

Specification for

Power-driven mast hoists for materials

Co-operating organizations

The Mechanical Engineering Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

Admiralty	High Commission of India
Air Ministry	Institute of Marine Engineers
Associated Offices' Technical Committee*	Institute of Petroleum
Association of Consulting Engineers	Institution of Civil Engineers
(Incorporated)	Institution of Gas Engineers
British Chemical Plant Manufacturers' Association	Institution of Heating and Ventilating Engineers
British Compressed Air Society	Institution of Mechanical Engineers
British Electrical and Allied Manufacturers' Association	Institution of Mechanical Engineers (Automobile Division)
British Engineers' Association	Institution of Production Engineers
British Gear Manufacturers' Association	Locomotive and Allied Manufacturers' Association of Great Britain
British Internal Combustion Engine Manufacturers' Association	Machine Tool Trades Association
British Iron and Steel Federation	Ministry of Labour and National Service (Factory Inspectorate)*
British Railways, The British Transport Commission	Ministry of Power
Crown Agents for Oversea Governments and Administrations	Ministry of Supply
D.S.I.R. — National Engineering Laboratory	Ministry of Transport and Civil Aviation
Electricity Council, The Generating Boards and the Area Boards for England and Wales	Ministry of Works*
Engineering Equipment Users' Association	National Coal Board
Gas Council	National Physical Laboratory (D.S.I.R.)
	Radio Industry Council
	War Office

The Government departments and industrial organization marked with an asterisk in the above list, together with the following, were directly represented on the Committee entrusted with the preparation of this standard:

Aluminium Development Association	Federation of Manufacturers of Contractors Plant
An individual manufacturer	Federation of Master Builders
Contractors Plant Association	National Federation of Building Trades Employers
D.S.I.R. — Building Research	
Federation of Civil Engineering Contractors	

This British Standard, having been approved by the Mechanical Engineering Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council on 4 June 1959

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Foreword

This standard makes reference to the following British Standards which are numbered in italics in Appendix B.

The object of this British Standard is to specify the minimum requirements necessary to ensure safety and reliability of power-driven mast hoists for builders, without restricting the freedom of designers of mast hoists to produce hoists suitable for particular purposes.

The appendices give additional information. Appendix A gives particulars to be supplied by the manufacturer so that the user can obtain the best service from his equipment. Appendix B gives a list of British Standards covering materials and equipment to be used in the manufacture of hoists, and Appendix C describes the method of inscribing the identification particulars, including the load capacity, on the travelling carriage and on the winch. Appendix D gives a list of statutory requirements that have to be considered in connection with builders' hoists operated in the United Kingdom.

NOTE Where metric equivalents have been given, the figures in British units are to be regarded as standard. The metric conversions are approximate. More accurate conversions 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 13 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 a non-passenger power-driven hoist not exceeding 50 cwt capacity, for temporary use on construction work, in which a platform for lifting materials is supported and guided by a mast.

2 Information to be supplied to the manufacturer

The manufacturer shall supply with the tender the particulars regarding the construction of the hoist given in Appendix A.

3 Materials and equipment

The materials and equipment used in the construction of the hoist shall comply with the appropriate British Standard given in Appendix B.

The materials used in load bearing members of the structure of the hoist shall comply with the British Standards given in Appendix B.

Other materials and equipment shall comply, where applicable, with the British Standards set out in Appendix B.

4 Safe working load

The safe working load is the maximum working load which the hoist is designed to carry in service, including everything added to the platform by the manufacturers.

Because components of different hoists will be interchangeable all the components listed in Appendix C shall be legibly and permanently marked with the safe working load of the hoist for which they were designed.

5 Design requirements

a) **Masts.** i) *General.* The mast, and mast sections, shall be designed so that, with the points of attachment spaced as specified by the manufacturer, or closer, it is capable of withstanding all stresses or combinations of stresses when working at its safe working load. The mast shall also be capable of withstanding the test loads as specified in Clause 6.

The manufacturer shall state the greatest height of mast which may safely extend above the top supporting attachment.

Arrangements shall be made, as far as possible, to prevent the rope being caught up in the mast hoist.

ii) *Mobile hoists.* Mobile hoists and hoists unsupported by other structures shall be designed to be stable when carrying on the platform, with the platform at any position on the mast, a load at least 50 per cent greater than the safe working load, with the mast structure one in forty out of vertical.

b) **Other structural members.** Structural members other than masts shall be designed in accordance with BS 2573,¹⁾ using a duty factor of 0.95 and an impact factor of 1.2.

6 Type test

A prototype of each new design of mast hoist shall be subjected to the following test loads. With each load the platform shall be raised and lowered over the whole effective length of the mast if it is in one piece, or over two sections if the mast is in sections. The mast hoist and structure shall suffer no permanent distortion.

Test loads. i) A load of magnitude appropriate to the safe working load, as shown in Figure 1, uniformly distributed over the whole area of the platform.

ii) A load of magnitude appropriate to the safe working load, as shown in Figure 2, uniformly distributed over one half of the area of the platform to one side of the mast.

7 Fusion welding

Steel parts may be joined by fusion welding provided the welding is in accordance with the appropriate British Standards (see Appendix B). The design shall be such that the maximum permissible stresses in welds do not exceed those given in BS 2573.¹⁾

8 Rivets and bolts

The distance between centres of rivets in stress bearing parts shall be not less than 2½ times the diameter of the rivet and shall not exceed sixteen times the thickness of the thinnest outside plate or angle, except in built-up compression members, where the pitch shall not exceed twelve times the thickness of the thinnest outside plate or angle. Where two lines of staggered riveting are used in the same angle or flange, the maximum distance between the rivets on each line may be taken as one and one-half times those given above.

¹⁾ BS 2573, "Permissible stresses in cranes." Part 1: "Structures".

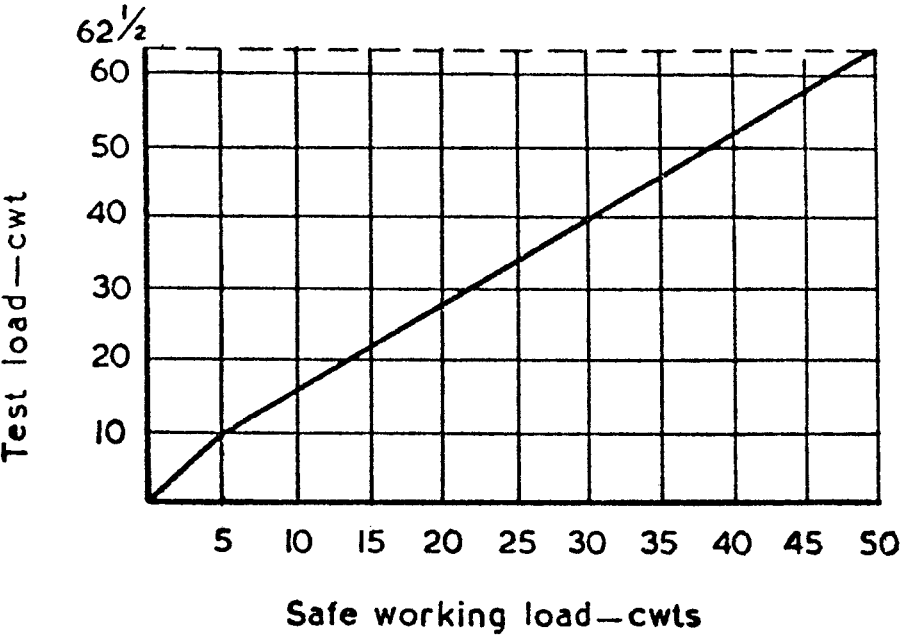


Figure 1 — Uniform loading

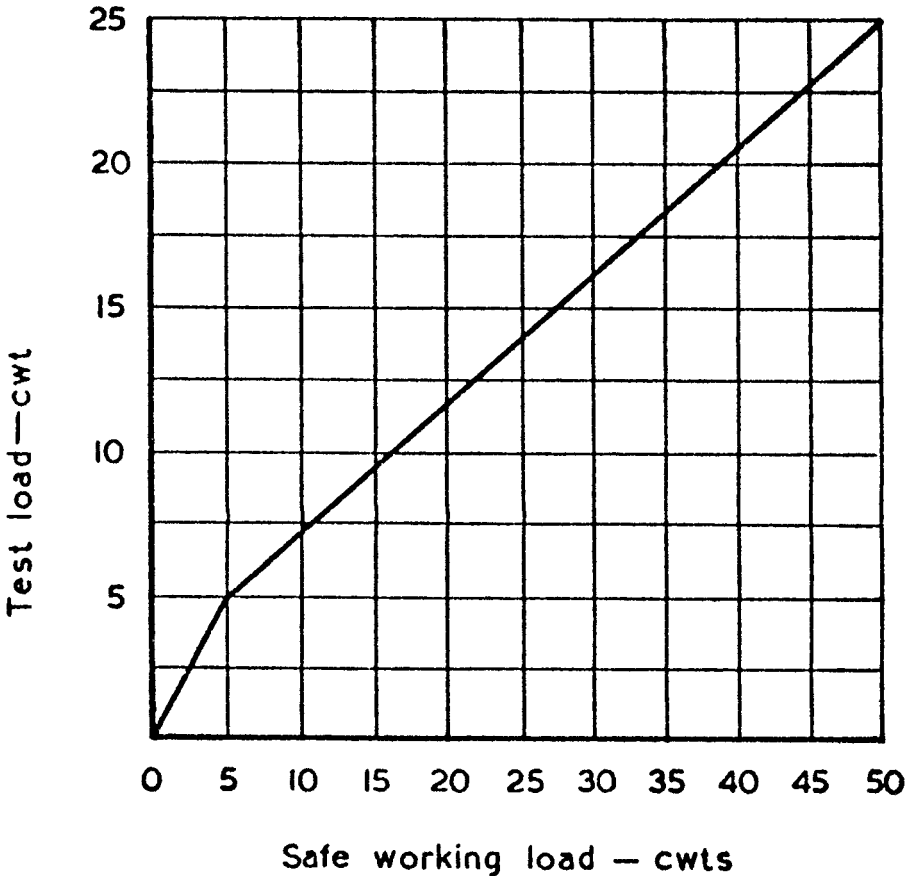


Figure 2 — Eccentric loading