



SLOVENSKI STANDARD

oSIST prEN 13422:2018

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Pokončni cestni znaki - Prenosni upogljivi opozorilni in usmerjevalni znaki - Prenosni cestni signalni znaki - Stožci in valji

Vertical road signs - Portable deformable warning devices and delineators - Portable road traffic signs - Cones and cylinders

Straßenverkehrszeichen (vertikal) - Transportable Straßenverkehrszeichen - Leitkegel und Leitzylinder

Signalisation routière verticale - Dispositifs d'alerte et balisages de voie souples et mobiles - Signaux temporaires mobiles - Cônes et cylindres

Ta slovenski standard je istoveten z: prEN 13422

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93.080.30	Cestna oprema in pomožne naprave	Road equipment and installations
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English Version

Vertical road signs - Portable deformable warning devices and delineators - Portable road traffic signs - Cones and cylinders

Signalisation routière verticale - Dispositifs d'alerte et
balisages de voie souples et mobiles - Signaux
temporaires mobiles - Cônes et cylindres

Straßenverkehrszeichen (vertikal) - Transportable
Straßenverkehrszeichen - Leitkegel und Leitzylinder

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 226.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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prEN 13422:2018 (E)**European foreword**

This document (prEN 13422:2018) has been prepared by Technical Committee CEN/TC 226 “Road equipment”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13422:2004+A1:2009.

In comparison with the previous edition, the following technical modifications have been made:

- a) Updating of the normative references;
- b) Clarification of the definitions in Clause 3;
- c) Amendment of performance requirements for Class R_A 3, R_L 3 and L_{rel} 1;
- d) Clarification of the test method for the relative distribution of retroreflective performance.

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SIST EN 13422:2020

<https://standards.iteh.ai/catalog/standards/sist/691fc19e-33c7-4a86-a684-6237ef009336/sist-en-13422-2020>

Introduction

This document gives common provisions for the construction and visual performance of traffic cones and cylinders. The visual performance at daytime is specified by the colour and luminance factor. The visual performance at nighttime is specified by the coefficient of retroreflection R_A , the coefficient of retroreflected luminance R_L and the relative distribution of retroreflective performance L_{rel} .

iTeh STANDARD PREVIEW
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SIST EN 13422:2020

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1 Scope

This document specifies requirements for new traffic cones and new traffic cylinders with retroreflective properties.

This document specifies minimum essential visual and physical performance characteristics; test methods for determination of product performance and the means by which this performance may be communicated to the user and the public including safety enforcement agencies.

The document provides a series of categories or classes by which a traffic cone or traffic cylinder may be specified for use in different applications in accordance with best practice.

In the case of physical properties, performance levels and indicative tests are provided for cold weather, stability, and impact resistance when dropped. Requirements for visual recognition properties, colour, retro-reflectivity and luminance are provided.

Provision for identification and marking to declared levels of performance is provided.

There are other product shapes which perform similar functions. This document does not cover devices made in other shapes, or which do not meet the design requirements of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 ISO 1043-1, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics (ISO 1043-1)*

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

<https://standards.iteh.ai/catalog/standards/sist/691fc19e-33c7-4a86-a684-6237ef009336/sist-en-13422-2020>

CIE 15:2004, *Colorimetry*

CIE 17.4:1987, *International lighting vocabulary*

CIE 54.2:2001, *Retroreflection — Definition and measurement*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4:1997, CIE 17.4:1987 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1 traffic cone

three dimensional device of conical shape comprising one or more parts including a base plate, cone body and a retroreflective surface or surfaces

3.2**base plate**

lowest part of the traffic cone which supports the cone body, having an upper visible surface, and a lower surface in contact with the support surface

3.3**cone body**

part of the traffic cone which is conical in shape, but excludes the base plate and the retroreflective surface(s)

3.4**category A cone**

traffic cone in which a minimum of 80 % of the nominal height of the cone is retroreflective

3.5**category B cone**

traffic cone in which a minimum of 25 % of the nominal height of the cone body is retroreflective

3.6**traffic cylinder**

three dimensional device of substantially cylindrical shape comprising one or more parts including a cylinder body, and a retroreflective surface or surfaces

3.7**cylinder body**

part of the traffic cylinder which is substantially cylindrical in shape and supports the retroreflective surface or surfaces

3.8**category A cylinder**

traffic cylinder in which a minimum of 80 % of the nominal height of the cylinder is retroreflective

3.9**category B cylinder**

traffic cylinder in which a minimum of 25 % of the nominal height of the cylinder body is retroreflective

3.10**retroreflective surface(s)**

part (or those parts) of a traffic cone or traffic cylinder fixed to the cone body or cylinder body which are retroreflective according to the requirements of this document

3.11**height of traffic cone**

H

vertical distance, measured between the ground and the top of the traffic cone

Note 1 to entry: The height *H* of the traffic cone shall not deviate more than 5 % from the nominal height, as specified by the purchaser.

prEN 13422:2018 (E)**3.12****height of traffic cylinder*****H***

vertical distance, measured between the top of the cylinder body and the lowest extremity of the cylinder body

Note 1 to entry: The height *H* of the traffic cylinder shall not deviate more than 5 % from the nominal height, as specified by the purchaser.

3.13**test product**

product in original size and design, prepared by the manufacturer and submitted to testing

3.14**sample**

construction representing parts of the product or its constituents in original materials prepared by the manufacturer and submitted to testing

3.15**product families**

products that are related in such a way that testing of one of the products covers all of the products from a product family

4 Product Characteristics**4.1 Traffic cones****4.1.1 Design of traffic cones****4.1.1.1 Shape of traffic cones**

There shall be two shape classes for traffic cones (S1 and S2).

Class S1 - The angle between the sides of the cone body and the cone's vertical axis shall be $(10 \pm 2,5)^\circ$ for at least the uppermost 75 % H of the traffic cone. The lower 25 % H of the traffic cone above the base plate may have an angle between the sides of the body and the traffic cone's vertical axis of between $7,5^\circ$ and $14,5^\circ$.

Class S2 - The angle between the sides of the cone body and the cone's vertical axis shall be $(10 \pm 2,5)^\circ$ for at least the uppermost 75 % H of the traffic cone. The lower 25 % H of the traffic cone above the base plate may have an increased angle between the sides of the body and the traffic cone's vertical axis of between $14,6^\circ$ and 45° .

4.1.1.2 Shape of the base plate for traffic cones

The base plate shall have a minimum of 4 and not more than 8 sides.

4.1.2 Dimensions of traffic cones**4.1.2.1 General**

Traffic cones shall conform to Table 1 and shall be assigned according to weight class (W) of Table 1 achieved. (The nominal height of the traffic cone and the weight class required shall be specified by the purchaser.)

Table 1 — Height of traffic cones and minimum weight - (W)

Nominal	Minimum weight (W)		
Height (H)	in kg		
in mm	Class W1	Class W2	Class W3
$\geq 900 \leq 1\ 000$	4,80	6,00	7,50
$\geq 750 < 900$	3,20	4,00	5,00
$\geq 500 < 750$	1,30	1,90	2,50
$\geq 450 < 500$	1,10	1,80	2,20
$\geq 300 < 450$	0,80	0,80	0,80

4.1.2.2 Stacked height of traffic cones

The overall height of two identical traffic cones, when stacked one upon the other, shall not exceed 1,2 H of each individual traffic cone. Traffic cones shall be designed to ensure that, when stacked, they do not bind together, nor damage the retroreflective surface(s).

4.1.2.3 Top of body of traffic cones

The external diameter of the top of the cone body shall be (60 ± 15) mm. The top of the cone body shall have a circular hole provided in its upper surface. The hole shall have a diameter of (40 ± 5) mm.

The area of the cone body immediately below the top of the traffic cone shall have a configuration to provide a hand grip. This area need not be retroreflective and shall not exceed the greater height of either 0,1 H or 60 mm measured from the top.

4.1.2.4 Base plate of traffic cones

When the thickness of the outer edge of the base plate exceeds 15 mm, its plan area shall be contained within a circle whose diameter is 0,75 H of the traffic cone.

When the thickness of the outer edge of the base plate is 15 mm or less, the plan area of the base plate shall be contained within a circle whose diameter is 0,9 H of the traffic cone.

4.2 Traffic cylinder

4.2.1 Design of traffic cylinder

4.2.1.1 Shape of traffic cylinder

Traffic cylinders shall have substantially parallel sides. The lowest 100 mm portion of the cylinder body may be of a different diameter to the portion above 100 mm from the support surface and need not be substantially parallel. A means for drainage of any water entering the traffic cylinder shall be provided.

4.2.1.2 Fixing method for traffic cylinder

The design of such a fixing may be of any type which enables the traffic cylinder to be temporarily installed in or on the road surface while allowing the other requirements of this document to be satisfied.

prEN 13422:2018 (E)**4.2.2 Dimensions of traffic cylinder****4.2.2.1 Height**

Traffic cylinders shall be not less than 450 mm in height nor greater than 1 250 mm in height. (The nominal height of traffic cylinders shall be specified by the purchaser.)

4.2.2.2 Top of traffic cylinders

The top of the cylinder body shall not be less than 95 mm or exceed 120 mm in diameter. A circular hole of (30 ± 5) mm diameter shall be provided in the upper 100 mm of each traffic cylinder except where the inclusion of any internal mechanism makes it impracticable to provide such a hole. In this case, the traffic cylinder shall be constructed such that in the event of it being run over, air will exhaust without the traffic cylinder bursting.

4.3 Tolerances

Tolerances for the design, dimensions and weight of traffic cones and traffic cylinders shall be $\pm 5\%$ except where stated elsewhere in this document.

4.4 Materials

Materials shall enable conformance to the relevant requirements of this document. Environmental considerations are set out in Annex A, and provision for marking to aid recycling is set out in Clause 8 of this document.

No specific clauses relating to dangerous substances are contained in this standard. National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets. In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Construction website on EUROPA accessed through: <http://ec.europa.eu/growth/tools-databases/cp-ds.en>.

5 Test methods**5.1 Determination of chromaticity and luminance factor β in dry conditions**

Measurement of chromaticity and luminance factor shall be made in accordance with the procedures defined in CIE 15:2004 using spectral distribution according to CIE illuminant D65 and 45/0 geometry for the 2° observer.

5.2 Photometric tests**5.2.1 Determination of minimum initial coefficient of retroreflection R_A**

The measurement of the minimum initial coefficient of retroreflection R_A shall be made using CIE illuminant A in accordance with the procedures defined in CIE 54.2:2001.

The test measurements shall be performed on a production representative sample of retroreflective material measuring an area of at least 30 cm² mounted according to the manufacturer's instructions onto a flat support sheet.