ISO 683-17:2023-09 (E)

Heat-treatable steels, alloy steels and free-cutting steels - Part 17: Ball and roller bearing steels

Contents

Page

Foreword ..... **v**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **2**

4 Classification and designation **2**
4.1 Classification 2
4.2 Designation 2

5 Information to be supplied by the purchaser **3**
5.1 Mandatory information 3
5.2 Options/Supplementary or special requirements 3

6 Manufacturing process **3**
6.1 General 3
6.2 Deoxidation, vacuum degassing and hydrogen removal 4
6.3 Heat-treatment and surface condition at delivery 4
6.3.1 Heat-treatment condition 4
6.3.2 Particular surface conditions 4
6.3.3 Traceability of the cast 4

7 Requirements **4**
7.1 General 4
7.2 Chemical composition 4
7.3 Hardenability 4
7.4 Hardness 5
7.5 Microstructure 5
7.5.1 Austenitic grain size of case-hardening and induction-hardening bearing steels 5
7.5.2 Spheroidization and distribution of carbides 5
7.5.3 Structure of case-hardening steels in the condition +FP 5
7.6 Non-metallic inclusions 5
7.6.1 Microscopic inclusions 5
7.6.2 Macroscopic inclusions 5
7.7 Internal soundness 5
7.8 Surface quality 5
7.9 Shape, dimensions and tolerances 6

8 Inspection **6**
8.1 Testing procedures and types of inspection documents 6
8.2 Frequency of testing 6
8.3 Specific inspection and testing 6
8.3.1 Verification of the hardenability and hardness 6
8.3.2 Inspection of the surface quality 6
8.3.3 Dimensional and shape inspection 7

9 Test methods **7**
9.1 Chemical analysis 7
9.2 Hardness and hardenability tests 7
9.2.1 Hardness 7
9.2.2 Verification of hardenability 7
9.2.3 Retests 7

10 Marking **7**

Annex A (normative) **Supplementary or special requirements** **19**

Annex B (informative) **Designations of the steels given in Tables 3, 5 and 6 and of comparable grades covered in various designation systems** **22**

Bibliography **24**