



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

GB/T 34560.3-2018

**Structural steels -- Part 3: Technical delivery conditions for fine
grain structural steels**

Issued on: May 14, 2018

Implemented on: February 1, 2019

Issued by: SAMR; SAC

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	9
8 Test methods	19
9 Inspection rules	20
10 Packaging, marking and quality certificate	21
Annex A (informative) Structural changes in this Part compared with ISO 630- 3.2012	22
Annex B (informative) Technical differences between this Part and ISO 630- 3.2012 and their causes	23
Annex C (informative) Comparison of grades of the same type of domestic and foreign standards	26

1 Scope

This Part of GB/T 34560 specifies the terms and definitions, grade representation method, ordering content, dimension, shape, weight and permissible deviation, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of weldable fine grain structural steels delivered in normalizing, normalizing rolling and thermo-mechanical rolling status.

This Part is applicable to steel plates and steel strips, wide flat steel, section steels and bars for welded or bolted heavy loads (hereinafter referred to as steel).

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 dianitipryl 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-benzoy-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

GB/T 223.84 Steel and iron - Determination of titanium content -Dinantipyrylmethane spectrophotometric method (GB/T 223.84-2009, ISO 10280.1991, IDT)

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

GB/T 2101 General requirement of acceptance, packaging, marking and certification for section steel

GB/T 2975-2008 Steel and steel products - Location and preparation of test pieces for mechanical testing (GB/T 2975-2018, ISO 377.2017, MOD)

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 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

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 20124 Steel and iron - Determination of nitrogen content - Thermal conductimetric method after fusion in a current of inert gas (Routine method)

(GB/T 20124-2006, ISO 15351.1999, 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)

e) delivery weight (quantity);

f) all required selected contents (see 5.2).

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) calculation formula for carbon equivalent or weld crack sensitivity index (Pcm) (see 7.1.2, Table 4);

b) alloying elements added and their contents (see 7.1.4, Table 1, Table 3);

c) lower limit of chemical composition when supplying commodity steel billets (see 7.1.6);

d) analysis of finished products (see 7.1.7);

e) smelting method (see 7.2);

f) impact test temperature and impact test sampling direction (see Table 7);

g) through-thickness characteristic (see 7.1.5, 7.4.4 and 9.2.2);

h) sampling position of impact specimen (see 8.3).

6 Dimension, shape, weight The dimension, shape, weight and permissible deviation of steel shall comply with the specifications of GB/T 34560.1.

7 Technical requirements

7.1 Grades and chemical composition of steel

7.1.1 The grades and chemical composition (smelting analysis) of normalized and normalized rolled steel shall comply with the specifications of Table 1 respectively, and the carbon equivalent value shall comply with the specifications of Table 2.

7.1.2 The grades and chemical compositions (smelting analysis) of thermo-mechanically rolled steel shall comply with the specifications of Table 3, and the carbon equivalent values shall comply with the specifications of Table 4. When the carbon content of the thermo-mechanically rolled steel is not more than 0.12 %, the weldability of steel may be evaluated by using the weld crack a) For section steels, it is in accordance with the specifications of Figure A.3 of GB/T 2975-2018;

b) For round steels, when the nominal diameter $d \leq 25 \text{ mm}$, $25 \text{ mm} < d \leq 50 \text{ mm}$ and $d > 50 \text{ mm}$, it is respectively in accordance with the specifications of a), b), d) in Figure A.5 of GB/T 2975-2018;

c) For square steels, when the side length is not greater than 50 mm, it is in accordance with the specifications of a) in Figure A.9 of GB/T 2975-2018;

when the side length is greater than 50 mm, it is in accordance with the specifications of b) in Figure A.9 of GB/T 2975-2018;

d) For steel plates, when the nominal thickness is not greater than 40 mm, it is in accordance with the specifications of a) in Figure A.11 of GB/T 2975-2018; when the nominal thickness is greater than 40 mm, it is in accordance with the specifications of b) in Figure A.11 of GB/T 2975-2018.

9 Inspection rules

9.1 Inspection and acceptance The inspection and acceptance of steel shall be carried out by the technical supervision department of the supply party, and the demand party shall have the right to inspect and accept any of the inspection items specified in this Part or the contract.

9.2 Batching rules

9.2.1 The steel shall be submitted for acceptance in batches. Each batch shall consist of steel of the same grade, the same furnace number, the same specification and the same delivery status. The weight of each batch shall be not more than 60 t, but the steel strips and continuous rolling plates with a coil weight of more than 30 t may constitute a batch composed of two rolling coils.

For steels with a volume greater than 200 t, the weight of each batch is not more than 80 t. Agreed upon between the supply and demand parties, it may inspect 2 batches per furnace.

9.2.2 For steel requiring through-thickness characteristic test, the batching rules shall comply with the specifications of GB/T 5313.

9.3 Sampling position and sampling quantity The sampling position and sampling quantity of each batch of steel are shown in Table 8.

9.4 Reinspection and determination rules