

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 1834

SHORT LINK CHAIN FOR LIFTING PURPOSES

GENERAL CONDITIONS OF ACCEPTANCE

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 1834, *Short link chain for lifting purposes – General conditions of acceptance*, was drawn up by Technical Committee ISO/TC 111, *Round steel link chains, chain wheels, lifting hooks and accessories*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question led to the adoption of Draft ISO Recommendation No. 1834, which was circulated to all the ISO Member Bodies for enquiry in April 1969. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Italy	Sweden
Austria	Japan	Thailand
Chile	Netherlands	Turkey
France	New Zealand	U.A.R.
Greece	Norway	United Kingdom
India	Peru	
Israel	South Africa, Rep. of	

The following Member Bodies opposed the approval of the Draft :

Belgium
Germany
U.S.A.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

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SHORT LINK CHAIN FOR LIFTING PURPOSES

GENERAL CONDITIONS OF ACCEPTANCE

1. GENERAL

1.1 Scope

This ISO Recommendation covers general requirements for lifting chains. These are electrically welded round-steel short-link chains, heat treated and fully tested, for use on cranes, in chain slings and for general lifting purposes (non-calibrated) or in pulley blocks (calibrated).

This ISO Recommendation does not cover surface-hardened chain.

Special requirements appertaining to chains of particular types (calibrated, non-calibrated) or of particular materials (carbon steel, alloy steel, etc.) will be covered by separate ISO Recommendations.

1.2 Definitions

For the purpose of this ISO Recommendation, the following definitions apply :

Term	Definition	Symbol
<i>Size of chain</i>	The nominal diameter of the steel wire or bar from which the chain is made.	d_n
<i>Material diameter</i>	The diameter of the material in the chain link as measured.	d
<i>Pitch of chain</i>	The internal length of a link, or the distance between the bearing points of a length of chain under tension divided by the number of links	p
<i>Proof load</i>	The load to which after processing (see definition below) the whole of the chain is subjected as specified in clause 3.6.	F_e
<i>Breaking load</i>	The maximum load which the chain withstands during the course of a tensile test to destruction.	F_m
<i>Elongation at fracture</i>	Permanent elongation after a chain has broken, expressed as a proportion of the gauge length (see clause 4.3.2).	A
<i>Energy absorption factor</i>	The product of the elongation at fracture and the breaking load.	$A \times F_m$
<i>Lifting capacity; Working load limit</i>	The maximum mass which the chain hanging vertically is authorised to support in general service.	
<i>Working load (Safe working load)</i>	The maximum mass which the chain hanging vertically should support in a particular stated service.	SWL
<i>Processing</i>	Any treatment of the chain subsequent to welding, for example, heat treatment, polishing, galvanizing or other surface treatment.	—
<i>Lot</i>	A specified length of chain from which a test sample is selected.	—

2. DIMENSIONS

2.1 Material diameter

The material diameter of any section of the finished link which is to accord with the size within stated tolerances is the mean of two diameters measured in the same plane at right angles.

NOTE. — It may be convenient to measure the mean diameter by a single measurement with an instrument of the type described in Appendix Y.

2.2 Other link dimensions

The length, the pitch and the width of a chain link, and the length of a number of links of calibrated chain, are given in separate ISO Recommendations for particular chains.

3. MATERIAL AND MANUFACTURE

3.1 Quality of material

The steel shall comply with the requirements of the ISO Recommendation for that particular type of chain, these requirements being designed to ensure reliable welding quality and freedom from strain age embrittlement (see Appendix Z).

Within these limitations it is the responsibility of the chain manufacturer to select a steel such that the finished chain, suitably heat treated, possesses the specified mechanical properties.

When so required by the purchaser, the manufacturer shall supply a copy of the steelmaker's cast analysis. When a check analysis of the steel in the chain is required by the purchaser, such analysis shall be made from cuttings taken from a complete transverse section of a link selected from a length tested to destruction. The cost of such analysis should be borne by the purchaser.

NOTE. — When comparing an analysis of the steel in the chain (check analysis) with the steelmaker's cast analysis, allowance must be made for the heterogeneity of the steel.

3.2 Heat treatment

Before proof loading, all chain shall be subjected to the appropriate heat treatment.

3.3 Workmanship

The weld shall be appropriately finished (see ISO Recommendation for particular chains).

3.4 Surface condition

Unless otherwise agreed between the manufacturer and the purchaser, the finished chain shall be free from coating of any description.

3.5 Quality marking

At least each twentieth link, or links at intervals of 1 m, whichever is the lesser distance, shall be legibly stamped or embossed with the appropriate quality mark described in Annex C. The marking shall not coincide with a weld, or be situated where material is displaced by the weld, nor shall it be on the extrados. If agreed between the supplier and the purchaser, for calibrated chain the quality mark may alternatively be applied in the same manner and position as the identification marking specified in clause 5.2.1.

The marks shall be of the sizes shown in Table 1.

TABLE 1 — Sizes of quality mark

Size of chain	Diameter of mark
mm	mm
Up to and including 12.5	3
Over 12.5 up to and including 26	4.5
Over 26	6

Stamps, if used, shall have a concave surface and the indentation shall be neither too sharp nor of excessive depth.