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ENTERPRISE STANDARD OF BAOSHAN

IRON & STEEL CO., LTD.

Q/BQB 401-2018

Replacing Q/BQB 401-2014

Dimension, shape, weight and tolerances

for cold-rolled steel sheet and strip

冷轧钢板及钢带的尺寸、外形、重量及允许偏差

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Foreword

This Standard is drafted in accordance with the rules given in GB/T 1.1-2009 "Directives for standardization - Part 1: Structure and drafting of standards".

This Standard is developed with reference to EN 10131:2006, EN 10143:2006, JIS G 3141:2017.

This Standard replaces Q/BQB 401-2014, Appendix A of Q/BQB 420-2014, Appendix A of Q/BQB 425-2014, Appendix A of Q/BQB 427-2015.

As compared with Q/BQB 401-2014, Appendix A of Q/BQB 420-2014, Appendix A of Q/BQB 425-2014, and Appendix A of Q/BQB 427-2015, the main changes of this Standard are as follows:

- INTEGRATE the requirements of tolerances for the dimension and shape of cold-rolled uncoated and coated products. The scope of application covers cold-rolled uncoated and coated products;
- ADD the classification of slitting steel strip and related technical requirements;
- REVISE the product supply nominal width range of Table 2;
- ADD technical requirements for special thickness tolerances PT.AQ and PT.AD;
- ADD thickness tolerance requirement for the weld of steel strips which are delivered with welds;
- ADD thickness tolerance requirement for hot-dip products with a combined weight of double-sided plating of not less than 450g/m²;
- TIGHTEN the thickness tolerance requirements of Table 4; and ADD the requirement for thickness tolerances of thickness ≤0.3mm;
- COORDINATE and UNIFY the minimum yield strength grading specified in Table 4 and Table 5;
- OPTIMIZE the nominal thickness grading for the specified minimum yield strength below 360MPa in Table 5; and ADD a PT.C thickness tolerance requirement for the specified minimum yield strength above 420MPa;
- REVISE width tolerances of Table 6;
- REVISE the provisions of Table 9 for the length general precision tolerance;

Dimension, shape, weight and tolerances for cold-rolled steel sheet and strip

1 Scope

This Standard specifies the classification and code, dimension, shape, weight, and their tolerances for cold-rolled steel sheet and strip.

This Standard applies to the cold-rolled steel strip produced by Baoshan Iron & Steel Co., Ltd. with a thickness of 0.17mm ~ 3.50mm and a rolling width of 700mm ~ 2080mm, as well as the steel sheet which is crosscut therefrom, and the steel strip which is slit therefrom; hereinafter known as steel sheet and strip for short.

Note: The cold-rolled products referred to in this Standard include cold-rolled uncoated products and cold-rolled coated products.

2 Normative references

The following documents are indispensable for the application of this Standard. For the dated references, only the editions with the dates indicated are applicable to this Standard. For the undated references, the latest edition (including all the amendments) are applicable to this Standard.

GB/T 8170-2008 Rules of rounding off for numerical values & expression and judgement of limiting values

3 Classification and code

According to different product forms, the classification and code of the edge state and dimensional precision of steel sheet and strip shall comply with the requirements of Table 1.

5 Dimension tolerances

5.1 Thickness tolerances

5.1.1 The thickness tolerances of steel sheet and strip shall comply with the provisions of Table 4. For the slitting steel strip, the thickness tolerances shall comply with the provisions for the steel strip before slitting. If the user has higher requirements on thickness precision, it can also be ordered according to the PT.C super high thickness precision given in Table 5.

5.1.2 With the agreement of the supplier and the purchaser, users with special requirements for thickness precision can also use asymmetric tolerance for ordering.

5.1.2.1 PT.AQ mode: The target thickness of steel sheet and strip is the nominal thickness minus 2%. The upper and lower tolerances of steel sheet and strip are still controlled according to the PT.A requirement of nominal thickness in Table 4.

5.1.2.2 PT.AD mode: Only for steel sheets and strips with a minimum yield strength of less than 260MPa. When the upper tolerance requirement is 0, the lower tolerance is controlled according to the PT.A requirement of nominal thickness in Table 4.

5.1.2.3 If the user has other special thickness precision requirements, it can be negotiated when ordering.

5.1.3 When in the PT.C, PT.AQ, and PT.AD ordering modes, the thickness tolerance within the total length of 30m at both ends of steel strip (within 15m on one side end) is allowed to exceed 20% of the specified value.

5.1.4 For steel strips delivered with welds, the thickness tolerance in the range of 10m near the weld can exceed 50% of the specified value.

5.1.5 For hot-dip products with a combined weight of double-sided plating of not less than 450g/m², the thickness tolerance shall be increased by $\pm 0.01\text{mm}$.

camber shall be no more than 0.2% of the actual measured length of the steel sheet.

6.3 Flatness

6.3.1 The flatness of steel sheet refers to the maximum distance between the lower surface of steel sheet and the platform measured by freely placing the steel sheet on the platform.

6.3.2 The flatness regulations apply only to steel sheets. If the steel sheet is not flattened, only general flatness precision is applied.

6.3.3 The flatness of steel sheet shall comply with the values specified in Table 10.

6.3.4 For steel sheets with a specified minimum yield strength of less than 260MPa, if the user has special requirements for the flatness precision, it can also be ordered according to the super high precision given in Table 11.

6.3.5 If the user has special requirements for the L-warp produced by delivery in rolls, it can be agreed separately.

Note: According to the shape and location, the strain type of steel sheet can be divided into the following categories:

Bow

Residual curving along all directions of the steel sheet, either longitudinal (in the rolling direction) or transverse (perpendicular to the rolling direction);

Wave

Wave along the longitudinal direction of steel sheet, rippling;

Edge wave

It refers to the wave along the edge of steel sheet;

Center buckle, center fullness; full center

It refers to the wave which appears in the middle of steel sheet, also known as the middle fold.

6.3.6 For steel sheets with a specified minimum yield strength of less than 260MPa, when supplying according to high flatness precision or super high flatness precision, in the arbitration case, the edge wave shall also be inspected. The edge wave shall meet the following requirements:

7.2.3 When measured by the diagonal method, the two diagonal lengths of steel sheet shall be measured. $1/2$ of the difference in the diagonal lengths is calculated; that is, $u=|X1-X2|/2$, as shown in Figure 2.

7.3 Edge camber

7.3.1 The measuring part of edge camber of steel strip shall be no less than 5000mm from the head or tail of the steel strip.

7.3.2 For steel sheets with a length of not more than 2000mm, the length of the steel sheet is equal to the measured length of edge camber. For steel sheets with a length greater than 2000mm, any 2000mm length can be taken for measurement of edge camber.

7.4 Flatness

7.4.1 For steel sheets with a length of not more than 2000mm, the length of steel sheet is the measured length of flatness.

7.4.2 For steel sheets with a length greater than 2000mm, the steel sheet with a length of 2000mm can be arbitrarily cut for flatness measurement.

8 Weight

Steel sheets are usually delivered according to the theoretical weight; and can also be delivered according to the actual weight. The calculation method of theoretical weight is as specified in Appendix A. Steel strips are usually delivered according to the actual weight.

9 If the user has other special requirements for dimension, shape, weight, and tolerances, it can be negotiated when ordering; and shall be indicated in the contract.

10 Rules of rounding off for numerical values

Rules of rounding off for numerical values shall comply with the provisions of GB/T 8170.

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