



SLOVENSKI STANDARD
SIST EN 10236:1998

01-avgust-1998

Kovinski materiali - Cev - Preskus širjenja s trnom

Metallic materials - Tube - Ring expanding test

Metallische Werkstoffe - Rohr - Ringaufdornversuch

Matériaux métalliques - Tubes - Essai de dilatation d'anneau

Ta slovenski standard je istoveten z: EN 10236:1993

[SIST EN 10236:1998](https://standards.iteh.ai/catalog/standards/sist/a9a16f86-4a6c-4811-8b4d-4b91dfb42cf7/sist-en-10236-1998)

<https://standards.iteh.ai/catalog/standards/sist/a9a16f86-4a6c-4811-8b4d-4b91dfb42cf7/sist-en-10236-1998>

ICS:

77.040.10 Mehansko preskušanje kovin Mechanical testing of metals

SIST EN 10236:1998

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 10236:1998

<https://standards.iteh.ai/catalog/standards/sist/a9a16f86-4a6c-4811-8b4d-4b91dfb42cf7/sist-en-10236-1998>

EUROPEAN STANDARD

EN 10236

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1993

UDC 669-462:620.163.22

Descriptors: Metal tubes, rings, physical tests, expansion tests, defects

English version

Metallic materials - Tube - Ring expanding test

Matériaux métalliques - Tubes - Essai de dilatation d'anneau

iteh STANDARD PREVIEW
(standards.iteh.ai)

Metallische Werkstoffe - Ringaufdornversuch - Rohr

[SIST EN 10236:1998](https://standards.iteh.ai/catalog/standards/sist/a9a16f86-4a6c-4811-8b4d-4b91dfb42cf7/sist-en-10236-1998)<https://standards.iteh.ai/catalog/standards/sist/a9a16f86-4a6c-4811-8b4d-4b91dfb42cf7/sist-en-10236-1998>

This European Standard was approved by CEN on 1993-10-25. 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.

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.

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

CENEuropean Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword	2
Introduction	2
1 Scope	3
2 Normative references	3
3 Principle	3
4 Symbols, descriptions and units	4
5 Testing equipment	4
6 Test piece	5
7 Procedure	5
8 Test report	6

Foreword**iTeh STANDARD PREVIEW**

This European Standard has been prepared by sub-committee ECISS/TC 29, the secretariat of which has been allocated to the United Kingdom (BSI).

No meeting of the sub-committee has been held but the following countries voted positively by the PQ-procedure on the acceptability of the reference document as a European Standard: Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Spain, Sweden, Switzerland and the United Kingdom. No country voted negatively.

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 April 1994, and conflicting national standards shall be withdrawn at the latest by April 1994.

In accordance with the CEN/CENELEC Internal Regulations, 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 United Kingdom.

Introduction

This standard is based on ISO 8495:1986 "Metallic materials - Tube - Ring expanding test" which has been editorially changed in the light of the comments received. The data to be reported in clause 8 'Test report', when this is required, has been increased. The usage of symbols has been aligned with the requirements of ISO 3545-1:1989.



1 Scope

This European Standard specifies a method for a ring expanding test on tubes, that is used to reveal defects both on the surfaces and within the tube wall by expanding the test piece using a drift until fracture occurs. It may also be used to assess the ability of tubes to undergo plastic deformation.

The ring expanding test is applicable to tubes having an outside diameter from 18 mm up to and including 150 mm and wall thickness from 2 mm up to and including 16 mm.

2 Normative reference

This European 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 European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO 3545-1:1989 Steel tubes and fittings - Symbols for use in specifications - Part 1: Tubes and tubular accessories with circular cross-section

SIST EN 10236:1998

3 Principle <https://standards.iteh.ai/catalog/standards/sist/a9a16f86-4a6c-4811-8b4d-4b91dfb42cf7/sist-en-10236-1998>

Expanding a ring cut from the end of a tube, over a conical mandrel until fracture, or until the expansion of the test piece reaches a value specified in the relevant product standard.

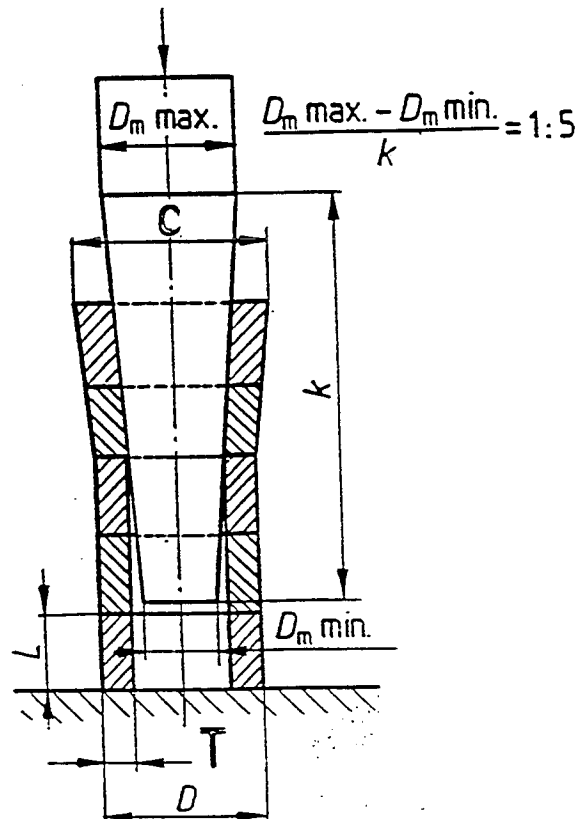


Figure 1: Symbols for ring expanding test

4 Symbols, descriptions and units

Symbols, descriptions and units for the ring expanding test are in accordance with ISO 3545-1:1989 and are given in figure 1 and table 1.

Table 1: Symbols, descriptions and units

Symbol	Description	Unit
D	Original outside diameter of the tube	mm
T	Wall thickness of the tube	mm
C	Maximum outside diameter of the expanded part of the test piece	mm
L	Length of the test piece before the test	mm
$D_m \text{ max}$	Maximum diameter of the mandrel	mm
$D_m \text{ min}$	Minimum diameter of the mandrel	mm

5 Testing equipment

5.1 The test shall be carried out in a variable-speed press or a universal testing machine.

5.2 The working length of the conical mandrel shall have a taper of its diameter of 1 : 5 unless otherwise indicated in the relevant product standard and its surface shall be of sufficient hardness, well polished and free from scores.

6 Test piece

6.1 The length of the test piece shall be between 10 mm and 16 mm. Test pieces shall be taken from the ends of deburred tubes as manufactured before they are cut to length. The rings shall be cut so that the planes of the end faces are parallel with each other and perpendicular to the axis of the tube.

6.2 The edges of the test piece may be rounded by filing or chamfered by other methods.

NOTE: Non-rounded or non-chamfered edges are permissible, if the test result meets the test requirements

6.3 When welded tubes are subjected to the test, the internal weld flash may be removed.

7 Procedure

iTeh STANDARD PREVIEW

7.1 In general, the test shall be carried out at ambient temperature within the limits of 10°C to 35°C. The test carried out under controlled conditions shall be made at a temperature of $(23 \pm 5)^\circ\text{C}$.

[https://standards.iteh.ai/catalog/standards/sist/a9a16f86-4a6c-4811-8b4d-](https://standards.iteh.ai/catalog/standards/sist/a9a16f86-4a6c-4811-8b4d-4b91dfb42cf7/sist-en-10236-1998)

7.2 Before testing, the rings and the mandrel may be lubricated. Rings of the same size and the same type of metal may be placed one on top of each other. The rings and the mandrel shall be concentric (see figure 1).

7.3 Force the conical mandrel into the rings until the required expansion is reached or the rings fracture.

7.4 In cases of dispute, the rate of penetration of the mandrel shall not exceed 30 mm/s.

7.5 The relative expansion shall be calculated in accordance with the relevant product standard.

7.6 Interpretation of the ring expanding test shall be carried out according to the requirements of the relevant product standard. When these requirements are not specified, absence of surface and internal defects visible without the use of magnifying aids shall be considered as evidence that the test piece passed the test.

Page 6
EN 10236:1993

8 Test report

8.1 A test report shall be provided when so specified in the relevant product standard.

8.2 The test report shall include at least the following information:

- a) reference to this European Standard;
- b) identification of the test piece;
- c) dimensions of the test piece;
- d) degree of expansion
- e) taper of the conical mandrel if different from that given in 5.2;
- f) result of the test.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 10236:1998

<https://standards.iteh.ai/catalog/standards/sist/a9a16f86-4a6c-4811-8b4d-4b91dfb42cf7/sist-en-10236-1998>