Teraspindade ettevalmistamine enne värvide ja nendega seotud materjalide pealekandmist. Pritspuhastatud teraspinna kareduse iseloomustus. Osa 3: ISO pinnaprofiilikomparaatorite kalibreerimise ja pinnaprofiili määramise meetod. Fookustava mikroskoobi meetod (ISO 8503-3:2012)

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 8503-3:2012)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 8503-3:2012 sisaldab Euroopa standardi EN ISO 8503-3:2012 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 8503-3:2012 consists of the English text of the European standard EN ISO 8503-3:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.02.2012.	Date of Availability of the European standard is 15.02.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Võtmesõnad: determination, paints, steel products, substrates, surface condition, tests, varnishes,

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English Version

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 8503-3:2012)

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés - Caractéristiques de rugosité des subjectiles d'acier décapés - Partie 3: Méthode d'étalonnage des comparateurs viso-tactiles ISO et de classification d'un profil de surface - Utilisation d'un microscope optique (ISO 8503-3:2012)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen - Rauheitskenngrößen von gestrahlten Stahloberflächen - Teil 3: Verfahren zur Kalibrierung von ISO-Rauheitsvergleichsmustern und zur Bestimmung der Rauheit - Mikroskopverfahren (ISO 8503-3:2012)

This European Standard was approved by CEN on 14 February 2012.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

This document (EN ISO 8503-3:2012) has been prepared by Technical Committee ISO/TC 35 “Paints and varnishes” in collaboration with Technical Committee CEN/TC 139 “Paints and varnishes” the secretariat of which is held by DIN.

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 August 2012, and conflicting national standards shall be withdrawn at the latest by August 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 supersedes EN ISO 8503-3:1995.

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.

Endorsement notice

The text of ISO 8503-3:2012 has been approved by CEN as a EN ISO 8503-3:2012 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 (all parts), ISO 8502 (all parts) and ISO 8503 (all parts) have been prepared to provide methods of assessing these factors, while ISO 8504 (all parts) provides guidance on the preparation methods which are available for cleaning steel substrates, indicating the capabilities of each in attaining specified levels of cleanliness.

These International Standards do not contain provisions for the protective coating systems to be applied to the steel surface, nor for the surface quality provisions 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 provisions are found in other documents, such as national standards and codes of practice.

It is necessary for the users of these International Standards to ensure that the qualities specified are:

— compatible and appropriate both for the environmental conditions to which the steel is 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.

The optical microscope is one of the most widely used instruments for measuring surface profile. The method can be used by any laboratory equipped with a good microscope which has a calibrated focusing mechanism meeting the requirements of 5.1. This procedure can also be used to determine the profile of a substrate after abrasive blast-cleaning either directly or from a replica.

This method is based on that developed in the USA by the Steel Structures Painting Council (now the Society for Protective Coatings). It entails averaging a series of maximum peak-to-valley measurements obtained by focusing a specified microscope, first on the highest peak and then on the lowest valley in the same field of view, noting the distance of movement of the stage (or objective lens).

This method has the disadvantage of requiring a series of tedious measurements, but good precision and agreement between laboratories and between operators can be obtained by specifying closely the field of view and depth of field of the microscope. To avoid a widespread divergence in measuring profile within and between laboratories, this method requires a significant number of measurements as well as correct calibration, proper focus movement, standardized depth of field and field diameter of the microscope necessary to measure properly both coarse and fine profiles under a single set of conditions.

ISO 8503-4 describes the procedure using a stylus instrument. ISO 8503-1 specifies the requirements for ISO surface profile comparators and ISO 8503-2 describes their use. The many abrasive blast-cleaning procedures in common use are described in ISO 8504-2.

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

1 Scope

This part of ISO 8503 specifies the optical microscope and describes the procedure for calibrating ISO surface profile comparators conforming to the requirements of ISO 8503-1.

This part of ISO 8503 is also applicable to the determination of the surface profile, within the range $\overline{h_y}$ = 20 µm to 200 µm, of essentially planar blast-cleaned steel. The determination can be carried out on a representative section of the blast-cleaned substrate or, if direct observation of the surface is not feasible, on a replica of the surface (see Annex E).

NOTE Where appropriate, this procedure can be used for assessing the roughness profile of other abrasive blast-cleaned substrates.

An alternative procedure is described in ISO 8503-4.

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 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*

3 Terms and definitions

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

4 Principle

The test surface is observed over a specified field of view using a specified microscope. The microscope is adjusted, by movement of the objective lens (or the stage), to focus on the highest peak within the field of view. The distance, h_y, moved by the objective lens (or the stage) in order to focus on the lowest valley within the same field of view is determined.

The procedure is repeated to obtain values for a further 19 different fields of view, and calculation, of the arithmetic mean of the distance, h_y, between the highest peak and lowest valley in each field of view, as the mean maximum peak-to-valley height, $\overline{h_y}$, is performed.