BRITISH STANDARD

BS EN 12295:2000
BS 2782-11:Method 1123P:2000

Plastics piping systems — Thermoplastics pipes and associated fittings for hot and cold water — Test method for resistance of joints to pressure cycling

The European Standard EN 12295:1999 has the status of a British Standard

ICS 23.040.20; 23.040.45

National foreword

This British Standard is the official English language version of EN 12295:1999.

The UK participation in its preparation was entrusted to Technical Committee PRI/61, Plastics piping systems and components, 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 committee 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 Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

WARNING This British Standard, which is identical with EN 12295:1999, does not necessary detail all the precautions necessary to meet the requirements of the Health and Safety at Work etc. Act 1974. Attention should be paid to any appropriate safety precautions and the method should be operated only by trained personnel.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 5 and a back cover.

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EUROPEAN STANDARD
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EN 12295

September 1999

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English version

Plastics piping systems - Thermoplastics pipes and associated fittings for hot and cold water - Test method for resistance of joints to pressure cycling

Systèmes de canalisations en plastique - Tubes thermoplastiques et raccords associés pour installation d'eau chaude et froide sous pression - Méthode d'essai de résistance des assemblages à des cycles de pression

Kunststoff-Rohrleitungssysteme - Rohre aus Thermoplasten und zugehörige Formstücke für Warm- und Kaltwasser - Prüfverfahren für die Beständigkeit von Verbindungen gegen Druckwechselbeanspruchung

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 155, Plastics piping systems and ducting systems, the Secretariat of which is held by NNI.

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 December 1999, and conflicting national standards shall be withdrawn at the latest by March 2000.

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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 method for testing the resistance of joints to pressure cycling. It is applicable to piping systems based on rigid or flexible thermoplastics pipes intended to be used in hot and cold water applications.

2 Principle

An assembly of pipes and fittings is subjected to pressure cycling in air or water between two positive pressure limits via water while being maintained at a specified temperature and inspected for leakage.

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

a) the test temperature (see 3.3 and 5.2);
b) the number of test pieces (see 4.2);
c) the test pressure limits (see 6.1);
d) the duration of one cycle (see 6.1);
e) the number of cycles (see 6.2).

3 Apparatus

3.1 Pressurizing device, capable of applying and regulating the water pressure in the test piece to a sinusoidal form between pressure limits as specified in the referring standard.

NOTE: It may be necessary to compensate for any differences between the pressure at the position of the test piece and the pressure indicated at any other measuring point.

3.2 Pressure measurement device, capable of measuring the water pressure in the test piece with an accuracy of ±5 %. The measurement device shall be capable of producing a record of the sinusoidal wave form.

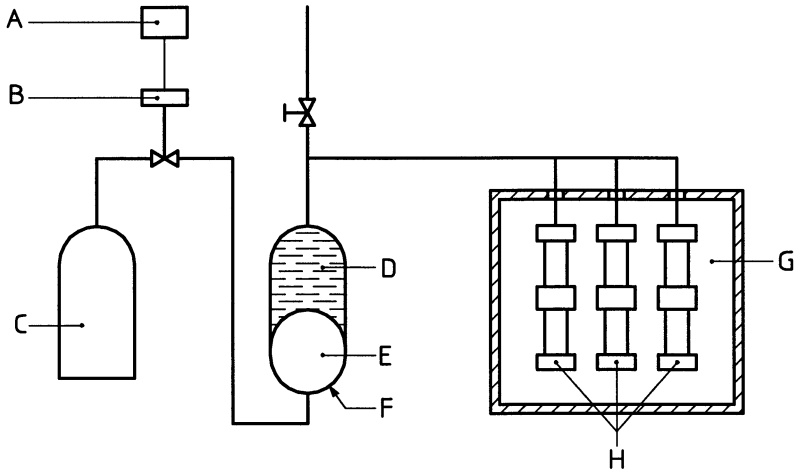
NOTE: It may be necessary to compensate for any differences between the pressure at the position of the test piece and the pressure indicated at any other measuring point.

3.3 Test chamber, capable of maintaining the specified test temperature within ±1 °C, unless testing in the range (23 ± 5) °C, in which case the permitted deviations shall be ±2 °C.

3.4 Thermometer(s), capable of checking conformity to the specified test temperature (see 3.3).

3.5 End-sealing device, of appropriate size and sealing method, for sealing the non-jointed end of the test piece. The device shall be restrained in a manner that does not exert longitudinal forces on the joints.

3.6 A typical test arrangement is shown in Figure 1.



A Electric control
B Valve
C Compressed air cylinder
D Water
E Air
F Pressure converter
G Temperature controlled test chamber
H Test assemblies

Figure 1 — Schematic test arrangement

4 Test pieces

4.1 Preparation

The test piece shall comprise an assembly of pipes and at least one fitting joined in accordance with the manufacturer's recommended practice.

The free length on each side of the fitting under test shall be not less than either $1{,}5d_n$ or 300 mm, whichever is the greater, where d_n is the nominal outside diameter of the pipe.

In order to include the required number of pipes and fitting(s), several test pieces may be tested simultaneously provided that the failure of one test piece does not affect the others under test.

4.2 Number

The number of test pieces shall be as specified in the referring standard.

5 Conditioning

5.1 Prime each test piece with water so that all air is expelled.

5.2 Bring the test piece and water therein to the test temperature as specified in the referring standard.

5.3 Condition the test piece at the applicable test temperature given in Table 1 before or after connecting the test piece(s) to the pressurizing device. If subsequent connection is necessary, ensure that all air is again expelled and that the conditioning has been completed immediately before connection to the pressurizing device.

Table 1 — Conditioning periods

Pipe wall thickness *e* mm	Conditioning period
$e < 3$	1 h ± 5 min
$3 \leq e < 8$	3 h ± 15 min
$8 \leq e < 16$	6 h ± 30 min
$16 \leq e < 32$	10 h ± 1 h

6 Procedure

6.1 As specified in the referring standard, apply alternately to the test piece the two internal pressures and maintain the cycle frequency and test temperatures accordingly.

6.2 During and on completion of the number of cycles specified by the referring standard, inspect all joints for any sign of leakage, and record the wave form at regular intervals.

6.3 If leakage occurs prior to completion of the number of cycles specified by the referring standard, record the number of elapsed cycles and the position and nature of the leak.

7 Test report

The test report shall include the following information:

a) a reference to this standard and to the referring standard;

b) the identification and the number of the components under test, including their operating pressure;

c) the test temperature;

d) the test pressures comprising the lowest and the highest of the cycle;

e) the duration of one cycle;

f) the number of cycles;

g) a record of the wave form at the start and the end of each test;

h) the signs of leakage, if any, and where and when they occurred;

i) any factors which may have affected the results, such as any incidents or any operating details not specified in this standard;

j) the date of test.

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