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

**GB 21378-2015**

Replacing GB 21378-2008

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**Low-speed goods vehicle - Limits and measurement methods  
for fuel consumption**

低速货车 燃料消耗量限值及测量方法

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## Foreword

All technical contents of this standard is mandatory. This standard was drafted in accordance with rules GB/T 1.1-2009 given. This standard replaces GB 21378-2008 "low-speed vehicle fuel consumption limits and measurement methods." This standard and GB/T 21378- The main changes compared to 2008 are as follows:

- Normative application file for adjustment and reconfirmation;
- Adjust the terms and definitions;
- Measurements adjusted using the chassis dynamometer, and adjust the corresponding fuel consumption limits;
- Increased fuel consumption calculation;
- Increased production conformance requirements;
- Increase the implementation of standards requirements. The standard proposed by China Machinery Industry Federation. The low standard by the National Automotive Standardization Technical Committee (SAC/TC234) centralized. This standard is drafted by: National Quality Supervision and Inspection Center of farm machinery, industrial machinery and farm vehicles, tractors Product Quality Inspection Heart, National Tractor Quality

Supervision and Inspection Center. It participated in the drafting of this standard. Shandong five levy Group Co., Ltd., Sichuan South Chun Automobile Group Co., Ltd., Beiqi Futian Automobile Co. have Limited Zhucheng automobile plant, China National Heavy Duty Truck ace Chengdu Commercial Vehicle Co., Ltd., Shandong Automobile Co., Ltd. Ling Tang Jun Europe, Qinzhou State-Machinery Co., Ltd. force. The main drafters. Zhang Xian wins, Lv Shusheng, Min Haitao, in Chi Lang, Chen Ge, Guan Peng, Wang Min Xia, Ding Jikang, plus Sun Ping, Jin Wensheng, Wins new car, Narayana. This standard superseded previous editions case.

--- GB 21378-2008. Low-speed vehicle fuel consumption limits and measurement methods

## 1 Scope

GB 21378-2015 is the Chinese national standard on low-speed goods vehicle - limits and measurement methods for fuel consumption, in the field of agriculture. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 3 July 2015 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 October 2015. Classification: ICS 65.060, CCS T54. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the low-speed truck fuel consumption limit, measurement conditions, methods of measurement, fuel consumption calculations, production consistency inspection Investigation, the implementation of standards. This standard applies to low-speed vehicles.

## 2 Normative references

The following documents for the application of this document is essential. For dated references, only applies to the version dated paper Pieces. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 24944 General technical conditions of low-speed vehicles

GB/T 24948 wheel vehicles and low-speed vehicles vocabulary

## 3 Terms and Definitions

GB/T 24948 and defined by the following terms and definitions apply to this document.

3.1 Gaseous pollutants gaseouscontaminant Exhaust pollutants carbon monoxide (CO),

hydrocarbons (HC) and nitrogen oxides (NO<sub>x</sub>). NOTE. hydrocarbons (HC) represents carbon equivalent (assuming hydrocarbon ratio 1.1.86), nitrogen oxides (NO<sub>x</sub>) to nitrogen dioxide (NO<sub>2</sub>) equivalent.

3.2 Particulate matter particulate According to the test method described in Appendix A, at a maximum temperature of 325K (52 °C) of the diluted exhaust gas, shall be prescribed by the filter media collection The exhaust gas composition.

3.3 Exhaust pollutants exhaustpollutants Exhaust pipe of gaseous pollutants and particulate matter.

3.4 Equivalent inertia equivalentinertia On the chassis dynamometer analog low-speed vehicle running and the moment of inertia of the moving mass with considerable inertia simulator.

3.5 Reference quality referencemass The low-speed vehicles "curb weight" plus 100kg.

## 4 Limits of Fuel Consumption

Low-speed vehicle fuel consumption should not exceed the limits specified in Table 1. Table 1 low-speed vehicle fuel consumption limits Maximum design The total mass M kg Single-cylinder diesel engine mounted low-speed vehicles Fuel Consumption Limits L/100km Multi-cylinder diesel engine mounted low-speed vehicles Fuel Consumption Limits L/100km Type Approval production consistency check type approval Conformity of Production M≤2000 8.1 8.5 7.6 8.0 2000 <math>\sqrt[3]{M}<=2500</math> 9.5 10.0 9.0 9.5 2500 <math>\sqrt[3]{M}<=3000</math> 10.6 11.1 10.0 10.5 3000 <math>\sqrt[3]{M}<=3500</math> 11.7 12.2 11.0 11.6 3500 <math>\sqrt[3]{M}<=4500</math> 12.7 13.4 12.0 12.6

## 5.1 Test low-speed vehicles

5.1.1 measured before the test speed goods manufacturing technical documents should be running. Unless otherwise specified, the run specification car by lorry Technical documents.

5.1.2 should be required to adjust the engine manufacturer's technical documentation and low-speed trucks operating member. Special attention to the idle setting, cold starting device and Adjust the emission control system.

5.1.3 Check tightness intake and fuel supply system, to ensure no accidental intake affected.

5.1.4 without any leakage of the exhaust system, so reducing the amount of engine exhaust gas is collected.

5.1.5 the measured low-speed vehicles should meet GB/T 24944 requirements, and in accordance with the attendant technical paper, low-speed vehicle can be determined before the test No running under normal driving conditions, particularly the ability to achieve

normal start.

5.1.6 before testing, the temperature was maintained low-speed vehicle should be placed preheated to 293K ~ 303K (20 °C ~ 30 °C) room, made up Within the lubricant and coolant temperature motivation to reach room temperature range of  $\pm 2$ K. In the manufacturer's requirements, low-speed trucks in accordance with the provisions of Appendix B of the low speed operation cycle requirements, pre-operation cycle of four Heat treatment.

5.1.7 subjects thermostat Radiator fan low-speed vehicles, should be in normal working condition.

5.1.8 If the apparatus is equipped with supercharging, it should work in a test state.

5.1.9 engine shall be measured in a normal working state, the rotational speed should meet the requirements.

5.1.10 all anomalies occur during the test shall be documented and written reports.

5.2 precision equipment Test equipment used in precision measurement accuracy shall meet the following requirements, and within their calibration validity.

--- Fuel consumption. 0.5%;

--- speed. 0.5%;

--- Distance. 0.1%;

## 6 Measurement Methods

Test cycle on a chassis dynamometer

6.1 A low-speed vehicle operation cycle be set as specified in Appendix A, and tested in accordance with Appendix B of the cycle.

6.2.1 Chassis dynamometer Chassis dynamometer properties should meet the requirements of this standard and test requirements of the relevant standards. When measuring fuel consumption measurement systems for fuel consumption, distance traveled and time should be synchronized.

### 6.2.2 Method and apparatus for measuring fuel consumption

6.2.2.1 Fuel consumption can be measured flow rate measurement method or carbon balance measurement method. The method chosen depends on the measurement method of each Features.

6.2.2.2 fuel consumption measuring equipment should be installed to ensure that should not interfere with or alter the fuel supply system of low-speed vehicles under any circumstances Oil supply situation, and it should ensure that the engine performance is not affected.