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Full document details: BS 24-1:1941

+ 2 amendments

Committee Room B

BRITISH STANDARD 24 : PART 1 : 1941

Superseded by 1956 issue

AXLES

RAILWAY
ROLLING STOCK
MATERIAL

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CF (ME) 9756
(Amplifying CF (ME) 9022)

Amendment No. 2. March, 1942

to

B.S. 24 : Part 1 : 1941

War Emergency Revision

SPECIFICATION No. 2, 1942

LOCOMOTIVE STRAIGHT AXLES (WITH ANALYSIS)

A further departure from the above specification is permitted as a War Time measure, allowing the use of basic open hearth steel where acid open hearth steel was previously specified.

The following amendment to the War Emergency Revision Slip CF (ME) 9022 in so far as it applies to Specification No. 2 is therefore made :

Clause 1. *Quality of Material.* The first paragraph of the clause to be amended to read as follows :

'The axles shall be manufactured from high quality steel made by the acid or basic open hearth or the electric process and shall show on analysis not more than 0·05 per cent of sulphur or of phosphorus.'

AMENDMENT TO SLIP CF (ME) 9022

Specification No. 3. Revision of Clause 1. Quality of Material. Line 3.

The words 'or the electric' to be inserted before the word 'process.'

BRITISH STANDARDS INSTITUTION

BRITISH STANDARD SPECIFICATIONS FOR

RAILWAY ROLLING STOCK MATERIAL

LOCOMOTIVE, CARRIAGE AND WAGON AXLES

B.S. 24 : Part 1 : 1941

WAR EMERGENCY REVISION

Owing to the present comparative scarcity of raw materials sufficiently low in sulphur and phosphorus for the production of steel to comply with the limits laid down in B.S. Specification No. 24 : Part 1 : 1941, the following amendments are hereby made:

SPECIFICATION No. 1 : 1941. LOCOMOTIVE CRANK AXLES (WITH ANALYSIS)

SPECIFICATION No. 2 : 1941. LOCOMOTIVE STRAIGHT AXLES (WITH ANALYSIS)

Clause 1. *Quality of Material.* The maximum percentage of sulphur and of phosphorus to be 0·05 in place of 0·04.

SPECIFICATION No. 2a : 1941. LOCOMOTIVE STRAIGHT AXLES

Clause 1. *Quality of Material.* The maximum percentage of sulphur and of phosphorus in axles made by the basic open hearth process to be 0·06 in place of 0·05.

SPECIFICATION No. 3 : 1941. CARRIAGE AND WAGON AXLES (WITH ANALYSIS)

Clause 1. *Quality of Material.* To read :

'The axles shall be manufactured from the highest quality of steel made from the best selected material by the acid or basic open hearth process and shall not show on analysis more than 0·06 per cent of sulphur or of phosphorus.'

SPECIFICATION No. 3a : 1941. CARRIAGE AND WAGON AXLES

Clause 1. *Quality of Material.* The maximum percentage of sulphur and of phosphorus in axles made by the basic open hearth process to be 0·06 in place of 0·05.

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BRITISH STANDARD SPECIFICATIONS

Railway Rolling Stock Material

LOCOMOTIVE, CARRIAGE AND WAGON AXLES

B.S. 24 : PART 1 : 1941

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CO-OPERATING ORGANISATIONS

The Mechanical Industry Committee under whose supervision this British Standard was prepared consists of representatives from the following Government Departments, Professional Institutions and Scientific and Industrial Organisations :

Admiralty.
*Crown Agents for the Colonies.
Department of Scientific and Industrial Research.
*High Commissioner for India.
Home Office.
*Ministry of Transport.
Ministry of Works and Buildings.
*War Office.
Agricultural and Road Machinery Manufacturers' Association.
Association of Consulting Engineers (Incorporated).
British Chemical Plant Manufacturers' Association.
British Electrical and Allied Manufacturers' Association.
British Engineers' Association.
*British Iron and Steel Federation.
British Marine Oil-Engine Manufacturers' Association.
Engineering Insurance Companies.
Institute of Marine Engineers.
*Institute of Petroleum.
Institution of Automobile Engineers.
Institution of Civil Engineers.
Institution of Gas Engineers.
Institution of Heating and Ventilating Engineers.
Institution of Mechanical Engineers.
Institution of Production Engineers.
*Locomotive Manufacturers' Association.
Machine Tool Trades Association.
*Railway Companies of Great Britain.

The Government Departments and Scientific and Industrial Organisations 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 :

Dominion of New Zealand.
High Commissioner for the Union of South Africa.
National Physical Laboratory.
Institution of Locomotive Engineers.
Iron and Steel Trades Employers' Association.
Steel Castings Manufacturers' Association.
Association of Drop Forgers and Stampers.
British Non-Ferrous Metals Research Association.
Railway Carriage and Wagon and Financiers' Parliamentary Association.

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THESE SPECIFICATIONS having been approved by the Mechanical Industry Committee and endorsed by the Engineering Divisional Council were published under the authority of the General Council as British Standards on 22nd December, 1941.

First published, August, 1906.
First revision, June, 1907.
Second revision, December, 1911.
Third revision, March, 1921.
Fourth revision, August, 1928.
Fifth revision, December, 1941.

The Institution desires to call attention to the fact that these Specifications are intended to include the technical provisions necessary for the supply of the material herein referred to, but do not purport to include all the necessary provisions of a Contract.

The figures in British measures are to be regarded as the Standard. Approximate metric equivalents are given for the convenience of users in countries in which the metric system has been generally adopted.

In order to keep abreast of progress in the industries concerned, the 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, indexed and cross-indexed for reference, will be found in the Institution's Handbook.

Other parts of Report No. 24 are as follows:

Part 2. Locomotive, Carriage and Wagon Tyres.
Part 3. Laminated, Volute and Helical Springs, and Steel for Laminated Springs.
Part 4. Steel Forgings, Blooms and Castings.
Part 5. Copper Plates, Rods and Tubes, and Brass Tubes.
Part 6. Steel Plates, Angles, etc., and Rivets for Locomotives, Carriages and Wagons.

Reference to be quoted.
Report No. 24
Specification No. 1–1941

BRITISH STANDARD SPECIFICATION FOR

LOCOMOTIVE CRANK AXLES SOLID FORGED

WITH ANALYSIS

QUALITY OF MATERIAL

1. The crank axles shall be manufactured from high quality steel made by the acid open hearth or the electric process and shall show on analysis not more than 0·04 per cent of sulphur or of phosphorus. The manufacturer shall supply an analysis of each cast when required to do so.

MANUFACTURE

2. A sufficient discard shall be made from each ingot to ensure freedom from piping and harmful segregations.

FREEDOM FROM DEFECTS

3. The crank axles shall be free from injurious defects of any kind and manufactured to the prescribed dimensions.

BRANDING

4. The crank axles shall be distinctly stamped when hot, on the web nearest the top of the ingot with such brands as the engineer (or the purchaser) may require.

OIL-HARDENING AND TEMPERING

5. The webs of all crank axles having flat or oval webs shall be slotted, or sawn, and drilled in the manner shown in Fig. 1, and the crank axles shall then be oil-hardened and tempered. The slabs from between each pair of webs of such crank axles shall, at the option of the engineer (or of the purchaser), either be left attached or be removed before heat treatment is applied. In the latter case they shall be securely fastened into their original position and heat-treated similarly in all respects and at the same time as the crank axle, the test pieces being afterwards machined therefrom in the usual manner.

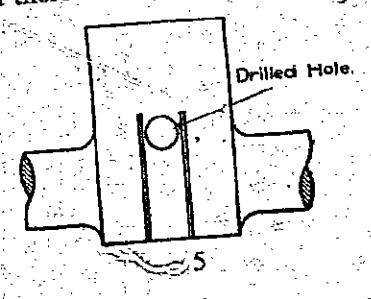

Fig. 1.

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