BRITISH STANDARD

BS EN 12061:1999
BS 2782-11: Method 1108D:1999

Plastics piping systems — Thermoplastics fittings — Test method for impact resistance

The European Standard EN 12061:1999 has the status of a British Standard

ICS 23.040.45

National foreword

This British Standard is the English language version of EN 12061:1999.

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.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 4, an inside back cover and a back cover.

This British Standard, having been prepared under the direction of the Sector Committee for Materials and Chemicals, was published under the authority of the Standards Committee and comes into effect on 15 July 1999

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English version

Plastics piping systems — Thermoplastics fittings — Test method for impact resistance

Systèmes de canalisation en plastique — Raccords en thermoplastique — Méthode d'essai de résistance au choc

Kunststoff-Rohrleitungssysteme — Formstücke aus Thermoplasten — Prüfverfahren der Schalgzähigkeit

This European Standard was approved by CEN on 30 November 1998.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

Ref. No. EN 12061:1999 E

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 July 1999, and conflicting national standards shall be withdrawn at the latest by July 1999.

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.

This standard is based on the test method described in **6.2.1** of ISO 4435:1991, *Unplasticized poly(vinyl chloride) (PVC-U) pipes and fittings for buried drainage and sewerage systems — Specifications*, prepared by the International Organization for Standardization (ISO). It is a modification of ISO 4435:1991 for reasons of applicability to other plastics materials and/or other test conditions and alignment with texts of other standards on test methods.

The modifications are:

— editorial changes have been introduced;

— the possibility of specifying the position from which the fitting shall be dropped is introduced;

— assessment of the effect of the test impact on watertightness is 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 that support System Standards for plastics piping systems and ducting systems.

Contents

1 Scope

This standard specifies a method for testing the impact resistance of fittings by dropping them onto a rigid surface. For a fitting with seal retaining components, such as seal retaining caps or rings, the method includes assessment of the watertightness of the fittings when the fixing elements show disturbance as a result of the test.

This standard is applicable to fittings made from thermoplastics materials intended to be used for buried and above ground applications.

2 Principle

The impact resistance of a fitting is tested by dropping the fitting onto a rigid surface. After impact, the fitting is inspected for any cracks visible without magnification. In the case of fittings with separate fixing elements, e.g. for seal retention, these elements are inspected for any permanent disturbance that could cause loss of watertightness.

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

a) test temperature (see clause **3**);

b) sampling procedure and frequency (see clause **4**);

c) conditioning time and temperature as applicable (see clause **5**);

d) the height through which the test piece is to be dropped (see clause **6**);

e) the point of impact that is to hit the test base when dropped (see clause **6**);

f) test conditions for assessment of watertightness (see clauses **6** and **7**).

3 Apparatus

3.1 *Refrigerator or liquid bath*, capable of maintaining the conditioning temperature within ± 2 °C.

3.2 *Temperature-controlled environment*, capable of maintaining the test temperature within ± 2 °C.

3.3 *Test base*, comprising a solid floor made of concrete or stone at least 100 mm thick or alternatively a slab of concrete with a minimum thickness of 100 mm and a mass at least 20 times that of the test piece. The surface shall be rigid, flat, smooth and horizontal.

4 Test pieces

4.1 Test piece form

The test piece shall comprise a sample fitting complete, where applicable, with the sealing element and any associated means of fixing element(s) in place.

4.2 Sampling

The sampling procedure and frequency shall be as specified in the referring standard.

4.3 Number

Unless otherwise specified in the referring standard, the number of test pieces shall be five for sizes up to and including 200 mm and three for sizes greater than 200 mm.

5 Conditioning

Determine and measure the maximum wall thickness, e, of the sample fitting.

Place the test piece in the refrigerator, liquid bath or temperature-controlled environment (**3.1** and **3.2**) at the specified test temperature for at least the applicable minimum period given in Table 1, unless otherwise specified in the referring standard.

Table 1 — Minimum conditioning period

Wall thickness e mm	**Minimum conditioning period** h
$e < 3$	1
$3 \leq e < 8$	3
$8 \leq e < 16$	6
$16 \leq e$	16

6 Procedure

6.1 For each test piece in turn, remove the fitting from the conditioning environment and drop it on the test base in accordance with **6.2** within the applicable time limits given in Table 2.

Table 2 — Maximum period between conditioning and testing

Conditions for testing in accordance with 6.2	**Maximum time limit** s
Without temperature control conforming to **3.2**	for: $d_n < 200$: 10 $200 \leq d_n \leq 630$: 30 $d_n > 630$: 60
Temperature controlled environment (**3.2**) with refrigerator or liquid bath in the same environment	60

6.2 Release the fitting from the specified drop height in such an attitude that the specified point of impact hits the test base.

NOTE The position from which the fitting shall be dropped in order to hit the specified impact point, may be decided by preliminary testing with each specific fitting type.

6.3 Inspect each fitting for and record the presence and positions of any cracks or splits visible without magnification. Disregard any surface scratches, scuffing or chipping of edges which may occur during the test.

Assess the condition and/or assembly of the test piece for watertightness as necessary using the applicable test method(s) as specified by the referring standard to express the result in accordance with clause **7**.

7 Expression of results

7.1 Unless otherwise specified in the referring standard, if the fitting shows no cracks through the wall and the condition in **7.2** is conformed to, express the result as “No damage”.

7.2 If during the test the fixing element jumps off the fitting body and the element can be restored manually to its correct position, e.g. to give a watertight joint, and the condition in **7.1** is conformed to, express the result as “No damage”.

7.3 If the fitting shows cracks through the wall or if the fixing element has jumped off the fitting without the possibility of restoring it in such a way that watertight jointing is achieved, then express the result as “Damage”.

8 Test report

The test report shall include the following information:

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

b) complete identification of the fitting under test;

c) the test temperature;

d) the height from which the fitting(s) was (were) dropped;

e) the point of impact;

f) for each test piece, the results of the test and any associated information;

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

h) the date of the test.

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