



SLOVENSKI STANDARD

SIST EN 12697-30:2019

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Nadomešča:

SIST EN 12697-30:2012

Bitumenske zmesi - Preskusne metode - 30. del: Priprava preskušancev z udarnim zgoščevalnikom

Bituminous mixtures - Test methods - Part 30: Specimen preparation by impact compactor

Asphalt - Prüfverfahren - Teil 30: Probenvorbereitung, Marshall-Verdichtungsgerät

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Mélanges bitumineux - Méthodes d'essai - Partie 30: Confection d'éprouvettes par compacteur à impact

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ICS:

93.080.20 Materiali za gradnjo cest Road construction materials

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EUROPEAN STANDARD

EN 12697-30

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2018

ICS 93.080.20

Supersedes EN 12697-30:2012

English Version

Bituminous mixtures - Test methods - Part 30: Specimen preparation by impact compactor

Mélanges bitumineux - Méthodes d'essai - Partie 30:
Confection d'éprouvettes par compacteur à impact

Asphalt - Prüfverfahren - Teil 30: Probenvorbereitung,
Marshall-Verdichtungsgerät

This European Standard was approved by CEN on 9 November 2018.

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.

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

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

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European foreword

This document (EN 12697-30:2018) has been prepared by Technical Committee CEN/TC 227 “Road materials”, 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 June 2019 and conflicting national standards shall be withdrawn at the latest by June 2019.

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 12697-30:2012.

The following is a list of significant technical changes since the previous edition:

- the series title no longer makes the method exclusively for hot mix asphalt;
- [2] Change to undated reference to EN 12697-35 including change of title;
- [2] Change of titles for EN 12697-10 and EN 12697-27 (hot mix asphalt deleted);
- [4] Change to undated reference to EN 12697-35;
- [5.1.1] and [5.2.1] For clarity “self-composed” is deleted from respective NOTE;
- [5.2.2.2] Last paragraph merged in to current NOTE;
- [Figure 5] NOTE 3 changed to normal text;
- [7] Deleted description for the quantity of mixture prepared for compaction to be not more than that required for 4 specimens;
- [8.2] To avoid conflicting requirements with EN 12697-35 all text is deleted and replaced with a general reference to EN 12697-35;
- [8.5] New paragraph added with description for the use of different number of blows;
- [8.7] NOTE deleted and inserted as normal text in the new paragraph in [8.5].

A list of all parts in the EN 12697 series can be found on the CEN website.

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

EN 12697-30:2018 (E)**1 Scope**

This document specifies methods of moulding specimens from bituminous mixtures by impact compaction. Such specimens are primarily used to determine bulk density and other technological characteristics, e.g. Marshall stability and flow according to EN 12697-34.

This document applies to bituminous mixtures (both those made up in a laboratory and those resulting from work site sampling), with not more than 15 % by mass retained on the 22,4 mm sieve and none on the 31,5 mm sieve.

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 12697-10, *Bituminous mixtures — Test methods — Part 10: Compactability*

EN 12697-27, *Bituminous mixtures — Test methods — Part 27: Sampling*

EN 12697-35, *Bituminous mixtures — Test methods — Part 35: Laboratory mixing*

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:

- Electropedia I.E.C. available at <http://www.electropedia.org/>
- ISO Online browsing platform available at <http://www.iso.org/obp>

3.1**set number**

number of blows per side that is set for the test method for which the sample is intended to be used

Note 1 to entry: The number of blows is commonly 50 but can be any value between 25 and 100.

4 Principle

To prepare the specimens, tempered asphalt mix, either freshly mixed according to EN 12697-35 or sampled on site or plant according to EN 12697-27 shall be transferred into a specified steel compaction mould. The mixture is then compacted into one of the specified impact compactors by the sliding mass falling from a specified height with a specified number of blows within a specified time onto the foot of the hammer, located on top of the asphalt specimen. The specimen shall then cool down to room temperature.

5 Apparatus**5.1 Impact compactor with steel anvil:****5.1.1 General:**

The impact compactor with steel anvil (see Figure 1): a machine-driven apparatus shall comprise the components listed in 5.1.1.1 to 5.1.1.8.

NOTE In Annex B, a guideline for possible checking of equipment is described.

5.1.1.1 Steel base plate, 15 mm thick and about 600 mm × 610 mm, set horizontally on a firm base.

5.1.1.2 Three feet of equal rigidity in the direction of both compression and shear, fitted with rubber buffers corresponding to the mass of the compaction pedestal.

5.1.1.3 Compaction pedestal (see Figure 2) made of cast iron having a mass of at least 100 kg.

5.1.1.4 Clamping device to hold the compaction mould.

NOTE Equipment with eccentric cam (see Figure 1) has been used successfully.

5.1.1.5 Compaction hammer, consisting of a cylindrical guide rod, a sliding mass (see Figure 3), weighing $(4\ 550 \pm 20)$ g, and a foot (see Figure 4), weighing $(3\ 960 \pm 20)$ g.

5.1.1.6 Chain-driven lifting gear, for the sliding mass, designed so that the length of the free fall is (460 ± 3) mm.

5.1.1.7 Device for counting and recording the number of blows.

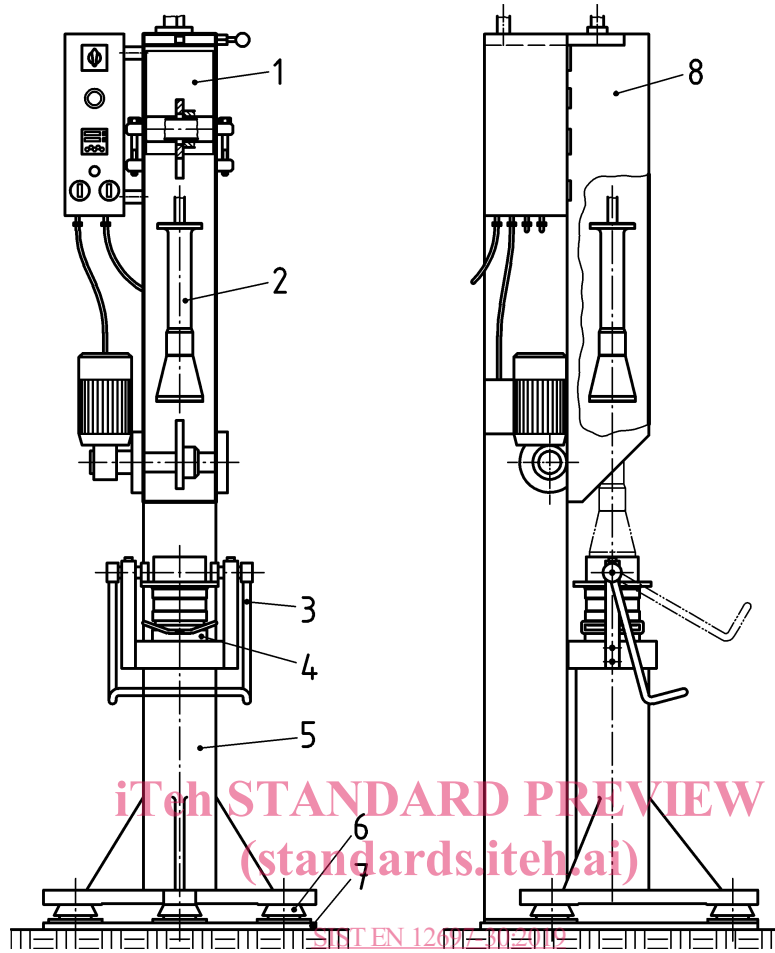
The number of blows should be counted and added.

5.1.1.8 Linear variable differential transformer (optional), as described in Annex A, for measuring the specimen thickness during compaction for measuring compactibility in accordance with EN 12697-10.

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**Key**

- 1 basic apparatus with power-driven lifting gear for the sliding mass and impact counter (shown without shielding)
- 2 compaction hammer with guide rod for the sliding mass
- 3 eccentric cam for clamping device
- 4 mould base with compaction mould attached
- 5 compaction pedestal
- 6 feet
- 7 steel base plate
- 8 shielding

Figure 1 — Diagrammatic sketch of the impact compactor

NOTE See Annex A for optional linear variable differential transformer to measure the specimen thickness during compaction.

Dimensions in millimetres

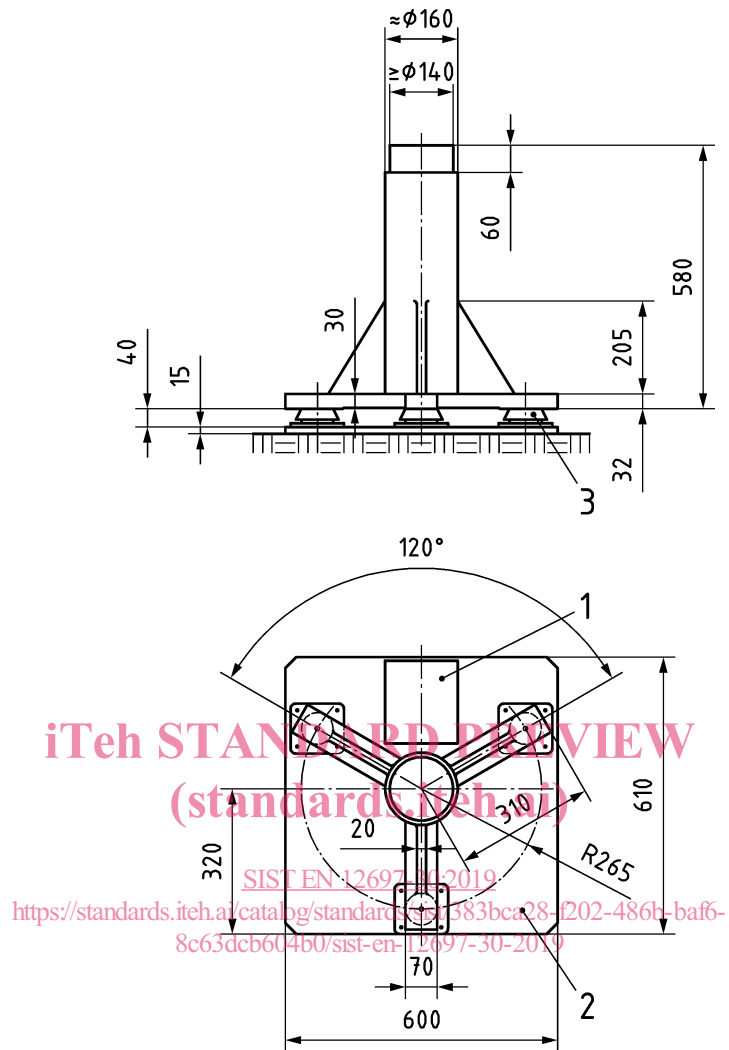
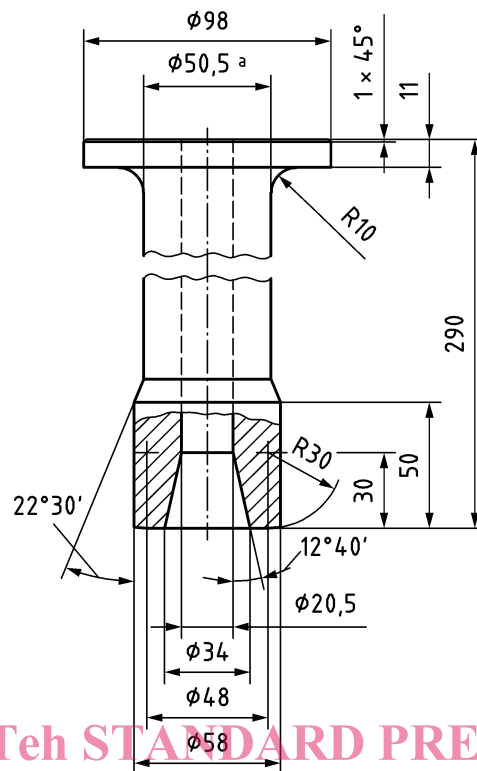


Figure 2 — Diagrammatic representation of compaction pedestal, supported on feet

Dimensions in millimetres

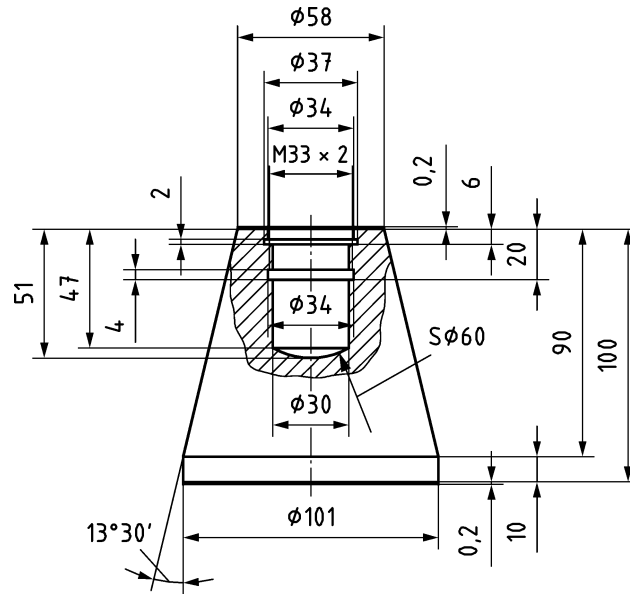


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Key^a counter balance

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Figure 3 — Sliding mass of compaction hammer



The tolerance on the diameter of the foot of the compaction hammer shall be $\pm 0,5$ mm.

Figure 4 — Foot of compaction hammer

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5.1.2 Conditions of installation:

5.1.2.1 The impact compactor shall be set up in such a way that the base plate is horizontal. It shall be possible to insert the compaction hammer vertically and centrally into the compaction mould in order to ensure a virtually friction-free fall of the sliding mass along the guide rod. The compactor shall be set up in such a way so that the sliding mass is vertically $\pm 2^\circ$.

The following safety and inspection requirements shall be applied:

5.1.2.2 During insertion and reversion of the mould cylinder in the compacting machine, the compaction hammer shall be secured in its upper rest position against accidental release. The compaction hammer shall be kept suspended at the top of the guide rod by means of a hoist.

NOTE This can be carried out by connecting the hoisting rope either to the clamping device on the eccentric cam or to a lever arrangement that is itself safeguarded against accidental release. Therefore, the compaction mould can only be inserted and removed when the hammer is suspended and securely fastened.

5.1.2.3 Measures shall be taken to prevent access to the danger zone when the lifting gear is in operation.

NOTE This can be achieved, for example, by the provision of a moveable shield fitted with an automatic locking device or by arranging for the sound-proof cubicle to be locked automatically when the apparatus is running.

5.1.2.4 Requirements as to noise emission shall be met when operating an impact compactor, e.g. by erecting a soundproof cubicle.