INTERNATIONAL STANDARD

ISO 11297-1

First edition
2013-05-01

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

Part 1: General

Systèmes de canalisations en plastique pour la rénovation des réseaux de branchements et de collecteurs d'assainissement enterrés sous pression —

Partie 1: Généralités

Reference number
ISO 11297-1:2013(E)

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Published in Switzerland

Contents

Page

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 11297-1 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*.

ISO 11297 consists of the following parts, under the general title *Plastics piping systems for renovation of underground drainage and sewerage networks under pressure*:

— *Part 1: General*

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

Lining with continuous pipes is to form the subject of a future part 2; lining with cured-in-place pipes is to form the subject of a future part 4; lining with discrete pipes is to form the subject of a future part 5; and lining with adhesive-backed hoses is to form the subject of a future part 6.

Introduction

This part of ISO 11297 is a part of a System Standard for plastics piping systems of various materials used for the renovation of existing pipelines in a specified application area. System Standards for renovation deal with 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 by the requirement to verify certain characteristics in the as-installed condition, after site processing. This is in addition to specifying requirements for plastics piping 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 6: Lining with adhesive-backed hoses

The requirements for any given renovation technique family are specified in part 1, applied in conjunction with the relevant other part. For example, this part of ISO 11297 and ISO 11297-3 specify the requirements relating to lining with close-fit pipes. For complementary information, see ISO 11295. Not all technique families are pertinent to every area of application and this is reflected in the part numbers included in each System Standards.

A consistent structure of clause headings has been adopted for all parts of ISO 11297, in order to facilitate direct comparisons across renovation technique families.

Figure 1 shows the common part and clause structure and the relationship between ISO 11297 and the System Standards for other application areas.

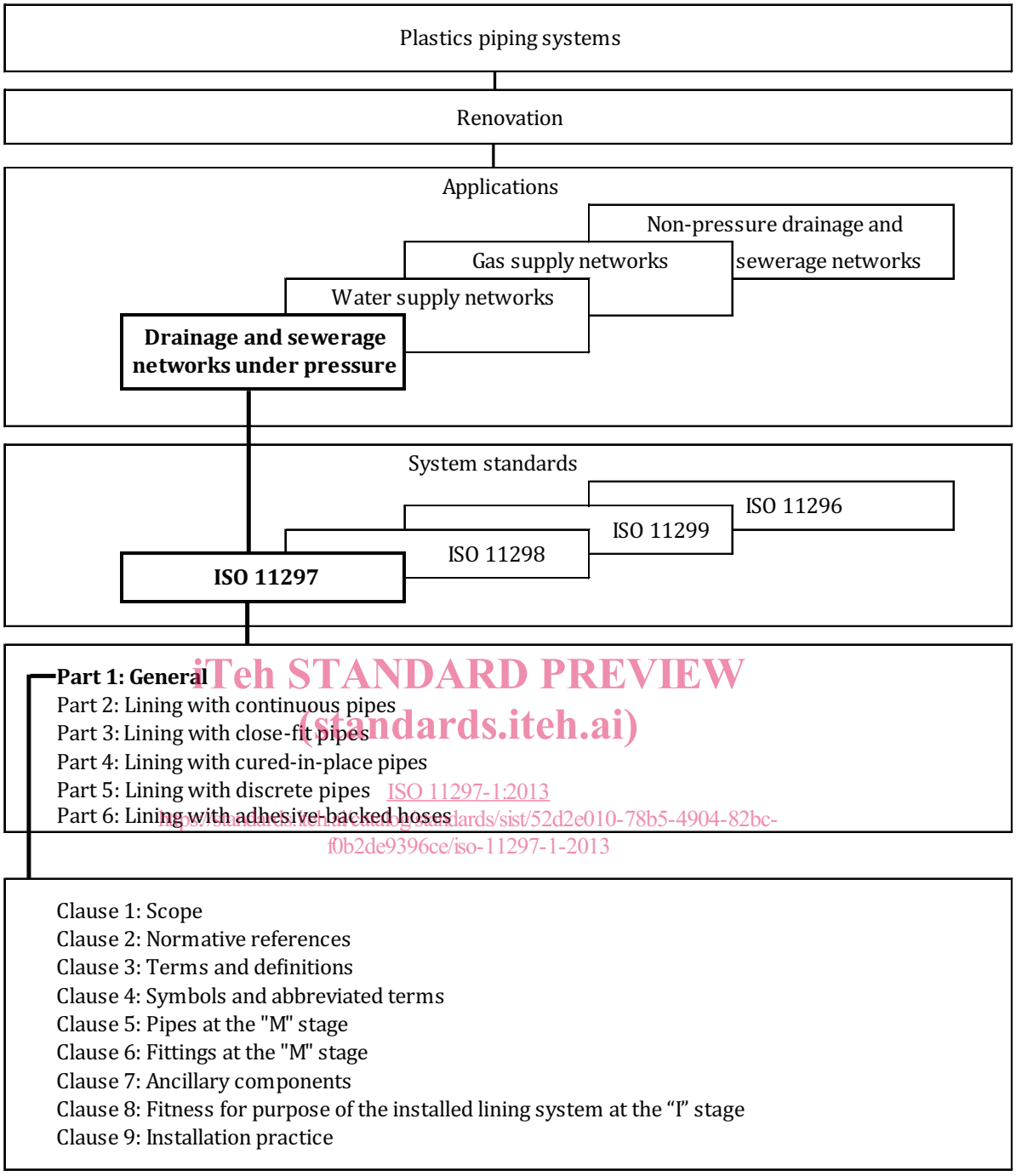

Figure 1 — Format of the renovation System Standards

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

Part 1: General

1 Scope

This part of ISO 11297 specifies the requirements and test methods for plastics piping systems intended to be used for the renovation of underground drainage and sewerage networks under pressure. It is applicable to pipes and fittings, as manufactured, as well as to the installed lining system. It is not applicable to cover sprayed coatings, the existing pipeline or any annular filler.

This part of ISO 11297 gives the general requirements common to all relevant renovation techniques.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

3 Terms and definitions

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

3.1 General

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

3.1.3
renovation
work incorporating all or part of the original fabric of the pipeline, by means of which its current 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, as well as 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 lining system

3.1.14
grouting
process of filling voids around the lining system

3.1.15
system test pressure
STP
hydrostatic pressure applied to the installed pipeline system in order to ensure its integrity and leaktightness

3.1.16
simulated installation
installation of a lining system into a simulated host pipeline, using representative equipment and processes, to provide samples for testing which are representative of an actual installation

3.1.17
simulated host pipeline
section of pipeline, which is not part of an operational network, but which replicates the environment of an operational network

3.1.18
technique family
group of renovation techniques which are considered to have common characteristics for standardization purposes

3.1.19
independent pressure pipe liner
liner which is capable on its own of resisting without failure all applicable internal loads throughout its design life

3.1.20
interactive pressure pipe liner
liner which relies on the host pipe for some measure of radial support in order to resist without failure all applicable internal loads throughout its design life

3.1.21
type testing
testing performed to prove that a material, component, joint or assembly is capable of conforming to the requirements given in the applicable standard

3.2 Techniques

The various techniques for renovation of underground drainage and sewerage networks under pressure, 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 part of ISO 11297, see ISO 11295.

The technique families within the scope of this part of ISO 11297 are defined as follows.

3.2.1
lining with continuous pipes
lining with pipe made continuous prior to insertion and which is not 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, of which the cross-section is reduced to facilitate installation and reverted after installation to provide a close fit to the existing pipe

Note 1 to entry: For the reduction in cross-section, the following are the two options:

— reduction in the pipe manufacturing plant: the pipe is usually supplied coiled on a reel, from which it is directly inserted;

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