

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

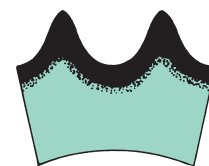
All U.S. Tsubaki sprockets are made from high quality steel. Since chain loadings are evenly distributed over all engaged sprocket teeth, tooth breakage or distortion is not normally a problem. It is seldom necessary to use special high strength material.

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.