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Replacing GB/T 11263-2010

Hot rolled H and cut T section steel

热轧 H 型钢和剖分 T 型钢

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard replaces GB/T 11263-2010, *Hot rolled H and cut T section steel*. Compared with GB/T 11263-2010, the major changes are as follows:

-- it changes the requirements for dimensions and tolerances of H section steel in Table 3;

-- it changes the test items, sample quantities and test methods in Table 6;

-- it adjusts Annex A to Annex E and changes the content;

-- it adjusts Annex B to Annex G and modifies specifications;

-- it adds Annex A, Annex B, Annex C and Annex D.

This Standard was proposed by China Iron and Steel Association.

This Standard shall be under the jurisdiction of National Technical Committee 183 on Steels of Standardization Administration of China (SAC/TC 183).

The drafting organizations of this Standard: Magang (Group) Holdings Co., Ltd., Shandong Iron and Steel Group Co., Ltd. Laiwu Controlled Company, China Metallurgical Information and Standardization Institute, Hebei Jinxi Iron and Steel Group Co., Ltd., Rizhao Steel Holding Group Co., Ltd., Central Research Institute of Building and Construction Co., Ltd., Anshan Baode Iron and Steel Co., Ltd., Tianjin Zhongzhong Technology and Engineering Co., Ltd.

The main drafters of this Standard: Wu Baoqiao, Wang Zhongxue, Wang Limin, Xi Tie, Feng Chao, Zhao Yichen, Wei Zhenzhou, Wu Mingchao, Wang Hongxin, Chen Yanliang, Liu Baoshi, Zhang Weibin, Zhao Xinhua, Zhang Baoju, Tian Xuebo, Cheng Ding, Wang Yujie, Liu Chunying, Jiang Hongliang, Yang Yingdong.

The previous editions of the standard replaced by this Standard are as follows:

-- GB/T 11263-1998, GB/T 11263-2005, GB/T 11263-2010.

Hot rolled H and cut T section steel

1 Scope

This Standard specifies the ordering content, classification, codes, dimensions, shapes, weights-tolerances, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of hot rolled H and cut T section steel cut from hot rolled H section steel.

This Standard applies to hot rolled H section steel (hereinafter referred to as H section steel) and T section steel cut from hot rolled H section steel.

2 Normative references

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

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

GB/T 228.1, *Metallic materials - Tensile testing - Part 1 : Method of test at room temperature*

GB/T 229, *Metallic materials - Charpy pendulum impact test method*

GB/T 232, *Metallic materials – Bend test*

GB/T 700, *Carbon structural steels*

GB/T 712, *Ship and ocean engineering structural steel*

GB/T 714, *Structural steel for bridge*

GB/T 1591, *High strength low alloy structural steels*

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

GB/T 2975, *Steel and steel products – Location and preparation of test pieces for mechanical testing*

GB/T 4171, *Atmospheric corrosion resisting structural steel*

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

GB/T 19879, *Steel plates for building structure*

GB/T 20066, *Steel and iron – sampling and preparation of samples for the determination of chemical composition*

3 Ordering content

The purchase contract based on this Standard shall include the following technical content:

a) product name and category;

b) designation;

c) standard number;

d) specifications;

e) delivery length;

f) weight and quantity;

g) other special requirements of the purchaser, such as special specification requirements and special surface quality requirements.

4 Classification and codes

4.1 H section steel includes four categories, whose codes are as follows:

Wide flange H section steel HW (W is the initial of Wide);

Middle flange H section steel HM (M is the initial of Middle);

Narrow flange H section steel HN (N is the initial of Narrow);

Thin-wall H section steel HT (T is the initial of Thin).

4.2 Cut T section steel includes three categories, whose codes are as follows:

Wide flange cut T section steel TW (W is the initial of Wide);

Middle flange cut T section steel TM (M is the initial of Middle);

Narrow flange cut T section steel TN (N is the initial of Narrow).

6.4 Surface quality

6.4.1 The surface of H and cut T section steel shall be free from defects detrimental to use, such as cracks, folds, scars, layers and inclusions. Local slight defects are allowed, such as cracks, pits, bulges, hard spots and scratches, but they shall not exceed the thickness tolerances. The defects of H and cut T section steel are allowed to be removed using the mechanical methods such as chipping and grinding; the defects are allowed to be repaired by welding; some clauses of welding repair and welding repair quality inspection can be executed as specified in Annex A. The removal and welding repair shall be executed as specified in 6.4.2 and 6.4.3.

6.4.2 Removal shall meet the following requirements:

a) after the removal of H section steel and cut T section steel, the sectional dimensions shall be within the tolerance range. With the user's consent, the restriction may also be extended for different purposes;

b) the surface of junction between the removed spot and the former rolled surface shall be smooth without corners or edges. The width of removing shall not be less than 5 times of the removing depth.

c) if the removing depth is not greater than the specified tolerance range after removing, it can be delivered directly without welding repair.

6.4.3 Welding repair shall meet the following requirements:

If the dimensions of the removed spots exceed the allowable negative deviation after the defects are removed, metal welding repair can be done for the spots of defect removal, but shall meet the following criteria:

a) The surface defects of H and cut T section steel shall be removed completely before welding repair, using the mechanical methods such as chipping and sand wheel grinding, and then surfacing repair is carried out. The spots of defect removal shall be ground after welding repair and maintained consistent with the former rolled surface.

b) The depth of the defect parts removed before welding repair shall be less than 30% of the thickness of the surface removed.

c) The total area of welding repair shall be less than 2% of the total surface area of H section steel or cut T section steel and the maximum area of each welding repair spot shall be less than 150 cm^2.

d) Welding repair shall be done using an appropriate welding repair process in accordance with the designation of steel.

e) The welded outer edge of H and cut T section steel shall be free from undercut and overlap. The height of weld ripples of reinforced weld seams shall be at least 1.5 mm above the former rolled surface; after reinforced weld seams and weld

Annex E

(Informative)

Supplementary detailed rules for defect welding repair of hot rolled H and cut T section steel

E.1 Welding repair

E.1.1 Welding rods shall be dried before welding; the preheating temperature is usually 350°C; the duration is 1 h. Use short-arc operation during welding repair; narrow weld pass is preferred; the welding repair current is controlled at middle limit; the base metal shall be kept dry during welding repair. The use of low-hydrogen welding rods is recommended.

E.1.2 The welding repair operating environment shall be as specified in GB 50661.

E.1.3 Use appropriate methods, such as sand wheel grinding, to repair the spots of welding repair, remove prominent metal and make the welding repair spots smooth and flush with the rolled surface. Do not polish continuously at a fixed point to make the surface appear blue.

E.2 Welding repair quality inspection

E.2.1 Observe the appearance of the welding repair spots: the welding repair spots and heat affected zones shall be smooth and pleasing to the eye, without surface cracks, undercuts, visible pores, inclusions or other defects. In case of any surface defect, it shall be removed carefully and completely before welding repair is done once again.

E.2.2 Use measuring tools such as straight steel ruler to examine the smoothness degree of welding repair surface; the welding repair spots shall be flush with the rolled surface. The height of weld seams and weld ripples shall be the same as that of the former rolled surface.

E.2.3 The inspection of the welding repair spots and heat affected zones shall be carried out as specified in GB 50661.

E.2.4 The same location of the welding repair spots shall not be reworked for more than twice.

E.2.5 Each welding repair spot shall be recorded in detail. The content usually includes: designations, specifications and batch numbers of products to be repaired by welding; types and locations of surface defects; whether preheating and slow cooling measures are taken; designations and specifications of welding rods; quality