
**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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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Chains	2
3.1 Nomenclature of assemblies and components	2
3.2 Designation	4
3.3 Dimensions	4
3.4 Performance requirements	6
3.4.1 General	6
3.4.2 Tensile testing	7
3.4.3 Preloading	7
3.4.4 Length validation	7
3.4.5 Dynamic testing	7
3.5 Marking	8
3.6 Cranked links	8
4 Attachments	12
4.1 Nomenclature	12
4.2 General	13
4.3 Designation	13
4.4 Dimensions	14
4.5 Manufacture	14
4.6 Marking	14
5 Chain sprockets	16
5.1 General	16
5.2 Nomenclature	16
5.3 Diametral dimensions of sprocket rim	19
5.3.1 Nomenclature	19
5.3.2 Dimensions	19
5.4 Sprocket tooth gap forms	20
5.4.1 Nomenclature	20
5.4.2 Dimensions	20
5.5 Tooth heights and tip diameters	21
5.5.1 Nomenclature	21
5.5.2 Dimensions	21
5.6 Sprocket rim profiles	22
5.6.1 Nomenclature	22
5.6.2 Dimensions	22
5.7 Radial run-out	22
5.8 Axial run-out (wobble)	23
5.9 Pitch accuracy of sprocket teeth	23
5.10 Number of teeth	23
5.11 Bore tolerance	23
5.12 Marking	23
Annex A (normative) Pitch circle diameters	24
Annex B (informative) Equivalent chain designations	26
Annex C (informative) Method of calculating chain minimum dynamic strength	27
Annex D (informative) Method of determining maximum test force $F_{\max}$ when conducting dynamic strength conformance test	30
Annex E (informative) Examples of methods used to avoid an excessive increase in the rate	

of stress during the tensile test	31
Annex F (informative) Methods used to approximate the minimum dynamic test values for multiplex chains	34
Bibliography	35

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 100, *Chains and chain sprockets for power transmission and conveyors*.

This fourth edition cancels and replaces the third edition (ISO 606:2004), which has been technically revised. It also incorporates Technical Corrigendum ISO 606:2004/Cor. 1:2006.

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, and on the other by chains representing the unification of the principal standards originating in Europe, 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 these numbers have now been introduced into this International Standard in place of the previous ISO reference numbers (04C, 06C, 08A, 10A, etc.) To assist in cross-referencing the ANSI and previous ISO numbers, details are included in [Annex B](#) of this International Standard.

The ANSI heavy series of chains (suffix H) are specified in this International Standard. The ANSI heavy series of chains differs from the ANSI standard series in that thicker plates are used.

The ANSI extra heavy series of chains (suffix HE) are now included. The ANSI extra heavy series are dimensionally as the ANSI heavy series (suffix H) but have a higher minimum ultimate tensile strength.

[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.

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 documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 286-2:2010, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts*

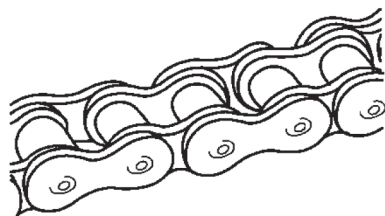
ISO 15654, *Fatigue test method for transmission precision roller chains*

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3 Chains

3.1 Nomenclature of assemblies and components

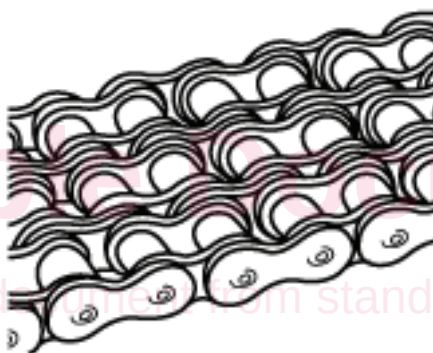
The nomenclature of chain assemblies and their component parts is shown in [Figures 1](#) and [2](#) (which do not define the actual form of the chain plates).



a) Simplex chain

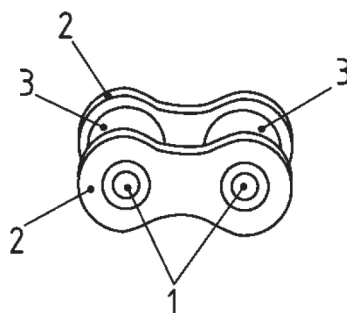


b) Duplex chain



c) Triplex chain

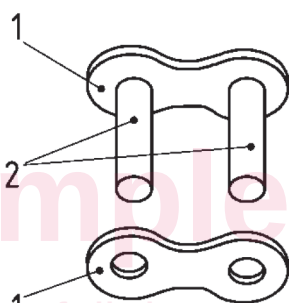
Figure 1 — Types of roller chain assembly



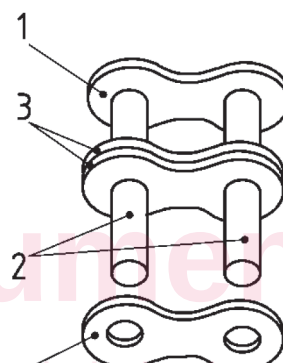
a) Inner link

Key for a)

- 1 bush
- 2 inner plate
- 3 roller



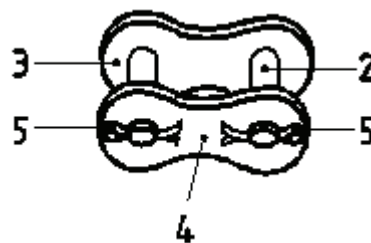
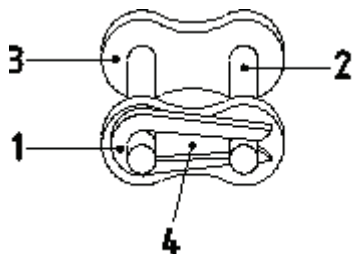
Simplex outer link



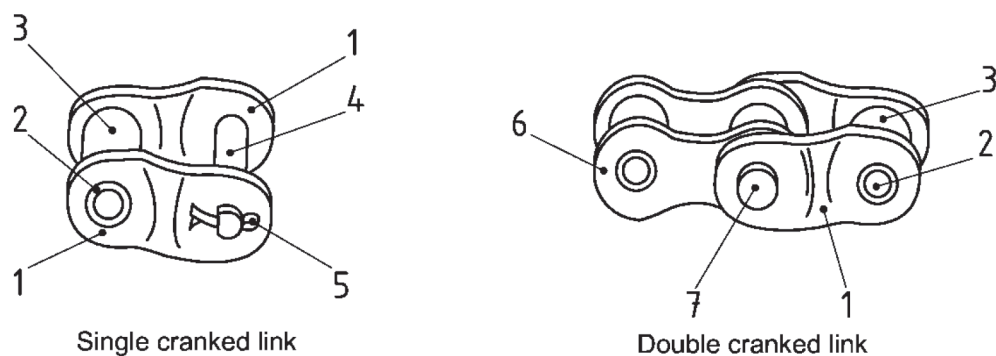
Duplex outer link

b) Outer links for riveting**Key for b)**

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

**c) Detachable connecting links****Key for c)**

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



d) Cranked links

Key for d)

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

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

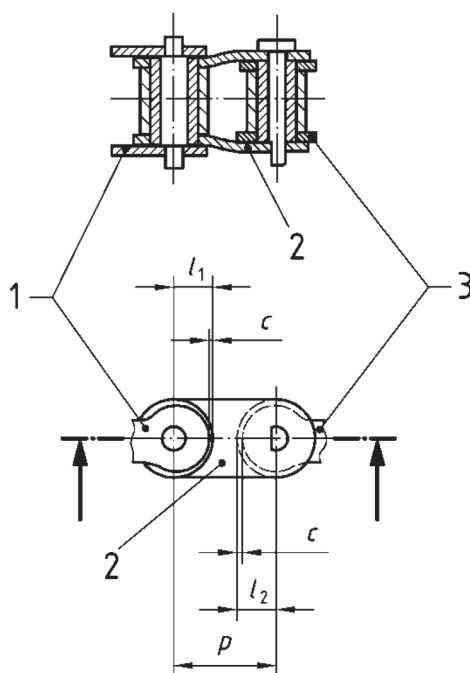
3.2 Designation

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, 80-1, 80-2, 80-3. Chains 081, 083, 084 and 41 do not follow this procedure since they are normally available in simplex form only.

The chains designated in [Table 2](#) are the ANSI heavy and extra 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, 80HE-1, 80HE-2, 80HE-3.

3.3 Dimensions

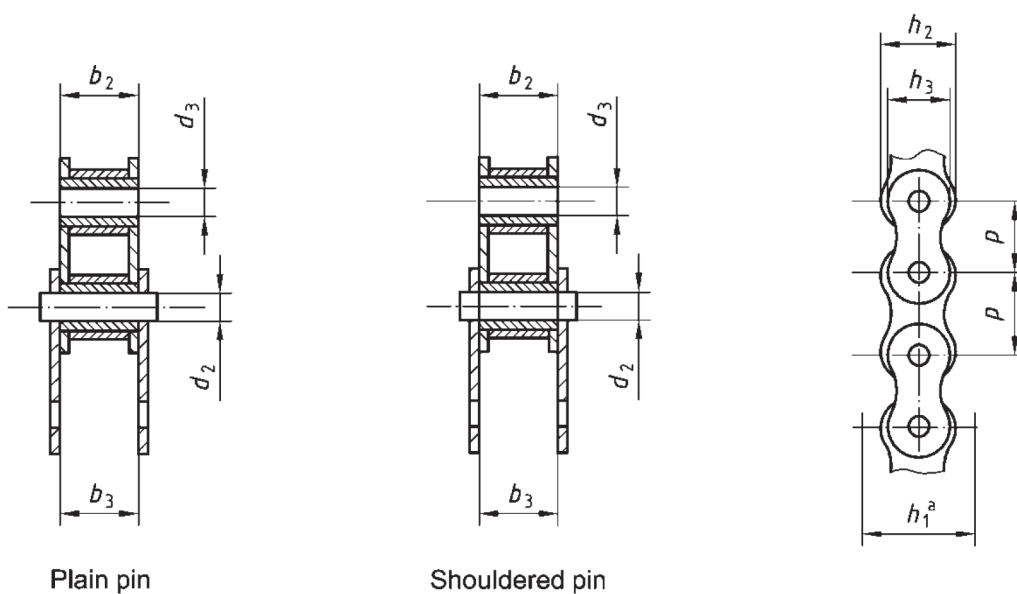
Chains shall conform to the dimensions shown in [Figure 3](#) and given in [Tables 1](#) and [2](#). Maximum and minimum dimensions are specified to ensure interchangeability of links produced by different makers of chain. They represent limits for interchangeability, but are not the manufacturing tolerances.



a) Cranked link

Key for a)

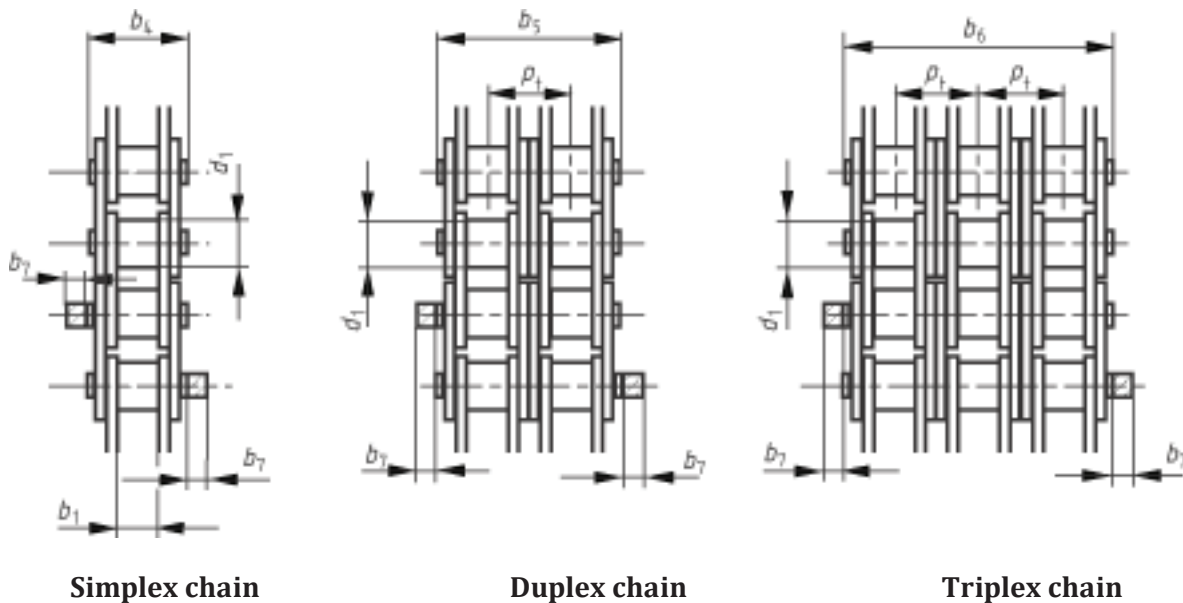
- c clearance between cranked link plates and straight plates available during articulation
 p pitch
 1 outer plate
 2 cranked plate
 3 inner plate



b) Sections through chain

Key for b)

- ^a Chain path depth is the minimum depth of channel through which the assembled chain will pass



c) Types of chain

NOTE For the symbols, see [Table 1](#).

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. 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 chains to determine whether the subject chain complies with the minimum requirements specified in [Tables 1](#) and [2](#).