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Specification for

Bordeaux connections

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Mechanical Handling Standards Policy Committee (MHE/-) to Technical Committee MHE/1, upon which the following bodies were represented:

- Associated Offices Technical Committee
- British Chain Manufacturers' Association
- British Forging Industry Association
- British Ports Association and the National Association of Ports Employers
- British Railways Board
- British Steel Industry
- Corporation of Trinity House
- Department of Trade and Industry (National Physical Laboratory)
- Federation of Wire Rope Manufacturers of Great Britain
- Health and Safety Executive
- Lifting Equipment Engineers' Association
- Lloyds Register of Shipping
- Ministry of Defence

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- Association of Supervisory and Executive Engineers
- Drop Forging Research Association
- Electricity Supply Industry in England and Wales
- Engineering Equipment and Materials Users' Association
- Federation of Manufacturers of Construction Equipment and Cranes

This British Standard, having been prepared under the direction of the Mechanical Handling Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 31 July 1990

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Foreword

This British Standard has been prepared under the direction of the Mechanical Handling Standards Policy Committee. It is a new standard replacing BS 461:1970 which is withdrawn. This standard forms one of a series of specifications which deal with terminal fittings for steel wire ropes.

A Bordeaux connection is a convenient fitting for the attachment of a wire rope to a chain or link, or to another wire rope, where the joined members are to run over a suitable sheave, as in the case of grabbing cranes.

This revision is a metric version of the 1958 edition of BS 461 having the following basic changes incorporated.

- a) The 1958 Bordeaux connection was designed for ropes having breaking loads significantly lower than those now in current use. Accordingly the connection has been redesigned, particularly the link, to be suitable for higher tensile ropes to BS 302-2.
- b) The nominal size of Bordeaux connection is based on the nominal diameter of wire rope for which it was designed *not* on the safe working load (SWL).
- c) The material used for the link was BS 970 grade En 5a in the 1958 edition of BS 461 and in the 1970 edition it was to BS 970-1 steel designations 060A27 or 080A30 or 150M19. Calculations undertaken in a design study by the National Physical Laboratory (NPL) indicated that these were inadequate when Bordeaux connections were associated with higher tensile ropes of grade 1 770 N/mm². Accordingly steel to BS 970-1 designation 605M36 in the hardened or tempered condition was chosen.

While the heat treatment temperatures suitable for the steel links differ slightly from those appropriate for the steel castings, it is for practical reasons, considered permissible to heat treat the combined assembly in one operation.

Although cast steel is specified for the rope portion of the Bordeaux connection, other materials such as phosphor bronze, aluminium bronze, etc., can give satisfactory service provided that all other requirements of the standard are met. The use of the term "British Standard Bordeaux connection" is, however, restricted to Bordeaux connections complying in all respects with the requirements specified in this standard.

Details of grab shackles for use with Bordeaux connections are given in Appendix A.

In view of the severe working conditions to which Bordeaux connections are subjected, it is necessary that particular inspection be given to them in service. Guidance on selection, use and in-service inspection is given in Appendix H.

Additional information, which it is felt will be helpful to the user, is given in Appendix B to Appendix G as follows.

Appendix	Information
Appendix B	Splicing a Bordeaux connection into a wire rope
Appendix C	A method of splicing a Bordeaux connection in the end of a six-round strand rope
Appendix D	Approximate lengths of Bordeaux connection splices
Appendix E	Approximate mass of Bordeaux connections
Appendix F	Sheaves for use with Bordeaux connections
Appendix G	Information to be supplied by the purchaser on the enquiry and order

Purchasers ordering Bordeaux connections to BS 7167 are advised to specify in their purchasing contract that the manufacturer operate a quality system in accordance with the appropriate part of BS 5750 or suitable equivalent to assure themselves that products claimed to comply with BS 7167 consistently achieve the required level of quality.

This standard is based on a design study carried out at the National Physical Laboratory and funded by the Health and Safety Executive. The cooperation is also acknowledged of the manufacturers of Bordeaux connections.

A report covering this design study is available from the National Physical Laboratory, Teddington, Middlesex TW11 0LW, entitled “NPL Report DMA A 160 — The theoretical background to the revision of BS 461:1970 — Specification for Bordeaux connections”.

This design study was supplemented by actual testing of and components at the laboratories of the Health and Safety Executive. A report by the Health and Safety Executive, reference IR/L/ME/88/36 entitled “Revision of BS 461 — Bordeaux connections — Deformation measurements on samples made to modified design”, gives the results of proving tests carried out on components made to this British Standard.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 12, 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.

