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

GB/T 2978-2024

Replacing GB/T 2978-2014

**Passenger car tyres - Size designation, dimensions, inflation
pressures and load capacities**

轿车轮胎规格、尺寸、气压与负荷

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 Directives for standardization - Part

1. Rules for the structure and drafting of standardizing documents. This document replaces GB/T 2978-2014 Size designation, dimensions, inflation pressure and load capacity for passenger car tyres. Compared with GB/T 2978-2014, in addition to structural adjustments and editorial changes, the main technical changes are as follows: -- The marking requirements for high-load passenger car radial tyres are added, and the tyre types that need to be marked with "RF" or "ZRF" are changed to quote the relevant provisions of GB/T 30196-2022 (see Chapter 4; see Chapter 4 of the 2014 edition); -- The reserved old series of passenger car diagonal tyres are deleted (see Chapter 4 and Table 15 of the 2014 edition); -- Some sizes of radial tyres for passenger cars are added (see Tables 1~12 and Table 14); -- The reinforced load index and load capacity of some sizes are added (see Table 1, Tables 3~9, and Table 11; see Table 1, Tables 3~9, and Table 11 of the 2014 edition); -- The standard load index and load capacity of some sizes are added (see Tables 6~9, and Table 11; see Tables 6~9, and Table 11 of the 2014 edition); -- Some data parameters of some sizes are modified (see Tables 1~12, and Table 14; see Tables 1~13 of the 2014 edition); -- High-load passenger car radial tyres are added (see Table 13); -- The light-load type is added to some sizes of T-type spare tyres for temporary use (see Table 14; see Table 13 of the 2014 edition); -- The requirements for the measuring rim and permitted rim of T-type spare tyres are added (see Table 14; see Table 13 of the 2014 edition); -- The requirements for inflation pressure are modified and specified (see 5.5; see 5.5 of the 2014 edition); -- The correspondence between some speed symbols and maximum speeds are deleted (see Table B.1; see Table B.1 of the 2014 edition); -- The calculation and rounding provisions for the maximum and minimum peripheral dimensions

of new tyres are added (see Appendix C). Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by the China Petroleum and Chemical Industry Federation. This document is under the jurisdiction of the National Technical Committee on Tyres and Rims of Standardization Administration of China (SAC/TC19). Drafting organizations of this document. Triangle Tyre Co., Ltd., Wanli Tyre Co., Ltd., Zhongce Rubber Group Co., Ltd., Shandong Linglong Tyre Co., Ltd., Cheng Shin Rubber (Xiamen) Ind., Ltd., Sailun Tyre Americas Inc., Doublestar Group Co., Ltd., Beijing Research & Design Institute of Rubber Industry Co., Ltd., Prinx Chengshan (Shandong) Tyre Co., Ltd., Sichuan Tyre Rubber (Group) Co., Ltd., Giti Radial Tyre (Anhui) Co., Ltd., Qingdao Sentury Tyre Co., Ltd., Double Coin Tyre Group Co., Ltd., Shandong Fengyuan Tyre Manufacturing Co., Ltd., Shandong Changfeng Tyre Co., Ltd., Shandong Xinghongyuan Tyre Co., Ltd., Sichuan Yuanxing Rubber Co., Ltd., Tianjin Wanda Tyre Group Co., Ltd., Shandong Province Sanli Tyre Manufacture Co., Ltd., Tercelo Tyre Group Co., Ltd., Shandong Hongsheng Rubber Technology Co., Ltd., Shandong Jinyu Tyre Co., Ltd., Pirelli Tyre Co., Ltd., Goodyear Dalian Tyre Co., Ltd., Michelin (China) Investment Co., Ltd., Hankook Tyre China Co., Ltd., Yokohama Rubber (China) Co., Ltd., Bridgestone (China) Investment Co., Ltd., Sumitomo Rubber (China) Co., Ltd., SAIC-GM-Wuling Automobile Co., Ltd., Anhui Deji Automobile Inspection Center Co., Ltd., and TUV NORD (Hangzhou) Co., Ltd. Main drafters of this document. Wang Dapeng, Yu Baolin, Zhou Qiong, Zhang Dian, Wang Xiumei, Chen Jianming, Tian Zongbo, Xu Wei, Mou Shouyong, Xu Lihong, Wang Yan, Luo Jiangang, Chen Yun, Qin Jingbo, Hao Yunnan, Zheng Tao, Pan Wen, Zhu Zuoyong, Cui Youming, Yu Zhenjiang, Yang Hongtao, Gao Jiangang, Zhang Yuliang, Yang Wanlong, Niu Fuxiang, Yin Qingye, Zhou Ling, Liu Qingjie, Wang Zhenxiao, Zhu Cheng, Zhang Bin, Huang Yuanyi, He Pengchun, Yu Heng, Li Shuhuan, Zheng Rui, and Li Miaomiao. The previous versions of the standards replaced by this document are as follows: -- First published in 1982 as GB/T 2978-1982 Series of passenger car tyres; first revised in 1989; second revised in 1997; -- The third revision was made in 2008, and the name of the standard was changed to "Size designation, dimensions, inflation pressure and load capacity for passenger car tyres"; -- The fourth revision was made in 2014; this is the fifth revision. Size designation, dimensions, inflation pressure and load capacity for passenger car tyres

1 Scope

GB/T 2978-2024 is the Chinese standard that defines what a passenger car tyre size means. Every tyre carries a designation of the form 205/55R16 91V, and this document is what turns that string into numbers: the size designation system and its construction, the design and maximum overall dimensions the tyre must fall within for each size, the measuring rim on which those dimensions are verified, the load index and the load capacity it corresponds to at each inflation pressure, the speed symbol, and the relationship

between load, pressure and speed including the derating that applies at speeds above the symbol. It covers the standard, reinforced and extra load constructions and the temporary use spare. Without an agreed table of this kind a tyre cannot be fitted to a vehicle with any confidence, which is why it is one of the most consulted tyre standards there is. The 2024 edition replaces GB/T 2978-2014. For a tyre maker, a carmaker specifying original equipment or a regulator in China, this is the reference table.

This document specifies the method of expressing passenger car tyre sizes, tyre sizes and corresponding dimensions, inflation pressure and load capacity, as well as related requirements. This document applies to new pneumatic passenger car tyres.

2 Normative references

The provisions of the following documents constitute the essential clauses of this document through normative references in this text. Among them, for referenced documents with dates, only the versions corresponding to the dates are applicable to this document; for referenced documents without dates, the latest versions (including all amendments) are applicable to this document.

GB/T 6326 Tyre - Vocabulary

GB/T 30196-2022 Self-supporting run flat tyres

3 Terms and definitions

The terms and definitions defined in GB/T 6326 apply to this document.

4 Indication of tyre sizes

The following is an example of the size of a passenger car tyre. Reinforced tyres shall have the load identification mark "EXTRA LOAD (or XL)" or "REINFORCED (or REINF)". High-load passenger car radial tyres are reinforced tyres and shall also be given the specification prefix "HL", for example. HL185/70R13. For tyres with a maximum speed exceeding 240 km/h and not exceeding 300 km/h (with W or Y speed symbols marked on the tyres), the structural type code can replace "R" with "ZR". For tyres with speeds exceeding 300 km/h, the structural type code shall replace "R" with "ZR", and the instructions for use shall be composed of the speed symbol "Y" and the corresponding load index in brackets, for example, 245/45ZR17 (95Y). The actual maximum load capacity and speed capacity of the tyre shall be stated in the tyre manufacturer's technical documentation. For tyres that meet the requirements of Class I self-supporting run-flat tyres in GB/T 30196-2022, an "F" shall be marked after the structural type code for identification, for example. 225/45RF17 or 225/45ZRF17. T-type temporary-use spare tyres shall be marked with the additional specification mark "T", for example, T135/90D16.

5 Tyre sizes, dimensions, inflation pressure and load capacity

5.1 The size, load index and corresponding load capacity and inflation pressure, Tyre size markings Instructions Speed symbol Load index Nominal rim diameter code Structural type code ("R" is the radial tyre code, "-" or "D" is the diagonal tyre code) Nominal aspect ratio Nominal section width (mm) measuring rim and new tyre dimension of passenger car tyres shall comply with the provisions of Table 1~Table 15; the maximum use size, static loaded radius, rolling radius and permitted rim of tyres should comply with the provisions of Table 1~Table 15.

5.2 When the driving speed is 160 km/h or below, the corresponding relationship between the load capacity of standard and reinforced passenger car radial tyres at different inflation pressures shall comply with the provisions of Table 16 and Table 17, respectively.

5.3 The corresponding relationship between load index and load capacity shall comply with the provisions of Appendix A.

5.4 The correspondence between speed symbols and maximum driving speeds shall comply with the provisions of Appendix B.

5.5 The inflation pressure mentioned in this document refers to the inflation pressure of the tyre at normal temperature and cold state, and does not include the increased pressure caused by temperature rise during driving. In any case, to ensure safety, the inflation pressure of the T-type temporary-use spare tyre is 420 kPa, and the inflation pressure of other passenger car radial tyres shall not be greater than 350 kPa. Under normal use, the inflation pressure of high-load tyres shall not be lower than 200 kPa at any speed. The inflation pressure of other passenger car radial tyres shall not be lower than 140 kPa when the driving speed is ≤ 160 km/h, and shall not be lower than 180 kPa when the driving speed is >160 km/h. In special use cases, please consult with the tyre manufacturer.

Appendix A

(Normative) Correspondence between load index and load capacity When the driving speed is 210 km/h or below, the corresponding relationship between load index and load capacity shall comply with the provisions of Table A.1.

Appendix B

(Normative) Correspondence between speed symbols and maximum driving speeds The correspondence between speed symbols and maximum driving speeds shall comply with the provisions of Table B.1.