

Short link chain for lifting purposes —

Part 4: Specification for grade S (6) non-calibrated chain

[ISO title: Short link chain for lifting purposes — Grade S (6),
non-calibrated, for chain slings etc.]

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This British Standard, having been prepared under the direction of the Mechanical Engineering Standards Committee, was published under the authority of the Executive Board and comes into effect on 27 February 1981

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National foreword

This Part of this British Standard, published under the direction of the Mechanical Engineering Standards Committee, forms one of a series on lifting chain and is identical with ISO 3075 “*Short link chain for lifting purposes — Grade S (6), non-calibrated, for chain slings etc.*” published in 1980 by the International Organization for Standardization (ISO).

The United Kingdom has taken part in the preparation of the International Standard through Subcommittee 1 of Technical Committee 111, Round steel link chains, chain wheels, lifting hooks and accessories.

This Part of this standard is intended in due course to supersede BS 3113:1959 “*Alloy steel chains, grade 60. Short link, for lifting purposes*”.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is especially drawn to the following.

The comma has been used throughout as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever the words “International Standard” appear referring to this standard they should be read as “British Standard”.

Cross-references

International Standard	Corresponding British Standard
ISO 388:1964	BS 4391:1972 <i>Recommendations for metric basic sizes for metal wire</i> (Technically equivalent)
ISO/R 643:1967	BS 4490:1969 <i>Methods for the determination of austenitic grain size of steel</i> (Technically equivalent)
ISO 1035-1:1969	BS 4229 <i>Recommendations for metric sizes of non-ferrous and ferrous bars</i> Part 2:1969 <i>Ferrous bars</i> (Technically equivalent)
ISO 1834:1980 ^a	BS 4942 <i>Short link chain for lifting purposes</i> Part 1:1981 <i>Specification for general conditions for acceptance</i> (Identical)

^a In clause 2 it is indicated that ISO 1834 is in course of preparation. This standard has now been published.

Additional information. It will be noted that clause 9 requires a quality mark to be applied and alternative marks are permitted i.e. “S” or “6”. Manufacturers are recommended to adopt the mark “S” as the quality mark for this grade of chain, in order to align with the marking of other materials and components in this grade. The use of either “S” or “6” as the quality mark is however acceptable for compliance with this British Standard.

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 8, 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.

1 Scope and field of application

This International Standard specifies the requirements for lifting chains, grade S (6), non-calibrated, for use on cranes, in chain slings and for general lifting purposes. These are electrically welded round steel short link chains fully heat treated and tested and comply with the general conditions of acceptance of ISO 1834.

The range of sizes covered by this International Standard is from 5 to 45 mm. The Annex gives a range of temporary additional sizes 6 to 30 mm.

2 References

ISO/R 388, *ISO metric series for basic thicknesses of sheet and diameters of wire*.

ISO/R 643, *Micrographic determination of the austenitic grain size of steels*.

ISO 1035-1, *Dimensions of hot rolled steel bars — Part 1: Round bars — Metric series*¹⁾.

ISO 1834, *Short link chain for lifting purposes — General conditions of acceptance*²⁾.

3 Definitions

For the purpose of this International Standard the definitions given in ISO 1834 apply.

4 General conditions of acceptance

The chain shall comply fully with the requirements of ISO 1834 as well as those of this International Standard.

5 Dimensions

5.1 Size (see ISO 1834, clause 4, Definitions)

The size of chain shall be one of the sizes listed in Table 1, column 1 corresponding to the nominal diameter (d_n) of the steel wire (ISO/R 388) or bar (ISO 1035-1) from which the chain is made.

NOTE Control over the size of the material (bar or wire) from which the chain is made is important but this International Standard concerns finished chain and must assume that the inspector may not have the opportunity of retrospective measurement of the original material. The chain manufacturer will realize the need for the size of this material to be kept within accepted tolerances.

5.2 Material diameter (see ISO 1834 for definition of material diameter and method of measurement)

5.2.1 Tolerance on material diameter

For sizes less than 18 mm the diameter d of the material in the finished link shall nowhere differ from the nominal diameter by more than $^{+2}_{-6}$ %, except at the weld.

For sizes 18 mm and over, the diameter d of the material in the finished link shall nowhere differ from the nominal diameter by more than ± 5 %, except at the weld.

5.2.2 Tolerances at the weld

The dimension of the steel at the weld shall nowhere be less than the diameter d of the steel adjacent to the weld, or exceed it by more than the following tolerances. (See Figure 1 and Table 1.)

Type 1: 10 % of the nominal diameter in any direction;

Type 2: 20 % of the nominal diameter in the direction perpendicular to the plane of the link and 20 % in other planes;

Type 3: 20 % of the nominal diameter in the direction perpendicular to the plane of the link and 35 % in other planes.

NOTE Type 1 eliminates functional problems such as kinking or locking by severely limiting the weld oversize to 10 % of the nominal diameter. Types 2 and 3 ensure freedom from these hazards by limiting the oversize beyond the 10 % allowed under type 1, to certain areas of the link only (see Figure 1) thus providing clearance where required.

5.2.3 Area affected dimensionally by welding

The area affected dimensionally by welding shall not extend by more than 0,6 of the material diameter to either side of the centre of the link.

5.3 Length and width

The dimensions of the length and width of the links shall be as specified in Table 1 and illustrated in Figure 2.

¹⁾ At present at the stage of draft. (Revision of ISO/R 1035-1:1969.)

²⁾ At present at the stage of draft.