

## **Piston-operated volumetric apparatus - Part 4: Dilutors**

Piston-operated volumetric apparatus - Part 4:  
Dilutors

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 8655-4:2003 sisaldab Euroopa standardi EN ISO 8655-4:2002 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.02.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 8655-4:2003 consists of the English text of the European standard EN ISO 8655-4:2002.</p> <p>This document is endorsed on 18.02.2003 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b> This part of ISO 8655 specifies - metrological requirements, - maximum permissible errors, - requirements for marking and - information to be provided for users, for dilutors with a sample uptake capacity from 5 µl to 100 ml. They are designed to deliver the sample and diluent together in measured proportion and measured volume</p>	<p><b>Scope:</b> This part of ISO 8655 specifies - metrological requirements, - maximum permissible errors, - requirements for marking and - information to be provided for users, for dilutors with a sample uptake capacity from 5 µl to 100 ml. They are designed to deliver the sample and diluent together in measured proportion and measured volume</p>
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**Võtmesõnad:** dilutors, error limits, marking, measuring instruments, piston meters, pistons, specification (approval), specifications, testing, volumetric apparatus, volumetric meters

ICS 17.060

**English version**

**Piston-operated volumetric apparatus**

Part 4: Dilutors  
(ISO 8655-4 : 2002)

Appareils volumétriques à piston –  
Partie 4: Diluteurs  
(ISO 8655-4 : 2002)

Volumenmessgeräte mit Hubkolben –  
Teil 4: Dilutoren  
(ISO 8655-4 : 2002)

This European Standard was approved by CEN on 2002-07-13.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

The European Standards exist 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.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

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

Foreword

International Standard  
ISO 8655-4 : 2002 Piston-operated volumetric apparatus – Part 4: Dilutors,  
which was prepared by ISO/TC 48 ‘Laboratory glassware and related apparatus’ of the International Organi-  
zation for Standardization, has been adopted by Technical Committee CEN/TC 332 ‘Laboratory equipment’,  
the Secretariat of which is held by DIN, as a European Standard.  
This European Standard shall be given the status of a national standard, either by publication of an identical  
text or by endorsement, and conflicting national standards withdrawn, by March 2003, at the latest.  
In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the follow-  
ing countries are bound to implement this European Standard:  
Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy,  
Luxembourg, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 8655-4 : 2002 was approved by CEN as a European Standard without  
any modification.  
NOTE: Normative references to international publications are listed in Annex ZA (normative.)

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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.

## 1 Scope

This part of ISO 8655 specifies

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

for dilutors with a sample uptake capacity (In) from 5  $\mu$ l to 10 ml and a diluent capacity (Ex) from 50  $\mu$ l to 100 ml. They are designed to deliver the sample and diluent together in measured proportion and measured volume.

NOTE General requirements and definitions of terms for piston-operated volumetric apparatus are given in ISO 8655-1. Conformity testing (type evaluation) of piston-operated volumetric apparatus is given in ISO 8655-6. 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. For safety requirements of electrically powered piston dilutors, see IEC 61010-1.

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

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

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

## 3 Terms and definitions

For the purposes of this part of ISO 8655, the terms and definitions given in ISO 8655-1 apply.