BRITISH STANDARD

BS EN
1979:1999
BS 2782-11:
Method
1110C:1999

Plastics piping and ducting systems — Thermoplastics spirally-formed structured-wall pipes — Determination of the tensile strength of a seam

The European Standard EN 1979:1999 has the status of a British Standard

ICS 23.040.20

National foreword

This British Standard is the English language version of EN 1979:1999.

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 international/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.

This European Standard is also incorporated into BS 2782-11 *Methods of testing plastics — Part 11: Thermoplastics pipes, fittings and valves*, as Method 1110C:1999, for association with related test methods for plastics materials and plastics piping systems.

It may be used for the revision or amendment of other national standards, but it should not be presumed to apply to any existing standard or specification which contains or makes reference to a different test method until that standard/specification has been amended or revised to make reference to this method and adjust any requirements as appropriate.

The responsible UK technical committee considers that certain aspects of the text as published could be misleading and require clarification or further attention as follows.

a) Attention is drawn to the requirement given in **5.1** that the "test piece shall consist of the overall wall thickness (construction height) of the pipe from which it is taken".

b) As shown in the plan view in Figure 1, the length of the test piece may include ribs or other features in the vicinity of the seam. In **5.2.2**, in the third paragraph it is stated that "individual ribs in the grip area may be removed if needed for a proper attachment of the grips". Figure 1 includes a section view in which no residual ribs are shown adjacent to the interlocking seam profiles.

The UK technical committee considers that the requirements of **5.1** demand the retention of the overall wall thickness in respect of at least any ribs or other structural features adjacent to the seam, since these may be designed to contribute to the stability of the seam. The committee considers that any removal of ribs to achieve attachment of the grips should be applied at the free ends of the test piece and should not remove the nearest of any such features to the seam. The section view shown in Figure 1 should therefore **not** be taken as indicating that all ribs or profile variations not integral with the interlocking seam profiles may or should be removed from the test piece.

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 using the 'Find' facility of the BSI Standards Electronic Catalogue.

WARNING This British Standard, which is identical with EN 1979:1999, does not necessarily 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 performed only by trained personnel.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

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.

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 June 1999

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English version

Plastics piping and ducting systems — Thermoplastics spirally-formed structured-wall pipes — Determination of the tensile strength of a seam

Systèmes de canalisations et de gaines en matières plastiques — Tubes thermoplastiques à paroi structurée enroulés en hélice — Détermination de la résistance en traction de la ligne de soudure

Kunststoff-Rohrleitungs- und Schutzrohrsysteme — Thermoplastische Spiralrohre mit profilierter Wandung — Bestimmung der Zugfestigkeit einer Verbindungsnaht

This European Standard was approved by CEN on 28 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 1979:1999 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.

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 determining the tensile strength of a seam in a spirally-formed thermoplastics pipe. It is applicable to all such thermoplastics pipes, regardless of their intended use.

2 Normative references

This standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter.

For dated references, subsequent amendments to, or revisions of, any of these publications apply to this standard only when incorporated in it by amendment or revision.

For undated references the latest edition of the publication referred to applies.

ISO 5893:1993, *Rubber and plastics test equipment — Tensile, flexural and compression types (constant rate of traverse) — Description*

3 Principle

Test pieces of specified shape and dimensions are taken from a thermoplastics pipe with a spirally-formed seam in the direction perpendicular to the seam, by cutting or machining.

The tensile forces necessary to rupture test pieces including the seam are determined using a tensile testing machine under specified conditions.

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

a) rate of movement of the driven grip (see **4.1** and **8.2**).

4 Apparatus

4.1 *Tensile testing machine*, conforming to ISO 5893:1993 for the specified rate of movement of the driven grip. It shall be capable of applying the necessary force and travel (see **4.3** and **8.3**).

4.2 *Grips*, for holding the test piece, conforming to ISO 5893:1993, which shall be fixed to the machine in such a way that they move freely into alignment as soon as any force is applied, so that the longitudinal axis of the test piece coincides with the direction of the force along the centreline of the grip assembly.

4.3 *Force indicator*, capable of showing or recording with an accuracy conforming to grade A of ISO 5893:1993 the total tensile force to which the test piece held in the grips is subjected when tested at the speed specified.

4.4 *Micrometer or equivalent*, with an accuracy and ability to determine the width of the test piece with an accuracy of 0,05 mm or smaller.

5 Test pieces

5.1 Shape of the test piece

The alignment and dimensions of the test piece shall be as shown in Figure 1. The test piece shall consist of the overall wall thickness (construction height) of the pipe from which it is taken.

5.2 Test piece preparation

5.2.1 *General*

At least 15 h after production of the pipe, divide the circumference of the pipe into five equal sectors. Without heating or flattening the sectors, cut one rectangular test piece, perpendicular to the seam, from each sector of the pipe (see Figure 1).

5.2.2 *Adjustment of test piece dimensions*

If the test pieces, after having been cut from the pipe, do not conform to **5.1**, their size may be reduced by milling, provided that the milling conditions are chosen so as to avoid:

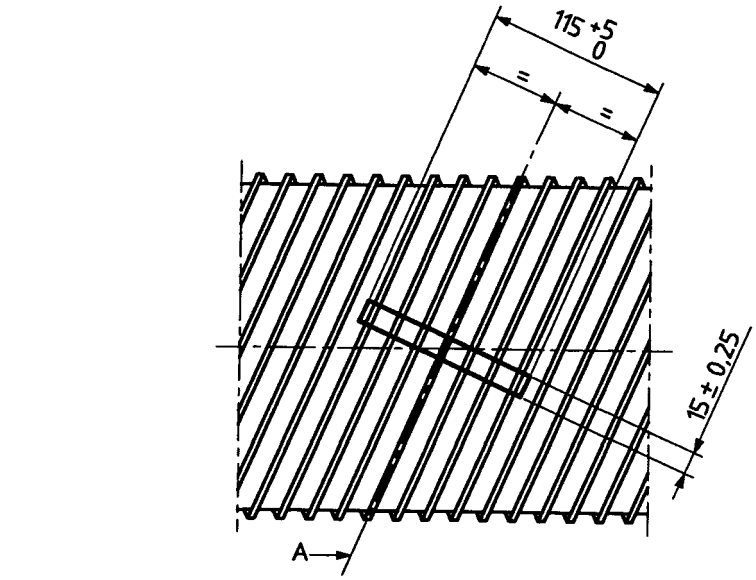
a) any tangible heating of the test piece;

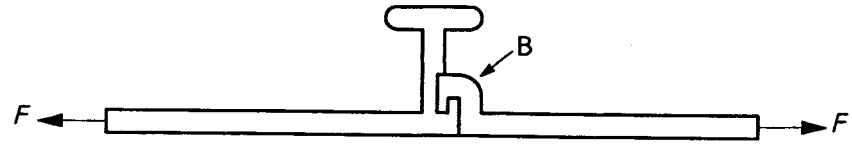
b) damage to its surface, such as cracks, scratches or other visible flaws;

to an extent that would affect the tensile properties to be measured.

If the width of the wound profile is such that more than one seam is included in the length of the test piece, the test piece shall be cut in such a way that the seams are symmetrically located over the test piece.

If it is not possible to cut the test piece without getting a rib in the grip area, the test piece may be cut slightly longer or shorter as needed to avoid this situation. Individual ribs in the grip area may be removed if needed for a proper attachment of the grips.





A Seam

B Example of a seam

NOTE The lower figure is schematically only.

Dimensions in millimetres

Figure 1 — Location and dimensions of a test piece

6 Conditioning

The test pieces shall be conditioned at (23 ± 2) °C for not less than 1 h in water or 2 h in air, except in cases of dispute when the minimum period shall be 2 h in water or 4 h in air.

7 Test temperature

The test temperature shall be (23 ± 2) °C.

8 Procedure

8.1 Place the test piece in the tensile testing machine so that there is axial alignment with the direction of pull. Clamp the grips uniformly and sufficiently tightly to prevent any slipping of the test piece.

8.2 Set the rate of movement of the grips to the value specified in the referring standard and start the machine.

8.3 Record the maximum force necessary during testing to rupture of the test piece.

8.4 Repeat the test until five results have been obtained, after discarding any test pieces which have slipped in the grips.

9 Expression of results

For each test piece note the maximum force, in newtons, recorded during the test to rupture of the seam. Express the result as the tensile strength of the seam in newtons per 15 mm width.

10 Test report

The test report shall include the following information:

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

b) the complete identification of the pipe tested, including the constituent material, wall construction type, origin and nominal size;

c) the conditioning medium (water or air) and conditioning period;

d) the number of test pieces tested;

e) the rate of movement of the grips;

f) the tensile strength of the seam, in newtons per 15 mm width, for each test piece;

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

h) the date of test.

BS EN 1979:1999 BS 2782-11: Method 1110C:1999

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