

# INTERNATIONAL STANDARD

**ISO**  
**3512**

Second edition  
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## Heavy-duty cranked-link transmission chains

*Chaînes de transmission à maillons coudés de haute résistance*

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Reference number  
ISO 3512:1992(E)

## 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 3512 was prepared by Technical Committee ISO/TC 100, *Chains and chain wheels for power transmission and conveyors*.

This second edition cancels and replaces the first edition (ISO 3512:1976), which has been technically revised.

Annex A forms an integral part of this International Standard. Annex B is for information only.

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# Heavy-duty cranked-link transmission chains

## 1 Scope

This International Standard specifies dimensions, tolerances, measuring forces and minimum tensile strengths, together with the tooth gap forms and rim profiles of the associated chain wheels, for cranked-link or offset sidebar roller chains suitable for the mechanical transmission of power and allied applications under onerous conditions.

The dimensions of chains specified ensure complete interchangeability of any given size and provide interchangeability of individual links of the chain for repair purposes.

NOTE 1 Since these chains have been derived from an "inch" series of chains, their original dimensions are given in annex B.

## 2 Chains

### 2.1 Nomenclature of assemblies and components

The nomenclature of chain assemblies and their component parts are illustrated in figures 1 and 2; the figures do not define the actual form of the chain plates. The symbols for chains are given in table 1 and are shown in figure 3.

### 2.2 Designation

Heavy-duty cranked-link roller chains shall be designated by the standard ISO chain number given in

table 1: the first two digits express the nominal pitch in eighths of an inch, while the second (last) two digits express the basic bearing pin diameter in sixteenths of an inch.

### 2.3 Dimensions

Chains shall conform to the dimensions shown in figure 3 and given in table 1. Maximum and minimum dimensions are specified to ensure interchangeability of links as produced by different makers of chain. They represent limits for interchangeability, but are not the manufacturing tolerances.

Pitch,  $p$ , is a theoretical reference dimension used in calculating strand lengths and chain wheel dimensions; it is not intended for inspection of individual links.

### 2.4 Tensile testing

**2.4.1** The minimum tensile strength is that value which shall be exceeded when a tensile force is applied to a sample which is tested to destruction as defined in 2.4.2. This minimum tensile strength is not a working force. It is intended primarily as a comparative figure between chains of various constructions. For application information, the manufacturers or their published data should be consulted.

**2.4.2** A tensile force, not less than the tensile strength specified in table 1, shall be applied slowly to the ends of a chain length, containing at least three free pitches, by means of shackles permitting free movement on both sides of the chain centreline, in the normal plane of articulation.

Failure shall be considered to have occurred at the first point where increasing extension is no longer accompanied by increasing load; i.e. the summit of the force extension diagram.

Tests in which failures occur adjacent to the shackles shall be disregarded.

**2.4.3** The tensile test shall be considered a destructive test. Even though a chain may not visibly fail when subjected to a force equivalent to the minimum tensile strength, it will have been stressed beyond the yield point and will be unfit for service.

## 2.5 Length accuracy

Finished chains shall be measured either dry or after only light lubrication.

The standard nominal length for measurement shall be that nearest 3 050 mm.

The chain shall be supported throughout its entire length and the measuring force specified in table 1 shall be applied.

The measured length shall be the nominal length  $^{+0,32}_0$  %.

The length accuracy of chains which have to work in parallel shall be within the above limits but matched by agreement with the manufacturer.

## 2.6 Working clearances

The form of the line of cranking or offset, across the width of each link, may be curved or straight (see lower part of figure 3).

If straight, the distance from the pitch point shall be  $l_1$  or  $l_2$ .

If curved, this distance shall be  $l_5$  or  $l_6$ . Radii  $l_5$  and  $l_6$  shall be sufficient to allow clearance over the adjacent plate nose contained by the clearance radii  $l_3$  and  $l_4$  during chain articulation round a seven-tooth wheel.

Side plates may be extended, provided that the extension is within a 30° included angle with respect to the sidebar, as indicated in figure 3. The chain link construction shall always allow for this extension to be adopted.

## 2.7 Marking

The chains shall be marked with the following:

- a) manufacturer's name or trade mark;
- b) ISO chain number quoted in table 1.

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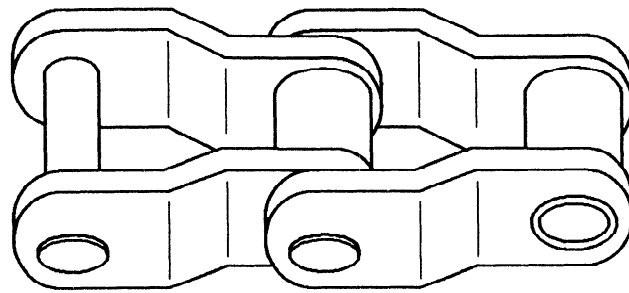


Figure 1 — Cranked-link chain assembly

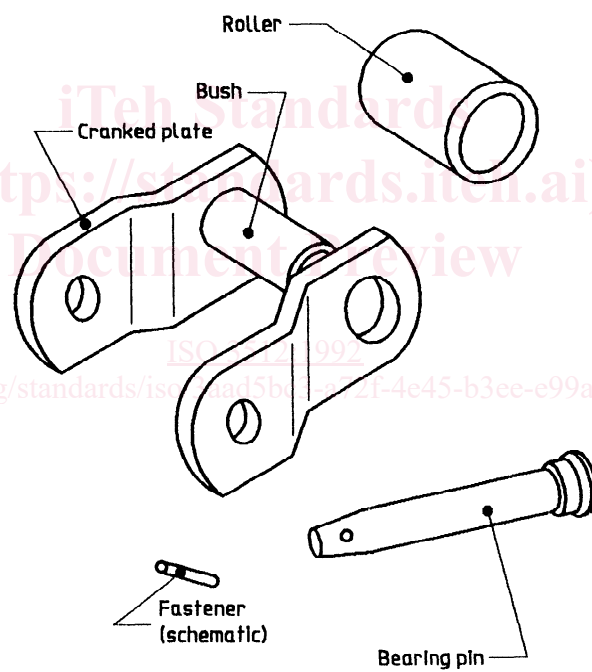


Figure 2 — Typical cranked-link components

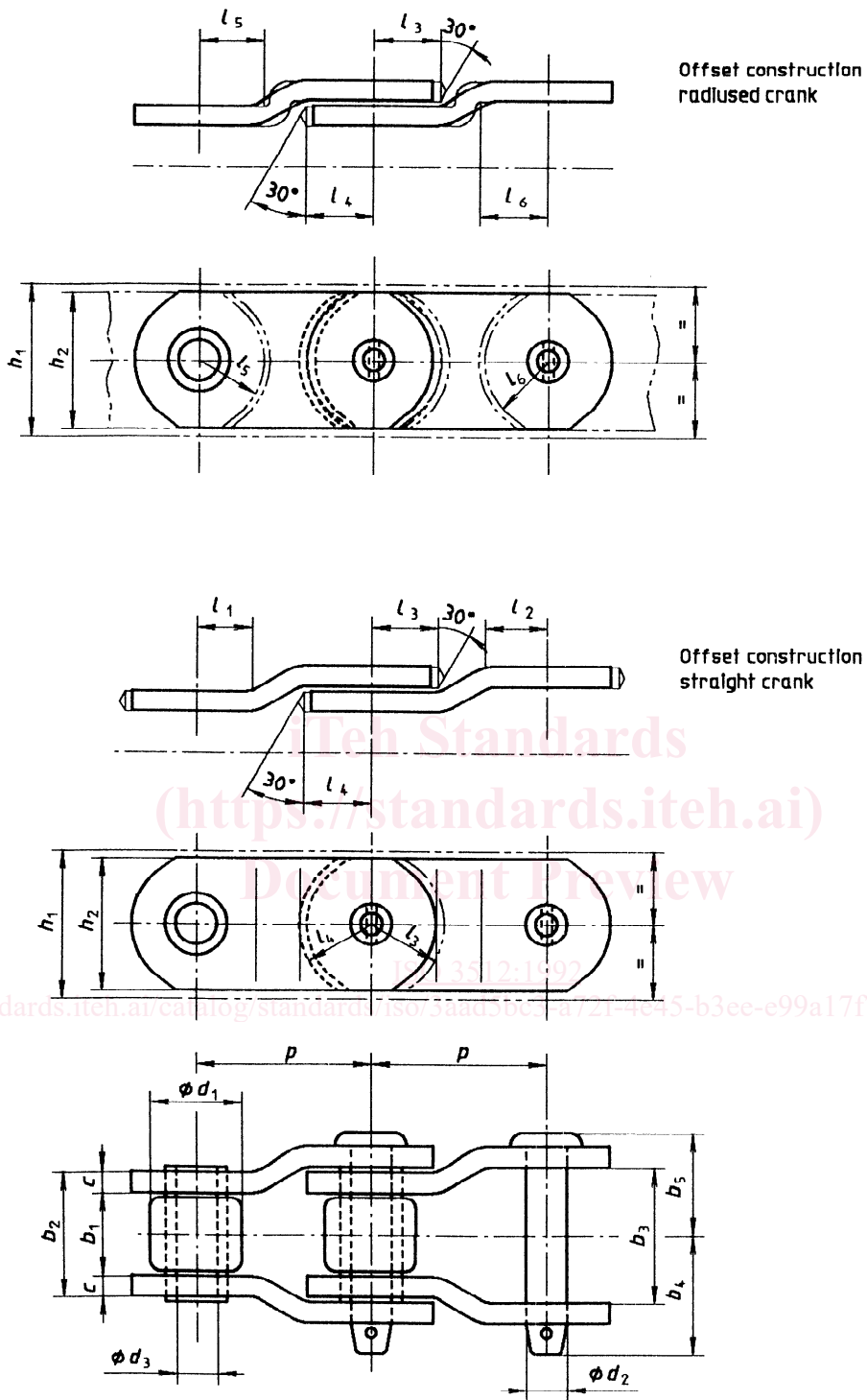


Figure 3 — Symbols for dimensions (see table 1)