

Table 6 – Standard roller chain sprocket diameters for chain number 60, mm

No. of teeth	Pitch diameter	Outside diameter	No. of teeth	Pitch diameter	Outside diameter	No. of teeth	Pitch diameter	Outside diameter
11	67.62	76.31	43	260.98	271.71	76	460.98	472.02
12	73.60	82.52	44	267.03	277.79	77	467.04	478.08
13	79.60	88.72	45	273.09	283.86	78	473.10	484.16
14	85.61	94.89	46	279.15	289.92	79	479.17	490.21
15	91.62	101.04	47	285.21	296.00	80	485.23	496.29
16	97.65	107.19	48	291.27	302.08	81	491.29	502.35
17	103.67	113.33	49	297.33	308.15	82	497.35	508.43
18	109.71	119.46	50	303.39	314.23	83	503.42	514.48
19	115.74	125.60	51	309.45	320.29	84	509.48	520.56
20	121.78	131.71	52	315.51	326.36	85	515.54	526.62
21	127.82	137.83	53	321.57	332.44	86	521.60	532.68
22	134.54	143.92	54	327.63	338.50	87	527.67	538.75
23	139.90	150.04	55	333.69	344.58	88	533.73	544.81
24	145.95	156.13	56	339.75	350.65	89	539.79	550.89
25	151.99	162.23	57	345.81	356.71	90	545.85	556.95
26	158.04	168.33	58	351.87	362.79	91	551.91	563.02
27	164.09	174.42	59	357.93	368.87	92	538.93	569.08
28	170.14	180.50	60	363.99	374.92	93	564.04	575.16
29	176.20	186.59	61	370.06	381.00	94	570.10	581.22
30	182.25	192.67	62	376.12	387.06	95	576.17	587.27
31	188.30	198.77	63	382.18	393.13	96	582.23	593.35
32	194.35	204.84	64	388.24	399.21	97	588.29	599.41
33	200.41	210.94	65	394.30	405.27	98	594.35	605.49
34	206.46	217.02	66	400.36	411.35	99	600.42	611.54
35	212.52	223.09	67	406.42	417.40	100	606.48	617.62
36	218.57	229.17	68	412.49	423.48	101	612.54	623.68
37	224.63	235.25	69	418.55	429.54	102	618.60	629.74
38	230.69	241.33	70	424.61	435.62	103	624.67	635.81
39	236.74	247.40	71	430.67	441.67	104	630.73	641.87
40	242.80	253.48	72	436.73	447.75	105	636.79	647.95
41	248.86	259.56	73	442.79	453.81	106	642.86	654.01
42	254.92	265.63	74	448.86	459.89	107	648.92	660.06
			75	454.92	465.94	108	654.98	666.14

Table 7 – Standard roller chain sprocket diameters for chain number 80, mm

No. of teeth	Pitch diameter	Outside diameter	No. of teeth	Pitch diameter	Outside diameter	No. of teeth	Pitch diameter	Outside diameter
11	90.16	101.75	43	347.97	362.28	76	614.64	629.36
12	98.14	110.03	44	356.04	370.38	77	622.72	637.44
13	106.14	118.29	45	364.12	378.49	78	630.81	645.54
14	114.15	126.52	46	372.20	386.56	79	638.89	653.62
15	122.17	134.72	47	380.28	394.67	80	646.97	661.72
16	130.20	142.93	48	388.36	402.77	81	655.06	669.80
17	138.23	151.10	49	396.44	410.87	82	663.14	677.90
18	146.27	159.28	50	404.52	418.97	83	671.22	685.98
19	154.32	167.46	51	412.60	427.05	84	679.31	694.08
20	162.37	175.62	52	420.68	435.15	85	687.39	702.16
21	170.42	183.77	53	428.76	443.26	86	695.47	710.23
22	179.39	191.90	54	436.84	451.33	87	703.55	718.34
23	186.54	200.05	55	444.92	459.44	88	711.64	726.41
24	194.60	208.18	56	453.00	467.54	89	719.72	734.52
25	202.66	216.31	57	461.08	475.62	90	727.80	742.59
26	210.72	224.43	58	469.16	483.72	91	735.89	750.70
27	218.79	232.56	59	477.25	491.82	92	743.97	758.77
28	226.86	240.67	60	485.33	499.90	93	752.05	766.88
29	234.93	248.79	61	493.41	508.00	94	760.14	774.95
30	243.00	256.90	62	501.49	516.08	95	768.22	783.03
31	251.07	265.02	63	509.57	524.18	96	776.31	791.13
32	259.14	273.13	64	517.65	532.28	97	784.39	799.21
33	267.21	281.25	65	525.73	540.36	98	792.47	807.31
34	275.28	289.36	66	533.82	548.46	99	800.56	815.39
35	283.36	297.46	67	541.90	556.54	100	808.64	823.49
36	291.43	305.56	68	549.98	564.64	101	816.72	831.57
37	299.51	313.66	69	558.06	572.72	102	824.81	839.65
38	307.58	321.77	70	566.15	580.82	103	832.89	847.75
39	315.66	329.87	71	574.23	588.90	104	840.98	855.83
40	323.74	337.97	72	582.31	597.00	105	849.06	863.93
41	331.81	346.08	73	590.39	605.08	106	857.14	872.01
42	339.89	354.18	74	598.47	613.18	107	865.23	880.08
			75	606.56	621.26	108	873.31	888.19

Table 8 – Standard roller chain sprocket diameters for chain number 100, mm

No. of teeth	Pitch diameter	Outside diameter	No. of teeth	Pitch diameter	Outside diameter	No. of teeth	Pitch diameter	Outside diameter
11	112.70	127.19	43	434.96	452.85	76	768.30	786.70
12	122.67	137.54	44	445.06	462.98	77	778.40	796.80
13	132.67	147.86	45	455.15	473.11	78	788.51	806.93
14	142.68	158.15	46	465.25	483.20	79	798.61	817.02
15	152.71	168.40	47	475.35	493.33	80	808.71	827.15
16	162.74	178.66	48	485.45	503.46	81	818.82	837.25
17	172.79	188.88	49	495.55	513.59	82	828.92	847.38
18	182.84	199.10	50	505.65	523.72	83	839.03	857.47
19	192.90	209.33	51	515.75	533.81	84	849.13	867.60
20	202.96	219.52	52	525.85	543.94	85	859.23	877.70
21	213.03	229.71	53	535.95	554.07	86	869.34	887.79
22	224.24	239.87	54	546.05	564.17	87	879.44	897.92
23	233.17	250.06	55	556.15	574.29	88	889.55	908.02
24	243.25	260.22	56	566.25	584.42	89	899.65	918.15
25	253.32	270.38	57	576.35	594.52	90	909.75	928.24
26	263.40	280.54	58	586.45	604.65	91	919.86	938.37
27	273.49	290.70	59	596.56	614.78	92	898.21	948.47
28	283.57	300.83	60	606.66	624.87	93	940.07	958.60
29	293.66	310.99	61	616.76	635.00	94	950.17	968.69
30	303.75	321.12	62	626.86	645.10	95	960.28	978.79
31	313.83	331.28	63	636.96	655.22	96	970.38	988.92
32	323.92	341.41	64	647.07	665.35	97	980.49	999.01
33	334.01	351.57	65	657.17	675.45	98	990.59	1,009.14
34	344.10	361.70	66	667.27	685.58	99	1,000.70	1,019.24
35	354.20	371.82	67	677.37	695.67	100	1,010.80	1,029.37
36	364.29	381.95	68	687.48	705.80	101	1,020.91	1,039.46
37	374.38	392.08	69	697.58	715.90	102	1,031.01	1,049.56
38	384.48	402.21	70	707.68	726.03	103	1,041.11	1,059.69
39	394.57	412.34	71	717.78	736.12	104	1,051.22	1,069.78
40	404.67	422.47	72	727.89	746.25	105	1,061.32	1,079.91
41	414.77	432.59	73	737.99	756.35	106	1,071.43	1,090.01
42	424.86	442.72	74	748.09	766.48	107	1,081.54	1,100.11
			75	758.20	776.57	108	1,091.64	1,110.23

Table 9 – Standard roller chain sprocket diameters for chain number 120, mm

No. of teeth	Pitch diameter	Outside diameter	No. of teeth	Pitch diameter	Outside diameter	No. of teeth	Pitch diameter	Outside diameter
9	111.40	127.56	43	521.95	543.42	76	921.96	944.04
10	123.30	128.63	44	534.07	555.57	77	934.08	956.16
11	135.24	152.63	45	546.18	567.73	78	946.21	968.31
12	147.21	165.05	46	558.30	579.84	79	958.33	980.43
13	159.20	177.43	47	570.42	592.00	80	970.46	992.58
14	171.22	189.78	48	582.54	604.15	81	982.58	1,004.70
15	183.25	202.08	49	594.66	616.31	82	994.71	1,016.85
16	195.29	214.39	50	606.78	628.46	83	1,006.83	1,028.97
17	207.35	226.66	51	618.90	640.58	84	1,018.96	1,041.12
18	219.41	238.93	52	631.02	652.73	85	1,031.08	1,053.24
19	231.48	251.19	53	643.14	664.88	86	1,043.20	1,065.35
20	243.55	263.42	54	655.26	677.00	87	1,055.33	1,077.51
21	255.63	275.65	55	667.38	689.15	88	1,067.46	1,089.62
22	269.09	287.85	56	679.50	701.31	89	1,079.58	1,101.78
23	279.80	300.08	57	691.62	713.42	90	1,091.71	1,113.89
24	291.90	312.27	58	703.75	725.58	91	1,103.83	1,126.05
25	303.99	324.46	59	715.87	737.73	92	1,077.86	1,138.16
26	316.09	336.65	60	727.99	749.85	93	1,128.08	1,150.32
27	328.19	348.84	61	740.11	762.00	94	1,140.21	1,162.43
28	340.29	361.00	62	752.23	774.12	95	1,152.33	1,174.55
29	352.39	373.19	63	764.35	786.27	96	1,164.46	1,186.70
30	364.50	385.34	64	776.48	798.42	97	1,176.59	1,198.82
31	376.60	397.54	65	788.60	810.54	98	1,188.71	1,210.97
32	388.71	409.69	66	800.72	822.69	99	1,200.84	1,223.09
33	400.82	421.88	67	812.85	834.81	100	1,212.96	1,235.24
34	412.92	434.04	68	824.97	846.96	101	1,225.09	1,247.36
35	425.04	446.19	69	837.10	859.08	102	1,237.21	1,259.47
36	437.15	458.34	70	849.22	871.23	103	1,249.34	1,271.63
37	449.26	470.50	71	861.34	883.35	104	1,261.46	1,283.74
38	461.37	482.65	72	873.47	895.50	105	1,273.59	1,295.90
39	473.49	494.80	73	885.59	907.62	106	1,285.71	1,308.01
40	485.60	506.96	74	897.71	919.77	107	1,297.84	1,320.13
41	497.72	519.11	75	909.84	931.89	108	1,309.97	1,332.28
42	509.84	531.27						

6.2 Types

The following are the different designs or types of roller chain sprockets are shown by sectional views (Figure 5):

- 1) Type A - plain plate
- 2) Type B - has a hub on one side only
- 3) Type C - hub on both sides
- 4) Type D - detachable hub

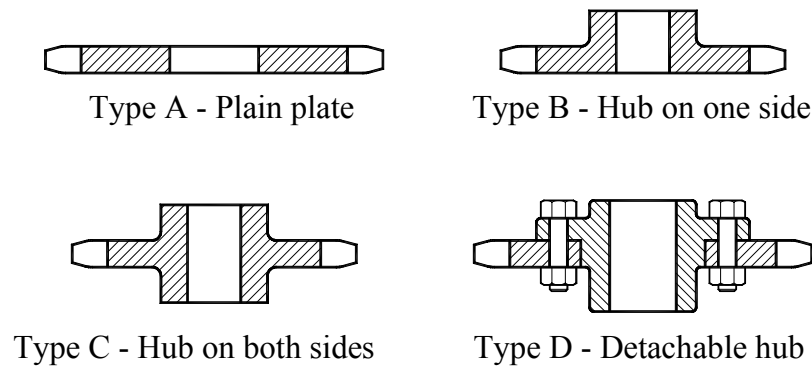


Figure 5 – Types of sprockets

6.3 Materials

For large sprockets, cast iron is commonly used, especially in drives with large speed ratios. Smaller sprockets are usually made of steel. The use of stainless steel or bronze are for corrosion resistance while Formica, nylon or other suitable plastic materials are for special conditions.

6.4 Markings

6.4.1 The following information shall be marked on the sprockets:

- 1) Type of sprocket
- 2) Number of teeth of the sprocket
- 3) Corresponding chain number designation.
- 4) Manufacturer's name and/or its trademark

6.4.2 The following information shall be marked on the packaging:

- 1) Type of sprocket
- 2) Number of teeth of the sprocket
- 3) Corresponding chain number designation.
- 4) Manufacturer's name, trademark, and address

7 Recommended design practices

7.1 Selection of chain and sprockets

7.1.1 The smallest applicable chain number is desirable for quiet operation and higher speed range allowable for chain drives. The power capacity varies with the chain pitch. However, short pitch with high working load can often be obtained by the use of multiple-strand chains.

7.1.2 The small sprocket selected must be large enough to accommodate the shaft. Table 9 gives the maximum bore and hub diameters consistent with commercial practice for sprockets with up to 25 teeth.

7.1.3 After selecting the small sprocket, the number of teeth in the large sprocket is determined by the desired ratio of the shaft speed. Over emphasis on the exactness of the speed ratio may result in cumbersome and expensive installation. In most cases, satisfactory operation can be obtained with a minor change in speed of one or both shafts.

Table 10 – Recommended roller chain sprocket maximum bore and hub dimensions

Chain number										
No. of teeth	35		41 or 40		50		60		80	
	Max. bore, (mm)	Max hub dia. (mm)	Max. bore, (mm)	Max hub dia. (mm)	Max. bore, (mm)	Max hub dia. (mm)	Max. bore, (mm)	Max hub dia. (mm)	Max. bore, (mm)	Max hub dia. (mm)
11	15.08	21.83	19.84	29.77	24.61	37.31	31.75	44.85	41.28	60.33
12	15.88	25.00	22.23	33.73	29.37	42.47	32.54	51.20	45.24	68.66
13	19.05	28.18	25.40	38.10	32.54	47.63	38.10	57.15	50.80	76.60
14	21.43	31.35	29.37	42.07	49.21	52.78	44.45	63.50	57.94	84.93
15	22.23	34.53	31.75	46.04	38.89	57.94	45.24	69.85	61.12	93.27
16	24.61	37.31	32.54	50.40	42.86	63.10	50.01	75.80	69.06	101.20
17	27.78	40.48	34.93	54.37	45.24	68.26	56.36	81.76	71.44	109.54
18	30.96	43.66	38.89	58.34	47.63	73.42	57.94	88.11	79.38	117.87
19	31.75	46.83	42.86	62.31	52.39	78.18	61.91	94.06	84.14	125.81
20	32.54	49.61	45.24	66.68	57.15	83.34	68.26	100.41	88.90	134.14
21	33.34	52.78	45.24	70.64	57.94	88.50	71.44	106.36	95.25	142.08
22	36.51	71.44	49.21	74.61	61.91	93.66	74.61	112.71	98.43	150.42
23	39.69	58.74	53.18	78.58	66.68	98.82	79.38	118.67	106.36	158.35
24	42.86	61.91	57.15	82.95	71.44	103.58	82.55	124.62	115.89	166.69
25	44.45	65.09	57.94	86.92	72.23	108.74	85.73	130.97	119.06	174.63
Chain number										
No. of teeth	100		120		140		160		180	
	Max. bore, (mm)	Max hub dia. (mm)	Max. bore, (mm)	Max hub dia. (mm)	Max. bore, (mm)	Max hub dia. (mm)	Max. bore, (mm)	Max hub dia. (mm)	Max. bore, (mm)	Max hub dia. (mm)
11	50.01	75.41	58.74	90.88	71.44	105.97	83.34	121.44	100.01	152.00
12	57.94	85.73	69.85	103.19	82.55	120.65	104.78	137.72	119.86	172.64
13	64.29	96.04	77.79	115.49	90.49	134.94	103.19	154.38	129.38	193.28
14	68.26	106.36	85.73	127.79	98.43	149.23	119.06	170.66	145.26	213.92
15	78.58	116.68	95.25	140.10	112.71	163.91	123.83	187.33	158.75	234.16
16	83.34	127.00	101.60	152.40	119.06	178.20	139.70	203.60	177.80	254.79
17	92.87	137.32	113.51	164.70	128.59	192.48	13.92	219.87	188.91	275.43
18	96.04	147.24	118.27	177.01	142.88	206.77	158.75	236.54	203.20	295.67
19	106.36	157.56	125.41	189.31	144.46	221.06	174.63	252.81	228.60	315.91
20	116.68	167.88	138.11	201.61	158.75	235.35	177.80	269.08	247.65	336.55
21	119.06	177.80	144.46	213.92	173.04	249.63	196.85	285.35	254.00	356.79
22	123.83	188.12	149.23	225.82	184.15	263.92	212.73	301.63	276.23	377.03
23	134.94	198.44	161.93	238.13	188.91	277.81	228.60	317.90	295.28	397.67
24	144.46	208.36	173.04	250.43	203.20	292.10	244.48	572.29	3378.20	417.91
25	163.51	218.68	184.15	262.73	217.49	306.39	260.35	350.44	342.90	438.15