
**Metallic materials — Sheet and strip —
Determination of tensile strain hardening
exponent**

*Matériaux métalliques — Tôles et bandes — Détermination
du coefficient d'écrouissage en traction*



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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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10275 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 2, *Ductility testing*.

This second edition cancels and replaces the first edition (ISO 10275:1993), which has been technically revised.

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Introduction

In the former version of this International Standard, for the calculation of the true strain, the elastic strain did not need to be subtracted from the total strain if it was lower than 10 % of the total strain.

In this new International Standard, the elastic strain is subtracted from the total strain for calculation of the true strain, which is now referred to as “true plastic strain”.

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Metallic materials — Sheet and strip — Determination of tensile strain hardening exponent

1 Scope

This International Standard specifies a method for determining the tensile strain hardening exponent n of flat products (sheet and strip) made of metallic materials.

The method is valid only for that part of the stress-strain curve in the plastic range where the curve is continuous and monotonic (see 7.4).

In the case of materials with a serrated stress-strain curve in the work hardening range (materials which show the Portevin-Le Chatelier effect, e.g. AlMg-alloys) the automatic determination (linear regression of the logarithm true stress vs. the logarithm true plastic strain, see 7.7) should be used to give reproducible results.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6892:1998, *Metallic materials — Tensile testing at ambient temperature*

ISO 7500-1:2004, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system*

ISO 9513:1999, *Metallic materials — Calibration of extensometers used in uniaxial testing*

ISO 10113, *Metallic materials — Sheet and strip — Determination of plastic strain ratio*

3 Symbols and designations

The symbols and corresponding designations used in determining the tensile strain hardening exponent are given in Table 1.