ISO 683-2:2016-06 (E)

Heat-treatable steels, alloy steels and free-cutting steels - Part 2: Alloy steels for quenching and tempering

Contents

Page

Foreword ..... **v**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **2**

4 Classification and designation **3**
4.1 Classification 3
4.2 Designation 3

5 Information to be supplied by the purchaser **3**
5.1 Mandatory information 3
5.2 Options and/or supplementary or special requirements 3
5.3 Ordering example 4

6 Manufacturing process **4**
6.1 General 4
6.2 Deoxidation 4
6.3 Heat-treatment condition and surface condition at delivery 4
6.3.1 Heat-treatment condition 4
6.3.2 Particular surface conditions 4
6.4 Traceability of the cast 4

7 Requirements **5**
7.1 Chemical composition, mechanical properties and hardenability 5
7.1.1 General 5
7.1.2 Chemical composition 5
7.1.3 Mechanical properties 5
7.1.4 Hardenability 5
7.1.5 Surface hardness 5
7.2 Machinability 5
7.3 Cold shearability 5
7.4 Grain size 6
7.5 Non-metallic inclusions 6
7.5.1 Microscopic inclusions 6
7.5.2 Macroscopic inclusions 6
7.6 Internal soundness 6
7.7 Surface quality 6
7.8 Decarburization 7
7.9 Shape, dimensions and tolerances 7

8 Inspection **7**
8.1 Testing procedures and types of documents 7
8.2 Frequency of testing 7
8.3 Specific inspection and testing 8
8.3.1 Verification of the hardenability, hardness and mechanical properties 8
8.3.2 Visual and dimensional inspection 8

9 Test methods **8**
9.1 Chemical analysis 8
9.2 Mechanical tests 8
9.2.1 Tensile test 8
9.2.2 Impact test 8
9.3 Hardness and hardenability tests 8
9.3.1 Hardness in treatment conditions +A and +S 8
9.3.2 Verification of hardenability 9
9.3.3 Surface hardness 9
9.4 Retests 9

10 Marking **9**

Annex A (normative) **Ruling sections for mechanical properties** **31**

Annex B (normative) **Supplementary or special requirements** **35**

Annex C (informative) **Designation of steels given in this part of ISO 683 and of comparable grades covered in various designation systems** **37**

Annex D (informative) **Dimensional standards applicable to products complying with this part of ISO 683** **39**

Bibliography **40**