BRITISH STANDARD

BS ISO
13263:2010

Thermoplastics piping systems for non-pressure underground drainage and sewerage — Thermoplastics fittings — Test method for impact strength

ICS 23.040.20; 23.040.45; 91.140.80; 93.030

BSI
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National foreword

This British Standard is the UK implementation of ISO 13263:2010.

The UK participation in its preparation was entrusted to Technical Committee PRI/88/1, Plastics piping for non-pressure applications.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2010

ISBN 978 0 580 66713 8

Amendments/corrigenda issued since publication

Date	Comments

BS ISO 13263:2010

INTERNATIONAL STANDARD

ISO 13263

First edition
2010-05-01

Thermoplastics piping systems for non-pressure underground drainage and sewerage — Thermoplastics fittings — Test method for impact strength

Systèmes de canalisations thermoplastiques pour branchements et collecteurs d'assainissement enterrés sans pression — Raccords thermoplastiques — Méthode d'essai de résistance au choc

Reference number
ISO 13263:2010(E)

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INTERNATIONAL STANDARD **ISO 13263:2010(E)**

Thermoplastics piping systems for non-pressure underground drainage and sewerage — Thermoplastics fittings — Test method for impact strength

1 Scope

This International Standard specifies a method for testing the impact resistance of fittings by dropping them on to 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 damage as a result of the test.

This International 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 on to a rigid surface. After impact, the fitting is inspected for any cracks visible without magnification. In the case of fittings with separate fixing elements, for example for seal retention, these elements are inspected for any permanent damage that could cause loss of watertightness.

NOTE It is assumed that the following test parameters are set by the referring 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 from 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.

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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 the 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 temperature

Wall thickness e mm	**Minimum conditioning period** h
$e < 3$	1
$3 \leqslant e < 8$	3
$8 \leqslant e < 16$	6
$16 \leqslant e$	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 for $200 \leqslant d_n \leqslant 630$: 30 for $d_n > 630$: 60
Temperature-controlled environment (3.2) with refrigerator or liquid bath (3.1) in the same environment	60

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

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 that may occur during the test.

Assess the condition and/or assembly of the test piece for watertightness using the applicable test method(s) specified in 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 but can be restored manually to its correct position, e.g. to give a watertight joint, and if 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, express the result as “Damage”.

8 Test report

The test report shall include the following information:

a) a reference to this International Standard, i.e. ISO 13263:2010, and 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 factor that could have affected the results, such as any incident or any operating detail not specified in this International Standard;

h) the date of the test.

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