



# SLOVENSKI STANDARD

## oSIST prEN 14388:2010

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### Protihrupne ovire za cestni promet - Specifikacije

Road traffic noise reducing devices - Specifications

Lärmschutzeinrichtungen an Straßen - Vorschriften

Dispositifs de réduction du bruit du trafic routier - Spécifications

Ta slovenski standard je istoveten z: prEN 14388

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
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**DRAFT**  
**prEN 14388**

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English Version

## Road traffic noise reducing devices - Specifications

Dispositifs de réduction du bruit du trafic routier -  
Spécifications

Lärmschutzeinrichtungen an Straßen - Vorschriften

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.

This draft European Standard was established by CEN 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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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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## Foreword

This document (prEN 14388:2010) 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 14388:2005.

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.

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

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**prEN 14388:2010 (E)****1 Scope**

This document specifies the performance requirements and methods of evaluation for road traffic noise reducing devices. This document covers acoustic, non-acoustic and long term performance, but not aspects such as resistance to vandalism or requirements of visual appearance.

This document covers products used for road traffic noise reduction made from any materials. This document does not cover road surfaces or the airborne sound insulation of houses.

This document does not cover material specific characteristics necessary to meet the performance requirements of the standard. If existing, material specific standards should also apply in accordance with the specifications prescribed hereafter.

**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 1793-1:1997, Road traffic noise reducing devices — Test method for determining the acoustic performance — Part 1: Intrinsic characteristics of sound absorption.

EN 1793-2, Road traffic noise reducing devices — Test method for determining the acoustic performance — Part 2: Intrinsic characteristics of airborne sound insulation under diffuse sound field conditions.

EN 1794-1:2003, Road traffic noise reducing devices — Non-acoustic performance — Part 1: Mechanical performance and stability requirements.

EN 1794-2:2003, Road traffic noise reducing devices — Non-acoustic performance — Part 2: General safety and environmental requirements.

EN 14389-1:2007, Road traffic noise reducing devices — Procedures for assessing long term performance — Part 1 — Acoustical characteristics.

EN 14389-2:2004, Road traffic noise reducing devices — Procedures for assessing long term performance — Non-acoustic characteristics.

EN ISO 9001:2000, Quality managements systems — Requirements (ISO 9001:2000).

CEN/TS 1793-4, Road traffic noise reducing devices — Test method for determining the acoustic performance — Part 4: Intrinsic characteristics — In situ values of sound diffraction.

prEN 1793-6, Road traffic noise reducing devices — Test method for determining the acoustic performance — Part 6: Intrinsic characteristics — In situ values of airborne sound insulation under direct sound field conditions.

**3 Terms and definitions**

For the purposes of this document, the following terms and definitions apply.

**3.1****noise barrier**

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

**3.2****acoustic element**

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

**3.3****structural element**

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

**3.4****cladding**

noise-reducing device, which is attached to a wall or other structure and reduces the amount of sound reflected

**3.5****cover**

noise-reducing device, which either spans or overhangs the highway

**3.6****added device**

added component that influences the acoustic performance of the original noise-reducing device (acting primarily on the diffracted energy)

NOTE Noise barriers, cladding and covers may include both acoustic and structural elements.

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**4 Quantities and units**

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Quantities and units referred to in this document shall be as defined in the corresponding supporting standards cross-referenced in Table 1.

**5 Characteristics****5.1 Evaluation of performance**

Evaluation of performance shall be carried out according to Table 1 for each for all types of noise reducing devices. In order to take into account existing regulations on products where performance(s) for one or more characteristics may not be required, due to the characteristic(s) for a given intended use that is/are not subject to regulation in the Member State(s) where the product is placed on the market, the NPD-option can always be used by manufacturers.

NOTE See Annex ZA for explanation of NPD.

**5.2 Dangerous substances**

Materials used in products shall not release any dangerous substances in excess of the maximum permitted levels specified in a relevant European Standard for the material or permitted in the national regulations of the member state of destination. The requirements of EN 1794-2:2003, Annex C shall apply in conjunction with the requirements of this clause.

Table 1 — Characteristics relevant to different noise reducing devices

Characteristic And relevant supporting standard	Noise barrier	Cladding	Cover	Structural element (if tested separately)	Added device ++
<b>Sound absorption</b> EN 1793-1	E <sub>1</sub>	▲	E <sub>1</sub>	-	-
<b>Airborne sound insulation</b> EN 1793-2 in reverberant fields EN 1793-6 in non-reverberant fields	▲ ▲	- -	▲ ▲	- -	- -
<b>Wind and static Loading</b> EN 1794-1:2003, Annex A	▲	▲	▲	▲	▲
<b>Self weight</b> EN 1794-1:2003, Annex B	▲	▲	▲	▲	▲
<b>Impact of stones</b> EN 1794-1:2003, Annex C	▲	▲	▲	O	▲
<b>Safety in collision (vehicle occupant safety)</b> EN 1794-1:2003, Annex D	O	O	-	O	O
<b>Safety in collision (combined safety and noise barrier)</b> EN 1794-1:2003, Annex D	E <sub>2</sub>	E <sub>3</sub>	-	-	E <sub>3</sub>
<b>Dynamic load from snow clearance</b> EN 1794-1:2003, Annex E	▲	▲	-	▲	▲
<b>Resistance to brush fire</b> EN 1794-2:2003, Annex A	▲	▲	▲	▲	▲
<b>Danger of falling debris</b> EN 1794-2:2003, Annex B	▲	▲	▲	▲	▲
<b>Environmental protection</b> EN 1794-2:2003, Annex C	▲	▲	▲	▲	▲
<b>Means of escape</b> EN 1794-2:2003, Annex D	▲	▲	▲	-	-
<b>Light reflection</b> EN 1794-2:2003, Annex E	▲	▲	▲	▲	▲
<b>Transparency</b> EN 1794-2:2003, Annex F	O	-	O	-	O
<b>Diffraction index improvement</b> CEN/TS 1793-4 - : not applicable	-	-	-	-	▲

▲ : for this characteristic, it is necessary to report the value, or the class, or the fact that no performance is declared.

O : optional.

++ : added device shall be evaluated in combination with the supporting Noise Reducing Device according to its intended use.

E<sub>1</sub> : only applicable if the device is described as sound absorptive.

E<sub>2</sub> : only applicable if classified as a combined safety and noise barrier as defined in EN 1794-1:2003, 4.4 (otherwise optional).

E<sub>3</sub> : only applicable if fixed on combined safety and noise barrier as defined in EN 1794-1:2003, 4.4 (otherwise optional).



### 5.3 Requirements

The manufacturer shall provide the results of tests and/or calculations of the characteristics, in accordance with the appropriate supporting standard listed in Table 2.

The performance shall not be less than the performance stated in material specific European Standards where they exist.

NOTE Although some are already complete, European Standards are under preparation for materials affecting the performance of road traffic noise reducing devices.

**Table 2- Test methods**

Characteristic	Test method
<b>Sound absorption</b> $DL_{\alpha}$ <sup>a c</sup>	EN 1793-1
<b>Sound insulation</b> $DL_R$ <sup>b c</sup> in reverberant fields $DL_{SI}$ <sup>b c</sup> in non-reverberant fields	EN 1793-2 EN 1793-6
<b>Resistance to loads</b> Self weight of an acoustic element: wet, reduced wet or dry as defined in B.2 of EN 1794-1:2003 <sup>c</sup> .	EN 1794-1:2003, Annex B (calculated or tested)
Maximum vertical load an element can withstand in order to fulfil B.3.2 of EN 1794-1:2003 (load from upper elements) <sup>e</sup>	EN 1794-1:2003, Annex B (calculated or tested)
Maximum normal (90°) load an acoustic element can withstand in order to fulfil A.3.3 of EN 1794-1:2003 (wind and static load) <sup>c</sup> .	EN 1794-1:2003, Annex A (calculated or tested)
Maximum normal (90°) load a structural element can withstand in order to fulfil A.3.2 and B.3.3 of EN 1794-1:2003 (wind, static load and self weight) <sup>c</sup> .	EN 1794-1:2003, Annex A and B (calculated or tested)
Maximum bending moment a structural element can withstand in order to fulfil E.2 of EN 1794-1:2003 (dynamic load from snow clearance) <sup>d</sup> .	EN 1794-1:2003, Annex E (calculated or tested)
Maximum normal (90°) load an acoustic element can withstand in order to fulfil E.2 of EN 1794-1:2003 (dynamic load from snow clearance) <sup>c</sup> .	EN 1794-1:2003, Annex E (calculated or tested)
<b>Resistance to brush fire</b> <sup>c</sup>	EN 1794-2:2003, Annex A
<b>Risk of falling debris</b> <sup>c</sup>	EN 1794-2:2003, Annex B
<b>Light Reflectivity:</b> The value of reflectivity measured in accordance with E.3 of EN 1794-2:2003 <sup>c</sup>	EN 1794-2:2003, Annex E
<b>Release of dangerous substances</b>	EN 1794-2:2003, Annex C
<b>Durability</b>	
Acoustic parameters	EN 14389-1:2007
Non acoustic parameters	EN 14389-2:2004
<b>Impact of stones:</b> damages caused by controlled impacts	EN 1794-1:2003, Annex C (tested)
<b>Safety in collision:</b> behaviour under impacts specified in EN 1371-2	EN 1794-1:2003, Annex D
<b>Environmental protection:</b> identification of constituent materials and breakdown products	EN 1794-2:2003, Annex C
<b>Means of escape:</b> Assessment in accordance with supporting standard	EN 1794-2:2003, Annex D
<b>Transparency:</b> Assessment in accordance with supporting standard	EN 1794-2:2003, Annex F

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<b>Sound diffraction</b>	CEN/TS 1793-4
<sup>a</sup> For sound absorptive devices only. <sup>b</sup> Not applicable for cladding. <sup>c</sup> Not applicable when acoustical elements are not included in the product. <sup>d</sup> Not applicable when structural elements are not included in the product. <sup>e</sup> For non-vertical barriers the inclination shall be specified: (e.g. vertical + 15°).	

## 6 Evaluation of conformity

### 6.1 General

The following documentation shall be supplied:

- a) installation instructions shall describe how the product (acoustic element, full noise barrier, etc.) shall be installed in order to be able to achieve the performance measured in the initial type testing;
- b) a maintenance manual shall specify measures which are necessary, or to be avoided, in order to maintain the durability of the acoustic performance, transparency, structural strength etc.

The compliance of a noise-reducing device with the requirements of this document and with the stated values shall be demonstrated by:

- c) initial type testing; [oSIST prEN 14388:2010](https://standards.iteh.ai/catalog/standards/sist/e4833c15-493e-46a9-915f-1efc7b1e1bbc/osist-pren-14388-2010)
- d) factory production control. <https://standards.iteh.ai/catalog/standards/sist/e4833c15-493e-46a9-915f-1efc7b1e1bbc/osist-pren-14388-2010>

### 6.2 Type testing

#### 6.2.1 Initial type testing

Initial type testing shall be performed on first application of this document. Tests previously performed in accordance with provisions of this document (same product, same characteristic(s), test method, sampling procedure, system of attestation of conformity, etc.) may be taken into account. In addition, initial type testing shall be performed at the beginning of the production of a new noise reducing device type or at the beginning of a new method of production where this may affect the stated properties.

One sample shall be tested that shall be representative in all aspects of the normal production of the product.

Where characteristics are determined on the basis of conformity with other product standards, these characteristics need not be reassessed provided that the designer ensures the validity of the results. Products bearing CE marked in accordance with appropriate harmonised European specifications may be presumed to have the performances stated of them, although this does not replace the responsibility of the designer to ensure that the noise reducing device as a whole is correctly designed and its component products have the necessary performance values.

The characteristics listed in the CE mark shall be subject to initial type testing, or by calculation where permitted in the standard, with the exception of:

- release of dangerous substances may be assessed indirectly by controlling the content of the substance concerned.