

Specification

Thimbles for wire ropes

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 15, *Mild steel for general structural purposes*.

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

BS 309, *Whiteheart malleable iron castings*.

BS 310, *Blackheart malleable iron castings*.

BS 350, *Conversion factors and tables*.

BS 592, *Carbon steel castings*.

BS 729, *Zinc coatings on iron and steel articles — Part 1: Hot-dip galvanized coatings*.

BS 970, *Wrought steels*.

BS 1290, *Wire rope slings and sling legs*.

BS 2789, *Iron castings with spheroidal or nodular graphite*.

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.

In this revision, to bring the standard into line with BS 302/621, "*Steel wire ropes for cranes, excavators and general engineering purposes*", the nominal size of the thimble is the *diameter* of the steel wire rope with which it is intended to be used. For convenience, the circumferential sizes of rope for which the thimbles are suitable are also included in Table 1, Table 2 and Table 3.

The thimbles specified are intended for wire ropes, subject to a live load, as used on cranes and lifts; and also for wire rope slings and similar general engineering and marine purposes. The proportions and dimensions of the specified thimbles have been determined with regard to the strength and rigidity essential for such purposes and are related to the working strength of the single part of rope.

The grooves on all thimbles, except those for sizes larger than $1\frac{5}{8}$ in. in Table 1, are suitable for bare, i.e. unserved, rope. As the larger sizes of these ordinary open thimbles in Table 1 are often required to accommodate served rope, the grooves are designed accordingly.

In certain designs of slings the use of thimbles of a larger size than the nominal is specified. However, this is not intended to prohibit the use of the larger sized thimble, on which the score (rope groove) has been closed in to approximate more closely to the diameter of the rope.

There is a limited demand for mild steel ordinary and reeving thimbles with flanges cut square to the longer axis at the point of the thimble and also for thimbles with flanges welded at the point. It is not desired to exclude such thimbles, but the thimbles specified are suitable for their intended purpose and requirements do not warrant the inclusion in this standard of welded or "cut point" ordinary and reeving thimbles. Ordinary and reeving thimbles with welded or cut points which conform otherwise to this standard are equally acceptable if preferred by the user.

Solid thimbles made of ordinary cast iron have adequate strength to withstand static loads, such as occur at the inner or drum end of crane ropes or at the ends of standing wire ropes, where they are in common use. They are not suitable for live loads. Furthermore, the flanges of ordinary cast iron thimbles frequently fracture owing to rough usage in handling, transport and service. Such thimbles are accordingly excluded from this standard, but solid thimbles made of spheroidal graphite iron BS 2789¹⁾ are acceptable for ropes up to and including $1\frac{1}{2}$ in diameter.

¹⁾ BS 2789, "*Iron castings with spheroidal or modular graphite*".

As one object of the use of solid thimbles is to provide a compact terminal and connection, free from excessive lateral movement, it will be realized that a hole unnecessarily large for the bolt does not achieve the objective. It is therefore incumbent on the purchaser to specify the diameter for the hole, if one smaller than that given in Table 3, col. "M", is required.

Thimbles for use on sling legs made of the doubled part of rope, i.e. rope spliced endless, or as a grommet, should be two or three sizes larger than the nominal size for the rope, see BS 1290, "*Wire rope slings and sling legs*".

Recommendations on splicing are given in Appendix A of this standard.²⁾

NOTE Where metric equivalents have been 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*".

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 11 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.

²⁾ Detailed information on the method of making a five tucked splice is given in BS Handbook No. 4, "*Lifting tackle. Part 1, Ropes and fittings*".

