International Standard 7802

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Metallic materials — Wire — Wrapping test

Matériaux métalliques — Fils — Essai d'enroulement

First edition — 1983-10-01

UDC 669-426 : 620.163.33 **Ref. No. ISO 7802-1983 (E)**

Descriptors : metal products, wire, tests, winding tests.

Price based on 1 page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

International Standard ISO 7802 was developed by Technical Committee ISO/TC 164, *Mechanical testing of metals*, and was circulated to the member bodies in September 1982.

It has been approved by the member bodies of the following countries :

Australia	France	Poland
Austria	Germany, F. R.	South Africa, Rep. of
Brazil	Hungary	Spain
Bulgaria	Ireland	Sweden
Canada	Italy	Thailand
China	Japan	USA
Czechoslovakia	Netherlands	USSR
Egypt, Arab Rep. of	Norway	

The member body of the following country expressed disapproval of the document on technical grounds :

United Kingdom

This International Standard cancels and replaces ISO Recommendations R 145-1960, R 397-1964, and R 958-1969, of which it constitutes a technical revision.

Metallic materials — Wire — Wrapping test

1 Scope and field of application

This International Standard specifies the method for determining the ability of metallic wire of diameter or thickness 0,1 to 10 mm inclusive, to undergo plastic deformation during wrapping.

2 Principle

The wrapping test consists of winding a wire to a specified number of turns around a mandrel of the diameter specified in the relevant standard to form a closely wrapped helix.

It may also include a specified sequence of winding and unwinding, or even rewinding.

3 Testing equipment

The testing machine shall be constructed so the wire can be wound around the mandrel in a helix so that adjacent wraps of the coil are in contact. A piece of the wire to be tested may be used as the mandrel, provided it is of the specified mandrel diameter and of sufficient hardness.

4 Procedure

4.1 In general, the test is carried out at ambient temperature between 10 and 35 °C. Tests carried out under controlled conditions shall be made at a temperature of 23 ± 5 °C.

4.2 Without applying any torsion, wind the wire in a helix tightly around the mandrel at a constant speed not exceeding 1 s^{-1} so that the adjacent wraps of the coil are in contact. If necessary reduce the rate of wrapping to ensure that the heat generated does not affect the result of the test.

4.3 To ensure tight winding, a tensile stress not exceeding 5 % of the nominal tensile strength of the wire may be applied during winding.

4.4 When unwinding, or unwinding and rewinding, are specified, the rate shall be sufficiently slow to prevent any rise of temperature likely to affect the result of the test. At the end of the unwinding, at least one turn shall not be unwound.

4.5 The interpretation of the wrapping test is 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 is considered sufficient evidence that the test piece withstood the test. Wire with a thickness or diameter less than 0,5 mm shall be examined with approximately 10-times magnification.

5 Test report

The test report shall include the following information:

a) reference to this International Standard;

b) identification of the test piece (type of material, type of coating, etc.);

c) diameter or thickness of the test piece;

d) diameter of the mandrel;

e) test conditions (number of turns, or the wound length);

f) test result.

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