



SLOVENSKI STANDARD

SIST EN 1343:2001

01-april-2001

Robniki iz naravnega kamna za zunanje tlakovanje - Zahteve in preskusne metode

Kerbs of natural stone for external paving - Requirements and test methods

Bordsteine aus Naturstein für Außenbereiche - Anforderungen und Prüfverfahren

Bordures de pierre naturelle pour le pavage extérieur - Exigences et méthodes d'essai

Ta slovenski standard je istoveten z: **EN 1343:2000**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1343

January 2000

ICS 93.080.20

English version

Kerbs of natural stone for external paving - Requirements and test methods

Bordures de pierre naturelle pour le pavage extérieur -
Exigences et méthodes d'essai

Bordsteine aus Naturstein für Außenbereiche -
Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 22 August 1999.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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 178 "Paving units and kerbs", the secretariat of which is held by BSI

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of an identical text or by endorsement, at the latest by July 2000, and conflicting national standards shall be withdrawn at the latest by July 2000.

This European Standard 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).

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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1 Scope

This European Standard specifies the performance requirements and the corresponding test methods for natural stone kerbs, for external use.

It provides for product marking and for the evaluation of conformity of the product to this European Standard.

This European Standard covers also characteristics that are of importance to the trade.

It does not cover the effect of de-icing salts.

2 Normative References

This Standard does not contain any normative references.

3 Definitions

For the purposes of this standard the following definitions apply.

3.1

kerb

Unit greater than 300 mm in length, commonly used as edging to a road or footpath. (See Figure 1.)

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3.1.1

concave kerb

Kerb, curved in plan with a concave face.

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3.1.2

convex kerb

Kerb, curved in plan with a convex face.

3.1.3

textured kerb

Kerb with a modified appearance resulting from one or several mechanical or thermal surface treatments.

3.2

upper face

Surface of a kerb intended to be seen when in use.

3.3

actual dimension

Any dimension of a kerb as measured.

3.4

work dimension

Any size of a kerb as specified.

3.5**overall length**

The longer side of the rectangle with the smallest length able to enclose a straight kerb. This only applies to straight kerbs. The overall length of a curved kerb is measured on the visible face. (See Figure 2.)

3.6**overall width**

The shorter side of the rectangle with the smallest area able to enclose the kerb. This only applies to straight kerbs. The overall width of a curved kerb is the widest point of the cross-section of the kerb. (See Figure 2.)

3.7**height**

Distance between the upper face and the bedface of the kerb.

3.8**batter**

Intended deviation from the vertical of the traffic face of a kerb.

3.9**fine textured**

Surface treatment with a maximum difference of 0,5 mm between peaks and depressions (for example polished, honed or sawn with a diamond disc or blade).

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3.10**honed**

Dull polish or matt surface.

3.11**coarse textured**

Surface treatment with more than 2 mm difference between peaks and depressions (for example dolly pointed, tooled, shot blasted or flame textured).

3.12**dolly pointed**

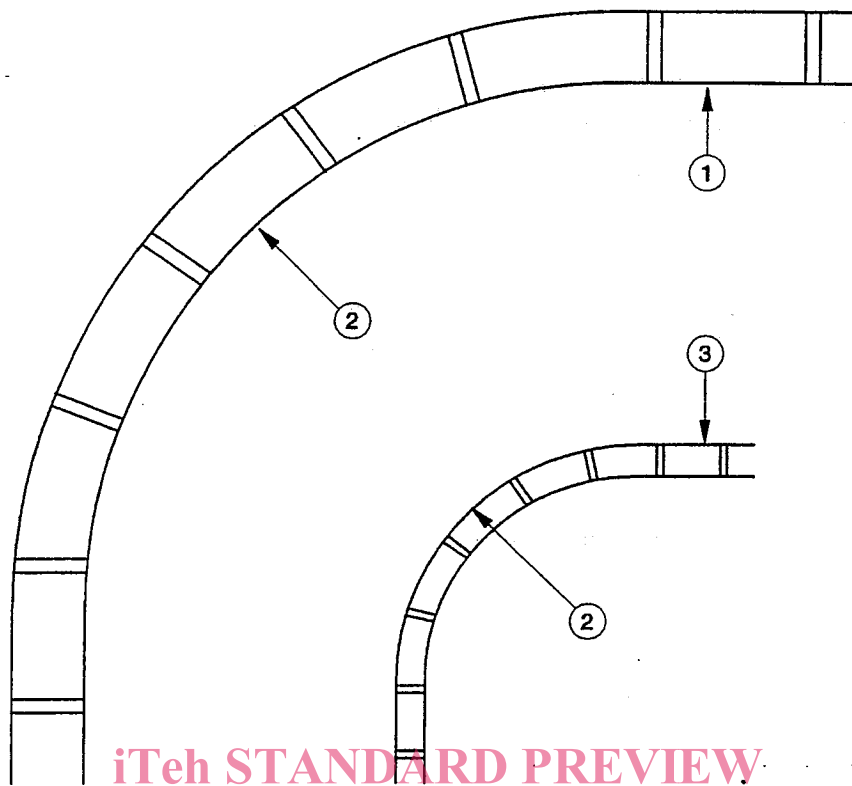
Finish consisting of peaks and depressions, achieved by using a four pointed dolly bit.

3.13**tooled**

Finish resulting from mechanical surface treatment and showing tool marks.

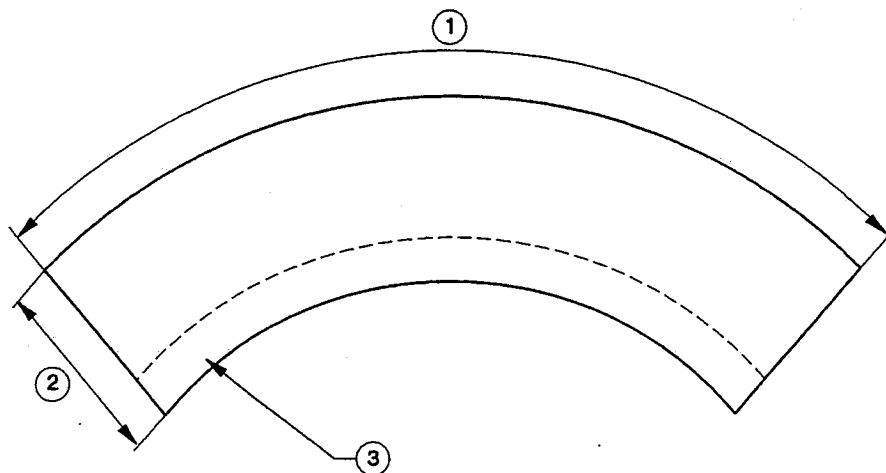
3.14**hewn**

Unworked, as-riven surface.



1. Inner radius concave front place
2. Radius
3. Outer radius convex front face

Figure 1 : Diagram showing convex and concave kerbs



1. Overall length
2. Overall width
3. Battered or chamfered

Figure 2 : An example of a curved kerb showing the overall length and width

4 Requirements

4.1 General

Unless otherwise stated, kerbs shall be supplied in free running lengths. For curved kerbs the length is the greater diameter. The manufacturer shall state the maximum working length of a kerb unit.

The ends of curved kerbs shall be radial.

Curved kerbs shall be identified by the radius of the vertical face. The overall length of a number of curved kerbs shall be measured without the joints on the edge common to the visible faces.

The minimum length of curved kerbs shall be 500 mm.

Nominally square arises may have a chamfer with vertical and horizontal dimensions not exceeding 2 mm. The dimensions of larger chamfers, radiused corners and splays, when used, shall be declared by the supplier. Examples of typical kerb cross—sections are shown in Figure 3.

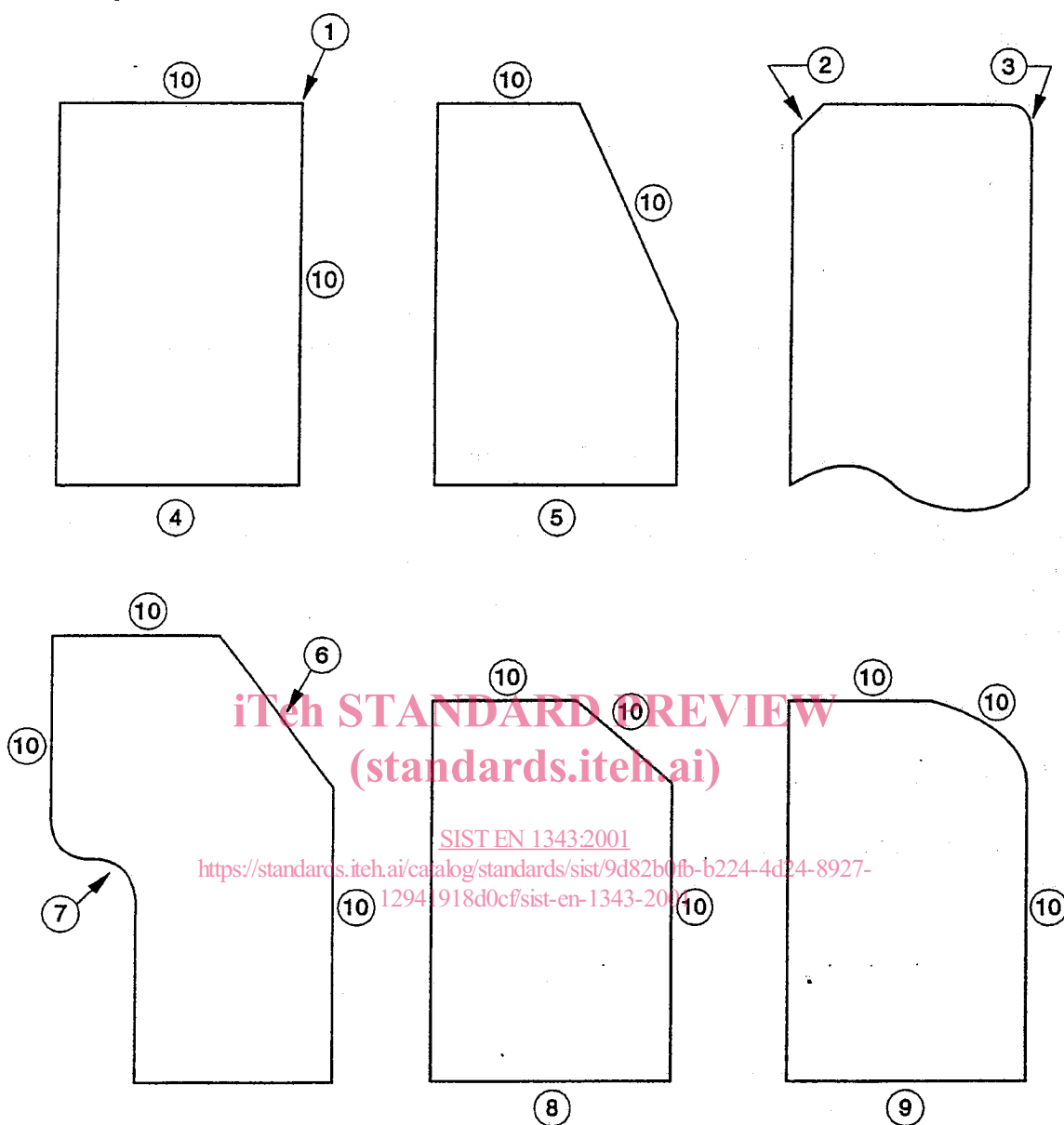
4.2 Permissible deviations

4.2.1 Overall width and height

When measured in accordance with normative annex A.3.1, the permissible deviation from the overall width and height as laid, declared by the supplier, shall conform to Table 1.

Table 1 : Deviation on nominal overall width and height

Location	Width	Height	
		Class 1	Class 2
Marking Designation		H1	H2
Between two hewn faces	± 10 mm	± 30 mm	± 20 mm
Between one textured face and one hewn face	± 5 mm	± 30 mm	± 20 mm
Between two textured faces	± 3 mm	± 10 mm	± 10 mm



1. There may be a nominal chamfer or radius in this corner (see 4.1)
2. Chamfer
3. Radius
4. Rectangular
5. Battered
6. Chamfered or splayed
7. Undercut
8. Chamfered or splayed
9. Radiused
10. Face

Figure 3 : Examples of typical kerb cross—sections

4.2.2 *Batter*

When measured in accordance with normative annex A.3.2, the permissible deviation on batter for battered kerbs shall conform to Table 2.

Table 2 : Deviation on batter

	Class 1	Class 2
Marking designation	D1	D2
Sawn	± 5 mm	± 2 mm
Hewn	± 15 mm	± 15 mm
Textured	± 5 mm	± 5 mm

4.2.3 *Deviations of faces (straight kerbs only)*

When measured in accordance with normative annex A.3.3, the permissible deviation on the faces of nominally straight kerbs shall conform to Table 3.

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Table 3 : Deviation on faces of straight kerbs

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	Hewn	Textured
Edge straightness parallel to the plane of the top face	± 6 mm	± 3 mm
Edge straightness perpendicular to the plane of the top 3 mm	± 6 mm	± 3 mm
Perpendicularity between the top and front faces, when Nominally square	± 10 mm — 15 mm	± 7 mm — 10 mm
Distortion of the top face	± 10 mm	± 5 mm
Perpendicularity between the top face and the end surface	All kerbs ± 5 mm	

4.2.4 *Radius (curved kerbs only)*

When measured in accordance with normative annex A.3.4, the radius of hewn or textured kerbs to the tooled face shall be within 2 % of the declared value.

4.2.5 *Face irregularities*

The face of kerbs shall be free from drill holes.

When measured in accordance with normative annex A.3.5, the limits on surface protrusions and cavities shall conform to Table 4.

Table 4 : Deviation on face irregularities

Hewn	+ 10 mm, — 15 mm
Coarse textured	+ 5 mm, — 10 mm
Fine textured	+ 3 mm, — 3 mm

4.3 Freeze/thaw resistance

The producer shall declare the freeze/thaw resistance of the stone in accordance with Table 5. If possible the stone shall be tested in accordance with normative annex B and reported as the minimum value (number of cycles before failure occurs) expected for individual specimens. If there is no requirement for freeze/thaw resistance or no performance has been determined, then this shall be stated.

NOTE Reasons that would make it impossible to carry out the test in annex B include time constraints and non-availability of suitable equipment.

Table 5 : Freeze/thaw resistance

Class	Class 0	Class 1
Marking designation	F0	F1
Requirement	No requirements for freeze/thaw resistance	Resistant

4.4 Flexural strength

The producer shall declare a flexural strength (in MPa) as the minimum value expected for individual test specimens when tested in accordance with normative annex C. If no performance has been determined this shall be stated.

NOTE Guidance on the appropriate breaking load for different classes of use is given in informative annex J.

4.5 Aspects

4.5.1 Appearance

Stone is a naturally occurring material giving rise to variations in colour, veining and texture, therefore general characteristics of the appearance may be given by one or more specimens (see 4.5.2).

4.5.2 Reference sample

A reference sample shall be a number of pieces of kerb of natural stone of sufficient size to indicate the appearance of the finished work and the approximate appearance regarding the colouring, the vein pattern, the physical structure and face finish.

It shall show the general tonality and finish of the natural stone, but does not imply any total uniformity in colour and veins between the sample and supply.

The reference sample shall be provided and delivered to the customer as an indication to show specific characteristic such as glass seams, spots, holes for travertine, worm holes for marble, crystalline veins and rusty spots of the offered materials.

NOTE These characteristics should not be considered as flaws and should not be used as a reason for rejection.

The name and address of the producer or the supplier shall be indicated on the sample as well as identification of the material including trade name, petrographic name, country of origin and extraction area.

Reference samples shall also show the surface finish proposed.

Any comparison between test and reference samples shall be carried out in accordance with normative annex D.

4.6 Water absorption

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When required the producer shall declare the water absorption (% by mass) as the maximum value expected for individual specimens when tested in accordance with normative annex E.

4.7 Petrographical description

The producer shall provide a petrographical description, including a petrographic name of the stone type, in accordance with normative annex F.

4.8 Chemical surface treatment

The producer/supplier shall declare if the product has been subjected to a chemical surface treatment and what the treatment was.

5 Evaluation of conformity

5.1 General

The producer or supplier shall demonstrate compliance of his product, either new or existing, with the requirements of this standard and with the declared values or classes for the product properties by carrying out initial type testing and factory production control.

The value declared by the producer or supplier shall be representative of the current production, for example the lowest expected value or the minimum test value in normal production.

5.2 Initial type tests

When a product shall first demonstrate conformity with this standard, for example when a new product type is developed, and before offering it for sale, appropriate tests shall be carried out to confirm that the properties of the product meet the requirements of this standard and the values to be declared for it by the producer. Whenever a significant change occurs in the raw material or the production process which could change the properties of the finished product, this shall be considered as constituting a new product type.

The type tests shall be the reference tests called up in this standard for the properties selected from the following list consistent with the product type's intended use:

- Dimensions
- Flatness of surface
- Freeze/thaw resistance
- Flexible strength
- Aspects (for example visual appearance)
- Water absorption
- Petrographic description [SIST EN 1343:2001](https://standards.iteh.ai/catalog/standards/sist/9d82b0fb-b224-4d24-8927-12941918d0cf/sist-en-1343-2001)
- Surface treatment [12941918d0cf/sist-en-1343-2001](https://standards.iteh.ai/catalog/standards/sist/9d82b0fb-b224-4d24-8927-12941918d0cf/sist-en-1343-2001)

The results of the initial tests shall be recorded.

5.3 Factory production control

A factory production control system shall be established and documented prior to commencing production. The factory production control system shall consist of procedures for the internal control of production to ensure that products placed on the market conform with this standard and the manufacturer's declared values.

The internal control shall consist of regular inspection checks and tests and the utilisation of the results to control incoming materials, equipment, the production process and the finished product.

5.3.1 Raw materials

Specifications of all incoming materials and the procedures to be operated to ensure that they comply shall be documented.

5.3.2 *Production process*

The relevant features of the plant and the production process shall be defined, giving the frequency of the inspection checks and tests, together with the criteria required both on equipment and on work in progress. The action to be taken when control values or criteria are not met shall be given. Weighing and measuring equipment shall be calibrated and the procedure, frequency and criteria stated.

5.3.3 *Finished product testing*

A sampling plan for the testing of finished products shall be defined and the results shall be recorded and available for inspection. When alternative tests to the reference tests are used for the test procedure their correlation to the reference test shall be available for inspection. All test equipment shall be calibrated and the procedure, frequency and criteria stated.

5.3.4 *Stock control*

The stock control of finished products, together with procedures for dealing with non—conforming products, shall be detailed.

6 Acceptance criteria

6.1 Sampling

The sampling procedure from a batch to establish its conformity to this standard and the manufacturer's declared range of values shall be in accordance with normative annex G.

6.2 Conformity criteria

6.2.1 *Dimensions*

When tested in accordance with normative annex A, the mean value of the measurements taken of any one dimension on a single kerb shall not vary from the manufacturer's declared work dimension by more than the permissible deviations given in 4.2.1 and 4.2.2 for the declared class.

6.2.2 *Flatness*

When tested in accordance with normative annex A, the mean value of the measurements of the deviation from a plane shall not exceed the value given in 4.2.3 and 4.2.4.

6.2.3 *Freeze/thaw resistance*

When tested in accordance with normative annex B the results for all of the test specimens shall be not less than the declared value.