

STN	Piestové odmerné prístroje Časť 7: Alternatívne metódy merania na stanovenie objemu (ISO 8655-7: 2022, opravená verzia 2023-01)	STN EN ISO 8655-7 70 4110
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Piston-operated volumetric apparatus - Part 7: Alternative measurement procedures for the determination of volume (ISO 8655-7:2022, Corrected version 2023-01)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 04/23

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EN ISO 8655-7

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English Version

**Piston-operated volumetric apparatus - Part 7: Alternative measurement procedures for the determination of volume
(ISO 8655-7:2022, Corrected version 2023-01)**

Appareils volumétriques à piston - Partie 7: Modes opératoires de mesure alternatifs pour la détermination de volumes (ISO 8655-7:2022, Version corrigée 2023-01)

Volumenmessgeräte mit Hubkolben - Teil 7: Alternative Prüfverfahren zur Bestimmung des Volumens (ISO 8655-7:2022, korrigierte Fassung 2023-01)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN ISO 8655-7:2022 (E)

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European foreword

This document (EN ISO 8655-7:2022) has been prepared by Technical Committee ISO/TC 48 "Laboratory equipment" in collaboration with Technical Committee CEN/TC 332 "Laboratory equipment" 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of an identical text or by endorsement, at the latest by November 2022, and conflicting national standards shall be withdrawn at the latest by November 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 8655-7:2005, EN ISO 8655-7:2005/AC:2009.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 8655-7:2022 has been approved by CEN as EN ISO 8655-7:2022 without any modification.

INTERNATIONAL STANDARD

ISO
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Second edition
2022-04

Corrected version
2023-01

Piston-operated volumetric apparatus —

Part 7: Alternative measurement procedures for the determination of volume

Appareils volumétriques à piston —

*Partie 7: Modes opératoires de mesure alternatifs pour la
détermination de volumes*



Reference number
ISO 8655-7:2022(E)

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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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 48, *Laboratory equipment*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 332, *Laboratory equipment*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 8655-7:2005), which has been technically revised. It also incorporates the Technical Corrigendum ISO 8655-7:2005/Cor.1:2008.

The main changes are as follows:

- a gravimetric test method was added (see [8.2](#));
- a photometric/gravimetric hybrid test method was added (see [8.5](#));
- a batch testing method was added (see [8.7](#));
- measurement procedures for all methods are given in normative [Annexes A](#) to [E](#);
- standard dispense procedures for POVA described in ISO 8655-2, ISO 8655-3, ISO 8655-4, ISO 8655-5, and ISO 8655-9 were added (see [Clause 9](#));
- requirements for operator qualification have been added (see [4.3](#));
- requirements for testing of multi-channel POVA is described in more detail, with specific procedures given for these apparatus (see [8.5](#), and [Annex D](#));
- [Annexes A](#), [B](#), and [C](#) of the first edition have been deleted and replaced.

A list of all parts in the ISO 8655 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

This corrected version of ISO 8655-7:2022 incorporates the following corrections:

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- decimal spaces replaced with commas in Table B.5 and Table C.3;
- in Table D.5, the dash is replaced with “25” in the second column, the concentration unit was updated to “mg/ml” and the concentration values for “mg/ml” were updated;
- in D.3.2.3, the concentration unit for 16,7 was updated from “µg/ml” to “mg/ml”;
- in D.3.2.4, the nominal concentration for 384-well plates was updated to 29,3 µg/ml;
- in D.4.5.1 and D.4.5.2, the term “conversion factor” is replaced with “correction factor”;
- the key to [Formula \(A.2\)](#) has been corrected;
- the year of publication of ISO 23783-2:— has been updated to ISO 23783-2:2022.

Introduction

The ISO 8655 series addresses the needs of:

- manufacturers, as a basis for quality control including, where appropriate, the issuance of manufacturer's declarations;
- calibration laboratories, test houses, users of the equipment and other bodies as a basis for independent calibration, testing, verification, and routine tests.

The tests specified in the ISO 8655 series are intended to be carried out by trained personnel.

Piston-operated volumetric apparatus —

Part 7:

Alternative measurement procedures for the determination of volume

1 Scope

This document specifies alternative measurement procedures for the determination of volume of piston-operated volumetric apparatus.

The procedures are applicable to complete systems comprising the basic apparatus and all parts selected for use with the apparatus, disposable or reusable, involved in the measurement by delivery process (Ex). Methods described in this document are suitable for various maximum nominal volumes of piston-operated volumetric apparatus. It is the responsibility of the user to select the appropriate method.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1042, *Laboratory glassware — One-mark volumetric flasks*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*

ISO 3951-1, *Sampling procedures for inspection by variables — Part 1: Specification for single sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection for a single quality characteristic and a single AQL*

ISO 8655-1, *Piston-operated volumetric apparatus — Part 1: Terminology, general requirements and user recommendations*

ISO 8655-2, *Piston-operated volumetric apparatus — Part 2: Pipettes*

ISO 8655-3, *Piston-operated volumetric apparatus — Part 3: Burettes*

ISO 8655-4, *Piston-operated volumetric apparatus — Part 4: Dilutors*

ISO 8655-5, *Piston-operated volumetric apparatus — Part 5: Dispensers*

ISO 8655-6, *Piston-operated volumetric apparatus — Part 6: Gravimetric reference measurement procedure for the determination of volume*

ISO 8655-8, *Piston-operated volumetric apparatus — Part 8: Photometric reference measurement procedure for the determination of volume*

ISO 8655-9, *Piston-operated volumetric apparatus — Part 9: Manually operated precision laboratory syringes*

ISO/IEC Guide 2, *Standardization and related activities — General vocabulary*

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ISO/IEC Guide 99, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN