

Mechanical properties of fasteners made of carbon steel and alloy steel - Part 5: Set screws and similar threaded fasteners with specified hardness classes - Coarse thread and fine pitch thread (ISO 898-5:2012)

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ICS 21.060.10

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English Version

Mechanical properties of fasteners made of carbon steel and alloy steel - Part 5: Set screws and similar threaded fasteners with specified hardness classes - Coarse thread and fine pitch thread (ISO 898-5:2012)

Caractéristiques mécaniques des éléments de fixation en acier au carbone et en acier allié - Partie 5: Vis sans tête et éléments de fixation filetés similaires de classes de dureté spécifiées - Filetages à pas gros et filetages à pas fin (ISO 898-5:2012)

Mechanische Eigenschaften von Verbindungselementen aus Kohlenstoffstahl und legiertem Stahl - Teil 5: Gewindestifte und ähnliche Verbindungselemente mit Gewinde in festgelegten Härteklassen - Regelgewinde und Feingewinde (ISO 898-5:2012)

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Foreword

This document (EN ISO 898-5:2012) has been prepared by Technical Committee ISO/TC 2 "Fasteners" in collaboration with Technical Committee CEN/TC 185 "Fasteners" 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of an identical text or by endorsement, at the latest by December 2012, and conflicting national standards shall be withdrawn at the latest by December 2012.

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Endorsement notice

The text of ISO 898-5:2012 has been approved by CEN as a EN ISO 898-5:2012 without any modification.

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Mechanical properties of fasteners made of carbon steel and alloy steel —

Part 5:

Set screws and similar threaded fasteners with specified hardness classes — Coarse thread and fine pitch thread

1 Scope

This part of ISO 898 specifies mechanical and physical properties of set screws and similar threaded fasteners made of carbon steel or alloy steel when tested at an ambient temperature range of 10 °C to 35 °C. Fasteners (the term used when set screws and similar threaded fasteners are considered all together) which conform to the requirements of this part of ISO 898 are evaluated at that ambient temperature range.

Fasteners in conformance with this part of ISO 898 are classified to specified hardness classes and are intended for use under compressive stress only.

NOTE Fasteners conforming to the requirements of this part of ISO 898 are used in applications ranging from –50 °C to +150 °C. It is the responsibility of users to consult an experienced fastener metallurgist for temperatures outside the range of –50 °C to +150 °C and up to a maximum temperature of +300 °C when determining appropriate choices for a given application.

This part of ISO 898 is applicable to set screws and similar threaded fasteners:

- made of carbon steel or alloy steel,
- having a triangular ISO metric screw thread in conformance with ISO 68-1,
- with a coarse pitch thread of M1,6 to M30, and a fine pitch thread of M8×1 to M30×2,
- with diameter/pitch combinations in conformance with ISO 261 and ISO 262, and
- having thread tolerances in conformance with ISO 965-1 and ISO 965-2.

It does not specify requirements for such properties as

- tensile strength,
- shear strength,
- weldability,
- corrosion resistance, or
- the ability to withstand temperatures above +150 °C or below –50 °C.

2 Normative references

The following referenced documents are indispensable for the application 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 225, *Fasteners — Bolts, screws, studs and nuts — Symbols and descriptions of dimensions*

ISO 965-1, *ISO general-purpose metric screw threads — Tolerances — Part 1: Principles and basic data*

ISO 965-3, *ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads*

ISO 6157-1, *Fasteners — Surface discontinuities — Part 1: Bolts, screws and studs for general requirements*

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

ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method*

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)*

ISO 16426, *Fasteners — Quality assurance system*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 base metal hardness
hardness closest to the surface (when traversing from core to outside diameter) just before an increase or decrease occurs, denoting carburization or decarburization, respectively

3.2 carburization
result of increasing surface carbon to a content above that of the base metal

3.3 decarburization
loss of carbon at the surface of a steel fastener

3.4 partial decarburization
decarburization with sufficient loss of carbon to cause a lighter shade of tempered martensite and a significantly lower hardness than that of the adjacent base metal, without, however, showing ferrite grains under metallographic examination

3.5 ferritic decarburization
decarburization with sufficient loss of carbon to cause a lighter shade of tempered martensite and a significantly lower hardness than that of the adjacent base metal, with the presence of ferrite grains or grain boundary network under metallographic examination

3.6 complete decarburization
decarburization with sufficient carbon loss to show only clearly defined ferrite grains under metallographic examination

3.7 performance hardness
hardness determined on the surface as near as practicable to the centre position of the point end of the screw

4 Symbols and abbreviated terms

For the purposes of this document, the symbols and abbreviated terms given in ISO 225 and ISO 965-1 and the following apply.