



SLOVENSKI STANDARD

SIST EN 14195:2005

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Metal framing components for gypsum plasterboard systems - Definitions, requirements and test methods

Metallprofile für Unterkonstruktionen von Gipsplattensystemen - Begriffe, Anforderungen und Prüfverfahren

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Eléments d'ossature métalliques pour systèmes en plaques de plâtre - Définitions, exigences et méthodes d'essai

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English version

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de plâtre - Définitions, exigences et méthodes d'essai

Metallprofile für Unterkonstruktionen für Gipsplatten
Systemen - Begriffe, Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 10 June 2004.

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.

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Content

	page
Foreword.....	3
Introduction	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
4 Requirements	7
4.1 Reaction to fire.....	7
4.2 Flexural tensile strength (expressed as yield strength)	7
4.3 Regulated substances.....	7
4.4 Materials	8
4.5 Dimensions and tolerances	8
4.6 Calculation of section properties	10
5 Test methods.....	10
5.1 Sampling	10
5.2 Measurement of dimensions	10
6 Evaluation of conformity.....	13
6.1 General.....	13
6.2 Type testing.....	13
6.3 Factory production control (FPC)	14
7 Designation	15
8 Marking, labelling and packaging	16
Annex A (informative) Sampling procedure for testing.....	17
A.1 General.....	17
A.2 Sampling procedure	17
Annex B (normative) Calculation of section properties	19
B.1 Scope	19
B.2 Principles.....	19
B.3 Example of calculation	19
Annex C (informative) Designation of cross section.....	21
Annex ZA (informative) Clauses of this European Standard addressing provisions of EU Construction Products Directive	23
ZA.1 Scope and relevant characteristics	23
ZA.2 Attestation and declaration of conformity of products	24
ZA.3 CE marking and labelling.....	26
Bibliography	29

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Foreword

This document (EN 14195:2005) 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 August 2005, and conflicting national standards shall be withdrawn at the latest by August 2005.

This document 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).

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

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

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Introduction

Diagrams 1 and 2 show the relationship between this document and the package of documents prepared to support the families of gypsum and ancillary products.

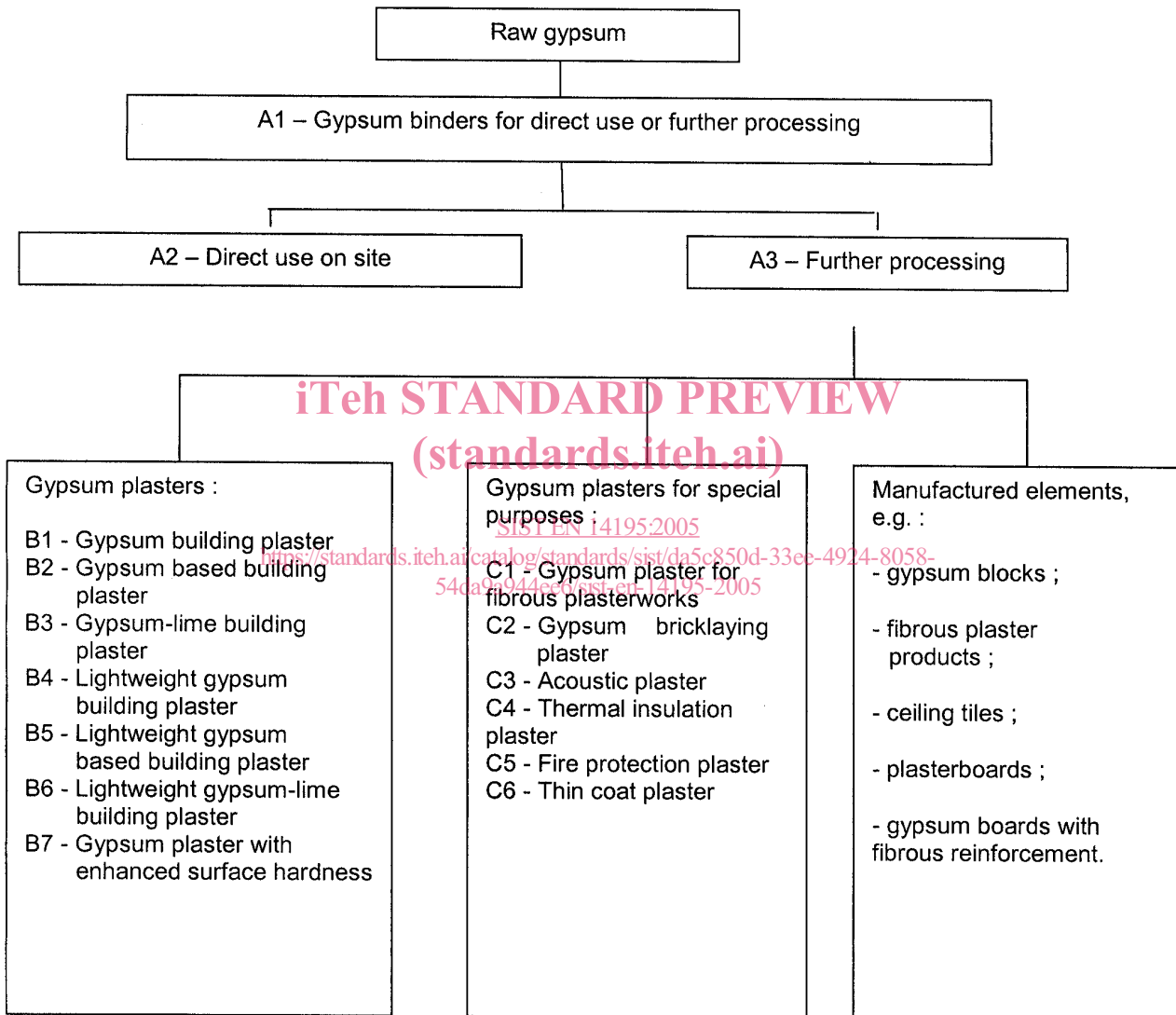
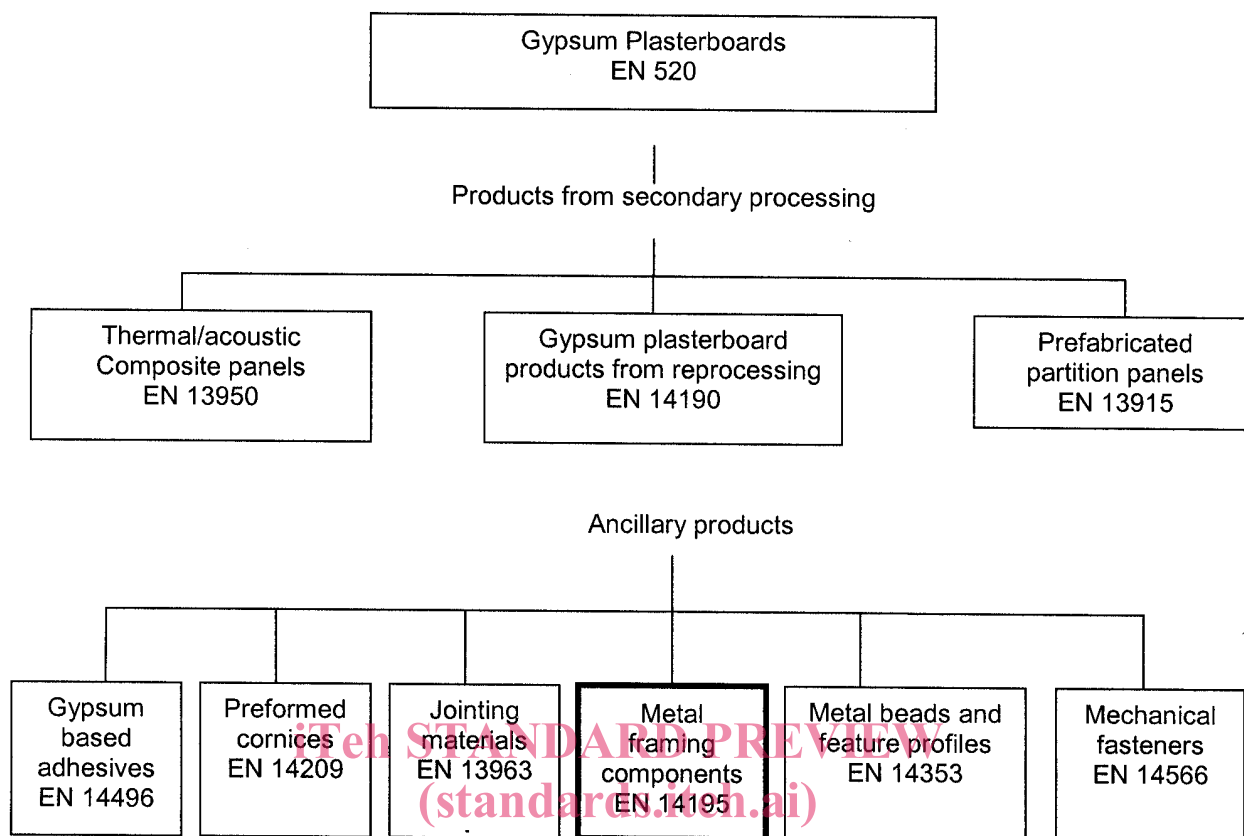


Diagram 1 – Family of gypsum products



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Diagram 2 – Family of ancillary products

Metal framing components are profiled steel sections cold formed from low carbon steel strip coated in zinc, aluminium - zinc or zinc - aluminium.

The design and properties of metal components make them suitable for the construction of non-loadbearing partitions, wall and ceiling linings where they provide the framing members to support the gypsum plasterboards.

1 Scope

This document specifies the characteristics of metal framing components intended to be used in building construction works in conjunction with gypsum plasterboard conforming to EN 520 and secondary processing conforming to EN 14190 where the assembly is non-loadbearing. These include, for example, partitions, wall and ceiling linings and the cladding of beams, columns, ducts and lift shafts.

It covers the following performance characteristics: reaction to fire, flexural (yield) strength to be measured according to the corresponding European test methods.

It defines the reference test methods for technical specifications.

It provides for the evaluation of conformity of the product to this document.

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

A method of designation has been incorporated to cover the multiplicity of metal sections currently in use, without recourse to a means of rationalisation of their shape, profile or dimensions.

This document does not cover load-bearing steel framing components and metal framing components for suspended ceilings according to EN 13964.

2 Normative references

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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.

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<https://standards.iteh.ai/catalog/standards/sist/da5c850d-33ee-4924-8058-992e2640f00a/EN-10002-1>

EN 10002-1, *Metallic materials - Tensile testing - Part 1: Method of test at ambient temperature.*

EN 10326, *Continuously hot-dip coated strip and sheet of structural steel – Technical delivery conditions.*

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

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests.*

3 Terms and definitions

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

3.1

non-loadbearing element

element which does not transfer vertical forces and whose contribution to the stability of the building is not taken into account

3.2

metal section

corrosion protected steel member, cold rolled to form profiles (see examples in Annex C)

3.3**nominal thickness**

thickness of steel stated by the producer of the metal section including metallic surface coating

3.4**core thickness**

thickness of steel excluding surface coating

3.5**flange**

part of section to which plasterboard is usually attached, depending upon the position of the section. See Figure 6

3.6**web**

central and connecting part of section between flanges of a stud and channel section (See Table C.1)

NOTE Some sections have no web. e.g. L.

3.7**knurling**

mechanical treatment to assist the positioning of screws on the surface of the section

3.8**nominal width/depth**

width and depth of sections stated by the producer

3.9**bend**

curvature to impart shape and/or strength, for example, between flange and web (see Figures 3, 4, and 5)

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4 Requirements**4.1 Reaction to fire**

When the intended use of metal framing components is for fire exposed situations in building construction works and if metal framing components are not coated with an organic material, they shall be classified in Euroclass A1 (no contribution to fire) without testing¹⁾.

If metal framing components are coated with an organic material and subject to regulatory requirements, they shall be tested and classified in accordance with EN 13501-1 using a method replicating end use conditions.

4.2 Flexural tensile strength (expressed as yield strength)

The producer shall declare the yield strength of the hot dip coated steel strip to EN 10326 or EN 10327, tested in accordance with EN 10002-1 or other equivalent method. If necessary, the design value of the section shall be calculated in accordance with 4.6.

4.3 Regulated substances

Materials used in products shall not release any regulated substances in excess of the maximum permitted levels specified in a relevant European Standard for the material or permitted in the national regulations of the member state of destination.

1) See Commission Decision 96/603/EC, as amended.

4.4 Materials

The material shall permit cold forming to produce sections that have clean cut edges and ends.

Sections shall be manufactured from mild steel strip having a protective coating conforming to EN 10326 or EN 10327.

The protective coating shall conform to one of the classes given in Table 1.

Table 1 — Classes of protective coating

Class	Reference standard
Z275	EN 10326 EN 10327
Z140	
Z100	
ZA130	
ZA095	
AZ150	
AZ100	
NOTE 1 Z means zinc, ZA means zinc/aluminium, AZ means aluminium/zinc.	
NOTE 2 The figures give the total coating weight in g/m ² .	

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4.5 Dimensions and tolerances

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4.5.1 General

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No individual measurement shall lie outside the stated tolerances.

4.5.2 Thickness

The nominal thickness and tolerance shall be stated by the producer of the section.

The thickness of metal shall be measured as described in 5.2.3.1 and compared with the nominal thickness.

4.5.3 Length of section

The nominal length of the section shall be stated by the producer.

The length shall be measured as described in 5.2.3.2 and compared with the nominal length. The tolerances shall conform to Table 2.

Table 2 — Tolerance for length

Length in mm	Tolerance in mm
Up to 3 000	± 3
Between 3 000 and 5 000	± 4
Over 5 000	± 5

4.5.4 Width of section

The nominal width of the section shall be stated by the producer.

The width shall be measured as described in 5.2.3.5 and compared with the nominal width. The tolerance shall be $\pm 0,5$ mm.

4.5.5 Cut-out/opening

In certain sections the size and the position of cut-outs/openings may be important and shall be declared by the producer.

4.5.6 Widths of flange

The nominal width of the flange shall be stated by the producer.

The widths of the flange shall be measured as described in 5.2.3.6 and compared with the nominal width of the flange. The tolerances shall conform to Table 3.

Table 3 — Flange width tolerance

Flange	Tolerance in mm
Flange between two bends	$\pm 0,5$
Flanges between bend and cut edge	$\pm 1,0$

4.5.7 Angular dimension

The design angle dimension between the web and the flange shall be stated by the producer of the section. The angular dimensions shall be measured in accordance with 5.2.3.3 and compared with the nominal angle. The deviation shall not exceed $\pm 2^\circ$ (see Figure 1).

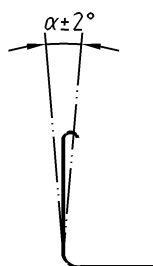


Figure 1 — Angular dimension

4.5.8 Straightness of the section

The straightness of the section shall be measured in accordance with 5.2.3.4 and shall not deviate from the flat surface by more than $L/400$ (where L is the nominal length in mm).

4.5.9 Twist of section

The maximum twist of the section shall be measured in accordance with 5.2.3.7. If h is the gap and W is the nominal width of the section (see Figure 7), the relation h/W shall not exceed 0,1.

4.6 Calculation of section properties

Where users find it necessary or are required to predict the performance of the installed section, this can be undertaken by calculation using, as a basis, the mechanical properties of the metal framing component. In order to ensure that this can be done producers shall provide the necessary material properties and, where required, the calculation shall be made in accordance with the methods/principles given in Annex B.

5 Test methods

5.1 Sampling

Three sections of each type, thickness and profile shall be tested.

5.2 Measurement of dimensions

5.2.1 Principle

Thickness, length, angular dimensions, straightness, twist, section width and flange width shall be measured.

5.2.2 Apparatus

- a) A continuously flat surface capable of taking the longest section having a level of L/1000.
- b) A micrometer permitting a reading to 0,01 mm.
- c) A metal rule permitting a reading to 1 mm.
- d) A metal tape measure permitting a reading to 1 mm.
- e) A protractor with revolving arm permitting a reading to 1° (see Figure 2).
- f) A slide calliper permitting a reading to 0,1 mm.
- g) Hand vice or weight.

5.2.3 Procedure

5.2.3.1 Thickness

Measure the thickness with the micrometer in three separate positions on a representative surface area free from profile and any distortions from cutting. Record the results for thickness to the nearest 0,01 mm.

5.2.3.2 Length

Place the specimen on the flat surface and measure the length along the web using the metal tape measure. Record the results for length to the nearest 1 mm.

5.2.3.3 Angular dimension

Place the base of the protractor on one surface ensuring that it is in direct contact with the plane of the surface and registers it correctly. Move the protractor close to the angle and rotate the arm until it is in firm contact with the adjacent flange. Read off the angle shown on the protractor (see Figure 2).

Record the results for angular dimension to the nearest degree.