



**SLOVENSKI STANDARD**  
**oSIST prEN 14388:2022**  
**01-februar-2022**

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**Protihrupne ovire za cestni promet - Značilnosti**

Road traffic noise reducing devices - Characteristics

Lärmschutzvorrichtungen an Straßen - Merkmale

Dispositifs de réduction du bruit du trafic routier - Caractéristiques

**Ta slovenski standard je istoveten z: prEN 14388**

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**ICS:**

17.140.30	Emisija hrupa transportnih sredstev	Noise emitted by means of transport
93.080.30	Cestna oprema in pomožne naprave	Road equipment and installations

**oSIST prEN 14388:2022**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 14388**

December 2021

ICS 93.080.30

Will supersede EN 14388:2015

English Version

## Road traffic noise reducing devices - Characteristics

Dispositifs de réduction du bruit du trafic routier -  
Caractéristiques

Lärmschutzvorrichtungen an Straßen - Merkmale

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

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## European foreword

This document (prEN 14388:2021) 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 14388:2015.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association.

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

For information, EN 14388:2015 replaced EN 14388:2005 and EN 14388:2005/AC:2008, but it was not cited in the EU Official Journal (OJEU).

The main changes in comparison with the previous edition include:

- a clarification of the Scope;
- an improved definition of a Road Traffic Noise Reducing Device;
- a revision of all the supporting standards methods according to this revision; and
- this document has been revised to be in line with the Construction Products Regulation.

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**prEN 14388:2021 (E)****1 Scope**

This document specifies product characteristics for road traffic noise reducing devices (RTNRD) - as defined in 3.1 - to be used alongside roads to reduce the propagation of traffic noise away from the road environment.

The following types of road traffic noise reducing devices are covered by this document:

- noise barriers (as defined in 3.4);
- claddings (as defined in 3.5);
- covers (as defined in 3.6); and
- added devices (as defined in 3.7).

Road traffic noise reducing devices comprise acoustic elements (as defined in 3.2), structural elements (as defined in 3.3) or self-supporting elements (having both acoustic and structural functions).

This document identifies assessment and verification of constancy of performance (AVCP) of characteristics of road traffic noise reducing devices.

This document does not cover the following:

- resistance of RTNRD to vandalism,
- visual appearance of RTNRD, and
- acoustic properties of road pavements.

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**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 1317-1:2010, *Road restraint systems - Part 1: Terminology and general criteria for test methods*

EN 1317-2:2010, *Road restraint systems - Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers including vehicle parapets*

prEN 1793-1:2021<sup>1</sup>, *Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 1: Intrinsic characteristics - Sound absorption under diffuse sound field conditions*

prEN 1793-2:2021<sup>1</sup>, *Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 2: Intrinsic characteristics - Airborne sound insulation under diffuse sound field conditions*

prEN 1793-4:2021<sup>1</sup>, *Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 4: Intrinsic characteristics - Intrinsic sound diffraction*

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<sup>1</sup> Under development.

prEN 1793-5:2021<sup>1</sup>, *Road traffic noise reducing devices - Test method for determining the acoustic performance – Part 5: Intrinsic characteristics - Sound absorption under direct sound field conditions*

prEN 1793-6:2021<sup>1</sup>, *Road traffic noise reducing devices - Test method for determining the acoustic performance – Part 6: Intrinsic characteristics - Airborne sound insulation under direct sound field conditions*

prEN 1794-1:2021, *Road traffic noise reducing devices - Non-acoustic performance – Part 1: Methods of determination of the mechanical and stability characteristics*

prEN 1794-2:2021, *Road traffic noise reducing devices - Non-acoustic performance – Part 2: Methods of determination of the general safety and environmental characteristics*

prEN 14389:2021, *Road traffic noise reducing devices - Procedures for determining long-term performance*

EN 13501-1:2018, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

CEN/TS 15447:2006, *Mounting and fixing in reaction to fire tests under the Construction Products Directive*

CEN/TS 16637-2:2014, *Construction products - Assessment of release of dangerous substances - Part 2: Horizontal dynamic surface leaching test*

### 3 Terms and definitions

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

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

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

#### 3.1

##### **road traffic noise reducing device**

##### **RTNRD**

device designed to reduce the propagation of traffic noise away from the road environment

Note 1 to entry: The RTNRD may comprise acoustic elements (3.2) only or both structural (3.3) and acoustic elements.

Note 2 to entry: Applications of RTNRD include noise barriers (3.4), claddings (3.5), covers (3.6) and added devices(3.7).

#### 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

**prEN 14388:2021 (E)****3.4****noise barrier**

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

**3.5****cladding**

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

**3.6****cover**

road traffic noise reducing device which either spans or overhangs the road

**3.7****added device**

additional component that influences the acoustic performance of the original road traffic noise reducing device

Note 1 to entry: The added device is acting primarily on the diffracted energy.

**4 Characteristics****4.1 Reaction to fire****4.1.1 Determination**

The performance of reaction to fire of RTNRD shall be determined according to 5.1.

**4.1.2 Evaluation criteria**

The reaction to fire performance of RTNRD for the claimed class shall be evaluated according to 5.1 considering the test methods specified in the standards referred therein.

**4.2 Release of dangerous substances****4.2.1 Determination**

The release of dangerous substances of RTNRD shall be determined according to 5.2.

**4.2.2 Evaluation criteria**

The release of dangerous substances of materials or components used in RTNRD shall be evaluated according to 5.2 considering the test methods specified in the standards referred therein.

**4.3 Resistance to wind loads and loads from passing vehicles****4.3.1 Determination**

The performance of resistance to wind loads of RTNRD shall be determined according to 5.3.

**4.3.2 Expression of performance****4.3.2.1 Structural elements**

The length  $L_s$  of the element shall be specified.



The performance of resistance to wind loads of structural elements shall be expressed as indication of a value in kN/m related to the 4 following limits of deflection:  $L_s / 200$ ,  $L_s / 150$ ,  $L_s / 100$ ,  $L_s / 75$ .

EXAMPLE For a length  $L_s$  of 5m; 8, 7, 6, 5 kN/m for the corresponding limits of deflection  $L_s / 200$ ,  $L_s / 150$ ,  $L_s / 100$ ,  $L_s / 75$ .

NOTE For each intended use, the relevant maximum deflection depends on characteristics such as type of foundation, type of panels (e.g. brittle materials may require less deflection), etc.

#### 4.3.2.2 Acoustic elements

The length  $L_A$  of the element and the Safety Factor SF shall be specified.

The performance of resistance to wind loads of acoustic elements shall be expressed as indication of:

— If the sample under test cannot be charged up to a deflection of  $d = 50$  mm:

Normal ( $90^\circ$ ) load  $F_{\text{safe}}$  with the deflection  $d_{\text{safe}}$  and maximum deflection  $d_{\text{max}}$  under the load  $F_{\text{safe}} \cdot \text{SF}$

— If the sample under test can be charged up to a deflection of  $d = 50$  mm:

Normal ( $90^\circ$ ) load  $F_{d50}$  with the deflection of 50 mm and maximum deflection  $d_{\text{max}}$  under the load  $F_{d50} \cdot \text{SF}$

Load values in kN/m<sup>2</sup> and deflection values in mm.

EXAMPLE For a length  $L_s$  of 3,96 m and SF of 2,3;  $F_{\text{safe}} = 1,6$  kN/m<sup>2</sup> and  $d_{\text{max}} = 35$  mm.

### 4.4 Resistance to loads under self-weight

#### 4.4.1 Determination

The performance of resistance to load under self-weight of RTNRD shall be determined according to 5.4.

#### 4.4.2 Expression of performance

The performance of resistance to load under self-weight of RTNRD shall be expressed as indication of a value in kN/m.

EXAMPLE 1 1,6 kN/m.

The dry self-weight, the wet self-weight and the reduced wet self-weight of an acoustic element shall be expressed as indication of a value in kN.

EXAMPLE 2 Dry self-weight: 0,5 kN; wet-self-weight: 0,9 kN; reduced wet self-weight: 0,6 kN

### 4.5 Substitute load due to dynamic actions from snow clearance

#### 4.5.1 Determination

The performance of substitute load due to dynamic actions from snow clearance of RTNRD shall be determined according to 5.5.

#### 4.5.2 Expression of performance

The performance of substitute load due to dynamic actions from snow clearance of RTNRD shall be expressed as indication of a value in kN/m<sup>2</sup>.

EXAMPLE 1,6 kN/m<sup>2</sup>.

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## 4.6 Resistance to dynamic loads from impact of stones

### 4.6.1 Determination

The performance of resistance to dynamic loads from impact of stones of RTNRD shall be determined according to 5.6.

### 4.6.2 Evaluation criteria

The results obtained shall be evaluated against the criteria in Table 1:

**Table 1 — Evaluation criteria for *resistance to dynamic loads from impact of stones***

Object of the evaluation	Criteria
Outer parts of the construction	No damage
Internal elements	No damaged or displacement
Outer wall of hollow elements	No penetration
Localised damage in the form of splits	Not greater than 50 mm
Depth of any crater at the surface of brittle materials (craters: where fragments are broken out):	Less than the thickness of the outer wall or 20 mm, whichever is smaller

### 4.6.3 Expression of performance

If all criteria in 4.8.2 are met, the performance of resistance to dynamic loads from impact of stones of RTNRD shall be expressed as indication of “stone resistant”.

## 4.7 Resistance to dynamic loads: risk of falling debris

### 4.7.1 Determination

The performance of resistance to dynamic loads from impacts of RTNRD shall be determined according to 5.7.

### 4.7.2 Evaluation criteria

The results obtained shall be evaluated against the criteria in Table 2:

**Table 2 — Evaluation criteria for *resistance to dynamic loads : risk of falling debris***

Object of the evaluation	Criteria
Free pieces	None: if any, see below
Free pieces weighting more than 0,400 kg	None
Free pieces weighting more than 0,100 kg	Not longer than 15 cm, and area not greater than 25 cm <sup>2</sup> , and with angles of less than 15°, and not thinner than 1mm

### 4.7.3 Expression of performance

The performance shall be expressed as a level according to Table 3:

**Table 3 — Expression of performance for resistance to dynamic loads : risk of falling debris**

Level	Test energy <sup>a</sup> , kJ	Criteria
4	6,0	No free pieces
3	6,0	Free pieces meeting all the criteria of table 2
2	0,5	No free pieces
1	0,5	Free pieces meeting all the criteria of table 2
<sup>a</sup> See 5.7.		

## 4.8 Safety in collision

### 4.8.1 Determination

When the functions of noise barrier and safety barrier are integrated in one system, the safety in collision shall be determined according to 5.8.

### 4.8.2 Evaluation criteria

The safety in collision of RTNRD shall be evaluated according to 5.8 considering the test methods specified in the standards referred therein.

## 4.9 Safety in case of brushwood fire

### 4.9.1 Determination

The safety in case of brushwood fire shall be determined according to 5.9.

### 4.9.2 Expression of performance

The results of tests for brushwood fire shall be evaluated according to criteria in Table 4, and the performance expressed as a class specified therein.

**Table 4 — Expression of performance for safety in case of brushwood fire**

Level	Criteria
1	the panel has been damaged to a greater extent than as defined for levels 2 and 3
2	the damaged area above either source is less than 0,06 m <sup>2</sup> and extends to no more than 200 mm above the base of the panel, and the panel has not been burnt through to the other side
3	no damage other than discoloration

## 4.10 Light reflection

### 4.10.1 Determination

The performance of light reflection of RTNRD shall be determined according to 5.10.

### 4.10.2 Expression of performance

The results of light reflection shall be evaluated according to criteria in Table 5, and the performance expressed as a level specified therein.