

Road marking materials — Retroreflecting road studs —

Part 1: Initial performance requirements

The European Standard EN 1463-1:1997, with the incorporation of amendment A1:2003, has the status of a British Standard

ICS 93.080.30

National foreword

This British Standard is the official English language version of EN 1463-1:1997, including amendment A1:2003 published by the European Committee for Standardization (CEN). Together with BS 8442: 2006, BS EN 12899-1:2001 and BS EN 1463-2:2000, this British Standard supersedes BS 873-1:1983, BS 873-2:1984, BS 873-4:1987, BS 873-5:1983, BS 873-6:1983 and BS 873-7:1984 which are withdrawn.

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The UK participation in its preparation was entrusted by Technical Committee B/509, Road equipment, to Subcommittee B/509/2, Horizontal road markings and road studs, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

This standard is the first part of a two part package of standards for road studs being prepared by CEN. This standard partially supersedes BS 873-4 which will be declared obsolescent on the publication of this standard.

The declaration of obsolescence does not affect the current Kitemark certification scheme for road marking products.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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English version

Road marking materials — Retroreflecting road studs — Part 1: Initial performance requirements (includes amendment A1:2003)

Produits de marquage routier —
Plots rétroréfléchissants —
Partie 1: Spécifications des performances
initiales
(inclut l'amendement A1:2003)

Straßenmarkierungsmaterialien —
Markierungsknöpfe —
Teil 1: Anforderungen in Neuzustand
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This European Standard was approved by CEN on 1997-07-23. Amendment A1 was approved by CEN on 2003-08-07. 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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Central Secretariat: rue de Stassart 36, B-1050 Brussels

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Foreword

This European Standard has been prepared by 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 February 1998, and conflicting national standards shall be withdrawn at the latest by February 1998.

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 Directive(s).

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

This document includes a Bibliography.

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Twenty four (24) months after the date of publication of the harmonized part of this European Standard (Annex ZA) in the Official Journal of the European Communities (which follows its availability and notification to the European Commission by CEN/CENELEC), compliance with all the provisions of the Construction Products Directive (CE-marking) becomes compulsory for all products falling within the scope of this European Standard that are placed on the EEA market.

Foreword to amendment A1

This document (EN 1463-1:1997/A1:2003) has been prepared by 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 April 2004, and conflicting national standards shall be withdrawn at the latest by July 2005.

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 Directive(s).

For relationship with EU Directive(s), see informative Annex ZA which is an integral part of this document.

This document includes a Bibliography.

This amendment is included in a package with EN 1423:1997/prA1 and EN 13212:2001 with a common DOW fixed on DAV + 21 months.

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

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1 Scope

This European Standard specifies the initial performance requirements and laboratory test methods for retroreflecting road studs intended for use as permanent and temporary road marking materials.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO/CIE 10526:1991, *CIE Standard colorimetric illuminants*.

ISO/CIE 10527:1991, *CIE Standard colorimetric observers*.

CIE publication No. 54 (TC-2.3):1982, *Retroreflection — Definition and measurement*.

^{A1} CIE publication No. 17.4:1987, *International lighting vocabulary*.

EN 1463-2:2000, *Road marking materials — Retroreflecting road studs — Part 2: Road test performance specifications*. ^{A1}

3 Definitions

^{A1} For the purposes of this European Standard, the definitions given in CIE publication 17.4:1987 apply together with the following: ^{A1}

3.1

retroreflecting road stud (called “road stud” in this standard)

a horizontal guiding device that reflects incident light by means of retroreflectors (see 3.2) in order to warn, guide or inform road users

NOTE Retroreflecting road studs may be constructed in either one or more integral parts and may be bonded to, anchored within or embedded within the road surface. The retroreflecting portion may be unidirectional or bi-directional, depressible or non depressible. This device may be either permanent (type P) or temporary (type T).

3.2

retroreflector

a device which reverses the direction of visible light striking it and returns it along a path substantially parallel to its original path

NOTE It may be made of glass (type 1), plastic (type 2) or plastic with an abrasion resistant surface (type 3). It may have a reflective coating at the back.

3.3

non depressible road stud

a substantially rigid road stud not designed to deform under the passage of traffic (type A)

3.4

depressible road stud

a road stud designed to have one or more parts which deform under traffic and recover to their original geometry after removal of the traffic load (type B)

3.5

bonded road stud

road stud fixed to the road surface using an adhesive applied to the stud and/or to the road surface at the time of installation

3.6

self-adhesive road stud

road stud precoated with adhesive

NOTE An adhesion enhancer (see 3.7) may be required under some climatic conditions.

3.7**adhesion enhancer**

an additional coating on the load bearing surface of the road stud or on the road surface which improves the performance of the adhesive bond

3.8**anchored road stud**

road stud fixed to the road surface using an anchor or spigot

NOTE The anchor(s) or spigot(s) may be an extension of the road stud body or a separate part(s) supplied for the purpose. The principal load bearing interface of the road stud and the road is between the surface of the road and the underside of the road stud.

3.9**embedded road stud**

road stud fixed into a prepared cavity of an appropriate dimension cut into the road surface

NOTE The principal load bearing interface of the road stud and the road is between a downward facing surface of the road stud and an upward facing surface of the cavity.

4 Types of road stud

Road studs are classified in this European Standard in accordance with Table 1, Table 2 and Table 3.

Table 1 — Classification of road studs by use

Use	Type
Permanent road stud ¹⁾	P
Temporary road stud ²⁾	T
¹⁾ Provides night-time warning guidance and information to road users.	
²⁾ Provides daytime and night-time warning guidance and information to the road user by stimulating the use of three senses. It is received visually and can be heard and felt through the rumble effect. Temporary road studs are used only at road construction/maintenance sites.	

Table 2 — Classification of road studs by reflector

Reflector	Type
Glass	1
Plastic	2
Plastic with abrasion resistant layer	3
NOTE The abrasion resistant layer is applied on the surface exposed to traffic.	

Table 3 — Classification of road studs by design

Design	Type
Non depressible road stud	A
Depressible road stud	B

5 Performance requirements**5.1 Construction**

For safety reasons the enveloping profile of the road studs shall not present any sharp edges to traffic.

If the road stud consists of two or more parts, each replaceable part shall be removable only with a tool recommended by the manufacturer.