
Volumetrične naprave, delujoče na bat - 3. del: Birete (ISO/DIS 8655-3:2020)

Piston-operated volumetric apparatus - Part 3: Burettes (ISO/DIS 8655-3:2020)

Volumenmessgeräte mit Hubkolben - Teil 3: Büretten (ISO/DIS 8655-3:2020)

Appareils volumétriques à piston - Partie 3: Burettes (ISO/DIS 8655-3:2020)

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Piston-operated volumetric apparatus —

Part 3: Burettes

*Appareils volumétriques à piston —**Partie 3: Burettes*

ICS: 17.060

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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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html. (standards.iteh.ai)

This document was prepared by Technical Committee ISO/TC 48, *Laboratory equipment*.

This second edition cancels and replaces the first edition (ISO 8655-3:2002 and ISO 8655-3:2002/Cor 1:2008) which has been technically revised.

The main changes compared to the previous edition are as follows:

- ISO 8655-7, ISO 8655-8 and ISO 8655-9 have been added as normative references;
- [Tables 1](#) and [2](#) have been revised.

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.

Introduction

ISO 8655 addresses the needs of:

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

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

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Piston-operated volumetric apparatus —

Part 3: Burettes

1 Scope

This part of ISO 8655 specifies

- metrological requirements,
- maximum permissible errors,
- requirements for marking and
- information to be provided for users,

for burettes. It applies to burettes with nominal volumes up to 100 ml, designed to deliver their specified volume (Ex).

NOTE General requirements and definitions of terms for piston-operated volumetric apparatus are given in ISO 8655-1. The gravimetric reference measurement procedure for the determination of volume is given in ISO 8655-6. The photometric reference measurement procedure for the determination of volume is given in ISO 8655-8. Alternative methods for the determination of volume are described in ISO 8655-7. For safety requirements of electrically powered burettes, see regional or national safety standards.

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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 3696:1991, *Water for analytical laboratory use — Specification and test methods*

ISO/DIS 8655-1:2020, *Piston-operated volumetric apparatus — Part 1: Terminology, general requirements and user recommendations*

ISO/DIS 8655-6:2020, *Piston-operated volumetric apparatus — Part 6: Gravimetric reference measurement procedure for the determination of volume*

ISO/DIS 8655-7:2020, *Piston-operated volumetric apparatus — Part 7: Alternative test methods for the determination of volume*

ISO/DIS 8655-8:2020, *Piston-operated volumetric apparatus — Part 8: Photometric reference measurement procedure for the determination of volume*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/DIS 8655-1:2020 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

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4 Principle of operation

Burettes are used for the accurate delivery of liquids. In contrast with pipettes, dispensers and dilutors, which are designed to dispense accurately preselected volumes, burettes are required to dispense volumes of liquids until external criteria such as pH or conductivity are met, at which point it is necessary to know the accurate volume dispensed.

The piston may be operated manually, electrically, pneumatically or hydraulically. The volume delivered may be indicated mechanically or by electronic means. The drive, the piston and the cylinder may be one unit, or modular to permit the use of different pistons and cylinders (change-over units) with the same drive.

Prior to delivery, the piston system is charged by aspiration of liquid from a reservoir. After air-bubble-free filling of the system, movement of the piston in one direction dispenses the liquid whose volume is to be measured; movement in the other direction recharges the system from the reservoir (see [Figure 1](#)).

Burettes may or may not be equipped with valves or may have several piston/cylinder systems which dispense continuously.

Manufacturers' instruction manuals should contain detailed and specific information about the proper operation of burettes.

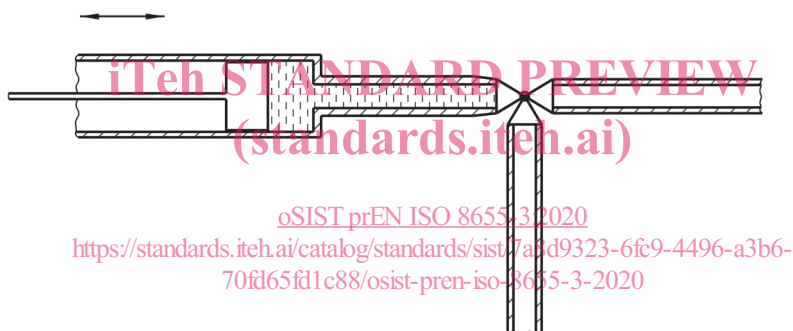


Figure 1 — Schematic drawing of a piston burette

5 Adjustment

5.1 Basis of adjustment

A burette shall be adjusted for the delivery (Ex) of its nominal volume (or selected volume, in the case of a variable-volume model).

For countries that have adopted the standard reference temperature of 20 °C, the adjustment shall be for the temperature 20 °C, a relative air humidity of 50 % and a barometric pressure of 101,3 kPa, when handling grade 3 water as specified in ISO 3696.

For those countries that have adopted a standard reference temperature of 27 °C, the adjustment shall be for the temperature 27 °C, a relative air humidity of 50 % and a barometric pressure of 101,3 kPa, when handling grade 3 water as specified in ISO 3696.

5.2 Initial adjustment

A burette shall be provided with an initial adjustment.