INTERNATIONAL STANDARD

ISO 8503-4

First edition
1988-02-01

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

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 pour étalonner les échantillons de comparaison viso-tactile ISO et pour caractériser un profil de surface — Utilisation d'un appareil à palpeur

Reference number
ISO 8503-4 : 1988 (E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8503-4 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes.*

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Printed in Switzerland

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0 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 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 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.

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 may 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 a focusing 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.

1 Scope and field of application

1.1 This part of ISO 8503 specifies the stylus instrument and describes the procedure for calibrating ISO surface profile comparators complying with the requirements of ISO 8503-1.

1.2 This part of ISO 8503 is also applicable to the determination of the surface profile, within the range $\overline{R}_{y5}$ = 20 to 200 µm, of essentially planar blast-cleaned steel. The determination may be carried out on a representative section of the blast-cleaned surface or, if direct observation of the surface is not feasible, on a replica of the surface (see annex C).

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

An alternative procedure is described in ISO 8503-3.