

Road traffic noise reducing devices — Non-acoustic performance —

Part 1: Mechanical performance and stability requirements

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ICS 93.080.30

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English version

Road traffic noise reducing devices — Non-acoustic performance — Part 1: Mechanical performance and stability requirements

Dispositifs de réduction du bruit du trafic routier —
Performances non acoustiques —
Partie 1: Performances mécaniques et exigences en
matière de stabilité

Lärmschutzeinrichtungen an Straßen —
Nichtakustische Eigenschaften —
Teil 1: Mechanische Eigenschaften und
Anforderungen an die Standsicherheit

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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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of an identical text or by endorsement, at the latest by January 1999, and conflicting national standards shall be withdrawn at the latest by January 1999.

This European Standard consists of the following parts under the general title *Road traffic noise reducing devices — Non-acoustic performance*:

- *Part 1: Mechanical performance and stability requirements*;
- *Part 2: General safety and environmental requirements*.

Annexes A to E of this part of EN 1794 are normative.

Another standard covering long term durability (service life) is in course of preparation.

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

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Introduction

While performing their primary function, road traffic noise reducing devices are exposed to a range of forces due to wind, dynamic air pressure caused by passing traffic, and the self weight of its component parts. They may also be subjected to shocks caused by stones or other debris thrown up by vehicle tyres, and, in some countries, the dynamic force of snow ejected by equipment used to clear roads in winter. The deflections of a noise reducing device under such loads during its design life should not reduce its effectiveness.

1 Scope

This European Standard specifies criteria to categorize road traffic noise reducing devices according to basic mechanical performance under standard conditions of exposure, irrespective of the materials used. A range of conditions and optional requirements is provided to allow for the wide diversity of practice within Europe. Individual aspects of performance are covered separately in the annexes. Safety considerations in the event of damage to noise reducing devices are covered in part 2 of this European Standard.

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.

ENV 1991-2-4, *Eurocode 1: Basis of design and actions on structures: Part 2-4: Wind actions.*

EN 1317-1, *Road restraint systems — Part 1: Terminology and general criteria for test methods.*

EN 1317-2, *Road restraint systems — Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers.*

EN 1794-2:1998, *Road traffic noise reducing devices — Non-acoustic performance — Part 2: General safety and environmental requirements.*

3 Definitions and symbols

3.1 Definitions

For the purposes of this standard, the following definitions apply.

3.1.1

noise barrier

noise reducing device which obstructs the direct transmission of airborne sound emanating from road traffic

3.1.2

cladding

noise reducing device which is attached to a wall or other structure to reduce the amount of sound reflected

3.1.3

cover

noise reducing device which either spans or overhangs the highway

3.1.4

structural element

element whose primary function is to support or hold in place acoustic elements

3.1.5

acoustic element

element whose primary function is to provide the acoustic performance of the device

3.1.6

mechanical test hammer

device of the type used for measuring the elasticity of hard surfaces

3.1.7

test area

central area of a full size panel enclosed by a margin of 125 mm from each edge, as shown in Figure C.2

3.1.8

vehicle occupants safe device

a traffic safe noise reducing device for which a vehicle impact does not cause more danger to the occupants than allowed for safety barriers in EN 1317-2. However, it does not need to prevent the vehicle from going through it, nor is it presumed that parts of the device are prevented from becoming detached

3.1.9

combined safety and noise barrier

a traffic safe noise reducing device which fulfils all the requirements for safety barriers in a given containment class as defined in EN 1317-2

3.1.10

dynamic load

load due to snow thrown against a noise reducing device by snow ploughing equipment

3.1.11

ploughing speed

speed of the snow ploughing equipment as it passes the noise barrier

3.2 Symbols

$C_e(z)$ exposure coefficient;

C_p pressure coefficient;

d deflection, in millimetres;

$d_{\max}$ maximum deflection, in millimetres;

h total height of elements, in millimetres;

L length of elements, in millimetres;