

ICS 77.140.50

CCS H 46



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

GB/T 20564.11-2017

**Continuously cold-rolled high strength steel sheet and strip for
automobiles - Part 11: Carbon manganese steel**

汽车用高强度冷连轧钢板及钢带 第11部分：碳锰钢

Issued on: September 7, 2017

Implemented on: June 1, 2018

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

Table of Contents

Foreword...	3
1 Scope...	4
2 Normative References...	4
3 Terms and Definitions...	5
4 Classification and Grade Expression Method...	6
5 Ordering Contents...	7
6 Dimension, Shape and Weight...	7
7 Technical Requirements...	7
8 Test Methods...	10
9 Inspection Rules...	10
12 Appendix B (Informative) Approximate Comparison between National and International Grades...	13

Foreword

GB/T 20564 Continuously Cold Rolled High Strength Steel Sheet and Strip can be divided into the following 11 parts.

- Part 1. Brake Hardening Steel;
- Part 2. Dual Phase Steel;
- Part 3. High Strength Interstitial Free Steel;
- Part 4. High Strength Low Alloy Steel;
- Part 5. Isotropic Steel;
- Part 6. Transformation Induced Plasticity Steel;
- Part 7. Martensitic Steel;
- Part 8. Complex Phase Steel;
- Part 9. Quenching and Partitioning Steel;
- Part 10. Twinning Induced Plasticity Steel;
- Part 11. Carbon Manganese Steel. This Part belongs to Part 11 of GB/T 20564. This Part was drafted as per the rules specified in GB/T 1.1-2009. This Part was proposed by China Iron and Steel Association. This Part shall be under the jurisdiction of National Technical

Committee for Standardization of Steel (SAC/TC 183). Drafting organizations of this Part. China Metallurgical Information and Standardization Institute, and Angang Steel Co., Ltd. Chief drafting staffs of this Part. Wang Haiquan, Liu Jun, Zhang Weixu, Su Haolu, Tang Mu, Li Qian, Shi Li, Lin Zhifeng, Jiang Guangrui, and Liu Libin. Continuously Cold Rolled High Strength Steel Sheet and Strip for Automobile - Part 11. Carbon Manganese Steel

1 Scope

China's national standard for carbon manganese steel sheet for automotive use. It is Part 11 of GB/T 20564 and 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. Among the parts of GB/T 20564, this is the plain one, and that is its purpose. Dual phase, TRIP, TWIP, martensitic and complex phase steels each achieve high strength through a designed microstructure that requires a specific annealing and cooling schedule, and each carries a cost in price, in press shop difficulty and in weldability. Carbon manganese steel reaches its strength the oldest way, through carbon and manganese in solution and the grain refinement that comes with them, and it therefore has none of the process sensitivity and none of the premium. For a great many parts on a vehicle that is the right answer. A bracket, a reinforcement, a seat component or a structural member that is bent rather than deeply drawn does not need a high work hardening exponent or an exceptional strain ratio; it needs a defined yield and tensile strength, adequate elongation, consistent thickness and a surface fit for the coating it will receive. Specifying an advanced grade for such a part adds cost without adding function, and can make the part harder to weld into an assembly of ordinary steels. This part gives that material a proper national specification - the strength grades and their mechanical requirements, the composition limits, the dimensional and shape tolerances, the surface classes, and the test and acceptance rules. Issued on 7 September 2017 and in force since 1 June 2018.

This Part of GB/T 20564 specifies the terms and definitions, classification and grade expression method, ordering content, dimension, shape, weight, technical requirements, test methods, inspection rules, package, marking and quality certificate of cold rolled carbon manganese high strength steel sheet and strip. This Part is applicable to the steel sheet and strip with thickness of 0.50mm ~ 3.00mm for manufacturing automotive structural parts (hereinafter referred to as "steel sheet and strip").

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 223.9 Iron, Steel and Alloy - Determination of Aluminium Content - Chrom Azurol S Photometric 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

GB/T 228.1-2010 Metallic Materials - Tensile Testing - Part 1. Method of Test at Room Temperature

GB/T 247 General Rule of Acceptance, Package, Mark and Certification for Steel Sheet and Strip

GB/T 708 Dimension, Shape, Weight, and Tolerance for Cold-Rolled Steel Plate

GB/T 2523 Measuring Method of Surface Roughness and Peak Count for Cold- Rolled Metal Sheet (Strip)

GB/T 2975 Steel and Steel Products - Location and Preparation of Test Pieces for Mechanical Testing

GB/T 4336 Carbon and Low-Alloy Steel - Determination of Multi-Element Contents -Spark Discharge Atomic Emission Spectrometric Method (Routine Method)

GB/T 8170 Rules of Rounding off for Numerical Values & Expression and Judgement of Limiting Values

GB/T 17505 Steel and Steel Products - General Technical Delivery Requirements

3 Terms and Definitions

The following terms and definitions are applicable to this document.