
**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
rénovation et au remplacement*



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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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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.

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.

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.