

Specification for

Alloy steel chain grade 60 —

Short link for lifting purposes

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The Government departments and scientific and industrial 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 Welding
Association of Hand Lifting Tackle Makers	Lloyd's Register of Shipping
British Constructional Steelwork Association	Machine Made Chain Manufacturers' Association
Chain and Anchor Manufacturers' Association	National Association of Drop Forgers and Stampers
Chain Testers Association of Great Britain	Individual Manufacturers
Dock and Harbour Authorities Association	
Federation of Civil Engineering Contractors	
Federation of Wire Rope Manufacturers of Great Britain	

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 31 March 1959

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Foreword

This standard makes reference to the following British Standards:

BS 350, *Conversion factors and tables*.

BS 394, *Short link wrought iron chain*.

BS 590, *Mild steel chain, grade 30*.

BS 1610, *Verification of testing machines*.

BS 1663, *Higher tensile steel chain, grade 40*.

BS 1696, *Short link wrought iron chain of special quality*.

BS 3114, *Alloy steel chain, grade 80*.

Chain to this British Standard has the high tensile strength combined with great shock absorbing properties, made possible by the application of advanced manufacturing techniques and the use of high quality alloy steel.

It is referred to as “Grade 60” chain in keeping with a way of grading based on the specified minimum breaking load in tons of a 1 inch chain, described in Appendix E.

Comparable references are:

Grade 30 for chain to BS 590¹⁾.

Grade 40 for chain to BS 1663²⁾.

Grade 80 for chain to BS 3114³⁾.

Grade 60 chain to this standard is designed for use as a general lifting chain stronger than Grade 40 for applications such as slinging. Grade 80 is unsuitable for such applications.

This standard lays down tests and other requirements to meet the properties required of a high strength general purpose lifting chain. These properties include tensile strength sufficiently high to maintain the factor of safety of 5 to 1 usual with steel lifting chains, with safe working loads of $12d^2$ tons (where d is the size⁴⁾ of the chain in inches). The proof load (twice the safe working load) is $24d^2$ tons. The chain is required to withstand this without visible permanent deformation.

The energy absorption represented by the minimum energy absorption factor of $400d^2$ inch-tons is ample to absorb the shock loads associated with the higher working loads. Grade 60 chain, like Grade 40, is required to extend at least 6 inches on a thirty-six inch length before breaking. Experience indicates that this extension is adequate.

Grade 60 chain requires the periodic inspection usual with chains. It does not require periodic heat-treatment. Indeed, heat-treatment, different from that given during manufacture, can certainly cause serious damage.

Where Grade 60 chain is used, care should be taken to avoid the danger of weaker chain being used at the higher, Grade 60, loading.

¹⁾ BS 590, “*Mild steel chain, grade 30*.”

²⁾ BS 1663, “*Higher tensile steel chain, grade 40*.”

³⁾ BS 3114, “*Alloy steel chain, grade 80*.”

⁴⁾ The nominal diameter of the steel from which the chain is made.

The term British Standard alloy steel chain Grade “60” should be used only with reference to chain of the dimensions (nominal diameter, etc.) laid down in the table and clauses of this standard.

NOTE Where metric equivalents have been given, the figures in British units are to be regarded as 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

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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.

