

This is a preview of "ISO 683-2:2012". [Click here to purchase the full version from the ANSI store.](#)

First edition  
2012-09-15

---

---

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

Part 2:

### Alloy steels for quenching and tempering

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

*Partie 2: Aciers alliés pour trempe et revenu*



Reference number  
ISO 683-2:2012(E)

© ISO 2012

This is a preview of "ISO 683-2:2012". [Click here to purchase the full version from the ANSI store.](#)



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

This is a preview of "ISO 683-2:2012". Click here to purchase the full version from the ANSI store.

## Contents

Page

Foreword .....	iv
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>1</b>
<b>3 Terms and definitions .....</b>	<b>2</b>
<b>4 Classification and designation .....</b>	<b>3</b>
<b>4.1 Classification .....</b>	<b>3</b>
<b>4.2 Designation .....</b>	<b>3</b>
<b>5 Information to be supplied by the purchaser .....</b>	<b>3</b>
<b>5.1 Mandatory information .....</b>	<b>3</b>
<b>5.2 Options and/or supplementary or special requirements .....</b>	<b>3</b>
<b>6 Manufacturing process .....</b>	<b>4</b>
<b>6.1 General .....</b>	<b>4</b>
<b>6.2 Deoxidation .....</b>	<b>4</b>
<b>6.3 Heat-treatment condition and surface condition at delivery .....</b>	<b>4</b>
<b>6.4 Traceability of the cast .....</b>	<b>4</b>
<b>7 Requirements .....</b>	<b>5</b>
<b>7.1 Chemical composition, mechanical properties and hardenability .....</b>	<b>5</b>
<b>7.2 Machinability .....</b>	<b>5</b>
<b>7.3 Cold shearability .....</b>	<b>5</b>
<b>7.4 Grain size .....</b>	<b>6</b>
<b>7.5 Non-metallic inclusions .....</b>	<b>6</b>
<b>7.6 Internal soundness .....</b>	<b>6</b>
<b>7.7 Surface quality .....</b>	<b>6</b>
<b>7.8 Decarburization .....</b>	<b>6</b>
<b>7.9 Shape, dimensions and tolerances .....</b>	<b>7</b>
<b>8 Inspection .....</b>	<b>7</b>
<b>8.1 Testing procedures and types of documents .....</b>	<b>7</b>
<b>8.2 Frequency of testing .....</b>	<b>7</b>
<b>8.3 Specific inspection and testing .....</b>	<b>7</b>
<b>9 Test methods .....</b>	<b>8</b>
<b>9.1 Chemical analysis .....</b>	<b>8</b>
<b>9.2 Mechanical tests .....</b>	<b>8</b>
<b>9.3 Hardness and hardenability tests .....</b>	<b>8</b>
<b>9.4 Retests .....</b>	<b>9</b>
<b>10 Marking .....</b>	<b>9</b>
<b>Annex A (normative) Ruling sections for mechanical properties .....</b>	<b>34</b>
<b>Annex B (normative) Supplementary or special requirements .....</b>	<b>37</b>
<b>Annex C (informative) Designation of steels given in this part of ISO 683 and of comparable grades covered in various designation systems .....</b>	<b>39</b>
<b>Annex D (informative) Dimensional standards applicable to products complying with this part of ISO 683 .....</b>	<b>41</b>
<b>Bibliography .....</b>	<b>42</b>

## 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 2.

The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 683-2 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 4, *Heat treatable and alloy steels*.

This first edition cancels and replaces the first edition of ISO 683-1:1987 and ISO/TR 11637:1997, which have been technically revised.

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 9: Wrought free-cutting steels*
- *Part 10: Wrought nitriding steels*
- *Part 11: Case-hardening 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 products of unalloyed and low alloy steels*