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**Thermoplastics piping systems  
for underground non-pressure  
applications — Test method for  
leaktightness of elastomeric sealing  
ring type joints**

*Systèmes de canalisations en thermoplastiques pour applications  
enterrées sans pression — Méthodes d'essai d'étanchéité des  
assemblages à bague d'étanchéité en élastomère*

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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](http://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](http://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](http://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 1, *Plastics pipes and fittings for soil, waste and drainage (including land drainage)*.

This second edition cancels and replaces the first edition (ISO 13259:2010), which has been technically revised.

The main changes compared to the previous edition are as follows:

- in Clause 7, the temperature conditions are revised;
- in 8.1, c), in the general procedure, a test at 0° angular deflection is added;
- in 8.2, in the procedure for applying diametric deflection to spigot and socket, test arrangement for testing the tightness of couplers/repair collars is added, as well as the related figures.

# Thermoplastics piping systems for underground non-pressure applications — Test method for leaktightness of elastomeric sealing ring type joints

## 1 Scope

This document specifies a test method for determining the leaktightness of elastomeric sealing ring type joints for buried thermoplastics non-pressure piping systems.

Unless otherwise specified in the referring standard, the tests are carried out at the following basic test pressures:

- $p_1$ : internal negative air pressure (partial vacuum);
- $p_2$ : a low internal hydrostatic pressure;
- $p_3$ : a higher internal hydrostatic pressure.

It also describes the following four test conditions under which the tests are performed:

- a) Condition A: without any additional diametric or angular deflection;
- b) Condition B: with diametric deflection;
- c) Condition C: with angular deflection;
- d) Condition D: with simultaneous angular and diametric deflection.

The applicable selection of the test pressure(s) and the test condition(s) is specified in the referring standard.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

No terms and definitions are listed in this document.

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 <https://www.iso.org/obp>

## 4 Principle

A test piece assembled from pipes and/or fittings is subjected to a specific initial internal negative air pressure,  $p_1$  followed by a low specific initial internal hydrostatic pressure,  $p_2$  and a higher internal hydrostatic pressure,  $p_3$ .

During testing the joint may be subjected to diametric and/or angular deflection(s). The referring product standard shall specify which of the test pressures and deflection conditions have to be carried out.

Each pressure is maintained for a specific period during which the joint is monitored for leakage (see [Clause 8](#)).

It is assumed that the following test parameters are set by the referring standard:

- a) the test pressure(s),  $p_1$  [see [8.1](#) item e)],  $p_2$  [see [8.1](#) item g)] and  $p_3$  [see [8.1](#) item h)], as applicable, and the percentage of loss of partial vacuum [see [8.1](#) item e)];
- b) the required diametric and angular deflections and their combination with each other and/or the test pressure(s).

## 5 Apparatus

### 5.1 General

The apparatus shall consist of a jig or any other arrangement capable of:

- a) applying the specified diametric and angular deflection;
- b) applying the specified test pressure(s), positive or negative;
- c) maintaining the test assembly in the required position throughout the test;
- d) resisting the forces resulting from the mass of the water in the test assembly and from the applied hydrostatic test pressure(s) during the test period.

The apparatus shall not otherwise support the joint against the internal test pressure.

A typical arrangement, allowing angular and diametric deflection, is shown in [Figure 1](#).

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