DIN EN ISO 683-17:2023-12 (E)

Heat-treated steels, alloy steels and free-cutting steels - Part 17: Ball and roller bearing steels (ISO 683-17:2023)

Contents

Page

European foreword ... **4**

Foreword ... **5**

1 Scope ... **6**

2 Normative references ... **6**

3 Terms and definitions ... **7**

4 Classification and designation ... **7**
4.1 Classification ... 7
4.2 Designation ... 7

5 Information to be supplied by the purchaser ... **8**
5.1 Mandatory information ... 8
5.2 Options/Supplementary or special requirements ... 8

6 Manufacturing process ... **8**
6.1 General ... 8
6.2 Deoxidation, vacuum degassing and hydrogen removal ... 9
6.3 Heat-treatment and surface condition at delivery ... 9
6.3.1 Heat-treatment condition ... 9
6.3.2 Particular surface conditions ... 9
6.3.3 Traceability of the cast ... 9

7 Requirements ... **9**
7.1 General ... 9
7.2 Chemical composition ... 9
7.3 Hardenability ... 9
7.4 Hardness ... 10
7.5 Microstructure ... 10
7.5.1 Austenitic grain size of case-hardening and induction-hardening bearing steels ... 10
7.5.2 Spheroidization and distribution of carbides ... 10
7.5.3 Structure of case-hardening steels in the condition +FP ... 10
7.6 Non-metallic inclusions ... 10
7.6.1 Microscopic inclusions ... 10
7.6.2 Macroscopic inclusions ... 10
7.7 Internal soundness ... 10
7.8 Surface quality ... 10
7.9 Shape, dimensions and tolerances ... 11

8 Inspection ... **11**
8.1 Testing procedures and types of inspection documents ... 11
8.2 Frequency of testing ... 11
8.3 Specific inspection and testing ... 11
8.3.1 Verification of the hardenability and hardness ... 11
8.3.2 Inspection of the surface quality ... 11
8.3.3 Dimensional and shape inspection ... 12

9 Test methods ... **12**
9.1 Chemical analysis ... 12
9.2 Hardness and hardenability tests ... 12

9.2.1 Hardness 12
9.2.2 Verification of hardenability 12
9.2.3 Retests 12

10 Marking **12**

Annex A (normative) **Supplementary or special requirements** **24**

Annex B (informative) **Designations of the steels given in Tables 3, 5 and 6 and of comparable grades covered in various designation systems** **27**

Bibliography **29**