



# SLOVENSKI STANDARD

## SIST EN 1301-1:2008

01-november-2008

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SIST EN 1301-1:1998

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Aluminium and aluminium alloys - Drawn wire - Part 1: Technical conditions for inspection and delivery

Aluminium und Aluminiumlegierungen - Gezogene Drähte - Teil 1: Technische Lieferbedingungen

Aluminium et alliages d'aluminium - Fil étiré - Partie 1: Conditions techniques de contrôle et de livraison

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### ICS:

77.150.10      Alumijski izdelki      Aluminium products

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 1301-1**

September 2008

ICS 77.150.10

Supersedes EN 1301-1:1997

English Version

**Aluminium and aluminium alloys - Drawn wire - Part 1: Technical  
conditions for inspection and delivery**

Aluminium et alliages d'aluminium - Fil étiré - Partie 1 :  
Conditions techniques de contrôle et de livraison

Aluminium und Aluminiumlegierungen - Gezogene Drähte -  
Teil 1: Technische Lieferbedingungen

This European Standard was approved by CEN on 16 August 2008.

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 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 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

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

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## Foreword

This document (EN 1301-1:2008) has been prepared by Technical Committee CEN/TC 132 "Aluminium and aluminium alloys", 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 March 2009, and conflicting national standards shall be withdrawn at the latest by March 2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

CEN/TC 132 affirms it is its policy that in the case when a patentee refuses to grant licences on standardised standard products under reasonable and not discriminatory conditions, then this product shall be removed from the corresponding standard.

This document supersedes EN 1301-1:1997.

Within its programme of work, Technical Committee CEN/TC 132 entrusted CEN/TC 132/WG 4 "Wires and drawing stock" to revise EN 1301-1:1997.

Besides editorial adjustments in the text and update of normative references the following changes have been made:

- Foreword : amended;
- Clause 2: EN 12258-1:1998 and EN 14361 added;
- Clause 3: subclauses 3.1 to 3.9 deleted and replaced by reference to EN 12258-1:1998;
- Clause 6: subclauses 6.1.2 and 6.1.3 modified;
- Clause 7: completely revised.

EN 1301 comprises the following parts under the general title: "Aluminium and aluminium alloys – Drawn wire":

- *Part 1: Technical conditions for inspection and delivery*
- *Part 2 : Mechanical properties*
- *Part 3 : Tolerances on dimensions*

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**EN 1301-1:2008 (E)****1 Scope**

This document specifies the technical conditions for inspection and delivery of aluminium and aluminium alloy drawn wire for general engineering applications.

It does not apply for aeronautical application.

It applies to drawn wires, except for electrical or welding purposes.

It does not apply to drawing stock.

**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 515, *Aluminium and aluminium alloys — Wrought products — Temper designations*

EN 573-3, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 3: Chemical composition and form of products*

EN 1301-2, *Aluminium and aluminium alloys — Drawn wire — Part 2: Mechanical properties*

EN 1301-3, *Aluminium and aluminium alloys — Drawn wire — Part 3: Tolerances on dimensions*

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

EN 10204, *Metallic products — Types of inspection documents*

EN 12258-1:1998, *Aluminium and aluminium alloys — Terms and definitions — Part 1: General terms*

EN 14361, *Aluminium and aluminium alloys — Chemical analysis — Sampling from metal melts*

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 12258-1:1998 apply.

**4 Ordering information**

The order shall define the product required and shall contain the following information:

- a) form and type of product:
  - 1) form of the product (round wire, rectangular wire, etc.);
  - 2) designation of the aluminium or aluminium alloy in accordance with EN 573-3;
- b) temper of the material for delivery (degree of hardness or heat-treatment condition), and, if different, the temper of use in accordance with EN 515;
- c) number of this European Standard or a specification number or, otherwise, the properties agreed between manufacturer and purchaser;

- d) dimensions and shape of the product:
  - 1) diameter;
  - 2) thickness and width for rectangular wires;
  - 3) reference to a drawing if necessary;
- e) tolerances on the dimensions, in accordance with EN 1301-3;
- f) quantity:
  - 1) mass or length;
  - 2) tolerances on quantity if required;
- g) any requirements for certificates of conformity, test and/or analysis reports or inspection certificates;
- h) any special requirements agreed between manufacturer and purchaser:
  - 1) testing procedure;
  - 2) marking of products;
  - 3) surface quality;
  - 4) type of conditioning, packaging, etc.

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## 5 Requirements

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### 5.1 Production and manufacturing processes

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Unless otherwise specified in the order, the production and manufacturing processes shall be left to the discretion of the manufacturer. Unless it is explicitly stated in the order, no obligation shall be placed on the manufacturer to use the same processes for subsequent and similar orders.

### 5.2 Quality control

The manufacturer shall be responsible for the performance of all inspection and tests, prior to shipment of the product. If the purchaser wishes to inspect the product at the manufacturer's works, he shall notify the manufacturer at the time of placing the order.

### 5.3 Chemical composition

The chemical composition shall conform to EN 573-3.

If the purchaser requires tighter content limits of the specified elements or content limits for elements not specified in EN 573-3, these limits shall be stated on the order, after agreement between the supplier and the purchaser.

**EN 1301-1:2008 (E)****5.4 Mechanical properties**

The mechanical properties shall conform to EN 1301-2 or to those agreed upon between manufacturer and purchaser and stated on the order.

**5.5 Freedom from defects**

The products shall be free from defects prejudicial to its suitable and proper use. Whilst an operation designed to mask a fault is not permitted, the elimination of a superficial imperfection is permissible, provided that the tolerances on dimensions and the material properties continue to meet specifications.

**5.6 Tolerances on dimensions**

The tolerances on dimensions shall conform to EN 1301-3.

**5.7 Other properties**

Additional property requirements, such as bending, torsion, wrapping and heading ability and shearing strength, etc., shall be agreed by the manufacturer and purchaser, and stated on the order.

**5.8 Temper of delivery**

The variety of aluminium and aluminium alloys used required a precise definition of the temper of delivery which is liable to exert a significant influence on the ability to process and on the final characteristics of the wires manufactured. Tempers shall be in accordance with EN 515.

The usual tempers for drawn wires covered by this standard are:

- O: as annealed;
- H: strain hardened;
- T: thermally treated.

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**6 Test procedure****6.1 Sampling****6.1.1 Chemical analysis**

Samples for chemical analysis shall be taken at the time of casting according to EN 14361. Their shape and conditions of production (mould design, cooling rate, mass, etc.) shall be designed, such that they represent the average composition of the liquid metal, and be suitable for the method of analysis. The analytical procedure shall be taken into account.

**6.1.2 Test pieces for mechanical testing****6.1.2.1 Identification of test pieces**

Each test pieces shall be marked in such a manner that, after removal, it is always possible to identify the product from which it is taken and its location. If, during the course of subsequent operations, removal of the markings cannot be avoided, new markings or labels shall be made before the originals are removed.



### 6.1.2.2 Preparation of test pieces

Test pieces shall be taken from the sample after completion of all the mechanical and heat-treatments that the product has to undergo before delivery, and which can influence the mechanical properties of the metal. In cases where this is not possible, the test pieces can be taken at an earlier stage, but they shall be subjected to the same treatment as that to which it is intended to submit the product concerned<sup>1)</sup>.

Cutting shall be carried out in such a manner that it does not change the characteristics of the part of the sample from which the test pieces are to be prepared. Thus, the dimensions of the samples shall provide an adequate machining allowance to permit removal of the zone affected by cutting.

Samples shall not be machined or treated in any way by which their mechanical properties can be altered. Any straightening required shall be carried out with great care, preferably by hand.

### 6.1.3 Test-pieces for tensile test

#### 6.1.3.1 Identification of test pieces

Each test piece shall be marked in such manner so that it is possible to identify the inspection lot from which it was taken.

If a test piece is marked by stamping, this shall not be in a place or manner which can interfere with subsequent testing.

NOTE Where it is not convenient to mark a test piece, an identification label can be attached.

#### 6.1.3.2 Number of test pieces (standards.iteh.ai)

One test piece shall be taken from each sample.

#### 6.1.3.3 Type and location of test pieces

The un-machined wire shall be considered as the test piece.

## 6.2 Methods of tests

### 6.2.1 Chemical composition

Methods of analysis shall be at the discretion of the manufacturer. In case of dispute concerning the chemical composition, referee analysis shall be carried out by the methods specified in the relevant European Standard (see EN 14242 and EN 14726) and the results obtained by this method shall be accepted.

### 6.2.2 Tensile test

The tensile test shall be carried out in accordance with EN 10002-1.

### 6.2.3 Measurement of dimensions

All dimensions shall be checked at the ambient temperature of the workshop or laboratory, and in case of dispute, at a temperature between 15 °C and 25 °C.

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<sup>1)</sup> If the purchaser intends to convert the material to a final temper which is different from the "as supplied" temper, then additional testing may be requested by the purchaser in order to be satisfied that the material is capable of meeting the specified properties of the final temper. It is only necessary for the supplier to confirm that selected samples, heat-treated using supplier laboratory conditions, meet the properties specified for the final temper required by the purchaser.