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National Standard of The People's Republic of China

GB/T 3077-2015

Replacing GB/T 3077-1999

Alloy Structure Steels

合金结构钢

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Foreword

This Standard is drafted in accordance with the rules specified by GB/T 1.1-2009.

This Standard replaces GB/T 3077-1999 "alloy structure steel".

Compared with GB/T 3077-1999, the main technical changes of this Standard are as follows:

- MODIFY the classification requirements based on metallurgical quality (see Table 2, Table 4,6.7 and 6.8 of this version; Table 2 and Table 4 of 1999 version);
- ADJUST the lower limit of boron steel's B content from 0.0005% to 0.0008% (see Table 1 of this version);
- DELETE all designations with letter "A"; however, the chemical composition of same designation is adjusted to the chemical composition of the original designation with letter A (see Table 1 of this version; Table 1 of 1999 version);
- ADD 12 designations and related technical requirements, such as 25MnB, 35MnB, 25CrMo, 50CrMo, 34CrNi2,15CrNiMo, 30CrNiMo, 30Cr2Ni2Mo, 30Cr2Ni4Mo, 34Cr2Ni2Mo, 35Cr2Ni4Mo, 40CrNi2Mo (see Table 1 and Table 3 of this version; Tables 1 and 3 of 1999 version);
- ADJUST the sulfur and phosphorus content of steel (Table 2 of this version; Table 2 of 1999 version);
- SUBDIVIDE the surface defects into defect and deficiency (see 6.10 of this version; 6.6 of 1999 version);
- MODIFY the surface quality description, and INCLUDE GB/T 28300 standard specifications (see 6.10 of this version; 6.6 of 1999 version);
- MODIFY the "nonmetallic inclusion" requirements (see 6.7 of this version; 6.9 of 1999 version);
- ADD "grain size" requirements (see 6.8 of this version);
- MODIFY "special requirements" (see 6.11 of this version; 6.10 of 1999 version);
- ADD the numerical rounding requirements (see 7.2 of this version);
- ADD the comparison table of this Standard's designations and foreign standard's similar designations (see Appendix A of this version).

This Standard was proposed by the National Iron and Steel Association.

This Standard shall be under the jurisdiction of the National Steel Standardization Technical Committee (SAC/TC 183).

The drafting organizations of this Standard: Daye Special Steel Co., Ltd., China Metallurgical Information and Standardization Institute, Baosteel Special Steel Co.,

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This Standard replaces the standards previously issued as follows:

--- GB/T 3077-1982, GB/T 3077-1988, GB/T 3077-1999.

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Alloy Structure Steels

1 Scope

This Standard specifies the classification and code, order content, size, shape, weight and allowable tolerance, technical requirements, test method, inspection rules, packaging, marking and quality certificate of alloy structure steel.

This Standard applies to the hot-rolled and forged alloy steel bars which are not more than 250mm of nominal diameter or thickness. However, after negotiated by the Supplier and Demander, it is also allowed to supply hot-rolled and forged alloy steel bars which are more than 250mm of nominal diameter or thickness (abbreviated as the steel bar).

The designations and chemical compositions which are specified in this Standard are also applicable to steel ingot, billet and their products.

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2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this Standard.

GB/T 222 Permissible tolerances for chemical composition of steel products

GB/T 223.4 Alloyed steel - Determination of manganese content - Potentiometric or visual titration method

GB/T 223.5 Steel and iron - Determination of acid-soluble silicon and total silicon content - Reduced molybdosilicate spectrophotometric method

GB/T 223.9 Iron, steel and alloy - Determination of aluminum content - Chrom azurol S photometric method

GB/T 223.11 Iron, steel and alloy - Determination of chromium content - Visual titration or potentiometric titration method

GB/T 223.13 Methods for chemical analysis of iron, steel and alloy - The ammonium ferrous sulfate titration method for the determination of vanadium content

GB/T 223.16 Methods for chemical analysis of iron, steel and alloy - The chromotropic acid photometric method for the determination of titanium content

GB/T 223.18 Methods for chemical analysis of iron, steel and alloy - The sodium thiosulfate separation iodimetric method for the determination of copper content

GB/T 223.23 Iron, steel and alloy - Determination of nickel content - The dimethylglyoxime spectrophotometric method