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Motor cycle chains — Characteristics and test methods

iTeh STANDARD PREVIEW
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ISO 10190:1992

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Reference number
ISO 10190:1992(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 10190 was prepared by Technical Committee ISO/TC 100, *Chains and chain wheels for power transmission and conveyors*.

Annex A of this International Standard is for information only.

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Introduction

This International Standard has been produced to meet the increasing demands for different chains suitable for motor cycle applications; precision roller chains specified in ISO 606 do not necessarily have the required performance for motor cycle use.

The values given in this International Standard are derived from values in Imperial units; the original values are given in annex A for reference purposes.

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Motor cycle chains — Characteristics and test methods

1 Scope

This International Standard specifies the dimensions and mechanical properties of roller and bush chains, in the range 6,35 mm to 19,05 mm pitch, for use in motor cycle applications. These chains are suitable for internal drives, for example camshaft, balancer and primary, and for external drives, for example rear drives.

It covers dimensions, tolerances, length measurement, proof-testing, minimum tensile strengths, and dynamic testing.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was 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 edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 606:—¹⁾, *Short-pitch transmission precision roller chains and chain wheels.*

3 Motor cycle chains

3.1 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.

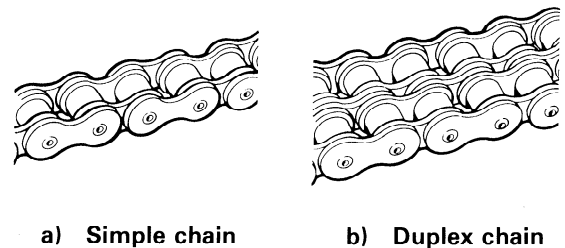
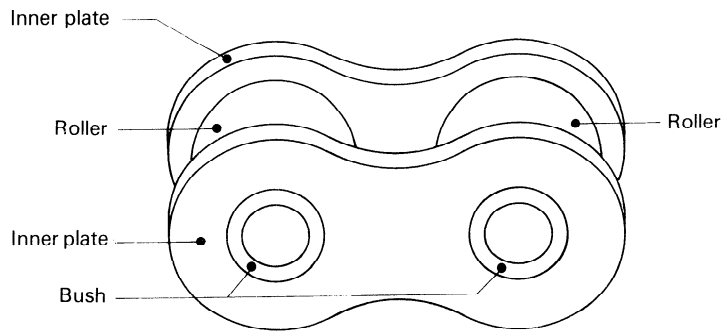
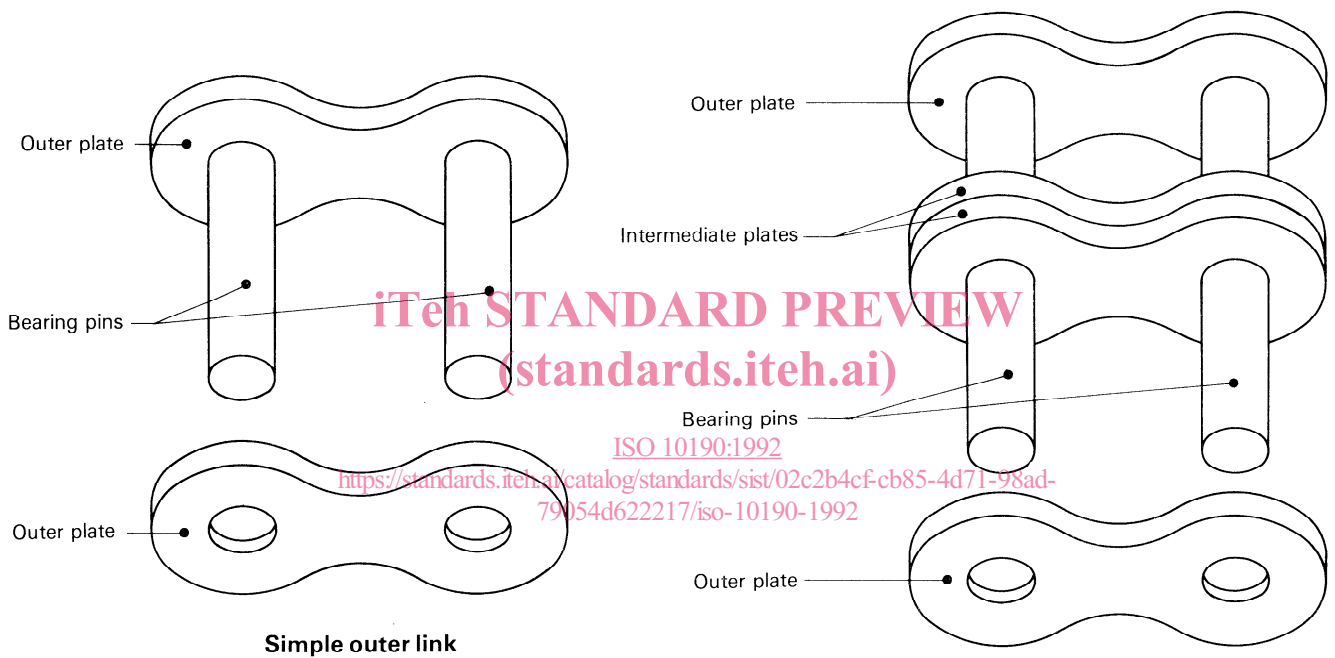


Figure 1 — Types of roller chain assembly

1) To be published. (Revision of ISO 606:1982)

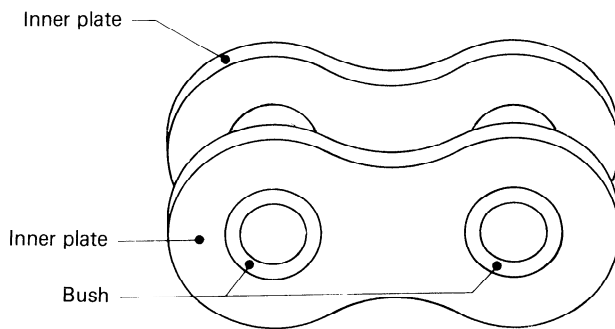


Roller chain — inner link



Simple outer link

Duplex outer link



Bush chain — inner link

Figure 2 — Types of link

3.2 Designation

Motor cycle chains shall be designated by the ISO chain number given in table 1, the first two digits expressing the nominal pitch in sixteenths of an inch.

3.3 Dimensions

Chains shall comply with the dimensions shown in figure 3 and given in table 1. Maximum and minimum dimensions are specified to ensure interchangeability of chains produced by different makers over the same sprockets. They are not the actual manufacturing tolerances.

3.4 Performance requirements

The tests given in 3.4.1 to 3.4.4 shall be performed to determine whether the subject chain complies with the minimum requirements specified in table 1.

WARNING — The test requirements specified do not relate to actual chain applications; therefore neither the values specified nor the test results should be taken as working forces.

The test results will be invalid if the chain has previously been in service or stressed in any way (other than by proof loading in accordance with 3.4.2).

3.4.1 Tensile testing

3.4.1.1 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 3.4.1.2. 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.

3.4.1.2 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 five 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 force, i.e. the summit of the force/extension diagram.

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

3.4.1.3 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.

3.4.2 Proof testing

All chains shall be proof tested by applying a tensile force at least equivalent to one-third of the minimum tensile strength given in table 1.

3.4.3 Length accuracy

Finished chains shall be measured after proof testing but before lubricating.

The standard length for measurement shall be a minimum of 610 mm and the chain shall terminate with an inner link at each end.

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

The measured length shall be the nominal length $^{+0.15}_0$ %.

3.4.4 Dynamic testing

3.4.4.1 Procedure

A longitudinal tensile force shall be applied to the ends of a length of chain, containing at least five free pitches, by means of shackles permitting free movement on both sides of the chain centreline in the normal plane of articulation.

The longitudinal tensile force shall be applied, sinusoidally varying between the upper limit F_1 and the lower limit F_2 specified in table 1, for 3×10^6 cycles.

3.4.4.2 Requirements

The chain shall survive this test without component failure and without damage.

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

This test shall be considered a destructive test. Even though a chain may not visibly fail, it will have been overstressed and will be unfit for service.

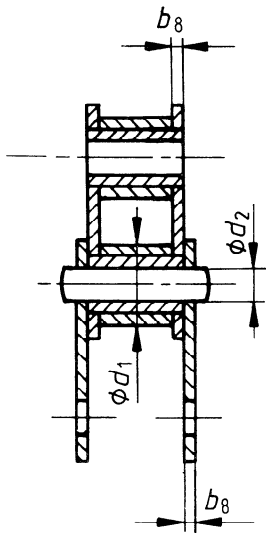
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3.5 Marking

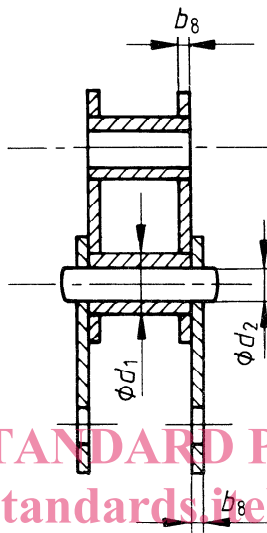
The chain shall be marked with the manufacturer's identification, and the chain and/or its packaging shall be marked with the ISO chain number quoted in table 1.

4 Chain wheels

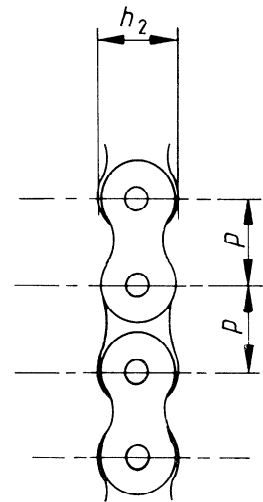
To ensure interchangeability between motor cycle chains and their respective chain wheels, the latter shall comply with the dimensions specified in ISO 606.



Roller chain

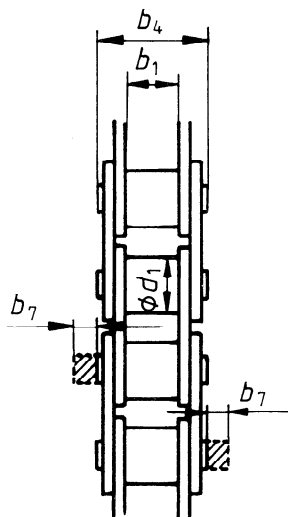


Bush chain

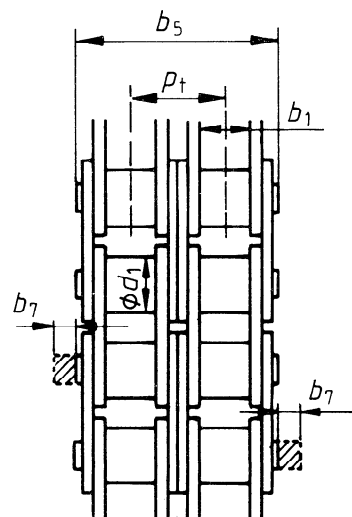


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Simple chain



Duplex chain

Figure 3 — Chains

Table 1 — Principal chain dimensions, measuring forces and tensile strengths (see figure 3)

ISO chain number	Pitch p	Roller/bush diameter d_1 max.	Width between inner plates b_1 min.	Bearing pin body diameter ¹⁾ d_2 nom.	Width over bearing pin b_4 max.	Additional width for joint fastener ²⁾ b_7 max.	Plate depth h_2 max.	Plate thickness ¹⁾ b_8 nom.	Tensile strength min.	Measuring force	Dynamic test	
											Upper force F_1	Lower force F_2
mm												
083 3)	12,7	7,75	4,88	4	12,9	1,5	10,3	1,4	11 600	120	—	—
084 3)	12,7	7,75	4,88	4	14,8	1,5	11,2	1,7	15 600	120	—	—
04 MA 4)	6,35	3,3	3,1	2,3	9,1	1,5	6	1	4 500	50	1 000	200
05 MA 4)	7,774	4,59	4,68	3	12	1,6	7,6	1,2	6 600	70	1 300	200
05 MB 4)	8	4,77	5,72	3,3	13,9	1,6	7,6	1,4	8 900	70	2 000	200
05 MC 4)	8,5	5	4,75	3,3	13,3	1,7	8,6	1,8	9 800	70	2 200	220
08 MA	12,7	7,77	6,25	4	16	1,6	12,1	1,5	15 000	120	3 500	350
08 MB	12,7	8,51	7,75	4,4	17	2,5	12,5	1,5	17 800	120	3 700	370
08 MC	12,7	8,51	7,75	4,4	19,3	2,5	12,5	2	20 600	120	4 400	440
08 MB-2 5)	12,7	8,51	7,75	4,4	31,2	2,5	12,5	1,5	31 100	250	6 400	640
10 MA	15,875	10,16	6,25	5,2	19	2,5	15,3	2	26 500	200	6 800	680
10 MB	15,875	10,16	9,4	5,2	22	2,5	15,3	2	26 500	200	6 800	680
12 MA	19,05	11,91	9,4	5,9	24	3	18,6	2,4	35 000	280	9 000	900

1) The bearing pin body diameter and plate thickness are given for guidance only and may differ from one brand of chain to another. Chains from different manufacturers should not therefore be joined together.

2) The additional width for joint fasteners is given for reference only. The use of joint fasteners is not recommended. Wherever possible, chains should be riveted endless.

3) Chain numbers 083 and 084 are intended for use on mopeds only. They have been transferred to this International Standard from ISO 606.

4) Chain numbers 04 MA, 05 MA, 05 MB and 05 MC are bush chains.

5) Chain number 08 MB-2 is a duplex chain with a transverse pitch $p_t = 14,38$ mm.