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British Engineering Standards Association.

(Incorporated 1918.)

FORMED IN 1901 AS THE ENGINEERING STANDARDS COMMITTEE

BY

- THE INSTITUTION OF CIVIL ENGINEERS.
- THE INSTITUTION OF MECHANICAL ENGINEERS.
- THE INSTITUTION OF NAVAL ARCHITECTS.
- THE IRON AND STEEL INSTITUTE.
- THE INSTITUTION OF ELECTRICAL ENGINEERS.

*Mr. Charles
Dresser
of
No. 9
11/12*

BRITISH
STANDARD SPECIFICATION

AND

SECTIONS

OF

BULL HEAD RAILWAY RAILS.

(REVISED JULY, 1909.)

LONDON:

PUBLISHED FOR THE ASSOCIATION BY CROSBY LOCKWOOD & SON,
7, STATIONERS' HALL COURT, LUDGATE HILL, E.C. 4; AND 5, BROADWAY, LONDON, S.W. 1;
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January, 1921.

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BRITISH ENGINEERING STANDARDS ASSOCIATION.

The following are Lists of the Members of the Sectional Committee on Rails, and of the Sub-Committee on Railway Rails who have had the revision of this Specification under consideration.

SECTIONAL COMMITTEE ON RAILS.

July, 1909.

Chairman, MR. JAMES C. INGLIS.
India Office, Mr. A. Breton, C.S.I.
Crown Agents for the Colonies, Mr. G. L. Eyles, C.M.G.; Mr. Ashton M. Heath.
Institute of County and Municipal Engineers, Mr. Charles F. Wike (City Engineer, Sheffield); Mr. W. Harper (Borough Engineer, Cardiff).
Tramways and Light Railways Association, Mr. J. B. Hamilton.
Municipal Tramways Association, Mr. J. Wilson (Great Eastern Railway); Mr. W. B. Worthington (Midland Railway).
Sir A. E. W. Kennedy; Mr. J. A. F. Aspinall (Lancashire and Yorkshire Railway); Mr. W. Evans (Guest, Keen and Nettelfolds, Ltd.); Mr. Brodie Henderson (Livesey, Son and Henderson); Mr. D. A. Matheson (Caledonian Railway); Mr. Edward P. Martin (Guest, Keen and Nettelfolds, Ltd.); Mr. E. Richards (Walter Scott, Ltd.); Mr. A. Ross (Great Northern Railway); Mr. W. Howard-Smith; Mr. E. B. Thornhill (London and North Western Railway); Mr. J. M. White (Barrow Haematite Steel Co., Ltd.).

† Since deceased.

SUB-COMMITTEE ON RAILWAY RAILS.

July, 1909.

Chairman, MR. JAMES C. INGLIS.
India Office, Mr. A. Breton, C.S.I.
Crown Agents for the Colonies, Mr. G. L. Eyles, C.M.G.; Mr. Ashton M. Heath.
Railway Engineers' Association, Mr. J. Wilson (Great Eastern Railway); Mr. W. B. Worthington (Midland Railway).
Mr. J. A. F. Aspinall (Lancashire and Yorkshire Railway); Mr. W. Evans (Guest, Keen and Nettelfolds, Ltd.); Mr. Brodie Henderson (Livesey, Son and Henderson); Mr. Edward P. Martin (Guest, Keen and Nettelfolds, Ltd.); Mr. E. Richards (Walter Scott, Ltd.); Mr. A. Ross (Great Northern Railway); Mr. W. Howard-Smith; Mr. E. B. Thornhill (London and North Western Railway); Mr. J. M. White (Barrow Haematite Steel Co., Ltd.).

† Since deceased.

BRITISH ENGINEERING STANDARDS ASSOCIATION.

MAIN COMMITTEE.

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SIR JOSEPH PETAVEL, K.B.E.	...	
(ex-officio)		

† Succeeded the late SIR JOHN WOLFE BARRY, K.C.B. February, 1918.

NOTE.—The Association desires to call attention to the fact that this Specification is intended to include the technical provisions necessary for the supply of the material herein referred to, but does not purport to include all the necessary provisions of a Contract.

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BRITISH STANDARD SPECIFICATION AND

SECTIONS OF

BULL HEAD RAILWAY RAILS.

(Revised July, 1909.)

Chemical Composition.

1. The steel for the Rails shall be of the best quality made by the Bessemer, Siemens-Martin, or other process, as may be approved by the Engineer (or by the Purchaser).

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The Rails shall show on analysis that in chemical composition they conform to the following limits:—

Carbon	...	...	from 0.35 to 0.50 per cent.	
Manganese	...	...	0.70 to 1.00 "	
Silicon	...	...	not to exceed 0.10 "	20
Phosphorus	...	...	0.075 "	
Sulphur	...	...	0.08 "	

Chemical Analysis.

2. The Manufacturer shall make and furnish to the representative of the Engineer (or of the Purchaser) carbon determinations of each cast.

A complete chemical analysis, representing the average of the other elements contained in the steel, shall be similarly given for each rolling. Such complete analysis shall be made from drillings taken from the rail or from the tensile test piece or pieces. When the rolling exceeds 200 tons, an additional complete analysis shall be made for each 200 tons or part thereof.

Should the Engineer (or the Purchaser) desire to make independent chemical determinations, the necessary specimens and samples shall be furnished by the Manufacturer. For this purpose not more than two rails in every hundred tons manufactured shall be selected by the representative of the Engineer (or of the Purchaser) and drillings taken with a drill of 2 inches diameter from the top of the head of the rail, unless otherwise specified by him, and if, upon

PREFACE.

The Sectional Committee on Rails was appointed at a Meeting of the Main Committee on July 16th, 1901.

At the first meeting of the Rails Committee, held on October 31st, 1901, two Sub-Committees were appointed.

1. A Sub-Committee on Tramway Rails, under the Chairmanship of Mr. W. Howard-Smith, the Report of which was approved by the Main Committee on July 13th, 1903, and has already been published.

2. A Sub-Committee on Railway Rails under the Chairmanship of Mr. James C. Inglis, of the Great Western Railway. To this latter Sub-Committee fell the duty of drafting the Specification and Sections forming the subject of this Report.

At the commencement of their labours the Sub-Committee, through the courtesy of the principal Railways of the United Kingdom, were enabled to obtain particulars showing the trend of modern practice with regard to the sections of Bull Head Rails then in use. From these data several series of drawings of the principal were prepared and circulated to the Chief Engineers of the principal Railways of Great Britain and Ireland, and as a result the present Standards were arrived at.

A similar course was adopted with regard to the draft Specification for Bull Head Rails, which was also submitted to the Chief Engineers of the principal British and Irish Railways, through the Railway Engineers' Association, and to a meeting of the leading Rail Makers.

The thanks of the Committee are due to the Members of the Railway Engineers' Association for their co-operation, and in particular to Mr. James C. Inglis for the preparation of the various series of Standard Bull Head Rails.

This Report was approved by the Main Committee at their Meeting on July 26th, 1904.

First Revision: The Specification in its present form was approved by the Main Committee in July, 1909.