

SVENSK STANDARD

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Verktøgsstål (ISO 4957:2018)

Tool steels (ISO 4957:2018)

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Denna standard ersätter SS-EN ISO 4957, utgåva 1

The European Standard EN ISO 4957:2018 has the status of a Swedish Standard. This document contains the official version of EN ISO 4957:2018.

This standard supersedes the SS-EN ISO 4957, edition 1

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EUROPEAN STANDARD

EN ISO 4957

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English Version

Tool steels (ISO 4957:2018)

Aciers à outils (ISO 4957:2018)

Werkzeugstähle (ISO 4957:2018)

This European Standard was approved by CEN on 24 June 2018.

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European foreword

This document (EN ISO 4957:2018) has been prepared by Technical Committee ISO/TC 17 "Steel" in collaboration with Technical Committee ECISS/TC 105 "Steels for heat treatment, alloy steels, free-cutting steels and stainless steels" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2019, and conflicting national standards shall be withdrawn at the latest by January 2019.

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

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Endorsement notice

The text of ISO 4957:2018 has been approved by CEN as EN ISO 4957:2018 without any modification.

Tool steels

1 Scope

This document specifies requirements for 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 document applies to all types of hot-rolled, forged, cold-drawn or cold-rolled products or products produced by powder metallurgy, which are supplied in one of the surface and heat-treatment conditions given in [6.2](#) and [Table 1](#).

NOTE [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.

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 is based on ISO 4955.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

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

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

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

ISO 4885, *Ferrous materials — Heat treatments — Vocabulary*

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

ISO/TS 4949, *Steel names based on letter symbols*

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method*

ISO 6929, *Steel products — Vocabulary*

ISO 7452:2013, *Hot rolled steel plates — Tolerances on dimensions and shape*

ISO 7788, *Steel — Surface finish of hot-rolled plates and wide flats — Delivery requirements*

ISO 9443, *Surface quality classes for hot-rolled bars and wire rod*

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

ISO 10474, *Steel and steel products — Inspection documents*

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

ISO 17577, *Steel — Ultrasonic testing of steel flat products of thickness equal to or greater than 6 mm*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4885, ISO 4948-1 and ISO 6929 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1 tool steel

special steel 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

3.2 cold-work tool steel

non-alloy or alloy *tool steel* (3.1) for applications in which the surface temperature is generally below 200 °C

3.3 hot-work tool steel

alloy *tool steel* (3.1) for applications in which the surface temperature is generally over 200 °C

3.4 high-speed tool steel

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

4 Classification and designation

4.1 Classification

The classification of the relevant steel grades shall be in accordance with ISO 4948-1.

4.2 Designation

For the steel grades covered by this document, the steel names, as given in the relevant tables, shall be allocated in accordance with ISO/TS 4949.

For information on designation of comparable steels, see [Annex C](#).

5 Information to be supplied by the purchaser

5.1 Mandatory information

The manufacturer shall obtain the following information from the purchaser at the time of enquiry and order:

- a) the quantity to be delivered;
- b) the product form (e.g. round bar);
- c) either the dimensional standard and the dimensions and tolerances selected from it (see [7.4](#)) or any other document covering the dimensions and tolerances required for the product;
- d) the reference to this document, i.e. ISO 4957;
- e) the designation of the steel type (see [Tables 2, 4, 6 and 8](#));
- f) the symbol for the heat-treatment condition on delivery (see [Table 1](#)) and, if the products are to be delivered in the quenched and tempered condition, the hardness values required;
- g) the type of inspection document in accordance with ISO 10474.

5.2 Options

A number of options are specified in this document and listed below. If the purchaser does not indicate the wish to implement any of these options, the products shall be supplied in accordance with the basic specifications of this document (see [5.1](#)):

- a) if a surface condition other than “hot worked” or a special surface quality is required, the surface condition (see [6.2.3](#)) and the surface quality (see [7.3](#));
- b) any supplementary requirement that shall be complied with, the symbol and, where necessary, the details of this supplementary requirement (in accordance with [Annex B](#)).

5.3 Ordering example

EXAMPLE 2 t hot-rolled round bars in accordance with ISO 1035-1; with a nominal diameter of 30,0 mm; with a nominal length of 4 000 mm; with a tolerance on diameter of $\pm 0,30$ mm (class S of ISO 1035-4:1982); with a tolerance on length of +10 mm (class L2 of ISO 1035-4:1982); all other tolerances as given in ISO 1035-4 for normal cases, surface as hot worked made of steel grade in accordance with this document, type X153CrMoV12 (see [Table 4](#)); heat-treatment condition: annealed (soft annealed) (symbol +A, see [Table 1](#)); with an inspection certificate 3.1 (see ISO 10474).

2 t rounds ISO 1035-1 and -4 – 30,0 S x 4000 L2

Steel ISO 4957-X153CrMoV12+A

ISO 10474 – 3.1

6 Manufacturing process

6.1 General

The manufacturing process of the steel and the products is left to the discretion of the manufacturer, with the restrictions given in [6.2](#). Upon request, the purchaser shall be informed what steel making process is being used.