



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 13304.1-2008

**[Including 2017XG] Steels classification -- Part 1: Classification
of according to chemical composition**

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Foreword

GB/T 13304 "Steel Classification" is divided into 2 parts.

- Part 1. Classification of according to Chemical Composition;
- Part 2. Classification of according to Main Quality Classes and Main Property or Application Characteristics.

This Part is Part 1 of "Steel Classification" (GB/T 13304).

This Part modifies and adopts ISO 4948-1.1982 "Steel - Classification - Part 1. Classification of Steels into Unalloyed and Alloy Steels Based on Chemical Composition".

Compared with ISO 4948-1.1982, the main changes in this Part are as follows.

- Basic principles for low alloy steel and its classification were added according to the actual situations in China;
- Editorial changes were made for Chapter 3; and requirements for significant digits were added;
- The limit for content of element (like B, Cu, Mn, Mo, Nb, V and La) specified for unalloyed steel was modified;
- The limit for content of element (like B, Cu, Mn, Mo, Ni, Si, Ti, V and Zr) specified for alloy steel was modified.
- Table 1 was changed to Table A.1 in Appendix.

Those technical differences have already been marked with vertical single-line on the margin of relevant clauses for the convenience of comparison.

This Part replaces Part 1 of GB/T 13304-1991 "Steel Classification".

Compared with Part 1 of GB/T 13304-1991, the main changes in this standard are as follows.

- Editorial changes were made for Chapter 3 (see Chapter 3);
- Example description was added to the original Article 3.1.2.1 (Article 3.1.2.1 in

1991 edition; and Article 3.2.2 in this edition);

- "Unless otherwise negotiated for the contract or order, the limits specified in the table for the elements of Bi, Pb, Se, Te and La series and other specified elements (except S, P, C and N) shall not be considered for custom tariff

Steels Classification - Part 1. Classification of according to
Chemical Composition

1 Scope

This Part specifies a basic classification principles of steels into unalloyed, low alloy and alloy steels based on chemical composition as well as the basic limit for the element content in above steels.

This Part is applicable to the classification of steels according to chemical composition.

2 Term and Definition

For the purpose of this Part, the following term and definition apply.

2.1 Steel

A material with iron as the predominant element, having a carbon content generally less than 2% and containing other elements.

Note. A limited number of chromium steel may have more than 2% carbon, but 2% is the usual dividing line between steel and cast iron.

3 Classification

The classification of steels according to chemical composition is as follow.

- a) unalloyed steels;
- b) low alloy steel;
- c) alloy steels.

3.1.1 When a minimum value or range is specified for the ladle analysis of the
chemical compositions given in the standard, specification or the order, then the
minimum value shall be taken for classification.

3.1.2 When a maximum value is specified for the ladle analysis of the chemical
compositions given in the standard, specification or the order, then 0.7 time of this

Appendix A

(Informative)

Limit for Element Content of Unalloyed Steel and Alloy Steel

Specified in ISO 4948-1

A.1 See Table A.1 for the limit for element content of unalloyed steel and alloy steel
specified in ISO 4948-1.

Table A.1 Limit for Element Content Specified for Unalloyed Steel and Alloy Steel

Alloying element Limit (mass fraction)/%

Al 0.10

B 0.0008

Bi 0.10

Cr 0.30

Co 0.10

Cu 0.40

Mn 1.65a

Mo 0.08

Ni 0.30

Nb 0.06

Pb 0.40

Se 0.10

Si 0.50

Te 0.10

Ti 0.05

W 0.10

V 0.10

Zr 0.05

La series (each element) 0.05

Other specified elements (except S, P, C and N) 0.05

Unless otherwise negotiated for the contract or order, the limits specified in the table for the elements of Bi, Pb, Se, Te

and La series and other specified elements (except S, P, C and N) shall not be considered for custom tariff purposes

for demarcating unalloyed and alloy steels.

a If only a maximum is specified for the manganese content of the steel, the limit shall be at 1.80%.

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