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# International Standard 1005/3

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## Railway rolling stock material — Part 3 : Axles for tractive and trailing stock — Quality requirements

*Matériel roulant de chemin de fer — Partie 3 : Essieux-axes pour le matériel moteur et pour le matériel remorqué — Prescriptions de qualité*

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**Descriptors** : railroad equipment, steel products, rolled products, axles, classifications, specifications, chemical composition, physical properties, manufacturing, delivery conditions, acceptance inspection, tests.

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 1005/3 was developed by Technical Committee ISO/TC 17, *Steel*, and was circulated to the member bodies in November 1980.

It has been approved by the member bodies of the following countries :

Austria	Iran	Romania
Bulgaria	Italy	Spain
China	Japan	Sweden
Czechoslovakia	Korea, Dem. P. Rep. of	Switzerland
Egypt, Arab Rep. of	Korea, Rep. of	Turkey
Finland	Netherlands	United Kingdom
Germany, F.R.	New Zealand	USSR
Hungary	Poland	Venezuela

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Australia  
Belgium  
France  
India  
South Africa, Rep. of

This International Standard cancels and replaces ISO Recommendation R 1005/3-1969, of which it constitutes a technical revision.

# Railway rolling stock material — Part 3 : Axles for tractive and trailing stock — Quality requirements

## 1 Scope and field of application

**1.1** This part of ISO 1005 specifies requirements for the manufacture and supply of axles for tractive and trailing stock of unalloyed and alloyed steels in accordance with table 1 and clause 4.

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

## 2 References

ISO 82, *Steel — Tensile testing.*

ISO 83, *Steel — Charpy impact test (U-notch).*

ISO/R 377, *Selection and preparation of samples and test pieces for wrought steel.*<sup>1)</sup>

ISO 404, *Steel and steel products — General technical delivery requirements.*

ISO 643, *Steels — Micrographic determination of the ferritic or austenitic grain size.*<sup>2)</sup>

ISO 5948, *Railway rolling stock material — Ultrasonic acceptance testing.*

NOTE — Pending publication of these revisions as International Standards, it will be necessary for the relevant requirements to be agreed by the purchaser and the manufacturer.

## 3 Information to be supplied by the purchaser

The purchaser shall supply the following information in his enquiry and order :

- a) the number of this International Standard;
- b) the grade of steel (see 4.1 and table 1);

- c) the type of heat treatment (see 4.2 and 6.5);
- d) the degree of finish (see 4.3);
- e) if a check analysis is required (see 5.1.2);
- f) if a microstructure test for uniformity and grain size is required (see 5.2.2.2 and table 3);
- g) the types of tests to be carried out (see 5.2.2.3, 7.3.1, 7.7.3.5, 7.8.5 and table 3);
- h) the dimensional characteristics (see 5.4.1);
- j) if any special marking is required (see 5.5);
- k) the conditions of inspection required (see 7.1);
- m) if special preparation and sampling of test pieces is required (see 7.7.2);
- n) the method of protection against corrosion (see 8.1);
- p) if the conditions of guarantee are to be agreed (see clause 9).

## 4 Classification

The axles shall be specified in the order or its appended documents according to the grade of steel used, the heat-treatment condition of delivery and the degree of finish and any optional tests or inspection required (see table 3, column 4).

### 4.1 Steel grades

This International Standard specifies the following grades of steel in accordance with the properties given in table 1 :

- a) unalloyed steels A1 and A2;
- b) alloyed steels A3 and A4.

1) Under revision.

2) At present at the stage of draft. (Revision of ISO/R 643.)