

INTERNATIONAL ISO  
STANDARD 610

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Second edition  
1990-08-15

**ANSI Internat Doc Sect**

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## **High-tensile steel chains (round link) for chain conveyors and coal ploughs**

*Chaînes en acier à haute résistance à la traction (à maillons ronds) pour convoyeurs à chaînes et rabots à charbon*



Reference number  
ISO 610:1990(E)

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 610 was prepared by Technical Committee ISO/TC 82, *Mining*.

This second edition cancels and replaces the first edition (ISO 610:1979), of which it constitutes a technical revision. All references to ISO/R 147 have been replaced by a reference to ISO 7500-1.

Annexes A, B, C, D, E and F of this International Standard are for information only.

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International Organization for Standardization  
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

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## High-tensile steel chains (round link) for chain conveyors and coal ploughs

### 1 Scope

This International Standard specifies the requirements for a range of high-grade special purpose calibrated, high-tensile, electrically welded, steel chains (round link) for use with machines and equipment in mining, such as the following:

- a) conveyors, flexible and rigid, of the chain type, chain belt conveyors, gate end and stage loaders;
- b) coal ploughs, coal cutters and power loaders;
- c) bucket elevators;
- d) other similar machines used in mines.

This International Standard covers a size range from 14 mm to 30 mm. Three grades of quality (B, C and D) are specified with regard to the mechanical properties of chain. The values given for grade D in tables 3, 4, 7 and 8 are, however, provisional.

Chains covered by this International Standard are not designed for lifting appliances, such as cranes and slings.

### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 643:1983, *Steels — Micrographic determination of the ferritic or austenitic grain size.*

ISO 7500-1:1986, *Metallic materials — Verification of*

*static uniaxial testing machines — Part 1: Tensile testing machines.*

### 3 Definitions

For the purposes of this International Standard, the following definitions apply.

**3.1 size of chain:** The nominal diameter  $d$  of the steel wire or bar from which the chain is made.

**3.2 breaking force:** The maximum force which a sample of finished chain withstands during the course of a tensile test to destruction.

**3.3 test force:** The specified force to which a sample of the finished chain has to be subjected without exceeding the stated elongation.

**3.4 proof force:** The specified force to which, after processing (see 3.6), the whole of the chain has to be subjected without significant permanent deformation or damage.

This force may be re-applied to the whole of the new chain or to any part thereof by the purchaser or by his inspector at their discretion.

**3.5 percentage elongation:** The extension expressed as a percentage of the gauge length.

**3.6 processing:** Any treatment of the chain subsequent to welding, for example heat treatment, calibration or surface treatment.

**3.7 calibration:** The application of force to the whole of the chain during the production process to control the link dimensions.

**3.8 elastic limit:** The maximum force which can be applied to the chain without producing permanent deformation.