
Cevni sistemi iz polimernih materialov - Cevi in fittingi iz duromernih materialov, ojačenih s steklenimi vlakni (GRP) - Preskusne metode za preverjanje tesnosti sten pod kratkotrajnim notranjim tlakom

Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes and fittings
- Test methods to prove the leaktightness of the wall under short-term internal pressure

Kunststoff-Rohrleitungssysteme - Rohre und Formstücke aus glasfaserverstärkten duroplastischen Kunststoffen (GFK) - Prüfverfahren zur Feststellung der Dichtigkeit der Wand unter Kurzzeit-Innendruck (standards.iteh.ai)

Systemes de canalisations en plastique - Tubes et raccords en plastique thermodurcissable renforcé de verre (PRV) - Méthode d'essai pour établir l'étanchéité de la paroi sous une pression interne a court terme

Ta slovenski standard je istoveten z: EN 1229:1996

ICS:

23.040.20	Cevi iz polimernih materialov	Plastics pipes
23.040.45	Fittingi iz polimernih materialov	Plastics fittings
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EUROPEAN STANDARD

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Descriptors: pipelines, plastic tubes, pipe fittings, reinforced plastics, glass reinforced plastics, thermosetting resins, partitions, leak tests, pressure tests, hydraulic tests, pneumatic tests, leaktightness

English version

**Plastics piping systems - Glass-reinforced
thermosetting plastics (GRP) pipes and fittings -
Test methods to prove the leaktightness of the
wall under short-term internal pressure**

Systèmes de canalisations en plastique - Tubes et raccords en plastique thermodurcissable renforcé de verre (PRV) - Méthode d'essai pour établir l'étanchéité de la paroi sous une pression interne à court terme

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CEN

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 standard is based on the draft International Standard ISO/DIS 7511 "Pipes and fittings of glass reinforced thermosetting plastics (GRP) - Determination of leaktightness - Test method" prepared by the International Organization for Standardization (ISO). It is a modification of ISO/DIS 7511 for reasons of applicability to other test conditions and alignment with texts of other standards on test methods.

The modifications are:

- specifications for detection of water leakage are deleted;
- test parameters (pressure, time, temperature) are not specified;
- material-dependent or performance requirements are not given;
- editorial changes have been introduced.

The material-dependent test parameters and/or performance requirements are incorporated in the referring standard.

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This standard is one of a series of standards on test methods which support System Standards for plastics piping systems and ducting systems.

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 1996, and conflicting national standards shall be withdrawn at the latest by december 1996.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies two test methods, designated method A and method B, for rapid testing of the leaktightness of glass-reinforced thermosetting plastics (GRP) pipes and fittings under short-term internal pressure.

Method A is a hydraulic test applicable to a pipe under uniaxial stress.

Method B is a pneumatic test applicable to pipes and fittings. For pipes it is intended to be complementary to method A, not an alternative test.

NOTE: Test methods for the leaktightness of joints or for the pipe's resistance to long-term hydrostatic pressure are covered by other standards.

2 Definition

For the purposes of this standard, the following definition applies:

leakage: The transmission of water or air through the wall of the test piece.

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3 Method A

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3.1 Principle

A test piece in air is subjected to an internal water pressure. The test piece is monitored for evidence of leakage through the wall of the test piece, e.g. signs of weeping or transfer of an indicator, within a specified time.

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

- a) the test pressure and time taken to achieve it (see 3.2.1 and 3.4.2);
- b) the number of test pieces to be used (see 3.3);
- c) the period for which pressure is applied (see 3.4.3).

3.2 Apparatus

3.2.1 Pressurizing system, capable of maintaining for the duration of the test a specified hydraulic pressure measured at the top of the test piece to an accuracy within -2% and $+5\%$. The water used to pressurize the test piece may contain an indicator, such as a dye, to assist detection of any transfer through the wall of the test piece.

3.2.2 Pressure measuring device, of sufficient accuracy to enable conformity to 3.2.1.

3.2.3 End-sealing devices, such as end caps, internal stoppers or inflatable bags depending on the diameter of the test piece. Means shall be provided to prevent movement of the sealing device under pressure. Such devices shall not transmit end thrust to the test piece.

3.2.4 Test piece support, if necessary, to minimize deformation of the test piece due to its mass and its contents.

This support shall not constrain the test piece circumferentially or longitudinally.

3.3 Test pieces

3.3.1 The test piece(s) shall comprise a pipe or a piece taken from a pipe, as specified in the referring standard.

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

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3.4 Procedure

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WARNING: Attention is drawn to dangers associated with pressure and the need to apply all necessary precautions to prevent injury to the personnel concerned.

3.4.1 Attach the end-sealing devices to the test piece and fill the test piece with water, expelling all air. Attach the test piece to the pressurizing system, being sure to avoid entrapment of air.

3.4.2 Increase the hydrostatic pressure continuously, so that the specified test pressure is reached in the time specified in the referring standard.

3.4.3 Maintain the test pressure for the time specified in the referring standard or until leakage is observed, whichever occurs first. Record any evidence of leakage through the wall of the test piece (see 3.1 and 3.2.1) and the period after which it was observed.

3.5 Test report

The test report shall include the following information:

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

- b) the full identification of the pipe tested;
- c) the number of test pieces;
- d) the method of test used, i.e. method A;
- e) the test pressure, in bars;
- f) the duration of the test or time to failure, in minutes;
- g) the occurrence or absence of leakage;
- h) any factors which may have affected the results, such as any incidents or any operating details not specified in this standard;
- i) the date of test.

4 Method B

4.1 Principle

A test piece in either air or water is subjected to an internal air pressure. The test piece is monitored for evidence of leakage within a specified time.

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

- a) the test pressure and time taken to achieve it (see 4.2.1 and 4.4.2);
- b) the number of test pieces to be used (see 4.3);
- c) the period for which pressure is applied (see 4.4.3).

4.2 Apparatus

4.2.1 **Pressurizing system**, capable of applying and maintaining to an accuracy of within $\pm 2\%$ the internal air pressure specified in the referring standard and fitted with an automatic pressure-limiting device.

4.2.2 **Pressure measuring device**, of sufficient accuracy to enable conformity to 4.2.1.

4.2.3 **End-sealing devices**, such as end caps, internal stoppers or inflatable bags depending on the diameter of the test piece. Means shall be provided to prevent movement of the sealing device under pressure. Such devices shall not transmit end thrust to the test piece.

4.3 Test pieces

4.3.1 The test pieces shall comprise either of the following as specified in the referring standard:

- a) a pipe;
- b) a piece taken from a pipe;
- c) a fitting.

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

4.4 Procedure

WARNING: Attention is drawn to dangers associated with pneumatic pressure and the need to apply all necessary precautions to prevent injury to the personnel concerned. For reasons of safety it is recommended that the test pressure does not exceed 1 bar unless otherwise specified by the referring standard.

4.4.1 Assemble the end-sealing devices (see 4.2.3) to the test piece ensuring that no end thrust is transmitted. Connect the test piece to the pressurizing system through one of the end-sealing devices. Either paint the outer surface of the test piece with a solution of soap or a similar agent, if the test is performed in air, or immerse the test piece completely in water.

4.4.2 Pressurize the test piece to the specified test pressure (see 4.1).

4.4.3 Maintain the test pressure for the time specified (see 4.1) or until leakage is observed, whichever occurs first.

Inspect for and record any bubbling caused by air escaping through the wall of the test piece.

4.5 Test report

The test report shall include the following information:

- a) a reference to this standard and the referring standard;
- b) the full identification of the pipe or fitting tested;
- c) the number of test pieces;
- d) the method of test used, i.e. method B;
- e) the test pressure, in bars;