



# SLOVENSKI STANDARD

## oSIST prEN 196-1:2026

01-oktober-2026

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### Metode preskušanja cementa - 1. del: Določanje trdnosti

Methods of testing cement - Part 1: Determination of strength

Prüfverfahren für Zement - Teil 1: Bestimmung der Festigkeit

Méthodes d'essais des ciments - Partie 1: Détermination des résistances

Ta slovenski standard je istoveten z: prEN 196-1

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#### ICS:

91.100.10      Cement. Mavec. Apno. Malta    Cement. Gypsum. Lime.  
Mortar

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en,fr,de

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 196-1**

August 2026

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English Version

**Methods of testing cement - Part 1: Determination of  
strength**

Méthodes d'essais des ciments - Partie 1:  
Détermination des résistances

Prüfverfahren für Zement - Teil 1: Bestimmung der  
Festigkeit

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 51.

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**prEN 196-1 (E)****European foreword**

This document (prEN 196-1:2026) has been prepared by Technical Committee CEN/TC 51 "Cement and building limes", the secretariat of which is held by NBN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 196-1:2016.

EN 196-1:2026 includes the following significant technical changes with respect to EN 196-1:2016:

- procedure for adding water to the containers, "Curing of specimens in water" ([9.3](#)).
- in [12.2.2.1](#), the inclusion of limits for clay content and water-soluble chloride in the standard sand during Initial Certification Testing.

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## 1 Scope

This document specifies the equipment and procedure for the preparation and curing of a standard mortar to be used for the determination of the compressive and flexural strength of a common cement in accordance with EN 197-1.

The determination of compressive or flexural strength can be carried out at different curing ages.

The document also describes an alternative method for the compaction of the standard mortar, which can be considered equivalent.

In addition, the document specifies the characteristics of a CEN reference sand and the minimum requirement and the acceptance procedure for the CEN standard sand.

In the case of a dispute, only the reference methods or reference sand can be used.

The same equipment and procedures can be used for other types of cement or materials; in some cases, modifications to the procedure are also permitted, provided that this standard and/or the modifications are referenced in the relevant product standards.

## 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 196-7, *Methods of testing cement — Methods of taking and preparing samples of cement*

EN 197-1, *Cement — Part 1: Composition, specifications and conformity criteria for common cements*

EN 1744-1, *Tests for chemical properties properties of aggregates - Part 9: Chemical analysis*

EN ISO 1302, *Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation (ISO 1302:2002)*

EN ISO 7500-1, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines - Verification and calibration of the force-measuring system (ISO 7500-1:2004)*

ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

ISO 1101, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 4200, *Plain end steel tubes, welded and seamless; general tables of dimensions and masses per unit length*

## 3 Terms and definitions

No terms and definitions are listed in this document.

## 4 Principle

The method comprises the determination of the compressive, and optionally the flexural, strength of prismatic test specimens 40 mm × 40 mm × 160 mm in size.

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These specimens are cast from a batch of plastic mortar containing one part by mass of cement, three parts by mass of CEN Standard sand and one half part of water (water/cement ratio 0,50). CEN Standard sands from various sources and countries may be used provided that they have been shown to give cement strength results which do not differ significantly from those obtained using the CEN Reference sand (see [Clause 11](#)).

In the reference procedure the mortar is prepared by mechanical mixing and is compacted in a mould using a jolting apparatus. Alternative compaction equipment and procedures may be used provided that they have been shown to give cement strength results which do not differ significantly from those obtained using the reference jolting apparatus and procedure (see [Clause 11](#) and [Annex A](#)).

The specimens are stored in the mould in a moist atmosphere for 24 h and, after demoulding, specimens are stored under water until strength testing.

At the required age, the specimens are taken from their wet storage, broken in flexure, determining the flexural strength where required, or broken using other suitable means which do not subject the prism halves to harmful stresses, and each half tested for strength in compression.

## 5 Laboratory and equipment

### 5.1 Laboratory

The laboratory where preparation of specimens takes place shall be maintained at a temperature of  $(20 \pm 2) ^\circ\text{C}$  and a relative humidity of not less than 50 %.

The moist air room or the large cabinet for storage of the specimens in the mould shall be maintained at a temperature of  $(20,0 \pm 1,0) ^\circ\text{C}$  and a relative humidity of not less than 90 %.

NOTE 1 If the moulds are stored in a cabinet and sealed with grease, preventing any evaporation, it is sufficient to store an open water reservoir in the basement of the cabinet.

NOTE 2 The cabinet is a lockable cupboard or box in which the moulds are stored; it is usually kept closed and only opened for storing or removing moulds

The storage containers for curing the specimens in water, and the grates with which they are fitted, shall be of material which does not react with cement. The temperature of the water shall be maintained at  $(20,0 \pm 1,0) ^\circ\text{C}$ .

The temperature and relative humidity of the air in the laboratory and the temperature of the water in the storage containers shall be recorded at least once a day during working hours. The temperature and relative humidity of the moist air room or cabinet shall be recorded at least every 4 h.

Cement, CEN Standard sand (see [6.1.3](#)), water and apparatus used to make and test specimens shall be at a temperature of  $(20 \pm 2) ^\circ\text{C}$ .

Where temperature ranges are given, the target temperature at which the controls are set shall be the middle value of the range.

### 5.2 General requirements for the equipment

The tolerances shown in [Figure 1](#) to [Figure 5](#) are important for correct operation of the equipment in the testing procedure. When regular control measurements show that the tolerances are not met, the equipment shall be rejected, adjusted or repaired. Records of control measurements shall be kept.

Acceptance measurements on new equipment shall cover mass, volume, and dimensions to the extent that these are indicated in this document paying particular attention to those critical dimensions for which tolerances are specified.

In those cases where the material of the equipment can influence the results, the material is specified and shall be used.

The approximate dimensions shown in the figures are provided as guidance to equipment manufacturers or operators. Dimensions, which include tolerances, are obligatory.

### 5.3 Test sieves

Wire cloth test sieves conforming to ISO 3310-1 shall be of the sizes from ISO 565 given in [Table 1](#) (series R 20).

**Table 1 — Aperture of test sieves**

| Square mesh size (mm) |      |      |      |      |      |
|-----------------------|------|------|------|------|------|
| 2,00                  | 1,60 | 1,00 | 0,50 | 0,16 | 0,08 |

### 5.4 Mixer

The mixer shall consist essentially of:

- 1) a stainless steel bowl with a capacity of about 5 l of the typical shape and size shown in [Figure 1](#), provided with means by which it can be fixed securely to the mixer frame during mixing and by which the height of the bowl in relation to the blade and, to some extent, the gap between blade and bowl can be finely adjusted and fixed;
- 2) a stainless steel blade of the typical shape, size and tolerances shown in [Figure 1](#), revolving about its own axis as it is driven in a planetary movement around the axis of the bowl at controlled speeds by an electric motor. The two directions of rotation shall be opposite and the ratio between the two speeds shall not be a whole number.

Blades and bowls shall form sets which shall always be used together.

The gap of  $(3 \pm 1)$  mm refers to the situation when the blade in the empty bowl shown in [Figure 1](#) is brought as close as possible to the wall. This gap shall be checked regularly applying minimal pressure to the blade and assuring that there is no perceptible clearance between the joint of the blade and the axis of the motor.

NOTE 1 Simple tolerance gauges (feeler gauges) are useful where direct measurement is difficult.

NOTE 2 The dimensions marked as approximate on [Figure 1](#) are for the guidance of manufacturers.

The mixer shall operate at the speeds given in [Table 2](#) when mixing the mortar.

**Table 2 — Speeds of mixer blade**

|            | Rotation around its own axis | Planetary movement |
|------------|------------------------------|--------------------|
|            | min <sup>-1</sup>            | min <sup>-1</sup>  |
| Low speed  | 140 ± 5                      | 62 ± 5             |
| High speed | 285 ± 10                     | 125 ± 10           |