

**Corrosion protection of steel structures by
protective paint systems - Assessment of, and
acceptance criteria for, the adhesion/cohesion
(fracture strength) of a dry film - Part 1: Pull-off
testing**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 16276-1:2007 sisaldab Euroopa standardi EN ISO 16276-1:2007 ingliskeelset teksti.

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This Estonian standard EVS-EN ISO 16276-1:2007 consists of the English text of the European standard EN ISO 16276-1:2007.

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English Version

Corrosion protection of steel structures by protective paint systems - Assessment of, and acceptance criteria for, the adhesion/cohesion (fracture strength) of a coating - Part 1: Pull-off testing (ISO 16276-1:2007)

Anticorrosion des structures en acier par systèmes de peinture - Évaluation et critères d'acceptation de l'adhésion/cohésion (résistance à la rupture) d'un revêtement - Partie 1: Essai de traction (ISO 16276-1:2007)

Beschichtungsstoffe - Korrosionsschutz von Stahlbauten durch Beschichtungssysteme - Beurteilung der Adhäsion/Kohäsion (Haftfestigkeit) einer Beschichtung und Kriterien für deren Annahme - Teil 1: Abreißversuch (ISO 16276-1:2007)

This European Standard was approved by CEN on 14 May 2007.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN ISO 16276-1:2007) has been prepared by Technical Committee CEN/TC 139 "Paints and varnishes", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 35 "Paints and varnishes".

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of an identical text or by endorsement, at the latest by November 2007, and conflicting national standards shall be withdrawn at the latest by November 2007.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, 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 United Kingdom.

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*Anticorrosion des structures en acier par systèmes de peinture —
Évaluation et critères d'acceptation de l'adhésion/cohésion (résistance à
la rupture) d'un revêtement —*

Partie 1: Essai de traction



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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Principle	2
5 Apparatus and materials	3
6 Procedure	3
6.1 General	3
6.2 Field tests on coated structures	4
6.3 Preparation	4
6.4 Testing	5
6.5 Interpretation of results	6
7 Expression of results	7
8 Acceptance criteria	8
9 Test report	8
Bibliography	9

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 16276-1 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 139, *Paints and varnishes*, in collaboration with Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 14, *Protective paint systems for steel structures*.

ISO 16276 consists of the following parts, under the general title *Corrosion protection of steel structures by protective paint systems — Assessment of, and acceptance criteria for, the adhesion/cohesion (fracture strength) of a coating*:

- *Part 1: Pull-off testing*
- *Part 2: Cross-cut testing and X-cut testing*

Introduction

The main purpose of this part of ISO 16276 is to supplement the ISO 12944 series with regard to the field assessment of, and acceptance criteria for, the adhesion/cohesion of a coating.

To comply with this part of ISO 16276, laboratory testing of panels might be required.

This part of ISO 16276 introduces the term “fracture strength” which includes both adhesion and cohesion. Adhesion and cohesion are defined in ISO 4618, whereas the ISO 12944 series uses the term “adhesion” only.

NOTE This part of ISO 16276 is intended for the assessment of pull-off testing of paint coatings on steel structures on site. ISO 4624 specifies a pull-off test for laboratory use, without instructions for interpretation of the results and without acceptance or rejection criteria.

Fracture strength testing is normally destructive and therefore requires repair work, the extent of which will depend on the specification and on the durability required of the protective paint coating.

An objective of this part of ISO 16276 is to provide uniformity in the assessment of the fracture strength of a coating and to establish acceptance/rejection criteria for protective paint coatings. The method uses test equipment based on the pull-off principle.

Protective paint systems which have poor adhesion/cohesion will normally fail at fracture strength values significantly lower than the values quoted in the specification.

For a protective paint system with a particular fracture strength, a range of test values will be obtained from different types of equipment.

Specifying test equipment that gives, for a particular fracture strength, the highest test values does not necessarily indicate a higher durability for that protective paint system. Also, high test values for a particular fracture strength do not necessarily indicate a high durability for that protective paint system.

Corrosion protection of steel structures by protective paint systems — Assessment of, and acceptance criteria for, the adhesion/cohesion (fracture strength) of a coating —

Part 1: Pull-off testing

1 Scope

This part of ISO 16276 specifies procedures for assessing the fracture strength of a protective paint coating of any thickness on a steel substrate of thickness not less than 10 mm. The procedures given in this part of ISO 16276 are based on methods used with different types of pull-off test equipment. The results obtained using such different types of equipment are not comparable.

NOTE 1 Substrates of less than 10 mm in thickness can be tested if they are strengthened by the sandwich technique (see ISO 4624) or by the nature of the structure (e.g. I-beam or backing-plate). Otherwise, test panels with a thickness of at least 10 mm coated in the same way as the structure can be used, or the method specified ISO 16276-2 can be used.

This part of ISO 16276 is only applicable if a fracture strength value is specified, together with the type of test equipment and the manufacturer of the equipment. Usually, this information is included in contract documentation.

NOTE 2 A value for the fracture strength is only meaningful if the requirements concerning the ambient conditions (see 6.4.2) are met.

This part of ISO 16276 also specifies suitable equipment and defines inspection areas, sampling plans and acceptance/rejection criteria.

It does not give any values of the fracture strength of different protective paint coatings.

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.

ISO 4624, *Paints and varnishes — Pull-off test for adhesion*

ISO 12944-7, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 7: Execution and supervision of paint work*

ISO 12944-8, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 8: Development of specifications for new work and maintenance*

ISO 19840, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Measurement of, and acceptance criteria for, the thickness of dry films on rough surfaces*