

ICS 77.140.50
CCS H46



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

GB/T 709-2019

**Dimension, shape, weight and tolerance for hot-rolled steel
strip, plate and sheet**

热轧钢板和钢带的尺寸、外形、重量及允许偏差

Issued on: March 25, 2019

Implemented on: February 1, 2020

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

1	Scope
2	Normative references
3	Terms and definitions
4	Classification and code
5	Dimensions
5.2	Recommended nominal dimensions
6	Dimension tolerances
6.1	Thickness tolerance
6.1.1	Thickness tolerance of plates
6.1.2	Thickness tolerance of steel strips (including plates/sheets cut from strips)
6.2	Width tolerance
6.3	Length tolerance
7	Shape
7.1	Flatness
7.1.1	Plates
7.1.1.1	General requirements
7.1.3	Special requirements
7.2	Camber
7.3	Out-of-squareness
8	Measurement of dimensions and shape
8.5	Flatness
9	Weight
10	Rounding off of numerical values
21	Annex A (informative) Thickness tolerance of plates...

Foreword

This Standard is drafted in accordance with the rules given in GB/T 1.1-2009. This Standard replaces GB/T 709-2006 "Dimension, shape, weight and tolerances for hot-rolled steel plates and sheets". Compared with GB/T 709-2006, the main technical changes of this Standard are as follows: - ADD the terms and definitions of "slit wide strip" and "plate/sheet cut from strip" (see 3.3, 3.4); - MODIFY "positive tolerance" to "upper tolerance" and "negative tolerance" to "lower tolerance" (see

4.2 of this Standard,

4.2 of 2006 edition); - ADD the classification and technical requirements of general precision of flatness PF.A and higher precision of flatness PF.B (see 4.4, 7.1.1.2); - MODIFY the dimension range of steel plates/sheets and strips (see Table 1 of this Standard,

5.1 of 2006 edition); - COMBINE the classes N, A, B, and C tolerances of plates INTO one table; ADD the thickness tolerance requirements for thickness greater than 400 mm; ADJUST the upper limit of the nominal width TO 5300 mm (see Table 2 of this Standard, Table 1, Table 2, Table 3, Table 4 of 2006 edition); - ADD the negotiation terms of thickness tolerance for steel plates/sheets with a thickness greater than 200 mm (see 6.1.1.3); - ADD the requirement that it may supply according to the tolerances given in Annex A after agreed upon between the supply and demand parties (see 6.1.1.4); - MODIFY the level classification of the thickness tolerance of steel strips (including plates/sheets cut from strips) according to the specified minimum yield strength less than 345 MPa TO less than 360 MPa; separately SPECIFY the thickness tolerance of those with the minimum yield strength not less than 360 MPa (see Table 3 and Table 4 of this Standard, Table 5 of 2006 edition); - ADD the requirement that steel plates/sheets and strips are supplied according to general precision when the thickness tolerance and flatness are default (see 6.1.2, 7.1.2); - ADD the negotiation terms when the yield strength and requirements are not specified in the thickness tolerance and flatness requirements of steel strips and plate/sheet cut from strip in the product standard (see 6.1.2.3, 7.1.3); - MODIFY the length tolerance of plates (see Table 8 of this Standard, Table 10 of 2006 edition); - MODIFY the length tolerance of plates/sheets cut from strips (see Table 9 of this Standard, Table 11 of 2006 edition); - MODIFY the requirements for the flatness of plates (see

7.1.1 of this Standard, Table 12 of 2006 edition); - MODIFY the requirements for the flatness of plates/sheets cut from strips (see Table 11 of this Standard, Table 13 of 2006 edition); - MODIFY the "cutting angle" to "out-of-squareness"; ADD the method and requirements for the measurement of out-of-squareness using the diagonal method (see

7.3 of this Standard,

7.3 of 2006 edition); - ADD the schematic diagram of the measurement of flatness of plates (see Figure 2); - ADD the schematic diagram of the measurement of out-of-squareness using the diagonal method (see Figure 6); - ADD the weight of a steel plate, when the rounding of more than 1000kg to the integer value of kg is worth stipulated (see Table 14).

This Standard was proposed by China Iron and Steel Industry Association. This Standard is under the jurisdiction of National Technical Committee on Steel of Standardization Administration of China (SAC/TC 183). Drafting organizations of this Standard. China Metallurgical Information and Standardization Institute, Liuzhou Iron and Steel Co., Ltd., Hunan Hualing Xiangtan Iron and Steel Co., Ltd., Shougang Group Co., Ltd., Tangshan Ruifeng Iron and Steel (Group) Co., Ltd., Shandong Iron and Steel Group Rizhao Co., Ltd., Baoshan Iron and Steel Co., Ltd. Co., Ltd., Angang Steel Co., Ltd. Main drafters of this

Standard. Hou Jie, Zhang Weixu, Li Qian, Luo Jun, Luo Deng, Shi Li, Zhang Liqiang, Sun Weihua, Huang Jinhua, Guan Jichun, Fan Lei, Zhang Yongwei, Feng Bingxiao, Hou Donghua. The previous released versions replaced by this Standard are as follows: - GB 709-1965, GB 709-1988, GB/T 709-2006. Dimension, shape, weight and tolerance for hot-rolled steel strip, plate and sheet

1 Scope

China's national standard for the dimensions, shape, weight and tolerances of hot-rolled steel plate, sheet and strip. Hot-rolled flat product is the largest tonnage steel product there is - the input to pipe mills and to cold rolling, and the material of ship plate, structural sections, pressure vessels and everything fabricated from thick plate. Its tolerances are looser than cold-rolled material's for reasons of physics rather than care: the strip leaves the mill glowing and contracts as it cools, and it cools unevenly across its width and along its length, so thickness, width and flatness are all set by a process still finishing after the last rolling stand. The standard's practical importance is that fabricators cut, weld and machine from these plates, and every allowance they leave is derived from the tolerances here. It specifies the terms and definitions, classification and codes, dimensions, dimensional tolerances, shape, and the methods of measuring dimensions and shape, for plates of rolling width 600 mm and above, wide strip, slit wide strip and sheet cut from strip.

This Standard specifies terms and definitions, classification and code, dimensions, dimension tolerances, shape, measurement of dimensions and shape of hot-rolled steel plates/sheets and strips. This Standard applies to plates with a rolling width of not less than 600 mm (hereinafter referred to plates), wide strips, slit wide strips, and plates/sheets cut from strips.

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

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1 plate Hot-rolled flat steel that is directly rolled and does not have fixed edge deformation. Steel strips that are slit from wide strips and delivered in rolls.

3.4 plate/sheet cut from strip Steel plates/sheets that are cut from wide strips or slit wide

strips and delivered in plates/sheets.

4 Classification and code

4.1 Classification according to edge state is as follows:

4.2 Classification according to thickness tolerance classes and code are as follows:

4.3 Classification according to precision of thickness and code are as follows:

4.4 Classification according to precision of flatness and code are as follows:

5 Dimensions

5.1 Nominal dimension range The nominal dimension range of steel plates/sheets and strips shall comply with the requirements of Table 1.

5.2 Recommended nominal dimensions

5.2.1 The nominal thickness of plates is within the range specified in Table 1. Steel plates/sheets with a thickness of less than 30 mm shall be of any dimension in multiples of 0.5 mm; steel plates/sheets with a thickness of not less than 30 mm shall be of any dimension in multiples of 1 mm.

5.2.4 The nominal width of steel strips (including plates/sheets cut from strips) is within the range specified in Table 1, in any dimension in multiples of 10 mm.

5.2.5 The length of steel plates/sheets is within the range specified in Table 1, in any dimension in multiples of 50 mm or 100 mm.

5.2.6 As required by the demand party, and agreed upon between the supply and demand parties, steel plates/sheets and strips of other dimensions than the nominal dimension may be supplied.

6.1.2 Thickness tolerance of steel strips (including plates/sheets cut from strips)

6.1.2.1 The thickness tolerance of steel strips (including plates/sheets cut from strips), of which the specified minimum yield strength R_e is less than 360 MPa, shall comply with the requirements of Table

3. If the demand party requires supply according to the higher precision of thickness (PT.B), it shall be indicated in the contract. If not indicated, supply according to the general precision of thickness (PT.A).

6.1.2.2 The thickness tolerance of steel strips (including plates/sheets cut from strips), of which the specified minimum yield strength R_e is not less than 360 MPa, shall comply with the requirements of Table 4.