INTERNATIONAL STANDARD

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Heat treatable steels, alloy steels and free-cutting steels —

Part 5: Nitriding steels

Aciers pour traitement thermique, aciers alliés et aciers pour décolletage —

Partie 5: Aciers pour nitruration

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received. www.iso.org/patents

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 17, *Steel*, Subcommittee SC 4, *Heat treatable and alloy steels*.

This first edition cancels and replaces ISO 683-10:1987, of which it constitutes a technical revision.

ISO 683 consists of the following parts, under the general title *Heat-treatable steels, alloy steels and free-cutting steels*:

— *Part 1: Non-alloy steels for quenching and tempering*

— *Part 2: Alloy steels for quenching and tempering*

— *Part 3: Case-hardening steels*

— *Part 4: Free-cutting steels*

— *Part 5: Nitriding steels*

— *Part 14: Hot-rolled steels for quenched and tempered springs*

— *Part 15: Valve steels for internal combustion engines*

— *Part 17: Ball and roller bearing steels*

— *Part 18: Bright steel products*

Heat treatable steels, alloy steels and free-cutting steels —

Part 5: Nitriding steels

1 Scope

1.1 This part of ISO 683 gives the technical delivery requirements for

— semi-finished products, e.g. blooms, billets, slabs (see Note 1),

— bars (see Note 1),

— wire rod,

— hot-rolled plates (see Note 2), and

— hammer or drop forgings (see Note 1)

manufactured from the nitriding steels listed in Table 3 and supplied in one of the heat-treatment conditions given for the different types of products in Table 1, lines 2 to 5, and in one of the surface conditions given in Table 2.

The steels are in general intended for the fabrication of quenched and tempered and, subsequently, nitriding machine parts.

The requirements for mechanical properties given in this part of ISO 683 are restricted to the sizes given in Table 6.

NOTE 1 Hammer-forged semi-finished products (blooms, billets, slabs, etc.), seamless rolled rings and hammer-forged bars are in the following covered under semi-finished products or bars and not under the term "hammer and drop forgings".

NOTE 2 The term "plate" includes in the following also wide flats unless otherwise stated.

1.2 In special cases, variations in these technical delivery requirements or additions to these requirements can form the subject of an agreement at the time of enquiry and order (see Annex B).

1.3 In addition to this part of ISO 683, the general technical delivery requirements of ISO 404 are applicable.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable to its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 148-1, *Metallic materials — Charpy pendulum impact test — Part 1: Test method*

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 643, *Steels – Micrographic determination of the apparent grain size*

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