

This is a preview of "ISO 8503-4:2012". [Click here to purchase the full version from the ANSI store.](#)

Second edition
2012-02-15

**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**

*Préparation des subjectiles d'acier avant application de peintures et
de produits assimilés — Caractéristiques de rugosité des subjectiles
d'acier décapés —*

*Partie 4: Méthode d'étalonnage des comparateurs viso-tactiles ISO et de
classification d'un profil de surface — Utilisation d'un appareil à palpeur*



Reference number
ISO 8503-4:2012(E)

© ISO 2012

This is a preview of "ISO 8503-4:2012". [Click here to purchase the full version from the ANSI store.](#)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

This is a preview of "ISO 8503-4:2012". Click here to purchase the full version from the ANSI store.

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Principle	2
5 Apparatus	2
6 Test surfaces	2
6.1 ISO surface profile comparator	2
6.2 Blast-cleaned steel substrates/replica	2
7 Procedure for measurement of maximum peak-to-valley height, R_y	4
8 Calculation and expression of results	5
9 Test report	5
Annex A (normative) Test report for the calibration of ISO surface profile comparators and for the determination of surface profiles	6
Annex B (normative) Form for recording surface profile measurements made in accordance with ISO 8503-4	7
Annex C (informative) Guidance notes for the preparation and measurement of replicas	8
Bibliography	9

This is a preview of "ISO 8503-4:2012". [Click here to purchase the full version from the ANSI store.](#)

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 8503-4 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 12, *Preparation of steel substrates before application of paints and related products*.

This second edition cancels and replaces the first edition (ISO 8503-4:1988), which has been editorially revised to improve the clarity.

ISO 8503 consists of the following parts, under the general title *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*
- *Part 2: Method for the grading of surface profile of abrasive blast-cleaned steel — Comparator procedure*
- *Part 3: Method for the calibration of ISO surface profile comparators and for the determination of surface profile — Focusing microscope procedure*
- *Part 4: Method for the calibration of ISO surface profile comparators and for the determination of surface profile — Stylus instrument procedure*
- *Part 5: Replica tape method for the determination of the surface profile*

This is a preview of "ISO 8503-4:2012". [Click here to purchase the full version from the ANSI store.](#)

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 or 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 stylus instrument is commonly used in the precision measurement of surface textures resulting from machining and abrading procedures. The method is highly reproducible and totally independent of the operator and, if required, some instruments can provide a graphical representation of the surface. This procedure can also be used to determine the profile of a substrate after abrasive blast-cleaning, either directly or from a replica.

ISO 8503-3 describes the procedure using an optical microscope. ISO 8503-1 specifies the requirements for ISO surface profile comparators, and ISO 8503-2 describes the procedure for their use. The many abrasive blast-cleaning procedures in common use are described in ISO 8504-2.