

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 957

**SIMPLE TORSION TEST
FOR ALUMINIUM AND ALUMINIUM ALLOY WIRE**

ISO/R 957:1969

<https://standards.iteh.ai/catalog/standards/sist/f10d507b-6412-41d2-9ec7-31be0cc39399/iso-r-957-1969>

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BRIEF HISTORY

The ISO Recommendation R 957, *Simple torsion test for aluminium and aluminium alloy wire*, was drawn up by Technical Committee ISO/TC 79, *Light metals and their alloys*, the Secretariat of which is held by the Association Française de Normalisation (AFNOR).

Work on this question led, in 1966, to the adoption of a Draft ISO Recommendation.

In March 1967, this Draft ISO Recommendation (No. 1137) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Belgium	Israel	Switzerland
Canada	Italy	Thailand
Chile	Japan	Turkey
Czechoslovakia	Netherlands	U.A.R.
France	New Zealand	United Kingdom
Germany	Norway	U.S.A.
Greece	Poland	U.S.S.R.
Hungary	South Africa, Rep. of	Yugoslavia
India	Sweden	

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No Member Body opposed the approval of the Draft [iso-r-957-1969](https://standards.iteh.ai/catalog/standards/sist/f10d507b-6412-41d2-9ec7-366999999999/iso-r-957-1969)

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in January 1969, to accept it as an ISO RECOMMENDATION.

SIMPLE TORSION TEST FOR ALUMINIUM AND ALUMINIUM ALLOY WIRE

1. SCOPE

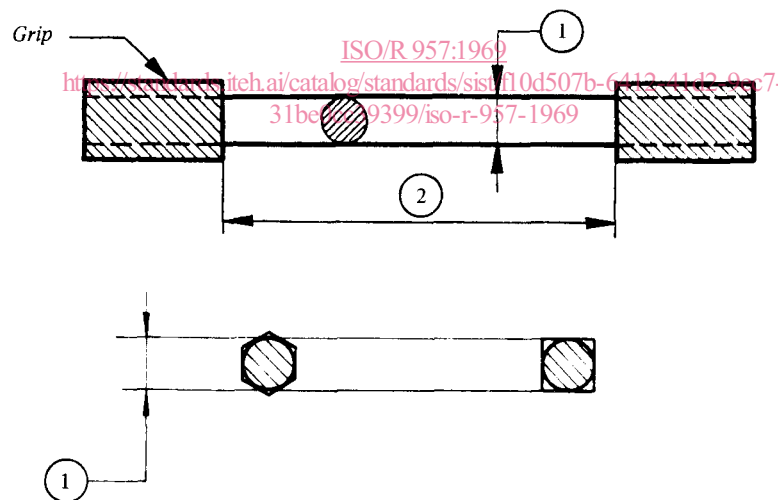
This ISO Recommendation applies to the simple torsion testing of aluminium and aluminium alloy wire of nominal diameter (if of circular cross-section) or diameter of inscribed circle (if of regular polygonal cross-section) 0.5 mm (0.02 in) and greater.

2. PRINCIPLE OF TEST

The test consists of twisting a test piece around its own axis until the test piece breaks, or until the specified number of twists has been made. The twisting should be in the same direction throughout the test. The test is carried out at ambient temperature unless otherwise agreed.

3. SYMBOLS AND DESIGNATIONS

Reference number	Symbol	Designation
1	d	Nominal size of wire
2	L	Length between grips
	N_t	Number of turns



4. TESTING MACHINE

- 4.1 The grips of the testing machine should be arranged in such a way that, during testing, they remain on the same axis and do not apply any bending to the test piece.
- 4.2 The machine should be so constructed that the change of length between the grips during the test is not prevented.
- 4.3 One of the grips should be capable of being rotated around the axis of the test piece while the other should not be subject to any angular deflection, except for such deflections as may be necessary to measure the torque.

5. TEST PIECE

The test piece, consisting of a piece of wire, should be straight before being tested. If straightening is necessary, it should if possible be done by hand; alternatively, roller straightening may be used. The length between the grips of the machine should be as given in the following table.

TABLE – Length between grips

Nominal size d		Length between grips L
mm	in	
$0.5 \leq d < 1$	$0.02 \leq d < 0.04$	$200 d$
$1 \leq d < 5$	$0.04 \leq d < 0.2$	$100 d$
$5 \leq d$	$0.2 \leq d$	$50 d$

Alternatively, a fixed length of 200 mm (8 in) may be used.

6. METHOD OF TEST

- 6.1 The test piece should be placed in the machine in such a way that its longitudinal axis coincides with the axis of the grips and so that it remains straight during the test. Unless otherwise specified, this may be ensured by applying to the test piece a constant tensile stress just sufficient to straighten it, but not exceeding 5 % of the nominal tensile strength of the wire.
- 6.2 After placing the test piece in the machine, one grip should be rotated at a reasonably constant speed until the test piece breaks, or until the specified number of turns is reached. The number of complete turns of the rotating grip should be counted.
- 6.3 The speed of testing should be sufficiently slow to prevent any rise in temperature likely to affect the result of the test. In any case, it should not exceed one turn per second.

7. INTERPRETATION OF TEST RESULTS

- 7.1 If the specified number of turns has been attained, the test piece is considered as having passed the test irrespective of the position of the fracture. If the number of turns before fracture does not satisfy the requirements of the specification, and if the fracture is within a distance of $4 d$ from a grip, the test should be disregarded and should be repeated.
- 7.2 If so required by the material specification, the surface of the test piece, including the fracture, should be examined. The method of examination and the interpretation of the appearance of the test piece are matters for the material specification.