
Neporušitveno preskušanje - Preskušanje tesnosti - Tehnika preskušanja z mehurčki (prevzet EN 1593:1999 z metodo platnice)

Non destructive testing - Leak testing - Bubble emission techniques

Essais non destructifs - Contrôle d'étanchéité - Contrôle à la bulle

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Zerstörungsfreie Prüfung (Dichtheitsprüfung - Blasenprüfverfahren)

SIST EN 1593:2001

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Deskriptorji: neporušitveno preskušanje, preskušanje z mehurčki, tesnost

ICS 19.100

Referenčna številka
SIST EN 1593:2001 (en)

Nadaljevanje na straneh II do III in od 1 do 12

NACIONALNI UVOD

Standard SIST EN 1593 ((sl),en), Neporušitveno preskušanje - Preskušanje tesnosti - Tehnika preskušanja z mehurčki, prva izdaja, 2001, ima status slovenskega standarda in je z metodo platnice prevzet evropski standard EN 1593 (en), Non destructive testing - Leak testing - Bubble emission techniques, 1999-09.

NACIONALNI PREDGOVOR

Evropski standard EN 1593:1999 je pripravil tehnični odbor Evropske organizacije za standardizacijo CEN/TC 138 Neporušitvene preiskave.

Odločitev za prevzem tega standarda po metodi platnice je dne 2000-11-29 sprejel tehnični odbor USM/TC PKG Preskušanje kovinskih gradiv.

Ta slovenski standard je dne 2000-12-07 odobril direktor USM.

ZVEZE S STANDARDI

S prevzemom tega evropskega standarda veljajo za omejeni namen referenčnih standardov vsi standardi, navedeni v izvorniku, razen tistih, ki smo jih že sprejeli v nacionalno standardizacijo:

SIST EN 473:1996 Kvalificiranje in certificiranje osebja za neporušitvene preiskave - Splošna načela

SIST EN 1779:2000 Neporušitvene preiskave - Preskus tesnosti - Kriteriji za izbiro metode in postopka

OPOMBI

- Povsod, kjer se v besedilu standarda uporablja izraz "evropski standard", v SIST EN 1593:2001 to pomeni "slovenski standard".
- Nacionalni uvod in nacionalni predgovor nista sestavni del standarda.

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English version

Non-destructive testing - Leak testing - Bubble emission techniques

Essais non destructifs - Contrôle d'étanchéité - Contrôle à la bulle

Zerstörungsfreie Prüfung - Dichtheitsprüfung - Blasenprüfverfahren

This European Standard was approved by CEN on 16 August 1999.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. 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.

This European Standard exists 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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

[SIST EN 1593:2001](https://standards.iteh.ai/catalog/standards/sist/f6a9996f-4a20-4217-9cbf-eb43c1cb2170/sist-en-1593-2001)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 138 "Non-destructive testing", the secretariat of which is held by AFNOR.

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 March 2000, and conflicting national standards shall be withdrawn at the latest by March 2000.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

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.

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1 Scope

This European Standard describes procedures for the detection and location of leaks by the bubble emission techniques. The sensitivity depends on techniques and materials used.

Two techniques are described:

- a) immersion technique: quantitative measurements can be made using this procedure with particular devices (see informative annex A).
- b) liquid application technique.

This standard can be used for equipment which can be evacuated or pressurised.

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.

EN 473	Qualification and certification of NDT personnel - General principles
EN 1330-8	Non-destructive testing - Terminology - Part 8 - Terms used in leak tightness testing
EN 1779:1999	Non-destructive testing - Leak testing - Criteria for method and technique selection

3 Definitions

For the purposes of this standard, the definitions given in EN 1330-8 apply.

4 Personnel qualification

It is assumed that leak testing is performed by qualified and capable personnel. In order to prove this qualification, it is recommended to certify the personnel in accordance with EN 473 or equivalent.

5 Principle

The techniques involve the establishment of a pressure difference across the object wall and the observation of bubble formation in a liquid medium located on the low pressure side. The minimum detectable leakage rate by these techniques depends on the pressure difference, the gas and the liquid used for testing.

6 General requirements

The position of the leak shall be visible directly or indirectly in order to check if it is a real leak in the area to be tested.

6.1 Gases

The test gas is normally air. Inert gases may however be used. When inert gases are used, the safety aspects of oxygen deficient atmospheres shall be considered.

6.2 Pressure limits

Verification shall be obtained that the object has been designed to withstand the test pressure difference. The test conditions shall be such that the object is not permanently deformed nor should the test be a hazard for the operators.

6.3 Stabilization time (for immersion technique)

Prior to examination, the test pressure in the sealed object shall be maintained for a time appropriate for the establishment of bubble emission. For small leaks, this may take several minutes.

6.4 Surface temperature

Normally the temperature of that part of the surface of the object that is to be examined shall not be below 278 K (5 °C) nor above 323 K (50 °C), throughout the examination. Local heating or cooling is permitted provided the temperatures remain within this range. Where it is impractical to comply with the foregoing temperature limitations, other temperatures may be used provided that the procedure has been shown to be suitable.

6.5 Direct visual examination

Direct visual examination is usually made when the surface can be viewed directly at a distance not exceeding 0,6 m at an angle not less than 1/6 rad (30 degrees). Mirrors may be used to improve the angle of vision, and aids such as magnifying lenses may also be used to assist examinations. The component or area under immediate examination should be illuminated, if necessary with a flashlight or other auxiliary lighting, to attain an appropriate light level. Recommended illumination is 350 lux to 500 lux.

6.6 Indirect visual examination

In some cases indirect visual examination may have to be substituted for direct examination. This may involve the use of visual aids such as mirrors, endoscopes, telescopes or other suitable instruments. These should have a resolution capability at least equivalent to that obtainable by a direct visual observation.