



SLOVENSKI STANDARD

SIST EN 1794-1:2025

01-januar-2025

Nadomešča:

SIST EN 1794-1:2018+AC:2019

Protihrupne ovire za cestni promet - Neakustične lastnosti - 1. del: Metode ugotavljanja stabilnosti in mehanskih značilnosti

Road traffic noise reducing devices - Non-acoustic performance - Part 1: Methods of determination of the mechanical and stability characteristics

Lärmschutzvorrichtungen an Straßen - Nichtakustische Eigenschaften - Teil 1: Mechanische Eigenschaften und Anforderungen an die Standsicherheit

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

Ta slovenski standard je istoveten z: **EN 1794-1:2024**

<https://standards.iteh.ai/catalog/standards/sist/26fee415-4ee6-446c-8a1d-66abfdb7bf7c/sist-en-1794-1-2025>

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

SIST EN 1794-1:2025

en,fr,de

EUROPEAN STANDARD

EN 1794-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2024

ICS 93.080.30

Supersedes EN 1794-1:2018+AC:2018

English Version

Road traffic noise reducing devices - Non-acoustic performance - Part 1: Methods of determination of the mechanical and stability characteristics

Dispositifs de réduction du bruit du trafic routier - Performances non acoustiques - Partie 1 : Méthode de détermination des caractéristiques mécaniques et de stabilité

Lärmschutzvorrichtungen an Straßen - Nichtakustische Eigenschaften - Teil 1: Verfahren zur Bestimmung mechanischer Eigenschaften der Standsicherheit

This European Standard was approved by CEN on 9 September 2024.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/26fee415-4ee6-446c-8a1d-66abfdb7bf7c/sist-en-1794-1-2025>



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

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

Contents

Page

European foreword.....	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms, definitions and symbols.....	6
3.1 Terms and definitions	6
3.2 Symbols.....	8
4 Characteristics	8
4.1 General.....	8
4.2 Horizontal loads	8
4.3 Resistance to loads under self-weight.....	9
4.4 Impact of stones.....	9
4.5 Safety in collision	9
4.6 Substitute load due to dynamic actions from snow clearance.....	9
5 Test report.....	9
Annex A (normative) Resistance to horizontal loads.....	10
A.1 General.....	10
A.2 Determination of the characteristics.....	10
A.3 Performance of structural elements.....	14
A.4 Performance of acoustic elements.....	14
A.5 Self-supporting elements	15
A.6 Report template for resistance to horizontal loads	16
Annex B (normative) Resistance to loads under self-weight	18
B.1 General.....	18
B.2 Determination of self-weight.....	18
B.3 Vertical loads due to self-weight of acoustic elements.....	18
B.4 Test reports.....	19
Annex C (normative) Resistance to dynamic loads from impact of stones	21
C.1 General.....	21
C.2 Characteristics	21
C.3 Test method	22
C.4 Test report.....	23
Annex D (informative) Safety in collision.....	24
D.1 General.....	24
Annex E (normative) Load from snow clearance.....	25

E.1	General	25
E.2	Characteristics	25
E.3	Methods of determination	26
E.4	Test report	26
	Annex F (normative) Report template	28
	Bibliography	29

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[SIST EN 1794-1:2025](https://standards.iteh.ai/catalog/standards/sist/26fee415-4ee6-446c-8a1d-66abfdb7bf7c/sist-en-1794-1-2025)

<https://standards.iteh.ai/catalog/standards/sist/26fee415-4ee6-446c-8a1d-66abfdb7bf7c/sist-en-1794-1-2025>

EN 1794-1:2024 (E)

European foreword

This document (EN 1794-1:2024) 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 2025, and conflicting national standards shall be withdrawn at the latest by April 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1794-1:2018+AC:2018.

EN 1794-1:2024 includes the following significant technical change with respect to EN 1794-1:2018+AC:2018:

- Annex A: the acceptance criteria for the resistance against horizontal loads given in the previous version of this standard have been transferred to EN 14388.

This document is part of the EN 1794 series, which consists of the following parts under the general title “Road traffic noise reducing devices — Non-acoustic performance”:

- *Part 1: Methods of determination of the mechanical and stability characteristics;*
- *Part 2: Methods of determination of the general safety and environmental characteristics.*

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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 can 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.

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

[SIST EN 1794-1:2025](https://standards.itih.ai/catalog/standards/sist/26fee415-4ee6-446c-8a1d-66abfdb7bf7c/sist-en-1794-1-2025)

<https://standards.itih.ai/catalog/standards/sist/26fee415-4ee6-446c-8a1d-66abfdb7bf7c/sist-en-1794-1-2025>

EN 1794-1:2024 (E)

1 Scope

This document specifies criteria to categorize road traffic noise reducing devices according to basic mechanical characteristics under standard conditions of exposure, irrespective of the materials used. A range of conditions and optional requirements is provided in order to take into account the wide diversity of practice in Europe. Individual aspects of performance are covered separately in the annexes. Safety considerations in the event of damage to road noise reducing devices are covered in EN 1794-2.

This document covers the current behaviour of the product. For the assessment of its long-term characteristics, EN 14389 is applicable.

NOTE The test procedure described in Annex A does not consider the fatigue effect.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes a requirement 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, *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 including vehicle parapets*

3 Terms, definitions and symbols

3.1 Terms and definitions

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

3.1.1

road traffic noise reducing device

RTNRD

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

Note 1 to entry: RTNRDs can comprise *acoustic elements* (3.1.2) only, or both *structural* (3.1.3) and *acoustic elements*.

Note 2 to entry: Applications of RTNRDs include *noise barriers* (3.1.5), *claddings* (3.1.6), *covers* (3.1.7) and *added devices* (3.1.8).

3.1.2

acoustic element

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

3.1.3

structural element

element whose primary function is to support or hold in place the parts of the RTNRD

3.1.4

self-supporting acoustic element

acoustic element including its own structural element to support itself

3.1.5**noise barrier**

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

3.1.6**cladding**

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

3.1.7**cover**

noise-reducing device which either spans or overhangs the road

3.1.8**added device**

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

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

3.1.9**test area**

central area of a full-size panel enclosed by a margin of 125 mm from each edge

Note 1 to entry: As shown in Figure C.2.

3.1.10**combined safety and noise barrier**

RTNRD which fulfils all the requirements for safety barriers in a given containment class as defined in EN 1317-2

3.1.11**substitute load due to dynamic actions from snow clearance**

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

3.1.12**ploughing speed**

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

3.1.13**maximum load**

maximum load (in kN/m², kN/m, kN) that the sample can withstand with fulfilment of specified criteria

EN 1794-1:2024 (E)

3.2 Symbols

For the purposes of this document, the following symbols apply.

h	total height of the noise barrier, in millimetres
L	length of elements, in millimetres
L_S	bearing length of structural element, in millimetres
L_A	length of acoustic element, in millimetres
F_{safe}	maximum load the element can withstand, declared by the manufacturer and tested, in kN/m ²
F_{d50}	load that corresponds to a deflection of 50 mm, in kN/m ²
$F_{permanent_{L_A/500}}$	load that corresponds to a permanent deflection of $L_A/500$, in kN/m ²
d	deflection, in millimetres
d_{hmax}	horizontal maximum deflection, in millimetres
d_{vmax}	vertical maximum deflection, in millimetres
$d_{selfweight}$	deflection of the sample in horizontal position under its own weight
d_{safe}	deflection after having applied the F_{safe} load
$d_{permanent}$	permanent deflection after charge
d_{50}	deflection of 50 mm
γ_g	partial factor for permanent actions, also accounting for model uncertainties and dimensional variations
γ_q	partial factor for actions, also accounting for model uncertainties and dimensional variations
γ	load factor
SF	safety factor

4 Characteristics

4.1 General

Under any of the loads specified in this Clause 4, it shall be reported whether elements become detached from their supports or fixings fail.

The influence of inhomogeneity shall be considered in the relevant verifications according to the specific Eurocodes.

All failure modes and deformation which may cause transient or permanent disorders should be considered. These modes can affect the overall behaviour of the structure or the behaviour of some elements.

4.2 Horizontal loads

Horizontal loads can be due to wind load and load due to passing vehicles.

The manufacturer shall provide the result of the assessments done according to the methods described in Annex A.

4.3 Resistance to loads under self-weight

The manufacturer shall provide the dry and wet (or reduced wet) weight according to Annex B.

The manufacturer shall provide the vertical load the product can withstand under the self-weight, as calculated or tested in Annex B, with reference to the requirements specified in Annex B.

4.4 Impact of stones

Damage caused by controlled impacts shall be tested in accordance with Annex C.

4.5 Safety in collision

When the functions of noise barrier and safety barrier are integrated in one system, the safety in collision shall be tested in accordance with EN 1317-1 and EN 1317-2. See also informative Annex D.

4.6 Substitute load due to dynamic actions from snow clearance

The effects of dynamic forces from snow clearance shall be tested in accordance with Annex E, where required or specified.

5 Test report

A test report shall be produced and shall include the following information:

- a) number and year of this document, i.e. EN 1794-1:2024;
- b) full description of the test specimen including manufacturers name and product identifier with sectional drawings and photographs showing mounting conditions; masses, densities, dimensions and specifications of panels, posts and seals, including any internal components.
- c) description of the method of sampling, if parts of manufactured elements are evaluated by testing;
- d) place and date of the test, and the name of the relevant responsible person(s);
- e) sufficient description of any tests carried out, any results measured together with any illustrations or photographs, all as specified in the appropriate annex.

The test report shall follow the template given in Annex F.