

2.5 Working radius and lifting performance

2.5.1 Working radius

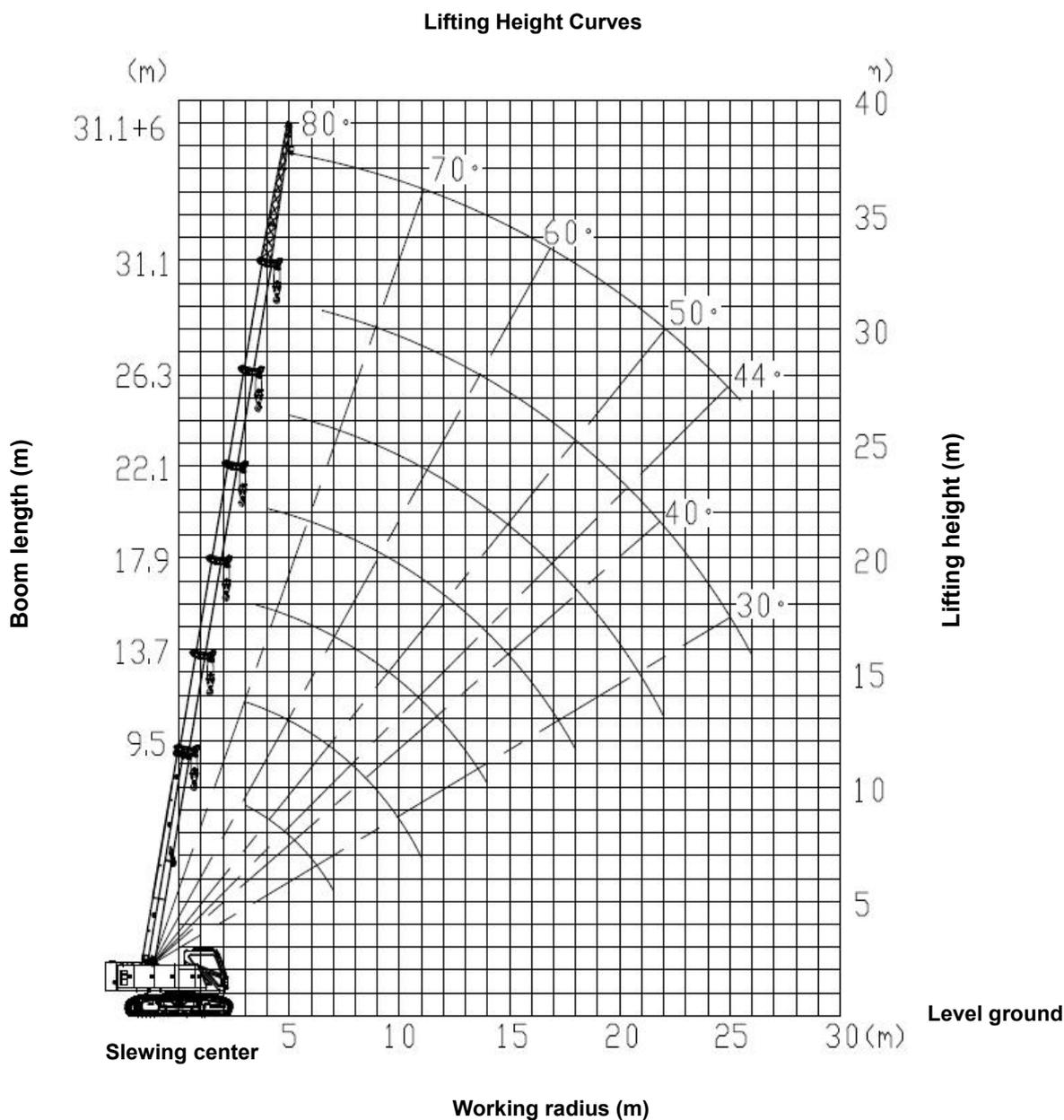


Figure 2-4 Lifting height curves

2.5.2 Rated lifting capacity charts

The crane has a variety of operating modes. The operator should determine the rated lifting capacity according to the actual operating condition and the lifting capacity charts. In the rated lifting capacity charts, the lifting capacities above the bold line is determined by strength while those below the bold line is determined by stability.

Zoomlion cranes stability factor is based on 75 per cent of tipping for stationary mode and 66.6 per cent for pick-and -carry mode, and in compliance with the stability requirements of AS 1418.5 and ISO 4305



- (1) All the above operating modes are only operational when the crawler carriers are extended, otherwise no lifting is permitted.
- (2) Inclination angles of complete vehicle in the above tables refer to the angle between either the traveling direction of the crane and the ground, or the direction vertical to the traveling direction and the ground.
- (3) The values given in the lifting capacity tables are the max. permissible lifting capacities under various OMs and specified operating conditions. The values as given in the tables include the mass of the hook (main hook for 16t: 180kg; auxiliary hook for 3t: 48kg) and slings.

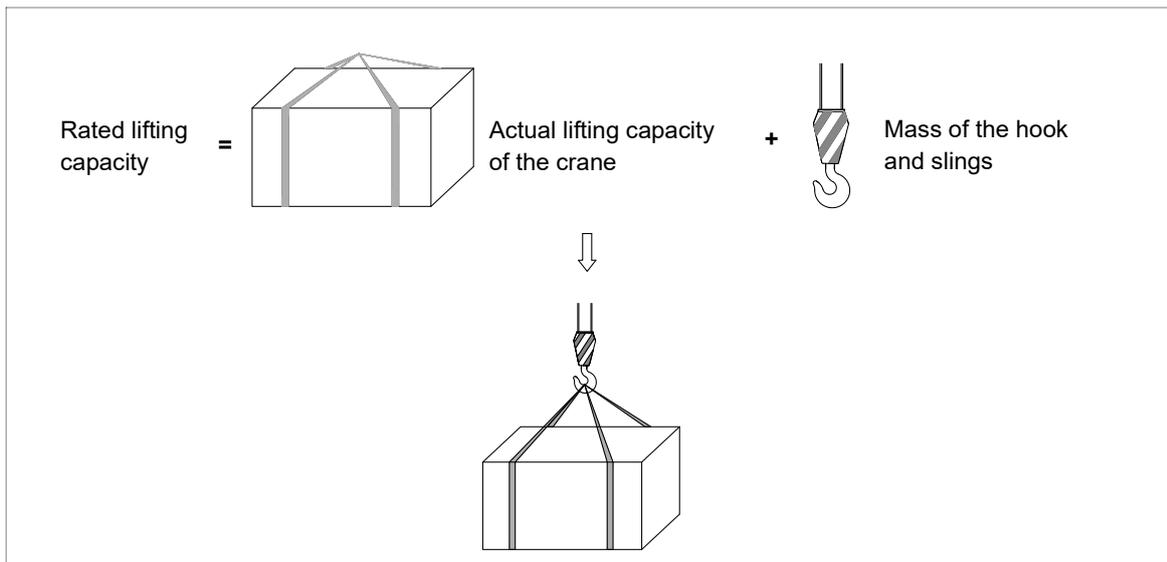


Figure 2-5 Total rated lifting capacity

- (4) A working radius is the horizontal distance between the gravity center of the hook block and the slewing center.
- (5) When the actual boom length and working radius are within two adjacent values in the above tables, the lifting capacity should be determined using method of

interpolation. The lifting capacity displayed in the load moment limiter is only for reference.

- (6) If the jib or extension is mounted on the main boom head during a lift operation, the rated lifting capacity should be further deducted by 200 kg.
- (7) The maximum lifting capacity for a lifting operation using the rooster sheave is 3000kg. However, if the lifting capacity determined based on the lifting capacity table is smaller than this value, the smaller lifting capacity shall prevail.

For example:

For 22.1m boom length and 11m working radius, the rated lifting capacity indicated in the table is 2700kg (smaller than 3000kg) and the rated lifting capacity should be 2700kg.

For 22.1m boom length and 10m working radius, the rated lifting capacity indicated in the table is 3100kg (larger than 3000kg) and the rated lifting capacity should be 3000kg.

- (8) It is prohibited to use both the main hook and the auxiliary hook to lift a load.
- (9) The lifting height charts do not take into consideration of changes of working radius and lifting height due to boom deflection.

 **WARNING**

- (1) Derricking of the main boom should be conducted in strict accordance with the lifting height chart even if the boom is unloaded, otherwise the crane may tip over.
- (2) When the crane is working on a slope, the lifting capacity corresponding to the slope angle should be selected in the corresponding lifting capacity table. It is prohibited to operate the crane on a slope exceeding 4°.

2.5.2.1 Rated lifting capacity charts

Table 2-3 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)					
	Crawler carriers fully extended; 360° slewing range; 4t counterweight; slope of 0-1°					
	9.5	13.7	17.9	22.1	26.3	31.1
3	16000	10700				
3.5	14300	10700	9500			
4	12800	10600	9300	7900		
4.5	10800	10200	9000	7600		
5	9000	9300	8600	7200	5900	
5.5	7700	7900	8000	6800	5700	
6	6600	6800	7000	6600	5400	
6.5	5800	6000	6400	6300	5100	4300
7	5100	5300	5500	5900	4900	4200
8		4300	4400	4500	4500	3850
9		3500	3700	3700	4000	3500
10		3000	3100	3100	3200	3300
11		2500	2600	2700	2700	3000
12			2300	2300	2400	2450
14			1700	1800	1800	1850
16				1400	1400	1450
18				1100	1100	1150
20					900	900
22					700	700
24						550
26						
Reeving	7	6	5	4	3	3
Hook	16t					

Table 2-4 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)				
	Crawler carriers fully extended; 360° slewing range; 4t counterweight; slope of 1-2.5°				
	9.5	13.7	17.9	22.1	26.3
3	11200	7490			
3.5	10010	7490	5225		
4	8960	7420	5115	3160	
4.5	7560	7140	4950	3040	
5	6300	6510	4730	2880	2360
5.5	5390	5530	4400	2720	2280
6	4620	4760	3850	2640	2160
6.5	4060	4200	3520	2520	2040
7	3570	3710	3025	2360	1960
8		3010	2420	1800	1800
9		2450	2035	1480	1600
10		2100	1705	1240	1280
11		1750	1430	1080	1080
12			1265	920	960
14			935	720	720
16				560	560
18				440	440
20					360
22					
24					
26					
Reeving	7	6	5	4	3
Hook	16t				

Table 2-5 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)				
	Crawler carriers fully extended; 360° slewing range; 4t counterweight; slope of 2.5-4°				
	9.5	13.7	17.9	22.1	26.3
3	9600	6420			
3.5	8580	6420	4275		
4	7680	6360	4185	2370	
4.5	6480	6120	4050	2280	
5	5400	5580	3870	2160	1770
5.5	4620	4740	3600	2040	1710
6	3960	4080	3150	1980	1620
6.5	3480	3600	2880	1890	1530
7	3060	3180	2475	1770	1470
8		2580	1980	1350	1350
9		2100	1665	1110	1200
10		1800	1395	930	960
11		1500	1170	810	810
12			1035	690	720
14			765	540	540
16				420	420
18				330	330
20					
22					
24					
26					
Reeving	7	6	5	4	3
Hook	16t				

Table 2-6 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)				
	Crawler carriers fully extended; 4t counterweight; travel with load at front (<0.4m/s); slope of 0-1°				
	9.5	13.7	17.9	22.1	26.3
3	11200	7490			
3.5	10010	7490	6650		
4	8960	7420	6510	4740	
4.5	7560	7140	6300	4560	
5	6300	6510	6020	4320	3540
5.5	5390	5530	5600	4080	3420
6	4620	4760	4900	3960	3240
6.5	4060	4200	4480	3780	3060
7	3570	3710	3850	3540	2940
8		3010	3080	2700	2700
9		2450	2590	2220	2400
10		2100	2170	1860	1920
11		1750	1820	1620	1620
12			1610	1380	1440
14			1190	1080	1080
16				840	840
18				660	660
20					540
22					420
24					
26					
Reeving	7	6	5	4	3
Hook	16t				

Table 2-7 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)			
	Crawler carriers fully extended; 4t counterweight; travel with load at front (<0.4m/s); slope of 1-2.5°			
	9.5	13.7	17.9	22.1
3	8000	5350		
3.5	7150	5350	4750	
4	6400	5300	4650	3160
4.5	5400	5100	4500	3040
5	4500	4650	4300	2880
5.5	3850	3950	4000	2720
6	3300	3400	3500	2640
6.5	2900	3000	3200	2520
7	2550	2650	2750	2360
8		2150	2200	1800
9		1750	1850	1480
10		1500	1550	1240
11		1250	1300	1080
12			1150	920
14			850	720
16				560
18				440
20				
22				
24				
26				
Reeving	7	6	5	4
Hook	16t			

Table 2-8 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)	
	Crawler carriers fully extended; 4t counterweight; travel with load at front (<0.4m/s); slope of 2.5-4°	
	9.5	13.7
3	8000	5350
3.5	7150	5350
4	6400	5300
4.5	5400	5100
5	4500	4650
5.5	3850	3950
6	3300	3400
6.5	2900	3000
7	2550	2650
8		2150
9		1750
10		1500
11		1250
12		
14		
16		
18		
20		
22		
24		
26		
Reeving	7	6
Hook	16t	

2.5.2.2 Rated lifting capacity charts of jib

Table 2-9 Rated lifting capacity chart

Unit: kg

Main boom angle (°)	Main boom (m) + jib (m)
	Crawler carriers fully extended; 360° slewing range; 4t counterweight; slope of 0-1°
	31.1+6.0
80	2000
78	1750
76	1550
74	1400
72	1300
70	1200
68	1150
66	1050
64	950
62	850
60	750
58	700
56	650
54	600
52	500
50	450
48	400
46	350
44	300
Reeving	1
Hook	3t

2.5.2.3 Rated lifting capacity charts of rooster sheave (1870MPa hoisting rope)

Table 2-10 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave					
	1870MPa hoisting rope;Crawler carriers fully extended; 360° slewing range; 4t counterweight; slope of 0-1°					
	9.5	13.7	17.9	22.1	26.3	31.1
3	2500	2500				
3.5	2500	2500	2500			
4	2500	2500	2500	2500		
4.5	2500	2500	2500	2500		
5	2500	2500	2500	2500	2500	
5.5	2500	2500	2500	2500	2500	
6	2500	2500	2500	2500	2500	
6.5	2500	2500	2500	2500	2500	2500
7	2500	2500	2500	2500	2500	2500
8		2500	2500	2500	2500	2500
9		2500	2500	2500	2500	2500
10		2500	2500	2500	2500	2500
11		2500	2500	2500	2500	2500
12			2300	2300	2400	2450
14			1700	1800	1800	1850
16				1400	1400	1450
18				1100	1100	1150
20					900	900
22					700	700
24						550
26						450
Reeving	1					
Hook	3t					

Table 2-11 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave				
	1870MPa hoisting rope;Crawler carriers fully extended; 360° slewing range; 4t counterweight; slope of 1-2.5°				
	9.5	13.7	17.9	22.1	26.3
3	2500	2500			
3.5	2500	2500	2500		
4	2500	2500	2500	2500	
4.5	2500	2500	2500	2500	
5	2500	2500	2500	2500	2360
5.5	2500	2500	2500	2500	2280
6	2500	2500	2500	2500	2160
6.5	2500	2500	2500	2500	2040
7	2500	2500	2500	2360	1960
8		2500	2420	1800	1800
9		2450	2035	1480	1600
10		2100	1705	1240	1280
11		1750	1430	1080	1080
12			1265	920	960
14			935	720	720
16				560	560
18				440	440
20					360
22					
24					
26					
Reeving	1				
Hook	3t				

Table 2-12 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave				
	1870MPa hoisting rope;Crawler carriers fully extended; 360° slewing range; 4t counterweight; slope of 2.5-4°				
	9.5	13.7	17.9	22.1	26.3
3	2500	2500			
3.5	2500	2500	2500		
4	2500	2500	2500	2370	
4.5	2500	2500	2500	2280	
5	2500	2500	2500	2160	1770
5.5	2500	2500	2500	2040	1710
6	2500	2500	2500	1980	1620
6.5	2500	2500	2500	1890	1530
7	2500	2500	2475	1770	1470
8		2500	1980	1350	1350
9		2100	1665	1110	1200
10		1800	1395	930	960
11		1500	1170	810	810
12			1035	690	720
14			765	540	540
16				420	420
18				330	330
20					
22					
24					
26					
Reeving	1				
Hook	3t				

Table 2-13 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave				
	1870MPa hoisting rope;Crawler carriers fully extended; 4t counterweight; travel with load at front (<0.4m/s); slope of 0-1°				
	9.5	13.7	17.9	22.1	26.3
3	2500	2500			
3.5	2500	2500	2500		
4	2500	2500	2500	2500	
4.5	2500	2500	2500	2500	
5	2500	2500	2500	2500	2500
5.5	2500	2500	2500	2500	2500
6	2500	2500	2500	2500	2500
6.5	2500	2500	2500	2500	2500
7	2500	2500	2500	2500	2500
8		2500	2500	2500	2500
9		2450	2500	2220	2400
10		2100	2170	1860	1920
11		1750	1820	1620	1620
12			1610	1380	1440
14			1190	1080	1080
16				840	840
18				660	660
20					540
22					420
24					
26					
Reeving	1				
Hook	3t				

Table 2-14 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave			
	1870MPa hoisting rope;Crawler carriers fully extended; 4t counterweight; travel with load at front (<0.4m/s); slope of 1-2.5°			
	9.5	13.7	17.9	22.1
3	2500	2500		
3.5	2500	2500	2500	
4	2500	2500	2500	2500
4.5	2500	2500	2500	2500
5	2500	2500	2500	2500
5.5	2500	2500	2500	2500
6	2500	2500	2500	2500
6.5	2500	2500	2500	2500
7	2500	2500	2500	2360
8		2150	2200	1800
9		1750	1850	1480
10		1500	1550	1240
11		1250	1300	1080
12			1150	920
14			850	720
16				560
18				440
20				
22				
24				
26				
Reeving	1			
Hook	3t			

Table 2-15 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave	
	1870MPa hoisting rope;Crawler carriers fully extended; 4t counterweight; travel with load at front (<0.4m/s); slope of 2.5-4°	
	9.5	13.7
3	2500	2500
3.5	2500	2500
4	2500	2500
4.5	2500	2500
5	2500	2500
5.5	2500	2500
6	2500	2500
6.5	2500	2500
7	2500	2500
8		2150
9		1750
10		1500
11		1250
12		
14		
16		
18		
20		
22		
24		
26		
Reeving	1	
Hook	3t	

2.5.2.4 Rated lifting capacity charts of rooster sheave (1960MPa hoisting rope)

Table 2-16 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave					
	1960MPa hoisting rope;Crawler carriers fully extended; 360° slewing range; 4t counterweight; slope of 0-1°					
	9.5	13.7	17.9	22.1	26.3	31.1
3	3000	3000				
3.5	3000	3000	3000			
4	3000	3000	3000	3000		
4.5	3000	3000	3000	3000		
5	3000	3000	3000	3000	3000	
5.5	3000	3000	3000	3000	3000	
6	3000	3000	3000	3000	3000	
6.5	3000	3000	3000	3000	3000	3000
7	3000	3000	3000	3000	3000	3000
8		3000	3000	3000	3000	3000
9		3000	3000	3000	3000	3000
10		3000	3000	3000	3000	3000
11		2500	2600	2700	2700	3000
12			2300	2300	2400	2450
14			1700	1800	1800	1850
16				1400	1400	1450
18				1100	1100	1150
20					900	900
22					700	700
24						550
26						450
Reeving	1					
Hook	3t					

Table 2-17 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave				
	1960MPa hoisting rope;Crawler carriers fully extended; 360° slewing range; 4t counterweight; slope of 1-2.5°				
	9.5	13.7	17.9	22.1	26.3
3	3000	3000			
3.5	3000	3000	3000		
4	3000	3000	3000	3000	
4.5	3000	3000	3000	3000	
5	3000	3000	3000	2880	2360
5.5	3000	3000	3000	2720	2280
6	3000	3000	3000	2640	2160
6.5	3000	3000	3000	2520	2040
7	3000	3000	3000	2360	1960
8		3000	2420	1800	1800
9		2450	2035	1480	1600
10		2100	1705	1240	1280
11		1750	1430	1080	1080
12			1265	920	960
14			935	720	720
16				560	560
18				440	440
20					360
22					
24					
26					
Reeving	1				
Hook	3t				

Table 2-18 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave				
	1960MPa hoisting rope;Crawler carriers fully extended; 360° slewing range; 4t counterweight; slope of 2.5-4°				
	9.5	13.7	17.9	22.1	26.3
3	3000	3000			
3.5	3000	3000	3000		
4	3000	3000	3000	2370	
4.5	3000	3000	3000	2280	
5	3000	3000	3000	2160	1770
5.5	3000	3000	3000	2040	1710
6	3000	3000	3000	1980	1620
6.5	3000	3000	2880	1890	1530
7	3000	3000	2475	1770	1470
8		2580	1980	1350	1350
9		2100	1665	1110	1200
10		1800	1395	930	960
11		1500	1170	810	810
12			1035	690	720
14			765	540	540
16				420	420
18				330	330
20					
22					
24					
26					
Reeving	1				
Hook	3t				

Table 2-19 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave				
	1960MPa hoisting rope;Crawler carriers fully extended; 4t counterweight; travel with load at front (<0.4m/s); slope of 0-1°				
	9.5	13.7	17.9	22.1	26.3
3	3000	3000			
3.5	3000	3000	3000		
4	3000	3000	3000	3000	
4.5	3000	3000	3000	3000	
5	3000	3000	3000	3000	3000
5.5	3000	3000	3000	3000	3000
6	3000	3000	3000	3000	3000
6.5	3000	3000	3000	3000	3000
7	3000	3000	3000	3000	2940
8		3000	3000	2700	2700
9		2450	2590	2220	2400
10		2100	2170	1860	1920
11		1750	1820	1620	1620
12			1610	1380	1440
14			1190	1080	1080
16				840	840
18				660	660
20					540
22					420
24					
26					
Reeving	1				
Hook	3t				

Table 2-20 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave			
	1960MPa hoisting rope;Crawler carriers fully extended; 4t counterweight; travel with load at front (<0.4m/s); slope of 1-2.5°			
	9.5	13.7	17.9	22.1
3	3000	3000		
3.5	3000	3000	3000	
4	3000	3000	3000	3000
4.5	3000	3000	3000	3000
5	3000	3000	3000	2880
5.5	3000	3000	3000	2720
6	3000	3000	3000	2640
6.5	2900	3000	3000	2520
7	2550	2650	2750	2360
8		2150	2200	1800
9		1750	1850	1480
10		1500	1550	1240
11		1250	1300	1080
12			1150	920
14			850	720
16				560
18				440
20				
22				
24				
26				
Reeving	1			
Hook	3t			

Table 2-21 Rated lifting capacity chart

Unit: kg

Working radius (m)	Main boom (m)+rooster sheave	
	1960MPa hoisting rope;Crawler carriers fully extended; 4t counterweight; travel with load at front (<0.4m/s); slope of 2.5-4°	
	9.5	13.7
3	3000	3000
3.5	3000	3000
4	3000	3000
4.5	3000	3000
5	3000	3000
5.5	3000	3000
6	3000	3000
6.5	2900	3000
7	2550	2650
8		2150
9		1750
10		1500
11		1250
12		
14		
16		
18		
20		
22		
24		
26		
Reeving	1	
Hook	3t	