

Translated English of Chinese Standard: GBT12428-2023

www.ChineseStandard.net → Buy True-PDF → Auto-delivery.

Sales@ChineseStandard.net

GB

NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

ICS 43.080.20

CCS T 42

GB/T 12428-2023

Replacing GB/T 12428-2005

Laden mass calculating method for bus

客车装载质量计算方法

Issued on: November 27, 2023

Implemented on: June 1, 2024

**Issued by: State Administration for Market Regulation;
Standardization Administration of PRC.**

Table of Contents

Foreword	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Calculation methods for available areas	6
5 Main parameter requirements	8
6 Maximum design number of passengers and crew	9
7 Loaded luggage mass of a bus	10
8 Maximum design pay mass of a bus	11
References	13

Laden mass calculating method for bus

1 Scope

This document specifies the main parameter requirements for the laden mass of a bus, as well as the calculation methods for the maximum design number of passengers and crew, the loaded luggage mass of a bus, and the maximum design pay mass of a bus.

This document is applicable to the calculation of laden mass of M₂ and M₃ buses, and is used as a reference to the calculation of other types of vehicles.

2 Normative references

The provisions in the following documents become the essential provisions of this standard through normative reference in this standard. For the dated referenced documents, only the versions with the indicated dates are applicable to this document; for the undated referenced documents, only the latest version (including all the amendments) is applicable to this document.

GB/T 3730.1 Terms and definitions of motor vehicles, trailers and combination vehicle - Part 1: Types

GB/T 3730.2 Road vehicle - Masses - Vocabulary and codes

GB 13094 The safety requirements for bus construction

GB/T 15089 Classification of power-driven vehicles and trailers

3 Terms and definitions

The terms and definitions defined in GB/T3730.1, GB/T3730.2 and GB/T15089, and the following apply to this document.

3.1 passenger and crew

A general term for the passengers and crew on a bus.

3.2 crew

Staff on a bus.

NOTE: It includes the driver, the conductor, etc.

3.3 passenger compartment

A space on a bus dedicated to passengers.

NOTE: It does not include the space occupied by any fixed equipment (such as partitions, coin boxes, drinking fountains, freezers, kitchens, bars, toilets, driving areas, conductor work areas of Class A, Class I and Class II buses, stairs) other than passenger seats.

3.4 surface area available for passenger compartment

The available area used by seated and standing passengers when the bus is in operation.

3.5 surface area available for standing passenger

The available area used by standing passengers when the bus is in operation.

3.6 hand baggage

Items that passengers carry with them can be placed beside them or on the luggage rack in the bus.

3.7 bulky luggage

Other luggage carried by passengers and placed in the luggage compartment except for hand luggage.

3.8 volume of luggage compartment

The available volume for bulky luggage when the bus is in operation.

NOTE: The luggage compartment is isolated from the passenger cabin and has an independent door outside the vehicle. If it is located in several locations, the luggage compartment with a volume less than 0.15 m³ (the length of any side of which is not less than 0.4 m) is not included in the calculation.

4 Calculation methods for available areas

4.1 Calculation of surface area available for passenger compartment

The surface area available for passenger compartment shall be calculated by subtracting the following areas from the total horizontal projected area inside the bus (no double calculations).

- a) Area of the driving zone: the horizontal projected area of the space used by the driver alone, including the horizontal projected area of the space occupied by the driver's seat, steering wheel, driving controls, instruments, and other equipment necessary for driving the vehicle, as well as, except the above-

the center of the exterior rearview mirror installed on the other side of the vehicle (non-driver's seat side);

- c) The areas of the position where the rear axle is located and the passage behind it, and the area of the zone with a clear height of less than 1770 mm from the lower floor of the double-deck bus, as well as the area of all other areas in the bus where the clear height is less than 1840 mm (handrails are not included);
- d) The area where the floor slope exceeds the allowable value specified by GB 13094;
- e) The area of the protruding part of higher than 8 mm on the floor and where a 400 mm×300 mm rectangle cannot be placed;
- f) Except for the door steps, any step area with a depth of less than 300 mm;
- g) The area of all areas that are inaccessible to standing passengers when all seats (excluding folding seats) are occupied;
- h) The upper area of the double-deck bus;
- i) The area of space occupied by the wheelchair;
- j) The area of the passenger cabin where the floor height is greater than 1300 mm;
- k) Other areas on the bus where standing is not allowed, or devices whose components are kept in their use positions;
- l) The floor area of a sleeper bus.

5 Main parameter requirements

5.1 Per capita mass of (passenger and crew)

5.1.1 The per capita mass of (passengers and crew) includes the average mass per passenger and the per capita mass of the crew. The values shall comply with the provisions of Table 1.

5.1.2 The average mass per passenger includes the average mass of passengers (Q_1), the average mass of hand luggage (M_{W1}), and the average mass of bulky luggage (M_{W2}).

5.1.3 The per capita mass of the crew (Q_2) does not include the mass of hand luggage and bulky luggage.

5.1.4 The total mass of the wheelchair and its user is calculated as 250 kg.

$$N = P_s + \frac{S_1}{S_{sp}} + P_w + P_L \quad \dots\dots\dots (1)$$

$$N = \frac{M_T - M_V - M_L - Q_2 n}{Q_1 + M_{w1} + M_{w2}} + n + P_L \quad \dots\dots\dots (2)$$

where:

N -- maximum design number of passengers and crew;

P_s -- design number of passenger seats;

S_1 -- surface area available for standing passengers, in square meters (m²);

S_{sp} -- surface area available for per standing passenger, in square meters per person (m²/person);

P_w -- design number of sleepers (if none, record as 0);

P_L -- design number of wheelchair spaces (if none, record as 0);

M_L -- the sum of the mass of the wheelchair and its user (if any, each is calculated as 250 kg; if none, recorded as 0);

M_T -- maximum design total mass, in kilograms (kg);

M_V -- complete vehicle kerb mass, in kilograms (kg);

n -- total number of the crew;

Q_1 -- the average mass per passenger, in kilograms per person (kg/person);

Q_2 -- per capita mass of the crew, in kilograms per person (kg/person);

M_{w1} -- the average mass of hand luggage per passenger, in kilograms per person (kg/person);

M_{w2} -- the average mass of bulky luggage per passenger, in kilograms per person (kg/person).

7 Loaded luggage mass of a bus

The loaded luggage mass of a bus is calculated according to formula (3) ~ formula (5), and the minimum value is taken as the result:

This is an excerpt of the PDF (Some pages are marked off intentionally)

Full-copy PDF can be purchased from 1 of 2 websites:

1. <https://www.ChineseStandard.us>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Select your country (currency), for example: USA (USD); Germany (Euro).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Tax invoice can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with download links).

2. <https://www.ChineseStandard.net>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Add to cart. Only accept USD (other currencies - <https://www.ChineseStandard.us>).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with PDFs attached, invoice and download links).

Translated by: Field Test Asia Pte. Ltd. (Incorporated & taxed in Singapore. Tax ID: 201302277C)

About Us (Goodwill, Policies, Fair Trading...): <https://www.chinesestandard.net/AboutUs.aspx>

Contact: Wayne Zheng, Sales@ChineseStandard.net

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

----- The End -----