

**Preparation of steel substrates before application of paints and related products - Surface roughness characteristics of blastcleaned steel substrates - Part 5: Replica tape method for the determination of the surface profile**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 8503-5:2005 sisaldab Euroopa standardi EN ISO 8503-5:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 22.02.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 8503-5:2005 consists of the English text of the European standard EN ISO 8503-5:2004.</p> <p>This document is endorsed on 22.02.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This part of ISO 8503 describes a field method for measuring the surface profile produced by any of the abrasive blast-cleaning procedures given in ISO 8504-2. The method uses replica tape and a suitable gauge for measuring, on site, the roughness of a surface before the application of paint or another protective coating.</p>	<p><b>Scope:</b></p> <p>This part of ISO 8503 describes a field method for measuring the surface profile produced by any of the abrasive blast-cleaning procedures given in ISO 8504-2. The method uses replica tape and a suitable gauge for measuring, on site, the roughness of a surface before the application of paint or another protective coating.</p>
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Võtmesõnad:

**English version**

Preparation of steel substrates before application of paints and related products

**Surface roughness characteristics of blast-cleaned  
steel substrates**

Part 5: Replica tape method for the determination of the surface profile  
(ISO 8503-5:2003)

Préparation des subjectiles d'acier avant  
application de peintures et de produits  
assimilés – Caractéristiques de rugo-  
sité des subjectiles d'acier décapés –  
Partie 5: Méthode de l'empreinte sur  
ruban adhésif pour la détermination du  
profil de surface (ISO 8503-5:2003)

Vorbereitung von Stahloberflächen vor  
dem Auftragen von Beschichtungsstof-  
fen – Rauheitskenngrößen von gestrahl-  
ten Stahloberflächen – Teil 5: Abdruck-  
verfahren zum Bestimmen der Rauheit  
(ISO 8503-5:2003)

This European Standard was approved by CEN on 2004-12-21.

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 Management Centre or to any CEN member.

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**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

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

## Foreword

International Standard

ISO 8503-5:2003 Preparation of steel substrates before application of paints and related products – Surface roughness characteristics of blast-cleaned steel substrates – Part 5: Replica tape method for the determination of the surface profile,

which was prepared by ISO/TC 35 'Paints and varnishes' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 139 'Paints and varnishes', the Secretariat of which is held by DIN, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by June 2005 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

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

## Endorsement notice

The text of the International Standard ISO 8503-5:2003 was approved by CEN as a European Standard without any modification.

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## Introduction

The performance of protective coatings of paint and related products applied to steel is significantly affected by the state of the steel surface immediately prior to painting. The principal factors that are known to influence this performance are:

- a) the presence of rust and mill scale;
- b) the presence of surface contaminants, including salts, dust, oils and greases;
- c) the surface profile.

International standards ISO 8501, ISO 8502 and ISO 8503 have been prepared to provide methods of assessing these factors, while ISO 8504 provides guidance on the preparation methods that are available for cleaning steel substrates, indicating the capabilities of each in attaining specified levels of cleanliness.

These International Standards do not contain recommendations for the protective coating systems to be applied to the steel surface. Neither do they contain recommendations for the surface quality requirements for specific situations, even though surface quality can have a direct influence on the choice of protective coating to be applied and on its performance. Such recommendations are found in other documents, such as national standards and codes of practice. It will be necessary for users of these International Standards to ensure that the qualities specified are

- compatible and appropriate both for the environmental conditions to which the steel will be exposed and for the protective coating system to be used;
- within the capability of the cleaning procedure specified.

The four International Standards referred to above deal with the following aspects of preparation of steel substrates:

ISO 8501 — *Visual assessment of surface cleanliness*;

ISO 8502 — *Tests for the assessment of surface cleanliness*;

ISO 8503 — *Surface roughness characteristics of blast-cleaned steel substrates*;

ISO 8504 — *Surface preparation methods*.

Each of these International Standards is in turn divided into separate parts.

It is important to note that numerical characterization of a surface profile is meaningful only when accompanied by an understanding of the errors of measurement and by the realization that different techniques may yield somewhat different numerical values for the profile. Estimates of measurement error associated with different techniques can be obtained from national or international standards or from the equipment manufacturers. As shown in Annex B, values given by the replica tape method align well with those obtained using other parts of ISO 8503.

Information regarding the magnitude of errors associated with use of replica tape is given in Annex A.

NOTE Advantages of the replica tape method include the fact that it affords numerical characterization, yields a permanent record, works well on curved surfaces and benefits from a geographically broad base of user experience over a period of several decades.

## 1 Scope

This part of ISO 8503 describes a field method for measuring the surface profile produced by any of the abrasive blast-cleaning procedures given in ISO 8504-2. The method uses replica tape and a suitable gauge for measuring, on site, the roughness of a surface before the application of paint or another protective coating.

The method is applicable within the range of profiles cited for a given grade (or thickness) of replica tape. The commercial grades currently available permit measurement of average peak-to-valley profiles of 20  $\mu\text{m}$  to 115  $\mu\text{m}$ . The method is valid for surfaces that have been cleaned with either metallic or non-metallic abrasives.

## 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 4618 (all parts), *Paints and varnishes — Terms and definitions for coating materials*

ISO 8503-1, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 1: Specifications and definitions for ISO surface profile comparators for the assessment of abrasive blast-cleaned surfaces*

ISO 8503-3, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 3: Method for the calibration of ISO surface profile comparators and for the determination of surface profile — Focusing microscope procedure*

ISO 8503-4, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 4: Method for the calibration of ISO surface profile comparators and for the determination of surface profile — Stylus instrument procedure*

ISO 8504-2, *Preparation of steel substrates before application of paints and related products — Surface preparation methods — Part 2: Abrasive blast-cleaning*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4618 and ISO 8503-1 apply.