

Chain Power Transmission Tables

Power Transmission capacities of the KCM products shown in this catalog are determined under the following conditions:

- 1) Operation at -10°C to $+60^{\circ}\text{C}$ in the atmosphere free from abrasive dirt.
- 2) No corrosive gas and high humidity.
- 3) Two sprockets on which roller chain is mounted are properly aligned on parallel and level shafts.
- 4) Use of lubricant and lubrication method.
- 5) Less loading variations.

Multiple strand factor (Table 1)

Power transmission capacity of multiple strand roller chain is not equal to the number of strands times that of single strand roller chain, because the load is not evenly distributed to respective strands of roller chains. Therefore, power transmission capacity of multiple strand roller chain is determined by multiplying that of single strand roller chain by multiple strand factor.

Service factor (Table 2)

Actual power transmission capacity is adjusted according to the degree of loading variations, because the power transmission capacity tables are prepared on condition that loading variations are small.

Quick Selection Chart

How to Use:

EXAMPLE: Single strand roller chain with 5kW compensated chain drive power.

1. When smaller sprocket speed is 100 r/min

Find the intersection of 5kW vertical line of the compensated chain drive power and 100 r/min horizontal line of the smaller sprocket speed in the quick selection chart. You'll find that the chain is KCM80, and number of sprocket teeth is between 16T and 20T, judging as 17T from the exact location of the intersection.

2. When smaller sprocket speed is 300 r/min

1) Find the intersection in the same way as 1, you'll find that the chain is KCM60, and number of sprocket teeth is 13T to 18T, judging as 15T from the exact location of the intersection that is closed to 13T. Also, you'll find that there is KCM50-24T line (dotted) near this intersection. This means you can use either KCM60-15T and KCM50-24T.

After tentatively making quick selection with this chart confirm the selected sprocket is appropriate with reference to the power transmission capacity tables.

2) For power transmission capacity lines of 20T, 24T, and 30T, only its high speed portions are shown to simplify the quick selection chart. For lower speed portions, extend a line in parallel to the lines, just like a dotted line of KCM50-24T.

3) For chain speeds of 50 m/min or lower, it is economical to make selection by "Low speed selection method" described later.

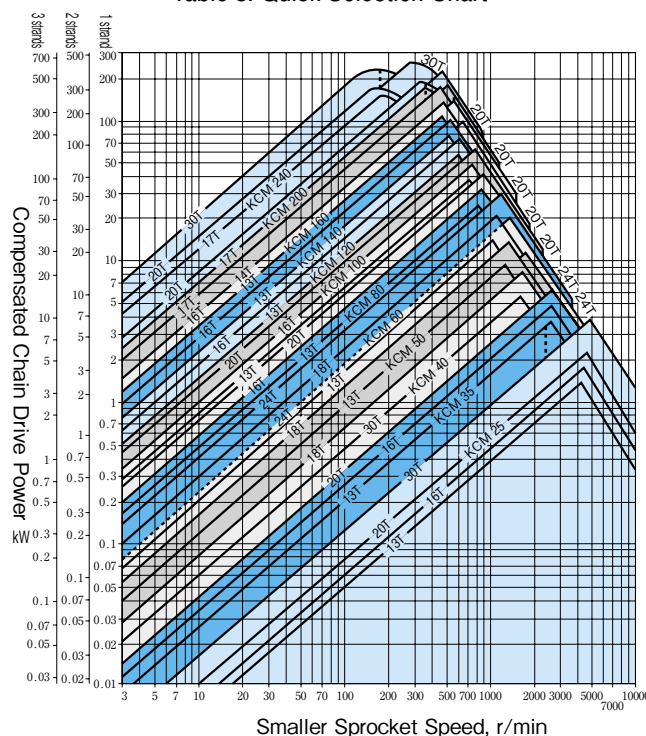
Table 1: Multiple Strand Factor

No. of Chain Strands	Multiple Strand factor
2 strands	1.7
3 strands	2.5
4 strands	3.3
5 strands	3.9
6 strands	4.6

Table 2: Service Factor

Load	Prime mover Driven machine	Motor turbine	Combustion engine	
			W/hyd. equipment	W/o hyd. equipment
Smooth loading	Belt conveyor, subjected to small loading variation, chain conveyor, centrifugal pump, centrifugal blower, textile machine and other machinery subjected to small loading variation.	1.0	1.0	1.2
With some shocks	Centrifugal compressor, marine propulsion system, conveyer subjected to some loading variations, automatic furnace, drier, crusher, machine tool, compressor, construction and civil engineering machinery, and papermaking machine	1.3	1.2	1.4
With heavy shocks	Press, crusher, mining machinery, vibratory machine, oil-well machinery, rubber mixer, roll, roll gang, and other machinery subjected to reversing load or heavy shock.	1.5	1.4	1.7

Table 3: Quick Selection Chart





NL Chain Power Transmission Table (kW)

KCM 40NL Chain Power Transmission Table (Single Strand Transmission, kW)

No. of Teeth / Small Spkt.	Revolutions Per Minute - Small Sprocket (r/min)											
	10	25	50	100	200	300	400	500	700	900	1000	1200
9	0.05	0.11	0.21	0.39	0.71	1.04	1.34	1.68	2.22	2.77	3.08	3.59
10	0.05	0.13	0.24	0.44	0.79	1.15	1.49	1.87	2.47	3.08	3.42	
11	0.06	0.15	0.26	0.48	0.87	1.27	1.64	2.05	2.72	3.39	3.80	
12	0.06	0.16	0.29	0.52	0.95	1.38	1.79	2.24	2.96	3.73		
13	0.07	0.18	0.31	0.57	1.03	1.50	1.94	2.43	3.27	4.05		
14	0.08	0.19	0.33	0.61	1.13	1.64	2.13	2.64	3.53			
15	0.08	0.20	0.36	0.65	1.21	1.76	2.29	2.83	3.78			
16	0.09	0.22	0.38	0.70	1.29	1.88	2.44	3.02	4.03			
17	0.09	0.23	0.41	0.74	1.37	2.00	2.59	3.21				
18	0.10	0.24	0.43	0.80	1.45	2.11	2.74	3.40				
19	0.10	0.26	0.45	0.86	1.57	2.28	2.95	3.65				
20	0.11	0.27	0.48	0.91	1.66	2.40	3.11	3.85				
21	0.11	0.28	0.50	0.95	1.74	2.52	3.26	4.04				
22	0.12	0.30	0.53	1.00	1.82	2.66	3.45	4.23				
23	0.12	0.31	0.55	1.04	1.92	2.81	3.61	4.42				
24	0.13	0.32	0.60	1.11	2.03	2.96	3.84					
25	0.13	0.34	0.63	1.15	2.11	3.08	4.00					
26	0.14	0.35	0.65	1.20	2.19	3.20	4.16					
27	0.15	0.36	0.68	1.25	2.28	3.33	4.32					
28	0.15	0.38	0.70	1.29	2.36	3.45	4.48					
30	0.16	0.40	0.75	1.40	2.53	3.70						
32	0.17	0.43	0.80	1.51	2.80	4.05						
35	0.19	0.47	0.88	1.65	3.06	4.43						
40	0.22	0.54	1.00	1.88	3.50							
45	0.24	0.61	1.13	2.12	3.94							

KCM 50NL Chain Power Transmission Table (Single Strand Transmission, kW)

No. of Teeth / Small Spkt.	Revolutions Per Minute - Small Sprocket (r/min)											
	10	25	50	100	200	300	400	500	600	700	800	900
9	0.11	0.24	0.44	0.82	1.49	2.17	2.80	3.39	3.99	4.61	5.19	5.72
10	0.12	0.27	0.49	0.91	1.66	2.41	3.11	3.76	4.44	5.12	5.80	
11	0.14	0.29	0.54	1.00	1.83	2.65	3.42	4.14	4.88	5.63		
12	0.15	0.32	0.59	1.09	1.99	2.89	3.74	4.51	5.35	6.18		
13	0.16	0.35	0.64	1.18	2.16	3.14	4.07	4.91	5.80			
14	0.17	0.37	0.69	1.27	2.32	3.38	4.45	5.29	6.24			
15	0.19	0.40	0.74	1.36	2.49	3.62	4.76	5.67				
16	0.20	0.43	0.79	1.45	2.66	3.86	5.08	6.05				
17	0.21	0.45	0.84	1.54	2.82	4.10	5.40	6.43				
18	0.22	0.48	0.89	1.63	2.99	4.34	5.72					
19	0.24	0.51	0.97	1.79	3.31	4.81	6.21					
20	0.25	0.53	1.03	1.89	3.49	5.07	6.54					
21	0.26	0.56	1.08	1.98	3.66	5.32	6.86					
22	0.27	0.58	1.13	2.08	3.83	5.57						
23	0.29	0.61	1.18	2.17	4.01	5.83						
24	0.30	0.66	1.23	2.29	4.26	6.14						
25	0.31	0.68	1.28	2.38	4.44	6.39						
26	0.32	0.71	1.33	2.48	4.62	6.65						
27	0.34	0.74	1.38	2.57	4.80	6.90						
28	0.35	0.77	1.44	2.67	4.97	7.16						
30	0.37	0.82	1.54	2.86	5.33							
32	0.40	0.88	1.66	3.05	5.68							
35	0.44	0.97	1.81	3.34	6.22							
40	0.50	1.11	2.07	3.81	7.11							
45	0.56	1.24	2.33	4.29								

KCM 60NL Chain Power Transmission Table (Single Strand Transmission, kW)

No. of Teeth / Small Spkt.	Revolutions Per Minute - Small Sprocket (r/min)											
	10	25	50	100	150	200	250	300	400	500	600	700
9	0.18	0.41	0.76	1.41	2.02	2.63	3.22	3.78	4.91	6.00	7.06	8.14
10	0.21	0.46	0.85	1.57	2.24	2.93	3.58	4.20	5.45	6.66	7.92	
11	0.23	0.51	0.93	1.73	2.47	3.22	3.94	4.62	6.00	7.33		
12	0.25	0.55	1.02	1.89	2.69	3.51	4.34	5.04	6.54	8.07		
13	0.27	0.60	1.10	2.04	2.97	3.88	4.75	5.46	7.23			
14	0.29	0.64	1.21	2.24	3.23	4.22	5.16	6.12	7.86			
15	0.31	0.69	1.30	2.41	3.46	4.52	5.53	6.56	8.43			
16	0.33	0.73	1.38	2.57	3.69	4.82	5.90	6.99				
17	0.35	0.78	1.47	2.73	3.92	5.12	6.27	7.43				
18	0.37	0.83	1.56	2.89	4.16	5.42	6.64	7.87				
19	0.39	0.89	1.69	3.17	4.51	5.89	7.21	8.46				
20	0.41	0.94	1.78	3.33	4.75	6.20	7.59	8.91				
21	0.43	0.98	1.87	3.50	4.99	6.51	7.97					
22	0.45	1.03	1.96	3.67	5.23	6.82	8.35					
23	0.47	1.08	2.05	3.83	5.46	7.13	8.73					
24	0.49	1.16	2.14	4.04	5.81	7.58	9.11					
25	0.51	1.21	2.23	4.20	6.05	7.90	9.67					
26	0.53	1.25	2.32	4.37	6.29	8.22						
28	0.58	1.35	2.49	4.71	6.78	8.85						
30	0.62	1.45	2.67	5.05	7.26	9.48						
32	0.66	1.56	2.93	5.53	7.96							
35	0.72	1.70	3.21	6.05	8.71							
40	0.82	1.95	3.66	6.92	9.95							
45	0.92	2.19	4.12	7.78								

KCM 80NL Chain Power Transmission Table (Single Strand Transmission, kW)

No. of Teeth / Small Spkt.	Revolutions Per Minute - Small Sprocket (r/min)													
	10	25	50	75	100	125	150	200	250	300	350			
9	0.40	0.91	1.68	2.44	3.14	3.83	4.54	5.90	7.19	8.46	9.74			
10	0.45	1.01	1.87	2.71	3.49	4.25	5.04	6.56	7.99	9.40	10.82			
11	0.49	1.11	2.05	2.98	3.83	4.68	5.55	7.21	8.79	10.34				
12	0.54	1.21	2.24	3.25	4.18	5.10	6.05	7.87	9.59					
13	0.58	1.31	2.43	3.52	4.53	5.53	6.56	8.52	10.39					
14	0.63	1.44	2.72	3.94	5.08	6.25	7.34	9.46	11.52					
15	0.67	1.57	2.91	4.22	5.44	6.70	7.87	10.13						
16	0.72	1.67	3.11	4.51	5.80	7.15	8.39	10.81						
17	0.76	1.78	3.30	4.79	6.16	7.59	8.92	11.48						
18	0.81	1.88	3.50	5.07	6.53	8.04	9.44							
19	0.85	2.01	3.73	5.45	7.09	8.65	10.06							
20	0.90	2.11	3.92	5.74	7.46	9.10	10.59							
21	0.94	2.22	4.12	6.03	7.83	9.56	11.12							
22	0.99	2.32	4.31	6.32	8.21	10.01	11.65							
23	1.03	2.43	4.51	6.60	8.58	10.47	12.18							
24	1.08	2.58	4.75	6.95	9.04	10.92								
25	1.12	2.69	4.95	7.24	9.41	11.38								
26	1.17	2.80	5.15	7.53	9.79	11.83								
28	1.26	3.02	5.54	8.11	10.54	12.75								
30	1.34	3.23	5.94	8.69	11.30									
32	1.43	3.51	6.51	9.53	12.05									
35	1.57	3.84	7.13	10.43	13.18									
40	1.79	4.39	8.14	11.92										
45	2.02	4.94	9.16	13.41										

NOTES: - Power transmission of chain with an offset link is 80% of the figures specified above.
- Power transmission of SL chain is 60% of the figures specified above.