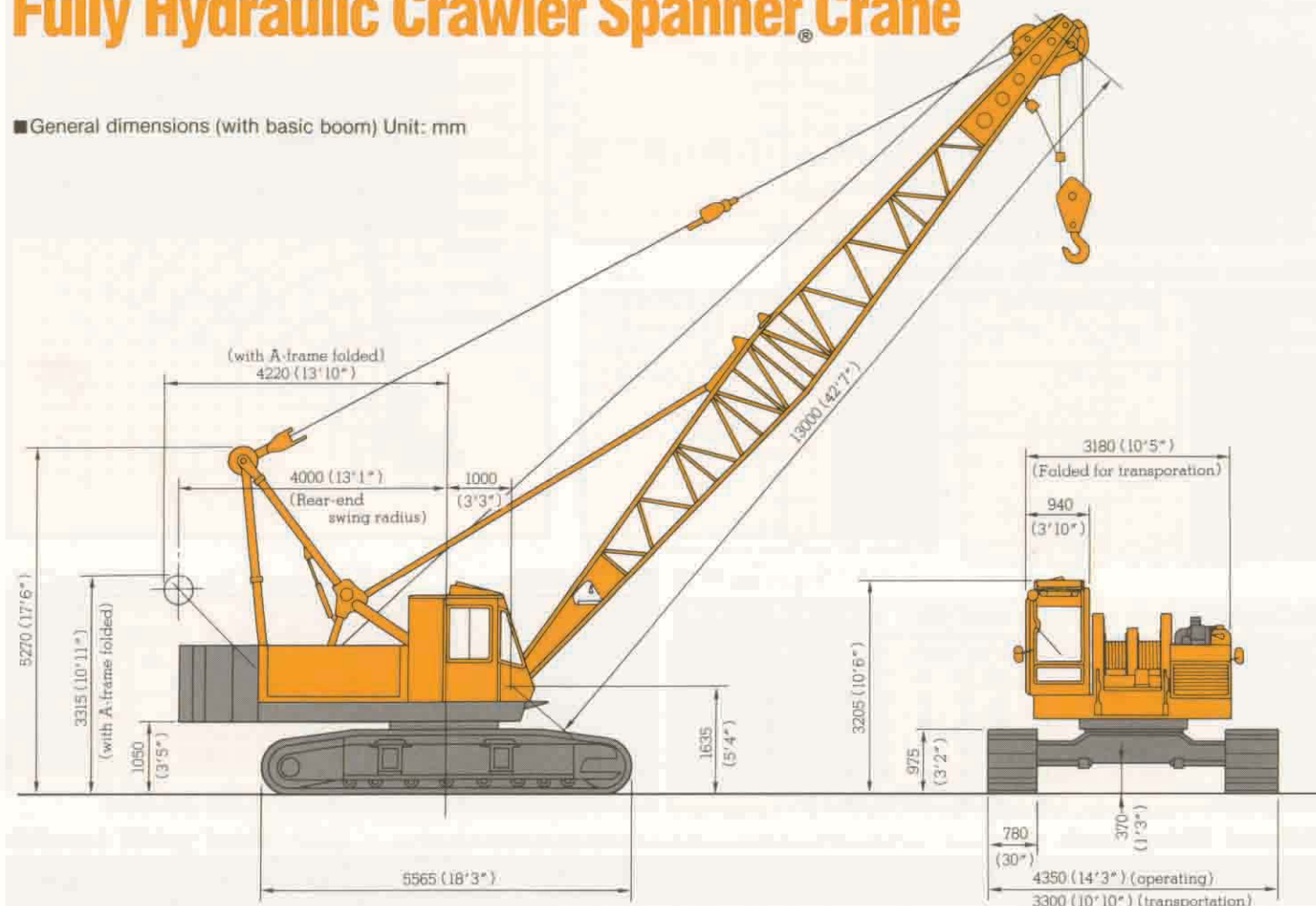


CCH500-2

Fully Hydraulic Crawler Spanner Crane

■ General dimensions (with basic boom) Unit: mm



■ Specifications

Performance	
Swing speed	3.3 rpm
Travel speed	1.5km/h (0.9 mph)
Gradeability	40% (Approx. 22°) (with 42.7ft boom and 110,230 lbs hook block)
Operation system	
Power source	Hydraulic
Transmission system	Hydraulic
Drum type	Independent two drum on single shaft (DOUBLE WING)
Swing system	Swing bearing
Hydraulic pump	Variable displacement axial plunger pump×3 Gear pump×2
Engine	
Model	NISSAN DIESEL NE6T
Type	4-cycle, water cooled, overhead valve
Combustion chamber	Direct injection diesel
Cylinder bore stroke	6-110mm×130mm (6-4"×5")
Total displacement	7.412l
Rated output	160PS/2,100rpm (with turbocharger)
Max. torque	59kg·m/1500rpm
Rated fuel consumption rate	172g/PS·h (at rated output)
Fuel tank capacity	225l

■ Safety equipment

- Counterbalance valve, check valve, relief valve.
- Multi-disc traction brake
- Swing lock, swing parking brake
- Drum lock
- Emergency drum brake
- Boom angle indicator
- Telescopic boom stop
- Boom overhoisting prevention
- Hook overwinding prevention

■ Optional equipment

- Electronic moment limiter
- Third drum
- Car cooler
- Combustion type heater
- Flood light, yellow rotary lamp
- Wireless helmet phone
- Electric level gauge
- Spark arrester

The machine is manufactured in compliance with the Japanese Labor Ministry's "Structural Standards for Mobile Cranes," and it meets the requirements of "Safety Regulations for Crane and Related Machines".

Ishikawajima Construction Machinery Co., Ltd.

Crane

Specifications

Maximum lifting load × working radius		50 tons × 3.7 m
Maximum lift above ground		48.4 m (52 m boom)
Rope speed	Boom hoisting and lowering	60 m/min (1st layer on drum)
	Load hoisting and lowering	High speed 80 m/min, Low speed 40 m/min
	Jib load hoisting and lowering	High speed 80 m/min, Low speed 40 m/min
Part lines	Boom hoisting	12-part lines
	50-ton hook	10-part lines
	5-ton hook	1-part line
Counterweight		15.5 tons (5.6 + 5.9 + 4.0)
Crane total weight (with 13 m boom and 50-ton hook block)		47.5 tons
Average ground bearing pressure		0.62 kgf/cm ²

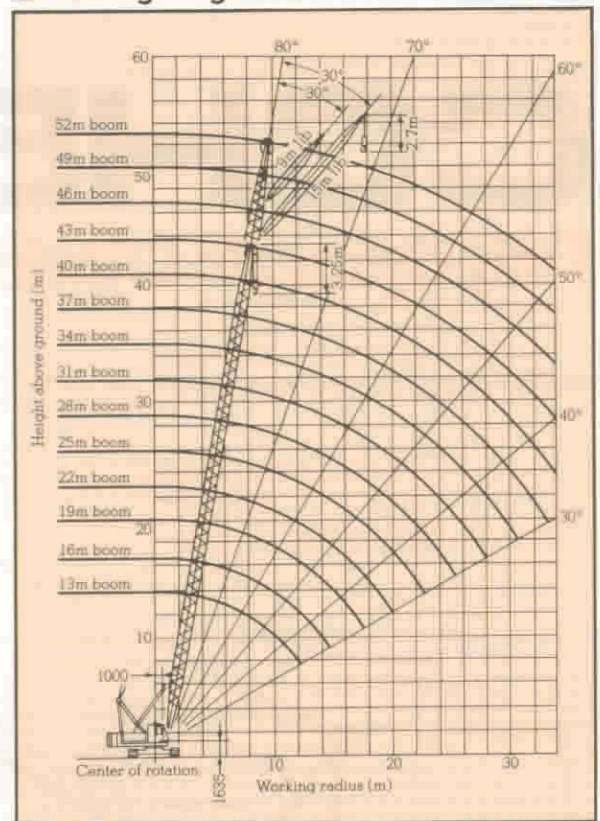
Boom composition/Jib composition

(Unit: m)

Boom length	Boom composition	Jib length	Jib composition
13	6.5 (inner) + 6.5 (outer)	1	1 (auxiliary jib)
16	6.5 + 3 + 6.5	6	3 (inner) + 3 (outer)
19	6.5 + 3 + 3 + 6.5	9	3 + 3 + 3
22	6.5 + 3 + 6 + 6.5	12	3 + 6 + 3
25	6.5 + 3 + 3 + 6 + 6.5	15	3 + 3 + 6 + 3
28	6.5 + 3 + 6 + 6 + 6.5		
31	6.5 + 3 + 6 + 9 + 6.5		
34	6.5 + 3 + 3 + 6 + 9 + 6.5		
37	6.5 + 3 + 6 + 6 + 9 + 6.5		
40	6.5 + 3 + 6 + 9 + 9 + 6.5		

⑨ denotes 9m insert boom w/lug; which is required for boom length over 43m.

Working range



Combination of boom and jib

(● available combination)

Jib length (m)	Boom length (m)												
	13	16	19	22	25	28	31	34	37	40	43	46	49
1	●	●	●	●	●	●	●	●	●	●	●	●	●
6					●	●	●	●	●	●	●	●	●
9					●	●	●	●	●	●	●	●	●
12					●	●	●	●	●	●	●	●	●
15					●	●	●	●	●	●	●	●	●

Wire rope

Place of use	Rope diameter (mm) × overall length (m)	Guaranteed strength (ton)
Load hoisting	φ20 × 210	30.0
Boom hoisting	φ16 × 145	19.2
Boom suspension	φ31.5	74.9
Jib load hoisting	φ20 × 120	30.0
Jib boom suspension	φ22.4	37.6
Jib strut suspension	φ22.4	37.6

Rope type is 6 × Fi (29) IWRC Preformed Regular Z Lay for all purposes

Rated lifting loads (360° through out; within 78% of tipping load; forward stability factor over 1.15)

(Unit: ton)

Working Radius (m)	Boom Length													
	13	16	19	22	25	28	31	34	37	40	43	46	49	52
3.7	50.0													
4.0	46.0	45.9												
4.5	39.6	39.5	39.4											
5.0	33.3	33.2	33.1	33.0										
5.5	28.7	28.6	28.5	28.4	28.3									
6.0	25.2	25.1	25.0	24.9	24.8	24.7								
7.0	20.2	20.1	20.0	19.9	19.8	19.7	19.6	19.5						
8.0	16.8	16.7	16.6	16.5	16.4	16.3	16.2	16.1	16.1	16.0				
9.0	14.3	14.2	14.1	14.0	13.9	13.8	13.7	13.6	13.6	13.5	13.4			
10.0	12.5	12.4	12.3	12.2	12.1	12.0	11.9	11.8	11.8	11.7	11.6	11.5	11.4	
12.0	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.1	9.0	8.9	8.8	8.7	13m × 8.0
14.0		8.0	7.9	7.8	7.7	7.6	7.5	7.4	7.4	7.3	7.2	7.1	7.0	6.9
16.0			6.6	6.5	6.4	6.3	6.2	6.1	6.1	6.0	5.9	5.8	5.7	5.6
18.0				5.6	5.5	5.4	5.3	5.2	5.2	5.1	5.0	4.9	4.8	4.7
20.0				4.8	4.7	4.6	4.5	4.4	4.4	4.3	4.2	4.1	4.0	3.9
22.0					4.1	4.0	3.9	3.8	3.8	3.7	3.6	3.5	3.4	3.3
24.0						3.6	3.5	3.4	3.3	3.2	3.1	3.0	2.9	2.8
26.0							3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.4
28.0								2.6	2.5	2.4	2.3	2.2	2.1	2.0
30.0								2.3	2.3	2.2	2.1	2.0	1.8	1.7
32.0									1.8	1.7	1.6	1.5	1.5	1.4
34.0										1.6	1.5	1.3	1.2	1.1

● All loads are based on a firm level, uniformly supporting surface without traveling.

● The weight of the slings, hook block(s) and auxiliary lifting devices are considered to be part of the load.

Main hook block (50 ton capacity) 0.49 tons
Jib hook block (5 ton capacity) 0.12 tons

● Depending on the number of part lines, rated lifting load is limited as follows.

1-part line - up to 5 tons
2-part line - up to 10 tons
3-part line - up to 15 tons
4-part line - up to 20 tons
5-part line - up to 25 tons

● When boom is equipped with jib, main hook ratings must be reduced by the following weight.

Jib length	1m	6m	9m	12m	15m
Weight to be reduced	0.5t	0.75t	0.95t	1.2t	1.45t

6-part line - up to 30 tons
7-part line - up to 35 tons
8-part line - up to 40 tons
9-part line - up to 45 tons
10-part line - up to 50 tons

● The rated loads for jib when the main hook is installed must be reduced by the total weight of the main hook and the jib hook.

● The maximum boom length to which jib boom can be installed is as follows:

With the crawler frame extended, up to 43m + 15m or 49m + 1m.

● Bucket and lifting magnet operations cannot be performed by jibs.

● The rated load for jib should not exceed the value in the table below.

Jib angle	Jib boom length			
	1m	6m	9m	15m
15°	5.0 tons	4.6 tons	3.7 tons	2.8 tons
30°		4.1 tons	3.2 tons	2.3 tons

● The angle formed by the extension line of the main boom and the center line of the jib boom should not exceed 30° under load conditions.

Lifting Magnet

■ Specifications

Rope speed	Boom hoisting and lowering	60m/min (1st layer of drum)
	Load hoisting and lowering	High speed 80m/min, Low speed 40m/min
Part lines	Boom hoisting and lowering	12-part lines
	Load hoisting and lowering	1-10-part lines
Counterweight (exclusive for lifting magnet)		15.5 tons (5.6 + 5.9 + 4.0)
Total weight (13m boom + $\phi 1500$ magnet)		50.0 tons
Average ground bearing pressure		0.65 kgf/cm ²

■ Magnet specifications

Electromagnet	Diameter	$\phi 1500$	$\phi 1800$ (optional)
	Weight	2.7 tons	4.2 tons
Voltage		DC-220V	DC-220V
Generator capacity		16.5kW/1,800rpm	22kW/1,800rpm
Lifting capacity	Ingot	24 tons	30 tons
	Punch scrap	0.5-0.9 tons	0.75-1.3 tons
	Iron scrap	1.2-1.9 tons	1.65-2.8 tons
	Pig iron	1.3-1.9 tons	1.8-2.8 tons

■ Rated lifting capacity (90% of crane load)

(Unit: ton)

Boom length (m)	Working radius (m)												
	3.7	4	4.5	5	5.5	6	7	8	9	10	12	14	16
13	34.7	34.7	34.7	31.3	27.4	23.9	18.9	15.8	13.5	11.7	9.3		
16		34.7	34.7	31.2	27.3	23.8	18.8	15.7	13.4	11.6	9.2	7.5	
19			34.7	31.1	27.2	23.7	18.7	15.6	13.3	11.5	9.1	7.4	6.2

● The weight of hook block, magnet and auxiliary lifting devices are considered to be a part of the load.

50-ton hook ... 490kg

15-ton hook ... 200kg

● Depending on the number of part lines, rated lifting load is limited as follows.

1-part line ... up to 5 tons

6-part line ... up to 30 tons

2-part line ... up to 10 tons

7-part line ... up to 35 tons

3-part line ... up to 15 tons

8-part line ... up to 40 tons

4-part line ... up to 20 tons

9-part line ... up to 45 tons

5-part line ... up to 25 tons

10-part line ... up to 50 tons

Flying Leader

Specifications

Rope speed	Boom hoisting and lowering		60m/min (1st layer on drum)
	Hammer hoisting and lowering		High speed 80m/min, Low speed 40m/min
	Pile hoisting and lowering		High speed 80m/min, Low speed 40m/min
Part lines	Boom hoisting		12-part lines
	Hammer hoisting	IDH-25	2-part lines
		IDH-35	3-part lines
		IDH-45	3-part lines
	Pile hoisting	Under 5 tons	1-part lines
5-10 tons		2-part lines	
Counterweight			15.5 tons (5.6 + 5.9 + 4.0)
Possible travelling weight (on Pile driver attachment)			68 tons
Allowable average ground bearing pressure			0.89kaf/cm ²

Wire rope

Place of use	Rope diameter (mm) × overall length (m)	Guaranteed strength (t)
Boom hoisting	φ16 × 145	19.2
Boom suspension	φ31.5	74.9
Hammer hoisting	φ20 × 170	30.0
Pile hoisting	φ20 × 120	30.0

All the ropes are of 6×F1 (29) IWRC preformed regular Z lay.

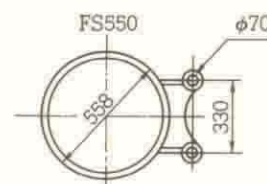
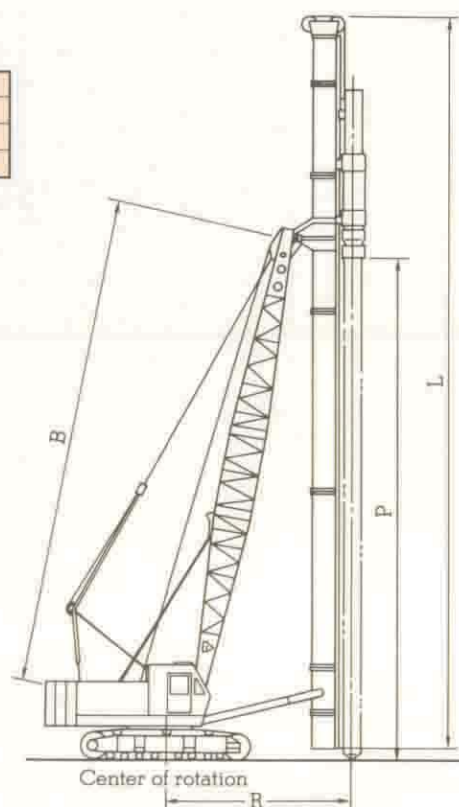
Working performance R: Working radius (m) W: Pile weight (t)

Leader type		FS550											
Hammer type		IDH-25				IDH-35				IDH-45			
Hammer weight (t)		5.5				7.8				11.0			
Cap weight (t)		0.5				1.0				1.8			
Boom length (m) B		16	19	19	22	16	19	19	22	16	19	19	
Leader length (m) L		20.85	23.85	26.85	29.85	20.85	23.85	26.85	29.85	20.85	23.85	26.85	
Pile length (m) P		14	17	20	23	13.5	16.5	19.5	22.5	13	16	19	
		R = Working radius (m) W = Pile weight (t)											
Boom angle		R	W	R	W	R	W	R	W	R	W	R	W
82		5.2	6.5	5.6	6.5	5.6	6.5	6.0	6.5	5.2	8.0	5.6	8.0
81		5.4	6.5	5.9	6.5	5.9	6.5	6.4	6.5	5.5	8.0	6.0	7.0
80		5.7	6.5	6.2	6.5	6.2	6.5	6.8	6.0	5.8	8.0	6.3	6.5
79		6.0	6.5	6.5	6.5	6.5	6.5	7.1	4.5	6.0	8.0	6.6	5.0
78		6.3	6.5	6.9	6.5	6.9	6.0	7.5	3.5	6.3	7.0	6.9	4.0
77		6.5	6.5	7.2	5.5	7.2	5.0	7.9	2.0	6.6	6.0	7.3	2.5
76		6.8	6.5	7.5	4.5	7.5	4.0	8.2	1.0	6.9	4.5	7.6	1.5
75		7.1	6.5	7.8	3.5	7.8	3.0			7.1	3.5		
74		7.3	5.5							7.4	2.5		

- Angle of pile pulling rope with leader below 10°.
- It is not possible to work with leader forward.
- Pile pulling will be affected with leader in vertical position.
- Permissible weight for pile pulling does not exceed a range in vertical positioning specified in working capacity table.

Boom combination

Boom length	Boom composition
16	6.5+3+6.5
19	6.5+3+3+6.5
22	6.5+3+6+6.5



(Unit: mm)

Clamshell

■ Specifications

Maximum lift above ground		13.3m (19m boom + 1.0m ³ bucket)
Rope speed	Boom hoisting and lowering	60m/min (1st drum layer)
	Bucket opening and closing	High speed 80m/min, Low speed 40m/min
	Bucket suspension hoisting and lowering	High speed 80m/min, Low speed 40m/min
Part lines	Boom hoisting	12 part lines
	Bucket opening and closing	6 part lines (for all types of buckets)
	Bucket suspension	1 part line (for all types of buckets)
Counterweight		15.5 tons (5.6 + 5.9 + 4.0)
Total weight (13m boom + 1.0m ³ bucket)		50.2 tons
Average ground bearing pressure		0.65kgf/cm ²

■ Wire rope

Place of use	Rope diameter (mm)	Guaranteed strength (t)	Rope type	Length (m)
Bucket opening and closing	φ20	30.0	A	69 (with 19m boom)
Bucket holding	φ20	30.0	A	55 (with 19m boom)
Boom hoisting	φ16	19.2	A	145 (12 part lines)
Boom suspension (pendant)	φ31.5	74.9	A	6.1 (for outer boom)
				3 (for 3m insert boom)
				6 (for 6m insert boom)
Weight type tagline	φ10	5.5	B	34 (for 16m boom)* 49 (for 19m boom)*
Spring type tagline	φ10	5.5	B	30*
Hydraulic type tagline	φ10	5.5	B	49

■ Clamshell bucket specifications

Classification	Typ	Capacity (m ³)	Weight (t)
Optional	HD	0.6	3.0
Optional	GP	0.8	2.2
Standard	GP	1.0	2.5
Optional	WR	1.0	2.0
Optional	WR	1.25	1.6

Bucket type (purpose)

HD: Heavyduty (civil engineering, construction)

GP: General purpose (heavy load handling)

WR: Wide rehandling (medium load rehandling)

Rope type

A: 6×F1 (29) IWRC preformed regular Z lay

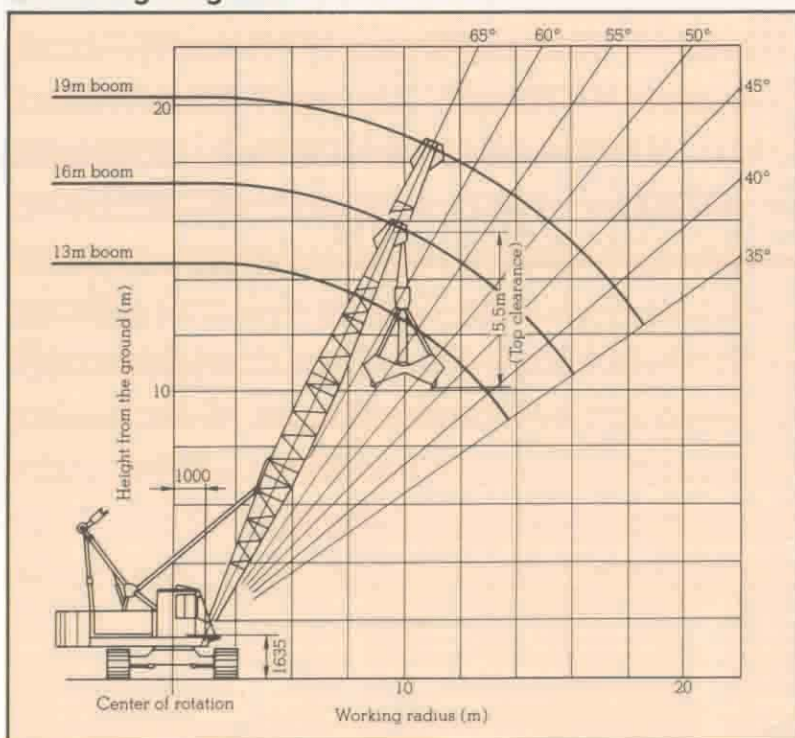
B: 6×19 hemp core regular Z lay

* optional.

■ Working range and allowable loads

Boom length (m)		13				16				19			
Boom angle		35°	45°	55°	65°	35°	45°	55°	65°	35°	45°	55°	65°
Working radius (m)		12.0	10.6	8.9	6.9	14.4	12.7	10.6	8.2	16.9	14.8	12.3	9.5
Rated lifting load (t)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Maximum dumping height (m)		3.4	5.2	6.7	7.8	5.1	7.3	9.1	10.5	6.8	9.4	11.6	13.3
Maximum digging depth (m)	Tagline type	Weight	12								22		
		Hydraulic	36	36	36	36	36	36	36	36	36	36	36
		Spring	15				15				13		

■ Working range



● Rated lifting load is the upper limit of the "bucket weight + load" during clamshell work.

Use a bucket suitable for the kind of the load required so that the allowable load figures in the table are not exceeded.

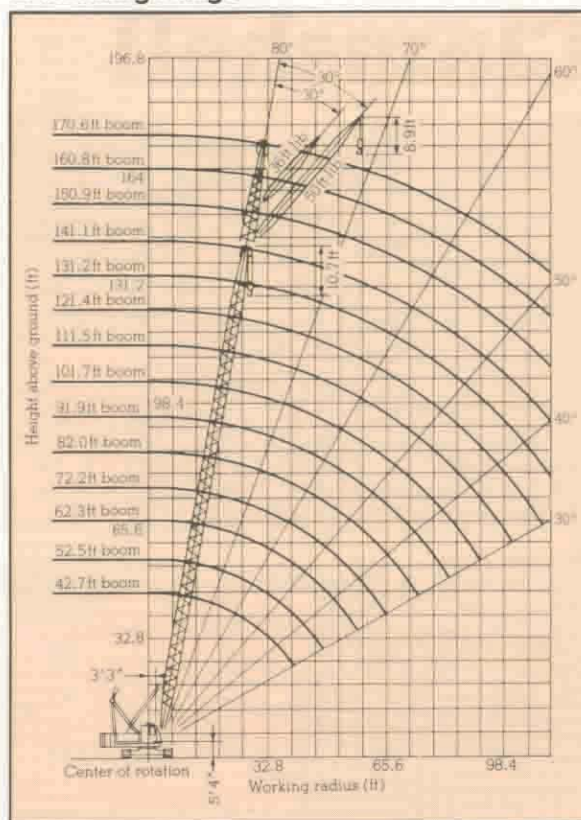
● The maximum dumping height is for a standard 1.0m³ bucket.

Crane

Specifications

Maximum lifting load × working radius		110,230 lbs × 12.1 ft
Maximum lift above ground		159 ft (170.6 ft boom)
Rope speed	Boom hoisting and lowering	197 ft/min (1st layer on drum)
	Load hoisting and lowering	High speed 262 ft/min, Low speed 131 ft/min
	Jib load hoisting and lowering	High speed 262 ft/min, Low speed 131 ft/min
Part lines	Boom hoisting	12 part lines
	50 ton hook	10 part lines
	5 ton hook	1 part line
Counterweight		34,171 lbs (12,346 + 13,007 + 8,818)
Crane total weight (with 42.7 ft boom and 110,230 lbs hook block)		104,719 lbs
Average ground bearing pressure		8.82 lbs/in ²

Working range



Combination of Boom and Jib (●: available combination)

Jib length (ft)	Boom length (ft)													
	42.7	52.5	62.3	72.2	82.0	91.9	101.7	111.5	121.4	131.2	141.1	150.9	160.8	170.6
3'3"	●	●	●	●	●	●	●	●	●	●	●	●	●	●
20'					●	●	●	●	●	●	●	●	●	●
30'					●	●	●	●	●	●	●	●	●	●
40'					●	●	●	●	●	●	●	●	●	●
50'					●	●	●	●	●	●	●	●	●	●

Wire rope

Place of use	Rope diameter (ft) × overall length (ft)	Guaranteed strength (lbs)
Load hoisting	25/32" × 689'	66,138
Boom hoisting	5/8" × 476'	42,328
Boom suspension	1/4"	165,125
Jib load hoisting	25/32" × 394'	66,138
Jib boom suspension	7/8"	82,893
Jib strut suspension	7/8"	82,893

Rope type is 6 × Fi (29) IWRC Preformed Regular Z Lay for all purposes

Rated lifting loads (Through out 360°; within 78% of tipping load; forward stability factor over 1.15)

(Unit: lbs)

Working Radius (ft)	Boom Length (ft)													
	42.7	52.5	62.3	72.2	82.0	91.9	101.7	111.5	121.4	131.2	141.1	150.9	160.8	170.6
12.1	110,230													
13.1	101,412	101,191												
14.8	87,302	87,082	86,861											
16.4	73,413	73,193	72,972	72,752										
18.0	63,272	63,052	62,831	62,611	62,390									
19.7	55,556	55,335	55,115	54,895	54,674	54,454								
23.0	44,533	44,312	44,092	43,872	43,651	43,431	43,210	42,990						
26.2	37,037	36,817	36,596	36,376	36,155	35,935	35,715	35,494	35,274					
29.5	31,526	31,305	31,085	30,864	30,644	30,423	30,203	29,983	29,762	29,542				
32.8	27,558	27,337	27,117	26,896	26,676	26,455	26,235	26,014	25,794	25,573	25,353	25,132		
39.4	21,605	21,385	21,164	20,944	20,723	20,503	20,282	20,062	19,841	19,621	19,400	19,180	42.7 × 17,637	
45.9		17,637	17,416	17,196	16,975	16,755	16,535	16,314	16,094	15,873	15,653	15,432	15,212	
52.5			14,550	14,330	14,109	13,889	13,669	13,448	13,228	13,007	12,787	12,566	12,346	
59.1				12,346	12,125	11,905	11,684	11,464	11,243	11,023	10,803	10,582	10,362	
65.6				10,582	10,362	10,141	9,921	9,700	9,480	9,259	9,039	8,818	8,598	
72.2					9,039	8,818	8,598	8,377	8,157	7,937	7,716	7,496	7,275	
78.7						7,937	7,716	7,496	7,275	7,055	6,834	6,614	6,393	6,173
85.3							6,834	6,614	6,393	6,173	5,952	5,732	5,512	5,291
91.9								5,732	5,512	5,291	5,071	4,850	4,630	4,409
98.4									5,071	4,850	4,630	4,409	4,188	3,968
105.0										3,968	3,748	3,527	3,307	3,086
111.5											3,527	3,307	3,086	2,866

● All rated loads shown are based on the machine being on a firm level, uniformly supporting surface without twisting.

● The weight of the main hook block (A) and auxiliary lifting devices are considered to be a part of the load. Main hook block (110,230 lbs capacity) — 7,000 lbs. Jib hook block (110,230 lbs capacity) — 265 lbs.

● Depending on the number of part rated lifting load is limited as follows.

1 part line — up to 11,023 lbs
2 part line — up to 22,046 lbs
3 part line — up to 33,069 lbs
4 part line — up to 44,092 lbs
5 part line — up to 55,115 lbs
6 part line — up to 66,138 lbs
7 part line — up to 77,161 lbs
8 part line — up to 88,184 lbs
9 part line — up to 99,207 lbs
10 part line — up to 110,230 lbs

● When boom is equipped with jibs, main hook ratings must be reduced the following weight.

Jib length (ft)	3'3"	20'	30'	40'	50'
Weight to be reduced (lbs)	20	30	40	45	50

● The rated loads for jib when the main hook is installed must be reduced by the total weight of the main hook and the jib hook.

● The maximum boom length to which jib boom can be installed are as follows:
With the crane frame extended, up to 141.1' + 50° or 160.8' + 3'3".

● Bucket and lifting magnet operations cannot be performed by jibs.

● The rated load for jib should not exceed the value in the table below.

Jib angle	Jib boom length				
	3'3"	20'	30'	40'	50'
15°	11,023	16,141	8,157	6,173	
30°		8,039	7,055	5,071	

● The angle formed by the extension line of the main boom and the center line of the jib boom should not exceed 30° under load condition.

Tower Crane

■ Specifications

Maximum lifting capacity × working radius		10t × 10.5m
Maximum lift above ground		57.8m (38.5m post + 22m jib)
Rope speed	Jib hoisting/lowering	40m/min (4th drum layer)
	Load hoisting/lowering	High speed 80m/min, Low speed 40m/min
	Post hoisting/lowering	60m/min
Part lines	Jib hoisting	8-part line
	Hook hoisting	2-part line
	Post hoisting	12-part line

■ Combination of tower post and jib

(● available combination)

Jib length (m)	Post length (m)						
	17.5	20.5	23.5	26.5	29.5	32.5	35.5
13	●	●	●				
16	●	●	●	●	●		
19		●	●	●	●	●	●
22			●	●	●	●	●
25				●	●	●	

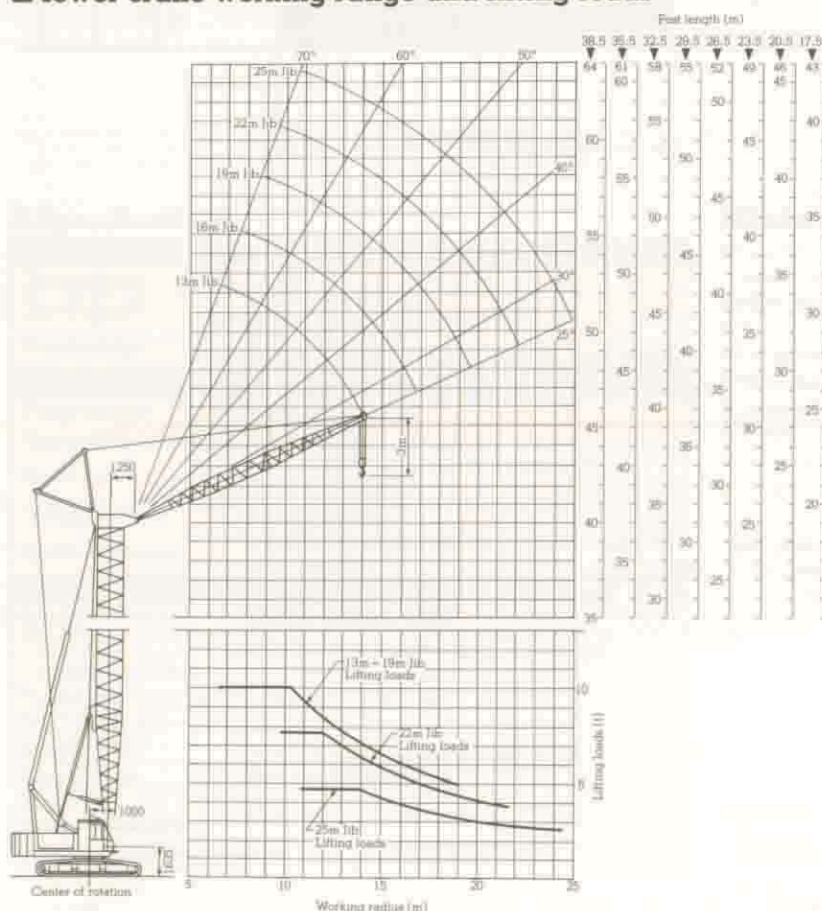
■ Wire rope

Place of use	Rope type	Rope dia. (mm) × length (mm)	Guaranteed strength (t)
Load hoisting	B	20 × 190	27.3
Tower jib hoisting	A	20 × 120	30.0
Tower post hoisting	A	16 × 145	19.2
Tower jib suspension	C	28	59.3
Jib strut suspension	C	28	59.3
Tower post suspension	A	31.5	74.9
Jib limit stop	A	14	13.5

Rope type A: 6 × F_i (29) IWRC preformed regular Z lay

B: 4 × F (a + 40) Monorope Sp C: 6 × F_i (25) IWRC

■ Tower crane working range and lifting loads



■ Rated lifting loads

(360° throughout; within 78% of tipping load; forward stability factor over 1.15)
(Unit: ton)

Working radius (m)	Post length (m)				
	Under 32.5	35.5 ~ 38.5	Under 32.5	35.5 ~ 38.5	26.5 ~ 32.5
	Jib length (m)				
	Under 19	Under 19	22m	22m	25m
6.7	10.0	8.0			
8.7	10.0	8.0			
9.7	10.0	8.0	7.8	6.5	
10.5	10.0	8.0	7.8	6.5	
10.8	9.7	8.0	7.8	6.5	4.7
12.0	8.7	8.0	7.8	6.5	4.7
13.0	8.0	8.0	7.2	6.5	4.7
14.0	7.3	7.3	6.5	6.5	4.7
16.0	6.2	6.2	5.6	5.6	4.1
18.0	5.4	5.4	4.9	4.9	3.6
19.3	5.0	5.0	4.6	4.6	3.3
20.0			4.4	4.4	3.2
22.0			4.0	4.0	2.9
24.0					2.6
24.7					2.5

- All loads are based on a firm level, uniformly supporting surface without traveling.
- Net lifting capacity will be reduced by the weight of rope fittings: 410kgs for 10 ton hook.