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**Short-pitch transmission precision roller  
and bush chains, attachments and  
associated chain sprockets**

*Chaînes de transmission de précision à rouleaux et à douilles, plaques-  
attaches et roues dentées correspondantes*

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 606 was prepared by Technical Committee ISO/TC 100, *Chains and chain wheels for power transmission and conveyors*.

This third edition cancels and replaces the second edition (ISO 606:1994) and ISO 1395:1977, of which it constitutes a technical revision.

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## Introduction

The provisions of this revised International Standard have been established by including sizes of chains used by the majority of countries in the world, and by unifying dimensions, strengths and other data which differed in current national standards, while eliminating those for which it was considered a universal usage had not been established.

The whole field of application open to this medium of transmission has been covered by the ranges of chains already established. To achieve this, the sizes of 6,35 mm pitch to 76,2 mm pitch inclusive have been duplicated, on the one hand, by the inclusion of chains derived from standards originating and centred around ANSI (denoted by suffix A), and on the other by chains representing the unification of the principal standards originating in Europe (suffix B), the two being complementary for the coverage of the widest possible field of application.

The ANSI chain reference numbers (25, 35, 40, 50, etc.) are used world-wide and, to assist in cross-referencing the ISO and ANSI numbers, details are now included in Annex C of this International Standard.

The ANSI heavy series of chains (suffix H) are also included. The ANSI heavy series of chains differ from the ANSI standard series in that thicker plates are used. As there are no existing ISO numbers for these chains, the ANSI numbering system has been adopted.

Clause 4 covers specification details for K and M attachments, and extended pin attachments for use with short-pitch transmission roller and bush chains conforming with this International Standard.

Clause 5, covering chain sprockets, represents the unification of all the relevant national standards in the world and includes, in particular, complete tolerances relating to tooth form.

The inclusion of the dimensions of the chains specified ensures complete interchangeability of any given size and provides interchangeability of individual links of chains.

This edition also includes short-pitch bush transmission chains previously covered in ISO 1395:1977.

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# Short-pitch transmission precision roller and bush chains, attachments and associated chain sprockets

## 1 Scope

This International Standard specifies the characteristics of short-pitch precision roller and bush chains with associated sprockets suitable for the mechanical transmission of power and allied applications. It covers dimensions, tolerances, length measurement, preloading, minimum tensile strengths and minimum dynamic strength.

Although Clause 5 applies to chain sprockets for cycles and motor cycles, this International Standard is not applicable to their chains, which are covered by ISO 9633 and ISO 10190, respectively.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 286-2:1988, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts*

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ISO 15654, *Fatigue test method for transmission precision roller chains*<sup>1)</sup>

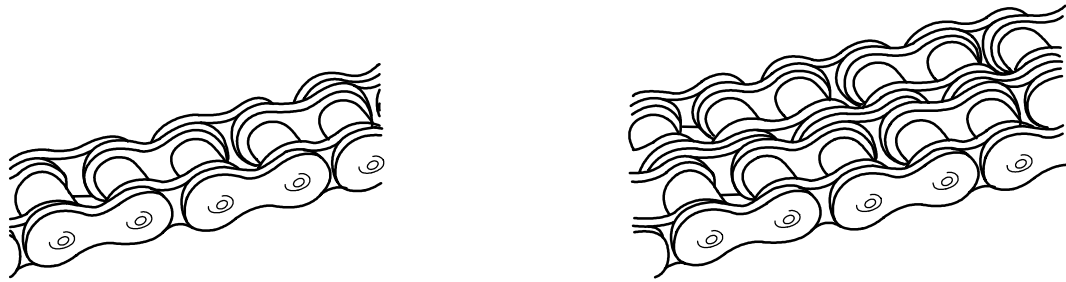
## 3 Chains

### 3.1 Nomenclature of assemblies and components

The nomenclature of chain assemblies and their component parts is shown in Figures 1 and 2 (which do not define the actual form of the chain plates).

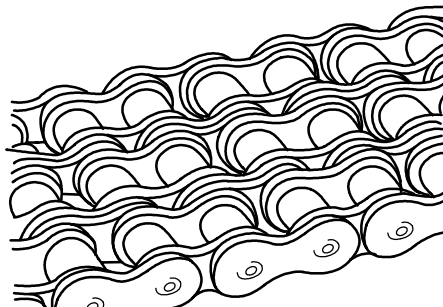
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1) To be published.



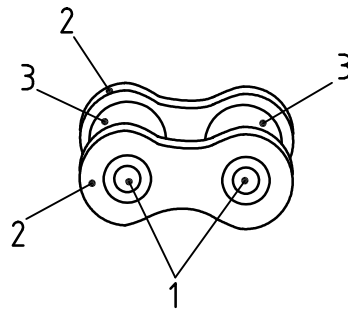
a) Simplex chain

b) Duplex chain



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c) Triplex chain

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**Figure 1 — Types of roller chain assembly**  
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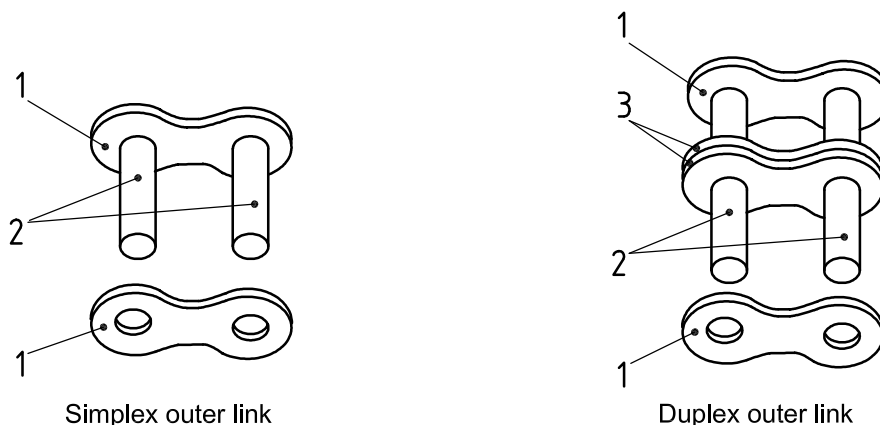


**Key**

- 1 bush
- 2 inner plate
- 3 roller

a) Inner link





**Key**

- 1 outer plate
- 2 bearing pins
- 3 intermediate plate(s)

**b) Outer links for riveting**

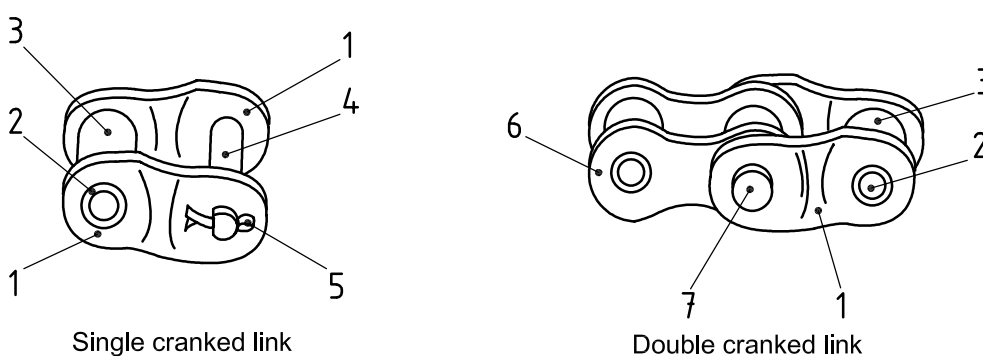


Connecting link with spring clip fastener      Connecting link with cotter pin fasteners

**Key**

- 1 spring clip fastener
- 2 fixed connecting pin
- 3 outer plate
- 4 detachable plate
- 5 cotter pin fastener

**c) Detachable connecting links**



**Key**

- 1 cranked plate
- 2 bush
- 3 roller
- 4 detachable connecting pin
- 5 cotter pin fastener
- 6 inner plate
- 7 bearing pin, riveted

**d) Cranked links**

NOTE 1 The plate dimensions are specified in Tables 1 and 2.

NOTE 2 Fasteners can be of various designs. Drawings indicate examples.

**Figure 2 — Types of link**

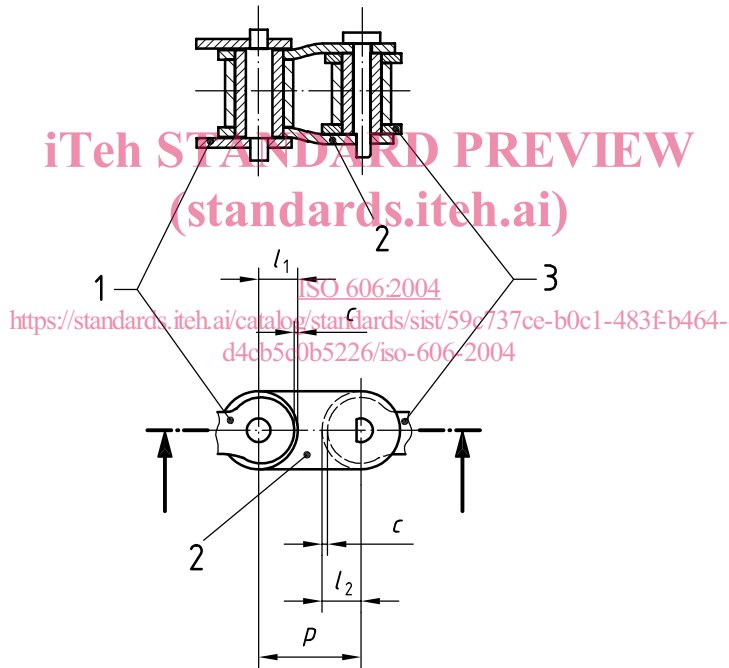
### 3.2 Designation

Chains are designated by the standard ISO chain number given in Tables 1 and 2. The ISO chain numbers in Table 1 are supplemented by a hyphenated suffix 1 for simplex chain, 2 for duplex chain and 3 for triplex chain, for example, 16B-1, 16B-2, 16B-3. Chains 081, 083, 084 and 085 do not follow this procedure since they are normally available in simplex form only.

The chains designated in Table 2 are the ANSI heavy series, which are also supplemented by a hyphenated suffix 1 for simplex chain, 2 for duplex chain and 3 for triplex chain, for example, 80H-1, 80H-2, 80H-3.

### 3.3 Dimensions

Chains shall conform to the dimensions shown in Figure 3 and given in Tables 1 and 2. Maximum and minimum dimensions are specified to ensure interchangeability of links produced by different makers of chain. They represent limits for interchangeability, but are not the manufacturing tolerances.

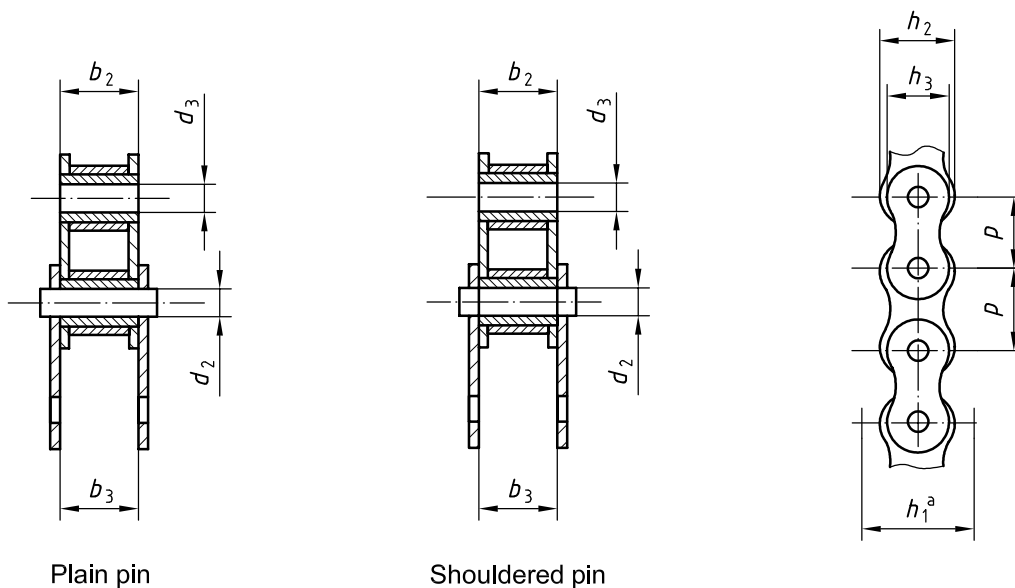


**Key**

- c* clearance between cranked link plates and straight plates available during articulation
- p* pitch
- 1 outer plate
- 2 cranked plate
- 3 inner plate

NOTE For the symbols, see Table 1.

a) Cranked link

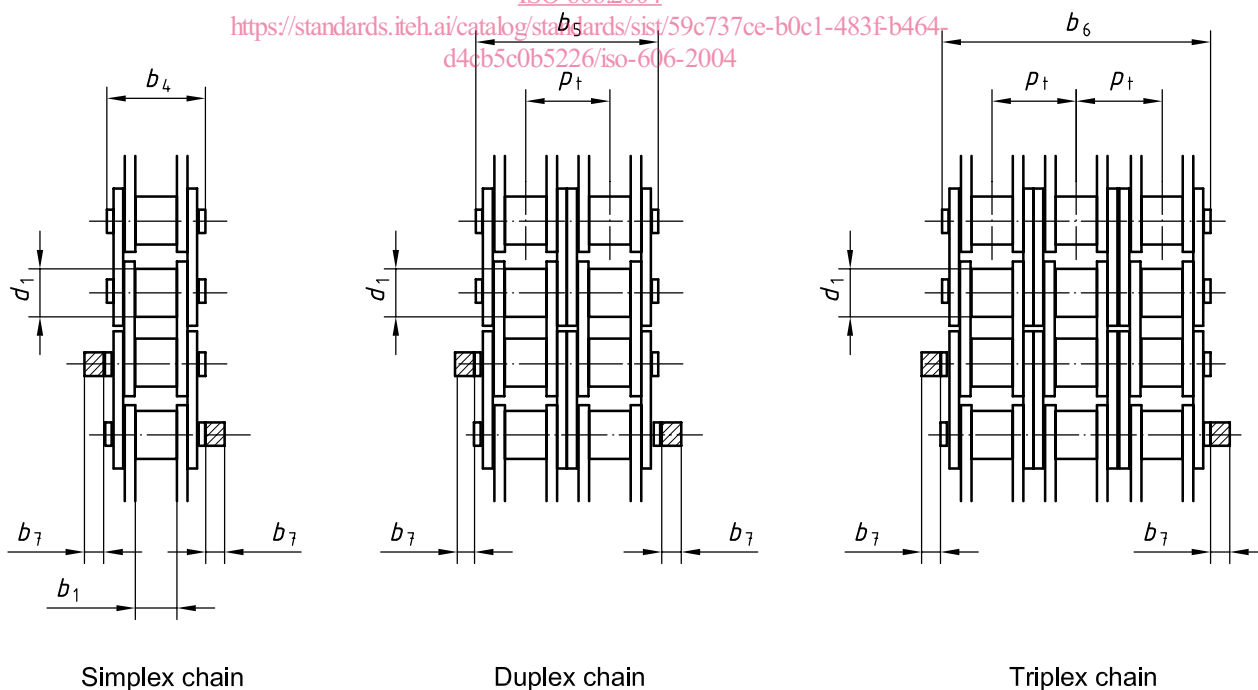


NOTE For the symbols, see Table 1.

<sup>a</sup> Clearance between the cranked link plates and the straight plates available during articulation.

b) Sections through chain  
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NOTE For the symbols, see Table 1.

c) Types of chain

Figure 3 — Chains

The overall width of a simplex, duplex or triplex chain with a joint fastener is given by

a) for riveted pin end chains if the fastener is on one side only:

$$(b_4 + b_7) \text{ or } (b_5 + b_7) \text{ or } (b_6 + b_7);$$

b) for riveted pin end chains if the fastener is on two sides:

$$[b_4 + (2b_7)] \text{ or } [b_5 + (2b_7)] \text{ or } [b_6 + (2b_7)];$$

c) for headed pin end chains if the fastener is on one side only:

$$[b_4 + (1,6b_7)] \text{ or } [b_5 + (1,6b_7)] \text{ or } [b_6 + (1,6b_7)];$$

d) for headed pin end chains if the fastener is on two sides:

$$[b_4 + (3,2b_7)] \text{ or } [b_5 + (3,2b_7)] \text{ or } [b_6 + (3,2b_7)];$$

The overall width of chains wider than triplex is given by

$$b_4 + [p_t \times (\text{number of strands in chain} - 1)].$$

### 3.4 Performance requirements

#### 3.4.1 General

**WARNING** — The test requirements are not to be taken as working loads. These loads could be selected, indirectly, using ISO 10823. (standards.iteh.ai)

The test results shall be invalid if the chain has previously been in service or stressed in any way (other than by preloading in accordance with 3.4.3).

The tests given in 3.4.2 to 3.4.5 shall only be performed on unused, undamaged chain to determine whether the subject chain complies with the minimum requirements specified in Tables 1 and 2.

#### 3.4.2 Tensile testing

**3.4.2.1** The minimum tensile strength is that value which shall be exceeded when a tensile force is applied to a sample tested to destruction in accordance with 3.4.2.2.

**NOTE** This minimum tensile strength is not a working load, but is intended primarily as a comparative figure between chains of various constructions.

**3.4.2.2** Apply a tensile force slowly to the ends of a chain length containing at least five free pitches by means of fixtures 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 force, i.e. the summit of the force/extension diagram. The force at this point shall exceed the minimum tensile strength stated in Tables 1 and 2.

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

**3.4.2.3** The tensile test shall be considered as 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.

**3.4.2.4** These requirements do not apply to cranked links, connecting links or chains with attachments, as their tensile strength could be reduced.