

**Metallic materials - Tube - Ring-expanding test (ISO 8495:2013)**

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English Version

## Metallic materials - Tube - Ring-expanding test (ISO 8495:2013)

Matériaux métalliques - Tubes - Essai de dilatation  
d'anneaux (ISO 8495:2013)

Metallische Werkstoffe - Rohr - Ringaufdornversuch (ISO  
8495:2013)

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## Foreword

This document (EN ISO 8495:2013) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" in collaboration with Technical Committee ECISS/TC 110 "Steel tubes, and iron and steel fittings" 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of an identical text or by endorsement, at the latest by May 2014, and conflicting national standards shall be withdrawn at the latest by May 2014.

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### Endorsement notice

The text of ISO 8495:2013 has been approved by CEN as EN ISO 8495:2013 without any modification.

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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 a 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
$D_{mmax.}$	Maximum diameter of the conical mandrel	mm
$D_{min.}$	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

<sup>a</sup> 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](#)).