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Metallic materials — Wire — Wrapping test

Matériaux métalliques — Fils — Essai d'enroulement



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Foreword

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The committee responsible for this document is ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 2, *Ductility testing*.

This second edition cancels and replaces the first edition (ISO 7802:1983), of which it constitutes a minor revision.

Metallic materials — Wire — Wrapping test

1 Scope

This International Standard specifies a method for determining the ability of metallic wire of diameter or thickness 0,1 mm 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 Test 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 °C and 35 °C. Tests carried out under controlled conditions shall be made at a temperature of 23 °C ± 5 °C.

4.2 Without applying any torsion, wind the wire in a helix tightly around the mandrel at a constant rate not exceeding 1 wrap per second 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 as 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) 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;

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- d) diameter of the mandrel;
- e) test conditions (number of turns, or the wound length);
- f) test result.

