INTERNATIONAL STANDARD

ISO 13846

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Plastics piping systems — End-load-bearing and non-end-load-bearing assemblies and joints for thermoplastics pressure piping — Test method for long-term leaktightness under internal water pressure

Systèmes de canalisations en plastiques — Assemblages et jonctions avec et sans effet de fond pour canalisations thermoplastiques avec pression — Méthode d'essai pour vérifier l'étanchéité à long terme sous une pression d'eau interne

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 13846 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO Technical Committee TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 2, *Plastics pipes and fittings for water supplies*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this standard, read "...this European Standard..." to mean "...this International Standard...".

Contents

Foreword

The text of EN ISO 13846:2000 has been prepared by Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems", the secretariat of which is held by NNI**,** in collaboration with Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids".

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of an identical text or by endorsement, at the latest by April 2001, and conflicting national standards shall be withdrawn at the latest by April 2001**.**

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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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.

1 Scope

This standard specifies a test method for the long-term leaktightness of end-load-bearing and non-end-load-bearing mechanically jointed assemblies and joints between fittings, ancillaries, valves and thermoplastics pressure pipes, including integral pipe joints.

This method is applicable to joints where similar or different materials are connected, where sealing mechanisms include elastomeric sealing rings or adhesives.

This method is applicable in addition to the hydrostatic pressure tests for materials and components.

2 Principle

The test simulates expansion of the joint area due to creep. This is related to the permissible working conditions for 50 years and based on the properties of the components assembled.

The leaktightness of the joint(s) is tested as an assembly comprising either:

a) at least one fitting joined to pipes; or

b) an ancillary component or a valve joined to pipes; or

c) a pipe-to-pipe joint.

The test is carried out for at least 1000 h at ambient temperature and at the maximum allowed working temperature for the piping system for which the assembly or joint is intended to be used.

The test piece and its joint(s) are subjected to a specified internal hydrostatic water pressure at a specified temperature for the period of time (1000 h or more) specified in the referring standard. Additional reinforcement of the joint area is not permitted for this test.

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

a) the minimum test period under pressure, i.e. 1000 h or more (see clause 2 and 5.4);

b) the free length, *L*, of the pipe sections under test (see 4.1);

c) the number of test pieces (see 4.2);

d) the test temperature (e.g. ambient or maximum allowed working temperature) (see 5.2);

e) the test pressure (see 5.3).

3 Apparatus

3.1 Ambient temperatures

For tests at ambient temperatures (see 5.2), a test room or water bath, capable of being maintained at a temperature to within ± 2°C.

3.2 Elevated temperatures

For tests at elevated temperatures, an air chamber or water bath, capable of being maintained at the specified test temperature to within $\binom{+3}{-1}$ °C.

3.3 Pressure control device

A pressure control device connected to the test assembly and capable of applying a constant hydrostatic pressure to within $\binom{+2}{-1}$ %.

3.4 Support

Support for end-load-bearing assemblies and joints such that the assemblies and joints shall be subjected to the axial forces generated during the test and such that the support shall not provide any axial restraint. (For bibliography see EN 715[1].) An example of solvent cement type test assembly is shown in figure 1.

3.5 Compensating device

A compensating device for non-end-load-bearing assemblies and joints, capable of sustaining the axial forces generated by the internal water pressure, whilst maintaining the axial alignment of the joint assembly. (For bibliography see EN 714[2].) Connecting rods or external frames between non-end-load bearing sealing devices to keep them in place as necessary to prevent any separation. Examples of test assemblies are shown in figures 2 and 3.

NOTE Precautions can be necessary to maintain the alignment of the joint assemblies, particularly for removal of the test assemblies from the test bath.

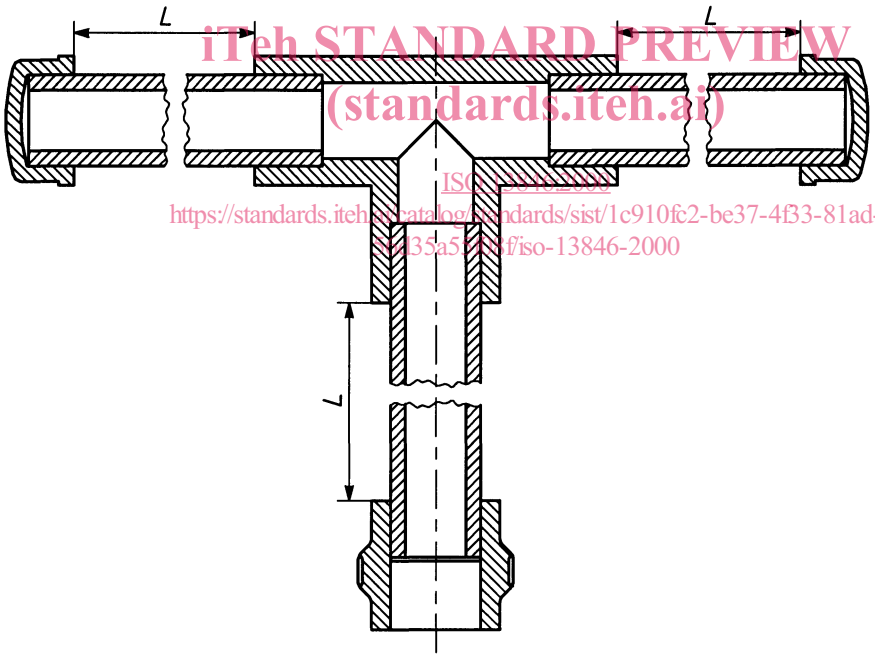

Figure 1 — Example of solvent cement type test assembly

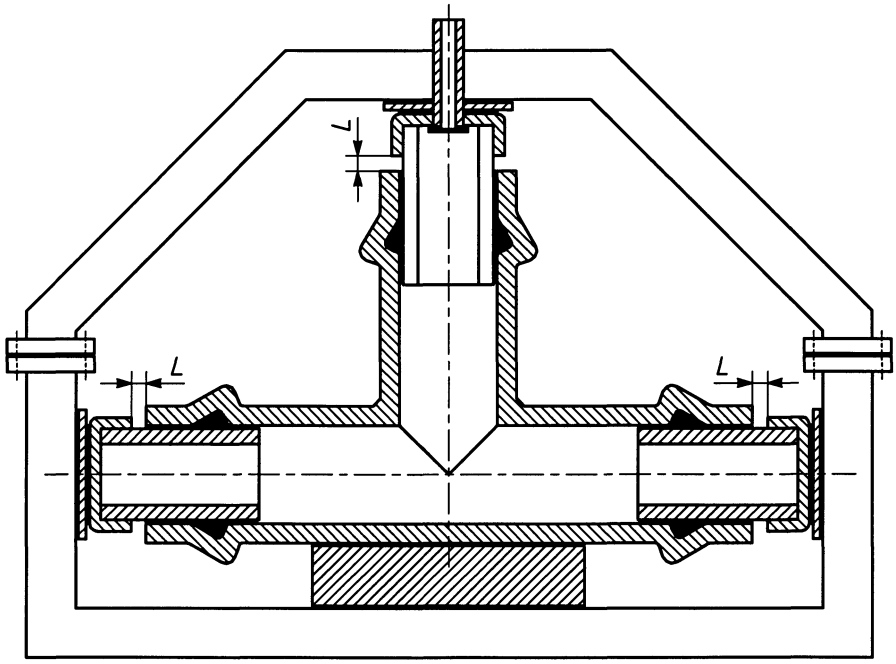

Figure 2 — Example of elastomeric sealing ring type test assembly

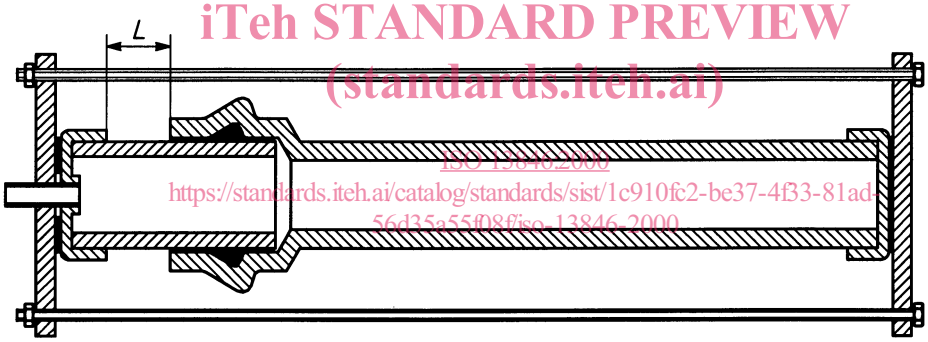

Figure 3 — Example of integral joint type test assembly

4 Test piece

4.1 Preparation

The test piece shall comprise an assembly containing at least one pipe sample joined to a socket of a fitting or to a socketed pipe or joined with an assembled finished product (such as a valve or union). Additional components may be added to the test assembly as required.

Components of the same nominal pressure, PN, or the same pipe series S, shall be used for the assembly.

The relevant dimensions of the joint components shall be measured and recorded, i.e. the mean outside diameter and out-of-roundness of any spigot or pipe joint area, the mean inside diameter and out-of-roundness of any socket and the relevant dimensions of any intermediate component (see note at the end of this clause).