

INTERNATIONAL STANDARD

ISO
683-18

Second edition
1996-12-15

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

Part 18:

Bright products of unalloyed and low alloy
steels

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

Partie 18: Produits blancs en aciers non alliés et faiblement alliés



Reference number
ISO 683-18:1996(E)

Contents

	Page
1 Scope	1
2 Normative references	1
3 Definitions	2
4 Ordering	2
5 General requirements	2
6 Testing	4
7 Specific requirements for bright products of case-hardening steels	6
8 Specific requirements for bright products of steels for quenching and tempering	16

Annexes

A Guide to property values after processing	32
B Bibliography	36

This is a free 6 page sample. Access the full version online.

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.

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.

International Standard ISO 683-18 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 683-18:1976), 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: Direct-hardening unalloyed and low-alloyed wrought steel in form of different black products*
- *Part 9: Wrought free-cutting steels*
- *Part 10: Wrought nitriding steels*
- *Part 11: Wrought case-hardening steels*
- *Part 13: Wrought stainless steels*
- *Part 14: Hot-rolled steels for quenched and tempered springs*
- *Part 15: Valve steels for internal combustion engines*
- *Part 16: Precipitation hardening stainless steels*
- *Part 17: Ball and roller bearing steels*
- *Part 18: Bright products of unalloyed and low alloy steels*

Annexes A and B of this part of ISO 683 are for information only.

This page intentionally left blank

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

Part 18:

Bright products of unalloyed and low alloy steels

1 Scope

1.1 This part of ISO 683 applies to wrought unalloyed and alloyed steels in the form of bright products which are intended for mechanical purposes, for example for machine parts. It is subdivided as follows:

- a) clauses 5 and 6: general requirements and tests;
- b) clause 7: Case-hardening steels;
- c) clause 8: steels for quenching and tempering.

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

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 683. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 683 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 83:1976, *Steel — Charpy impact test (U-notch)*.

ISO 148:1983, *Steel — Charpy impact test (V-notch)*.

ISO 377-1:1989, *Selection and preparation of samples and test pieces of wrought steels — Part 1: Samples and test pieces for mechanical test*.

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

ISO 642:1979, *Steel — Hardenability test by end quenching (Jominy test)*.

ISO 643:1983, *Steels — Micrographic determination of the ferritic or austenitic grain size*.

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

ISO 4948-2:1981, *Steels — Classification — Part 2: Classification of unalloyed and alloy steels according to main quality classes and main property or application characteristics*.

ISO 6506:1981, *Metallic materials — Hardness test — Brinell test*.

ISO 6892:1984, *Metallic materials — Tensile testing*.

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

ISO 9443:1991, *Heat-treatable and alloy steels — Surface quality classes for hot-rolled round bars and wire rods — Technical delivery conditions*.

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 Definitions

For the purposes of this part of ISO 683, the relevant definitions given in ISO 4948-1, ISO 4948-2 and ISO 6929, and also the definition given in 3.4, apply.

3.1 Bright products

For definition of drawn products, turned (or peeled) products and ground products, see ISO 6929.

3.2 Unalloyed and alloyed steel

See ISO 4948-1.

3.3 Special steel

See ISO 4948-2.

3.4 Thickness

Thickness is considered to be the nominal dimension of the product, that means:

- the diameter in the case of rounds;
- the lateral length in the case of squares;
- the width over flats in the case of hexagons;
- the shorter lateral length in the case of flats.

4 Ordering

4.1 The purchaser shall state in this enquiry and order

- a) the dimensions and tolerances of the product (see 5.10);
- b) the steel type (see tables 3, 7, 8, 11, 15, 16 and 17);
- c) the treatment condition (see 5.3.1);
- d) the surface-coating treatment, if any (see 5.3.2);
- e) the required type of document (see 6.1).

4.2 Certain options in ordering are permitted by this part of ISO 683. The purchaser may also state in his enquiry and order his related requirements as shown in table 1.

Table 1 — Permitted options in ordering

For steels of tables	Permitted options
3, 11	f) whether a product analysis is required (see 6.2.1);
3, 11	g1) the choice of the surface quality class selected from ISO 9443 (see 5.8.1.5); g2) whether special specifications for the limits of surface defects are required (see 5.8.1.6);
3, 11	h) whether, specifically, coarse or fine grain steel is required (see 5.7);
3, 11	i) whether, for special steels, the microscopically determined non-metallic inclusion content shall be within agreed limits (see 5.9.2);
11	j) whether, for drawn products, special specifications for the permissible depth of the ferritic-pearlitic decarburization are required (see 5.8.2.1).

5 General requirements

5.1 Manufacture of the steel and of the product

5.1.1 Unless otherwise agreed in the order, the process used in making the steel and the product are left to the discretion of the manufacturer. When he so requests, the user shall be informed what steelmaking process is being used.

5.1.2 The steels shall be killed.

5.2 Cast separation

The steels are delivered by casts.

5.3 Treatment condition at the time of delivery

5.3.1 The treatment and heat-treatment condition (if any) at the time of delivery must comply with the condition agreed in the order and shall be one of the conditions indicated in table 2 or 10. (See also 5.8.1.)

This is a free 6 page sample. Access the full version online.

The remainder of this document
is available for purchase online at

www.saiglobal.com/shop

SAI Global also carries a wide range of publications from a wide variety of Standards Publishers:



SAI GLOBAL



Click on the logos to search the database online.