
**Plastics piping systems for renovation
of underground non-pressure drainage
and sewerage networks —**

**Part 1:
General**

iTeh STANDARD PREVIEW
*Systemes de canalisations en matieres plastiques pour la renovation
des reseaux d'assainissement gravitaires enterrés —
Partie 1: Généralités*
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ISO 11296-1:2009

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 11296-1 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*.

ISO 11296 consists of the following parts, under the general title *Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks*:

— *Part 1: General*

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— *Part 3: Lining with close-fit pipes*

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— *Part 4: Lining with cured-in-place pipes*

Lining with continuous pipes is to form the subject of a part 2, lining with discrete pipes is to form the subject of a part 5 and lining with spirally-wound pipes is to form the subject of a part 7.

Introduction

The System Standard, of which this is part 1, specifies the requirements for plastics piping systems of various materials used for the renovation of existing pipelines in a specified application area. System Standards for renovation specify procedures for the following applications:

- plastics piping systems for renovation of underground non-pressure drainage and sewerage networks;
- plastics piping systems for renovation of underground drainage and sewerage networks under pressure;
- plastics piping systems for renovation of underground water supply networks;
- plastics piping systems for renovation of underground gas supply networks.

These System Standards are distinguished from those for conventionally installed plastics piping systems because they set requirements for certain characteristics in the as-installed condition, after site processing. This is in addition to specifying requirements for system components, as manufactured.

Each of the System Standards comprises a part 1 (general) and all applicable renovation technique family-related parts from the following:

- part 2: lining with continuous pipes;
- part 3: lining with close-fit pipes;
- part 4: lining with cured-in-place pipes;
- part 5: lining with discrete pipes;
- part 7: lining with spirally-wound pipes.

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The requirements for any given renovation technique family are given in part 1, applied in conjunction with the other relevant part. For example, parts 1 and 2 specify the requirements relating to lining with continuous pipes. For complementary information, see ISO 11295. Not all technique families are applicable to every area of application and this is reflected in the part numbers included in each System Standard.

A consistent structure of clause headings has been adopted for all parts to facilitate direct comparisons across renovation technique families.

Figure 1 gives the common structure and the relationship between ISO 11296 and the System Standards for other application areas.

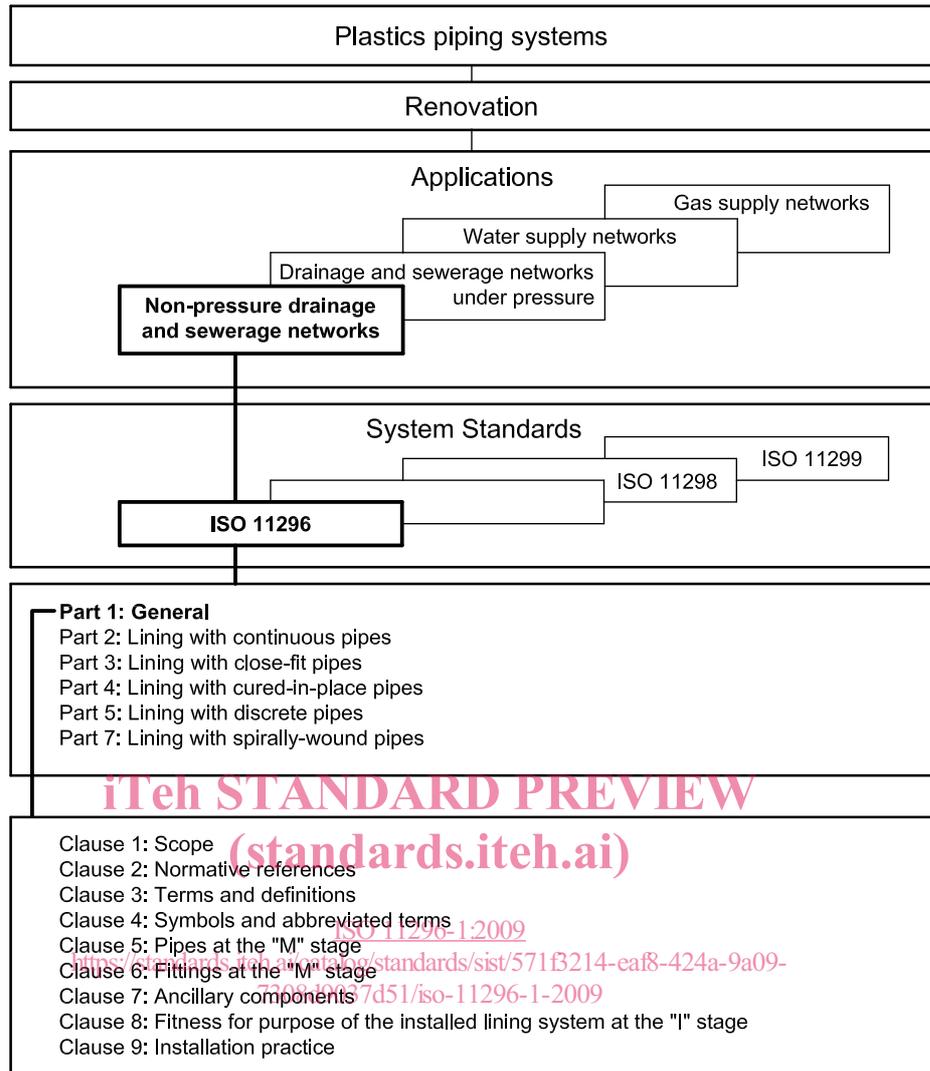


Figure 1 — Format of the renovation System Standards

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Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks —

Part 1: General

1 Scope

This part of ISO 11296 specifies the requirements and test methods for plastics piping systems intended to be used for the renovation of underground non-pressure drainage and sewerage networks, which are operated as gravity systems and subjected to a maximum surcharge pressure of 0,5 bar¹⁾. It is applicable to pipes and fittings as manufactured, as well as to the installed plastics lining system; it is not applicable to the existing pipeline or any annular filler.

This part of ISO 11296 establishes the general requirements common to all relevant renovation techniques (see 3.1.2).

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 1610:1997, *Construction and testing of drains and sewers*

EN 13508-2, *Conditions of drain and sewer systems outside buildings — Part 2: Visual inspection coding system*

3 Terms and definitions

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

3.1 General terms

3.1.1

pipeline system

interconnecting pipe network for the conveyance of fluids

3.1.2

rehabilitation

all measures for restoring or upgrading the performance of an existing pipeline system

1) 1 bar = 0,1 MPa = 0,1 N/mm² = 10⁵ N/m².

3.1.3

renovation

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

3.1.4

replacement

rehabilitation of an existing pipeline system by the installation of a new pipeline system, without incorporating the original fabric

3.1.5

maintenance

keeping an existing pipeline system operational without the installation of additional fabric

3.1.6

repair

rectification of local damage

3.1.7

lining pipe

pipe inserted for renovation purposes

3.1.8

liner

lining pipe after installation

3.1.9

lining system

lining pipe and all relevant fittings for insertion into an existing pipeline for the purposes of renovation

3.1.10

renovated pipeline system

existing pipeline system plus the installed lining system used to renovate it, along with any grout or other annular filling material used

3.1.11

characteristic

property, dimension or other feature of a material or component

3.1.12

declared value

limiting value of a characteristic declared in advance by the lining system supplier, which becomes the requirement for the purposes of assessment of conformity

3.1.13

annular filler

material for grouting annular space between existing pipeline and the lining system

3.1.14

grouting

process of filling voids around the lining system

3.1.15

simulated installation

installation of a lining system into a simulated host pipeline, using representative equipment and processes, in order to provide samples for testing which are representative of an actual installation

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3.1.16**simulated host pipeline**

section of pipeline, which is not part of an operational network, but which replicates the environment of an operational network

3.1.17**technique family**

group of renovation techniques which are considered to have common characteristics for standardization purposes

3.2 Techniques

The various techniques for renovation of underground non-pressure drainage and sewerage networks, within the scope of pipeline rehabilitation techniques generally, are shown schematically in Figure 2. For definitions of standardized renovation techniques given in Figure 2, but outside the scope of this part of ISO 11296, see ISO 11295.

This part of ISO 11296 is applicable to the following technique families.

3.2.1**lining with continuous pipes**

lining with pipe made continuous prior to insertion, and which has not been shaped to give it a cross-sectional diameter smaller than its final diameter after installation

3.2.2**lining with close-fit pipes**

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

NOTE There are two options for achieving the reduction in cross-section:

- a) reduction in the pipe manufacturing plant; the pipe is usually supplied coiled on a reel from which it is directly inserted;
- b) reduction on site; the pipe is usually fed through the reduction equipment and simultaneously inserted in one continuous string.

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

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

3.2.4**lining with discrete pipes**

lining with pipes shorter than the section to be renovated, which are jointed to form a continuous pipe only during insertion, the cross-section of the lining pipe remaining unchanged

3.2.5**lining with spirally-wound pipes**

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