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

YB/T 4653-2018

Grooved rail for tramways

城市有轨电车用槽型钢轨

(English Translation)

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Table of Contents

Foreword...	3
1 Scope...	4
2 Normative references...	4
3 Ordering contents...	7
4 Dimensions, shape, weight and tolerances...	7
5 Technical requirements...	9
6 Test methods...	15
7 Inspection rules...	17
8 Marks and quality certificate...	19
9 Quality assurance...	20
Annex A (normative) Cross-sectional dimensions of rails...	21
Annex B (normative) Inspection methods for rail cross-sectional dimensions...	24
Annex C (normative) Inspection methods for ultrasonic flaw detection of rails...	28
Annex D (normative) Probe performance and testing...	40

1 Scope

This Standard specifies the ordering details, dimensions, shape, weight and allowable deviations, technical requirements, test methods, inspection rules, marks, quality certificates and quality assurance for channel steel rails used in urban trams.

This Standard applies to hot-rolled or heat-treated grooved steel rails (hereinafter referred to as rails) used in urban trams.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 222, Steels and alloys -- Allowable deviations of product analyzed chemical composition

GB/T 223.5, Steel and iron -- Determination of acid-soluble silicon and total silicon content -- Reduced molybdenosilicate spectrophotometric method

GB/T 223.12, Methods for chemical analysis of iron, steel and alloy. The sodium carbonate

separation-diphenyl carbazide photometric method for the determination of chromium content

GB/T 223.14, Methods for chemical analysis of iron, steel and alloy. The N-benzoyl-N-phenylhydroxylamine extraction photometric method for the determination of vanadium content

GB/T 223.23, Iron, steel and alloy -- Determination of nickel content -- The dimethylglyoxime spectrophotometric method

GB/T 223.26, Iron, steel and alloy -- Determination of molybdenum content -- The thiocyanate spectrophotometric method

GB/T 223.47, Methods for chemical analysis of iron, steel and alloy. The carrier precipitation-molybdenum blue photometric method for the determination of antimony content

GB/T 223.50, Methods for chemical analysis of iron, steel and alloy. The phenylfluorone-CTMAB direct photometric method for the determination of tin

3 Ordering contents

The following information shall be provided in the purchase contract or order according to this standard.

- a) Product name;
- b) Standard number;
- c) Rail type;
- d) Steel designation;
- e) Delivery condition;
- f) Length, quantity, and short length rate;
- g) Other requirements.

4 Dimensions, shape, weight and tolerances

4.1

The names of the various parts of the rail cross section are shown in Figure 1.

4.5

The standard length of the rails is 25 m. Shorter rail lengths are 21 m, 22 m, 23 m, 24 m, and 24.5 m. The quantity of shorter rails shall not exceed 10% of the total ordered weight. Other lengths of rails may also be supplied upon negotiation between the supplier

and the purchaser, and specified in the contract.

4.6

Rails are delivered by theoretical weight. The density is 7.85 g/cm³. See Annex A for the theoretical weight of the rails.

5.1 Manufacturing method

5.1.1

Rail steel shall be smelted in an alkaline oxygen converter or electric arc furnace, and then refined outside the furnace and degassed under vacuum.

5.1.2

Rails shall be manufactured using continuously cast billets.

5.1.3

During the rolling process, rails shall be descaled using multi-stage high-pressure jetting to effectively remove iron oxide scale.

5.1.4

The rolling compression ratio of steel rails shall not be less than 9.1.

5.1.5

The rails shall be straightened separately along the horizontal and vertical axes of their cross-section using a two-stage roller straightener. Only one roller straightening operation is permitted. Unevenness at the ends or in specific areas can be supplemented by a four-sided press.

5.1.6

The rails are delivered in hot-rolled or heat-treated condition.

5.2 Designation and chemical composition

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