



# SLOVENSKI STANDARD

## SIST EN 3475-505:2012

01-maj-2012

Nadomešča:  
SIST EN 3475-505:2007

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**Aeronavtika - Električni kabli za uporabo v zračnih plovilih - Preskusne metode - 505. del: Natezni preskus vodnikov in žic**

Aerospace series - Cables, electrical, aircraft use - Test methods - Part 505: Tensile test on conductors and strands

Luft- und Raumfahrt - Elektrische Leitungen für Luftfahrtverwendung - Prüfverfahren - Teil 505: Zugfestigkeit der Einzeldrähte und Leiterseile

Série aérospatiale - Câbles électriques à usage aéronautique - Méthodes d'essais - Partie 505: Résistance à la traction des conducteurs et des brins

**Ta slovenski standard je istoveten z: EN 3475-505:2012**

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**ICS:**

49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems
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**SIST EN 3475-505:2012**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 3475-505**

March 2012

ICS 49.060

Supersedes EN 3475-505:2007

English Version

## Aerospace series - Cables, electrical, aircraft use - Test methods - Part 505: Tensile test on conductors and strands

Série aérospatiale - Câbles électriques à usage  
aéronautique - Méthodes d'essais - Partie 505: Résistance  
à la traction des conducteurs et des brins

Luft- und Raumfahrt - Elektrische Leitungen für  
Luftfahrtverwendung - Prüfverfahren - Teil 505:  
Zugfestigkeit der Einzeldrähte und Leiterseile

This European Standard was approved by CEN on 20 August 2011.

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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, 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, Turkey and United Kingdom.

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<b>Contents</b>		Page
Foreword.....		3
1	<b>Scope</b> .....	4
2	<b>Normative references</b> .....	4
3	<b>Terms and definitions</b> .....	4
4	<b>Apparatus</b> .....	5
5	<b>Method</b> .....	6
5.1	<b>Strands</b> .....	6
5.2	<b>Conductors</b> .....	6
6	<b>Requirements</b> .....	6
<b>Annex A (normative) Test method: Braid strength measured after separation from finished cable</b> .....		7

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## Foreword

This document (EN 3475-505:2012) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

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 September 2012, and conflicting national standards shall be withdrawn at the latest by September 2012.

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.

This document will supersede EN 3475-505:2007.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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## EN 3475-505:2012 (E)

### 1 Scope

This European Standard specifies a method of measuring the tensile properties of strands, conductors and braids.

When required, it can be used also on cables.

It should be used together with EN 3475-100.

### 2 Normative references

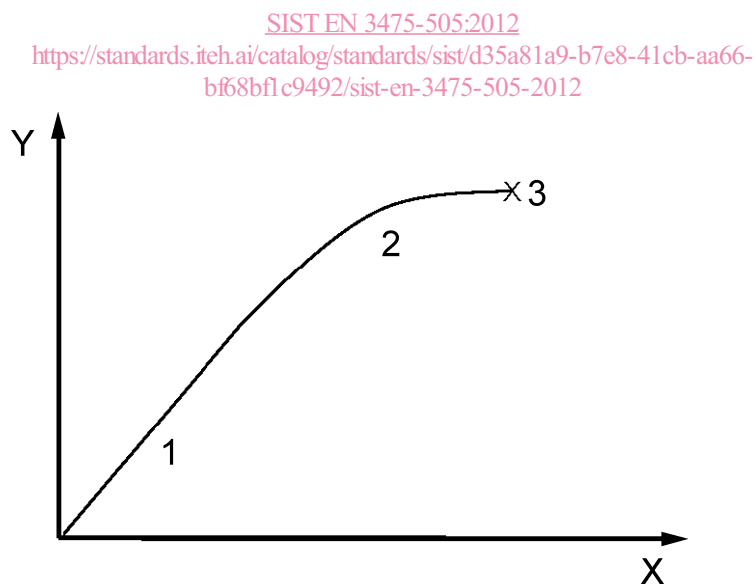
The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 3475-100, *Aerospace series — Cables, electrical, aircraft use — Test methods — Part 100: General*

### 3 Terms and definitions

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

**3.1 ultimate tensile strength or tensile strength at break**  
 the *ultimate tensile strength* also called the *tensile strength at break* of a material is the limit stress at which the material actually breaks, with sudden release of the stored elastic energy (released as noise and/or heat and/or more cracks e.g. for brittle materials). This point is the fracture marked X on the curve below. (see Figure 1).



#### Key

- 1 Elastic region
- 2 Plastic region
- 3 Fracture
- X Strain
- Y Stress

Figure 1

**3.2****ultimate elongation or elongation at break**

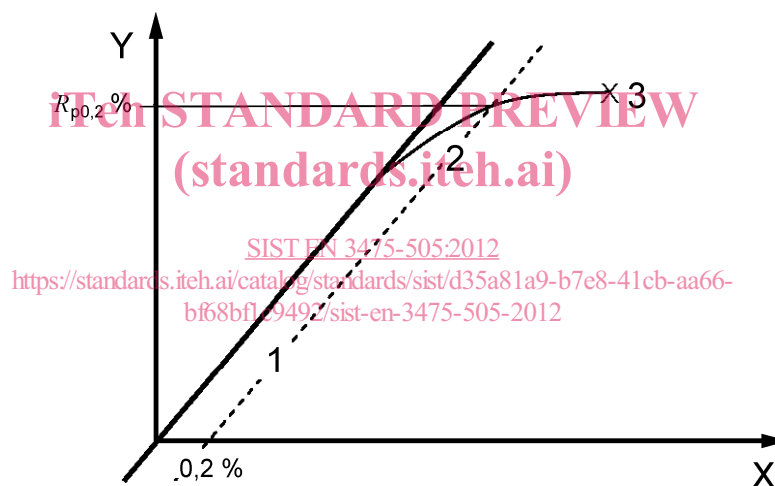
the *ultimate elongation* also called *elongation at break* is the elongation of material at rupture under tensile loading

**3.3****elastic limit or yield strength – offset yield strength or conventional elastic limit**

the *elastic limit* also called *yield strength* is the maximum stress that can be developed in a material without causing plastic deformation. It is the stress at which a material start to exhibit a permanent deformation and is a practical approximation of elastic limit.

*Offset yield strength* also called *Conventional elastic limit* is determined from a stress-strain diagram. It is the stress corresponding to the intersection of the stress-strain curve, and a line parallel to its straight line portion offset by a specified strain.

Offset for metals are specified as 0,2 % ( $R_{p0,2}$  %), i.e., the intersection of the offset line and the 0-stress axis is at 0,2 % strain. (see Figure 2).

**Key**

- 1 Elastic region
- 2 Plastic region
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**Figure 2****4 Apparatus**

The test shall be carried out with the aid of a tensile tester capable of measuring the specified elongation with an accuracy of 1 %.

The pulling speed shall be  $(50 \pm 10)$  mm/min.

The initial length of the test specimen between the joints shall be  $(200 \pm 5)$  mm.

For tensile strength of braids, see Annex A (normative).

**EN 3475-505:2012 (E)****5 Method****5.1 Strands**

Measure three strands per size, taken from the complete conductor except for:

- copper alloy sizes 0,15 mm<sup>2</sup> and 0,25 mm<sup>2</sup>; and
- aluminium or copper clad aluminium from sizes 0,2 mm<sup>2</sup> to 5 mm<sup>2</sup>;

where the whole conductor shall be pulled.

**5.2 Conductors**

Measure three samples per size. These samples shall be firmly gripped and pulled without jerking.

Report values of the elongation and tensile strength at the first strand breaking.

**6 Requirements**

The values for elongation at break, tensile strength at break and elastic limit (when required) shall conform to those given in the product standard.

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