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Irish Standard  
I.S. EN ISO 8655-1:2002

# Piston-operated volumetric apparatus - Part 1: Terminology, general requirements and user recommendations (ISO 8655 -1:2002)

## I.S. EN ISO 8655-1:2002

*Incorporating amendments/corrigenda issued since publication:*

EN ISO 8655-1:2002/AC:2009

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Piston-operated volumetric apparatus - Part 1: Terminology, general requirements and user recommendations (ISO 8655-1:2002/Cor 1:2008)

Appareils volumétriques à piston - Partie 1:  
Définitions, exigences générales et  
recommandations pour l'utilisateur (ISO  
8655-1:2002/Cor 1:2008)

Volumenmessgeräte mit Hubkolben - Teil  
1: Begriffe, allgemeine Anforderungen und  
Gebrauchsempfehlungen (ISO 8655-  
1:2002/Cor 1:2008)

This corrigendum becomes effective on 18 February 2009 for incorporation in the three official language versions of the EN.

Ce corrigendum prendra effet le 18 février 2009 pour incorporation dans les trois versions linguistiques officielles de la EN.

Die Berichtigung tritt am 18. Februar 2009 zur Einarbeitung in die drei offiziellen Sprachfassungen der EN in Kraft.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

**EN ISO 8655-1:2002/AC:2009 (E)**      **I.S. EN ISO 8655-1:2002**

**Endorsement notice**

The text of ISO 8655-1:2002/Cor.1:2008 has been approved by CEN as a European Corrigendum without any modification.



**I.S. EN ISO 8655-1:2002**  
**INTERNATIONAL STANDARD ISO 8655-1:2002**  
**TECHNICAL CORRIGENDUM 1**

Published 2008-12-15

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

TECHNICAL CORRIGENDUM 1

*Appareils volumétriques à piston —*

*Partie 1: Définitions, exigences générales et recommandations pour l'utilisateur*

*RECTIFICATIF TECHNIQUE 1*

Technical Corrigendum 1 to ISO 8655-1:2002 was prepared by Technical Committee ISO/TC 48, *Laboratory equipment*, Subcommittee SC 6, *Laboratory and volumetric ware*.

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*Page iv, Foreword*

Add the following part to the list of parts:

— *Part 7: Non-gravimetric methods for the assessment of equipment performance*

Delete “The following part is under preparation.” and the former title of part 7.

*Page 1, Scope*

In the note, replace the third sentence with the following:

“Alternative test methods such as photometric and titrimetric methods are given in ISO 8655-7.”

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**ICS 01.040.17; 17.060**

**Ref. No. ISO 8655-1:2002/Cor.1:2008(E)**

Page 2, 3.1.2 (Note 1) and 3.1.3 (Note 1)

Replace "ISO 3534-1" with "ISO 3534-2".

Page 3, 3.1.10

At the end of the definition, replace "20 °C" with "20 °C or 27 °C" to give:

**3.1.10  
adjustment**

⟨piston-operated volumetric apparatus⟩ manufacture of an apparatus within appropriate tolerances, or the supplier's setting of the apparatus, ensuring the metrological performance, as specified in the applicable part of ISO 8655, for a reference temperature of 20 °C or 27 °C

Page 8, Annex A

In the first column of the table, after "Uncertainty of measurement", delete the reference to table footnote b).

Replace table footnote b) with "The term is defined in ISO 3534-2."

Page 9, Bibliography

Replace Reference [1] with the following:

[1] ISO 3534-2, *Statistics — Vocabulary and symbols — Part 2: Applied statistics*

Replace Reference [5] with the following:

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

I.S. EN ISO 8655-1:2002

EUROPEAN STANDARD

**EN ISO 8655-1**

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**Piston-operated volumetric apparatus - Part 1: Terminology,  
general requirements and user recommendations (ISO 8655-  
1:2002)**

Appareils volumétriques à piston - Partie 1: Définitions,  
exigences générales et recommandations pour l'utilisateur  
(ISO 8655-1:2002)

Volumenmessgeräte mit Hubkolben - Teil 1: Begriffe,  
allgemeine Anforderungen und Gebrauchsempfehlungen  
(ISO 8655-1:2002)

This European Standard was approved by CEN on 13 July 2002.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

**I.S. EN ISO 8655-1:2002**

**EN ISO 8655-1:2002 (E)**

**Foreword**

This document (ISO 8655-1:2002) has been prepared by Technical Committee ISO/TC 48 "Laboratory glassware and related apparatus" 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 March 2003, and conflicting national standards shall be withdrawn at the latest by March 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

**Endorsement notice**

The text of the International Standard ISO 8655-1:2002 has been approved by CEN as a European Standard without any modifications.



I.S. EN ISO 8655-1:2002

# INTERNATIONAL STANDARD

**ISO**  
**8655-1**

First edition  
2002-09-15

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

*Appareils volumétriques à piston —*

*Partie 1: Définitions, exigences générales et recommandations pour  
l'utilisateur*



Reference number  
ISO 8655-1:2002(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 8655 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 8655-1 was prepared by Technical Committee ISO/TC 48, *Laboratory glassware and related apparatus*, Subcommittee SC 1, *Volumetric instruments*.

ISO 8655 consists of the following parts, under the general title *Piston-operated volumetric apparatus*:

- *Part 1: Terminology, general requirements and user recommendations*
- *Part 2: Piston pipettes*
- *Part 3: Piston burettes*
- *Part 4: Dilutors*
- *Part 5: Dispensers*
- *Part 6: Gravimetric methods for the determination of measurement error*

The following part is under preparation:

- *Part 7: Non-gravimetric methods for the determination of measurement error*

Annex A forms a normative part of this part of ISO 8655.

## **Introduction**

ISO 8655 addresses the needs of:

- suppliers, as a basis for quality control including, where appropriate, the issuance of supplier's declarations;
- test houses and other bodies, as a basis for independent certification;
- users of the equipment, to enable routine checking of accuracy.

The tests specified should be carried out by trained personnel.

**I.S. EN ISO 8655-1:2002**

# Piston-operated volumetric apparatus —

## Part 1:

# Terminology, general requirements and user recommendations

## 1 Scope

This part of ISO 8655 specifies the general requirements for piston-operated volumetric apparatus. It is applicable to piston pipettes, piston burettes, dilutors and dispensers. It furthermore defines terms for the use of piston-operated volumetric apparatus and gives user recommendations.

ISO 8655 is not applicable to medical products intended for use on human beings, e.g. for medical syringes.

NOTE For metrological requirements, maximum permissible errors, requirements for marking and information to be provided for users for piston-operated volumetric apparatus, see ISO 8655-2 for piston pipettes, see ISO 8655-3 for piston burettes, see ISO 8655-4 for dilutors and see ISO 8655-5 for dispensers. Conformity testing (type evaluation) of piston-operated volumetric apparatus is given in ISO 8655-3. Alternative test methods such as photometric and titrimetric methods will be the subject of a future Part 7 to ISO 8655. For all other tests (e.g. quality assurance by the supplier, analytical and measuring equipment quality assurance by the user) see ISO 8655-6 or alternative test methods.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 8655. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 8655 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 8655-2:2002, *Piston-operated volumetric apparatus — Part 2: Piston pipettes*

ISO 8655-3:2002, *Piston-operated volumetric apparatus — Part 3: Piston burettes*

ISO 8655-4:2002, *Piston-operated volumetric apparatus — Part 4: Dilutors*

ISO 8655-5:2002, *Piston-operated volumetric apparatus — Part 5: Dispensers*

ISO 8655-6:2002, *Piston-operated volumetric apparatus — Part 6: Gravimetric methods for the determination of measurement error*

IEC 60073, *Basic and safety principles for man-machine interface, marking and identification — Coding principles for indication devices and actuators*

IEC 61010-1, *Safety requirements for electrical equipment for measurement, control and laboratory use — Part 1: General requirements*

IEC 61326-1, *Electrical equipment for measurement, control and laboratory use — EMC requirements*

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