

# INTERNATIONAL STANDARD

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**4957**

Second edition  
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## Tool steels

*Aciers à outils*



Reference number  
ISO 4957:1999(E)

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## Contents

1	Scope .....	1
2	Normative references .....	1
3	Terms and definitions .....	2
4	Requirements .....	3
5	Inspection, testing and conformance of products .....	4
6	Marking .....	5
7	Ordering and designation .....	5
	Annex A (informative) Hardness tempering temperature-curves .....	18
	Annex B (normative) Supplementary or special requirements .....	28
	Annex C (informative) Designations of comparable steels.....	30
	Bibliography .....	32

## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 4957 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 4, *Heat treatable and alloy steels*.

This second edition cancels and replaces the first edition (ISO 4957:1980) which has been technically revised.

Annex B forms a normative part of this International Standard, annexes A and C are for information only.

# Tool steels

## 1 Scope

1.1 This International Standard covers the following grades of wrought tool steels:

- a) non-alloy cold-work tool steels;
- b) alloy cold-work tool steels;
- c) alloy hot-work tool steels;
- d) high-speed tool steels.

If not stated otherwise, this International Standard applies to all types of hot-rolled, forged, cold-drawn or cold-rolled products which are supplied in one of the surface and heat-treatment conditions given in 4.1.2 and Table 1.

Products according to this International Standard may be produced by powder metallurgy.

NOTE 1 The Tables 2, 4, 6 and 8 cover only those steels which have gained certain international importance, which does not mean however, that they are available in all industrial countries. In addition, a number of other steels for tools are specified in regional, national or company standards.

NOTE 2 Where the heat resistance of the tools is of particular importance, as for example in the case of tools for hot forming glass, the material selection should be based on ISO 4955 or ISO 9722.

1.2 In addition to this International Standard, the general technical delivery requirements of ISO 404 are applicable.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 377:1997, *Steel and steel products — Location and preparation of samples and test pieces for mechanical testing*.

ISO 404:1992, *Steel and steel products — General technical delivery requirements*.

ISO 1035-1:1980, *Hot-rolled steel bars — Part 1: Dimensions of round bars*.

ISO 1035-3:1980, *Hot-rolled steel bars — Part 3: Dimensions of flat bars*.

ISO 1035-4:1982, *Hot-rolled steel bars — Part 4: Tolerances*.

ISO 4948-1:1982, *Steels — Classification — Part 1: Classification of steels into unalloyed and alloy steels based on chemical composition.*

ISO 6506:1981<sup>1)</sup>, *Metallic materials — Hardness test — Brinell test.*

ISO 6508:1986<sup>2)</sup>, *Metallic materials — Hardness test — Rockwell test (scales A - B - C - D - E - F - G - H - K).*

ISO 6929:1987, *Steel products — Definitions and classification.*

ISO/TR 9769:1991, *Steel and iron — Review of available methods of analysis.*

ISO 10474:1991, *Steel and steel products — Inspection documents.*

ISO 14284:1996, *Steel and iron — Sampling and preparation of samples for the determination of chemical composition.*

### 3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 4948-1 and ISO 6829 as well as the following apply.

**3.1**  
**product forms**  
[ISO 6929]

**3.2**  
**unalloyed and alloyed steel**  
[ISO 4948-1]

**3.3**  
**tool steels**

special steels suitable for working or processing of materials, for handling and measuring workpieces and, for this purpose, exhibiting high hardness and wear resistance and/or toughness

**3.3.1**  
**cold-work tool steels**

non-alloy or alloy tool steels for applications in which the surface temperature is generally below 200 °C

**3.3.2**  
**hot-work tool steels**

alloy tool steels for applications in which the surface temperature is generally over 200 °C

**3.3.3**  
**high-speed tool steels**

steels used mainly for machining and for forming processes and which, because of their chemical composition, have the highest high-temperature hardness and temper resistance up to about 600 °C

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1) To be replaced by ISO 6506-1, ISO 6506-2 and ISO 6506-3.

2) To be replaced by ISO 6508-1, ISO 6508-2 and ISO 6508-3.