

ICS 77.140.01
CCS H 46



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

GB/T 34560.4-2017

**Structural steels -- Part 4: Technical delivery conditions for high
yield strength quenched and tempered structural steel plates**
(English Translation)

Issued on: October 14, 2017

Implemented on: July 1, 2018

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China**

Table of Contents

Foreword...	3
1 Scope...	5
2 Normative references...	5
3 Terms and definitions...	8
4 Grade representation method...	8
5 Ordering content...	8
6 Dimension, shape, weight...	9
7 Technical requirements...	10
8 Test methods...	15
9 Inspection rules...	16
10 Packaging, marking and quality certificate...	17

1 Scope

This Part of GB/T 34560 specifies the terms and definitions, grade representation method, ordering content, dimension, shape, weight, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of high yield strength quenched and tempered structural steel plates.

This Part applies to quenched and tempered steel plates with a nominal thickness of 3 mm to 150 mm and an upper yield strength of 460 MPa to 1300

MPa for welded or bolted structures.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

GB/T 223.3 Methods for chemical analysis of iron, steel and alloy - The diantipyryl methane phosphomolybdate gravimetric method for the determination of phosphorus content

GB/T 223.9 Iron, steel and alloy - Determination of aluminium 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 223.11-2008, ISO 4937.1986, MOD)

GB/T 223.14 Methods for chemical analysis of iron, steel and alloy - The N-benzoyl-N-phenylhydroxylamine extraction photometric method for the determination of vanadium content

GB/T 223.17 Methods for chemical analysis of iron, steel and alloy - The distillation-curcumin photometric method

GB/T 223.76 Methods for chemical analysis of iron, steel and alloy - The flame atomic absorption spectrometric method for the determination of vanadium content

GB/T 228.1 Metallic materials - Tensile testing - Part 1. Method of test at room temperature (GB/T 228.1-2010, ISO 6892-1.2009, MOD)

GB/T 229 Metallic materials - Charpy pendulum impact test method (GB/T 229-2007, ISO 148-1.2006, MOD)

GB/T 232 Metallic materials - Bend test (GB/T 232-2010, ISO 7438.2005, MOD)

GB/T 247 General rule of package, mark and certification for steel plates (sheets) and strips

GB/T 709 Dimension, shape, weight and tolerances for hot-rolled steel plates and sheets

GB/T 2975 Steel and steel products - Location and preparation of test pieces for mechanical testing (GB/T 2975-1998, eqv ISO 377.1997)

GB/T 4336 Carbon and low-alloy steel - Determination of multi-element contents - Spark discharge atomic emission spectrometric method (routine method)

GB/T 5313 Steel plates with through-thickness characteristics

GB/T 13304.1 Steels classification - Part 1. Classification of according to chemical composition (GB/T 13304.1-2008, ISO 4948-1.1982, MOD)

GB/T 20066 Steel and iron - Sampling and preparation of samples for the determination of chemical composition (GB/T 20066-2006, ISO 14284.1996, IDT)

GB/T 20123 Steel and iron - Determination of total carbon and sulfur content

- Infrared absorption method after combustion in an induction furnace (routine method) (GB/T 20123-2006, ISO 15350.2000, IDT)

GB/T 20125 Low-alloy steel - Determination of multi-element contents -

Inductively coupled plasma atomic emission spectrometric method

GB/T 34560.1 Structural steels - Part 1. General technical delivery condition for hot-rolled products (GB/T 34560.1-2017, ISO 630-1:2011, MOD)

5.2 Agreed upon between the supply and demand parties and indicate in the

contract, the following may be selected as the ordering content of this Part. If the demand party does not specify when providing the inquiry and ordering, the product shall be supplied in accordance with 5.1.

- a) smelting method;
- b) analysis of finished products;
- c) calculation formula for carbon equivalent (CEV) or weld crack sensitivity index (Pcm);
- d) mechanical properties after additional heat treatment;
- e) through-thickness characteristics;
- f) chemical analysis method;
- g) frequency of tests;
- h) direction of impact test specimen;
- i) packaging and marking;
- j) appropriate hot dip galvanizing method agreed upon under relevant standards;
- k) non-destructive testing agreed upon under relevant standards.

6.1 The unevenness of the steel plates with a minimum yield strength greater

than 1000 MPa shall comply with the specifications of Class N in Table 1.

Agreed upon between the supply and demand parties, and indicated in the contract, the unevenness may also comply with the specifications of Class S in

Table 1. When the waveform spacing (the distance between the ruler and the contact point of the steel plate) is 300 mm ~ 1000 mm, for Class N unevenness, the maximum permissible value of the unevenness is 1.5 % of the waveform spacing and does not exceed the value specified in Table 1; for Class S unevenness, the maximum permissible value of the unevenness is 1 % of the waveform spacing and does not exceed the value specified in Table 1.

6.2 The dimension, shape, weight and permissible deviation of steel plates

other than those specified in 6.1 shall comply with the specifications of GB/T

709.

6.3 Steel plates of other dimensions, shapes and permissible deviations may method is selected by the supply party.

7.3 Delivery status

The steel is delivered in quenched and tempered status, and the delivery status shall be stated in the quality certificate.

7.4 Mechanical properties

7.4.1

The tensile properties and impact absorption energy of steel plates shall comply with the specifications of Table 4.

7.4.2

Agreed upon between the supply and demand parties, steel plates may be subjected to the transverse impact test. At this time, the value of the minimum impact absorption energy KV2 is determined upon negotiation between the supply and demand parties

7.4.3

The requirements for tensile and impact tests of steel plates shall comply with the specifications of GB/T 34560.1.

7.4.4

When the demand party has requirements for through-thickness characteristic, it shall be indicated in the contract and the relevant specifications of GB/T 5313 shall be implemented.

7.5 Surface quality

The surface quality of steel plates shall comply with the specifications of GB/T 34560.1.

7.6.1 Agreed upon between the supply and demand parties and indicated in the

contract, steel plates may be subjected to the non-destructive testing one by one. The testing criterion and qualification levels shall be indicated in the contract.

7.6.2 Steel plates with through-thickness characteristic shall be ultrasonically tested, and the qualification level shall be indicated in the contract.