
International Standard



8496

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Metallic materials — Tube — Ring tensile test

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Descriptors : metals, metal tubes, tests, tension tests, ring tests.

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8496 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Metallic materials — Tube — Ring tensile test

1 Scope and field of application

This International Standard specifies a method for a ring tensile test of tubes to reveal surface and internal defects by subjecting the test piece to strain until fracture occurs. This test may also be used to assess the ductility of tubes.

The ring tensile test is applicable to tubes having an outside diameter exceeding 150 mm and wall thickness not greater than 40 mm. The inside diameter shall be greater than 100 mm.

2 Principle

Subjecting a ring cut from the tube to strain in the circumferential direction until fracture occurs.

3 Testing equipment

The testing equipment shall consist basically of two circular pins of equal diameter with parallel axes which shall be movable in relation to each other while still remaining parallel. In principle, the diameter of the pins shall be the minimum permissible from strength considerations but, provided that the inside diameter of the tube allows, should be at least 3 times the wall thickness of the tube to be tested (see the figure).

4 Test piece

4.1 The test piece shall be a ring cut from the tube with the end faces perpendicular to the axis.

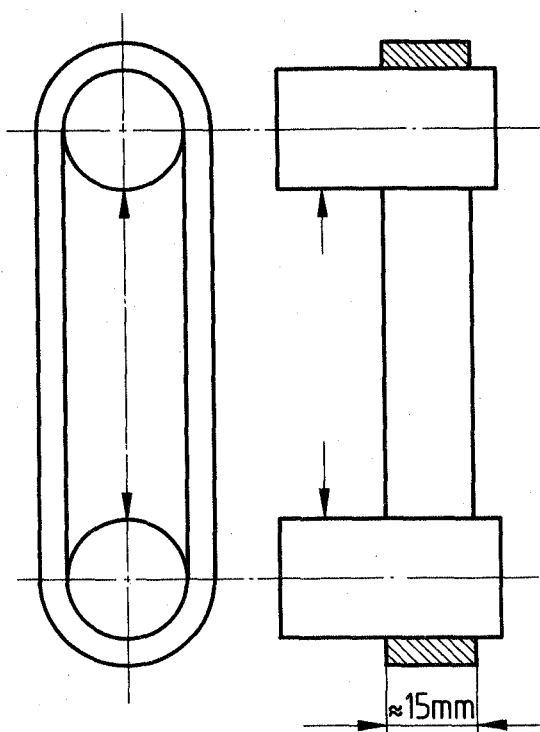


Figure — Test arrangement

4.2 The length of the test piece (width of the ring) shall be approximately 15 mm. If the thickness exceeds 15 mm, the length of the test piece may be equal to the thickness.

4.3 The end of the test piece shall be free from burrs. The edges may be rounded by filing.

5 Procedure

5.1 In general, the test shall be carried out at ambient temperature within the limits of 10 to 35 °C. The test carried out under controlled conditions shall be made at a temperature of 23 ± 5 °C.

5.2 Place the ring cut from the tube over the pins and subject it to strain until it fractures, by moving the pins away from each other at a rate not exceeding 5 mm/s.

5.3 Interpretation of the ring tensile test shall be carried out according to the requirements of the relevant standard. When these requirements are not specified, absence of cracks visible without the use of magnifying aids shall be considered as evidence that the test piece passed the test.

6 Test report

The test report shall include at least the following information:

- a) reference to this International Standard;
- b) identification of the test piece;
- c) dimensions of the test piece;
- d) result of the test.

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