

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 606

SHORT PITCH TRANSMISSION PRECISION ROLLER CHAINS
AND CHAIN WHEELS

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BRIEF HISTORY

The ISO Recommendation R 606, *Short Pitch Transmission Precision Roller Chains and Chain Wheels*, was drawn up by Technical Committee ISO/TC 100, *Chains and Chain Wheels for Power Transmission and Conveyors*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question by the Technical Committee began in 1961 and led, in 1964, to the adoption of a Draft ISO Recommendation.

In February 1965, this Draft ISO Recommendation (No. 799) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Argentina	India	Spain
Australia	Italy	Sweden
Belgium	Japan	Turkey
Chile	New-Zealand	U.A.R.
Czechoslovakia	Poland	United Kingdom
Denmark	Republic	U.S.A.
France	of South Africa	
Germany	Romania	

One Member Body opposed the approval of the Draft:

U.S.S.R.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in July 1967, to accept it as an ISO RECOMMENDATION.

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SHORT PITCH TRANSMISSION PRECISION ROLLER CHAINS AND CHAIN WHEELS

INTRODUCTION

The provisions of this ISO Recommendation have been arrived at by including sizes of chains used by the majority of countries in the world, and by unifying dimensions, strength and other data in respect of which current national standards were differing and at the same time eliminating certain side ranges listed in some national standards for which it was considered a universal usage had not been established.

The whole applicational field open to this medium of transmission has been covered by the ranges of chains already established. To achieve this the sizes of 12.7 mm (0.5 in) to 76.2 mm (3.0 in) pitch inclusive have been duplicated by the inclusion of chains derived from standards originating in the western hemisphere and centred around USASI (suffix A) and, on the other hand, by chains representing the unification of the principal standards originating in Europe and centred around BSI (suffix B), the two being complementary for the coverage of the widest possible field of application.

The part of this ISO Recommendation covering chain wheels represents the unification of all the relevant national standards in the world and includes, in particular, complete tolerances relating to tooth form which are absent from most current national standards.

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

1. SCOPE

This ISO Recommendation applies to short pitch precision roller chains of simple and multiplex construction suitable for the mechanical transmission of power and allied applications, together with the tooth gap forms and rim profiles of their associated chain wheels. It covers dimensions, tolerances, measuring loads and minimum breaking loads.

2. CHAINS

2.1 Nomenclature

The illustrations shown in this clause and in the key to Tables 1, 1M, 2 and 2M, do not define the actual form of the chain plates.

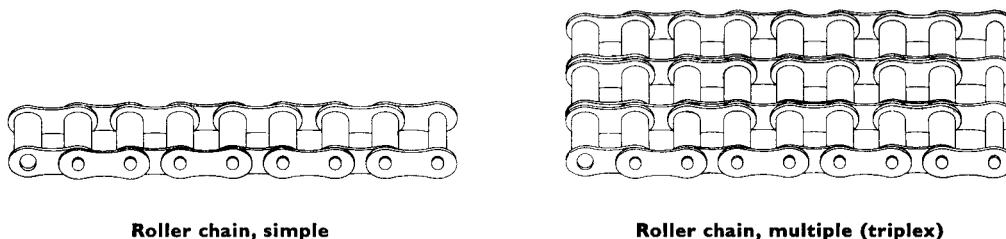


FIG. 1. — Roller chains

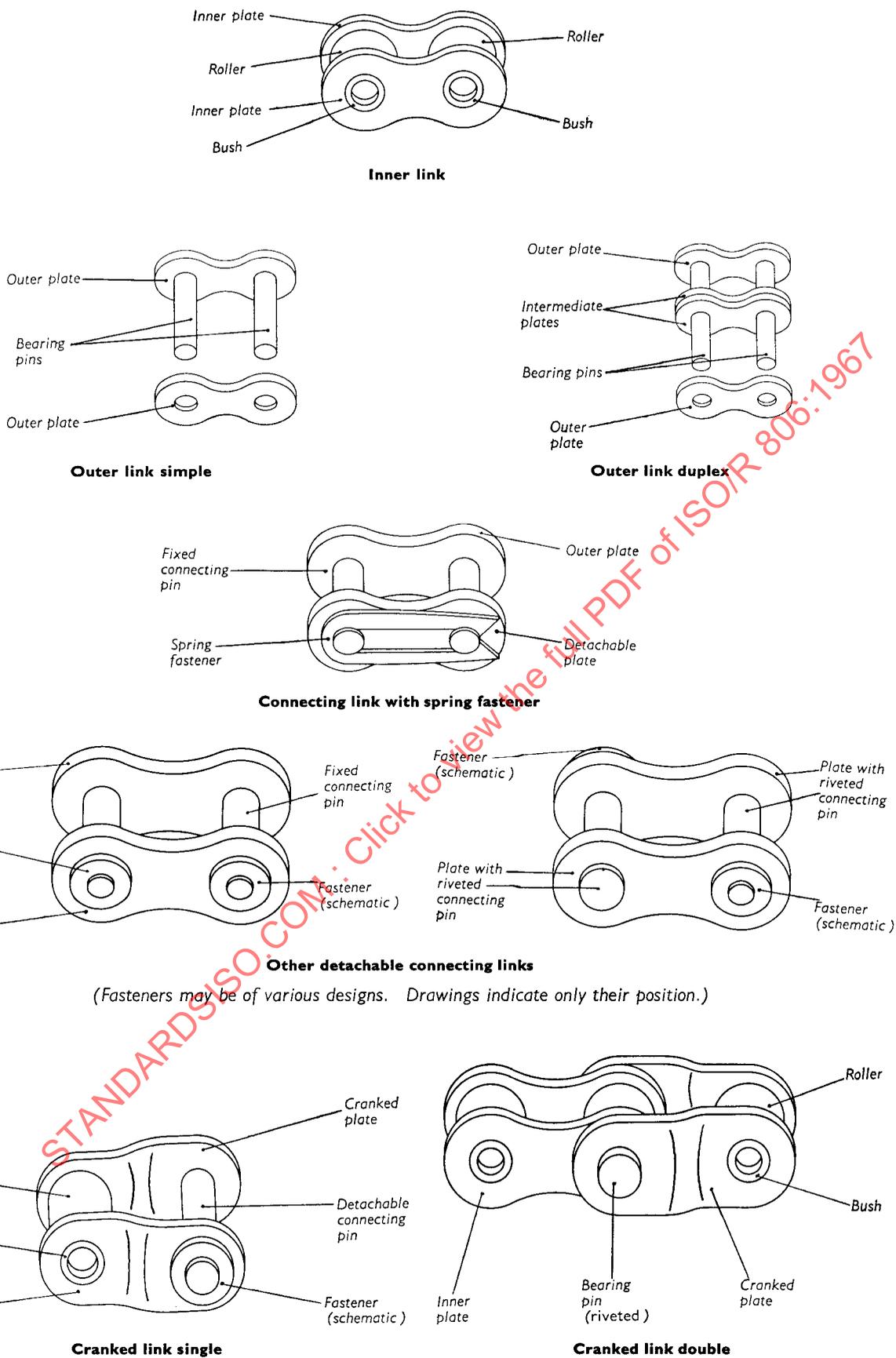


FIG. 2. — Types of links

Dimensional definitions are contained in the key to Tables 1, 1M, 2 and 2M.

2.2 Designation

Transmission precision roller chains are designated by the standard ISO numbers given in the Tables 1, 1M, 2 and 2M, first column, the first two digits expressing the pitch in sixteenths of an inch. The chain numbers in Tables 1 and 1M are supplemented by a hyphenated suffix 1 for simple chain, 2 for duplex chain, 3 for triplex chain etc., e.g. 16B-1, 16B-2, 16B-3, etc.

2.3 Dimensions

Chains should conform to the dimensions given in Tables 1, 1M, 2 and 2M. 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 actual tolerances that should be used in manufacture.

2.4 Breaking loads

The test length should have a minimum of 5 free pitches. The ends should be attached to the testing machine shackles by a pin through the plate holes or the bushes or by the bush common to an inner or outer link. The shackles should be so designed as to allow universal movement; the actual method to be used is left to the discretion of the manufacturer.

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

The minimum tensile breaking loads should be those given in Tables 1, 1M, 2 and 2M.

2.5 Proof loading

All chains should be proof loaded to one-third of the minimum tensile breaking load given in Tables 1, 1M, 2 and 2M.

2.6 Length accuracy

Finished chains should be measured after proof loading (where applicable) but before lubricating.

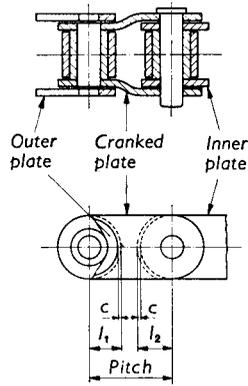
The standard length for measurement should be 49 times the pitch of the chain or 1524 mm (60 in), whichever is less, and should terminate at each end in an inner link.

The chain should be supported throughout its entire length, and the measuring load given in Tables 1, 1M, 2 and 2M, should be applied.

To comply with this ISO Recommendation, the length should be the nominal length subject to the tolerance

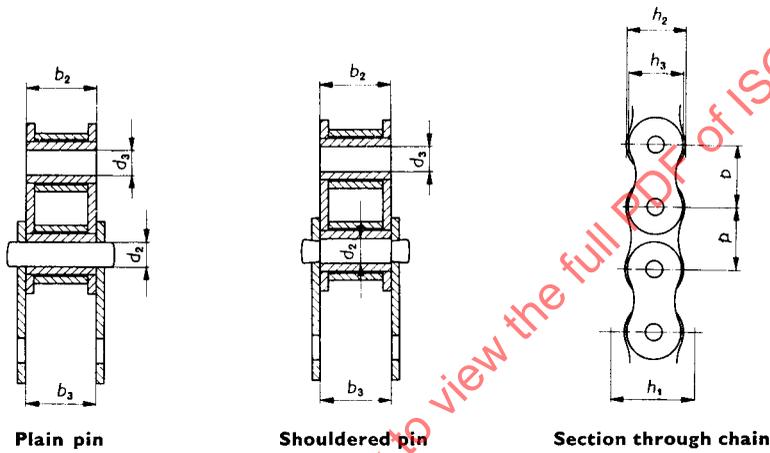
$$\begin{array}{c} 0\% \\ +0.15\% \end{array}$$

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



Cranked link

Dimension c represents the clearance between the cranked link plates and the straight plates available during articulation.

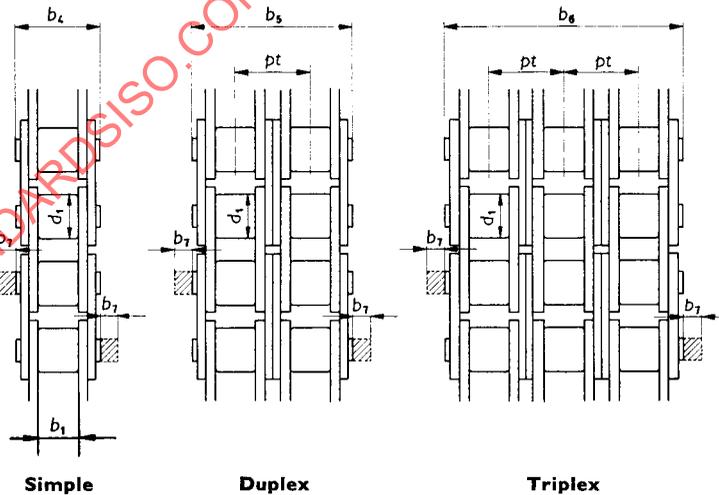


Plain pin

Shouldered pin

Section through chain

The chain path depth h_1 is the minimum depth of channel through which the assembled chain will pass.



Simple

Duplex

Triplex

The overall width of a chain with a joint fastener is equal to the width over the bearing pins b_4 , b_5 or b_6 plus b_7 for riveted pin end (or plus $1.6 b_7$ for headed pin end) if fastener is on one side only, or plus $2 b_7$ if fastener is on both sides.

The width over bearing pins for chains wider than triplex = $b_4 + pt$ (number of strands in chain - 1).

FIG. 3. — Key to Tables 1, 1M, 2 and 2M

Dimensions, measuring loads & breaking loads of base chains

13	14	15	16	17	18	19	20	21	22	23	24	25
Transverse pitch	Width over inner link	Width between outer plates	Width over bearing pins			Additional width for joint fastener **	Measuring load			Breaking load		
			Simple	Duplex	Triplex		Simple	Duplex	Triplex	Simple	Duplex	Triplex
—	—	—	Simple	Duplex	Triplex	—	Simple	Duplex	Triplex	Simple	Duplex	Triplex
<i>pt</i>	<i>b</i> ₂ max.	<i>b</i> ₃ min.	<i>b</i> ₄ max.	<i>b</i> ₅ max.	<i>b</i> ₆ max.	<i>b</i> ₇ max.	—	—	—	min.	min.	min.
in	in	in	in	in	in	in	lb	lb	lb	lb	lb	lb
0.222	0.188	0.193	0.34	0.57	0.79	0.12	11	22	33	1 000	1 750	2 500
0.403	0.336	0.341	0.53	0.94	1.34	0.13	16	32	48	2 000	3 800	5 600
0.566	0.440	0.445	0.70	1.27	1.84	0.15	28	56	84	3 100	6 200	9 300
0.548	0.445	0.450	0.67	1.22	1.77	0.15	28	56	84	4 000	7 000	10 000
0.713	0.545	0.550	0.86	1.57	2.28	0.16	44	88	132	4 900	9 800	14 700
0.653	0.523	0.528	0.77	1.43	2.08	0.16	44	88	132	5 000	10 000	15 000
0.897	0.699	0.704	1.06	1.96	2.86	0.18	63	126	189	7 000	14 000	21 000
0.766	0.615	0.620	0.89	1.66	2.43	0.18	63	126	189	6 500	13 000	19 500
1.153	0.890	0.895	1.32	2.47	3.62	0.21	112	224	336	12 500	25 000	37 500
1.255	1.002	1.007	1.42	2.68	3.93	0.21	112	224	336	9 500	19 000	28 500
1.408	1.081	1.086	1.62	3.03	4.45	0.24	175	350	525	19 500	39 000	58 500
1.435	1.142	1.147	1.70	3.14	4.57	0.24	175	350	525	14 500	29 000	43 500
1.789	1.396	1.401	2.00	3.79	5.58	0.26	250	500	750	28 000	56 000	84 000
1.904	1.493	1.498	2.10	4.01	5.91	0.26	250	500	750	22 000	44 000	66 000
1.924	1.464	1.469	2.16	4.08	6.00	0.29	340	680	1 020	38 000	76 000	114 000
2.345	1.834	1.839	2.56	4.91	7.25	0.29	340	680	1 020	29 000	58 000	87 000
2.305	1.780	1.785	2.58	4.89	7.20	0.31	450	900	1 350	50 000	100 000	150 000
2.305	1.794	1.799	2.65	4.96	7.26	0.31	450	900	1 350	38 000	76 000	114 000
2.817	2.161	2.166	3.16	5.98	8.80	0.40	700	1 400	2 100	78 000	156 000	234 000
2.846	2.195	2.200	3.25	6.10	8.95	0.40	700	1 400	2 100	59 000	118 000	177 000
3.458	2.670	2.675	3.76	7.22	10.68	0.41	1 000	2 000	3 000	112 500	225 000	337 500
3.591	2.778	2.783	3.90	7.50	11.09	0.41	1 000	2 000	3 000	90 000	180 000	270 000
4.197	3.202	3.207	4.51	8.71	—	0.46	1 370	2 740	—	122 000	244 000	—
4.720	3.623	3.628	5.15	9.87	—	0.51	1 790	3 580	—	160 000	320 000	—
5.365	4.087	4.092	5.80	11.17	—	0.56	2 270	4 540	—	202 000	404 000	—

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TABLE 1. — (Inch-pound units) Chain dimensions, mm

1	2	3	4	5	6	7	8	9	10	11	12	13
ISO chain number	Pitch	Roller diameter	Width between inner plates	Bearing pin body diameter	Bush bore	Chain path depth	Inner plate depth	Outer intermediate plate depth	Cranked link dimensions *			Transverse pitch
									—	—	—	
	p	d_1 max.	b_1 min.	d_2 max.	d_3 min.	h_1 min.	h_2 max.	h_3 max.	l_1 min.	l_2 min.	c	pt
	in	in	in	in	in	in	in	in	in	in	in	in
05B	0.315	0.197	0.118	0.091	0.093	0.290	0.280	0.280	0.146	0.146	0.003	0.222
06B	0.375	0.250	0.225	0.129	0.131	0.335	0.325	0.325	0.170	0.170	0.003	0.403
08A	0.500	0.313	0.313	0.156	0.158	0.485	0.475	0.410	0.208	0.240	0.003	0.566
08B	0.500	0.335	0.305	0.175	0.177	0.475	0.465	0.430	0.223	0.241	0.003	0.548
10A	0.625	0.400	0.375	0.200	0.202	0.604	0.594	0.513	0.260	0.300	0.004	0.713
10B	0.625	0.400	0.380	0.200	0.202	0.590	0.580	0.540	0.280	0.300	0.004	0.653
12A	0.750	0.469	0.500	0.234	0.236	0.722	0.712	0.615	0.311	0.360	0.004	0.897
12B	0.750	0.475	0.460	0.225	0.227	0.645	0.635	0.635	0.328	0.328	0.004	0.766
16A	1.000	0.625	0.625	0.312	0.314	0.960	0.950	0.820	0.415	0.480	0.005	1.153
16B	1.000	0.625	0.670	0.326	0.328	0.840	0.830	0.830	0.439	0.439	0.005	1.253
20A	1.250	0.750	0.750	0.375	0.377	1.200	1.188	1.025	0.518	0.600	0.006	1.408
20B	1.250	0.750	0.770	0.401	0.403	1.050	1.040	1.040	0.547	0.547	0.006	1.433
24A	1.500	0.875	1.000	0.437	0.439	1.439	1.425	1.230	0.627	0.719	0.007	1.789
24B	1.500	1.000	1.000	0.576	0.578	1.328	1.315	1.315	0.691	0.691	0.007	1.904
28A	1.750	1.000	1.000	0.500	0.502	1.680	1.663	1.435	0.725	0.839	0.008	1.924
28B	1.750	1.100	1.220	0.626	0.628	1.475	1.460	1.460	0.768	0.768	0.008	2.343
32A	2.000	1.125	1.250	0.562	0.564	1.919	1.900	1.640	0.828	0.958	0.008	2.303
32B	2.000	1.150	1.220	0.701	0.703	1.682	1.665	1.665	0.874	0.874	0.008	2.303
40A	2.500	1.562	1.500	0.781	0.783	2.399	2.375	2.050	1.033	1.195	0.008	2.817
40B	2.500	1.550	1.500	0.901	0.903	2.106	2.085	2.085	1.093	1.093	0.008	2.846
48A	3.000	1.875	1.875	0.937	0.939	2.879	2.850	2.460	1.238	1.433	0.008	3.458
48B	3.000	1.900	1.800	1.151	1.153	2.540	2.515	2.515	1.317	1.317	0.008	3.591
56B	3.500	2.125	2.100	1.351	1.353	3.096	3.065	3.065	1.599	1.599	0.008	4.197
64B	4.000	2.500	2.400	1.551	1.553	3.586	3.550	3.550	1.853	1.853	0.008	4.720
72B	4.500	2.850	2.700	1.751	1.753	4.121	4.080	4.080	2.101	2.101	0.008	5.365

* Cranked links are not recommended for use on chains which are intended for onerous applications.

** The actual dimensions will depend on the type of fastener used but they should not exceed the dimensions in this column, details of which should be obtained by the purchaser from the manufacturer.

NOTE. — Regarding chains 08B and 10B, narrow versions of the simple chain having widths between inner plates of 5.21 mm (0.205 in) min. (08B) and 6.48 mm (0.255 in) min. (10B) may be used for motorcycle applications.

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units) Chain dimensions, measuring loads & breaking loads of base chains

11	12	13	14	15	16			18	19	20			23			24			25
					Width over bearing pins					Measuring load			Breaking load						
Link dimensions *	Transverse pitch	Width over inner link	Width between outer plates	Width over bearing pins			Additional width for joint fastener **	Measuring load			Breaking load								
l_2 min.	c	pt	b_2 max.	b_3 min.	Simple b_4 max.	Duplex b_5 max.	Triplex b_6 max.	b_7 max.	Simple	Duplex	Triplex	Simple min.	Duplex min.	Triplex min.	Simple	Duplex	Triplex		
mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg	kg	kg	kg	kg	kg	kg		
3.71	0.08	5.64	4.77	4.90	8.6	14.3	19.9	3.1	5	10	15	460	800	1 140					
4.32	0.08	10.24	8.53	8.66	13.5	23.8	34.0	3.3	8	15	22	910	1 730	2 540					
6.10	0.08	14.38	11.18	11.31	17.8	32.3	46.7	3.9	13	26	39	1 410	2 820	4 230					
6.12	0.08	13.92	11.30	11.43	17.0	31.0	44.9	3.9	13	26	39	1 820	3 180	4 540					
7.62	0.10	18.11	13.84	13.97	21.8	39.9	57.9	4.1	20	40	60	2 220	4 440	6 660					
7.62	0.10	16.59	13.28	13.41	19.6	36.2	52.8	4.1	20	40	60	2 270	4 540	6 810					
9.14	0.10	22.78	17.75	17.88	26.9	49.8	72.6	4.6	29	57	86	3 180	6 360	9 540					
8.33	0.10	19.46	15.62	15.75	22.7	42.2	61.7	4.6	29	57	86	2 950	5 900	8 850					
2.19	0.13	29.29	22.61	22.74	33.5	62.7	91.7	5.4	51	102	152	5 670	11 340	17 010					
1.15	0.13	31.88	25.45	25.58	36.1	68.0	99.9	5.4	51	102	152	4 310	8 620	12 930					
5.24	0.15	35.76	27.46	27.59	41.1	77.0	113.0	6.1	79	159	238	8 850	17 700	26 550					
3.89	0.15	36.45	29.01	29.14	43.2	79.7	116.1	6.1	79	159	238	6 580	13 160	19 740					
8.26	0.18	45.44	35.46	35.59	50.8	96.5	141.7	6.6	113	227	340	12 700	25 400	38 100					
7.55	0.18	48.36	37.92	38.05	53.4	101.8	150.2	6.6	113	227	340	9 980	19 960	29 940					
1.31	0.20	48.87	37.19	37.32	54.9	103.6	152.4	7.4	154	308	463	17 240	34 480	51 720					
9.51	0.20	59.56	46.58	46.71	65.1	124.7	184.3	7.4	154	308	463	13 160	26 320	39 480					
4.33	0.20	58.55	45.21	45.34	65.5	124.2	182.9	7.9	204	408	612	22 680	45 360	68 040					
2.20	0.20	58.55	45.57	45.70	67.4	126.0	184.5	7.9	204	408	612	17 240	34 480	51 720					
0.35	0.20	71.55	54.89	55.02	80.3	151.9	223.5	10.2	318	635	953	35 380	70 760	106 140					
7.76	0.20	72.29	55.75	55.88	82.6	154.9	227.2	10.2	318	635	953	26 770	53 540	80 310					
6.40	0.20	87.83	67.82	67.95	95.5	183.4	271.3	10.5	454	907	1 361	51 030	102 060	153 090					
3.45	0.20	91.21	70.56	70.69	99.1	190.4	281.6	10.5	454	907	1 361	40 830	81 650	122 470					
0.61	0.20	106.60	81.33	81.46	114.6	221.2	—	11.7	621	1 243	—	55 340	110 680	—					
7.07	0.20	119.89	92.02	92.15	130.9	250.8	—	13.0	812	1 624	—	72 580	145 150	—					
3.37	0.20	136.27	103.81	103.94	147.4	283.7	—	14.3	1 030	2 059	—	91 630	183 260	—					

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TABLE 1M. — (Metric units) Chain dimensions, measu

1	2	3	4	5	6	7	8	9	10	11	12	13
ISO chain number	Pitch	Roller diameter	Width between inner plates	Bearing pin body diameter	Bush bore	Chain path depth	Inner plate depth	Outer intermediate plate depth	Cranked link dimensions *			Transverse pitch
	—	—	—	—	—	—	—	—	—	—	—	—
	p	d_1 max.	b_1 min.	d_2 max.	d_3 min.	h_1 min.	h_2 max.	h_3 max.	l_1 min.	l_2 min.	c	pt
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
05B	8.00	5.00	3.00	2.31	2.36	7.37	7.11	7.11	3.71	3.71	0.08	5.64
06B	9.525	6.35	5.72	3.28	3.33	8.52	8.26	8.26	4.32	4.32	0.08	10.24
08A	12.70	7.95	7.95	3.96	4.01	12.33	12.07	10.41	5.28	6.10	0.08	14.38
08B	12.70	8.51	7.75	4.45	4.50	12.07	11.81	10.92	5.66	6.12	0.08	13.92
10A	15.875	10.16	9.53	5.08	5.13	15.35	15.09	13.03	6.60	7.62	0.10	18.11
10B	15.875	10.16	9.65	5.08	5.13	14.99	14.73	13.72	7.11	7.62	0.10	16.59
12A	19.05	11.91	12.70	5.94	5.99	18.34	18.08	15.62	7.90	9.14	0.10	22.78
12B	19.05	12.07	11.68	5.72	5.77	16.39	16.13	16.13	8.33	8.33	0.10	19.46
16A	25.40	15.88	15.88	7.92	7.97	24.39	24.13	20.83	10.54	12.19	0.13	29.29
16B	25.40	15.88	17.02	8.28	8.33	21.34	21.08	21.08	11.15	11.15	0.13	31.88
20A	31.75	19.05	19.05	9.53	9.58	30.48	30.18	26.04	13.16	15.24	0.15	35.76
20B	31.75	19.05	19.56	10.19	10.24	26.68	26.42	26.42	13.89	13.89	0.15	36.45
24A	38.10	22.23	25.40	11.10	11.15	36.55	36.20	31.24	15.80	18.26	0.18	45.44
24B	38.10	25.40	25.40	14.63	14.68	33.73	33.40	33.40	17.55	17.55	0.18	48.36
28A	44.45	25.40	25.40	12.70	12.75	42.67	42.24	36.45	18.42	21.31	0.20	48.87
28B	44.45	27.94	30.99	15.90	15.95	37.46	37.08	37.08	19.51	19.51	0.20	59.56
32A	50.80	28.58	31.75	14.27	14.32	48.74	48.26	41.66	21.03	24.33	0.20	58.55
32B	50.80	29.21	30.99	17.81	17.86	42.72	42.29	42.29	22.20	22.20	0.20	58.55
40A	63.50	39.68	38.10	19.84	19.89	60.93	60.33	52.07	26.24	30.35	0.20	71.55
40B	63.50	39.37	38.10	22.89	22.94	53.49	52.96	52.96	27.76	27.76	0.20	72.29
48A	76.20	47.63	47.63	23.80	23.85	73.13	72.39	62.48	31.45	36.40	0.20	87.83
48B	76.20	48.26	45.72	29.24	29.29	64.52	63.88	63.88	33.45	33.45	0.20	91.21
56B	88.90	53.98	53.34	34.32	34.37	78.64	77.85	77.85	40.61	40.61	0.20	106.60
64B	101.60	63.50	60.96	39.40	39.45	91.08	90.17	90.17	47.07	47.07	0.20	119.89
72B	114.30	72.39	68.58	44.48	44.53	104.67	103.63	103.63	53.37	53.37	0.20	136.27

* Cranked links are not recommended for use on chains which are intended for onerous applications.

** The actual dimensions will depend on the type of fastener used but they should not exceed the dimensions in this column, details of which should be obtained by the purchaser from the manufacturer.

NOTE. — Regarding chains 08B and 10B, narrow versions of the simple chain having widths between inner plates of 5.21 mm (0.205 in) min. (08B) and 6.48 mm (0.255 in) min. (10B) may be used for motorcycle applications.

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(Imperial units) Chain dimensions, measuring loads & breaking loads of cycle & moped chains *

7	8	9	10	11	12	13	14	15	16	17	18
Chain path depth	Inner plate depth	Outer plate depth	Cranked link dimensions **			Width over inner link	Width between outer plates	Width over bearing pins	Additional width for joint fastener ***	Measuring load	Breaking load
h_1 min.	h_2 max.	h_3 max.	l_1 min.	l_2 min.	c	b_2 max.	b_3 min.	b_4 max.	b_7 max.	—	min.
in	in	in	in	in	in	in	in	in	in	lb	lb
0.400	0.390	0.390	0.211	0.211	0.003	0.228	0.233	0.40	0.06	28	1800
0.400	0.390	0.390	0.211	0.211	0.003	0.181	0.186	0.32	***	28	2200
0.416	0.406	0.406	0.211	0.211	0.003	0.311	0.316	0.51	0.06	28	2600
0.449	0.439	0.439	0.227	0.227	0.003	0.346	0.351	0.58	0.06	28	3500
0.400	0.390	0.390	0.208	0.240	0.003	0.357	0.362	0.55	0.08	28	1500

(Metric units) Chain dimensions, measuring loads & breaking loads of cycle & moped chains *

mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg
10.17	9.91	9.91	5.36	5.36	0.08	5.80	5.93	10.2	1.5	13	820	
10.17	9.91	9.91	5.36	5.36	0.08	4.60	4.73	8.2	****	13	1000	
10.56	10.30	10.30	5.36	5.36	0.08	7.90	8.03	12.9	1.5	13	1200	
11.41	11.15	11.15	5.77	5.77	0.08	8.80	8.93	14.8	1.5	13	1600	
10.17	9.91	9.91	5.28	6.10	0.08	9.07	9.20	14.0	2.0	13	680	

Intended for onerous applications.

They should not exceed the dimensions in this column, details of which should be obtained by the purchaser from the manufacturer.

Links should be riveted.

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TABLE 2. — (Inch-pound units) Chain dimensions, measuring loads & breaking loads of cycle &

1	2	3	4	5	6	7	8	9	10	11	12	13
ISO chain number	Pitch	Roller diameter	Width between inner plates	Bearing pin body diameter	Bush bore	Chain path depth	Inner plate depth	Outer plate depth	Cranked link dimensions **			Working load
	p	d_1 max.	b_1 min.	d_2 max.	d_3 min.	h_1 min.	h_2 max.	h_3 max.	l_1 min.	l_2 min.	c	l min.
	in	in	in	in	in	in	in	in	in	in	in	in
081	0.500	0.305	0.130	0.144	0.146	0.400	0.390	0.390	0.211	0.211	0.003	0.003
082	0.500	0.305	0.094	0.144	0.146	0.400	0.390	0.390	0.211	0.211	0.003	0.003
083	0.500	0.305	0.192	0.161	0.163	0.416	0.406	0.406	0.211	0.211	0.003	0.003
084	0.500	0.305	0.192	0.161	0.163	0.449	0.439	0.439	0.227	0.227	0.003	0.003
085	0.500	0.306	0.251	0.141	0.143	0.400	0.390	0.390	0.208	0.240	0.003	0.003

TABLE 2M. — (Metric units) Chain dimensions, measuring loads & breaking loads of cycle & m

	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
081	12.70	7.75	3.30	3.66	3.71	10.17	9.91	9.91	5.36	5.36	0.08	5
082	12.70	7.75	2.38	3.66	3.71	10.17	9.91	9.91	5.36	5.36	0.08	4
083	12.70	7.75	4.88	4.09	4.14	10.56	10.30	10.30	5.36	5.36	0.08	7
084	12.70	7.75	4.88	4.09	4.14	11.41	11.15	11.15	5.77	5.77	0.08	8
085	12.70	7.77	6.38	3.58	3.63	10.17	9.91	9.91	5.28	6.10	0.08	9

* These chains are recommended in the single version only.

** Cranked links are not recommended for use on chains which are intended for onerous applications.

*** The actual dimensions will depend on the type of fastener used but they should not exceed the dimensions in this column, details of which should be referred to the relevant standards.

**** It is recommended that the joints for derailleur chain should always be riveted.

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2.7 Marking

The chains should be marked with

- (a) manufacturer's name or trade mark,
- (b) the ISO number (column 1 of Tables 1, 1M, 2 and 2M).

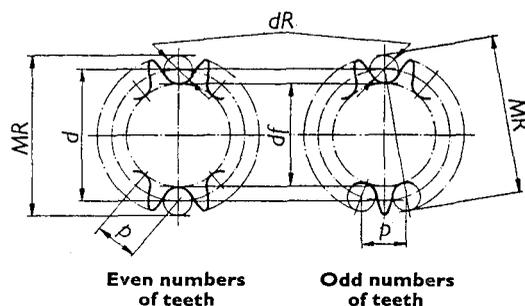
3. CHAIN WHEELS

3.1 Nomenclature

The nomenclature for basic chain dimensions on which all wheel data are based will be found in the keys to Tables 1, 1M, 2 and 2M. Chain wheel nomenclature is covered under the respective headings.

3.2 Diametral dimensions of wheel rim

3.2.1 Nomenclature



- p = chordal pitch, equal to chain pitch
- dR = measuring pin diameter
- z = number of teeth
- d = pitch circle diameter
- df = root diameter
- MR = measurement over pins

FIG. 4. — Diametral dimensions

3.2.2 Dimensions

$$dR = d_1 \text{ (see clause 3.3.1), subject to tolerance limits } \begin{array}{l} 0.0000 \text{ in (0.00 mm)} \\ +0.0005 \text{ in (0.01 mm)} \end{array}$$

$$d = \frac{p}{\sin \frac{180^\circ}{z}} \text{ (see the Appendix for nominal dimensions of the normal range of teeth)}$$

$$df = d - d_1 \text{ subject to the following tolerance limits:}$$

Root diameter	Upper deviation	Lower deviation
$df < 127 \text{ mm (5 in)}$	0.00 mm (0 in)	0.25 mm (0.010 in)
$df < 250 \text{ mm (9.85 in)}$	0.00 mm (0 in)	0.30 mm (0.012 in)
$df > 250 \text{ mm (9.85 in)}$	0.00 mm (0 in)	h11*

* See ISO Recommendation R 286, *ISO System of Limits and Fits — Part I: General, Tolerances and Deviations.*

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