SLOVENSKI STANDARD
SIST EN 917:1999

01-julij-1999

Cevni sistemi iz polimernih materialov - Ventili iz plastomernih materialov - Metode za preskus odpornosti proti notranjemu tlaku in neprepustnosti

Plastics piping systems - Thermoplastics valves - Test methods for resistance to internal pressure and leaktightness

Kunststoff-Rohrleitungssysteme - Armaturen aus Thermoplasten - Prüfverfahren für die Widerstandsfähigkeit gegen Innendruck und die Dichtheit

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Systemes de canalisations en plastique - Robinets thermoplastiques - Méthodes d'essai de la résistance a la pression interne et de l'étanchéité

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Ta slovenski standard je istoveten z: **EN 917:1997**

ICS:

23.060.01 Ventili na splošno Valves in general

SIST EN 917:1999 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 917

January 1997

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Descriptors: plastic tubes, fluid pipelines, thermoplastic resins, cocks, pressure tests, pressure resistance

English version

Plastics piping systems - Thermoplastics valves - Test methods for resistance to internal pressure and leaktightness

Systèmes de canalisations en plastique - Robinets thermoplastiques - Méthodes d'essai de la résistance à la pression interne et de l'étanchéité

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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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

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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 9393-1 "Thermoplastics valves - Pressure test methods and requirements - Part 1: General" prepared by the International Organization for Standardization (ISO). It is a modification of ISO/DIS 9393-1 for reasons of alignment with texts of other standards on test methods.

The modifications are:

- no performance requirements are given;
- editorial changes have been introduced.

The material-dependent parameters and/or performance requirements are incorporated in the System Standard(s) concerned.

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Annex A, which is informative, gives a bibliography.

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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 July 1997, and conflicting national standards shall be withdrawn at the latest by July 1997.

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.

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1 Scope

This standard specifies test methods for the resistance to internal pressure (method A) and the leaktightness (method B) of thermoplastics valves.

This standard is applicable to thermoplastics valves intended for the transport of fluids.

2 Definitions

For the purposes of this standard, the following definitions apply:

2.1 nominal pressure (PN): Alphanumerical designation of pressure, used for reference purposes, which is related to the mechanical strength of the valve. It corresponds to the maximum continuous operating pressure, in bars[1)] with water at 20 °C, for which the valve is designed.

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2.2 test pressure: Internal pressure to which a valve is subjected during a test. It is usually expressed in bars.

2.3 closing torque: Torque required to close a valve to full tightness at the nominal pressure. It is usually expressed in newton metres.

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3 Method A: Long-term pressure test

3.1 Principle

A complete valve assembly with its connections is subjected to constant internal pressure at a constant temperature for a period which has to be specified to verify that the design of the valve and its connections do not adversely affect the long-term behaviour performance of the valve.

NOTE 1: For component pressure testing on a valve body (shell test), ISO/DIS 12092 can be used.

The internal pressure is applied using water. The external environment can be air or water.

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1) 1 bar = 0,1 MPa = 10^5 N/m^2

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After assembly and conditioning as appropriate, test pieces are subjected to a specified constant internal pressure for a specified period of time or until the test piece fails. While under pressure the test pieces are kept in an environment at a specified constant temperature.

NOTE 2: It is assumed that the following test parameters are set by the standard making reference to this standard:

a) the test temperature (see 3.2.1);

b) the test pressure (see 3.2.2);

c) the time under pressure (see 3.2.2);

d) any performance requirements including, if applicable, the criteria for a loss of pressure indicative of failure (see 3.2.5);

e) the number of test pieces (see 3.3.2).

3.2 Apparatus

3.2.1 Tank filled with water kept at a temperature as specified in the referring standard to within ± 1 °C, or a testing room having an air temperature kept within $^{+3}_{-1}$ °C of the temperature specified in the referring standard.

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NOTE: As the results are strongly influenced by temperature, the tolerance on temperature should be kept as small as possible within the specified limits.

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3.2.2 Pressurization equipment, capable of:

- progressively applying the pressure specified in the referring standard;

- maintaining this pressure with a deviation not exceeding $^{+2}_{-1}$ % for the period of time specified in the referring standard.

3.2.3 Pressure measurement devices, capable of checking conformity to the specified test pressure. In the case of calibrated gauges or similar pressure measurement devices, the range of the device shall be such that the required pressure setting shall lie within the calibrated range of the device used.

The pressure measurement device(s) shall not contaminate the test fluid.

NOTE: The use of master gauges for calibration of the apparatus is recommended.

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3.2.4 **Thermometers or equivalent**, capable of checking conformity to the specified test temperature.

3.2.5 **Timer**, capable of recording the duration of the pressure application up to the moment of failure of the test piece, as specified by the referring standard.

3.3 Test pieces

3.3.1 Assembly of test pieces

Each test piece shall comprise a complete valve with all connecting elements assembled in accordance with the valve manufacturer's instructions and the following requirements, as applicable.

a) Valves with flanges or unions
The test piece shall be connected by means of flanges or unions to the test apparatus.

b) Valves with threaded ends
The test piece shall be connected by means of threaded fittings to the test apparatus.

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c) Valves with ends for fusion or solvent-cement joints
The test piece shall be connected by fusion or solvent cementing to thermoplastics pipe sections. The minimum free length of the pipe sections shall be at least equal to the outside diameter of the pipe. The pipe shall be cut at right angles to its longitudinal axis.

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d) Valves with compression-fitting ends
The test piece shall be connected to appropriate pipe sections. The minimum free length of the pipe sections shall be at least equal to the outside diameter of the pipe.

e) Valves with elastomeric sealing ring type socket joints
The test piece shall be connected to appropriate pipe sections. The minimum free length of the pipe sections shall be at least equal to the outside diameter of the pipe.

The curing or setting time for moulded, fused or cemented components specified by the manufacturer shall be completed before commencing conditioning in accordance with 3.4.

3.3.2 Number

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

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3.4 Conditioning

For conditioning before or after 3.5.3, fill the test piece with water and condition it for at least 1 h at a temperature not deviating more than ± 5 °C from the specified test temperature (see note 2 to 3.1).

3.5 Procedure

3.5.1 Prepare a test piece in accordance with 3.3.

3.5.2 Before or after 3.5.3 or 3.5.4, as convenient, condition the test piece in accordance with 3.4.

3.5.3 Position the test piece in the tank or testing room in such a way that the test piece is not subject to any additional stress and such that the positioning means shall not provide additional reinforcement to the valve.

3.5.4 Connect the test piece to the pressurizing equipment.

3.5.5 Ensure that the water in the test piece conforms to the specified test temperature.
Expel any trapped air from the test piece.

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3.5.6 Progressively and smoothly apply the specified test pressure in not less than 30 s.

3.5.7 While testing in accordance with 3.5.8, observe and record any leakage, damage, pressure loss or any additional information important for the test results (see d) of note 2 to 3.1).

3.5.8 Maintain the pressure and the internal and external temperatures within the limits given in 3.2.2 and 3.2.1 for the specified length of time, or until prior failure. Depressurize the test piece if necessary.

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3.6 Test report

The test report shall include the following information:

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

b) the type of test carried out, i.e method A;

c) all details necessary for the complete identification of the valve, including:

1) the type of valve, its nominal size and the type of end-connections;

2) the material of the body and of its end-connections;

3) the nominal pressure (PN) of the valve;

4) the manufacturer's name or trade mark;

5) if appropriate, the flow direction;

6) for the pipe sections used, the nominal size and the wall thickness;

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d) signs of leakage, damage or pressure loss, if any;

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

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f) the date of test.