

Lifting Capacity (JIS) 100 metric tons

# CCH1000

Fully Hydraulic Crawler Crane

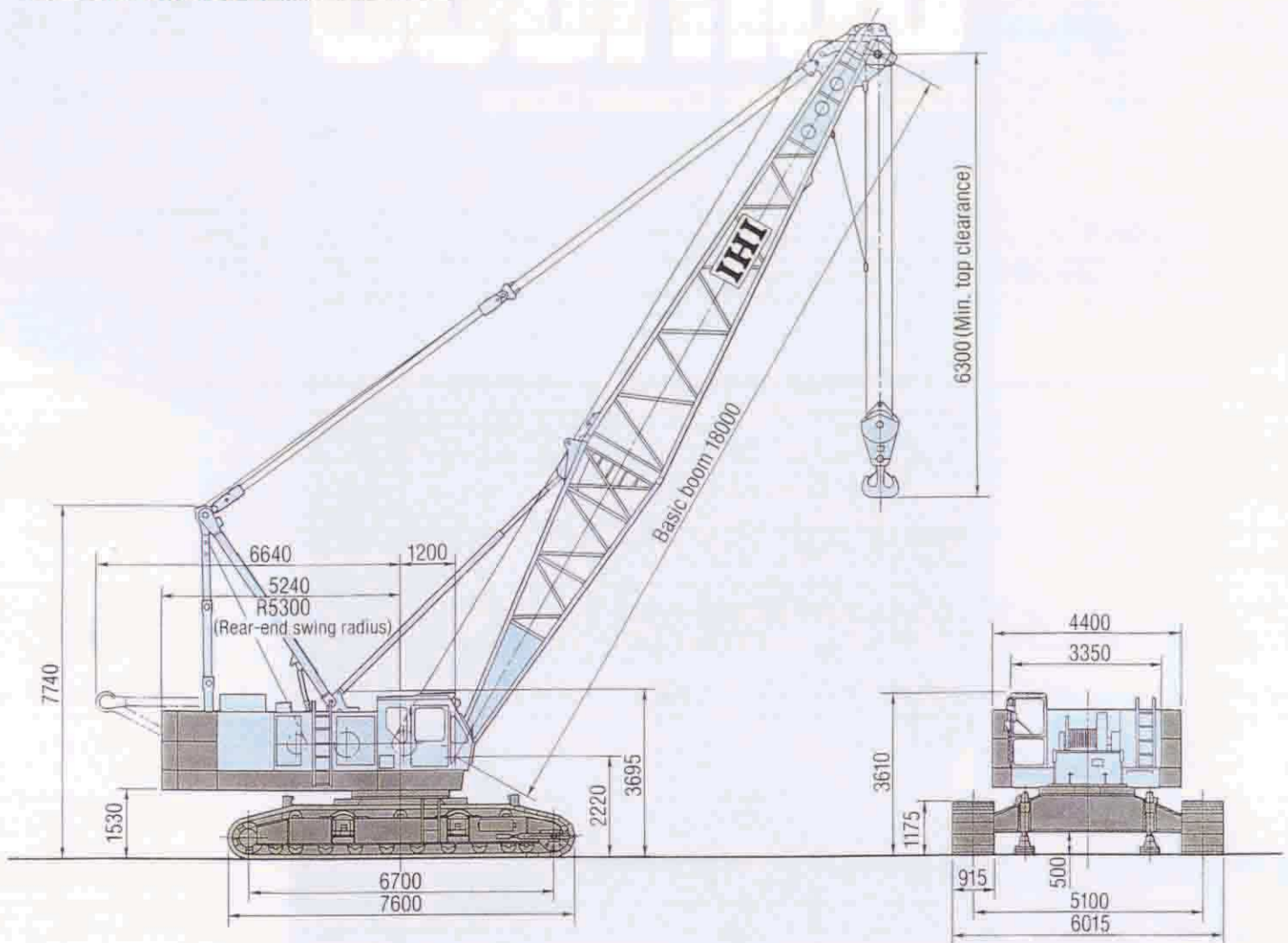
IHI



**IHI Construction Machinery Limited**

*Courtesy of Crane.Market*

### ■ General Dimensions (with basic boom) Unit: mm



### ■ Specifications

Performance	
Swing Speed	2.2/1.6 rpm (2-speed)
Travel Speed	*1.2/0.6 km/h (2-speed)
Gradeability	30% (approx. 16.7°) (with 18 m boom and 100 ton block)
Operation System	
Power source	Hydraulic
Transmission system	Hydraulic
Drum type	Twin shaft, twin drum
Swing system	Swing bearing
Hydraulic pump	Variable displacement axial plunger pump x 3 Fixed displacement gear pump x 3
Control valves	Remote control valves and hydraulic pilot multivalves
Engine	
Model	Hino EF750
Type	4-cycle, water-cooled, overhead valve, direct injection diesel
Cylinder bore stroke	V8 - 137 mm x 142 mm
Total displacement	16.745 ℓ
Rated output	275 PS/2000 rpm
Max. torque	112 kg·m/1400 rpm
Rated fuel consumption rate	168 g/PS·h (at rated output)
Fuel tank capacity	400 ℓ

\*The travel speed changes depending on the load.

### ■ Standard equipment

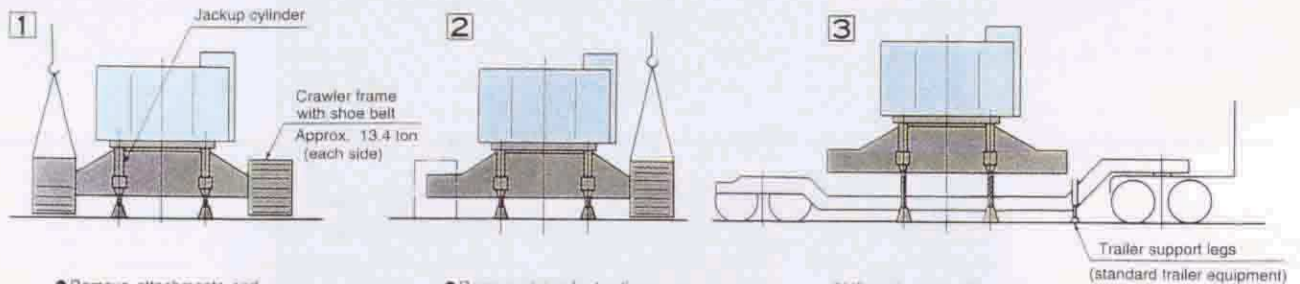
- 18 m basic boom
- 100-ton hook block
- 2 work lights
- Room light
- Jack devices for dismantling
- Crawler steps
- Lateral cylinders for dismantling crawler
- Front wiper
- Roof wiper
- Large rearview mirrors (R/L)
- Reclining operator's seat
- Hot water type cab heater
- Radio
- Cigarette lighter
- Ash tray
- Floor mat
- Foot pedal-type engine throttle
- Steps for operator cab
- Low-noise cab
- Swing flasher
- Electric fuel filling pump
- Wire mesh boom walkway (for inner boom)
- OK monitor

### ■ Optional equipment

- Moment limiter (Overload prevention)
- Cab cooler
- Combustion type heater
- Wireless phone
- Yellow rotary light
- Bullhorn
- Catwalk
- Anemometer
- Boom indicator lamp
- Safety guard on cab
- Safety guard on boom
- Off limits fence
- Spark arrester
- 3 m, 6 m, 9 m insert boom for lift crane (with pendant rope)
- 1 m jib
- 10 m basic jib, 3 m, 6 m, insert jib (with pendant rope)
- 60 ton, 30 ton, 20 ton, 10 ton hook block

## Self dismantling method for convenient transportation

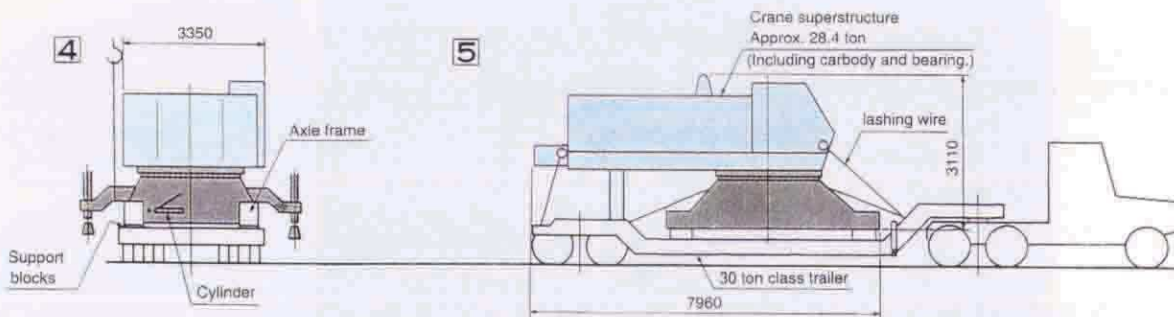
Attachments, counterweights and crawler frames can be dismantled to lighten the weight and shorten the height of the base machine for convenient transportation.



- Remove attachments and counterweights, and fold A-frame to low gantry.
- Lift up base machine slightly with jackup cylinders (standard equipment).
- Suspend crawler frame with another crane. Push out and remove crawler frame with cylinder (standard equipment.)

- Remove piping for traction motor from coupling section to be fixed on to crawler frame.
- A lift crane must be separately provided for handling crawler frames.
- Follow the same procedures to remove the other side of the crawler frame.
- Required 20 ton class crane.

- Lift up base machine with jack-up cylinders to provide enough ground clearance for receiving trailer underneath.
- Trailer's lower support legs to the ground.
- Required 30 ton class trailer.



- Attach support blocks to carbody, retract jackup cylinders to contact base machine with trailer bed, then turn crane superstructure through 90° to direct operator's cab in same forward direction as trailer. Attach support block also to rear end of crane superstructure.
- Retract jackup cylinder and remove by pulling out pins and lifting. Then put on trailer.
- Turn and fasten push out cylinder to original position.

- Retract support legs
- Secure crane superstructure tightly to trailer with lashing wire.

\* Reverse the above procedure to re-assemble.

\*Optional dismantling device.

An optional device is available for dismantling crane superstructure from carbody into smaller pieces to transport on smaller hauling trailer.

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### Specifications

Maximum total lift	46 m (18 m boom + 2.5 m <sup>3</sup> bucket)	
Allowable gross weight	10.0 ton	
Rope speed	Bucket opening and closing	*60/30 m/min.
	Bucket suspension hoisting and lowering	*60/30 m/min.
	Boom hoisting and lowering	*21.0 m/min (7 part line x 2)
Part lines	Bucket opening and closing	6 part lines (for all types of buckets)
	Bucket suspension	1 part line (for all types of buckets)
	Boom hoisting	7 part line x 2
Counterweight	35 ton	
Total weight (18 m boom + 2.5 m <sup>3</sup> bucket)	103 ton	
Average ground bearing pressure	0.79 kg/cm <sup>2</sup>	

\* The rope speed changes depending on the load.

### Clamshell bucket specifications

Use	Capacity (m <sup>3</sup> )	Weight (ton)	Specific gravity of load	Part lines
GP	2.5	5.5	1.8-2.0	6
WR	3.5	4.7	1.4-1.5	6
WR	5.0	4.0	0.8-1.0	4

GP: General purpose  
WR: Wide rehandling

### Wire Rope

Place of use	Rope diameter (mm)	Guaranteed strength (ton)	Rope type
Bucket opening and closing	ø26	56.8	A
Bucket suspension	ø26	56.8	A
Boom hoisting	ø20	34.1	A
Boom suspension	ø31.5	74.9	B
Hydraulic type tagline	ø10	5.8	C

Rope type: A: T7 x 7 + 6 x Fi (29) IWRC regular lay  
B: 6 x Fi (29) IWRC regular Z lay  
C: 6 x 19 regular Z lay

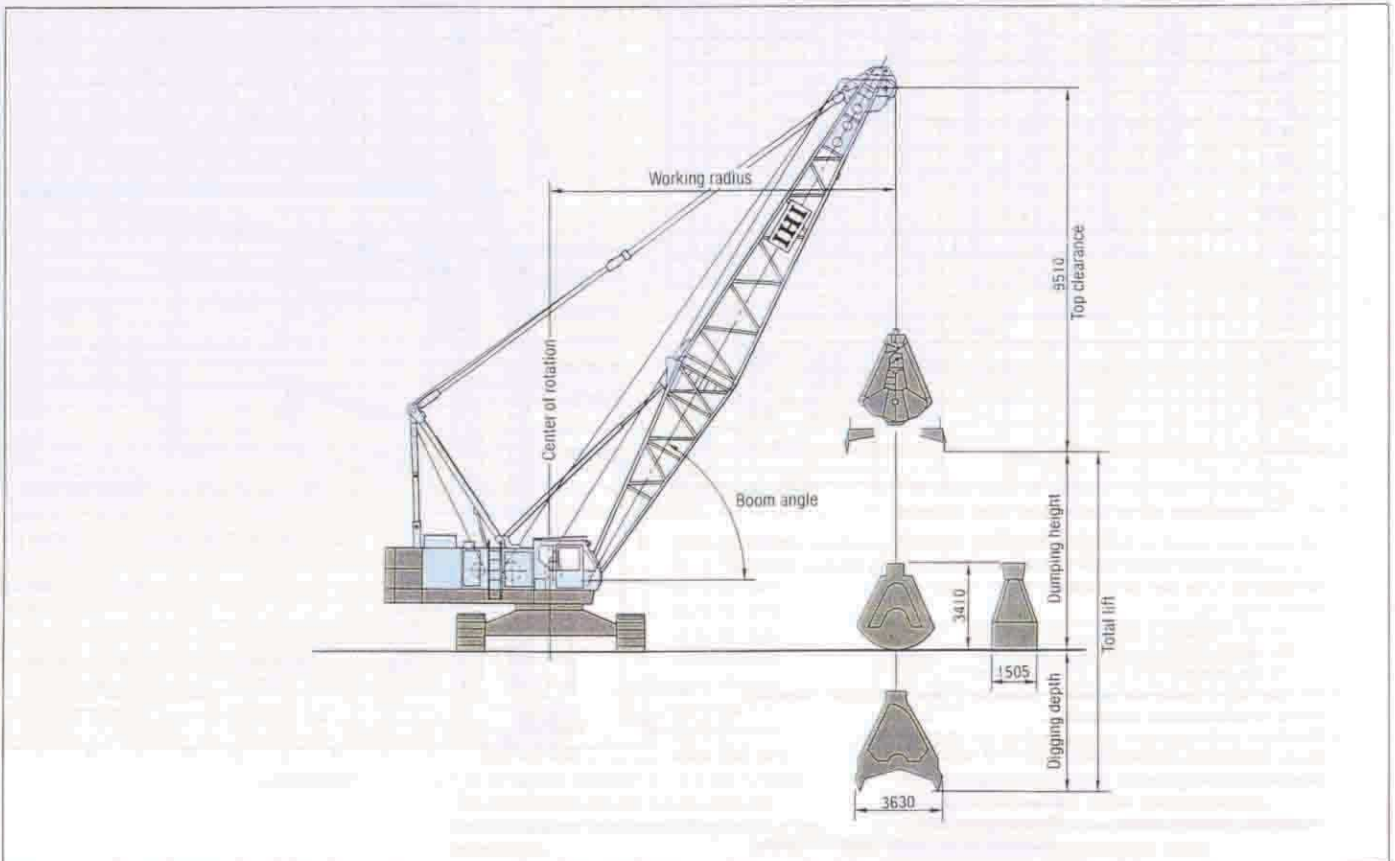
### Working range and allowable loads

Boom length (m)	18 (standard)				21				24				27			
	35°	45°	55°	65°	35°	45°	55°	65°	35°	45°	55°	65°	35°	45°	55°	65°
Working radius (m)	16.5	14.6	12.2	9.5	19.0	16.7	13.9	10.8	21.4	18.8	15.7	12.1	23.9	20.9	17.4	13.3
Rated lifting load (ton)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Maximum dumping height (m)	3.4	5.5	8.4	10.0	5.1	7.6	10.9	12.7	6.8	9.8	13.3	15.5	8.5	11.9	15.8	18.2
Maximum digging depth (m)	42.6	40.5	37.6	36.0	40.9	38.4	35.1	33.3	39.2	36.2	32.7	30.5	37.5	34.1	30.2	27.8

- Rated lifting loads are the upper limit of the "bucket weight + load" during clamshell work. Use a bucket suitable for the kind of the load required so that allowable load figures in the table are not exceeded.
- The maximum dumping height is for a standard 2.5 m<sup>3</sup> bucket.
- The maximum digging depth is for a standard "Holding" and "Closing" wire rope length. (Tagline is hydraulic type.)

### Working Range

Unit: mm



## Specifications

Maximum lifting capacity x working radius Load hoisting & lowering	20 ton x 14 m	
Maximum hook lift above ground	89 m (48.25 m post + 44 m jib)	
Rope speed	Load hoisting & lowering	*60/30 m/min
	Jib hoisting & lowering	*30 m/min
	Post hoisting & lowering	*21 m/min x 2
Part line	20 ton hook	2 part line
	10 ton hook	1 part line
	Jib hoisting	8 part line
	Post hoisting	7 x 2 part line
Counterweight	40 ton	
Tower crane total weight (With 48.25 m post + 44 m jib + 20 ton hook)	118 ton	
Average ground bearing pressure	0.91 kg/cm <sup>2</sup>	

\* The rope speed changes depending on the load.

## Rated lifting loads

(throughout 360° ; within 78% of tipping load; front stability factor over 1.15).

(Unit : metric ton)

Post length (m)	Jib length (m)							
	27.25 - 48.25	27.25 - 48.25	30.25 - 48.25	33.25 - 48.25	36.25 - 48.25	39.25 - 48.25	42.25 - 48.25	45.25 - 48.25
Working Radius (m)	23	26	29	32	35	38	41	44
8.0	7.9m x 20.0	7.9m x 18.0	16.0	8.5m x 16.0				
9.0	20.0	18.0	16.0	15.0	9.1m x 14.0	9.0m x 12.0	10.1m x 10.0	10.0m x 8.0
10.0	20.0	18.0	16.0	15.0	14.0	12.0	10.0	8.0
11.0	20.0	18.0	16.0	15.0	14.0	12.0	10.0	8.0
12.0	20.0	18.0	16.0	15.0	14.0	12.0	10.0	8.0
13.0	20.0	18.0	16.0	15.0	14.0	12.0	10.0	8.0
14.0	20.0	18.0	16.0	15.0	14.0	12.0	10.0	8.0
15.0	18.0	18.0	16.0	15.0	14.0	12.0	10.0	8.0
16.0	16.6	16.5	16.0	15.0	13.3	12.0	10.0	8.0
18.0	14.3	14.3	14.3	14.2	11.9	11.5	10.0	8.0
20.0	12.7	12.7	12.7	12.7	10.6	10.5	10.0	8.0
22.0	11.4	11.4	11.4	11.4	9.6	9.6	9.5	8.0
24.0	10.3	10.3	10.3	10.3	8.6	8.6	8.6	8.0
26.0	9.4	9.4	9.4	9.4	7.8	7.8	7.8	7.7
28.0	8.7	8.6	8.5	8.5	7.0	7.0	7.0	7.0
30.0	8.1	8.0	7.8	7.7	6.3	6.3	6.3	6.3
32.0	7.6	7.5	7.3	7.0	5.7	5.7	5.7	5.7
34.0	7.2	7.1	6.9	6.6	5.3	5.3	5.3	5.3
36.0		6.7	6.4	6.2	4.9	4.9	4.9	4.9
38.0		27.0m x 8.5	6.1	5.8	4.6	4.6	4.6	4.6
40.0			5.8	5.5	4.4	4.4	4.4	4.4
42.0				5.2	4.2	4.2	4.2	4.2
44.0				42.9m x 5.1	4.0	4.0	4.0	4.0
46.0					45.9m x 3.8	3.8	3.8	3.8
48.0						3.6	3.6	3.6
50.0						48.8m x 3.5	3.5	3.5
52.0							51.7m x 3.4	3.4
54.0								3.2
56.0								54.7m x 3.1

- All loads are based on firm, level, uniformly supporting surface without traveling.
- The weight of the slings, hook block and auxiliary lifting devices must be considered to be part of the load.

### Hook block

30 ton capacity	0.8 ton
20 ton capacity	0.8 ton
10 ton capacity	0.4 ton

- All rated lifting loads are based on strength of post and other members. Make sure to prevent overloading.
- Minimum and maximum working radius are shown below; Radii should not exceed this range.  
Minimum working radius ..... post angle is 90°  
when Jib angle is 10°  
Maximum working radius ..... Post angle is 80°  
Jib angle is 10° under load conditions.

## Combination of Tower post and Jib (● Available combination)

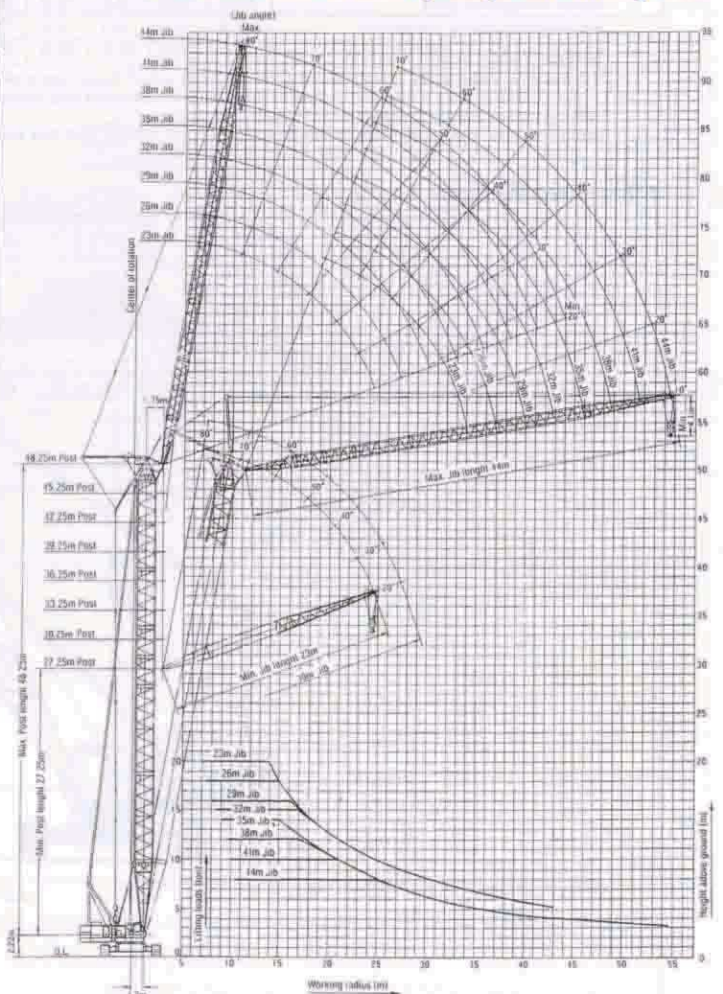
Post length (m)	Jib length (m)							
	23	26	29	32	35	38	41	44
27.25	●	●						
30.25	●	●	●					
33.25	●	●	●	●				
36.25	●	●	●	●	●			
39.25	●	●	●	●	●	●		
42.25	●	●	●	●	●	●	●	
45.25	●	●	●	●	●	●	●	●
48.25	●	●	●	●	●	●	●	●

## Wire Rope

Place of use	Rope diameter (mm)	Guaranteed strength (ton)	Rope type
Load hoisting	ø26	59.6	A
Post hoisting	ø20	34.1	C
Post suspension	ø31.5	74.9	B
Jib hoisting	ø26	49.9	B
Jib suspension	ø34	86.7	B
Jib strut suspension	ø34	86.7	B

Rope type A : 19 + 39 x 7 Tough-nutlex  
 B : 6 x Fi (29) IWRC regular lay  
 C : T7 x 7 + 6 x Fi (29) IWRC regular lay

## Tower crane working range and lifting load



**Rated lifting loads** (Throughout 360°; within 78% of tipping load; front stability factor over 1.15)

(Unit: metric ton)

Working radius(m)	Boomlength(m)																		
	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72
5.0	100.0																		
5.5	100.0	90.0																	
6.0	91.6	90.0	80.0																
7.0	75.0	74.9	74.7	70.0	60.0														
8.0	61.1	61.0	60.8	60.7	60.0	50.0	50.0												
9.0	52.3	52.1	52.0	51.8	51.7	50.0	50.0	40.0	40.0										
10.0	45.8	45.4	45.3	45.1	45.0	44.8	44.6	40.0	40.0	40.0	30.0								
12.0	36.2	36.0	35.9	35.7	35.5	35.4	35.2	35.0	34.8	34.7	30.0	30.0	25.0	25.0					
14.0	29.6	29.4	29.2	29.1	28.9	28.7	28.5	28.4	28.2	28.0	27.8	27.7	25.0	25.0	20.0	20.0	18.0	16.0	
16.0	24.6	24.4	24.2	24.1	23.9	23.7	23.5	23.3	23.2	23.0	22.8	22.6	22.4	22.3	20.0	20.0	18.0	16.0	14.5
18.0	17.0m x 22.8	21.0	20.8	20.6	20.5	20.3	20.1	19.9	19.7	19.5	19.3	19.2	19.0	18.8	18.6	18.4	18.0	15.5	13.8
20.0		19.6m x 18.8	18.0	17.8	17.7	17.5	17.3	17.1	16.9	16.7	16.6	16.4	16.2	16.0	15.8	15.6	15.4	15.0	13.2
22.0			22.1m x 15.8	15.7	15.6	15.4	15.2	15.0	14.8	14.6	14.4	14.3	14.1	13.9	13.7	13.5	13.3	13.1	12.5
24.0				13.9	13.7	13.6	13.4	13.2	13.0	12.8	12.6	12.4	12.2	12.1	11.9	11.7	11.5	11.3	11.1
26.0				24.7m x 13.5	12.2	12.1	11.9	11.7	11.5	11.3	11.1	10.9	10.7	10.5	10.4	10.2	10.0	9.8	9.6
28.0					27.3m x 11.3	10.9	10.7	10.5	10.3	10.1	9.9	9.7	9.5	9.3	9.1	9.0	8.8	8.6	8.4
30.0						20.9m x 9.7	9.5	9.3	9.1	8.9	8.7	8.5	8.3	8.1	7.9	7.8	7.7	7.5	7.3
32.0							8.6	8.4	8.2	8.0	7.8	7.6	7.4	7.2	7.1	7.0	6.8	6.7	6.5
34.0							32.5m x 8.4	7.6	7.4	7.2	7.1	6.9	6.8	6.6	6.5	6.3	6.1	5.9	5.7
36.0								28.1m x 7.2	6.9	6.7	6.5	6.4	6.2	6.0	5.8	5.6	5.4	5.2	5.0
38.0									37.7m x 6.4	6.2	6.0	5.8	5.6	5.4	5.2	5.0	4.8	4.6	4.4
40.0										5.7	5.5	5.3	5.1	4.9	4.7	4.5	4.3	4.1	3.9
42.0										40.3m x 5.8	5.1	4.8	4.6	4.4	4.2	4.0	3.8	3.6	3.4
44.0											42.3m x 4.9	4.3	4.2	3.9	3.7	3.5	3.3	3.0	2.8
46.0												45.5m x 4.2	3.8	3.5	3.3	3.0	2.8	2.6	2.4
48.0													3.4	3.1	2.9	2.6	2.4	2.2	2.0
50.0													48.17m x 3.3	2.8	2.5	2.3	2.1	1.9	1.7
52.0														50.77m x 2.8	2.2	2.0	1.8	1.6	1.4
54.0															53.37m x 1.9	1.7	1.5	1.4	

**Rated lifting loads** (Add. counterweight) (Throughout 360°; within 78% of tipping load; front stability factor over 1.15)

(Unit: metric ton)

Working radius(m)	Boomlength(m)																		
	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72
5.0	100.0																		
5.5	100.0	90.0																	
6.0	94.5	90.0	80.0																
7.0	83.0	81.2	75.0	70.0	60.0														
8.0	71.7	71.5	67.5	64.0	60.0	50.0	50.0												
9.0	60.6	59.8	59.7	57.5	54.1	50.0	50.0	40.0	40.0										
10.0	51.4	51.2	51.1	51.0	48.8	46.6	46.0	40.0	40.0	40.0	30.0								
12.0	39.8	39.6	39.5	39.4	39.3	39.2	38.4	36.3	36.2	35.6	30.0	30.0	25.0	25.0					
14.0	32.3	32.1	32.0	31.9	31.8	31.7	31.6	31.4	31.3	30.7	28.3	27.8	25.0	25.0	20.0	20.0	18.0	16.0	
16.0	27.0	26.9	26.8	26.6	26.5	26.4	26.3	26.1	26.0	25.9	25.7	24.9	23.2	23.1	20.0	20.0	18.0	16.0	14.5
18.0	17.0m x 25.1	23.0	22.9	22.8	22.7	22.6	22.4	22.3	22.2	22.0	21.9	21.8	21.0	20.9	18.9	18.8	17.4	16.0	14.5
20.0		19.6m x 20.8	19.9	19.8	19.7	19.6	19.5	19.3	19.2	19.0	18.9	18.8	18.6	18.4	17.6	17.5	16.7	15.2	13.6
22.0			22.1m x 16.7	17.5	17.3	17.2	17.1	16.9	16.8	16.7	16.5	16.4	16.3	16.1	16.0	15.8	15.3	14.0	12.6
24.0				15.5	15.4	15.3	15.2	15.0	14.9	14.7	14.6	14.5	14.3	14.2	14.1	13.9	13.8	13.0	11.6
26.0				24.7m x 14.8	13.8	13.7	13.6	13.4	13.3	13.2	13.0	12.9	12.7	12.6	12.5	12.3	12.2	11.7	10.5
28.0					27.3m x 12.8	12.3	12.2	12.1	11.9	11.8	11.7	11.5	11.4	11.2	11.1	11.0	10.8	10.5	9.6
30.0						20.9m x 11.2	11.1	10.9	10.8	10.7	10.5	10.4	10.3	10.1	10.0	9.8	9.7	9.6	8.7
32.0							10.1	9.9	9.8	9.7	9.5	9.4	9.3	9.1	9.0	8.8	8.6	8.5	7.8
34.0							32.5m x 8.9	9.0	8.9	8.8	8.7	8.6	8.4	8.3	8.1	7.9	7.7	7.6	7.0
36.0								35.1m x 8.7	8.2	8.0	7.9	7.8	7.6	7.5	7.3	7.1	6.9	6.7	6.3
38.0									37.7m x 7.7	7.4	7.3	7.2	7.0	6.8	6.6	6.4	6.1	5.9	5.6
40.0										6.8	6.7	6.6	6.4	6.1	5.9	5.7	5.3	5.1	4.9
42.0										40.3m x 6.7	6.1	6.0	5.8	5.4	5.2	5.0	4.7	4.5	4.3
44.0											42.3m x 5.8	5.4	5.2	4.8	4.6	4.4	4.1	3.9	3.7
46.0												45.5m x 5.0	4.7	4.3	4.1	3.9	3.6	3.3	3.2
48.0													4.2	3.8	3.6	3.4	3.1	2.9	2.7
50.0													48.17m x 4.1	3.4	3.2	2.9	2.6	2.4	2.2
52.0														50.77m x 3.2	2.7	2.5	2.2	2.0	1.8
54.0															53.37m x 2.3	2.1	1.8	1.6	

- 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 must be considered to be part of the load.  
Hook block  
100 ton capacity ..... 1.6 tons  
60 ton capacity ..... 1.25 tons  
30 ton capacity ..... 0.8 ton  
10 ton capacity ..... 0.4 ton

- Depending on the number of part lines, rated lifting load is limited as follows:  
1 Part line ..... up to 10 tons  
2 Part line ..... up to 20 tons  
3 Part line ..... up to 30 tons  
4 Part line ..... up to 40 tons  
5 part line ..... up to 50 tons  
6 Part line ..... up to 60 tons  
7 Part line ..... up to 70 tons  
8 Part line ..... up to 80 tons  
9 Part line ..... up to 90 tons  
10 Part line ..... up to 100 tons
- 1 m jib can be installed to 18 to 69 m boom.  
The rated loads for the 1 m jib must be reduced 0.5 ton from rated lifting loads of the main boom.

- The rated load for Jib when the main hook is installed must be reduced by the total weight of the main hook and jib hook.
- The rated load for the Jib should not exceed the values in the table below.

(Unit: metric ton)

Jib angle	Jib length				
	1m	10m	16m	19m	25m
10° offset	10	13	11	10	5
30° offset	10	9	7	8	4.5

- 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.
- Rated lifting loads smaller than bold-line radius are based on structural strength factor.

### Specifications

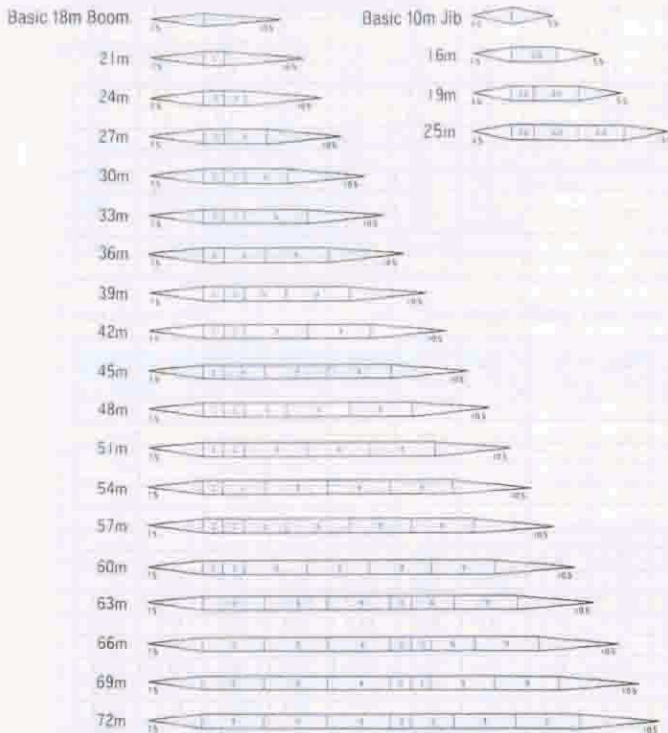
Maximum lifting load x working radius	100 ton x 5.5 m	
Maximum hook lift above ground	66.9 m (72 m boom)	
Rope speed	Load hoisting & lowering	*60/30 m/min (10 part line)
	Jib hoisting & lowering	*60/30 m/min (1 part line)
	Boom hoisting & lowering	*21.0 m/min (7 part line x 2)
Counterweight	40 ton (**50 ton)	
Crane total weight (with 18 m boom and 100 ton hook block)	106 ton (**116 ton)	
Average ground bearing pressure	0.81kg/cm <sup>2</sup> (**0.89 kg/cm <sup>2</sup> )	

\* The rope speed changes depending on the load.  
 \*\* Installed additional counterweight (10 ton)

### Combination of Boom and Jib (● Available combination)

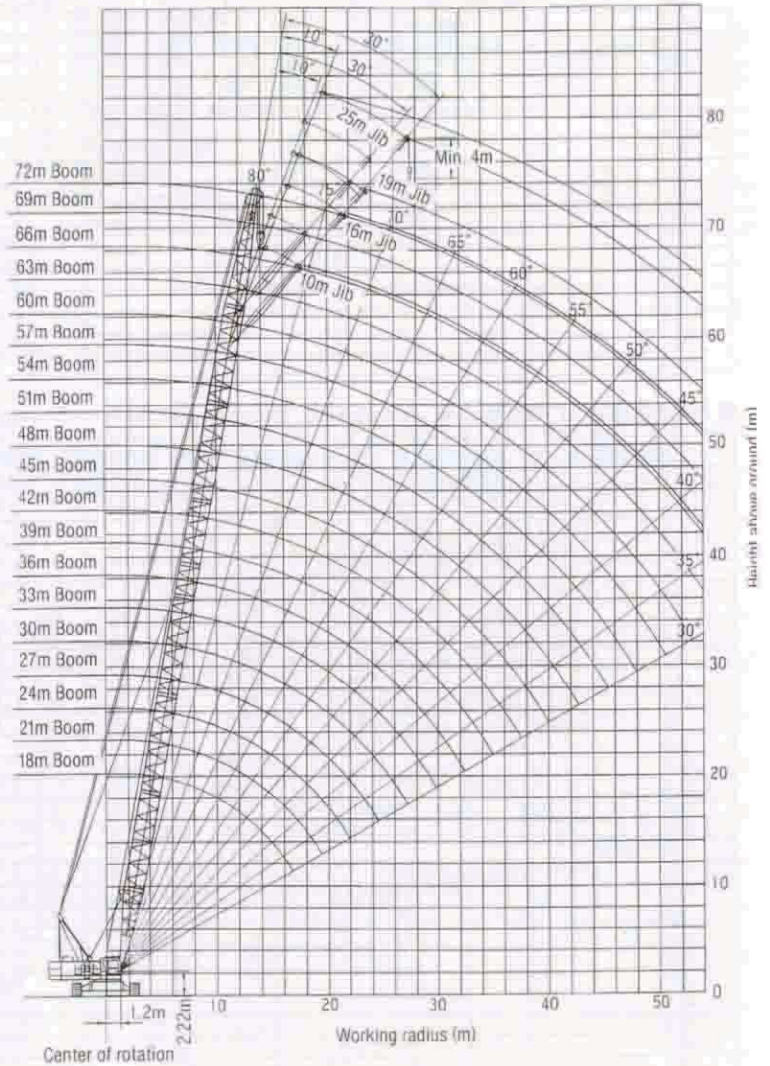
Jib length (m)	Boom length (m)																
	18-24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72
1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10							●	●	●	●	●	●	●	●	●	●	●
16							●	●	●	●	●	●	●	●	●	●	●
19							●	●	●	●	●	●	●	●	●	●	●
25							●	●	●	●	●	●	●	●	●	●	●

### Boom & Jib Composition



Note : 1. Compositions shown are for maximum length at time of delivery. (72 m boom and 25 m jib.)  
 2. Boom can be converted into a post for tower crane operation by replacing top section.

### Working Range



### Wire Rope

Place of use	Rope diameter (mm)	Guaranteed strength (ton)	Rope type
Load hoisting	ø26	56.8	A
Boom hoisting	ø20	34.1	B
Boom suspension	ø31.5	74.9	C
Jib load hoisting	ø26	56.8	A
Jib boom suspension	ø28	59.3	D
Jib strut suspension	ø28	59.3	D

Rope type A : 19 + 39 x 7 Tough-nuflex  
 B : T7 x 7 + 6 x Fi (29) IWRC regular lay  
 C : 6 x Fi (29) IWRC regular lay  
 D : 6 x Fi (25) IWRC regular lay

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