

GAASIARVESTID. MEMBRAANGAASIARVESTID

Gas meters - Diaphragm gas meters

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 1359:2017 sisaldab Euroopa standardi EN 1359:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 1359:2017 consists of the English text of the European standard EN 1359:2017.
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English Version

Gas meters - Diaphragm gas meters

Compteurs de gaz - Compteurs de volume de gaz à
parois déformables

Gaszähler - Balgengaszähler

This European Standard was approved by CEN on 14 May 2017.

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European foreword

This document (EN 1359:2017) has been prepared by Technical Committee CEN/TC 237 “Gas meters”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by January 2018, and conflicting national standards shall be withdrawn at the latest by January 2018.

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 1359:1998.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

Significant changes from the previous editions include:

- conformity with the MID 2014/32/EU regarding declared errors of the same sign and testing $Q_{\min}$ at the minimum and maximum declared gas temperatures;
- corrosion protection restructured;
- endurance testing for residential meters revised to reflect better the in-service life;
- provision for meters with electronic indexes and integrated valves, and requirements for additional functionalities as given in EN 16314;
- adhesion testing of labels.

Annex B has been restructured to give additional requirements for meters provided with a built-in gas temperature conversion device.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the requirements and tests for the construction, performance, safety and production of class 1,5 diaphragm gas meters (referred to as meters). This applies to meters with co-axial single pipe, or two pipe connections, that are used to measure volumes of fuel gases, which are within the limits of test gases of the 1st, 2nd and 3rd families described in EN 437. The meters have maximum working pressures not exceeding 0,5 bar and maximum actual flow rates not exceeding $160 \text{ m}^3\text{h}^{-1}$ over a minimum ambient temperature range of -10°C to 40°C and a gas temperature range as specified by the manufacturer with a minimum range of 40 K.

This standard applies to meters with and without built-in temperature conversion that are installed in locations with vibration and shocks of low significance (see MID Annex 1 Chapter 1.3.2 (a), class M1). It also applies to meters in:

- closed locations (indoor or outdoor with protection as specified by the manufacturer) both with condensing humidity, or with non-condensing humidity;

or, if specified by the manufacturer:

- open locations (outdoor without any covering) both with condensing humidity and with non-condensing humidity;
- in locations with electromagnetic disturbances corresponding to those likely to be found in residential, commercial and light industrial buildings (see MID Annex 1 Chapter 1.3.3 (a), class E1).

Unless otherwise stated, all pressures given in this document are gauge pressure.

Requirements for electronic indexes, batteries, valves incorporated in the meter and other additional functionalities are given in EN 16314.

Unless otherwise stated in a particular test, the tests are carried out on meters that include additional functionality devices intended by the manufacturer.

Clauses 1 to 9 and Annexes B and C are for design and type testing only.

NOTE The content of OIML Publication 'International Recommendation R 137' has been taken into account in the drafting of this standard.

If no specific requirements are given for test equipment, the instruments used should be traceable to a national or international reference standard and the uncertainty (2σ) should be better than 1/5 of the maximum value of the parameter to be tested. For differential results the repeatability (2σ)/resolution should be better than 1/5 of the maximum value of the parameter to be tested.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 549, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*

EN 16314:2013, *Gas meters - Additional functionalities*

EN 60730-1:2011, *Automatic electrical controls for household and similar use - Part 1: General requirements (IEC 60730-1:2011)*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation (ISO 228-1)*

EN ISO 1518-1, *Paints and varnishes - Determination of scratch resistance - Part 1: Constant-loading method (ISO 1518-1)*

EN ISO 2409, *Paints and varnishes - Cross-cut test (ISO 2409)*

EN ISO 2812-1:2007, *Paints and varnishes - Determination of resistance to liquids - Part 1: Immersion in liquids other than water (ISO 2812-1:2007)*

EN ISO 4628-2, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 2: Assessment of degree of blistering (ISO 4628-2)*

EN ISO 4628-3:2016, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 3: Assessment of degree of rusting (ISO 4628-3:2016)*

EN ISO 4892-2:2013, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps (ISO 4892-2:2013)*

EN ISO 6270-1, *Paints and varnishes - Determination of resistance to humidity - Part 1: Continuous condensation (ISO 6270-1)*

EN ISO 6272-2, *Paints and varnishes - Rapid-deformation (impact resistance) tests - Part 2: Falling-weight test, small-area indenter (ISO 6272-2)*

EN ISO 9227:2012, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227)*

EN ISO 11664-4, *Colorimetry - Part 4: CIE 1976 L*a*b* Colour space (ISO 11664-4)*

ISO 834-1, *Fire-resistance tests — Elements of building construction — Part 1: General requirements*

ISO 5168, *Measurement of fluid flow — Procedures for the evaluation of uncertainties*

ISO 7005-1:2011, *Pipe flanges — Part 1: Steel flanges for industrial and general service piping systems*

ASTM D1003, *Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1

air

air of density approximately $1,2 \text{ kgm}^{-3}$

3.1.2

gas volume meter

instrument designed to measure, memorize and display the volume of a fuel gas that has passed through it