



SLOVENSKI STANDARD SIST EN ISO 11295:2018

01-februar-2018

Nadomešča:
SIST EN ISO 11295:2010

Razvrstitev in informacije o projektiranju in uporabi cevnih sistemov iz polimernih materialov za obnovo in zamenjavo (ISO 11295:2017)

Classification and information on design and applications of plastics piping systems used for renovation and replacement (ISO 11295:2017)

Klassifizierung und Informationen zur Planung und Anwendung von Kunststoff-Rohrleitungssystemen für die Renovierung und Erneuerung (ISO 11295:2017)

Classification et informations relatives à la conception et aux applications des systèmes de canalisation en plastique destinés à la rénovation et au remplacement (ISO 11295:2017)

Ta slovenski standard je istoveten z: EN ISO 11295:2017

ICS:

01.110	Tehnična dokumentacija za izdelke	Technical product documentation
23.040.01	Deli cevovodov in cevovodi na splošno	Pipeline components and pipelines in general

SIST EN ISO 11295:2018 en

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EUROPEAN STANDARD

EN ISO 11295

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2017

ICS 23.040.01

Supersedes EN ISO 11295:2010

English Version

Classification and information on design and applications of plastics piping systems used for renovation and replacement (ISO 11295:2017)

Classification et informations relatives à la conception
et aux applications des systèmes de canalisation en
plastique destinés à la rénovation et au remplacement
(ISO 11295:2017)

Klassifizierung und Informationen zur Planung und
Anwendung von Kunststoff-Rohrleitungssystemen für
die Renovierung und Erneuerung (ISO 11295:2017)

This European Standard was approved by CEN on 10 September 2017.

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European foreword

This document (EN ISO 11295:2017) 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of an identical text or by endorsement, at the latest by June 2018 and conflicting national standards shall be withdrawn at the latest by June 2018.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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INTERNATIONAL
STANDARD

ISO
11295

Second edition
2017-11

**Classification and information on
design and applications of plastics
piping systems used for renovation
and replacement**

*Classification et informations relatives à la conception et aux
applications des systèmes de canalisations en plastique destinés à la
renovation et au remplacement*

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Reference number
ISO 11295:2017(E)

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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 ISO/TC 138 *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 8, *Rehabilitation of pipeline systems*.

This second edition cancels and replaces the first edition (ISO 11295:2010), which has been technically revised.

This edition includes the following significant changes with respect to the previous edition:

- [Clauses 3, 4, 5](#) and [6](#) have been technically revised;
- [Clause 7](#) for the classification of replacement techniques has been added.

ISO 11295:2017(E)**Introduction**

This document classifies the techniques used for the renovation and trenchless replacement of existing pipelines and gives information on the design and application of plastics piping systems used for such rehabilitation.

In recent years, the rehabilitation of pipeline systems has become increasingly important and will continue to be so.

Pipeline systems are continuously required to satisfy physical, chemical, biochemical and biological demands. These demands depend on planning, material, construction, type and period of use.

When pipeline systems become operational, proper system management has to be put in place. In addition to inspection and cleaning, rehabilitation of the pipeline can be required. Rehabilitation is carried out when there is a need to restore or upgrade the performance of a pipeline system. Rehabilitation can consist of repair, renovation or replacement.

To coincide with the publication of ISO rehabilitation product standards for various application areas using methods other than renovation, the need to extend the scope of this document to include families of trenchless replacement techniques was recognized.

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Classification and information on design and applications of plastics piping systems used for renovation and replacement

1 Scope

This document defines and describes families of techniques for the renovation and trenchless replacement (on or off the line of an existing pipeline) of non-pressure and pressure pipelines through the use of plastics pipes, including plastics composites formed *in situ* into pipes, fittings and ancillary components. It does not include new construction provided as network extension. For each technique family, it identifies areas of application including, but not limited to, underground drainage and sewerage, and underground water and gas supply networks.

This document provides information on the principles of, but not the detailed methodologies for, the design of plastics piping systems used for renovation or trenchless replacement of existing pipelines, covering:

- existing pipeline and site conditions;
- functions of the new pipeline;
- structural performance;
- hydraulic performance;
- installation aspects and site impact;
- other factors affecting renovation or trenchless replacement technique selection.

Necessary work on the existing pipeline prior to renovation and/or trenchless replacement is outside the scope of this document.

This document provides information needed to determine viable options and for identification of the optimal technique with regard to a given set of rehabilitation objectives.

NOTE It is the responsibility of the designer to choose and design the renovation or trenchless replacement system.

It does not specify the calculation methods to determine, for each viable technique, the required amount of lining or replacement pipe material needed to secure the desired performance of the rehabilitated pipeline.

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 1043-1, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1043-1 and the following apply.

ISO 11295:2017(E)

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

3.1.1 rehabilitation

measures for restoring or upgrading the performance of existing pipeline systems, including *renovation* (3.1.2), *repair* (3.1.3) and *replacement* (3.1.4)

3.1.2 renovation

work incorporating all or part of the original fabric of the pipeline, by means of which its current performance is improved

3.1.3 repair

rectification of local damage

3.1.4 replacement

construction of a new pipeline, on or off the line of an existing pipeline, where the function of the new pipeline system incorporates that of the old

3.1.5 network extension

new construction off the line of a pipeline or a network with the aim to expand the total capacity of the network

3.1.6 trenchless replacement

replacement (3.1.4) without opening trenches other than small excavations to provide access for the particular technique

3.1.7 maintenance

routine work undertaken to ensure the continuing performance of an asset

3.1.8 independent pressure pipe liner

liner (3.2.3) capable on its own of resisting without failure all applicable internal loads throughout its design life

3.1.9 interactive pressure pipe liner

liner (3.2.3) which relies on the existing pipeline for radial support in order to resist without failure all applicable internal loads throughout its design life

3.1.10 fully structural renovation

use of an *independent pressure pipe liner* (3.1.8) which is capable of resisting all external loads irrespective of the condition of the existing pipeline

3.1.11 semi-structural renovation

use of an *interactive pressure pipe liner* (3.1.9) which is capable of long-term hole and gap spanning at operational pressure

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3.1.12**flow diversion**

temporary isolation of the section of pipeline to be rehabilitated by the use of a temporary bypass or other means

3.2 Techniques**3.2.1****technique family**

grouping of *renovation* (3.1.2) or *trenchless replacement* (3.1.6) techniques which are considered to have common characteristics for standardization purposes

3.2.2**lining pipe**

pipe inserted for *renovation* (3.1.2) purposes

3.2.3**liner**

lining pipe (3.2.2) after installation

3.2.4**lining system**

lining pipe (3.2.2) and all relevant fittings inserted into an existing pipeline for the purposes of *renovation* (3.1.2)

3.2.5**lining with continuous pipes**

lining with pipe made continuous prior to insertion, where the diameter of the *lining pipe* (3.2.2) remains unchanged

3.2.6**lining with close-fit pipes**

lining with a continuous pipe (3.2.5) for which the cross-section is reduced to facilitate installation and reverted after installation to provide a close fit to the existing pipe

3.2.7**lining with cured-in-place pipes**

lining with a flexible tube impregnated with a thermosetting resin, which produces a pipe after resin cure

3.2.8**lining with discrete pipes**

lining with short lengths of pipe which are jointed to form a continuous pipe one by one during insertion

3.2.9**lining with adhesive-backed hoses**

lining with a reinforced hose which relies on an adhesive bond to the host pipe to provide resistance to collapse

3.2.10**lining with spirally-wound pipes**

lining with a profiled strip, spirally wound to form a continuous pipe after installation

3.2.11**lining with sprayed polymeric materials**

lining with a sprayed two-part polymeric resin material that forms a continuous pipe after resin cure

3.2.12**lining with inserted hoses**

lining with a reinforced hose which is either permanently shaped or re-rounded after installation by the application of an internal pressure