

Gaasitaristu. Torustikud maksimaalse töö rõhuga kuni 16 bar (kaasa arvatud). Osa 2: Talitluslikud erinõuded polüetüleentorustikele (MOP kuni 10 bar [kaasa arvatud])

Gas infrastructure - Pipelines for maximum operating pressure up to and including 16 bar - Part 2: Specific functional requirements for polyethylene (MOP up to and including 10 bar)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12007-2:2012 sisaldab Euroopa standardi EN 12007-2:2012 ingliskeelset teksti.

Standard on jõustunud sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.08.2012.

Standard on kättesaadav Eesti Standardikeskusest.

This Estonian standard EVS-EN 12007-2:2012 consists of the English text of the European standard EN 12007-2:2012.

This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.

Date of Availability of the European standard is 01.08.2012.

The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 23.040.20

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Aru 10, 10317 Tallinn, Eesti; www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:
Aru 10, 10317 Tallinn, Estonia; www.evs.ee; phone 605 5050; e-mail info@evs.ee

English Version

**Gas infrastructure - Pipelines for maximum operating pressure
up to and including 16 bar - Part 2: Specific functional
requirements for polyethylene (MOP up to and including 10 bar)**

Infrastructures gazières - Canalisations pour pression
maximale de service inférieure ou égale à 16 bar - Partie 2:
Exigences fonctionnelles spécifiques pour le polyéthylène
(MOP inférieure ou égale à 10 bar)

Gasinfrastruktur - Rohrleitungen mit einem maximal
zulässigen Betriebsdruck bis einschließlich 16 bar - Teil 2:
Spezifische funktionale Anforderungen für Polyethylen
(MOP bis einschließlich 10 bar)

This European Standard was approved by CEN on 24 May 2012.

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.

CEN members are the national standards bodies of 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 United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

| | |
|--|----|
| Foreword..... | 4 |
| 1 Scope | 5 |
| 2 Normative references | 5 |
| 3 Terms, definitions, symbols and abbreviations | 6 |
| 4 Design | 7 |
| 4.1 General..... | 7 |
| 4.2 Materials and components | 7 |
| 4.3 Maximum operating pressure..... | 7 |
| 4.3.1 General..... | 7 |
| 4.3.2 Verification of the overall service (design) coefficient | 8 |
| 4.3.3 Verification of the RCP criterion | 8 |
| 4.4 Assembly techniques..... | 10 |
| 4.5 Material properties for flow stopping by squeeze-off..... | 10 |
| 4.6 Pipework inside buildings | 10 |
| 5 Construction..... | 10 |
| 5.1 Storage, handling and transportation..... | 10 |
| 5.2 Jointing | 11 |
| 5.2.1 General..... | 11 |
| 5.2.2 Fusion jointing | 11 |
| 5.2.3 Mechanical joints | 12 |
| 5.3 Laying | 12 |
| 5.4 Connection to existing systems..... | 13 |
| 5.4.1 Static electricity | 13 |
| 5.4.2 Squeeze-off..... | 13 |
| 6 Quality control..... | 14 |
| 6.1 Inspection prior to installation | 14 |
| 6.2 Inspection during laying | 14 |
| 6.2.1 Laying | 14 |
| 6.2.2 Joint integrity | 14 |
| 7 Pressure testing..... | 14 |
| Annex A (informative) Storage, handling and transportation..... | 16 |
| A.1 General..... | 16 |
| A.2 Storage..... | 16 |
| A.2.1 Storage conditions | 16 |
| A.2.2 Bundles | 16 |
| A.2.3 Stacking loose straight pipes..... | 17 |
| A.2.4 Drums and coils | 17 |
| A.2.5 Storing | 17 |
| A.2.6 First in – first out | 18 |
| A.3 Handling..... | 18 |
| A.3.1 General..... | 18 |
| A.3.2 Handling in cold weather | 18 |
| A.3.3 Straight pipes | 18 |
| A.3.4 Coils | 18 |
| A.3.5 Drums..... | 18 |
| A.3.6 Uncoiling..... | 19 |
| A.4 Transportation..... | 19 |
| A.4.1 Straight pipes | 19 |

| | | |
|---------------------|---|-----------|
| A.4.2 | Coiled pipe | 19 |
| A.4.3 | Drums | 19 |
| Annex B | (informative) Fusion joint integrity | 20 |
| B.1 | General | 20 |
| B.2 | Visual inspection criteria | 20 |
| B.2.1 | General | 20 |
| B.2.2 | Butt fusion guidelines for the visual examination of butt fusion joints | 20 |
| B.2.3 | Electrofusion..... | 23 |
| B.2.4 | Ancillary tooling | 26 |
| Annex C | (informative) Technical changes between this European Standard and EN 12007-2:2000 | 27 |
| Bibliography | | 28 |

Foreword

This document (EN 12007-2:2012) has been prepared by Technical Committee CEN/TC 234 "Gas infrastructure", 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 February 2013, and conflicting national standards shall be withdrawn at the latest by February 2013.

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 12007-2:2000.

Annex C provides details of significant technical changes between this European Standard and the previous edition.

EN 12007 *Gas infrastructure — Pipelines for maximum operating pressure up to and including 16 bar* consists of the following parts:

Part 1: General functional requirements

Part 2: Specific functional requirements for polyethylene (MOP up to and including 10 bar)
Part 3: Specific functional requirements for steel

Part 4: Specific functional requirements for renovation

Part 5: Specific functional recommendations of new service lines¹

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 To be published.

1 Scope

This European Standard describes the specific functional requirements for polyethylene (PE) pipelines in addition to the general functional requirements of EN 12007-1 for:

- a) a maximum operating pressure (MOP) up to and including 10 bar;
- b) an operating temperature between -20 °C and +40 °C.

This European Standard covers three types of pipe:

- PE pipes including any identification stripes;
- PE pipes with co-extruded layers on either or both the outside and/or inside of the pipe;
- PE pipes with a peelable, contiguous thermoplastics additional layer on the outside of the pipe.

This European Standard specifies common basic principles for gas infrastructure. Users of this European Standard should be aware that more detailed national standards and/or code of practice may exist in the CEN member countries. This European Standard is intended to be applied in association with these national standards and/or codes of practice setting out the above-mentioned basic principles.

In the event of conflicts in terms of more restrictive requirements in national legislation/regulation with the requirements of this European Standard, the national legislation/regulation takes precedence as illustrated in CEN/TR 13737 (all parts).

CEN/TR 13737 (all parts) give:

- clarification of all legislations/regulations applicable in a member state;
- if appropriate, more restrictive national requirements;
- a national contact point for the latest information.

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 1555-1, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General*

EN 1555-2, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 2: Pipes*

EN 1555-3, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 3: Fittings*

EN 1555-4, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 4: Valves*

EN 1555-5, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 5: Fitness for purpose of the system*

EN 12327, *Gas infrastructure — Pressure testing, commissioning and decommissioning procedures — Functional requirements*

ISO 12176-1, *Plastics pipes and fittings — Equipment for fusion jointing polyethylene systems — Part 1: Butt fusion*

ISO 12176-2, *Plastics pipes and fittings — Equipment for fusion jointing polyethylene systems — Part 2: Electrofusion*

3 Terms, definitions, symbols and abbreviations

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

- 3.1**
nominal outside diameter
 d_n
specified outside diameter
- 3.2**
nominal wall thickness
 e_n
numerical designation of the wall thickness of a component, which is a convenient round number, approximately equal to the manufacturing dimension in millimetres
- 3.3**
standard dimension ratio
SDR
number approximately equal to the quotient of the nominal outside diameter and the nominal wall thickness
- 3.4**
maximum operating pressure
MOP
maximum pressure at which a system can be operated continuously under normal operating conditions
- Note 1 to entry: Normal operating conditions are: no fault in any device or stream.
- 3.5**
maximum incidental pressure
MIP
maximum pressure which a system can experience during a short time limited by the safety devices
- 3.6**
butt fusion joint
method of jointing PE pipes and fittings where the two pipe ends are heated and brought together to be fused without the use of a separate fitting or filler material
- 3.7**
electrofusion joint
method of jointing PE pipes, using fittings which have an integrated electric heating element
- 3.8**
squeeze-off
act of squeezing a pipe to prevent the flow of gas
- 3.9**
minimum required strength
MRS
value of the lower confidence limit rounded down to the next lower value of the R10 series when the lower confidence limit is below 10 MPa, or to the next lower value of the R20 series when the lower confidence limit is 10 MPa or greater