SLOVENSKI STANDARD
SIST EN ISO 8495:2004

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Nadomeġļa:
SIST EN 10236:1998

Kovinski materiali - Cev - Preskus širjenja s trnom (ISO 8495:1998)

Metallic materials - Tube - Ring-expanding test (ISO 8495:1998)

Metallische Werkstoffe - Rohr - Ringaufdornversuch (ISO 8495:1998)

Matériaux métalliques - Tubes - Essai de dilatation d'anneaux (ISO 8495:1998)

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77.040.10 Mehansko preskušanje kovin Mechanical testing of metals

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Metallic materials - Tube - Ring-expanding test (ISO 8495:1998)

Matériaux métalliques - Tubes - Essai de dilatation d'anneaux (ISO 8495:1998)

Metallische Werkstoffe - Rohr - Ringaufdornversuch (ISO 8495:1998)

This European Standard was approved by CEN on 1 July 2004.

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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.

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

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Foreword

The text of ISO 8495:1998 has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 8495:2004 by Technical Committee ECISS/TC 29 "Steel tubes and fittings for steel tubes", the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by January 2005, and conflicting national standards shall be withdrawn at the latest by January 2005.

This document supersedes EN 10236:1993.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 8495:1998 has been approved by CEN as EN ISO 8495:2004 without any modifications.

INTERNATIONAL STANDARD

ISO 8495

Second edition
1998-11-01

Metallic materials — Tube — Ring-expanding test

Matériaux métalliques — Tubes — Essai de dilatation d'anneaux

Reference number
ISO 8495:1998(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 8495 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 2, *Ductility testing*.

This second edition cancels and replaces the first edition (ISO 8495:1986), of which it constitutes a technical revision.

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Metallic materials — Tube — Ring-expanding test

1 Scope

This International 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 conical mandrel until fracture occurs. It may be also 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 Symbols, designations and units

Symbols, designations and units for the ring-expanding test are given in table 1 and are shown in figure 1.

Table 1

Symbol	Designation	Unit
a [a]	Wall thickness of the tube	mm
D	Original outside diameter of the tube	mm
$D_m$max.	Maximum diameter of the conical mandrel	mm
$D_m$min.	Minimum diameter of the conical mandrel	mm
D_u	Maximum outside diameter of the expanded part of the test piece	mm
k	Length of the taper of the conical mandrel	mm
L	Length of the test piece before the test	mm

[a] The symbol T is also used in steel tube standards.

3 Principle

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 (see figure 1).

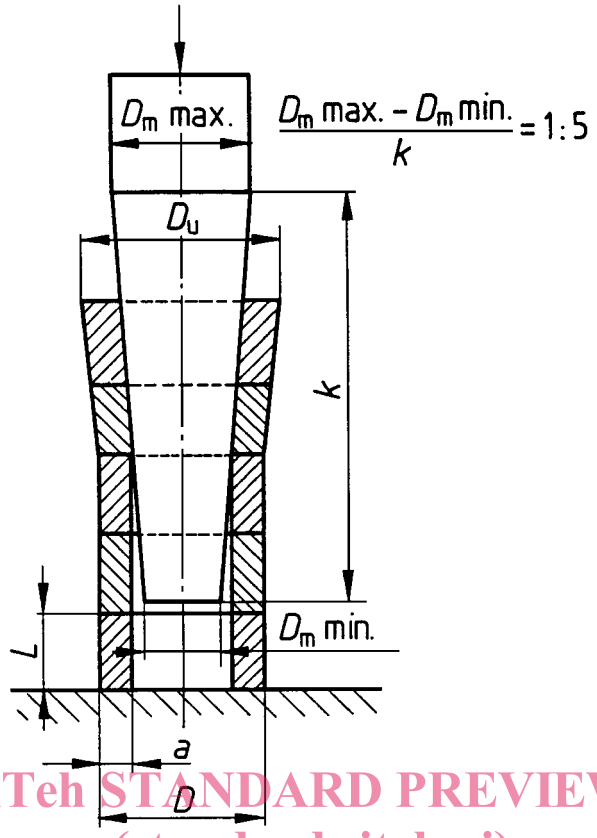

Figure 1

4 Apparatus

4.1 Variable-speed press or **universal testing machine**.

4.2 Conical mandrel, having a working length preferably tapered 1:5 as shown in figure 1, unless otherwise specified in the relevant product standard and its surface shall be of sufficient hardness, well-polished and free from scores.

5 Test piece

5.1 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.

5.2 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.

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

6 Procedure

6.1 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 °C ± 5 °C.