

ICS 43.100



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

GB/T 43403-2023

**Road vehicles - Trailers up to 3.5t - Control of welded towing
brackets for coupling ball after fatigue testing**

(English Translation)

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Foreword

This document is drafted in accordance with GB/T 1.1-2020 "Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents".

This document modifies and adopts ISO 18207:2006 "Road vehicles - Trailers up to 3.5 t - Control of welded towing brackets for coupling ball after fatigue testing".

This document has added a Clause "Terms and definitions".

Compared with ISO 18207:2006, this document has made the following structural adjustments:

- Merge 7.1.4.5 and 7.1.4.6 of ISO 18207:2006 into 7.1.4.5.

The technical differences between this document and ISO 18207:2006 and their reasons are as follows:

- Delete Clause 4 of ISO 18207:2006; the contents of this Clause are indicative provisions;
- Replace ISO 3853 with normatively-referred GB/T 25988 (see Clause 4), to adapt to China's technical conditions;
- Change the personnel requirements; add normatively-referred GB/T 9445 (see

Clause 5), to comply with China's qualification requirements for practitioners;

- Add the requirement that "When the thickness of paint or coating is greater than or equal to 50 μm , before testing, it shall verify the sensitivity". Add normatively-referred GB/T 26951 (see 7.1.4.1), to improve testing sensitivity and defect detection rate;

- Delete Clause 9 of ISO 18207:2006. The content of this Clause is stipulated as the content of inspection report. Inspection report is stipulated in relevant documents in China such as RB/T 214-2017.

This document has made the following editorial changes:

- In order to coordinate with the existing standards, change the name of the standard to "Road vehicles - Trailers up to 3.5 t - Control of welded towing brackets for coupling ball after fatigue testing";
- Delete the bibliography.

Attention is drawn to the possibility that some of the elements of this document may be Road vehicles - Trailers up to 3.5 t - Control of welded towing brackets for coupling ball after fatigue testing

1 Scope

This document specifies the aim and principles, personnel requirements, choice of method, testing requirements, and result determination for the control of mechanical coupling devices between the towing vehicle and the light trailer equipped with coupling devices that comply with GB/T 25988 after fatigue testing.

This document is applicable to all the components of the mechanical coupling devices whose failure can cause the fracture of the attachment, manufactured out of steel, forged steel or cast steel (i.e., generally in ferromagnetic materials).

Note: In the case of use of other materials, the manufacturer will check their compatibility with the methods of non-destructive testing.

2 Normative references

The contents of the following documents, through normative references in this text, constitute indispensable provisions of this document. Among them, for dated references, only the edition corresponding to that date applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 9445 Non-destructive testing - Qualification and certification of NDT personnel

GB/T 25988 Road vehicles - Towing vehicle coupling device to tow caravans or light trailers - Mechanical strength test (GB/T 25988-2010, ISO 3583:1994, IDT)

GB/T 26951 Non-destructive testing of welds - Magnetic particle testing

3 Terms and definitions

The terms and definitions defined in GB/T 25988 apply to this document.

4 Aim and principles of controls

The purpose of controls after fatigue testing is to detect the defects caused by the strength test (according to GB/T 25988), i.e., to distinguish the evolutionary defects

7.1.1.3 Value of magnetization

Magnetization shall be checked using a tangential field measuring device to Hall effect and shall be between 2000 A/m and 4000 A/m. During control, the level of magnetization is checked using a standard test specimen.

7.1.2 Testing medium

The detection of the defects shall be performed using black magnetic liquor made of magnetic particles suspended in a carrying liquid (non-aggressive to paint). The carrying liquid shall have a weak surface tension (good wettability) and shall not attack the surface to be examined. If the magnetic liquor is contained in a form other than aerosol, it shall be homogenized regularly and its concentration shall be checked at regular intervals.

7.1.3 Lighting

The illumination on the surface of the parts being tested shall not be less than 500 lx.

7.1.4.1 Surface treatment

The product surface shall be free of any traces of grease, dust, etc. Paint and coatings may remain in place. When the thickness of paint or coating is greater than or equal to

50 μm , before testing, it shall verify the sensitivity of the measuring device. Sensitivity

verification is performed in accordance with the requirements of GB/T 26951.

7.1.4.2 Visual examination

Visual examination shall be carried out on the whole of the assembly with the naked eye or with a magnifying glass of maximum enlargement 6 when possible, under a luminous intensity of not less than 500 lx.

7.1.4.3 Magnetization method

Before magnetizing the part, the control areas shall be coated with a thin and even coat of contrast enhancer. Simultaneously, a magnetic liquor shall be applied during magnetization, when the part is subjected to the action of the magnetic field for approximately 5 s.

7.1.4.4 Operating conditions

The control of the operating conditions shall be made:

- Either using magnetic particle testing standard samples; or
- Using reference parts of the same type and having known surface defects.

7.1.4.5 Examination

Examined surface shall be covered uniformly with magnetic liquor and the magnetic images that it comprises shall not be modified before being examined. In case of doubt, a complementary examination shall be carried out to ensure the nature of the images. After the examination, the demagnetization of the controlled part is not necessary.