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मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

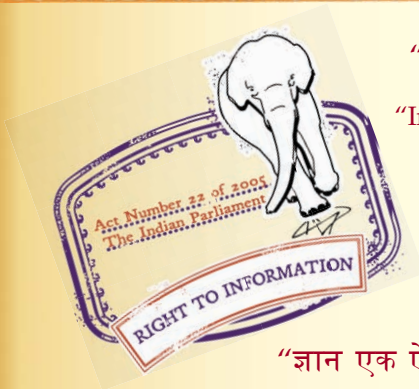
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 2328 (2005): Method for flattening test on metallic tubes [MTD 3: Mechanical Testing of Metals]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
धात्विक सामग्री — नलिका — समतलीकरण परीक्षण
(दूसरा पुनरीक्षण)

Indian Standard
METALLIC MATERIALS — TUBE — FLATTENING
TEST
(*Second Revision*)

ICS 77.040.10

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NATIONAL FOREWORD

This Indian Standard (Second Revision) which is identical with ISO 8492 : 1998 'Metallic materials — Tube — Flattening test' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendations of the Mechanical Testing of Metals Sectional Committee and approval of the Metallurgical Engineering Division Council.

This Indian Standard was originally published in 1963 and subsequently revised in 1983. This revision of the standard has been taken up to align it with ISO 8492 by adoption, under dual numbering system.

The text of the ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminology and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear, referring to this standard, they should be as read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Indian Standard

METALLIC MATERIALS — TUBE — FLATTENING
TEST

(Second Revision)

1 Scope

This International Standard specifies a method for determining the ability of metallic tubes of circular cross-section to undergo plastic deformation by flattening. It may also be used to reveal the defects in the tubes.

This International Standard is applicable to tubes having an outside diameter no greater than 600 mm and a thickness no greater than 15 % of the outside diameter. The range of the outside diameter or thickness, for which this International Standard is applicable may be more exactly specified in the relevant product standard.

2 Symbols, designations and units

Symbols, designations and units for the flattening 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
b	Inside width of flattened test piece	mm
D	Outside diameter of the tube	mm
H	Distance between platens measured under load	mm
L	Length of the test piece	mm

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

3 Principle

Flattening the end of a tube or a test piece of specified length, cut from a tube in a direction perpendicular to the longitudinal axis of the tube, until the distance between platens measured under load in the direction of flattening reaches a value specified in the relevant product standard [see figure 1, a) and b)].

In the case of close flattening, the internal surfaces of the test piece shall be in contact over at least half of the internal width b of the flattened test piece standard [see figure 1 c)].

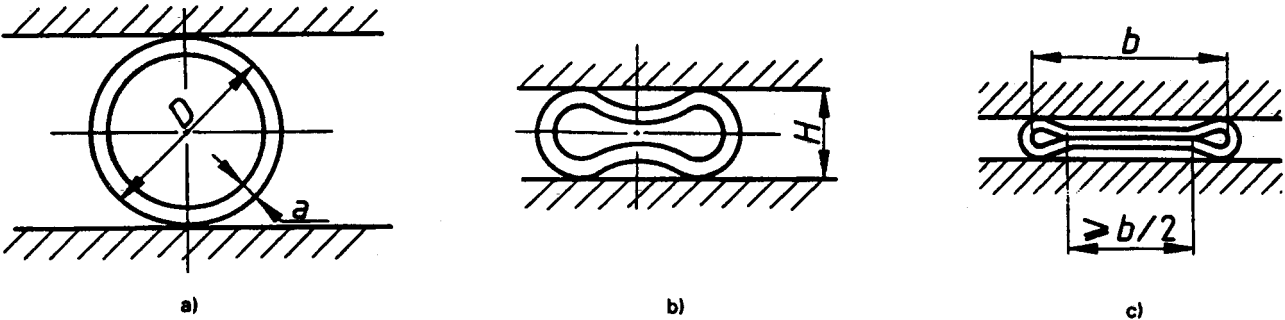


Figure 1

4 Testing equipment

4.1 Test machine, capable of flattening the test piece to the prescribed distance H between two plane, parallel, rigid platens.

The width of the platens shall exceed the width of the test piece after flattening i.e. at least $1,6 D$, and the length of the platens shall extend over the whole length of the test piece.

5 Test piece

5.1 The length of a test piece shall be no less than 10 mm and no more than 100 mm. 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.

5.2 When the test is carried out on the end of a full-length tube, the tube shall be cut at right angles to the axis of the tube to a depth of at least 80 % of the tube outside diameter. The cut shall be at a distance from the end of the tube equal to the length of the test piece.

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 $23\text{ °C} \pm 5\text{ °C}$.

6.2 Place the test piece between two platens.

6.3 Ensure that the weld of the welded tubes is in position as required by the relevant product standard.

6.4 Flatten the test piece by moving the platens in a direction perpendicular to the longitudinal axis of the tube.

6.5 In case of dispute, the rate of movement of the platens shall not exceed 25 mm/min.

6.6 Interpretation of the flattening test shall be carried out in accordance with the requirements of the relevant product standard. When these requirements are not specified, the test piece shall be considered to have passed the test if no cracks are visible without the use of magnifying aids. Slight cracking at the edges shall not be considered cause for rejection.

7 Test report

A test report shall be provided when so specified in the relevant product standard. In this case, the test report shall include at least the following information:

- a) reference to this International Standard, i.e. ISO 8492;
- b) identification of the test piece;
- c) dimensions of the test piece;
- d) distance between platens;
- e) position of the weld, if relevant;
- f) result of the test.

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Amendments Issued Since Publication		
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