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STANDARD

1005-6

Second edition
1994-08-01

Railway rolling stock material —

Part 6:

Solid wheels for tractive and trailing stock —
Technical delivery conditions

Matériel roulant de chemin de fer —

*Partie 6: Roues monoblocs pour le matériel moteur et pour le matériel
remorqué — Conditions techniques de livraison*



Reference number
ISO 1005-6:1994(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 1005-6 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 13, *Railway rolling stock material*.

This second edition cancels and replaces the first edition (ISO 1005-6:1982), of which it constitutes a technical revision.

ISO 1005 consists of the following parts, under the general title *Railway rolling stock material*:

- *Part 1: Rough-rolled tyres for tractive and trailing stock — Technical delivery conditions*
- *Part 2: Tyres, wheel centres and tyred wheels for tractive and trailing stock — Dimensional, balancing and assembly requirements*
- *Part 3: Axles for tractive and trailing stock — Quality requirements*
- *Part 4: Rolled or forged wheel centres for tyred wheels for tractive and trailing stock — Quality requirements*
- *Part 6: Solid wheels for tractive and trailing stock — Technical delivery conditions*
- *Part 7: Wheelsets for tractive and trailing stock — Quality requirements*
- *Part 8: Solid wheels for tractive and trailing stock — Dimensional and balancing requirements*
- *Part 9: Axles for tractive and trailing stock — Dimensional requirements*

Annex A forms an integral part of this part of ISO 1005. Annex B is for information only.

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Introduction

This second edition of ISO 1005-6 is the result of the efforts of ISO/TC 17/SC 13 to harmonize and rationalize further the differing regional and national practices of the technical delivery conditions for solid wheels for railway rolling stock.

In the negotiations for this purpose the following topics, in particular, were discussed:

- the selection of steel type;
- the heat-treatment condition; and
- the requirement and testing categories (see the following paragraph).

Although the term "requirement and testing category" is correct, for easy reference the term "testing category" is used in this part of ISO 1005.

During negotiations on the selection of steel types, it was intended to retain only four or five different steel grades and to harmonize these with those quoted in other International Standards. However, this has not yet been fully achieved, in particular for the direct-hardening steels in ISO 683-1, and for the time being the established grades will be retained. The specifications for the composition of similar grades were aligned with one another.

With reference to the selection of heat-treatment conditions, the chosen concept was to make full use, as far as possible, of the properties inherent in the individual steel grades. Consequently, for all grades the rim quenched and tempered condition (T) and the normalized condition (N) may be agreed upon. The immersion quenched and tempered condition (E)¹⁾ was of decreasing importance and is only retained for special cases (see table 1, footnote 13).

The considerations referring to testing categories are covered in note 1 in 1.1, together with those on tolerance categories.

1) The symbol E may be changed at a later date.

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Railway rolling stock material —

Part 6:

Solid wheels for tractive and trailing stock — Technical delivery conditions

1 Scope

1.1 This part of ISO 1005 specifies requirements for the manufacture and supply of rolled, forged or cast solid wheels of unalloyed steels for tractive and trailing stock in accordance with table 1 and clause 4.

NOTE 1 The compilation of an International Standard for material, testing and dimensional requirements of wheelset components and assembled wheelsets is difficult because of the different ways in which railways have developed, in both the commercial and operating sense, in various parts of the world. These different forms of development are characterized, for example, by railway systems in which freight services are integrated with intensive and perhaps high-speed passenger services and by systems largely dedicated to the haulage of freight. The infrastructures of these two systems are normally different, and this and commercial policy can determine the practice adopted by them in wheelset design in terms of materials and geometrical characteristics.

The relevant parts of ISO 1005 acknowledge, or will in a future revision acknowledge, these differences by providing in the relevant clauses two categories of material and related quality testing requirements designated as testing categories A and B and two tolerance categories for dimensional requirements designated as Y and Z.

The most obvious difference between categories A and B is that the mechanical properties are specified

- in the case of category A, on the basis of tensile and impact tests;
- in the case of category B, on the basis of hardness tests.

The differences between the values of the tolerance categories Y and Z are given

- for solid wheels in ISO 1005-8:1986 (see especially table 4);

- for wheelsets in ISO 1005-7.

Until now, within ISO/TC 17/SC 13, it was possible to clarify in detail the conditions under which one or the other testing and tolerance category is preferable. As a general guide it shall, however, be noted

- that the combination of testing category A with tolerance category Y is usually applied on railway systems where frequent or high-speed passenger operation is predominant;
- that the combination of testing category B and tolerance category Z is usually applied on railway systems where freight operation is predominant; and
- that the final combination of the categories shall be left to the discretion of the purchaser.

1.2 In addition to this part of ISO 1005, the requirements of ISO 404 are applicable.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 1005. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 1005 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.