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Graphic technology — Method for radius determination of printing cylinders

Technologie graphique — Méthode de mesure du rayon de cylindres d'impression

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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

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 130, *Graphic technology*.

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Introduction

Although the external radius of the cylinders used in offset presses is fixed by the design of the printing press, there are applications in flexography and gravure printing where the diameter of individual cylinders is critical for the final result and has to be determined. This International Standard provides a recommended device and procedure to accomplish such measurements.

The body of this International Standard describes the operational principles and general requirements, including all relevant parameters necessary for the functional design. Different areas of application are covered in different annexes. For each particular application, a normative annex contains the set of critical parameters and a corresponding informative annex contains a set of technical drawings to be utilized in the creation of a suitable device. Functional variables are defined in the body of this International Standard and the aims and tolerances for each targeted application are given in the applicable normative annex.

Standard hand-held micrometers have traditionally been used for checking and determining the radius of printing cylinders. Because the micrometer positioning on a cylinder surface is normally carried out by a human operator, problems with poor repeatability, low precision, and weak reliability of the measurements have been reported. The test method and subsequent device(s) described in the present International Standard represent a cost-efficient, reliable, and operator-independent means of determining the radius of printing cylinders.

The normative annex included in this International Standard defines a particular methodology for measuring the external radius of flexographic printing sleeves and the informative annex provides guidance for the physical design of the instrument.

Sleeves are the structural, mechanical, and dimensional base of a printing forme for different web printing methods. Flexographic printing plates are assembled/mounted on the surface of a sleeve to create a printing forme. Dimensional variations of a sleeve radius can lead to length variations of the printed matter that can have a direct impact on the final appearance of prints. Dimensional variations of a sleeve radius can also have an impact on other functional properties (e.g. in the case of packaging).

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Graphic technology — Method for radius determination of printing cylinders

1 Scope

This International Standard defines a method for measuring the external radius of printing cylinders, specifies critical parameters and operational instructions and provides recommendations for instrument design.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1101:2004, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 4287, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters*

ISO 6507-1:2004, *Metallic metarials — Vickers hardness test — Part 1: Test method*

ISO 12637-1, *Graphic technology — Vocabulary — Part 1: Fundamental terms*

3 Terms, definitions, and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12637-1 and the following apply.

3.1.1
flexographic printing
forme-based process/method using flexible relief formes where the raised inked areas reproduce images onto a substrate using low viscosity inks

3.1.2
sleeve
seamless tube used to fasten printing plates to rapidly change printing forme on a press

3.1.3
mandrel
cylindrical shaft equipped with a mechanism that allows a sleeve to be securely attached

3.1.4
repeat
circumference of the external surface of a printing forme when installed for printing

Note 1 to entry: Sleeves are commonly designated by their repeat.

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