

Plastics piping systems — Thermoplastics piping systems for buried non-pressure applications — Test methods for leaktightness of elastomeric sealing ring type joints

The European Standard EN 1277:2003 has the status of a
British Standard

ICS 23.040.80

National foreword

This British Standard is the official English language version of EN 1277:2003. It supersedes BS EN 1277:1996 which is withdrawn.

Clause 6(c) does not imply an additional deflection for those cases where the referring standard specifies a deflection.

The UK participation in its preparation was entrusted by Technical Committee PRI/88, Plastic Piping Systems, to Subcommittee PRI/88/4, Pressure, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 10, an inside back cover and a back cover.

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English version

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

Kunststoff-Rohrleitungssysteme - Erdverlegte
Rohrleitungssysteme aus Thermoplasten für drucklose
Anwendungen - Prüfverfahren für die Dichtheit von
elastomeren Dichtringverbindungen

This European Standard was approved by CEN on 3 March 2003.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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Foreword

This European Standard (EN 1277:2003) has been prepared by 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 2004,, and conflicting national standards shall be withdrawn at the latest by June 2004.

Annex A is normative.

This document supersedes EN 1277:1996.

The modifications are:

- The deflection of the socket is now permitted to be greater than specified if by deflecting the spigot to the specified amount the socket, without applying load to it, is deflected to more than specified. The reason is that experience with testing large diameter pipes in accordance with the 1996 version has shown that for some pipe designs a deflection of 10 % of the spigot resulted in a deflection larger than 5% of the socket without applying any load to it. This is the major reason for the revision.
- A support for the profiles under the deflection device, see Figure 2, are specified in cases where there is a risk that the profiles are deflected too much when deflecting the spigot or socket.
- Figure 4 has been added to clarify the description of the deflection devices.
- The procedure for determining and applying the deflection has been described in more details, see 6.2.
- A number of editorial changes including a more logic order of the description of the test equipment and test procedure have been introduced.

The material-dependent parameters and/or performance requirements are incorporated in the System Standard(s) concerned.

This standard is one of a series of standards on test methods, which support System Standards for plastics piping systems and ducting systems.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European standard specifies three basic test pressures 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 methods pressures used are the following:

- 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 four test conditions under which the test can be executed, as follows:

- A: without any additional diametric or angular deflection;
- B: with diametric deflection;
- C: with angular deflection;
- D: with simultaneous angular and diametric deflection.

These conditions can be applied individually or in combination. The applicable selection of the method(s) and the condition(s) should be specified in the referring standard.

2 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 6).

NOTE 1 It is assumed that the following test parameters are set by the standard making reference to this standard:

- a) the test pressure(s), p_1 [see item d) of 6.1], p_2 [see item f) of 6.1] and p_3 [see item g) of 6.1], as applicable, and the percentage of loss of partial vacuum [see item d) of 6.1];
- b) the required diametric and/or angular deflections and their combination with each other and/or the test pressure(s)

NOTE 2 As a consequence of the revision of EN 1277:1996 a modification of test parameters given in referring European Standards on thermoplastics underground drainage and sewerage pipes published before this European Standard may be required (see annex A).

3 Apparatus

3.1 General

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

- a) applying the specified diametric and/or 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.