Plastics piping systems for the trenchless replacement of underground pipeline networks - Part 1: Replacement on the line by pipe bursting and pipe extraction (ISO 21225-1:2018)

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 21225-1:2018 sisaldab Euroopa standardi EN ISO 21225-1:2018 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 21225-1:2018 consists of the English text of the European standard EN ISO 21225-1:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 30.05.2018.	Date of Availability of the European standard is 30.05.2018.
Standard on kättesaadav Eesti Standardikeskusest.	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, 23.040.45, 91.140.80

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 21225-1

May 2018

ICS 23.040.20; 23.040.45; 91.140.80

English Version

Plastics piping systems for the trenchless replacement of underground pipeline networks - Part 1: Replacement on the line by pipe bursting and pipe extraction (ISO 21225-1:2018)

Systèmes de canalisations en plastique pour le remplacement sans tranchée des réseaux de canalisations enterrés - Partie 1: Remplacement sur ligne par éclatement de tuyau et extraction de tuyau (ISO 21225-1:2018)

Kunststoff-Rohrleitungssysteme zur grabenlosen Erneuerung von erdverlegten Rohrleitungsnetzen - Teil 1: Erneuerung in bisheriger Linienführung durch Berstverfahren und Auswechselverfahren (ISO 21225-1:2018)

This European Standard was approved by CEN on 1 March 2018.

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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

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Ref. No. EN ISO 21225-1:2018 E

European foreword

This document (EN ISO 21225-1:2018) 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 November 2018, and conflicting national standards shall be withdrawn at the latest by November 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.

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Endorsement notice

The text of ISO 21225-1:2018 has been approved by CEN as EN ISO 21225-1:2018 without any modification.

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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 documents 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).

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

For an explanation on 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 the following URL: 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*.

A list of all the parts in the ISO 21225 series can be found on the ISO website.

Introduction

System standards dealing with the following applications are either available or in preparation for pipeline renovation:

— The ISO 11296 series: *Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks*;

— The ISO 11297 series: *Plastics piping systems for renovation of underground drainage and sewerage networks under pressure*;

— The ISO 11298 series: *Plastics piping systems for renovation of underground water supply networks*;

— The ISO 11299 series: *Plastics piping systems for renovation of underground gas supply networks*.

System standards dealing with all application areas are either available or in preparation for trenchless pipeline replacement:

— The ISO 21225 series: *Plastics piping systems for the trenchless replacement of underground pipeline networks*.

The system standard ISO 21225 comprises:

— *Part 1: Replacement on the line by pipe bursting and pipe extraction* (this document);

— *Part 2: Replacement off the line by horizontal directional drilling and impact moling*.

The requirements for technique families are given in ISO 21225-1 and ISO 21225-2 respectively. For complimentary information, see ISO 11295[1].

A consistent structure of clause headings has been adopted for all parts to facilitate direct comparisons across replacement standards.

Figure 1 shows the common part and clause structure and the relationship between ISO 21255 and the system standards for the renovation application areas.

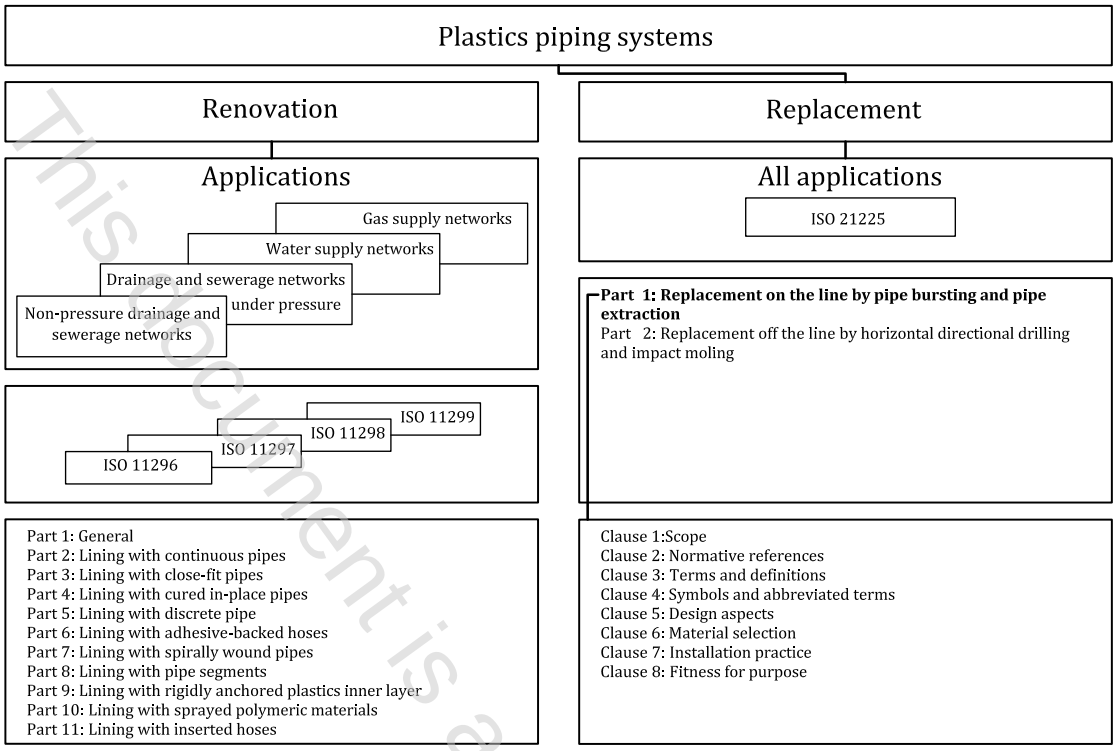

Figure 1 — Technique families and clause structure

Plastics piping systems for the trenchless replacement of underground pipeline networks —

Part 1: Replacement on the line by pipe bursting and pipe extraction

1 Scope

This document specifies requirements and test methods for pipes and fittings which are part of plastics piping systems for the trenchless replacement of underground non-pressure and pressure drainage and sewerage networks and underground water and gas supply networks, by means of pipe bursting and pipe extraction.

It is applicable to polyethylene (PE) pipes and fittings, as manufactured, as well as to the installed replacement system.

This document is intended to be used in conjunction with standards applicable for the construction of PE pipeline systems where available.

Regarding manufactured pipes it is applicable to three different PE pipe types:

— 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 A, where all layers have the same MRS rating;

— PE pipes (outside diameter, d_n) having a peelable, contiguous, thermoplastics additional layer on the outside of the pipe ("coated pipe"), see Annex A.

In addition it is applicable to:

— jointing of pipe lengths by means of butt fusion joint;

— jointing of pipe lengths by means of electrofusion joint;

— fabricated and injection-moulded fittings made of PE.

Pipes made from other plastics, e.g. glass reinforced plastics (GRP), are outside the scope of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4427 (all parts), *Plastics piping systems — Polyethylene (PE) pipes and fittings for water supply*

ISO 4437 (all parts), *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE)*

ISO 4633, *Rubber seals — Joint rings for water supply, drainage and sewerage pipelines — Specification for materials*

ISO 8772, *Plastics piping systems for non-pressure underground drainage and sewerage — Polyethylene (PE)*

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*

ISO 16010, *Elastomeric seals — Material requirements for seals used in pipes and fittings carrying gaseous fuels and hydrocarbon fluids*

EN 681-1, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanized rubber*

EN 681-2, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 2: Thermoplastic elastomers*

EN 681-3, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 3: Cellular materials of vulcanized rubber*

EN 681-4, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 4: Cast polyurethane sealing elements*

EN 682, *Elastomeric seals — Material requirements for seals used in pipes and fittings carrying gas and hydrocarbon fluids*

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

EN 12201-1, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 1: General*

EN 12201-2, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 2: Pipes*

EN 12201-3, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 3: Fittings*

EN 12201-5, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 5: Fitness for purpose of the system*

EN 12666-1, *Plastics piping systems for non-pressure underground drainage and sewerage — Polyethylene (PE) — Part 1: Specifications for pipes, fittings and the system*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1 General