



SLOVENSKI STANDARD
oSIST prEN ISO 8655-5:2020

01-oktober-2020

Volumetrične naprave, delujoče na bat - 5. del: Razdeljevalci (ISO/DIS 8655-5:2020)

Piston-operated volumetric apparatus - Part 5: Dispensers (ISO/DIS 8655-5:2020)

Volumenmessgeräte mit Hubkolben - Teil 5: Dispenser (ISO/DIS 8655-5:2020)

Appareils volumétriques à piston - Partie 5: Dispenseurs (ISO/DIS 8655-5:2020)

Ta slovenski standard je istoveten z: prEN ISO 8655-5

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ICS:

17.060	Merjenje prostornine, mase, gostote, viskoznosti	Measurement of volume, mass, density, viscosity
71.040.20	Laboratorijska posoda in aparati	Laboratory ware and related apparatus

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Piston-operated volumetric apparatus —

Part 5: Dispensers

*Appareils volumétriques à piston —**Partie 5: Dispenseurs*

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 8655-5:2002 and ISO 8655-5:2002/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;
- Metrological Performance requirements for dispenser tips have been further specified;
- [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 5: Dispensers

1 Scope

This part of ISO 8655 specifies

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

for dispensers. It applies to dispensers with nominal volumes from 1 µl up to 200 ml, designed to deliver their 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 dispensers, see regional or national safety standards.

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 part of ISO 8655, 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

Dispensers are used for the accurate repetitive delivery (dispensing) of preset liquid volumes. They are of two types:

- single-stroke dispensers providing a single delivery from each filling stroke;
- multiple delivery dispensers or ratchet-based systems providing multiple deliveries from each filling stroke.

The piston may be operated manually, electrically, pneumatically or hydraulically. Drive mechanism, piston and cylinder may be a single unit or may be separable by simple hand actions, so that different pistons and cylinders (change-over units) may be used with the same drive mechanism.

During operation, the aspiration tube dips into the reservoir containing the fluid to be dispensed. After the system has been primed with fluid, assuring that it is free of any air, the piston aspirates fluid by moving in one direction and delivers the fluid to be measured by moving in the opposite direction.

Dispensers may be constructed with or without valves. The metrological characteristics of dispensers are dependent on, among other things, the material and workmanship of the aspiration and delivery tubing used. The dispenser shall therefore be provided together with the necessary tubing or suggestion or statement about the characteristics the tubing shall have in order to meet the metrological demands placed on the system.

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

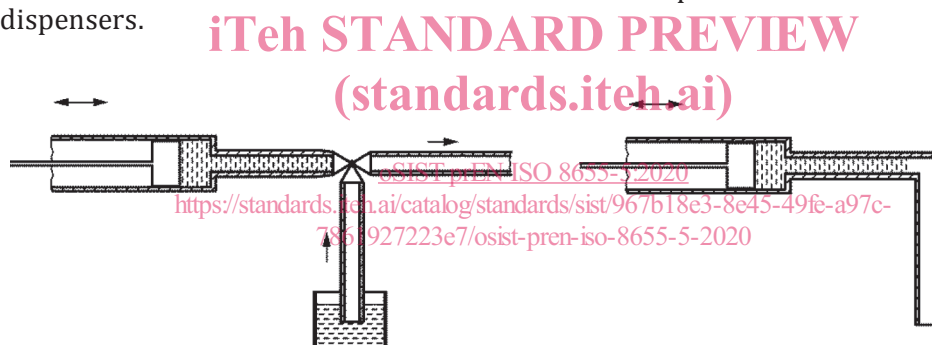


Figure 1 — Schematic drawing of dispensers with and without valves

5 Adjustment

5.1 Basis of adjustment

A dispenser 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 dispenser shall be provided with an initial adjustment.