ICS 77.140.50
CCS H46

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 34566-2017

Hot stamping steel sheet and strip for automobiles

汽车用热冲压钢板及钢带

Issued on: October 14, 2017 **Implemented on: July 1, 2018**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine;
Standardization Administration of the PRC

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1 Scope

China's national standard for the steel sheet and strip used in automotive hot stamping. It specifies the terms and definitions, the classification and grade designation, the order content, the dimensions, shape and weight, the technical requirements, the test methods, the inspection rules and the packaging, marking and quality certificate. Hot stamping, or press hardening, is how the strongest parts of a modern car body are made. The blank is heated to around 900 degrees C, transferred to a press in a few seconds, and formed and quenched in the same closed die, which is water-cooled. The steel goes in soft and formable and comes out fully martensitic at tensile strengths above 1500 megapascals, in a shape that could not be cold formed at anything like that strength. Those parts are the ones that must not deform in a crash: the A and B pillars, the roof rail, the door beams, the tunnel. The sheet has to be supplied with a coating that survives the furnace, since bare steel would scale, and that coating is most of what distinguishes the grades.

This Standard specifies the terms and definitions, classification and grade expression method, ordering contents, dimension, shape, weight, technical requirements, test methods, inspection rules, package, mark and quality certificate of the hot stamping steel sheet and strip for automobile. This Standard is applicable to the cold-rolled and hot-dip aluminum-silicon steel sheet and strip with thickness of 0.50mm ~ 3.00mm, and hot-rolled steel sheet and strip with thickness of 1.20mm ~ 12.0mm (hereinafter referred to as "steel sheet and strip") used for manufacturing the safety structural parts of the automobiles.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB/T 222 Permissible Tolerances for Chemical Composition of Steel Products

GB/T 223.5 Methods for Chemical Analysis of Iron, Steel and Alloy - The Reduced Molybdosilicate Spectrophotometric Method for the Determination of Acid-Soluble Silicon Content

GB/T 223.9 Iron and Steel - Determination of Aluminum Content - Chromazurol S Photometric Method

GB/T 223.11 Iron, Steel and Alloy - Determination of Chromium Content - Visual Titration or Potentiometric Titration Method

GB/T 223.17 Methods for Chemical Analysis of Iron, Steel and Alloy - The Diantipyrylmethane Photometric Method for the Determination of Titanium Content

GB/T 223.23 Iron, Steel and Alloy - Determination of Nickel Content - The Dimethylglyoxime Spectrophotometric Method

GB/T 223.26 Iron, Steel and Alloy - Determination of Molybdenum Content - The Thiocyanate Spectrophotometric Method

GB/T 223.37 Methods for Chemical Analysis of Iron, Steel and Alloy - the Indophenol Blue Photometric Method for the Determination of Nitrogen Content after Distillation Separation

GB/T 223.40 Iron, Steel and Alloy - Determination of Niobium Content by the Sulphochlorophenol S Spectrophotometric Method

GB/T 223.59 Iron, Steel and Alloy - Determination of Phosphorus Content - Bismuth Phosphomolybdate Blue Spectrophotometric Method and Antimony Phosphomolybdate Blue Spectrophotometric Method

GB/T 223.63 Methods for Chemical Analysis of Iron, Steel and Alloy - The Sodium(Potassium)Periodate Photometric Method for the Determination of Manganese Content

GB/T 223.68 Methods for Chemical Analysis of Iron, Steel and Alloy - The Potassium Iodate Titration Method after Combustion in the Pipe Furnace for the Determination of Sulfur Content

GB/T 223.69 Iron, Steel and Alloy - Determination of Carbon Contents - Gas- volumetric Method after Combustion in the Pipe Furnace

3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 Hot stamping; HS A process that the steel sheet is heated to an austenitizing temperature, the heated steel sheet is stamped in the mold; meanwhile finish the forming and quenching processes.

3.2 Hot-dip aluminum-silicon alloy coating; AS In the hot-dip aluminum-silicon production line, the coating obtained through

9 Inspection Rules

9.1 The steel sheet and strip shall be checked and accepted by the Quality and Technical Supervision Department of the supplier.

9.2 The steel sheet and strip shall be accepted in batches. Each inspection batch of cold-rolled steel sheet and strip consists of the steel sheet and strip with the same grade, the same specification, the same processing state, and weight no greater than 30t; for the cold-rolled steel strip with roll weight greater than 30t, each roll shall be regarded as one inspection batch. Each inspection batch of hot-rolled steel sheet and strip consists of the steel sheet and strip with the same grade, the same furnace number, the same thickness, the same rolling system, and weight no greater than 60t; the steel strip and continuously-rolled sheet with rolling weight greater than 30t, it can be grouped in two rolling coils.

9.3 The sampling quantity and sampling method of steel sheet and strip shall conform to the provisions of Table 10.

9.4 The reinspection and judgement rules of steel sheet and strip shall conform to the provisions of GB/T 17505.

9.5 The test results of chemical compositions and mechanical properties shall be rounded off as per the rounding off comparison method; the rules for rounding off shall be as specified in GB/T 8170.

10 Package, Mark and Quality Certificate

The package, mark and quality certificate of steel sheet and strip shall conform to the provisions of GB/T 247. If the purchaser has particular requirements, it shall be negotiated when ordering product.

11 Approximate Grade Comparison between Domestic and Foreign Standard The comparison between this Standard grade and approximate grade of domestic and foreign standards can refer to Appendix C.