INTERNATIONAL STANDARD

ISO 1275

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Double-pitch precision roller chains, attachments and associated chain sprockets for transmission and conveyors

Chaînes de précision à rouleaux à pas double, plaques-attaches et pignons dentés correspondants pour transmission et manutention

Reference number
ISO 1275:2006(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.

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 1275 was prepared by Technical Committee ISO/TC 100, *Chains and chain sprockets for power transmission and conveyors*.

This fourth edition cancels and replaces the third edition (ISO 1275:1995), which has been technically revised.

Introduction

This International Standard has been established to cover a range of chains used in the majority of countries in the world by unifying dimensions, strengths and other data from current national standards.

The principal feature of these chains is their derivation from the ISO 606 series by using the standard round parts in links that are double the standard pitch.

Chains have been adopted from the ANSI, BS and DIN double-pitch series to form a range from 25,4 mm to 101,6 mm pitch. Versions of chains are included with normal and with thicker plate materials, with the alternatives of smaller or larger rollers, as well as a range of attachments and sprockets.

The dimensions of the chains provide for complete interchangeability of individual links, and the sprocket dimensions allow complete interchangeability of chains of the same pitch and the same chain designation (either A or B series).

Double-pitch precision roller chains, attachments and associated chain sprockets for transmission and conveyors

1 Scope

This International Standard specifies requirements for double-pitch precision roller chains suitable for the mechanical transmission of power and for conveyors, together with those for their associated sprockets. It covers dimensions, tolerances, length measurement, preloading and minimum tensile strengths.

These double-pitch chains have been derived from some of the short-pitch transmission precision roller chains covered by ISO 606 having certain common dimensions but of double the pitch.

The chains are intended for use under less onerous conditions with respect to speed and power transmitted than are the base chains from which they are derived.

This International Standard primarily applies to sprockets with 5 to 75 teeth inclusive (with intermediate numbers of teeth 5 1/2 to 74 1/2 inclusive).

The preferred numbers of teeth are 7, 9, 10, 11, 13, 19, 27, 38 and 57.

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

ISO 606, *Short-pitch transmission precision roller and bush chains, attachments and associated chain sprockets*

3 Transmission chains

3.1 Assembly and component nomenclature

The nomenclature of the chain assemblies and their component parts is illustrated in Figures 1 and 2.

NOTE The figures do not define the actual form of the chain plates.

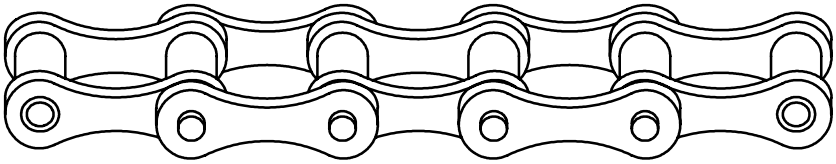
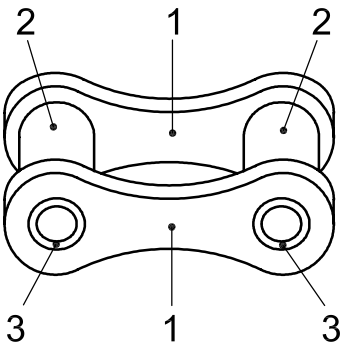


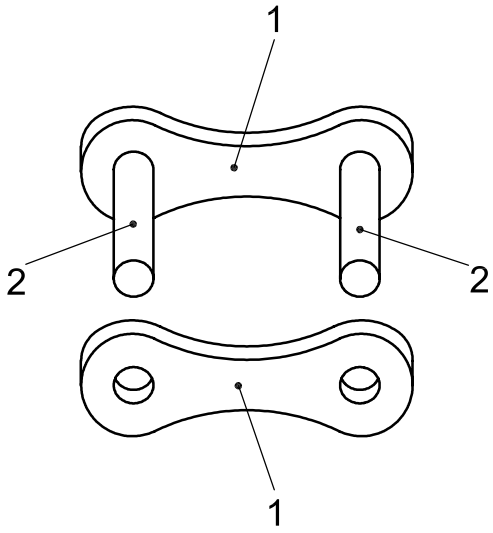
Figure 1 — Chain assembly



Key

1 inner plate
2 roller
3 bush

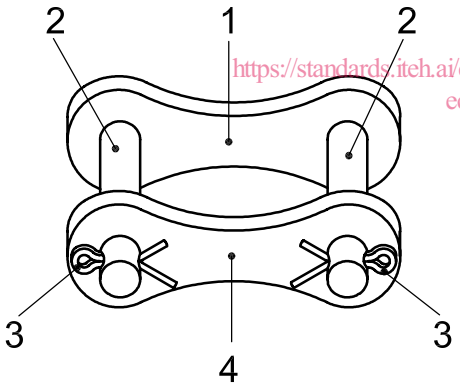
a) Inner link



Key

1 outer plate
2 pin

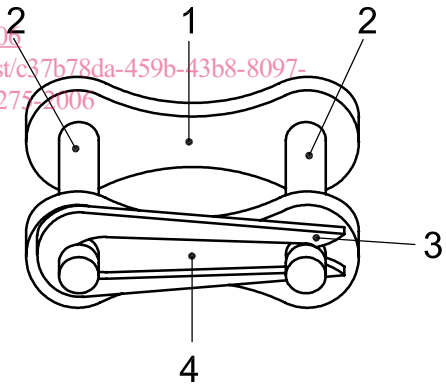
b) Outer link



Key

1 outer plate
2 cottered connecting pin
3 cotter
4 detachable plate

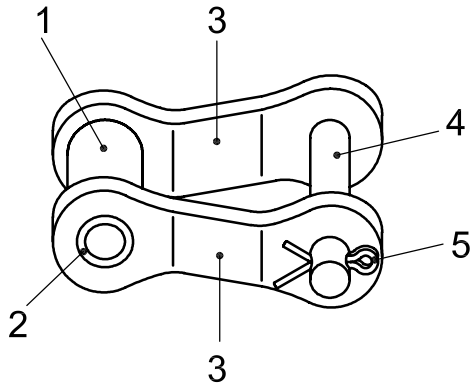
c) Connecting pin with cottered pin



Key

1 outer plate
2 spring clip connecting pin
3 spring clip
4 detachable plate

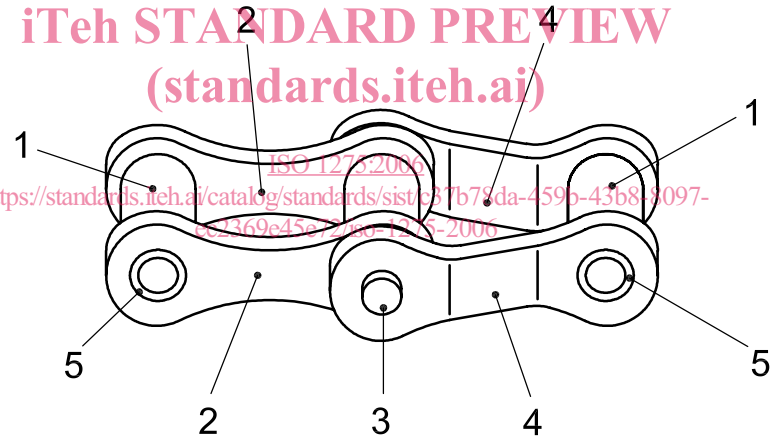
d) Spring clip connecting link



Key

1 roller
2 bush
3 cranked plate
4 cranked link pin
5 cotter

e) Single cranked link



Key

1 roller
2 inner plate
3 pin, riveted
4 cranked plate
5 bush

f) Double cranked link

NOTE 1 Plate dimensions are shown in Table 1.

NOTE 2 Fasteners can be of various designs. Figures give examples.

Figure 2 — Types of link

3.2 Designation

Double-pitch transmission precision roller chains are designated by the standard ISO chain numbers given in Table 1. These chain numbers have been obtained by taking the standard ISO chain number for the base chain (given in ISO 606) and adding the prefix 2.

EXAMPLE Chain ISO 1275-208B

3.3 Dimensions

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

In this International Standard, only double-pitch simplex chain dimensions are shown.

3.4 Tensile testing

3.4.1 General

The minimum tensile strength is that value which shall be exceeded when a tensile force is applied to a sample tested to destruction as defined in 3.4.2. This minimum tensile strength is not a working load but is intended primarily as a comparative figure between chains of various constructions.

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

3.4.2 Testing

A tensile force 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 centre-line, 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 must exceed the minimum tensile strength stated in Table 1.

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

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.

3.5 Preloading

It is recommended that all chains be preloaded by applying a minimum tensile force equivalent to 30 % of the minimum tensile strength given in Table 1.

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

ISO Chain number	Pitch	Maximum roller diameter (small) [a]	Maximum roller diameter (large) [a]	Minimum width between inner plates	Maximum bearing pin body diameter	Minimum bush bore	Minimum chain path depth	Maximum plate depth	Minimum cranked link [b]	Maximum width over inner link	Minimum width between outer plates	Maximum width over bearing pin	Maximum additional width for joint fastener [c]	Measuring force	Minimum tensile strength
	p	d_1	d_7	b_1	d_2	d_3	h_1	h_2	l_1	b_2	b_3	b_4	b_7		
	mm													N	kN
208A	25,4	7,92	15,88	7,85	3,98	4,00	12,33	12,07	6,9	11,17	11,31	17,8	3,9	120	13,9
208B	25,4	8,51	15,88	7,75	4,45	4,50	12,07	11,81	6,9	11,30	11,43	17,0	3,9	120	17,8
210A	31,75	10,16	19,05	9,40	5,09	5,12	15,35	15,09	8,4	13,84	13,97	21,8	4,1	200	21,8
210B	31,75	10,16	19,05	9,65	5,08	5,13	14,99	14,73	8,4	13,28	13,41	19,6	4,1	200	22,2
212A	38,1	11,91	22,23	12,57	5,96	5,98	18,34	18,10	9,9	17,75	17,88	26,9	4,6	280	31,3
212B	38,1	12,07	22,23	11,68	5,72	5,77	16,39	16,13	9,9	15,62	15,75	22,7	4,6	280	28,9
216A	50,8	15,88	28,58	15,75	7,94	7,96	24,39	24,13	13	22,60	22,74	33,5	5,4	500	55,6
216B	50,8	15,88	28,58	17,02	8,28	8,33	21,34	21,08	13	25,45	25,58	36,1	5,4	500	60,0
220A	63,5	19,05	39,67	18,90	9,54	9,56	30,48	30,17	16	27,45	27,59	41,1	6,1	780	87,0
220B	63,5	19,05	39,67	19,56	10,19	10,24	26,68	26,42	16	29,01	29,14	43,2	6,1	780	95,0
224A	76,2	22,23	44,45	25,22	11,11	11,14	36,55	36,20	19,1	35,45	35,59	50,8	6,6	1 110	125,0
224B	76,2	25,4	44,45	25,40	14,63	14,68	33,73	33,40	19,1	37,92	38,05	53,4	6,6	1 110	160,0
228B	88,9	27,94	—	30,99	15,90	15,95	37,46	37,08	21,3	46,58	46,71	65,1	7,4	1 510	200,0
232B	101,6	29,21	—	30,99	17,81	17,86	42,72	42,29	24,4	45,57	45,70	67,4	7,9	2 000	250,0

a Large rollers are principally for conveyor chains but are sometimes used on transmission chains; add suffix “L” to the chain number.

b Cranked links are not recommended for use in highly stressed applications.

c The actual dimensions will depend on the type of fastener used but should not exceed the dimensions given and should be obtained by the purchaser from the manufacturer.