

Specification for

Sockets for wire ropes —

Part 1: Inch units

UDC 621.86.05:621.887.2

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 (Incorporated)	Institution of Civil Engineers
British Chemical Plant Manufacturers' Association	Institution of Gas Engineers
British Compressed Air Society	Institution of Heating and Ventilating Engineers
British Electrical and Allied Manufacturers' Association	Institution of Mechanical Engineers*
British Engineers' Association*	Institution of Mechanical Engineers (Automobile Division)
British Internal Combustion Engine Manufacturers' Association	Institution of Production Engineers
British Iron and Steel Federation*	Locomotive and Allied Manufacturers' Association of Great Britain
British Railways, The British Transport Commission	Ministry of Labour and National Service (Factory Inspectorate)*
Central Electricity Authority and Area Boards	Ministry of Power*
Crown Agents for Oversea Governments and Administrations*	Ministry of Supply
D.S.I.R. — Mechanical Engineering Research Laboratory	Ministry of Transport and Civil Aviation*
Engineering Equipment Users' Association	Ministry of Works
Gas Council	National Coal Board*
	National Physical Laboratory (D.S.I.R.)*
	Radio Industry Council
	War Office

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 standard:—

Association of Crane Makers	Institute of Iron and Steel Wire Manufacturers
Bureau Veritas	Institute of Mining and Metallurgy
Federation of Wire Rope Manufacturers of Great Britain	Institution of Mining Engineers
General Post Office	Lloyd's Register of Shipping
Institute of British Foundrymen	National Association of Lift Makers
	Individual manufacturers

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Foreword

This standard makes reference to the following British Standards:

BS 302/BS 621, *Steel wire ropes for cranes, excavators and general engineering purposes*.

BS 350, *Conversion factors and tables*.

BS 643, *Capping metal for steel wire ropes*.

BS 729, *Testing the zinc coating on galvanized articles other than wire*.

BS 970, *Wrought steels*.

BS 1718, *Tolerances for steel drop forgings and upset forgings*.

BS 2772, *Iron and steel for colliery haulage and winding equipment — Part 2: Wrought steel*.

This British Standard, prepared under the authority of the Mechanical Engineering Industry Standards Committee, forms one of a series which comprises terminal fittings for wire rope and chain to be used for lifting purposes.

The present revision incorporates all previous amendments: also, to indicate more clearly the limiting thickness “G” when countertapering is necessary on the larger sizes of open type socket [see Clause 6 a)], a new Figure 1 has been prepared.

For convenience of illustration, the lugs of the open sockets and the interior of the jaw in Figure 1 are shown parallel. This may not obtain in practice, as the thickness of a lug, i.e. “G”, will vary along its length. Hence “M” may not equal either $L + 2G$ or $F + 2G$. Further, in the case of sockets $\frac{7}{8}$ in. diameter and larger, the diameter of the large end of the interior of the basket may be greater than the distance between the lugs at the position where the lugs join the basket. In such cases, the lugs at this position are to be counter-tapered to obviate an abrupt change of section at this point. When sockets are counter-tapered, dimension “G” is to apply to the thickness of the basket wall at the maximum diameter of the counter-taper.

To bring the standard into line with BS 302/BS 621, “*Steel wire ropes for cranes, excavators and general engineering purposes*”, some of the proof loads in Table 1 and Table 2 have been slightly amended in order that the sockets may be rated in accordance with the revised nominal breaking strengths of the appropriate wire ropes in BS 302/BS 621.

The sockets specified are of normal type for engineering purposes; they are also suitable for use on colliery haulages, where they are used with a coned tailed strand. It is recognized that sockets of special design are appropriate to colliery winding, aerial ropeways, suspension bridges and guys of large radio masts. Sockets for such special purposes, therefore, are of sufficient importance to warrant individual consideration and design for the particular end in view and, for this reason, are excluded from this standard.

For certain classes of work, when using open sockets as given in Table 1, cases may arise where the bolt and nut pin may be preferable to the type of pin specified. Sockets so fitted which conform otherwise to the requirements of this standard are equally acceptable if preferred by the purchaser.

The proof loads specified are based on approximately two-fifths of the nominal breaking strength of ropes in the 6×19 group, BS 302/BS 621, Table 1, of 110/120 tons/sq.in. tensile strength. It is recommended that the maximum working load of the socket should not exceed one-half of the specified proof load.

It will be seen from the foregoing that British Standard sockets have been designed to be somewhat stronger than other terminal fittings for wire rope (i.e. proof loads have been related to ropes of 110/120 ton/sq.in. tensile strength, and a factor of safety of 5 allowed). This makes provision for cases where sockets are used with high strength ropes, under conditions of static loading, and with factors of safety less than the normal value of 6.

For these reasons it is recommended that neither the proof load nor the safe working load shall be marked on the socket, as the safe working load of a rope fitted with a socket will be determined by the nominal breaking strength of that rope.

Sockets are efficient and permanent terminal attachments for wire rope, and those specified conform in their proportions and dimensions to the best available British practice. The ultimate strength of the sockets specified exceeds the tensile breaking strength of wire rope complying with BS 302/BS 621 of the size for which they are suitable.

Special attention is directed to the short parallel length and orifice radius at the smaller end of the basket in both the open and closed type sockets specified. These details are of considerable importance in precluding any tendency to cut the outer wires of the rope at the junction of the rope with the socket.

A recommended method of hot white metal socketing is given in Appendix B.

NOTE Where metric equivalents are given, the figures in British units are the 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.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 10, an inside back cover 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.

