



SLOVENSKI STANDARD

SIST EN 763:1997

01-februar-1997

Cevni sistemi iz polimernih materialov - Plastomerni fittingi, oblikovani z injekcijskim vbrizgavanjem - Preskusna metoda za vizualno oceno vpliva segrevanja

Plastics piping and ducting systems - Injection-moulded thermoplastics fittings - Test method for visually assessing effects of heating

Kunststoff-Rohrleitung- und Schutzrohrsysteme - Spritzguß-Formstücke aus Thermoplasten - Prüfverfahren für die visuelle Beurteilung der Einflüsse durch Warmlagerung

Systemes de canalisations et de gaines en plastiques - Raccords thermoplastiques moulés par injection - Méthode d'essai pour estimer visuellement les effets du chauffage

Ta slovenski standard je istoveten z: EN 763:1994

ICS:

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23.040.45	Fittingi iz polimernih materialov	Plastics fittings

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EUROPEAN STANDARD

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English version

**Plastics piping and ducting systems -
Injection-moulded thermoplastics fittings - Test
method for visually assessing effects of heating**

Systèmes de canalisations et de gaines en
plastiques - Raccords thermoplastiques moulés
par injection - Méthode d'essai pour estimer
visuellement les effets du chauffage

Kunststoff-Rohrleitung- und Schutzrohrsysteme
- Spritzguß-Formstücke aus Thermoplasten -
Prüfverfahren für die visuelle Beurteilung der
Einflüsse durch Warmlagerung

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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 standard is prepared by CEN/TC 155 "Plastics piping systems and ducting systems".

This standard is based on ISO 580:1990 "Injection-moulded unplasticized poly(vinyl chloride)(PVC-U) fittings - Oven test - Test method and basic specifications", published by the International Organization for Standardization (ISO). It is a modification of ISO 580:1990 for reasons of applicability to other thermoplastics materials and/or other test conditions and alignment with texts of other standards on test methods.

The modifications are:

- no material is mentioned except in annex A, which is informative, concerning the setting of test temperatures and periods for fittings of PVC-U;
- the method using a liquid bath is incorporated as a standardized method (method B) as an alternative to the method using an air oven (method A), with the air oven method remaining the reference method;
- test parameters, except those common to all plastics, are omitted;
- no material-dependent requirements are given;
- editorial changes have been introduced.

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

Annex A, which is informative, gives background information for setting test temperatures and heating periods for testing PVC-U fittings.

No existing European Standard is superseded by this standard.

This Standard will result in 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 October 1994, and conflicting national standards shall be withdrawn at the latest by October 1994.

According to the CEN/CENELEC Internal Regulations, 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, United Kingdom.



Introduction

The two test methods described in this standard are based upon those given in ISO 580:1990, the introduction to which is reproduced in annex A for guidance in setting test parameters appropriate to fittings of differing materials and/or dimensions.

Because the results are dependent upon such factors and the test conditions, the results obtained using an air oven (method A) or a liquid bath (method B) may not be identical. One of the methods, i.e. method A (air oven), is therefore declared to be the reference method, for use in case of dispute, permitting the other method to be used when otherwise convenient.

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1 Scope

This standard specifies methods for visually assessing the effects of heating on injection-moulded thermoplastics fittings, including cracking or splitting induced by residual stress.

It is applicable to fittings for pressure and non-pressure applications, e.g. flanged fittings, fittings incorporating elastomeric sealing rings and fittings consisting of the assembly of a number of moulded parts.

Two methods are given, involving respectively use of an air oven, designated method A, and of a liquid bath, designated method B.

In the event of these methods giving differing results, method A is declared to be the reference method for use in case of dispute.

2 Principle

Complete mouldings are subjected to a specified temperature, T , in an air-circulating oven or a liquid bath, for a given time depending on the wall thickness and the moulded material.

The surfaces of the moulding are examined before and after heating, and any cracks, blisters, delamination or weld openings are measured and expressed as a percentage of the wall thickness.

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

- a) the test temperature, T , (see 3.1 and 5.1 or 3.2 and 6.1);
- b) the test method to be used and, for method B (liquid bath) only, the liquid (see 3.2);
- c) the time period, t , for heating at the test temperature T (see 5.3 or 6.3, as applicable);

d) the acceptable limits for the occurrence or dimensions of any cracks or other features found and reported in accordance with items g) and h) of clause 7, especially if these would enable the use of go/no-go probes or other gauges (see 5.6 or 6.6, as applicable).

3 Apparatus

3.1 For method A only (see 5.1), air-circulating oven, thermostatically controlled, so that the temperature of the working zone can be maintained at the specified test temperature ($T \pm 2$) °C, (see clause 2) and of sufficient heating capacity to enable the test temperature to be regained within 15 min of having inserted the test pieces (see also 3.3).

3.2 For method B only (see 6.1), liquid bath, thermostatically controlled, so that the temperature of the working zone of the liquid therein can be maintained at the specified test temperature ($T \pm 2$) °C. The liquid used shall be stable at the test temperature and shall not otherwise affect the moulding under test (see also 3.3). It shall be ensured that the liquid does not cause any safety or health risks.

3.3 Laboratory measuring instruments, probes or tools, as necessary for measuring the dimensions of cracks or other features as required by clause 5 or clause 6 either directly or relative to an applicable specified limiting value.

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4 Test pieces

4.1 Preparation of test pieces

Take for each test piece required a complete moulding.

If the fitting incorporates an elastomeric sealing ring, remove this before testing the fitting.

In the case of fittings assembled from more than one moulding, separate the mouldings from each other, to form individual test pieces.

Inspect the test piece for and record any visible cracks, blisters, delamination or weld lines in a manner that will enable comparison with the appearance of the test piece after heating [see item g) of clause 7].

4.2 Number of test pieces

If not otherwise specified in the referring standard, use at least three test pieces for assessing a given moulding sample.

5 Procedure for method A, using an air oven

NOTE 1: For method B, using a liquid bath, see clause 6.

NOTE 2: For the test report, for both methods, see clause 7.

5.1 Set the temperature of the oven (see 3.1) at $(T \pm 2)$ °C.

5.2 Put the test pieces in the oven and arrange them so that they are standing on one end, whenever possible, avoiding all contact with another test piece or the sides of the oven.

5.3 Leave the test pieces in the oven until the oven returns to a temperature of $(T \pm 2)$ °C and for a further period, t , as specified in the referring standard [see item b) of the note to clause 2 and A.3] for the mean wall thickness, e_m , of the thickest part of the test piece.

5.4 Remove the test pieces from the oven, taking care not to deform or damage them.

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5.5 Cut the moulding while it is still hot, to enable the dimensions of cracks, blisters, delaminations and weld-line openings, if any, to be measured as required. Allow the test pieces and/or parts therefrom to cool in air until they can be handled.

5.6 Examine each test piece for any surface changes such as cracks, delamination and weld-line openings, as well as changes inside the wall, e.g. blisters, and in the gating area, determine the extent of such defects in the gating area in percentage of the wall thickness as follows:

- a) for sprue-gated mouldings: around the injection point(s) within the radius specified in the referring standard;
- b) for ring-or diaphragm-gated mouldings: within the length of the cylindrical portion of the gating area as specified in the referring standard. In the case of cracks running through the whole wall thickness of the gating area, determine also the length of the crack;
- c) for mouldings containing weld-lines: determine the widest and deepest part(s) of any open part of the weld;

d) for all other parts of the moulding beyond the gating area: examine the surface for any change, such as cracks, blisters and delaminations of the wall.

6 Procedure for method B, using a liquid bath

6.1 Set the temperature of the liquid bath (see 3.2) at $(T \pm 2)$ °C.

6.2 Put the test pieces in the liquid bath and arrange them so that they are not touching each other or the sides of the bath.

6.3 Leave the test pieces in the bath for a period, t , as specified in the referring standard [see item b) of the note to clause 2 and A.4] for the mean wall thickness, e_m , of the thickest part of the test piece.

6.4 Remove the test pieces from the bath, taking care not to deform or damage them.

6.5 If necessary, cut the moulding while it is still hot, to enable the dimensions of cracks, blisters, delamination or weld-line openings to be measured. Allow the test pieces and/or parts therefrom to cool in air until they can be handled.

6.6 Examine each test piece for any surface changes such as cracks, delaminations and weld-line openings, as well as changes inside the wall, e.g. blisters, and in the gating area, determine the extent of such defects in the gating area in percentage of the wall thickness as follows:

a) for sprue-gated mouldings: around the injection point(s) within the radius specified in the referring standard;

b) for ring-or diaphragm-gated mouldings: within the length of the cylindrical portion of the gating area as specified in the referring standard. In the case of cracks running through the whole wall thickness of the gating area, determine also the length of the crack;

c) for mouldings containing weld-lines: determine the widest and deepest part(s) of any open part of the weld;

d) for all other parts of the moulding beyond the gating area: examine the surface for any change, such as cracks, blisters and delaminations of the wall.

6.7 Record the composition of the liquid used in conjunction with the results thus obtained [see item c) of clause 7].