



BSI Standards Publication

## **Aerospace series — Cables, electrical, aircraft use — Test methods**

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Part 512: Flexure endurance

## National foreword

This British Standard is the UK implementation of EN 3475-512:2021. It supersedes BS EN 3475-512:2002, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ACE/6/-/2, Aerospace - Cables.

A list of organizations represented on this committee can be obtained on request to its committee manager.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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**Aerospace series - Cables, electrical, aircraft use - Test  
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Série aérospatiale - Câbles électriques à usage  
aéronautique - Méthodes d'essais - Partie 512 :  
Résistance à la flexion

Luft- und Raumfahrt - Elektrische Leitungen für  
Luftfahrtverwendung - Prüfverfahren - Teil 512:  
Wechselbiegefestigkeit

This European Standard was approved by CEN on 2 November 2020.

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

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## European foreword

This document (EN 3475-512:2021) 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 document 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 document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2021, and conflicting national standards shall be withdrawn at the latest by September 2021.

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 3475-512:2002.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this document: 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

The main changes with respect to the previous edition are listed in the following table.

prEN/EN Number	Edition	Publication Date	Modification
prEN 3475-512	P2	08/2019	<p>3 – Terms and definitions: Addition of this clause.</p> <p>5 – Apparatus and installation of specimens: Addition of “The test setup shall be designed to avoid any swing motion/displacement of the cable between the mandrels. The length should be sufficient to ensure that the weight shall not influence the bending motion.”</p> <p>7 – Requirement: Addition of method B. Addition of “Unless otherwise specified, only method A is required.”</p>

## **1 Scope**

This document specifies a method of testing flexure endurance of the cable when it is subjected to alternating flexing.

It is used together with EN 3475-100.

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

EN 3475-302, *Aerospace series — Cables, electrical, aircraft use — Test methods — Part 302: Voltage proof test*

## **3 Terms and definitions**

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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

## **4 Preparation of specimens and principle of test**

Take specimens of adequate length from a finished cable and install them on apparatus described hereafter.

This test makes it possible to determine the resistance of the cable to cycles of repeated flexing.

With the cable vertical, a cycle is defined by a rotation of 90° left, return to the vertical, rotation of 90° right and return to the vertical.

The damage is detected by conductor breakage and thus an interruption of electrical continuity between the two ends of the tested specimen.

The test is normally performed on gauge 20 cables.

It is carried out at ambient temperature.

## **5 Apparatus and installation of specimens**

The apparatus is described by Figure 1.

It is fitted with a counter and an automatic stop device controlled by interruption of electrical continuity.

The rotation speed shall be a uniform rate of  $(18 \pm 2)$  cycles/min.

The space between mandrels is equal to the maximum diameter of the tested cable.

The mandrel diameter  $D$  and weight  $M$  are specified in the product standard.