

SLOVENSKI STANDARD

SIST EN 14566:2008+A1:2009

01-december-2009

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Mechanical fasteners for gypsum plasterboard systems - Definitions, requirements and test methods

Mechanische Befestigungsmittel für Gipsplattensysteme - Begriffe, Anforderungen und Prüfverfahren

Fixations mécaniques pour systèmes en plaques de plâtre - Définitions, spécifications et méthodes d'essai

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ICS:

21.060.99	Drugi vezni elementi	Other fasteners
91.100.10	Cement. Mavec. Apno. Malta	Cement. Gypsum. Lime. Mortar

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EUROPEAN STANDARD
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**Mechanical fasteners for gypsum plasterboard systems -
Definitions, requirements and test methods**

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Mechanische Befestigungsmittel für Gipsplattensysteme -
Begriffe, Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 30 January 2008 and includes Amendment 1 approved by CEN on 6 July 2009.

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

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Foreword

This document (EN 14566:2008+A1:2009) has been prepared by Technical Committee CEN/TC 241 “Gypsum and gypsum based products”, 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of an identical text or by endorsement, at the latest by February 2010, and conflicting national standards shall be withdrawn at the latest by February 2010.

This document includes Amendment 1, approved by CEN on 2009-07-06.

This document supersedes EN 14566:2008.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** and **A1**.

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

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Introduction

Figures 1 and 2 show the relationship between this European Standard and the package of standards prepared to support the family of gypsum and ancillary products.

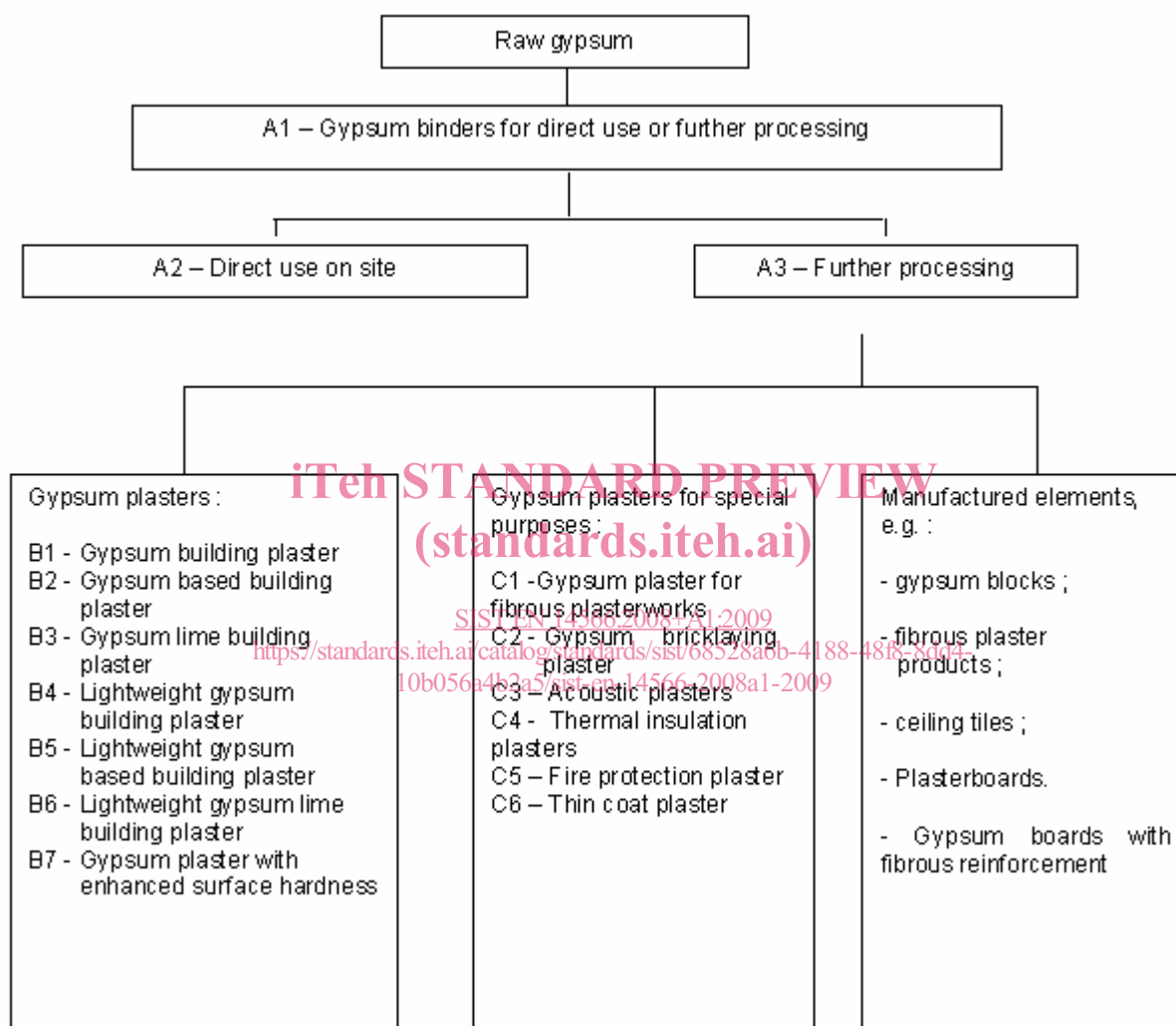
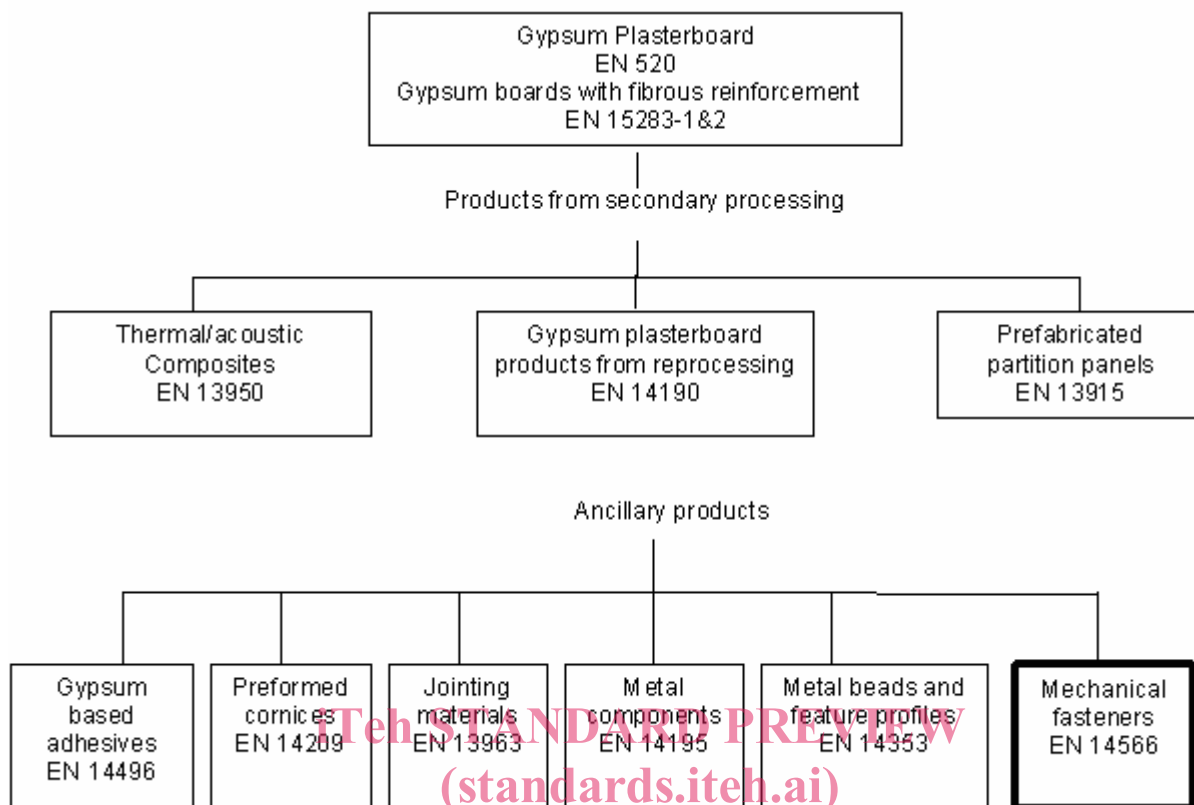


Figure 1 — Family of gypsum products

A1



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Figure 2 — Family of ancillary products

A1

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1 Scope

This European Standard specifies the characteristics and performance of mechanical fasteners, including nails, screws and staples, intended to be used for the fixing of gypsum plasterboard, gypsum boards with fibrous reinforcement, products from secondary processing and suitable ancillary products as shown in Figure 2, to timber and metal, as appropriate, in building construction works. The fasteners secure the board to the framing enabling its surface to be finished by jointing or plastering to receive decoration. They can also be used for the construction of the framing and for the connection between substructure and load bearing components and for fixing boards together. Mechanical fasteners contribute to the stability of the assembly.

This European Standard covers the following product performance characteristics: reaction to fire and flexural strength to be measured according to the corresponding European test methods.

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

This European Standard also covers the additional technical characteristics that are of importance for the use and acceptance of the products by the construction industry and the reference tests for these characteristics.

This European Standard does not cover nails, screws and staples intended for use with materials other than plasterboard and the plasterboard based products referred to above and their associated system components.

2 Normative references

The following referenced documents are indispensable for the application 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 338, *Structural timber — Strength classes* SIST EN 14566:2008+A1:2009

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EN 520, *Gypsum plasterboards — Definitions, requirements and test methods*

EN 10016 (all parts), *Non-alloy steel rod for drawing and/or cold rolling*

[A1] EN 10083, *Steels for quenching and tempering*

EN 10084, *Case hardening steels — Technical delivery conditions* **[A1]**

EN 10230-1, *Steel wire nails — Part 1: Loose nails for general applications*

EN 10327, *Continuously hot-dip coated strip and sheet of low carbon steels for cold forming — Technical delivery conditions*

EN 14195, *Metal framing components for gypsum plasterboard systems — Definitions, requirements and test methods*

EN ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T) (ISO 6508-1:2005)*

[A1] *deleted text* **[A1]**

EN ISO 9001:2000, *Quality management system — Requirements (ISO 9001:2000)*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227:2006)*

EN ISO 12777-3:2002, *Methods of test for pallet joints — Part 3: Determination of strength of pallet joints (ISO 12777-3:2002)*

3 Terms and definitions

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

3.1 General terms

3.1.1

plasterboard nail

corrosion resistant steel wire nail with purpose made head, shank and point

NOTE Nails can vary in head profile, material and level of corrosion resistance. See  Table 2  and Table A.1.

3.1.2

plasterboard screw

screw used without pilot holes for the assembly of plasterboard systems

NOTE Screws which go directly into plasterboard usually have a trumpet head. They are straight and free from burrs and capable of being driven by a power operated screwdriver. See Table A.2.

3.1.3

head

wide part of nail or screw used to drive the nail or screw into the materials to be joined

NOTE The head of nails can be one of two types according to function (see Table A.1). The surface can be smooth or chequered. The head of screws can be domed, flat or concave depending upon its use (see Table A.2).

3.1.4

point

sharp end opposite to the head which first penetrates the materials to be joined

NOTE The style and shape of the nail point is formed to permit entry and penetration of the timber.

3.1.5

shank

connection between the head and the point

NOTE Nails have a straight shank. The diameter of the round shank can vary according to length, function and thickness of the corrosion resistant treatment. It may be plain, have indentations, be annular ring rolled or may be separately treated to improve resistance to withdrawal.

3.1.6

thread

spiral extension to the shank of specific pitch and diameter appropriate to its function and use

NOTE The thread may be of single or multiple lead design.

3.1.7

plasterboard staple

double right angle, fastener, made from round, oval, square or rectangular wire, with two legs (shanks) usually of the same length connected by its crown (head) with the tips inclined, see Table A.4

NOTE Staples are U shaped, neatly formed and free from defects. Staples can be resin coated to increase withdrawal strength. The legs are straight and parallel and can be designed, in conjunction with the tip, to provide additional holding power when driven into substrate. The style and shape of the tips permit entry and guide and control the line and shape of the penetration of the timber or substrate. The tips have an inclined plane on one or both sides.

3.2 Symbols and abbreviations

For the purpose of simplification in product marking and performance information characteristics may be identified through the symbols and abbreviations given in Table 1.

Table 1 — Symbols and abbreviations

Requirement	Sub-clause	Symbol or abbreviation
Reaction to fire	4.1	R2F
Flexural strength	4.2	F

A1

4 Requirements

4.1 Reaction to fire

Plasterboard nails, screws and staples made from steel are classified A1 (EN 13501-1) (no contribution to fire) without testing when they are not coated.

When they have an organic coating, their contribution to reaction to fire in end use condition is so small in the total assembly that they have no influence on the classification of the system tested.

4.2 Flexural strength (bending behaviour)

When tested in accordance with 5.5 no fastener shall show signs of breakage or cracking.

4.3 Release of (regulated) dangerous substances

NOTE See Annex ZA.

4.4 Additional requirements

4.4.1 Protective treatment

Where the producer is using a protective coating to achieve durability, the coating shall be sufficient to provide a satisfactory level of protection against corrosion. It shall reflect the condition where the fastener is subjected to temporary exposure during storage, construction and its remaining life in an unexposed cavity of the completed building.

Fasteners protected with coating other than zinc shall satisfy one of the three classes of performance given in A1 Table 2 A1, when tested in accordance with EN ISO 9227. This class shall be stated by the producer in its technical literature.

A1 Table 2 A1 — Classes of corrosion protection

Classification	Test duration In hours	Criterion
Class 24	24	No visible rusting
Class 48	48	No visible rusting
Class 96	96	No visible rusting

Fasteners protected with zinc coating shall have a minimum coating thickness of 5 µm (35 g/m²) for screws and nails and 3 µm (21 g/m²) for staples when tested in accordance with 5.7.

4.4.2 Requirements for plasterboard nails

4.4.2.1 Materials

Plasterboard nails shall be produced from wire drawn from rods produced in accordance with EN 10016-1 to -4.

4.4.2.2 Head - Dimensions and tolerances

The diameter and tolerance of the head shall be stated by the producer in its technical literature.

When measured in accordance with 5.3.3.3, no more than five nails shall fail.

4.4.2.3 Shank

The shank diameter and tolerance shall be stated by the producer in its technical literature.

When measured in accordance with 5.3.3.1, no more than five nails shall fail.

4.4.2.4 Length

The nominal length and tolerance shall be stated by the producer in its technical literature.

When measured in accordance with 5.3.3.2, no more than five nails shall fail.

4.4.2.5 Withdrawal force

The withdrawal force from wood shall be at least 200 N when tested in accordance with 5.4. Not more than five nails shall fail.

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4.4.3 Requirements for plasterboard screws

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4.4.3.1 Materials and manufacture

Plasterboard screws shall be manufactured from carbon steel either to A_1 EN 10083 or EN 10084 A_1 .

4.4.3.2 Withdrawal force

The diameter and pitch of the threaded portion shall also be capable of providing sufficient withdrawal force to allow the screw to achieve a minimum value of 450 N when tested in accordance with 5.4. Not more than five screws shall fail.

4.4.3.3 Point

The points shall be designed to be self tapping (designation N) or self drilling (designation D) (see Table A.2 for examples of fastener types).

For type N screws, the points shall be designed with suitable thread to be capable of penetrating 0,6 mm galvanised steel sheet to EN 10327 when screws are tested in accordance with 5.6. No more than 5 screws shall exceed a penetration time of 1 s.

For type D screws, the points shall be designed to allow penetration of sections made from steel sheet to EN 10327 up to a thickness of 2 mm when screws are tested in accordance with 5.6. No more than 5 screws shall exceed a penetration time of 4 s.

4.4.3.4 Length

The nominal length and tolerances shall be stated by the producer in its technical literature.

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When measured in accordance with 5.3.3.2, no more than five screws shall be outside the stated tolerances.

4.4.3.5 Hardness

The surface of the screws shall be case hardened to a minimum depth of 0,05 mm with a case hardness of 55 HRC to Rockwell cone according to EN ISO 6508-1. Not more than five screws shall fail.

4.4.4 Requirements for plasterboard staples**4.4.4.1 Materials and manufacture**

Staples shall be manufactured from steel wire to EN 10230-1 by rolling to form a rectangular profile with oval edges having a minimum tensile strength of 950 N/mm² for wires of 1 mm to 1,3 mm and of 680 N/mm² for wires greater than 1,3 mm.

4.4.4.2 Withdrawal force

The withdrawal force of the staple from timber shall be 100 N when tested in accordance with 5.4. Not more than five staples shall fail.

4.4.4.3 Length

The nominal length and tolerances shall be stated by the producer.

When measured in accordance with 5.3.3.2, no more than five staples shall be outside the stated tolerances.

4.4.4.4 Crown width

The nominal width and tolerances of the crown shall be stated by the producer.

When measured in accordance with 5.3.3.3, no more than five staples shall be outside the stated tolerances.

5 Test methods**5.1 General**

Not all tests specified in Clause 4 are appropriate to every type of fastener. Those tests which results from the requirements of clause 4 shall be carried out. For convenience, these are summarised in the **Table 3** **deleted text**.