, vertical road traffic signs - Part 2: Transilluminated traffic bollards (TTB)

Signaux fixes de signalisation routière verticale - Partie 2 : Bornes lumineuses

Ortsfeste, vertikale Straßenverkehrszeichen - Teil 2: Innenbeleuchtete Verkehrsleitsäulen (TTB)

This European Standard was approved by CEN on 4 February 2007.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 12899-2:2007) has been prepared by the Technical Committee CEN/TC 226 "Road equipment" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2008, and conflicting national standards shall be withdrawn at the latest by August 2012.

No existing European Standard is superseded.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports essential requirements of EU Directives.

For relationship with EU Directives, see informative Annex ZA, which is an integral part of this document.

This European Standard consists of the following Parts under the general title:

Fixed, vertical road traffic signs —

Part 1: *Fixed signs*

Part 2: (this part) *Transilluminated traffic bollards (TTB)*

Part 3: *Delineator posts and retroreflectors*

Part 4: *Factory production control*

Part 5: *Initial type testing*

It is based on performance requirements and test methods published in CEN, CENELEC, CIE (International Commission on Illumination) and ISO documents together with standards of the CEN member organizations.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This European Standard is designed for use by road authorities. It can also be used by private developers who wish to use signs on their own land similar to those used on public highways.

It can be used to implement type approval and certification testing.

It derives from performance requirements and test methods published in CEN, CENELEC, CIE and ISO documents together with standards of the CEN member organizations.

1 Scope

This Part 2 of EN 12899 specifies requirements for new transilluminated traffic bollards (TTBs) including their fixing, which may incorporate traffic signs (type 1 TTB) or may support traffic signs (type 2 TTB) to be used in traffic circulation areas.

It covers performance requirements and test methods.

Colorimetric and retroreflective properties as well as luminance of transilluminated illuminated portions are specified taking into account CIE recommendations.

Structural requirements for TTBs include performance under static and dynamic loading.

Provision is made for safety in use, including vehicle impact.

Devices of similar function, but without transillumination or less than 600 mm in height, are not covered.

NOTE Foundations are not specified in this standard but should be adequate to support the loads to be carried.

Unless otherwise stated, clauses in this standard apply to both type 1 and type 2 TTBs.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies

EN 12899-1:2007, *Fixed vertical road traffic signs — Part 1: Fixed signs*

EN 12899-4, *Fixed vertical road traffic signs — Part 4: Factory production control*

EN 12899-5, *Fixed vertical road traffic signs — Part 5: Initial type testing*

EN 60529, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN ISO 139 *Textiles — Standard atmospheres for conditioning and testing (ISO 139:2005)*

EN ISO 877:1996, *Plastics — Methods of exposure to direct weathering, to weathering using glass-filtered daylight, and to intensified weathering by daylight using Fresnel mirrors (ISO 877:1994)*

EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods (ISO 1461:1999)*

EN ISO 9001, *Quality management systems — Requirements (ISO 9001:2000)*

ISO 4:1997, *Information and documentation — Rules for the abbreviation of title words and titles of publications*

3 Terms, definitions, symbols and abbreviations

For the purposes of this document, the symbols and abbreviations given in ISO 4:1997, the terms and definitions given in EN 12899-1:2007 and the following apply.

3.1
transilluminated traffic bollard (TTB)
totally or partially transilluminated device placed to warn drivers of obstructions in the road

3.2
type 1 TTB
TTB which incorporates one or more traffic signs or plain surfaces as alternatives (see Annex A for illustrations)

3.3
type 2 TTB
TTB which supports one or more traffic signs, (see Annex A for illustrations)

3.4
base
part of a TTB which is used to secure the body to the foundation

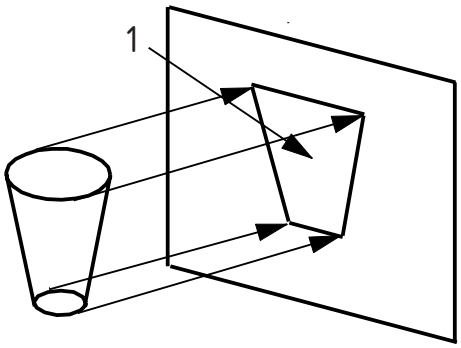
3.5
body
part of a type 1 TTB below the head and attached to the base, or the whole of a type 2 TTB above the base

3.6
depth
maximum horizontal dimension parallel to the direction of the traffic flow on the road in which the TTB is located

3.7
head
top part of a type 1 TTB measured from the upper extremity to not more than 50 mm below any sign or plain surface in which the traffic sign(s) are incorporated

3.8
overall height
vertical dimension measured from the ground line to the upper extremity of the TTB

3.9
projected area
area of a three dimensional object when projected on to a plane surface at right angles to the direction of viewing (see Figure 1)



Key

1 Projected area

Figure 1 — Projected area

3.10
ground line
horizontal line marked on the TTB which, when the TTB has been installed in accordance with the manufacturer's instructions, is level with the surface of the obstruction on which it is installed

3.11
width
maximum horizontal dimension at right angles to the direction of traffic flow

4 General

4.1 Design

4.1.1 Overall height

4.1.1.1 Type 1 TTBs

The minimum overall height of type 1 TTBs shall conform to Table 1.

Table 1 — Overall height

Class	Minimum overall height mm
OH1	900
OH2	1100

The projected distance between the upper extremity of the head and the top of any sign or plain surface shall be not more than 70 mm.

NOTE OH1 TTBs are suitable to support signs or plain surfaces less than 350 mm in diameter. OH2 TTBs are suitable to contain signs or plain surfaces 350 mm in diameter and greater.

4.1.1.2 Type 2 TTBs

Type 2 TTBs shall have a minimum overall height of 750 mm.

4.1.2 Head

4.1.2.1 General

A head not incorporating one or more traffic signs shall incorporate plain areas as alternatives. When the top surface of the head is a separate part it shall be fixed to the body. Any curvature in the plane of a sign or plain surface shall be not less than 2000 mm radius in any direction.

4.1.2.2 Width of head (type 1 TTB)

When a sign or plain surface is incorporated into the front side of the head, the width of the head shall be not less than the diameter of the sign or dimension of the plain surface. The minimum width shall be not less than 230 mm.

4.1.2.3 Depth of head (type 1 TTB)

When a sign or plain surface is incorporated into either side of the head, the depth of the head shall be not less than the diameter of the sign or the dimension of the plain surface and in any case not less than 125 mm.

4.1.3 Body

4.1.3.1 Width of body

The width of the body, at heights greater than 100 mm above the ground line, shall be not less than 150 mm.

4.1.3.2 Depth of body

The depth of the body, for types 1 and 2 TTB at heights greater than 100 mm above the ground line, shall be not less than 150 mm.

4.1.3.3 Projected area

4.1.3.3.1 Type 1 TTBs

The projected area of the body, 100 mm above the ground line, shall be not less than the values in Table 2.

Table 2 — Projected area of bodies of type 1 TTB

Class	Area mm^2	
	Side containing a sign or plain area	Other side
PA1	60 000	60 000
PA2	120 000	90 000
PA3	180 000	120 000
PA4	240 000	50 000

4.1.3.3.2 Type 2 TTB

The projected area of the body, from any direction, 100 mm above the ground line, shall be not less than 97500 mm^2.

4.1.3.4 Classification of impact resistance

The classification for impact resistance shall be:

IR0 TTB secured directly to the ground which has no breakaway design features, nor any of the design features of IR2 or IR3 TTB and which is designed to remain fixed to the foundation under vehicle impact (rigid);

IR1 TTB designed to break away under vehicle impact (breakaway);

IR2 TTB mounted so as to deflect and return to original position after vehicle impact (spring-back);

IR3 TTB made from materials that regain their original shape following deformation caused by vehicle impact (deformable).

4.1.3.5 Body components of external surface

Any components of the external surface, not integral with that surface, shall be securely fixed so that they perform as if they were an integral part of the external surface.

4.1.4 Base

4.1.4.1 Dimensions

The dimensions of the base shall be appropriate to the body to which it is attached so far as it provides the required fixing stability for the bollard to comply with 4.3.1 and 4.3.2

4.1.4.2 Holding down bolts

Unless otherwise indicated in the manufacturer's installation instructions, the design shall provide for holding down bolts which shall be corrosion resistant to SP1 or SP2 in accordance with 7.1.7 of EN 12899-1:2007.

The manufacturer shall indicate in the installation instructions whether holding down bolts are required if the base incorporates horizontal flanges not less than 100 mm below the ground line.

The manufacturer shall provide information with the product specifying that its fitness for use is based upon foundations of adequate size, strength and durability to withstand the effects of salt, impact, frost and weathering. The foundations shall also be of sufficient size to retain any holding down bolts.

The spacing of holding down bolts, if provided, in the base shall conform to one of the following classes:

HD1 280 mm × 230 mm (see Figure 2);

HD2 as declared by the manufacturer.