

ICS 37.100.10
CCS J 87



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 46644-2025

Method for radius determination of printing cylinders

印刷滚筒半径的测定方法

(English Translation)

Issued on: October 31, 2025

Implemented on: October 31, 2025

Issued by: State Administration for Market Regulation

Table of Contents

Preface
Introduction
1 Scope
2 Normative References
3 Terms, Definitions, and Symbols
3.1 Terms and Definitions
3.2 Symbol
4 Measuring instruments
4.1 Principle
4.2 Instruments
4.3 Materials
4.4 Dimensions of Key Functional Components
4.5 Indicators
4.6 Calibration Tools
5 Experimental Procedure
5.1 Calibration
5.2 General Measurement Environment
5.3 Preliminary Preparations
5.4 Measurement
6 Test Report
6.1 Required Information
6.2 Optional Information
Appendix A (Normative) Instruments for Measuring Medium-Sized Flexographic Printing Sleeves
A.1 General Provisions

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document adopts ISO 15341:2014 "Printing technology - Determination of the radius

of printing cylinders".

The following editorial changes have been made to this document.

---To align with existing standards, the standard name has been changed to "Method for Determination of Printing Cylinder Radius";

---In Table A.1, the steel grade "SS2172" has been replaced with "Q355B";

---In Tables B.2 and B.3, the standardized documents referenced for screws and washers should be replaced with the corresponding national standard documents;

---A "References" section has been added, listing the national standardization documents that should replace the standardization documents cited in Appendix B.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Printing Machinery (SAC/TC192).

Introduction

Although the outer radius of the cylinders used in offset printing presses is determined by the design of the printing press, in flexographic and gravure printing, the diameter of a single cylinder is...

The diameter is crucial to the final result, therefore it needs to be determined. This document specifies recommended instruments and procedures for performing such measurements.

This document primarily describes the operating principles and general requirements, including all relevant parameters needed for functional design. Various appendices cover...

Different application areas. For each specific application area, Appendix A contains a set of key parameters, and Appendix B contains information for manufacturing suitable equipment.

This document contains a set of technical drawings. It defines the functional variables, and Appendix A provides the objectives and tolerances for each target application.

Traditionally, standard handheld micrometers are used to inspect and determine the radius of printing cylinders. This is because the micrometer's positioning on the cylinder surface...

This is often performed by operators, which leads to problems such as poor measurement repeatability, low accuracy, and low reliability. The test methods and instruments described in this document...

The instrument is a cost-effective, reliable, and operator-independent method for determining the radius of a printing cylinder.

The sleeve is a key component in the structure, mechanics, and dimensions of printing plates used in various roll-to-roll printing methods. Flexographic printing plates are assembled/installed.

A printing plate is formed on the surface of the sleeve. Changes in the sleeve's radius will cause changes in the length of the printed material, thus directly affecting the printed image.

Final appearance. Variations in the sleeve radius can also affect other functional characteristics (e.g., printed packaging).

Method for determining the radius of a printing cylinder

1 Scope

This document specifies the measurement method for the radius of the printing cylinder, the key parameters of the measuring instrument, and the operating instructions, and provides guidance for the design of the measuring instrument.

Suggestions were offered.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 1182-2018 Product Geometric Specification (GPS) - Geometric Tolerances. Shape, Orientation, Position and Runout Tolerances (ISO 1101:2017, MOD) Note. The content referenced in GB/T 1182-2018 is not technically different from the content referenced in ISO 1101:2004 and ISO 1101:2017.

GB/T 3505-2009 Product Geometric Specification (GPS) - Terminology, Definitions and Surface Structure Parameters for Surface Structure Profile Method (ISO 4287:1997, IDT)
GB/T 4340.1-2024 Metallic materials - Vickers hardness test - Part 1: Test methods (ISO 6507-1:2023, MOD) Note. The content referenced in GB/T 4340.1-2024 has no technical differences from the content referenced in ISO 6507-1:2004 and ISO 6507-1:2023.

ISO 12637-1 Vocabulary for Printing Technology - Part 1: Basic Terminology

3.1 Terms and Definitions

The terms and definitions defined in ISO 12637-1, as well as the following terms and definitions, apply to this document.

3.1.1

Flexographic printing Using a flexible letterpress printing plate, image reproduction is achieved by transferring low-viscosity ink from raised inking areas onto a substrate (printing material).

Printing method.

3.1.2

sleeve

A seamless tube used on a printing press to hold the printing plate so that the plate (length) can be changed quickly.

3.1.3

mandrel spindle

A cylindrical shaft equipped with a retaining sleeve device.

3.1.4

repeat

The perimeter of the outer surface of the printing plate during printing.

Note: Sleeves are usually indicated by their (printed) repeat length.