
Cevni sistemi za obnovo podzemnih omrežij za oskrbo s plinom - 1. del: Polietilen (PE) (ISO 11301-1:2026)

Piping systems for rehabilitation of underground gas supply networks - Part 1: Polyethylene (PE) material (ISO 11301-1:2026)

Rohrleitungssysteme für die Sanierung von erdverlegten Gasversorgungsnetzwerken - Teil 1: Werkstoff Polyethylen (PE) (ISO 11301-1:2026)

Systèmes de canalisations pour la réhabilitation des réseaux de distribution de gaz enterrés - Partie 1: Matériau Polyéthylène (PE) (ISO 11301-1:2026)

Ta slovenski standard je istoveten z: **EN ISO 11301-1:2026**

ICS:

83.140.30	Polimerne cevi in fitingi za snovi, ki niso tekočine	Plastics pipes and fittings for non fluid use
91.140.40	Sistemi za oskrbo s plinom	Gas supply systems

SIST EN ISO 11301-1:2026**en,fr,de**

Sample Document

get full document from standards.iteh.ai

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 11301-1

July 2026

ICS 23.040.45

Supersedes EN ISO 11299-1:2018, EN ISO 11299-3:2018, EN ISO 21225-1:2018, EN ISO 21225-2:2018, EN ISO 11299-2:2018

English Version

Piping systems for rehabilitation of underground gas supply networks - Part 1: Polyethylene (PE) material (ISO 11301-1:2026)

Systèmes de canalisations pour la réhabilitation des réseaux de distribution de gaz enterrés - Partie 1: Matériau Polyéthylène (PE) (ISO 11301-1:2026)

Rohrleitungssysteme für die Sanierung von erdverlegten Gasversorgungsnetzwerken - Teil 1: Werkstoff Polyethylen (PE) (ISO 11301-1:2026)

This European Standard was approved by CEN on 25 May 2026.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2026 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN ISO 11301-1:2026 E

EN ISO 11301-1:2026 (E)

Contents	Page
European foreword.....	3

Sample Document

get full document from standards.iteh.ai

European foreword

This document (EN ISO 11301-1:2026) has been prepared by Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids" in collaboration with Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems" the secretariat of which is held by NEN.

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 2027, and conflicting national standards shall be withdrawn at the latest by January 2027.

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 ISO 11299-1:2018, EN ISO 11299-3:2018, EN ISO 21225-1:2018, EN ISO 21225-2:2018 and EN ISO 11299-2:2018.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 11301-1:2026 has been approved by CEN as EN ISO 11301-1:2026 without any modification.

Sample Document

get full document from standards.iteh.ai



International Standard

ISO 11301-1

Piping systems for rehabilitation of underground gas supply networks —

Part 1: Polyethylene (PE) material

*Systèmes de canalisations pour la réhabilitation des réseaux de
distribution de gaz enterrés —*

Partie 1: Matériau Polyéthylène (PE)

**First edition
2026-07**

ISO 11301-1:2026(en)

Sample Document

get full document from standards.iteh.ai



COPYRIGHT PROTECTED DOCUMENT

© ISO 2026

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

© ISO 2026 – All rights reserved

ISO 11301-1:2026(en)

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	2
3 Terms and definitions	2
3.1 General	2
3.2 Terms related to techniques	5
3.3 Terms related to characteristics	6
3.4 Terms related to product stages	8
3.5 Terms related to materials	8
3.6 Terms related to service conditions	9
3.7 Terms related to joints	9
4 Symbols and abbreviated terms	10
4.1 Symbols	10
4.2 Abbreviated terms	11
5 Pipes	11
5.1 Materials	11
5.2 General characteristics	11
5.3 Material characteristics	12
5.4 Geometric characteristics	12
5.5 Mechanical characteristics	12
5.6 Physical characteristics	12
5.7 Jointing	12
5.8 Marking	13
5.9 Regional requirements for pipes	13
6 Fittings	13
6.1 Materials	13
6.2 Marking	13
6.3 Regional requirements for fittings	14
7 Ancillary components	14
7.1 Requirements	14
7.2 Regional requirements for ancillary components	14
8 Fitness for purpose	14
8.1 Materials	14
8.2 General characteristics	14
8.3 Geometric characteristics	15
8.4 Mechanical characteristics	15
8.5 Sampling	15
8.6 Regional requirements for fitness for purpose	16
9 Installation practice	16
9.1 Preparatory work	16
9.2 Storage, handling and transport of pipes and fittings	16
9.3 Equipment	16
9.3.1 General	16
9.3.2 Butt fusion equipment and de-beading equipment	17
9.3.3 Pipe skids/rollers	17
9.3.4 Winching and rod-pulling equipment	17
9.3.5 Pipe entry guides	17
9.3.6 Electrofusion equipment	17
9.3.7 Inspection equipment	18
9.3.8 Lifting equipment	18

ISO 11301-1:2026(en)

9.4	Installation.....	18
9.4.1	General.....	18
9.4.2	Safety precautions.....	19
9.4.3	Simulated installations.....	19
9.5	Process-related inspection and testing.....	20
9.6	Pipe end termination.....	20
9.7	Reconnection to the existing pipeline system.....	20
9.8	Final inspection and testing.....	20
9.9	Documentation.....	20
Annex A	(normative) Specific requirements applicable for lining with continuous pipes.....	21
Annex B	(normative) Specific requirements applicable for lining with close-fit pipes.....	22
Annex C	(normative) Specific requirements for trenchless replacement techniques — Pipe bursting, pipe extraction, HDD and impact moling.....	26
Annex D	(normative) Layered pipes.....	31
Annex E	(normative) Factory-folded heat-reverted polyethylene (PE) pipe — Determination of memory ability.....	32
Annex F	(informative) Pipe design considerations particular to pipe bursting and pipe extraction.....	34
Annex G	(informative) Pipe design considerations particular to HDD.....	36
Annex H	(informative) Summary of required elements to be included in installation manuals.....	38
Bibliography		39

Sample Document

get full document from standards.iteh.ai

ISO 11301-1:2026(en)

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 8, *Rehabilitation of pipeline systems*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 155, *Plastics piping systems and ducting systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition of ISO 11301-1 cancels and replaces ISO 11299-1:2018, ISO 11299-2:2018, ISO 11299-3:2018, ISO 21225-1:2018 and ISO 21225-2:2018, which have been technically revised.

The main changes are as follows:

- for piping systems made from polyethylene (PE) material, this document replaces the related content, including requirements, of the documents listed above.

A list of all parts in the ISO 11301 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

ISO 11301-1:2026(en)

Introduction

This document is a part of a series of International Standards for piping systems of various materials used for the rehabilitation of existing pipelines in a specified application area. Standards for rehabilitation deal with the following applications:

- the ISO 11300 series: *Piping systems for rehabilitation of underground drains, sewers and water supply networks*;
- the ISO 11301 series: *Piping systems for rehabilitation of underground gas supply networks*.

The ISO 11300 series and the ISO 11301 series are subdivided into parts covering a specific material per pipe system.

The ISO 11300 series is subdivided into four parts:

- *Part 1: Polyethylene (PE) material*;
- *Part 2: Thermoset composite materials*;
- *Part 3: Polyvinyl chloride (PVC-U) material*;
- *Part 4: Thermoplastic composite materials*.

The ISO 11301 series currently consists of two parts:

- *Part 1: Polyethylene (PE) material* (this document);
- *Part 5: Unplasticized Polyamide (PA-U) material*.¹⁾

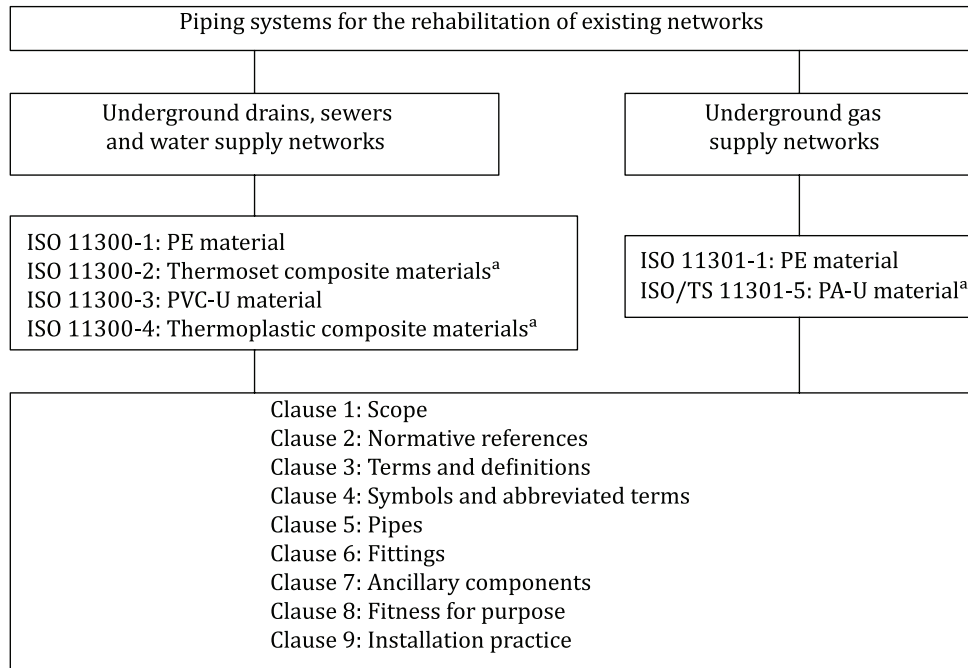
These series of standards cover various techniques for renovation and trenchless replacement. Furthermore, they are distinguished from those for conventionally installed plastics piping systems by the requirement to verify certain characteristics in the “as-installed” condition, after site processing. This is in addition to specifying requirements for piping system components “as manufactured”.

A consistent structure of clause headings has been adopted for all parts of the ISO 11300 series and the ISO 11301 series, in order to facilitate direct comparisons across renovation technique families.

[Figure 1](#) shows the clause structure and the relationship between the ISO 11300 series and the ISO 11301 series.

For complementary information, see ISO 11295.

1) Under preparation. Stage at the time of publication: ISO/AWI TS 11301-5:2026.

ISO 11301-1:2026(en)

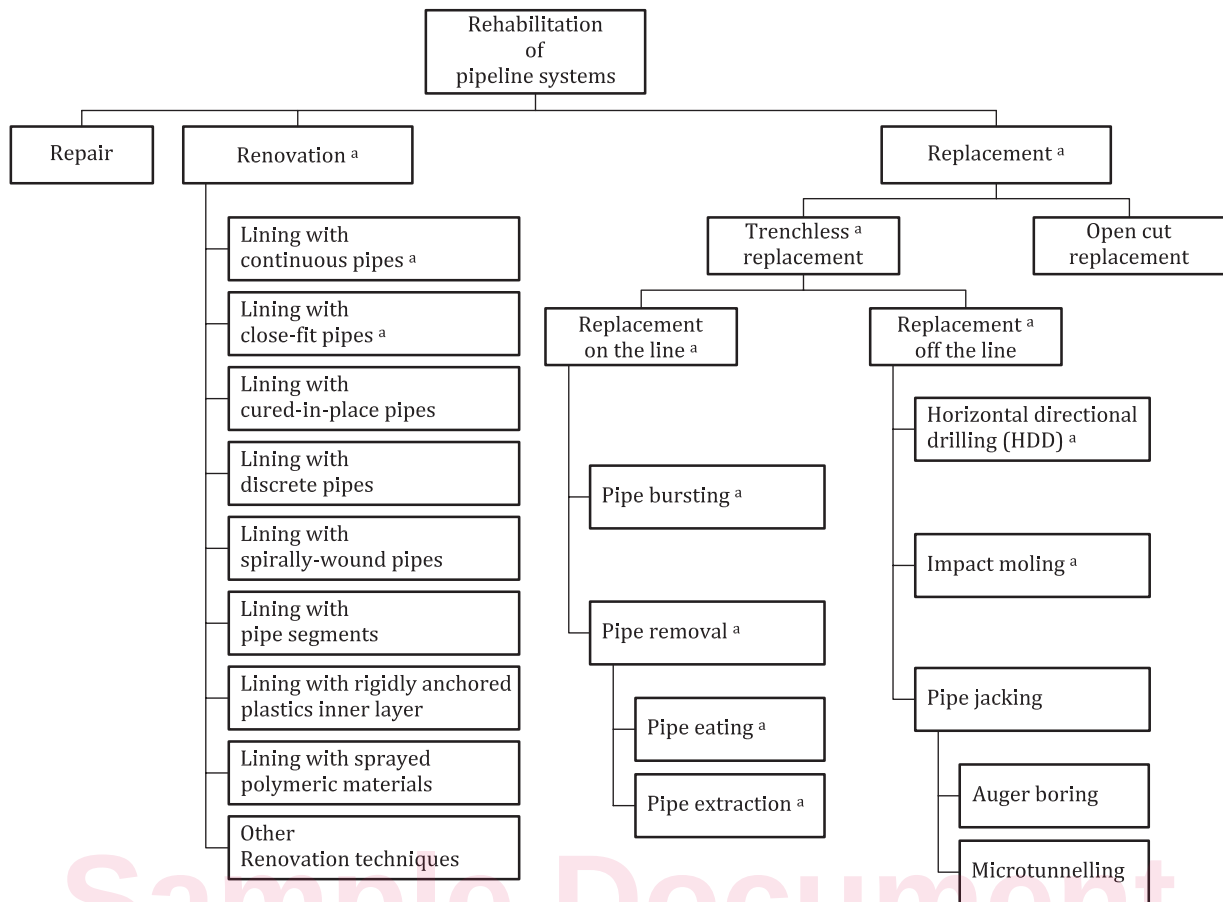
^a Under preparation

Figure 1 — Clause structure of the ISO 11300 series and the ISO 11301 series

The various techniques for rehabilitation of underground gas supply networks, within the scope of pipeline rehabilitation techniques generally, are shown schematically in [Figure 2](#). For definitions of standardized renovation techniques shown in [Figure 2](#), but outside the scope of this document, see ISO 11295.

get full document from standards.iteh.ai

ISO 11301-1:2026(en)



^a This document is applicable for pipe systems made from PE materials.

Figure 2 — Technique families for rehabilitation of underground gas supply networks using plastics pipes, within the scope of pipeline rehabilitation techniques

Piping systems for rehabilitation of underground gas supply networks —

Part 1: Polyethylene (PE) material

1 Scope

This document specifies requirements and test methods for pipes and fittings which are part of piping systems for the rehabilitation, by means of renovation and trenchless replacement, of underground gas supply networks.

It is applicable to polyethylene (PE) pipes, fittings and assemblies, as manufactured and as installed. It is not applicable to the existing pipeline.

This document is applicable to the following technique families for renovation, intended to be used at an operating temperature of 20 °C as a reference temperature:

- lining with continuous pipes;
- lining with close-fit pipes.

This document is applicable to the following technique families for trenchless replacement, intended to be used at an operating temperature of 20 °C as a reference temperature:

- pipe bursting and pipe extraction;
- horizontal directional drilling and impact moling.

This document is applicable to:

- PE solid wall single layered pipes (nominal outside diameter, d_n), including any identification stripes;
- PE pipes with co-extruded layers on either or both the outside and inside of the pipe (total outside diameter, d_n), as specified in [Annex D](#), where all layers have the same minimum required strength (MRS) rating.

Furthermore, when used with lining with continuous pipes and trenchless replacement, this document is applicable to:

- PE coated pipes (outside diameter, d_n) having a peelable, contiguous, thermoplastics additional layer on the outside of the pipe ("coated pipe"), as specified in [Annex D](#).

NOTE When used with lining with close-fit lining pipes, the lining pipe is reduced in the factory or on site to provide a close-fitting independent or interactive pressure pipe liner.

This document is applicable to jointing by means of butt fusion and electrofusion and to fabricated and injection-moulded fittings and mechanical connections of PE.

This document is not applicable to push-fit jointed discrete pipes assembled as part of the trenchless installation process.