

BS 11:2015



BSI Standards Publication

# Specification for dimensional properties and associated tolerances of railway rails

**bsi.**

...making excellence a habit.  
**AVA** Documents™  
Document Sharing Hub

**Publishing and copyright information**

The BSI copyright notice displayed in this document indicates when the document was last issued.

© The British Standards Institution 2015

Published by BSI Standards Limited 2015

ISBN 978 0 580 87771 1

ICS 45.080

The following BSI references relate to the work on this document:

Committee reference RAE/2

Draft for comment 14/30311697 DC

**Publication history**

First published, February 1905

Second edition, January 1921

Third edition, June 1922

Fourth edition, March 1926

Fifth edition, January 1936

Sixth edition, January 1955

Seventh edition, February 1959

Eighth edition, January 1978

Ninth edition, February 1985

Tenth (present), edition May 2015

**Amendments issued since publication**

| Date | Text affected |
|------|---------------|
|------|---------------|

---

## Contents

Foreword *ii*

- 1 Scope 1
- 2 Normative references 1
- 3 Dimensions of rail sections 1
- 4 Tolerances 16

### Annexes

Annex A (normative) Referee gauge for hole height for 95 RBH rails 18

### List of figures

- Figure 1 – BS rail no. 50 “O” 2
- Figure 2 – BS rail section no. 60 R 3
- Figure 3 – BS rail section no. 70 A 4
- Figure 4 – BS rail section no. 75 A 5
- Figure 5 – BS rail section no. 75 R 6
- Figure 6 – BS rail section no. 80 R 7
- Figure 7 – BS rail section no. 80 “O” 8
- Figure 8 – BS rail section no. 90 R 9
- Figure 9 – BS rail section no. 95 A 10
- Figure 10 – BS rail section no. 95 R 11
- Figure 11 – BS rail section no. 95 RBH 12
- Figure 12 – BS rail section no. 95 N 13
- Figure 13 – BS rail section no. 100 A 14
- Figure 14 – BS rail section no. 100 R 15
- Figure 15 – Key to position of fishbolt holes 16
- Figure A.1 – Vertical drilling gauge for 95 RBH rails 18

### List of tables

- Table 1 – Tolerances on rail section profiles 16
- Table 2 – Position of fishbolt holes 17
- Table 3 – Tolerances on fishbolt hole dimensions and positions 17
- Table 4 – Rail straightness measured over 1.5 m 17

### Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 18, an inside back cover and a back cover.

## Foreword

### Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 May 2015. It was prepared by Technical Committee RAE/2, *Railway Applications - Infrastructure*. A list of organizations represented on this committee can be obtained on request to its secretary.

### Supersession

This British Standard supersedes BS 11:1985, which is withdrawn.

### Information about this document

The revision has been prepared because most of the content concerning rail manufacture, steel grades and some of the rail profiles has been superseded by the new editions of BS EN 13674-1:2011 and BS EN 13674-4:2006. This revision of BS 11 therefore deals only with those aspects not covered by BS EN 13674-1:2011 and BS EN 13674-4:2006 and may therefore be used as a supplement to them.

### Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

*Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.*

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. "organization" rather than "organisation").

Requirements in this standard are drafted in accordance with *Rules for the structure and drafting of UK standards*, subclause J.1.1, which states, "Requirements should be expressed using wording such as: 'When tested as described in Annex A, the product shall ...'". This means that only those products capable of passing the specified test will be deemed to conform to this standard.

### Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**

## 1 Scope

This British Standard specifies requirements for the dimensional properties and associated tolerances of railway rails of 24.8 kg/m (50 lb/yd) and greater linear mass which are not specified in BS EN 13674-1 or BS EN 13674-4.

For chemical and mechanical properties, grade designation, marking and certification requirements see BS EN 13674-1.

## 2 Normative references

The following document, in whole or in part, is normatively referenced in this document and is indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS EN 13674-1:2011, *Railway applications – Track – Rail – Part 1: Vignole railway rails 46 kg/m and above*

## 3 Dimensions of rail sections

Rail section dimensional properties and mass per unit length shall conform to the appropriate values given in Figure 1 to Figure 14.

*NOTE The rail sections in this British Standard were designed before the change to SI units was planned. The original imperial dimensions used have been converted to SI dimensions with an accuracy necessary for the retention of the previous imperial profiles and properties of the rails.*

Figure 1 BS rail no. 50 “O”

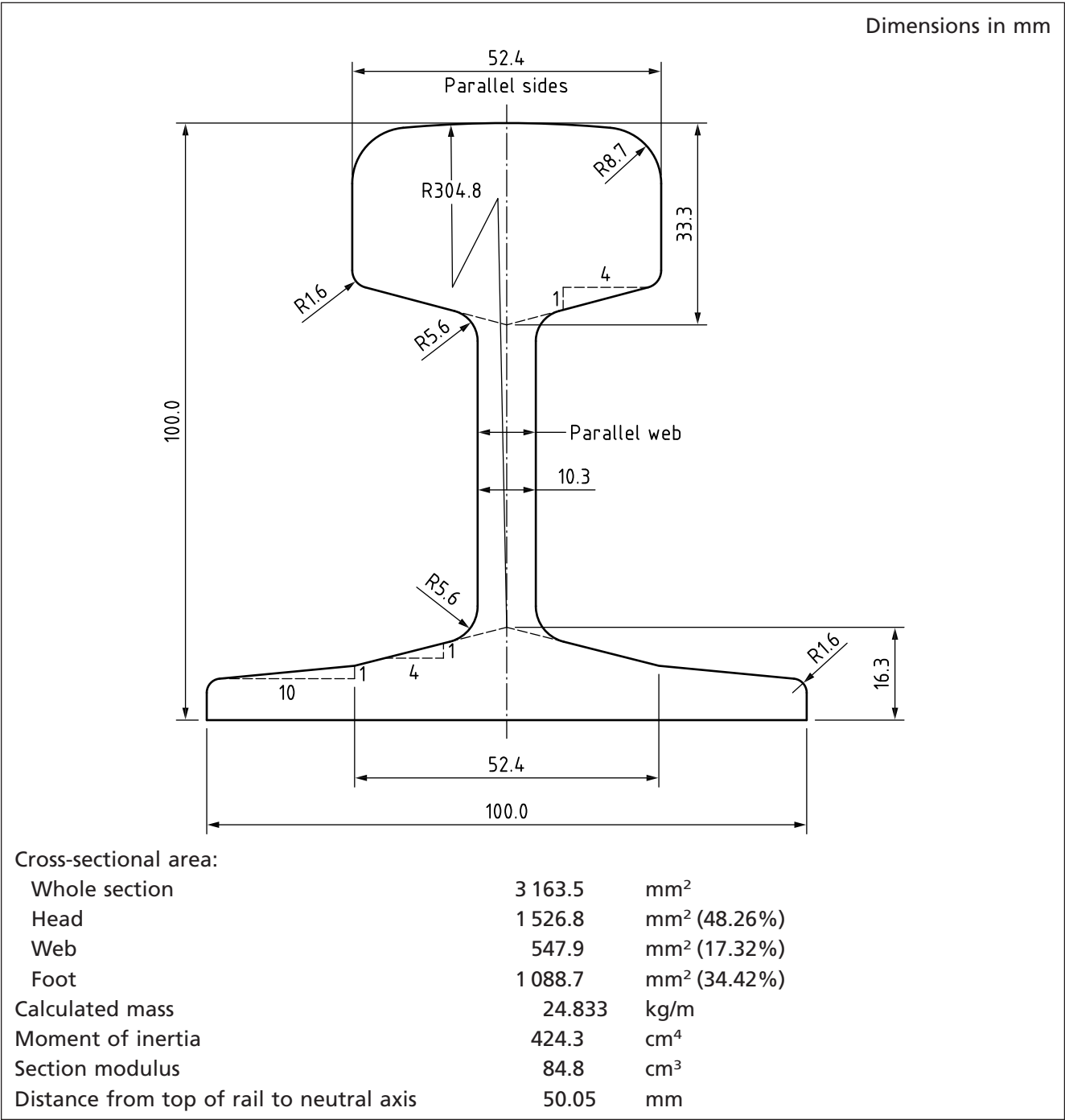
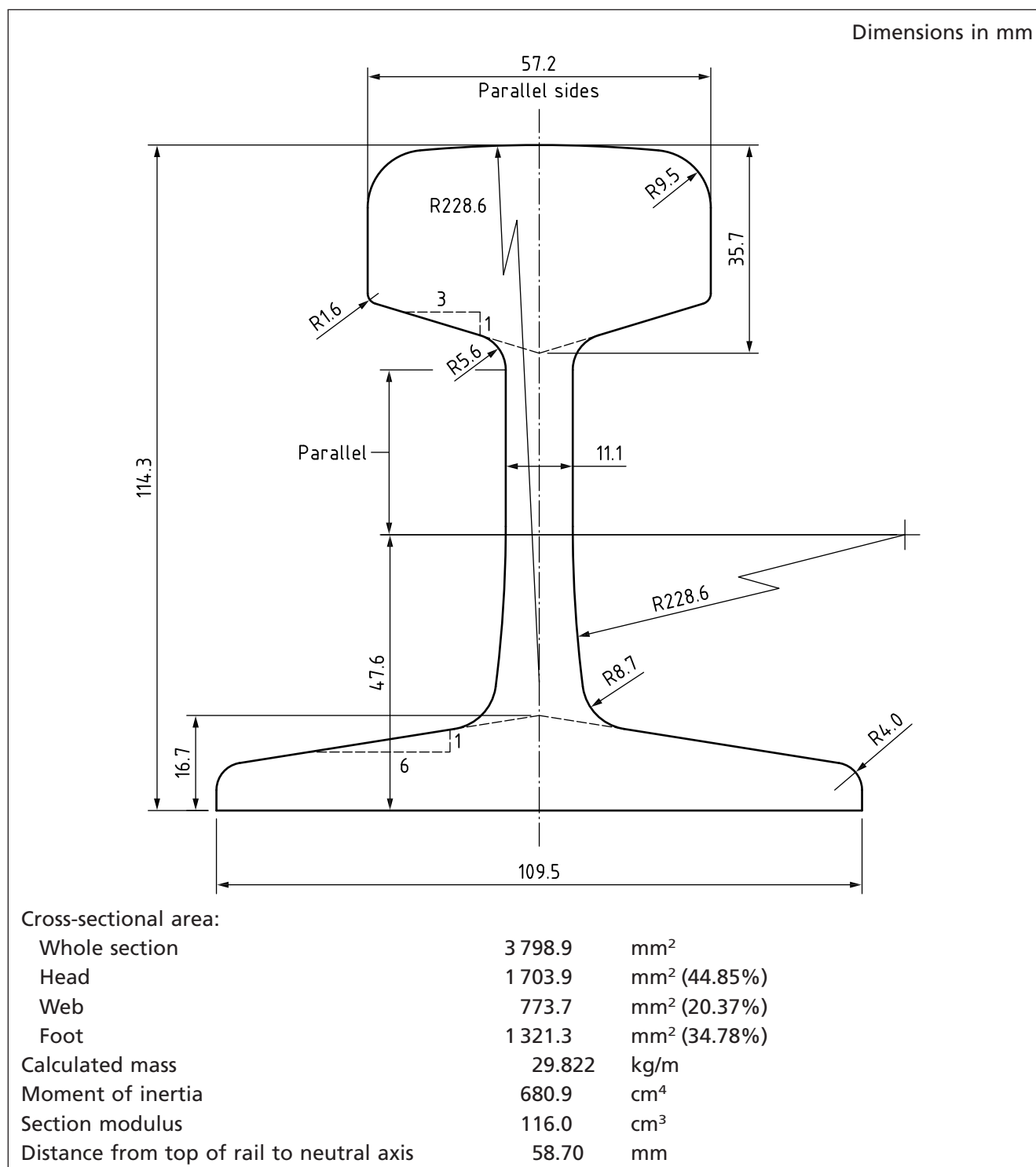


Figure 2 BS rail section no. 60 R



Dimensions in mm

| Property                                  | Value   | Unit                     |
|-------------------------------------------|---------|--------------------------|
| Cross-sectional area:                     |         |                          |
| Whole section                             | 4 434.0 | mm <sup>2</sup>          |
| Head                                      | 2 018.3 | mm <sup>2</sup> (45.52%) |
| Web                                       | 827.8   | mm <sup>2</sup> (19.68%) |
| Foot                                      | 1 542.9 | mm <sup>2</sup> (34.80%) |
| Calculated mass                           | 34.807  | kg/m                     |
| Moment of inertia                         | 910.7   | cm <sup>4</sup>          |
| Section modulus                           | 145.7   | cm <sup>3</sup>          |
| Distance from top of rail to neutral axis | 62.49   | mm                       |