

Sprocket Hardening

Hardness Conversion Table				
Rockwell "C" 150 KG. Load	A 60 KG.	Shore Model C	3000 KG. Load	Tensile Str. Lbs. per Sq. In.
			Brinell No.	
10		27	183	91,000
11		28	187	93,000
13		28	192	95,000
14		29	197	97,000
15		30	202	99,000
16		30	207	101,000
17		31	212	104,000
18		31	217	107,000
20	60.5	32	223	110,000
21	61.0	33	229	113,000
22	61.5	34	235	116,000
23	62.0	35	241	119,000
24	62.5	36	248	122,000
25	63.0	37	255	125,000
26	63.5	37	262	128,000
28	64.5	38	269	131,000
29	65.0	39	277	134,000
30	65.5	40	285	138,000
31	66.0	42	293	142,000
32	66.5	43	302	146,000
33	67.0	44	311	150,000
34	67.5	45	321	155,000
35	68.0	46	331	160,000
36	68.5	48	341	165,000
37	69.0	49	352	170,000
38	69.5	51	363	176,000
40	70.5	52	375	182,000
41	71.0	54	388	189,000
42	71.5	55	401	196,000
44	72.5	57	415	204,000
45	73.0	59	429	212,000
46	73.5	61	444	220,000
47	74.0	63	461	229,000
49	75.5	65	477	238,000
50	76.0	67	495	247,000
52	77.0	70	514	256,000
53	77.5	72	534	266,000
55	78.5	75	555	276,000
57	79.5	78	578	287,000
58	80.0	81	601	298,000
60	81.0	84	627	311,000
62	82.5	87	653	324,000
64	83.5	91	682	337,000
66	84.5	95	712	352,000
68	85.5	100	745	368,000
70	86.5	106	780	384,000

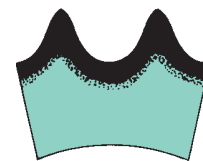
All U.S. Tsubaki sprockets are made from high quality steel. Since chain loadings are evenly distributed over all engaged sprocket teeth, tooth breakage or distortion is not normally a problem. It is seldom necessary to use special high strength material.

Sprocket diameter and pitch determine the specific material used.

The hardening process of small diameter, small pitch sprockets is usually a one-step procedure: heat treatment (electrical induction). Large diameter, large pitch sprockets can usually be directly flame hardened. These methods are used to provide a high hardness at the wear areas, plus provide the ability of the tooth to absorb shock loads. This is accomplished by hardening only the wear area of each tooth while maintaining a ductile tooth core which is tough and resilient. The hubs and bores remain soft to permit reworking.

The general guidelines for sprockets are:

Size	Rockwell Scales	
	A	C
Small pitch, small diameter	68-76	35-50
Large pitch, large diameter	63-70	25-40



Thru Hardened Teeth

Case hardened on wear surfaces with a tough, resilient core.

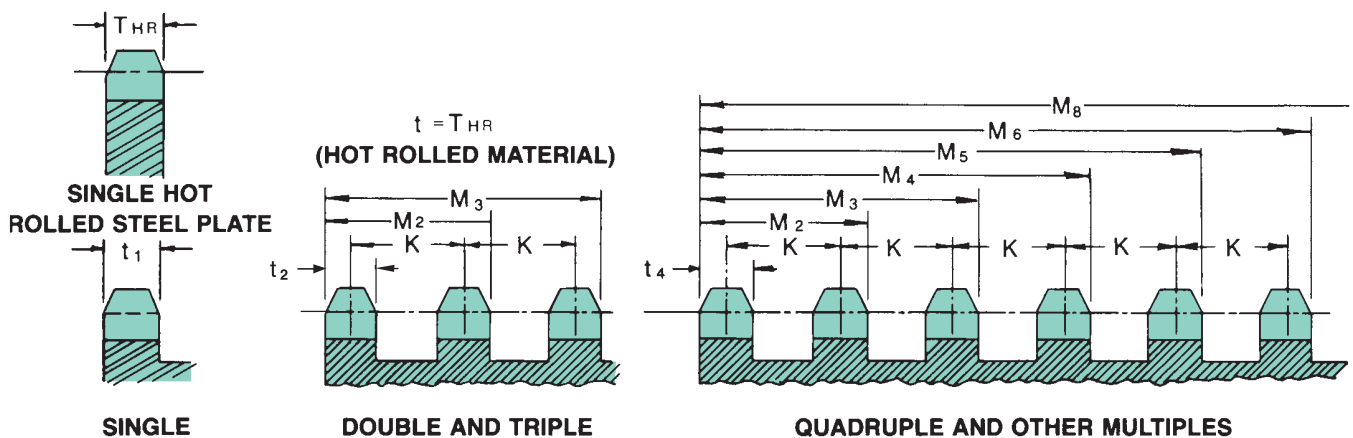
U.S. TSUBAKI STOCK SPROCKETS

Sprocket Tooth Dimensions

Sprocket Tooth Dimensions — Standard and Heavy Series

Dimensions are in inches unless otherwise indicated.

Chain Data for All Sprockets				Single Strand t_1 and T_{HR}	Double and Triple Strand			For 4 or more Strands								Machining Tolerance on "t" and "M"	Hot Rolled Tolerance on T_{HR}
ANSI & U.S.T. No.	Pitch P	Roller Width W	Roller Diam.		t_2	M_2	M_3	t_4	M_2	M_3	M_4	M_5	M_6	M_8	K		
STANDARD SERIES CHAIN SPROCKETS																	
25	1/4	5/16	.130	.110	.107	.359	.611	.096	.348	.600	.852	1.140	1.356	1.860	.252	-.007	-.021
35	3/8	3/16	.200	.168	.162	.561	.960	.149	.548	.947	1.346	1.745	2.144	2.942	.399	-.008	-.027
40	1/2	5/16	.312	.284	.275	.841	1.407	.256	.822	1.388	1.954	2.520	3.086	4.218	.566	-.009	-.035
50	5/8	3/8	.400	.343	.332	1.045	1.758	.311	1.024	1.737	2.450	3.163	3.876	5.302	.713	-.010	-.036
60	3/4	1/2	.469	.459	.444	1.341	2.238	.418	1.315	2.212	3.109	4.006	4.903	6.697	.897	-.011	-.036
80	1	5/8	.625	.575	.557	1.710	2.863	.526	1.679	2.832	3.985	5.138	6.291	8.597	1.153	-.012	-.040
100	1 1/4	3/4	.750	.692	.669	2.077	3.485	.633	2.041	3.449	4.857	6.265	7.673	10.489	1.408	-.014	-.046
120	1 1/2	1	.875	.824	.894	2.683	4.472	.848	2.637	4.426	6.215	8.004	9.793	13.371	1.789	-.016	-.057
140	1 3/4	1	1.000	.924	.894	2.818	4.742	.848	2.772	4.696	6.620	8.544	10.468	14.316	1.924	-.016	-.057
160	2	1 1/4	1.125	1.156	1.119	3.424	5.729	1.063	3.368	5.673	7.978	10.283	12.588	17.198	2.305	-.019	-.062
180	2 1/4	1 13/32	1.406	1.301	1.259	3.851	6.443	1.197	3.789	6.381	8.973	11.565	14.157	19.341	2.592	-.020	-.068
200	2 1/2	1 1/2	1.562	1.389	1.344	4.161	6.978	1.278	4.095	6.912	9.729	12.546	15.363	20.997	2.817	-.021	-.072
240	3	1 7/8	1.875	1.738	1.682	5.140	8.598	1.601	5.059	8.517	11.975	15.433	18.891	—	3.458	-.025	-.087
HEAVY SERIES CHAIN SPROCKETS																	
60H	3/4	1/2	.469	.459	.444	1.472	2.500	.418	1.446	2.474	3.502	4.530	5.558	7.614	1.028	-.011	-.036
80H	1	5/8	.625	.575	.557	1.840	3.123	.526	1.809	3.092	4.375	5.568	6.941	9.507	1.283	-.012	-.040
100H	1 1/4	3/4	.750	.692	.669	2.208	3.747	.633	2.172	3.711	5.250	6.789	8.328	11.406	1.539	-.014	-.046
120H	1 1/2	1	.875	.824	.894	2.818	4.742	.848	2.772	4.696	6.620	8.544	10.468	14.316	1.924	-.016	-.057
140H	1 3/4	1	1.000	.924	.894	2.949	5.004	.848	2.903	4.958	7.013	9.068	11.123	15.233	2.055	-.016	-.057
160H	2	1 1/4	1.125	1.156	1.119	3.555	5.991	1.063	3.499	5.935	8.371	10.807	13.243	18.115	2.436	-.019	-.062
180H	2 1/4	1 13/32	1.406	1.301	1.259	3.982	6.705	1.197	3.920	6.643	9.366	12.089	14.812	20.258	2.723	-.020	-.068
200H	2 1/2	1 1/2	1.562	1.389	1.344	4.427	7.510	1.278	4.361	7.444	10.527	13.610	16.693	22.859	3.083	-.021	-.072



C - SPROCKETS

Sprocket Formulas & Standard Keyways

Dimensions are in inches unless otherwise indicated.

Chain No.	35		40		50		60		80		100		120		140		160		200		Chain No.
	3/8"		1/2"		5/8"		3/4"		1"		1 1/4"		1 1/2"		1 3/4"		2"		2 1/2"		
Teeth	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Teeth
6	1/4		23/64		7/16		9/16	3/8	49/64	17/32	63/64	5/8	13/16	27/32	121/64	7/8	1 1/2	1 1/16	2	1 3/8	6
7	3/8		17/32	5/16	41/64	7/16	53/64	9/16	17/64	25/32	113/32	31/32	1 45/64	1 3/16	1 15/16	1 1/4	2 13/64	1 1/2	2 55/64	1 15/16	7
8	1/2	5/16	45/64	15/32	55/64	9/16	1 5/64	3/4	1 29/64	1	1 53/64	1 1/4	2 13/64	1 1/2	2 33/64	1 3/4	2 7/8	2	3 45/64	2 9/16	8
9	5/8	7/16	55/64	9/16	1 1/16	23/32	1 21/64	7/8	1 25/32	1 1/4	2 1/4	1 9/16	2 45/64	1 13/16	3 7/64	2 3/16	3 17/32	2 7/16	4 17/32	3 3/16	9
10	3/4	17/32	1 1/64	1 1/16	1 17/64	7/8	1 37/64	1 1/8	2 1/8	1 7/16	2 21/32	1 3/4	3 13/64	2 1/4	3 11/16	2 9/16	4 13/64	2 7/8	5 23/64	3 3/4	10
11	7/8	9/16	1 3/16	2 7/32	1 31/64	1	1 13/16	1 1/4	2 7/16	1 3/4	3 5/64	2 3/16	3 45/64	2 9/16	4 1/4	2 15/16	4 55/64	3 5/16	6 3/16	4 7/16	11
12	1	1 1/16	1 23/64	7/8	1 11/16	1 3/16	2 1/16	1 3/8	2 49/64	1 7/8	3 31/64	2 3/8	4 3/16	2 7/8	4 53/64	3 5/16	5 1/2	3 3/4	7	5 7/16	12
13	1 1/8	25/32	1 33/64	1 1/16	1 57/64	1 1/4	2 5/16	1 5/8	3 3/32	2 3/16	3 57/64	2 3/4	4 43/64	3 1/4	5 25/64	3 3/4	6 5/32	4 3/8	7 13/16	6 1/16	13
14	1 15/64	7/8	1 11/16	1 3/16	2 3/32	1 7/16	2 35/64	1 3/4	3 27/64	2 5/16	4 19/64	2 15/16	5 3/32	3 5/8	5 31/32	4 3/16	6 13/16	5 1/4	8 5/8	6 1/2	14
15	1 23/64	7/8	1 27/32	1 1/4	2 9/32	1 5/8	2 51/64	1 7/8	3 3/4	2 5/8	4 45/64	3 1/4	5 41/64	3 7/8	6 17/32	5	7 29/64	5 11/16	9 7/16	7	15
16	1 31/64	1	2	1 3/8	2 31/64	1 3/4	3 1/32	2 1/8	4 1/16	2 3/4	5 3/32	3 1/2	6 1/8	4 9/16	7 3/32	5 1/2	8 3/32	6 5/16	10 15/64	7 9/16	16
17	1 39/64	1 1/8	2 11/64	1 1/2	2 11/16	1 13/16	3 3/32	2 1/4	4 25/64	3 1/16	5 1/2	3 3/4	6 39/64	5 1/16	7 21/32	5 7/8	8 3/4	7	11 3/64	8 3/8	17
18	1 23/32	1 3/16	2 21/64	1 5/8	2 57/64	2	3 33/64	2 3/8	4 49/64	3 1/4	5 29/32	4 1/8	7 3/32	5 1/2	8 7/32	6 7/16	9 25/64	7	11 27/32	8 15/16	18
19	1 27/32	1 1/4	2 31/64	1 3/4	3 3/32	2 3/16	3 49/64	2 5/8	5 1/32	3 1/2	6 5/16	4 3/4	7 37/64	5 13/16	8 25/32	7	10 1/32	7 1/2	12 21/32	9 9/16	19
20	1 31/32	1 3/8	2 21/32	1 3/4	3 19/64	2 1/4	4	2 3/4	5 23/64	3 3/4	6 45/64	5 1/8	8 1/16	6 5/16	9 11/32	7	10 43/64	8	13 29/64	10 3/8	20
21	2 3/32	1 7/16	2 13/16	1 15/16	3 1/2	2 3/8	4 15/64	2 7/8	5 43/64	3 7/8	7 7/64	5 1/2	8 35/64	6 3/4	9 29/32	7 1/2	11 1/16	8 9/16	14 1/4	10 15/16	21
22	2 13/64	1 1/2	2 31/32	2 1/16	3 45/64	2 9/16	4 31/64	3 1/8	6	4 1/4	7 33/64	5 3/4	9 1/64	7	10 15/32	8 1/16	11 61/64	9	15 1/16	11 9/16	22
23	2 21/64	1 5/8	3 1/8	2 1/4	3 57/64	2 3/4	4 23/32	3 1/4	6 5/16	4 3/4	7 29/32	6 1/8	9 1/2	7 1/16	11 1/32	8 5/8	12 19/32	9 3/8	15 55/64	12 5/16	23
24	2 29/64	1 3/4	3 19/64	2 1/4	4 3/32	2 3/4	4 61/64	3 7/16	6 41/64	5 1/16	8 5/16	6 1/2	9 63/64	7 9/16	11 19/32	9	13 15/64	10 1/8	16 21/32	12 15/16	24
25	2 9/16	1 3/4	3 29/64	2 5/16	4 19/64	2 15/16	5 13/64	3 5/8	6 61/64	5 3/8	8 45/64	6 1/2	10 15/32	8 1/16	12 5/32	9 5/16	13 7/8	10 3/16	17 29/64	13 1/16	25

SPROCKET DIAMETER FORMULAS

$$\text{Suggested Maximum Hub Diameter} = \text{Cosine} \frac{180^\circ}{N} \times \text{P.D.} - (H + .050).$$

P.D. = Pitch diameter N = Number of teeth. H = Height of inside plate.

The above maximum bores are not approved for severe service conditions or for Cast Iron Sprockets.

For severe service conditions maximum bores should not be greater than 2/3 of the diameter of the hub.

Maximum bores for Cast Iron Sprockets should be about 15% less than for steel with 1/4" as the minimum difference.

Standard Keyways and Set Screw

Dimensions are in inches unless otherwise indicated.

Diameter of Shaft	Keyseat Width x Depth	*Diameter of Set Screw	Diameter of Shaft	Keyseat Width x Depth	*Diameter of Set Screw
5/16 - 7/16	3/32 x 3/64	8 - 32	2 13/16 - 3 1/4	3/4 x 3/8	3/4
1/2 - 9/16	1/8 x 1/16	10 - 24	3 5/16 - 3 3/4	7/8 x 7/16	3/4
5/8 - 7/8	3/16 x 3/32	1/4	3 13/16 - 4 1/2	1 x 1/2	3/4
15/16 - 1 1/4	1/4 x 1/8	5/16	4 9/16 - 5 1/2	1 1/4 x 5/8	3/4
1 5/16 - 1 3/8	5/16 x 5/32	5/16	5 5/16 - 6 1/2	1 1/2 x 3/4	1
1 7/16 - 1 3/4	3/8 x 3/16	3/8	6 9/16 - 7 1/2	1 3/4 x 7/8	1
1 13/16 - 2 1/4	1/2 x 1/4	1/2	7 9/16 - 8 15/16	2 x 1	1
2 5/16 - 2 3/4	5/8 x 5/16	5/8	9 - 10 15/16	2 1/2 x 1 1/4	1

NOTE: As a general rule, the hub wall over the keyway should be equal to or greater than the diameter of the set screw.

*Set screw size may vary depending on the hub wall thickness.

U.S. TSUBAKI STOCK SPROCKETS

Sprocket Pitch Diameter Constants

Dimensions are in inches unless otherwise indicated.

Number of Teeth	Constant	Number of Teeth	Constant	Number of Teeth	Constant
4	1.4142	53	16.8803	102	32.473
5	1.7013	54	17.1984	103	32.791
6	2.0000	55	17.5166	104	33.109
7	2.3048	56	17.8347	105	33.427
8	2.6131	57	18.1529	106	33.746
9	2.9238	58	18.4710	107	34.064
10	3.2361	59	18.7892	108	34.382
11	3.5495	60	19.1073	109	34.701
12	3.8637	61	19.4255	110	35.019
13	4.1785	62	19.7437	111	35.337
14	4.4940	63	20.0618	112	35.655
15	4.8097	64	20.3800	113	35.974
16	5.1259	65	20.6982	114	36.292
17	5.4423	66	21.0164	115	36.610
18	5.7588	67	21.3346	116	36.929
19	6.0756	68	21.6528	117	37.247
20	6.3925	69	21.9710	118	37.565
21	6.7095	70	22.2892	119	37.883
22	7.0266	71	22.6074	120	38.201
23	7.3439	72	22.9256	121	38.519
24	7.6613	73	23.2438	122	38.837
25	7.9787	74	23.5620	123	39.156
26	8.2962	75	23.8802	124	39.475
27	8.6138	76	24.1984	125	39.794
28	8.9315	77	24.5166	126	40.112
29	9.2491	78	24.8349	127	40.430
30	9.5668	79	25.1531	128	40.748
31	9.8845	80	25.4713	129	41.066
32	10.2023	81	25.7896	130	41.384
33	10.5201	82	26.1079	131	41.702
34	10.8380	83	26.4261	132	42.020
35	11.1558	84	26.7442	133	42.338
36	11.4737	85	27.0626	134	42.656
37	11.7917	86	27.3807	135	42.975
38	12.1096	87	27.6989	136	43.293
39	12.4275	88	28.0170	137	43.611
40	12.7455	89	28.3355	138	43.930
41	13.0635	90	28.6537	139	44.249
42	13.3815	91	28.9723	140	44.567
43	13.6995	92	29.2901	141	44.885
44	14.0175	93	29.6082	142	45.203
45	14.3356	94	29.9268	143	45.521
46	14.6536	95	30.2447	144	45.840
47	14.9717	96	30.5632	145	46.158
48	15.2898	97	30.8815	146	46.477
49	15.6079	98	31.1999	147	46.796
50	15.9260	99	31.5177	148	47.114
51	16.2441	100	31.8362	149	47.432
52	16.5619	101	32.1540	150	47.750

To obtain the pitch diameter of a sprocket, multiply the constant for the number of teeth (as shown above) by the chain pitch.

To determine the pitch diameter of a 28-tooth sprocket for 140 chain — use a constant of 8.9315 and multiply by chain pitch (1C\1/2") to obtain a pitch diameter of 15.63".

Speed Ratios

Speed Ratios for Sprocket Combinations

	Driver Sprocket Teeth																		
	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
9	1.00																		
10	1.11	1.00																	
11	1.22	1.10	1.00																
12	1.33	1.20	1.09	1.00															
13	1.44	1.30	1.18	1.08	1.00														
14	1.56	1.40	1.27	1.17	1.08	1.00													
15	1.67	1.50	1.36	1.25	1.15	1.07	1.00												
16	1.78	1.60	1.45	1.33	1.23	1.14	1.07	1.00											
17	1.89	1.70	1.55	1.42	1.31	1.21	1.13	1.06	1.00										
18	2.00	1.80	1.64	1.50	1.38	1.29	1.20	1.13	1.06	1.00									
19	2.11	1.90	1.73	1.58	1.46	1.36	1.27	1.19	1.12	1.06	1.00								
20	2.22	2.00	1.82	1.67	1.54	1.43	1.33	1.25	1.18	1.11	1.05	1.00							
21	2.33	2.10	1.91	1.75	1.61	1.50	1.40	1.31	1.23	1.17	1.10	1.05	1.00						
22	2.44	2.20	2.00	1.83	1.69	1.57	1.47	1.38	1.29	1.22	1.16	1.10	1.05	1.00					
23	2.56	2.30	2.09	1.92	1.77	1.64	1.53	1.44	1.35	1.28	1.21	1.15	1.09	1.04	1.00				
24	2.67	2.40	2.18	2.00	1.85	1.71	1.60	1.50	1.41	1.33	1.26	1.20	1.14	1.09	1.04	1.00			
25	2.78	2.50	2.27	2.08	1.92	1.79	1.67	1.56	1.47	1.39	1.32	1.25	1.19	1.14	1.09	1.04	1.00		
26	2.89	2.60	2.36	2.17	2.00	1.86	1.73	1.63	1.53	1.45	1.37	1.30	1.24	1.18	1.13	1.08	1.04	1.00	
27	3.00	2.70	2.45	2.25	2.08	1.93	1.80	1.69	1.59	1.50	1.42	1.35	1.29	1.23	1.17	1.12	1.08	1.04	
28	3.11	2.80	2.54	2.33	2.15	2.00	1.87	1.75	1.65	1.56	1.47	1.40	1.33	1.27	1.22	1.17	1.12	1.08	
29	3.22	2.90	2.64	2.42	2.23	2.07	1.93	1.81	1.71	1.61	1.53	1.45	1.38	1.32	1.26	1.21	1.16	1.12	
30	3.33	3.00	2.73	2.50	2.31	2.14	2.00	1.88	1.76	1.67	1.58	1.50	1.43	1.36	1.31	1.25	1.20	1.15	
31	3.44	3.10	2.82	2.58	2.38	2.21	2.07	1.94	1.82	1.72	1.63	1.55	1.48	1.41	1.35	1.29	1.24	1.19	
32	3.56	3.20	2.91	2.67	2.46	2.28	2.13	2.00	1.88	1.78	1.68	1.60	1.52	1.45	1.39	1.33	1.28	1.23	
33	3.67	3.30	3.00	2.75	2.54	2.36	2.20	2.06	1.94	1.83	1.74	1.65	1.57	1.50	1.43	1.38	1.32	1.27	
34	3.78	3.40	3.09	2.83	2.62	2.43	2.27	2.13	2.00	1.89	1.79	1.70	1.62	1.55	1.48	1.42	1.36	1.31	
35	3.89	3.50	3.18	2.92	2.69	2.50	2.33	2.19	2.06	1.95	1.84	1.75	1.67	1.59	1.52	1.46	1.40	1.34	
36	4.00	3.60	3.27	3.00	2.77	2.57	2.40	2.25	2.12	2.00	1.89	1.80	1.71	1.63	1.57	1.50	1.44	1.38	
37	4.11	3.70	3.36	3.08	2.85	2.64	2.47	2.31	2.18	2.06	1.95	1.85	1.76	1.68	1.61	1.54	1.48	1.42	
38	4.22	3.80	3.45	3.17	2.92	2.71	2.53	2.38	2.24	2.11	2.00	1.90	1.81	1.73	1.65	1.58	1.52	1.46	
39	4.33	3.90	3.55	3.25	3.00	2.79	2.60	2.44	2.29	2.17	2.05	1.95	1.86	1.77	1.70	1.63	1.56	1.50	
40	4.44	4.00	3.64	3.33	3.08	2.86	2.67	2.50	2.35	2.22	2.10	2.00	1.90	1.82	1.74	1.67	1.60	1.54	
41	4.56	4.10	3.73	3.42	3.15	2.93	2.73	2.56	2.41	2.28	2.16	2.05	1.95	1.86	1.78	1.71	1.64	1.58	
42	4.67	4.20	3.82	3.50	3.23	3.00	2.80	2.63	2.47	2.34	2.21	2.10	2.00	1.91	1.83	1.75	1.68	1.61	
43	4.78	4.30	3.91	3.58	3.31	3.07	2.87	2.69	2.53	2.39	2.26	2.15	2.05	1.95	1.87	1.79	1.72	1.65	
44	4.89	4.40	4.00	3.67	3.38	3.14	2.93	2.75	2.59	2.44	2.32	2.20	2.10	2.00	1.91	1.83	1.76	1.69	
45	5.00	4.50	4.09	3.75	3.46	3.21	3.00	2.81	2.65	2.50	2.37	2.25	2.14	2.04	1.96	1.88	1.80	1.73	
46	5.11	4.60	4.18	3.83	3.54	3.29	3.07	2.88	2.71	2.56	2.42	2.30	2.19	2.09	2.00	1.92	1.84	1.77	
47	5.22	4.70	4.27	3.92	3.62	3.36	3.13	2.94	2.76	2.61	2.47	2.35	2.24	2.14	2.04	1.96	1.88	1.81	
48	5.33	4.80	4.36	4.00	3.69	3.43	3.20	3.00	2.82	2.67	2.52	2.40	2.28	2.19	2.09	2.00	1.92	1.84	
49	5.44	4.90	4.45	4.08	3.77	3.50	3.27	3.06	2.88	2.72	2.58	2.45	2.33	2.23	2.13	2.04	1.96	1.88	
50	5.56	5.00	4.55	4.17	3.85	3.57	3.33	3.13	2.94	2.78	2.63	2.50	2.38	2.27	2.17	2.08	2.00	1.92	
51	5.67	5.10	4.64	4.25	3.92	3.64	3.40	3.19	3.00	2.83	2.68	2.55	2.43	2.32	2.22	2.13	2.04	1.96	
52	5.78	5.20	4.73	4.33	4.00	3.71	3.47	3.25	3.06	2.89	2.74	2.60	2.48	2.36	2.26	2.17	2.08	2.00	
53	5.89	5.30	4.82	4.42	4.08	3.79	3.53	3.31	3.12	2.94	2.79	2.65	2.52	2.41	2.30	2.21	2.12	2.04	
54	6.00	5.40	4.91	4.50	4.15	3.86	3.60	3.38	3.18	3.00	2.84	2.70	2.57	2.45	2.35	2.25	2.16	2.07	
55	6.11	5.50	5.00	4.58	4.23	3.93	3.67	3.44	3.24	3.06	2.90	2.75	2.62	2.50	2.39	2.29	2.20	2.12	
56	6.22	5.60	5.09	4.67	4.31	4.00	3.73	3.50	3.29	3.11	2.95	2.80	2.67	2.55	2.43	2.33	2.24	2.15	
57	6.33	5.70	5.18	4.75	4.38	4.07	3.80	3.56	3.35	3.17	3.00	2.85	2.71	2.59	2.49	2.38	2.28	2.19	
58	6.44	5.80	5.27	4.83	4.46	4.14	3.87	3.63	3.41	3.22	3.05	2.90	2.76	2.64	2.52	2.42	2.32	2.23	
59	6.56	5.90	5.36	4.92	4.54	4.21	3.93	3.69	3.47	3.28	3.11	2.95	2.81	2.68	2.57	2.46	2.36	2.27	
60	6.67	6.00	5.45	5.00	4.61	4.28	4.00	3.75	3.53	3.34	3.16	3.00	2.86	2.72	2.61	2.50	2.40	2.30	
68	7.55	6.80	6.18	5.66	5.23	4.86	4.54	4.25	4.00	3.78	3.58	3.40	3.24	3.09	2.96	2.84	2.72	2.61	
70	7.78	7.00	6.36	5.83	5.38	5.00	4.67	4.38	4.12	3.89	3.68	3.50	3.33	3.18	3.05	2.92	2.80	2.69	
72	8.00	7.20	6.54	6.00	5.54	5.14	4.80	4.50	4.24	4.00	3.79	3.60	3.43	3.27	3.13	3.00	2.88	2.77	
76			6.91	6.33	5.84	5.43	5.07	4.75	4.47	4.23	4.00	3.80	3.62	3.45	3.31	3.17	3.04	2.92	
80			7.27	6.66	6.15	5.71	5.34	5.00	4.70	4.45	4.21	4.00	3.81	3.63	3.48	3.34	3.20	3.07	
84				7.00	6.46	6.00	5.60	5.25	4.94	4.67	4.42	4.20	4.00	3.81	3.65	3.50	3.36	3.23	
95					7.31	6.78	6.33	5.94	5.59	5.28	5.00	4.75	4.52	4.32	4.13	3.96	3.80	3.65	
96					7.38	6.85	6.40	6.00	5.64	5.34	5.05	4.80	4.57	4.36	4.18	4.00	3.84	3.69	
102						7.28	6.80	6.38	6.00	5.67	5.37	5.10	4.86	4.63	4.44	4.25	4.08	3.92	
112								7.00	6.59	6.23	5.89	5.60	5.33	5.08	4.87	4.67	4.48	4.30	

U.S. TSUBAKI STOCK SPROCKETS

Sprocket Diameters

No. of Teeth	RS25 1/4" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
9	.731	.837	.590
10	.809	.919	.679
11	.887	1.001	.748
12	.966	1.083	.836
13	1.045	1.164	.907
14	1.123	1.245	.993
15	1.203	1.326	1.066
16	1.282	1.407	1.152
17	1.361	1.487	1.225
18	1.440	1.568	1.310
19	1.519	1.648	1.384
20	1.598	1.728	1.468
21	1.677	1.809	1.543
22	1.757	1.889	1.627
23	1.836	1.969	1.702
24	1.915	2.049	1.785
25	1.995	2.129	1.861
26	2.074	2.209	1.944
28	2.233	2.369	2.103
30	2.392	2.529	2.262
32	2.551	2.688	2.421
35	2.789	2.928	2.656
36	2.868	3.008	2.738
40	3.186	3.327	3.056
45	3.584	3.725	3.452
48	3.822	3.964	3.692
54	4.300	4.442	4.170
60	4.777	4.920	4.647
70	5.572	5.717	5.442
72	5.731	5.876	5.601

No. of Teeth	RS35 3/8" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
9	1.096	1.255	.880
10	1.214	1.379	1.014
11	1.331	1.502	1.118
12	1.449	1.625	1.249
13	1.567	1.746	1.356
14	1.685	1.868	1.485
15	1.804	1.989	1.594
16	1.922	2.110	1.722
17	2.041	2.231	1.832
18	2.160	2.352	1.960
19	2.278	2.472	2.071
20	2.397	2.593	2.197
21	2.516	2.713	2.309
22	2.635	2.833	2.435
23	2.754	2.953	2.548
24	2.873	3.073	2.673
25	2.992	3.194	2.786
26	3.111	3.313	2.911
27	3.230	3.434	3.025
28	3.349	3.553	3.149
30	3.588	3.793	3.388
32	3.826	4.032	3.626
35	4.183	4.392	3.979
36	4.303	4.511	4.103
40	4.780	4.990	4.580
42	5.018	5.229	4.818
45	5.376	5.588	5.173
48	5.734	5.946	5.534
54	6.449	6.664	6.249
60	7.165	7.380	6.965
70	8.358	8.575	8.158
72	8.597	8.814	8.397
80	9.552	9.770	9.352
84	10.029	10.247	9.829
96	11.461	11.680	11.261
112	13.371	13.590	13.171

No. of Teeth	RS40 1/2" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	1.307	1.507	.995
9	1.462	1.674	1.127
10	1.618	1.839	1.305
11	1.775	2.003	1.444
12	1.932	2.166	1.620
13	2.089	2.328	1.761
14	2.247	2.490	1.934
15	2.405	2.652	2.079
16	2.563	2.814	2.250
17	2.721	2.974	2.397
18	2.879	3.136	2.567
19	3.038	3.292	2.715
20	3.196	3.457	2.883
21	3.355	3.618	3.033
22	3.513	3.778	3.201
23	3.672	3.938	3.351
24	3.831	4.098	3.518
25	3.989	4.258	3.669
26	4.148	4.418	3.835
27	4.307	4.578	3.987
28	4.465	4.738	4.153
29	4.625	4.898	4.305
30	4.783	5.057	4.471
31	4.942	5.217	4.623
32	5.101	5.376	4.788
33	5.260	5.536	4.941
34	5.419	5.696	5.107
35	5.578	5.856	5.260
36	5.737	6.015	5.425
38	6.055	6.334	5.742
40	6.373	6.653	6.061
42	6.691	6.972	6.379
44	7.009	7.291	6.696
45	7.168	7.450	6.851
46	7.327	7.609	7.014
47	7.486	7.769	7.169
48	7.645	7.928	7.332
50	7.963	8.248	7.650
54	8.599	8.884	8.286
60	9.554	9.840	9.241
70	11.145	11.433	10.832
72	11.463	11.752	11.151
80	12.736	13.026	12.423
84	13.372	13.663	13.059
96	15.282	15.573	14.969
112	17.827	18.121	17.515

No. of Teeth	RS50 3/4" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	1.633	1.880	1.233
9	1.827	2.093	1.400
10	2.023	2.299	1.623
11	2.219	2.504	1.796
12	2.415	2.708	2.015
13	2.612	2.911	2.193
14	2.809	3.113	2.409
15	3.006	3.315	2.590
16	3.204	3.517	2.804
17	3.401	3.718	2.987
18	3.599	3.919	3.199
19	3.798	4.121	3.384
20	3.995	4.321	3.595
21	4.194	4.522	3.782
22	4.392	4.722	3.992
23	4.590	4.923	4.179
24	4.788	5.123	4.388
25	4.987	5.323	4.577
26	5.185	5.523	4.785
27	5.384	5.723	4.975
28	5.582	5.922	5.182
29	5.781	6.122	5.371
30	5.979	6.321	5.579
31	6.178	6.521	5.770
32	6.376	6.721	5.976
33	6.575	6.921	6.168
34	6.774	7.120	6.374
35	6.973	7.319	6.565
36	7.171	7.519	6.771
37	7.370	7.718	6.963
38	7.569	7.918	7.169
39	7.768	8.117	7.361
40	7.966	8.316	7.566
42	8.364	8.715	7.964
43	8.563	8.914	8.157
44	8.761	9.114	8.361
45	8.960	9.313	8.554
48	9.556	9.911	9.156
49	9.755	10.110	9.350
50	9.954	10.309	9.554
52	10.351	10.708	9.951
54	10.749	11.106	10.349
55	10.948	11.305	10.543
56	11.147	11.504	10.747
60	11.942	12.301	11.542
70	13.931	14.292	13.531
72	14.329	14.690	13.929
80	15.919	16.283	15.519
84	16.715	17.079	16.315
96	19.102	19.467	18.702
112	22.284	22.651	21.884

Sprocket Diameters

No. of Teeth	RS60 3/4" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	1.959	2.260	1.491
9	2.193	2.511	1.691
10	2.427	2.759	1.958
11	2.662	3.005	2.166
12	2.898	3.249	2.429
13	3.134	3.493	2.642
14	3.371	3.736	2.902
15	3.608	3.978	3.119
16	3.845	4.220	3.375
17	4.082	4.462	3.595
18	4.319	4.703	3.850
19	4.557	4.945	4.072
20	4.794	5.186	4.325
21	5.033	5.426	4.549
22	5.270	5.666	4.801
23	5.508	5.907	5.026
24	5.746	6.147	5.277
25	5.984	6.387	5.503
26	6.222	6.627	5.753
27	6.461	6.867	5.980
28	6.698	7.106	6.229
29	6.937	7.346	6.458
30	7.175	7.586	6.706
31	7.413	7.826	6.935
32	7.652	8.065	7.183
33	7.890	8.305	7.412
34	8.129	8.544	7.660
35	8.367	8.783	7.889
36	8.606	9.023	8.137
37	8.844	9.262	8.367
38	9.083	9.501	8.614
39	9.321	9.740	8.844
40	9.560	9.980	9.091
41	9.798	10.219	9.321
42	10.037	10.458	9.568
44	10.514	10.937	10.045
45	10.752	11.176	10.276
46	10.991	11.414	10.522
48	11.468	11.893	10.999
49	11.706	12.132	11.231
50	11.945	12.371	11.476
52	12.422	12.849	11.953
54	12.889	13.327	12.430
60	14.330	14.761	13.861
70	16.717	17.150	16.248
72	17.195	17.628	16.726
80	19.103	19.539	18.634
84	20.058	20.495	19.589
96	22.922	23.360	22.453
112	26.741	27.181	26.272

No. of Teeth	RS80 1" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	2.613	3.014	1.988
9	2.924	3.348	2.254
10	3.236	3.678	2.611
11	3.550	4.006	2.888
12	3.864	4.332	3.239
13	4.179	4.657	3.523
14	4.494	4.981	3.869
15	4.810	5.304	4.158
16	5.126	5.627	4.501
17	5.442	5.949	4.794
18	5.759	6.271	5.134
19	6.076	6.593	5.430
20	6.392	6.914	5.767
21	6.710	7.235	6.066
22	7.027	7.555	6.402
23	7.344	7.876	6.702
24	7.661	8.196	7.036
25	7.979	8.526	7.338
26	8.296	8.836	7.671
27	8.614	9.156	7.974
28	8.931	9.475	8.306
29	9.249	9.795	8.611
30	9.567	10.114	8.942
31	9.884	10.434	9.247
32	10.202	10.753	9.577
33	10.520	11.073	9.883
34	10.838	11.392	10.213
35	11.156	11.711	10.520
36	11.474	12.030	10.849
37	11.792	12.349	11.156
38	12.110	12.668	11.485
40	12.746	13.306	12.121
42	13.382	13.944	12.757
45	14.336	14.901	13.702
46	14.654	15.219	14.029
48	15.290	15.857	14.665
49	15.608	16.176	14.975
54	17.198	17.769	16.573
60	19.107	19.681	18.482
65	20.698	21.270	20.067
70	22.289	22.867	21.644
72	22.926	23.504	22.301
80	25.471	26.052	24.846
84	26.744	27.326	26.119
96	30.563	31.147	29.938
112	35.655	36.241	35.030

No. of Teeth	RS100 1 1/4" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	3.266	3.770	2.516
9	3.655	4.185	2.849
10	4.045	4.598	3.295
11	4.438	5.008	3.642
12	4.830	5.415	4.080
13	5.224	5.821	4.435
14	5.618	6.226	4.868
15	6.013	6.630	5.229
16	6.408	7.034	5.658
17	6.803	7.436	6.024
18	7.199	7.839	6.449
19	7.595	8.241	6.819
20	7.990	8.643	7.240
21	8.388	9.044	7.613
22	8.784	9.444	8.034
23	9.180	9.845	8.409
24	9.576	10.245	8.826
25	9.974	10.645	9.204
26	10.370	11.045	9.620
27	10.768	11.445	9.999
28	11.164	11.844	10.414
30	11.959	12.643	11.209
32	12.753	13.441	12.003
35	13.945	14.639	13.181
36	14.343	15.038	13.593
40	15.933	16.633	15.183
42	16.728	17.430	15.978
45	17.920	18.626	17.159
48	19.113	19.821	18.363
54	21.498	22.211	20.748
60	23.884	24.601	23.134
70	27.861	28.584	27.111
72	28.657	29.380	27.908
80	31.839	32.565	31.089
84	33.430	34.158	32.680
90	35.817	36.545	35.068
96	38.204	38.934	37.454

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Sprocket Diameters

No. of Teeth	RS120 1 1/2" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
9	4.386	5.022	3.444
10	4.854	5.517	3.979
11	5.325	6.009	4.395
12	5.796	6.498	4.921
13	6.269	6.986	5.347
14	6.741	7.472	5.866
15	7.215	7.956	6.300
16	7.689	8.441	6.814
17	8.163	8.924	7.254
18	8.639	9.407	7.764
19	9.114	9.890	8.207
20	9.588	10.371	8.713
21	10.065	10.853	9.161
22	10.541	11.333	9.666
23	11.016	11.814	10.115
24	11.492	12.294	10.617
25	11.969	12.774	11.070
26	12.444	13.254	11.569
27	12.921	13.734	12.024
28	13.397	14.213	12.522
30	14.351	15.171	13.476
32	15.303	16.130	14.428
35	16.734	17.567	15.842
36	17.211	18.045	16.336
40	19.119	19.959	18.244
42	20.073	20.916	19.198
45	21.504	22.352	20.615
48	22.935	23.786	22.060
54	25.797	26.654	24.922
60	28.661	29.522	27.786
70	33.434	34.301	32.559
80	38.207	39.078	37.332

No. of Teeth	RS160 2" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	5.226	6.028	4.101
9	5.848	6.696	4.635
10	6.472	7.356	5.347
11	7.100	8.012	5.902
12	7.728	8.664	6.603
13	8.358	9.314	7.171
14	8.988	9.962	7.863
15	9.620	10.608	8.442
16	10.252	11.254	9.127
17	10.844	11.898	9.713
18	11.518	12.542	10.393
19	12.152	13.186	10.985
20	12.784	13.828	11.659
21	13.420	14.470	12.256
22	14.054	15.110	12.929
23	14.688	15.752	13.529
24	15.322	16.392	14.197
25	15.958	17.032	14.801
26	16.592	17.672	15.467
27	17.228	18.312	16.073
28	17.862	18.950	16.737
30	19.134	20.228	18.009
35	22.312	23.422	21.164
36	22.948	24.060	21.823
40	25.492	26.612	24.367
45	28.672	29.802	27.529
48	30.580	31.714	29.455
54	34.396	35.538	33.271
60	38.214	39.362	37.089
70	44.578	45.734	43.453
80	50.942	52.104	49.817

No. of Teeth	RS200 2 1/2" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
10	8.090	9.195	6.528
11	8.872	10.020	7.219
12	9.660	10.830	8.098
13	10.447	11.640	8.808
14	11.235	12.460	9.673
15	12.025	13.260	10.397
16	12.815	14.070	11.253
17	13.605	14.870	11.985
18	14.397	15.680	12.835
19	15.190	16.480	13.576
20	15.982	17.290	14.420
21	16.775	18.090	15.166
22	17.567	18.890	16.005
23	18.360	19.690	16.755
24	19.152	20.490	17.590
25	19.947	21.290	18.346
26	20.740	22.090	19.178
28	22.330	23.690	20.768
30	23.917	25.290	22.355
32	25.505	26.880	23.943
35	27.890	29.280	26.300
40	31.865	33.270	30.303
45	35.840	37.250	34.256
54	42.995	44.220	41.433
60	47.767	49.200	46.205

No. of Teeth	RS140 1 3/4" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
11	6.213	7.011	5.148
12	6.762	7.581	5.762
13	7.313	8.150	6.259
14	7.865	8.717	6.865
15	8.418	9.282	7.371
16	8.971	9.847	7.971
17	9.524	10.411	8.483
18	10.078	10.974	9.078
19	10.633	11.538	9.596
20	11.186	12.100	10.186
21	11.743	12.661	10.709
22	12.297	13.221	11.297
23	12.852	13.783	11.822
24	13.407	14.343	12.407
25	13.963	14.903	12.935
26	14.518	15.463	13.518
28	15.629	16.581	14.629
30	16.742	17.700	15.742
32	17.854	18.818	16.854
35	19.523	20.494	18.503
36	20.080	21.053	19.080
40	22.306	23.286	21.306
45	25.088	26.077	24.072
48	26.758	27.750	25.758
54	30.097	31.096	29.097
60	33.437	34.442	32.437
70	39.006	40.017	38.006
80	44.574	45.591	43.574

No. of Teeth	RS180 2 3/4" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
11	7.986	9.010	6.499
12	8.693	9.750	7.287
13	9.402	10.480	7.927
14	10.111	11.210	8.705
15	10.822	11.940	9.357
16	11.533	12.660	10.127
17	12.245	13.390	10.787
18	12.957	14.110	11.551
19	13.670	14.830	12.217
20	14.383	15.560	12.977
21	15.096	16.280	13.648
22	15.810	17.000	14.404
23	16.524	17.720	15.079
24	17.238	18.440	15.832
25	17.952	19.160	16.511
28	20.096	21.320	18.690
30	21.525	22.760	20.119
35	25.101	26.350	23.669
40	28.677	29.940	27.271
45	32.255	33.530	30.829
54	38.695	39.980	37.290
60	42.992	44.280	41.586

No. of Teeth	RS240 3" Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
10	9.708	11.030	7.833
11	10.648	12.020	8.665
12	11.591	13.000	9.716
13	12.536	13.970	10.569
14	13.482	14.940	11.607
15	14.429	15.910	12.475
16	15.377	16.880	13.502
17	16.327	17.850	14.382
18	17.276	18.810	15.401
19	18.227	19.780	16.289
20	19.177	20.740	17.302
21	20.129	21.700	18.197
25	23.936	25.550	22.014
30	28.700	30.340	26.825
35	33.467	35.130	31.559
40	38.237	39.920	36.362
45	43.007	44.700	41.106
54	51.595	53.310	49.720
60	57.322	59.040	55.447