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Gas meters - Rotary displacement gas meters

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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EUROPEAN STANDARD **EN 12480**

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Supersedes EN 12480:2002

English Version

Gas meters - Rotary displacement gas meters

Compteurs de gaz - Compteurs de gaz à déplacement rotatif

Gaszähler - Drehkolbengaszähler

This European Standard was approved by CEN on 11 January 2015.

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 CEN-CENELEC Management Centre or to any CEN member.

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 CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 12480:2015) 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of an identical text or by endorsement, at the latest by September 2015 and conflicting national standards shall be withdrawn at the latest by September 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12480:2002.

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 Directives.

For relationship with EU Directives, see informative Annex ZA and ZB, which are integral parts of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organizations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies ranges, construction, performances, output characteristics and testing of rotary displacement gas meters (hereinafter referred to as RD meters or simply meters) for gas volume measurement.

This European Standard applies to rotary displacement gas meters used to measure the volume of fuel gases of at least the 1st, 2nd and 3rd gas families, the composition of which is specified in EN 437:2003+A1:2009, at a maximum working pressure up to and including 20 bar over an ambient and gas temperature range of at least −10 °C to +40 °C.

This European Standard applies to meters that are installed in locations with vibration and shocks of low significance and in

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

or, if specified by the manufacturer,

- open locations (outdoor without any covering) with condensing humidity or with non-condensing humidity;

Unless otherwise specified in this standard:

- all pressures used are gauge;

- all influence quantities, except the one under test, are kept relatively constant at their reference value.

This European Standard also applies to meters with a maximum allowable pressure PS and the volume *V* of less than 6 000 bar · litres or with a product of PS and DN of less than 3 000 bar.

NOTE These limits are the same as in EU directive 97/23/EC.

This European Standard can be used for both pattern approval and individual meter testing. Cross-reference tables are given in:

- Annex A for the tests that need to be undertaken for pattern approval;

- Annex B for individual meter testing.

Some parts of this standard cover meters with mechanical index only.

The risk philosophy adopted in this standard is based on the analysis of hazards on account of pressure. The standard applies principles to eliminate or reduce hazards. Where these hazards cannot be eliminated appropriate protection measures are specified.

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 485-2:2013, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 2: Mechanical properties*

EN 586-2:1994, *Aluminium and aluminium alloys - Forgings - Part 2: Mechanical properties and additional property requirements*

EN 754-2:2013, *Aluminium and aluminium alloys - Cold drawn rod/bar and tube - Part 2: Mechanical properties*

EN 755-2:2013, *Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 2: Mechanical properties*

EN 1057:2006+A1:2010, *Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1092-1:2007+A1:2013, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 1: Steel flanges*

EN 1092-2:1997, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 2: Cast iron flanges*

EN 1092-3:2003, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 3: Copper alloy flanges*

EN 1092-4:2002, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 4: Aluminium alloy flanges*

EN 1563:2011, *Founding - Spheroidal graphite cast irons*

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EN 1759-3:2003, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, Class designated - Part 3: Copper alloy flanges*

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EN 10028-3:2009, *Flat products made of steels for pressure purposes - Part 3: Weldable fine grain steels, normalized*

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EN 10028-6:2009, *Flat products made of steels for pressure purposes - Part 6: Weldable fine grain steels, quenched and tempered*

EN 10028-7:2007, *Flat products made of steels for pressure purposes - Part 7: Stainless steels*

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EN 10083-2:2006, *Steels for quenching and tempering - Part 2: Technical delivery conditions for non alloy steels*

EN 10087:1998, *Free-cutting steels - Technical delivery conditions for semi-finished products, hot-rolled bars and rods*

EN 10088-1:2014, *Stainless steels - List of stainless steels*

EN 10088-3:2014, *Stainless steels - Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes*

EN 10111:2008, *Continuously hot rolled low carbon steel sheet and strip for cold forming - Technical delivery conditions*

EN 10130:2006, *Cold rolled low carbon steel flat products for cold forming - Technical delivery conditions*

EN 10204:2004, *Metallic products - Types of inspection documents*

EN 10222-1:1998, *Steel forgings for pressure purposes - Part 1: General requirements for open die forgings*

EN 10222-5:1999, *Steel forgings for pressure purposes - Part 5: Martensitic, austenitic and austenitic-ferritic stainless steels*

EN 10213:2007, *Steel castings for pressure purposes*

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EN 12516-2:2014, *Industrial valves - Shell design strength - Part 2: Calculation method for steel valve shells*

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EN 60730-1:2000, *Automatic electrical controls for household and similar use - Part 1: General requirements*

EN 61000-6, *Electromagnetic compatibility (EMC) Generic standards (IEC 61000-6)*

EN ISO 898-1:2013, *Mechanical properties of fasteners made of carbon steel and alloy steel - Part 1: Bolts, screws and studs with specified property classes - Coarse thread and fine pitch thread (ISO 898-1:2013)*

EN ISO 898-2:2012, *Mechanical properties of fasteners made of carbon steel and alloy steel - Part 2: Nuts with specified property classes - Coarse thread and fine pitch thread (ISO 898-2:2012)*

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EN ISO 10675-1:2013, *Non-destructive testing of welds - Acceptance levels for radiographic testing - Part 1: Steel, nickel, titanium and their alloys (ISO 10675-1:2008)*

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EN ISO 15614-1:2004, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2004)*

EN ISO 15614-2:2005, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 2: Arc welding of aluminium and its alloys (ISO 15614-2:2005)*

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ISO 8434 (all parts), *Hydraulic fluid power — Connection for tubes and hoses — Dimensions and designs for 37 degrees flare and 24 degrees flareless fittings*

ISO 17663:2009, *Welding — Quality requirements for heat treatment in connection with welding and allied processes*

ASTM A 105/A 105M:2011, *Standard Specification for Carbon Steel Forgings for Piping Applications*

ASTM A 106/A 106M:2011, *Standard Specification for Seamless Carbon Steel Pipe for High Temperature Service*

ASTM A 182/A 182M:2012, *Standard Specification for Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High Temperature Service*

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ASTM A 333/A 333M:2011, *Specification for Seamless and Welded Steel Pipe for Low-Temperature Service*

ASTM A 350/A 350M:2010, *Standard Specification for Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Components*

ASTM A 395/A 395M:2009, *Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures*

ASTM A 420/A 420M:2006, *Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service*

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ASTM A 536:2009, *Standard Specification for Ductile Iron Castings*

ASTM A 564/A 564M:2010, *Standard Specification for Hot Rolled and Cold Finished Age Hardening Stainless Steel Bars and Shapes*

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ASTM A 707/A 707M:2010, *Standard Specification for Forged Carbon and Alloy Steel Flanges for Low Temperature Service*

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