

Specification for

Light rails and fishplates —

For use at mines

Confirmed
January 2011

Co-operating organizations

The Mining and Quarrying Requisites Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government department and scientific and industrial organizations:

- Association of Mining Electrical and Mechanical Engineers
- British Electrical and Allied Manufacturers' Association
- British Steel Industry*
- Federation of Associations of Mining Equipment Manufacturers
- Institution of Electrical Engineers
- Institution of Mechanical Engineers
- Institution of Mining Engineers*
- Mechanical Handling Engineers' Association
- Ministry of Power*
- National Association of Colliery Managers
- National Coal Board*

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

Steel Arch and Light Rail Association

This British Standard, having been approved by the Mining and Quarrying Requisites Industry Standards Committee, was published under the authority of the Executive Board on 30 January 1969

© BSI 06-1999

First published July, 1926
Reset in new type June, 1949
First revision, January, 1969

The following BSI references relate to the work on this standard:
Committee reference MQE/4
Draft for comment 67/23143

ISBN 580 00430 9

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Co-operating organizations	Inside front cover
Foreword	ii
1 Scope	1
2 Rails	1
3 Fishplates	11
4 Fishbolts	11
Figure 1 — Location of tensile test piece	1
Table 1 — Dimensions of light flat bottom rails	4
Table 2 — Dimensions of light bridge rails	6
Table 3 — Position of bolt holes at end of rails	8
Table 4 — Position and dimensions of nail holes in flat bottom rails	10
Table 5 — Dimensions of fishbolts and nuts	11
Table 6 — Dimensions of fishplates for light flat bottom rails	13
Table 7 — Position and dimension of holes in fishplates for light flat bottom rails	15

Foreword

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 5000, fully indexed and with a note of the contents of each, will be found in the British Standards Yearbook, price 15s. The BS Yearbook may be consulted in many public libraries and similar institutions.

This standard makes reference to the following British Standards:

BS 18, *Methods for tensile testing of metals*.

BS 325, *Black cup and countersunk bolts and nuts*.

BS 916, *Black bolts, screws and nuts*.

This revision of the 1926 edition of BS 248, which was issued with the authority of the Mining and Quarrying Requisites Industry Standards Committee, is applicable to light rails and fishplates for use at mines. The specification has been brought into line with current developments and present day practice and, although imperial units have been maintained therein, calculated metric equivalents have also been provided for guidance, and as a tentative measure, in anticipation of the forthcoming overall change to the metric system.

NOTE Certain of the metric conversions given are approximate. More accurate conversions, if required, should be based on the tables in BS 350, "Conversion factors and tables".

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 16 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies requirements for light flat bottom and bridge rails, fishplates and fishbolts for underground track and associated surface track at mines.

2 Rails

2.1 Rail sections. The standard rail sections shall be rolled to the dimensions given in Table 1 for light flat bottom rails and in Table 2 for light bridge rails.

2.2 Material. The finished rail shall be of prime or re-rolled steel. The sulphur and phosphorus content shall not exceed 0.060 % of each element.

2.3 Tensile test and test pieces. If the purchaser requires the tensile properties of the steel, they shall be determined in accordance with BS 18¹⁾, using standard round tensile test pieces having a gauge length equal to $5.65\sqrt{S_0}$ and a diameter equal to 0.564 in or 0.399 in.

Such tests shall be made on a standard test piece taken from a position as shown in Figure 1.

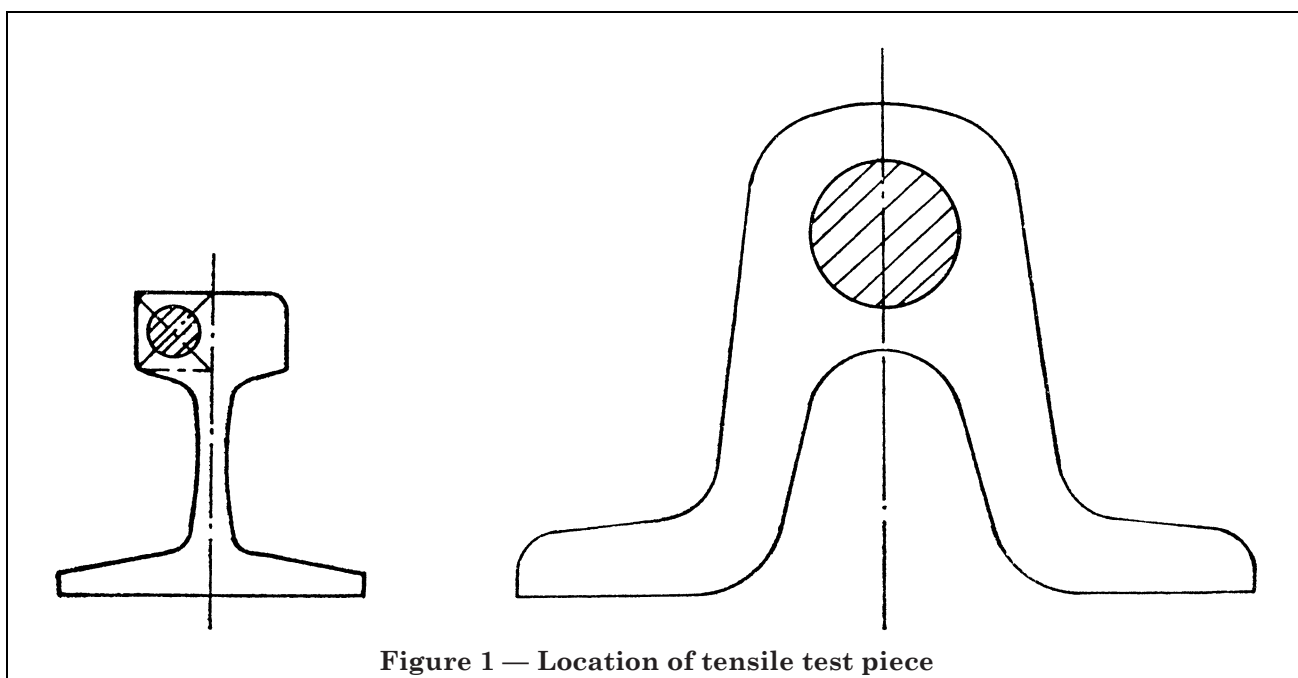


Figure 1 — Location of tensile test piece

2.4 Tensile properties. The test shall show that the steel has a minimum tensile strength of 35 tonf/in² (54 hbar²⁾) and a minimum elongation of 12 %.

2.5 Number of tensile tests. If required by the purchaser the manufacturer shall make one tensile test from every 25 tons (25.4 tonnes), or part of 25 tons of rails rolled.

2.6 Branding. The BS section reference number, the manufacturer's name, initials or other recognized mark, and the year of manufacture, shall be rolled on one side of the web of each rail in letters $\frac{3}{4}$ in (19 mm) high, or as near to this figure as is practicable for the particular rail section. Re-rolled rails shall be additionally identified by the letters "RR".

2.7 Finish. All rails shall be of uniform section, straight, free from twist, sound and clean.

¹⁾ BS 18, "Methods for tensile testing of metals".

²⁾ 1 hbar = 10 N/mm² = 0.647 49 tonf/in²

2.8 Permissible variation in dimensions. The rail profiles shall be within the following tolerances:

- 1) Overall height of rail $\pm \frac{1}{32}$ in (0.8 mm).
- 2) Width of head $\pm \frac{1}{32}$ in (0.8 mm).
- 3) Width of flange $+ \frac{1}{32}$ in (0.8 mm).
 $- \frac{1}{16}$ in (1.6 mm).

2.9 Sawing. The ends of all rails shall be sawn true and square. All burrs shall be removed before the rails are despatched from the manufacturer's works.

2.10 Length of rail. The purchaser shall specify the normal length to which the rails are to be supplied. The manufacturer shall have the option of supplying, and the purchaser shall accept, shorter lengths up to 7½ % in weight of the quantity contracted for. Such shorter lengths shall also be specified by the purchaser.

2.11 Permissible variation in length. Rails shall comply, as appropriate, with the following tolerance on specified length, at a temperature of 20 °C:

Length up to and including 24 ft (7.3 m)	$\pm \frac{1}{2}$ in (± 12.7 mm)
Length exceeding 24 ft (7.3 m)	± 1 in (± 25.4 mm)

2.12 Calculated weight. The weights of rail quoted in this British Standard have been determined by multiplying the sectional area (in²) by a factor of 10.209 to give the weight in pounds per yard. The calculated weight shall be regarded as the actual weight unless otherwise agreed.

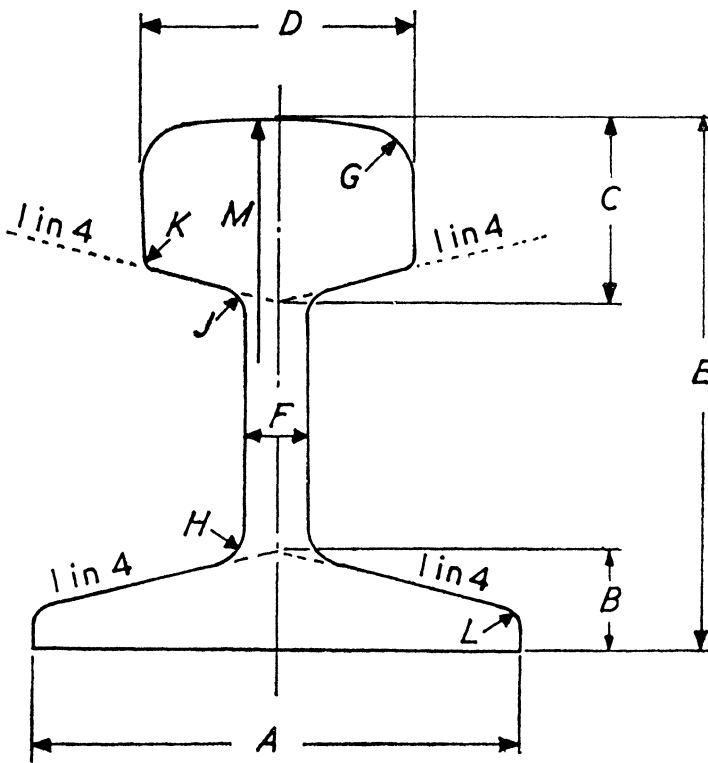
2.13 Fishbolt holes in rails. The flat bottom rails shall be holed through the web at each end to the dimensions shown in Table 3.

Fishbolt holes shall, at one stroke of the machine, be punched perpendicular to the web of the rail. Alternatively, the holes may be drilled. All holes shall be clean and free from burrs.

2.14 Nail holes. When rails are to be provided with nail holes, this requirement shall be stated by the purchaser. The nail holes shall be in accordance with the dimensions shown in Table 4, where the rail length is a multiple of 3 ft (0.914 m). For other rail lengths the nail hole pitches shall be stated by the purchaser.

The variation in rail length, within the appropriate tolerance specified in 2.11, shall be accommodated in one of the end 3 ft pitches.

Nail holes shall, at one stroke of the machine, be punched parallel with the vertical axis of the rail. Alternatively, the holes may be drilled. All holes shall be clean and free from burrs.



See Table 1 below