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

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**Automatic instruments for weighing road vehicles in motion -
Part 6: Plate modular**

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules for Standardization Documents" to be drafted.

This document is part 6 of GB/T 21296 "Automatic Weighing Instruments for Dynamic Road Vehicles". GB/T 21296 has issued the following parts.

- Part 1. General technical specifications;
- Part 2. Vehicle type;
- Part 3. Axle-loaded;
- Part 4. Bending plate type;
- Part 5. Quartz crystal formula;
- Part 6. Flat modular.

This document refers to OIMLR134-1.2006 "Automatic Weighing Instruments for Weighing and Axle Load Measurement of Dynamic Road Vehicles - Part 1. Metrology and Technology Requirements Test" drafted, the degree of consistency is non-equivalent.

Please note that some contents of this document may refer to patents. The issuing agency

of this document assumes no responsibility for identifying patents.

Introduction

80% of the toll roads in the world are located in China. Since 2003, various provinces and cities in my country have successively implemented weight-based toll roads. Several toll roads have been installed on the market.

Ten thousand sets of various types of highway automatic weighing instruments are widely used in expressway toll-by-weight and over-limit detection business. Based on years of research and

With the development and progress of technology, there is a trend of diversification of road automatic weighing instruments. Each type has its own unique characteristics.

There is a big gap, but in general, it is basically necessary to provide reliable vehicle gross weight information, as well as axle weight and axle group weight information. Due to product structure

The products have been developed in different production fields, such as. vehicle type, axle load type, and flat panel module type are developed in weighing instrument production plants; bent plate type mining

The load cell technology is used, so it has been developed in the load cell industry; the quartz crystal type uses semiconductor technology, and is generally used in the exchange development of the transportation industry. It is difficult for a single product standard to cover all types, and a governing technical standard is required to cover all types, and according to

According to the different product structures, determine the corresponding accuracy level and inspection rules.

During the dynamic driving process of the road vehicle, the dynamic road vehicle is automatically adjusted according to the different bearing modes of the loader of the automatic scale to the wheel.

Scales are divided into two categories, namely full load-bearing type (vehicle type and flat panel module type) and partial load-bearing type (axle load type, curved plate type, quartz crystal type, flat plate type)

modular). Dynamic road vehicle automatic weighing instruments (WIM) are divided into three categories according to the maximum operating speed for which the weighing instrument is designed. low-speed WIM

(The operating speed range of LS-WIM weighing instruments and systems is $0\text{km/h} < v \leq 10\text{km/h}$), medium speed WIM (MS-WIM weighing instruments and systems

The operating speed range is $0\text{km/h} < v \leq 40\text{km/h}$), and the operating speed range of high-speed WIM (HS-WIM weighing instruments and systems is

$0\text{km/h} < v \leq 100\text{km/h}$).

The formulation of GB/T 21296 "Automatic Weighing Apparatus for Dynamic Road Vehicles", on the one hand, is an objective requirement for the development and changes of international standards, and on the other hand, it is also a

It is an urgent requirement of my country's complicated application status, and will greatly support the healthy development of the dynamic road vehicle automatic weighing instrument industry.

effect.

GB/T 21296 consists of 6 parts.

- Part 1. General technical specifications;
- Part 2. Vehicle type;
- Part 3. Axle-loaded;
- Part 4. Bending plate type;
- Part 5. Quartz crystal formula;
- Part 6. Flat modular.

Automatic scales for dynamic road vehicles

Part 6. Flat modular

1 Scope

This document specifies the product model, measurement requirements, technical requirements, layout requirements, installation

Conditions and maintenance requirements, WIM functions and data requirements, test methods, inspection rules, as well as signs, packaging, transportation and storage, etc.

This document applies to single or multiple flat panel modules installed in the weighing control area, which are flush with the road surface, simultaneously or separately to support the entire

The tested axle or axle group to measure the wheel load (if applicable), axle load, axle group load, and vehicle load of the road vehicle in motion, and then obtain the vehicle load

Automatic scales for gross weight.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

GB/T 7551 load cell

GB/T 7724 Electronic Weighing Instrument

GB/T 14250 Weighing Instrument Terminology

GB/T 21296.1-2020 Automatic Weighing Instruments for Dynamic Road Vehicles Part 1.General Technical Specifications

GB/T 26389 Weighing Instrument Product Model Preparation Method

GB/T 28699 General Technical Specifications for Protective Coatings of Steel Structures

QB/T 1588.1 General Specifications for Light Industry Machinery Welding Parts

QB/T 1588.2 General Technical Specifications for Cutting Parts of Light Industry Machinery

QB/T 1588.4 General technical requirements for painting of light industrial machinery

3 Terms and Definitions

The following terms and definitions defined in GB/T 14250 and GB/T 21296.1-2020 apply to this document.

3.1

loader loadreceptor

Part of the weighing area intended to receive wheel loads and to sense changes in the balance of the scale when a wheel load is placed on it.

[Source. GB/T 21296.1-2020, 3.2.7]

3.2

Operating speed operating speed

The average speed at which the vehicle under test can carry out normal dynamic weighing through the carrier.

[Source. GB/T 21296.1-2020, 3.3.25]