

ISO 683-7:2023-11 (E)

Heat-treatable steels, alloy steels and free-cutting steels - Part 7: Bright products of non-alloy and alloy steels

| 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/Supplementary or special requirements | 4 |
| 5.3 | Ordering example | 4 |
| 6 | Manufacturing process | 5 |
| 6.1 | General | 5 |
| 6.2 | Treatment and surface condition at delivery | 5 |
| 6.2.1 | Treatment condition | 5 |
| 6.2.2 | Surface conditions | 5 |
| 6.3 | Traceability of the cast | 5 |
| 7 | Requirements | 5 |
| 7.1 | General | 5 |
| 7.2 | Chemical composition | 5 |
| 7.3 | Mechanical properties | 6 |
| 7.4 | Hardenability | 6 |
| 7.5 | Machinability | 6 |
| 7.6 | Grain size | 7 |
| 7.7 | Non-metallic inclusions | 7 |
| 7.7.1 | Microscopic inclusions | 7 |
| 7.7.2 | Macroscopic inclusions | 7 |
| 7.8 | Internal soundness | 7 |
| 7.9 | Decarburization | 7 |
| 7.10 | Shape, dimensions and tolerances | 7 |
| 7.11 | Surface quality | 8 |
| 8 | Inspection | 8 |
| 8.1 | Testing procedures and types of documents | 8 |
| 8.2 | Frequency of testing | 9 |
| 8.3 | Specific inspection and testing | 10 |
| 8.3.1 | Verification of the hardenability, hardness and mechanical properties | 10 |
| 8.3.2 | Visual and dimensional inspection | 11 |
| 9 | Test methods | 11 |
| 9.1 | Chemical analysis | 11 |
| 9.2 | Mechanical tests | 11 |
| 9.2.1 | Tensile test | 11 |
| 9.2.2 | Impact test | 11 |

| | | |
|------------------------------|---|-----------|
| 9.3 | Hardness and hardenability tests | 11 |
| 9.3.1 | Hardness in treatment conditions +A and +FP | 11 |
| 9.3.2 | Verification of hardenability | 12 |
| 9.4 | Verification of dimensions | 12 |
| 9.5 | Retests | 12 |
| 10 | Marking | 12 |
| Annex A (informative) | Steel grades and chemical composition according to ISO 630-2, ISO 683-1, ISO 683-2, ISO 683-3 and ISO 683-4 | 39 |
| Annex B (normative) | Determination of the diameter of the equivalent ruling section for mechanical properties | 45 |
| Annex C (normative) | Supplementary or special requirements | 48 |
| Annex D (normative) | Methods for evaluating straightness | 50 |
| Annex E (informative) | Designation of steels given in this document and of comparable grades covered in various designation systems | 51 |
| Bibliography | | 55 |