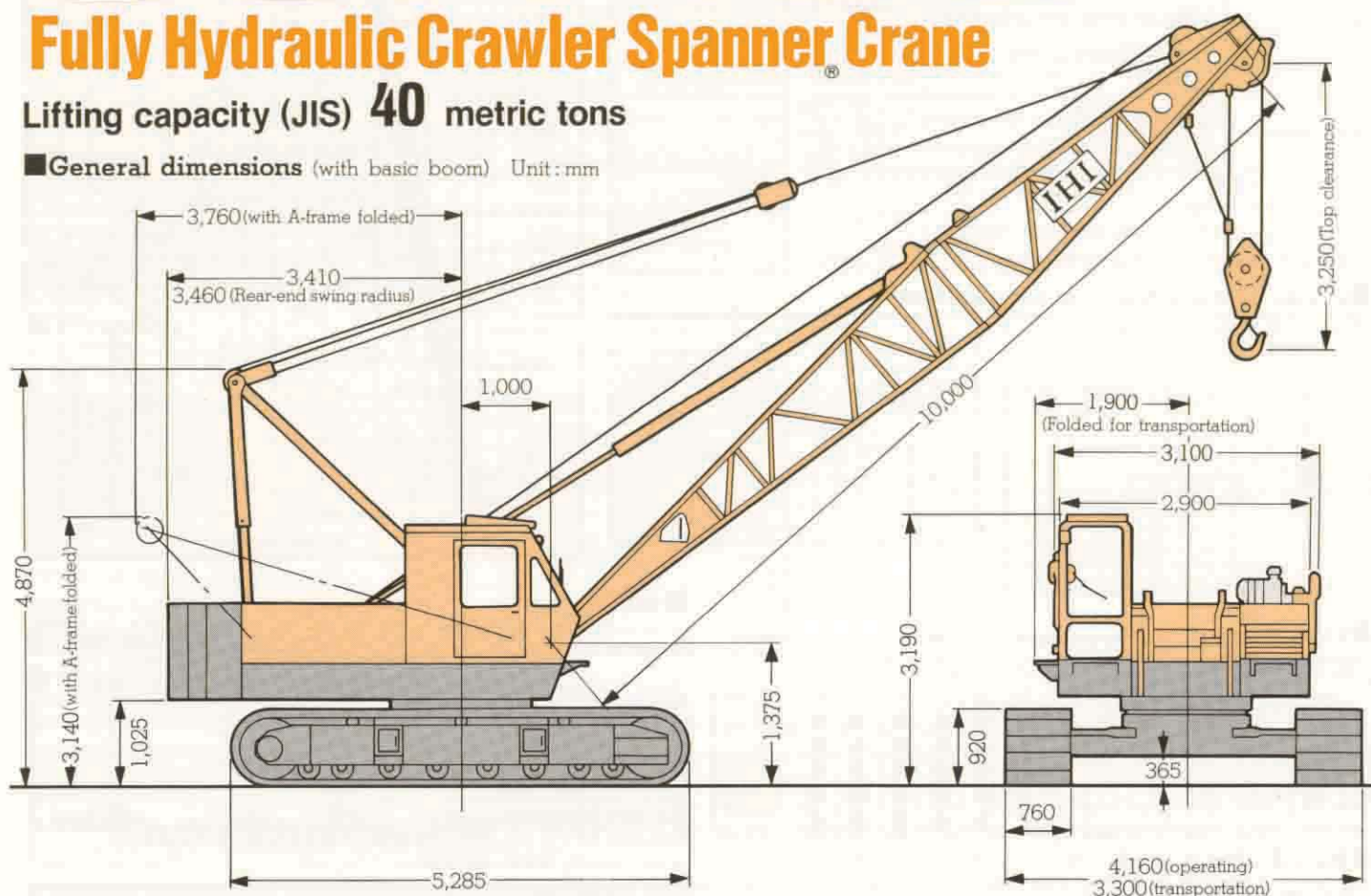


CCH400

Fully Hydraulic Crawler Spanner Crane

Lifting capacity (JIS) **40** metric tons

■ **General dimensions** (with basic boom) Unit: mm



■ Specifications

Performance	
Swing speed	3.5 rpm
Travel speed	*1.6 km/h
Gradeability	40% (Approx. 22°) (with 10 m boom and 40 ton hook block)
Operation system	
Power source	Hydraulic
Transmission system	Hydraulic
Drum type	Single shaft, dual drum
Swing system	Swing bearing
Hydraulic pump	Variable displacement axial plunger pump × 2 Gear pump × 2
Engine	
Model	Hino H06CT
Type	4-cycle, water cooled, overhead valve
Combustion chamber	Direct injection diesel
Cylinder bore stroke	6-108 mm × 118 mm
Total displacement	6.485 ℓ
Rated output	150PS/2,100 rpm (with turbocharger)
Max. torque	52 kg·m/1,600 rpm
Rated fuel consumption rate	165 g/PS·h (at rated output)
Fuel tank capacity	225ℓ

NOTE: Speeds change with load level.

■ 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 limit 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.

CCH400 Crane

Specifications

NOTE: Speeds change with load level.

Maximum lifting load × working radius	40 tons × 3.7 m	
Maximum lift above ground	43.4 m (46 m boom)	
Rope speed	Boom hoisting and lowering	55 m/min (4th 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
	40 ton hook	8 part lines
	5 ton hook	1 part line
Counterweight	13.8 tons (7 + 6.8)	
Crane total weight (with 10 m boom and 40 ton hook block)	39.3 tons	
Average ground bearing pressure	0.55 kgf/cm ²	

Boom composition/Jib composition

(Unit : m)

Boom length	Boom composition
10	6 (inner) + 4 (outer)
13	6+3+4
16	6+3+3+4
19	6+3+6+4
22	6+3+3+6+4
25	6+3+6+6+4
28	6+3+3+6+6+4
31	6+3+6+6+6+4
34	6+3+3+6+6+6+4
37	6+3+6+6+6+6+4

40	6+3+3+6+6+6+4
43	6+6+6+6+3+6+6+4
46	6+3+3+6+6+6+6+4
Jib length	Jib composition
1	1 (auxiliary jib)
6	3 (inner) + 3 (outer)
9	3+3+3
12	3+6+3*
15	3+3+6+3

⑤ denotes 6 m insert boom w/ jib, which is required for boom length over 40 m.
* When delivered with 12 m jib, 6 m insert boom consists of 3m×3.

Combination of Boom and Jib (● : available combination)

Jib length (m)	Boom length (m)												
	10	13	16	19	22	25	28	31	34	37	40	43	46
1	●	●	●	●	●	●	●	●	●	●	●	●	●
6					●	●	●	●	●	●	●	●	●
9					●	●	●	●	●	●	●	●	●
12					●	●	●	●	●	●	●	●	●
15					●	●	●	●	●	●	●	●	●

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

(Unit: metric ton)

Working radius (m)	Boom length (m)													
	10.0	13.0	16.0	19.0	22.0	25.0	28.0	31.0	34.0	37.0	40.0	43.0	46.0	
3.5	40.00	40.00												
3.7	40.00	40.00												
4.0	35.05	35.00	34.95											
4.5	29.05	29.00	28.95	28.25										
5.0	24.95	24.90	24.85	24.85	24.05	20.00								
6.0	19.15	19.10	19.05	19.05	19.00	18.95	18.35	15.00						
7.0	15.45	15.40	15.35	15.30	15.25	15.20	15.15	15.00	14.45	13.05				
8.0	12.85	12.80	12.75	12.70	12.65	12.60	12.55	12.50	12.40	12.35	11.75	10.00		
9.0	11.00	10.95	10.90	10.85	10.80	10.75	10.70	10.60	10.55	10.50	10.35	10.00	8.85	
10.0	9.85	9.50	9.45	9.40	9.35	9.30	9.25	9.15	9.10	9.05	8.90	8.85	8.45	
12.0		7.45	7.40	7.35	7.30	7.25	7.20	7.15	7.05	7.00	6.85	6.80	6.75	
14.0		7.15	6.05	6.00	5.95	5.90	5.80	5.75	5.65	5.60	5.50	5.40	5.35	
16.0			5.50	5.00	4.95	4.90	4.80	4.75	4.65	4.60	4.50	4.40	4.35	
18.0				4.40	4.20	4.15	4.05	4.00	3.90	3.85	3.75	3.65	3.60	
20.0					3.60	3.55	3.50	3.45	3.35	3.30	3.20	3.10	3.00	
22.0						3.55	3.10	3.00	2.95	2.85	2.80	2.70	2.55	
24.0							2.95	2.65	2.60	2.50	2.45	2.30	2.15	
26.0								2.40	2.25	2.15	2.10	1.95	1.80	
28.0									2.00	1.90	1.80	1.65	1.45	
30.0										1.65	1.55	1.40	1.20	
32.0											1.55	1.35	1.10	

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

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

Main hook block (40 ton capacity) — 0.38 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 ton
2 part line—up to 10 ton
3 part line—up to 15 ton
4 part line—up to 20 ton

5 part line—up to 25 ton
6 part line—up to 30 ton
7 part line—up to 35 ton
8 part line—up to 40 ton

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

Jib length	1m	6m	9m	12m	15m
Weight to be reduced	0.5	0.070	0.09	1.2	1.45

● 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 booms can be installed are as follows:

With the crawler frame extended, up to 40 m + 15 m or 43 m + 1 m

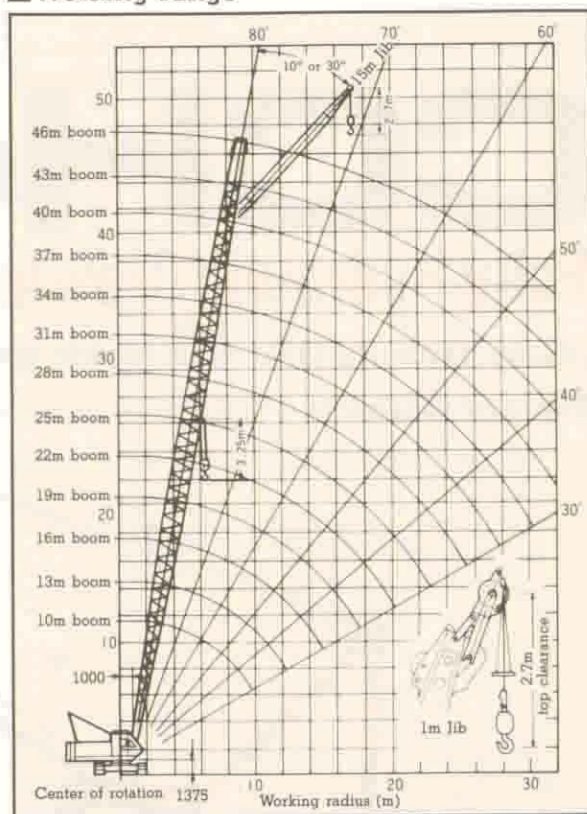
● Buckle and lifting (swing) operations cannot be performed by jib.

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

Jib angle	Jib boom length				
	1 m	6 m	9 m	12 m	15 m
10°	5.0 tons	4.0 tons	4.0 tons	3.5 tons	2.5 tons
30°	4.0 tons	3.5 tons	3.0 tons	2.0 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 condition.

Working range



Wire rope

Place of use	Rope diameter (mm) × overall length (m)	Guaranteed strength (ton)
Load hoisting	φ20 × 160	30.0
Boom hoisting	φ14 × 126	14.9
Boom suspension	φ28	59.7
Jib load hoisting	φ20 × 110	30.0
Jib boom suspension	φ26	49.9
Jib strut suspension	φ26	49.9

Rope type is 6 × F1 (29) IWRC Preformed Regular Z Lay for all purposes

Flying Leader

Specifications

NOTE: Speeds change with load level.

Rope speed	Boom hoisting and lowering		55 m/min (4th layer of drum)
	Hammer hoisting and lowering		High speed 80 m/min, Low speed 40 m/min
	Pile hoisting and lowering		High speed 80 m/min, Low speed 40 m/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 line
5-10 tons		2 part lines	
Counterweight			13.8 tons (7 + 6.8)
Possible travelling weight (on Pile driver attachment)			60 tons
Allowable average ground bearing pressure			0.84 kgf/cm ²

Wire rope

Place of use	Rope diameter (mm) × overall length (m)	Guaranteed strength (t)
Boom hoisting	φ14 × 126	14.9
Boom suspension	φ28 ×	59.7
Hammer hoisting	φ20 × 160	30.0
Pile hoisting	φ20 × 110	30.0

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

Working performance R: Working radius (m) W: Pile weight (metric ton)

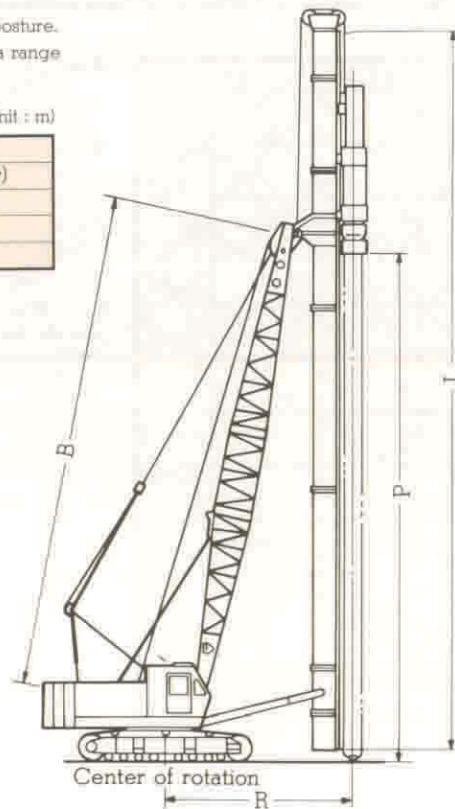
Leader type	FS500																			
	IDH-25				IDH-35				IDH-45											
Hammer type	IDH-25				IDH-35				IDH-45											
Hammer weight (t)	5.5				7.8				11.0											
Cap weight (t)	0.5				1.0				1.8											
Boom length (m) B	13	16	19		13	16	19		13	16										
Leader length (m) L	17.85	20.85	23.85	26.85	17.85	20.85	23.85	26.85	17.85	20.85										
Pile length (m) P	11	14	17	20	10.5	13.5	16.5	19.5	10	13										
Boom angle	R	W	R	W	R	W	R	W	R	W	R	W								
82°	4.6	6.5	5.0	6.5	5.5	6.5	5.5	6.5	4.7	8.0	5.1	8.0	5.5	5.5	5.5	5.0	4.8	3.5	5.2	3.5
81°	4.9	6.5	5.3	6.5	5.8	6.5	5.8	6.0	4.9	8.0	5.4	6.5	5.9	4.0	5.9	3.5	5.0	3.5	5.5	2.0
80°	5.1	6.5	5.6	6.5	6.1	5.5	6.1	4.5	5.1	8.0	5.7	5.5	6.2	2.5	6.2	1.5	5.2	3.5		
79°	5.3	6.5	5.9	6.5	6.5	4.0	6.5	3.0	5.4	7.5	5.9	4.0	6.5	1.0			5.5	3.0		
78°	5.5	6.5	6.1	6.0	6.8	3.0	6.8	2.0	5.6	6.5	6.2	3.0					5.7	2.0		
77°	5.8	6.5	6.4	5.0	7.1	2.0	7.1	1.0	5.8	5.5	6.5	2.0					5.9	1.0		
76°	6.0	6.5	6.7	4.0	7.4	1.5			6.0	4.5	6.7	1.0								
75°	6.2	6.5	7.0	3.0					6.2	3.5										
74°	6.4	6.5	7.2	2.5					6.5	2.5										
73°	6.6	5.0							6.7	2.0										
72°	6.8	4.0							6.9	1.0										

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

Boom combination

(Unit : m)

Boom length	Boom composition
10	6 (inner) + 4 (outer)
13	6+3+4
16	6+3+3+4
19	6+3+6+4



Lifting Magnet

Specifications

Rope speed	Boom hoisting and lowering	47m/min (4th layer of drum)
	Load hoisting and lowering	High speed 68m/min, Low speed 34m/min
Part lines	Boom hoisting and lowering	12 part lines
	Load hoisting and lowering	1-7 part lines
Counterweight (exclusive for lifting magnet)	12.3 tons (5.5+6.8)	
Total weight (13 m boom + ϕ 1500 magnet)	41.7 tons	
Average ground bearing pressure	0.58 kgf/cm ²	

NOTE: Speeds change with load level.

Magnet specifications

Electromagnet	Diameter	ϕ 1500
	Weight	2.7 tons
Voltage	DC-220V	
Generator capacity	16.5 kW/1,800 rpm	
Lifting capacity	Ingot	24 tons
	Punch scrap	0.55-0.9 tons
	Iron scrap	1.2-1.9 tons
	Pig iron	1.3-1.9 tons

Wire rope

Place of use	Rope diameter (mm) × overall length (mm)	Guaranteed strength (t)	Rope type
Lifting magnet	ϕ 20 × 110	30.0	A
Boom hoisting	ϕ 14 × 126	14.9	A
Boom suspension	ϕ 28	59.7	A
Weight type tagline (for 13 m boom)	ϕ 10 × 38	5.5	B

Rope type A : 6×Fi (29) IWRC preformed regular Z lay
B : 6×19 hemp core regular Z lay

Rated lifting capacity

With 12.3 ton (full) counterweight

(Unit: metric ton)

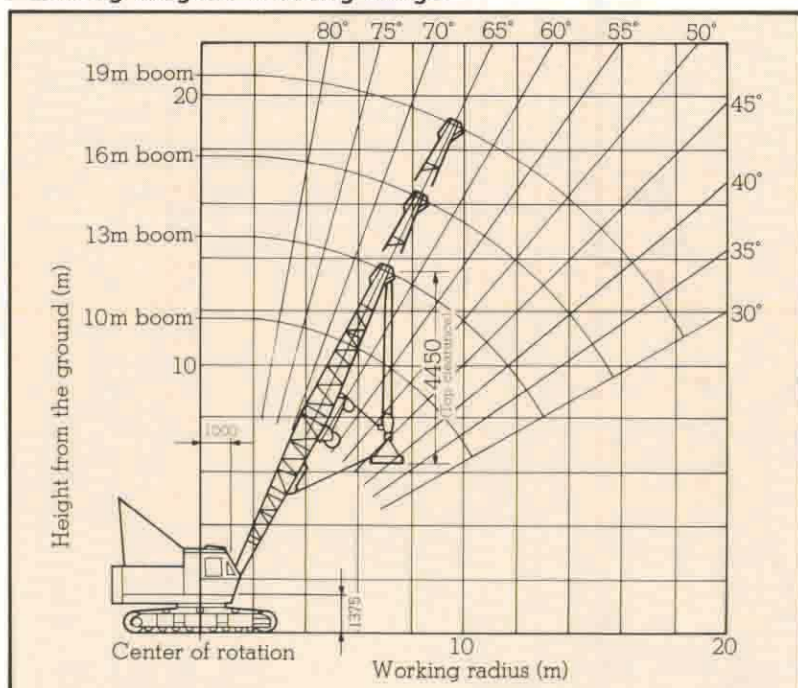
Boom length (m)	Working radius (m)												
	3.7	4	4.5	5	6	7	8	9	10	12	14	16	18
10	34.6	33.0	26.9	22.6	17.1	13.7	11.3	9.7	^{6.8m} 8.6				
13	34.6	33.0	26.8	22.6	17.0	13.6	11.3	9.6	8.4	6.6	^{12.4m} 6.3		
16		^{1.1m} 32.2	26.8	22.5	17.0	13.6	11.2	9.6	8.3	6.5	5.3	^{15.0m} 4.8	
19			^{4.6m} 26.0	22.5	17.0	13.5	11.2	9.6	8.3	6.5	5.3	4.4	^{17.6m} 3.9

With 5.5 ton counterweight

(Unit: metric ton)

Boom length (m)	Working radius (m)												
	3.7	4	4.5	5	6	7	8	9	10	12	14	16	18
10	26.7	23.0	18.7	15.7	11.8	9.4	7.8	6.6	^{14.0m} 5.9				
13	26.7	23.0	18.6	15.6	11.7	9.3	7.7	6.5	5.6	4.4	^{12.4m} 4.2		
16		^{1.1m} 22.4	18.6	15.6	11.7	9.3	7.7	6.5	5.6	4.3	3.5	^{15.0m} 3.1	
19			^{1.6m} 18.1	15.6	11.7	9.3	7.6	6.5	5.6	4.3	3.5	2.8	^{17.6m} 2.5

Lifting magnet working range



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

40 ton hook...380kg 15 ton hook...310 kg

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

- 1 part line... up to 5 ton
- 2 part line... up to 10 ton
- 3 part line... up to 15 ton
- 4 part line... up to 20 ton
- 5 part line... up to 25 ton
- 6 part line... up to 30 ton
- 7 part line... up to 34.6 ton

●For lifting magnet specification, the rear-end swing radius differs from the standard crane equipped machine. (335 mm greater)

Dragline

Specifications

Rope speed	Boom hoisting and lowering	55 m/min (4th layer of drum)
	Bucket hoisting	High speed 80 m/min, Low speed 40 m/min
	Bucket digging	High speed 80 m/min, Low speed 40 m/min
Part lines	Boom hoisting and lowering	12 part lines
	Bucket hoisting	1 part line
	Bucket digging	1 part line
Counterweight		7.0 tons
Total weight (13 m boom + 0.8 m ³ bucket)		33.8 tons
Average ground bearing pressure		0.61 kgf/cm ²

NOTE: Speeds change with load level.

Bucket specifications

Classification	Capacity (m ³)	Weight (t)	Purpose
Optional	0.6	0.93	General purpose digging
Standard	0.8	1.17	General purpose digging
Optional	1.0	1.40	Light duty digging, scraping
Optional	1.2	1.60	Light duty digging, scraping

Working rang and hoisting capacity

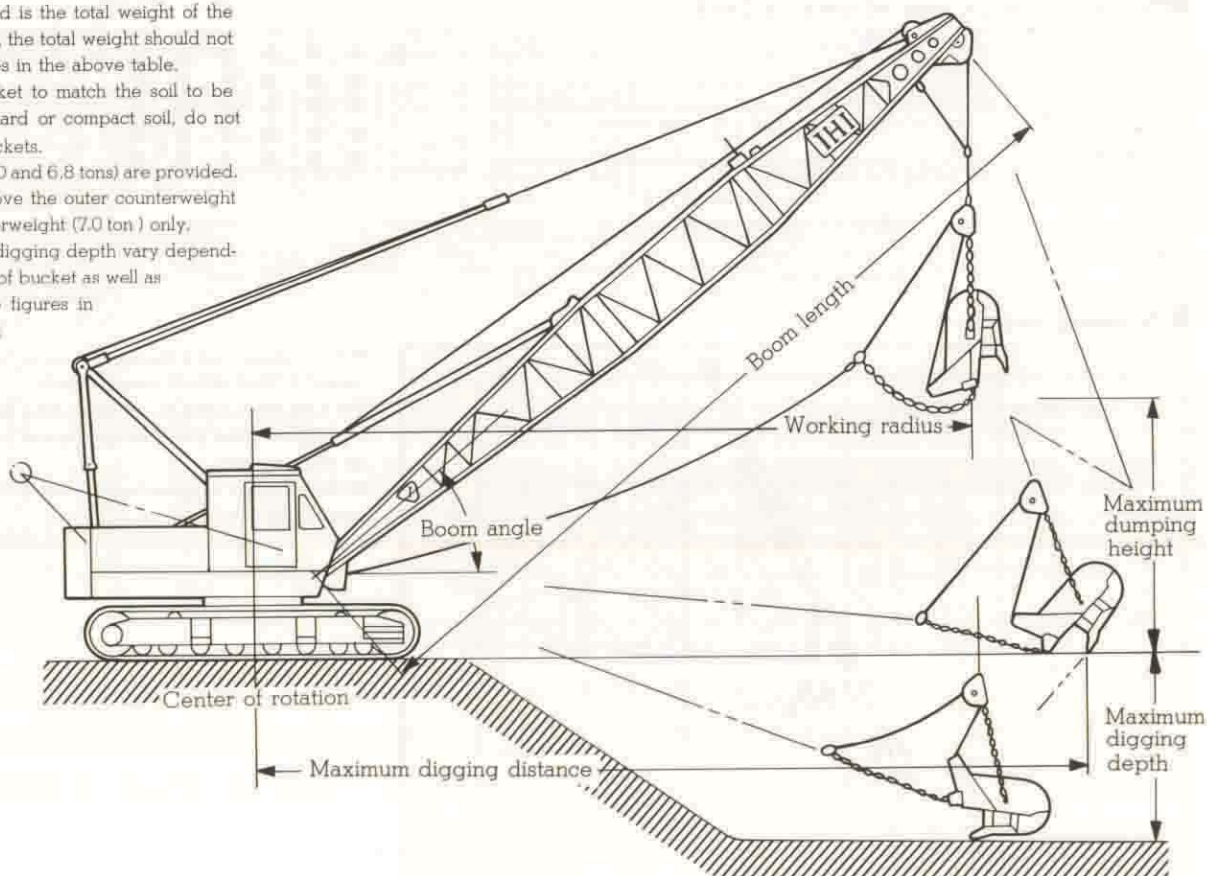
Boom length (m)	10			13			16			
	30°	40°	50°	30°	40°	50°	30°	40°	50°	
Working radius (m)	10.0	9.0	7.8	12.6	11.3	9.8	15.2	13.6	11.7	
Rated lifting load (metric ton)	4.5	4.5	4.5	4.2	4.5	4.5	3.1	3.7	4.5	
Maximum digging distance (m)	11.9	11.4	10.6	15.0	14.3	13.3	18.1	17.3	15.9	
Maximum digging depth (m)	6.6	6.2	5.7	8.8	8.3	7.6	10.9	10.4	9.4	
Maximum dumping height (m)	0.6 m ³	3.1	4.4	5.3	4.2	6.0	7.6	5.7	8.0	9.9
	0.8 m ³	2.9	4.2	5.1	4.0	5.8	7.4	5.5	7.8	9.7
	1.0 m ³ , 1.2 m ³	2.5	3.8	4.7	3.6	5.4	7.0	5.1	7.4	9.3

- As the rated lifting load is the total weight of the bucket and selected load, the total weight should not exceed the weight figures in the above table.
- Carefully select a bucket to match the soil to be handled. For unusually hard or compact soil, do not use 1.0m³ and 1.2m³ buckets.
- Two counterweights (7.0 and 6.8 tons) are provided. For dragline work, remove the outer counterweight and use the inner counterweight (7.0 ton) only.
- Digging distance and digging depth vary depending on the size and type of bucket as well as working conditions. (The figures in the table are theoretical values.)

Wire rope

Place of use	Rope diameter (mm) × overall length (m)	Guaranteed strength (t)	Rope type
Hoisting	φ20 × 45	30.0	A
Dragline	φ20 × 30	29.8	B
Boom hoisting	φ14 × 126	14.9	A
Boom suspension	φ28	59.7	A
Dump	φ12.5 × 5	10.8	A

Rope type A : 6×F1 (29) IWRC preformed regular Z lay
B : 6×S (19) IWRC ring lay



Clamshell

Specifications

Maximum lift above ground		13 m (19 m boom + 1.0 m ³ bucket)
Rope speed	Boom hoisting and lowering	55 m/min (4th drum layer)
	Bucket opening and closing	High speed 80 m/min, Low speed 40 m/min
	Bucket suspension hoisting and lowering	High speed 80 m/min, Low speed 40 m/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		13.8 tons (7 + 6.8)
Total weight (13 m boom + 1.0 m ³ bucket)		42.2 tons
Average ground bearing pressure		0.59 kgf/cm ²

NOTE: Speeds change with load level.

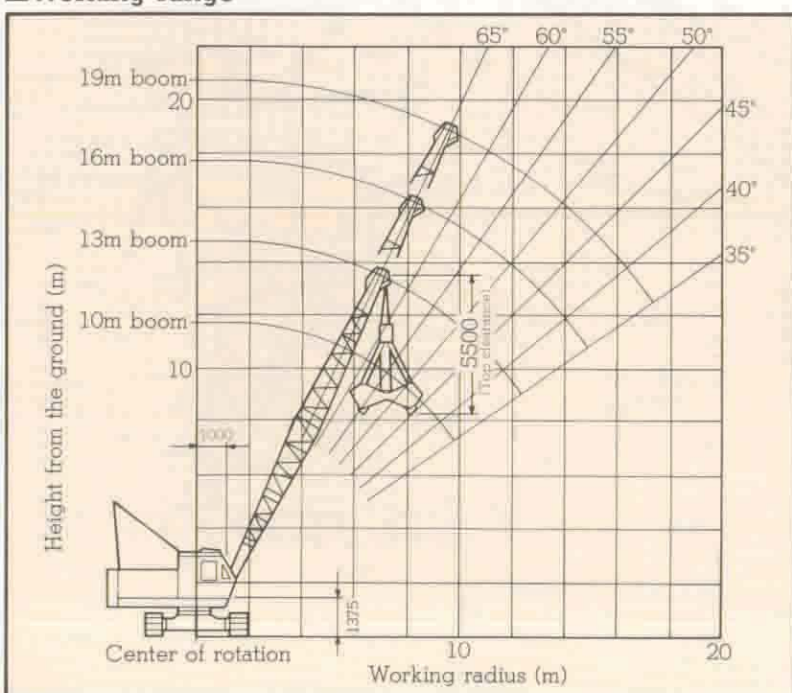
Wire rope

Place of use	Rope diameter (mm)	Guaranteed strength (t)	Rope type	Length (m)
Bucket opening and closing	φ20	30.0	A	69 (with 19 m boom)
Bucket holding	φ20	30.0	A	55 (with 19 m boom)
Boom hoisting	φ14	14.9	A	126 (12 part lines)
Boom suspension (pendant)	φ28	59.7	A	5.9 (for outer boom)
				3 (for 3 m insert boom) 6 (for 6 m insert boom)
Weight type tagline	φ10	5.5	B	38 (for 13 m boom) 56 (longer than 16 m boom) *
Spring type tagline	φ10	5.5	B	30 *
Hydraulic type tagline	φ10	5.5	B	49 *

Working range and allowable load

Boom length (m)			10				13				16				19			
Boom angle			35°	45°	55°	65°	35°	45°	55°	65°	35°	45°	55°	65°	35°	45°	55°	65°
Working radius (m)			9.5	8.4	7.1	5.7	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 (ton)	Counterweight type	13.8 ton type	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.8	5.0	5.0
		7.0 ton type	5.0	5.0	5.0	5.0	4.5	5.0	5.0	5.0	3.4	4.1	5.0	5.0	2.7	3.2	4.2	5.0
Maximum dumping height (m)			1.4	2.7	3.9	4.8	3.1	4.9	6.4	7.5	4.8	7.0	8.8	10.2	6.5	9.1	11.3	13.0
Maximum digging depth (m)	Tagline type	Weight type (stroke 20 m)	—				17				17				17			
		Weight type (stroke 40 m)	—				—				29				24			
		Hydraulic type	36		35		33	32	31	30	29	27	25	24	24	22	20	18
		Spring type	12		12		12		12		12		12		12		12	

Working range



Clamshell bucket specifications

Classification	Type	Capacity (m ³)	Weight (t)
Optional	HD	0.6	3.0
Optional	GP	0.8	2.1
Standard	GP	1.0	2.5
Optional	WR	1.0	2.0
Optional	WR	1.25	1.6

Bucket type (Purpose)

HD : Heavy duty (Civil engineering, construction)

GP : General purposes (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.

● Rated lifting load is the upper limit of "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 1.0 m³ standard bucket.

Tower Crane

Specifications

Maximum lifting capacity × working radius	9 t × 9.5 m
Maximum lift above ground	52.5 m (36 m post + 19 m jib)

Rated lifting loads

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

Working radius (m)	Post length (m)		
	Under 30	33 - 36	27 - 33
	Jib length (m)		
	Under 19	Under 19	22
6.5	9.0		
7	9.0		
7.5	9.0		
8	9.0		
8.6	9.0	7.0	
9	9.0	7.0	
9.5	9.0	7.0	
10	8.55	7.0	7.0
12	7.0	7.0	7.0
13.7	6.05	6.05	6.05
14	5.9	5.9	5.9
15	5.5	5.5	5.5
16	5.1	5.1	5.1
16.4	4.97	4.97	4.97
18	4.5	4.5	4.5
19.1	4.2	4.2	4.2
22			3.6

Combination of Tower post and Jib

(● : available combination)

Jib length (m)	Post length (m)						
	18	21	24	27	30	33	36
13	●	●	●				
16	●	●	●	●	●		
19		●	●	●	●	●	●
22				●	●	●	

Wire rope

Place of use	Rope type	Rope dia. (mm) × length (m)	Guaranteed strength (t)
Load hoisting	B	20 × 170	24.8
Tower jib hoisting	A	16 × 156	19.2
Tower post hoisting	A	16 × 156	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 × Fi(29) IWRC preformed regular Z lay
 B : 4 × F (a + 40) Monorope Sp C : 6 × Fi(25) IWRC

- All rated loads are based on the machine being on a firm, level, uniformly supporting surface.
- Net lifting capacity will be reduced by the weight of rope fittings: 410 kgs for 9 ton hook.

Tower crane working range and lifting load

