

DH900-5

Hydraulic Crawler Crane

SPECIFICATION

September,2009



Nagoya, Japan

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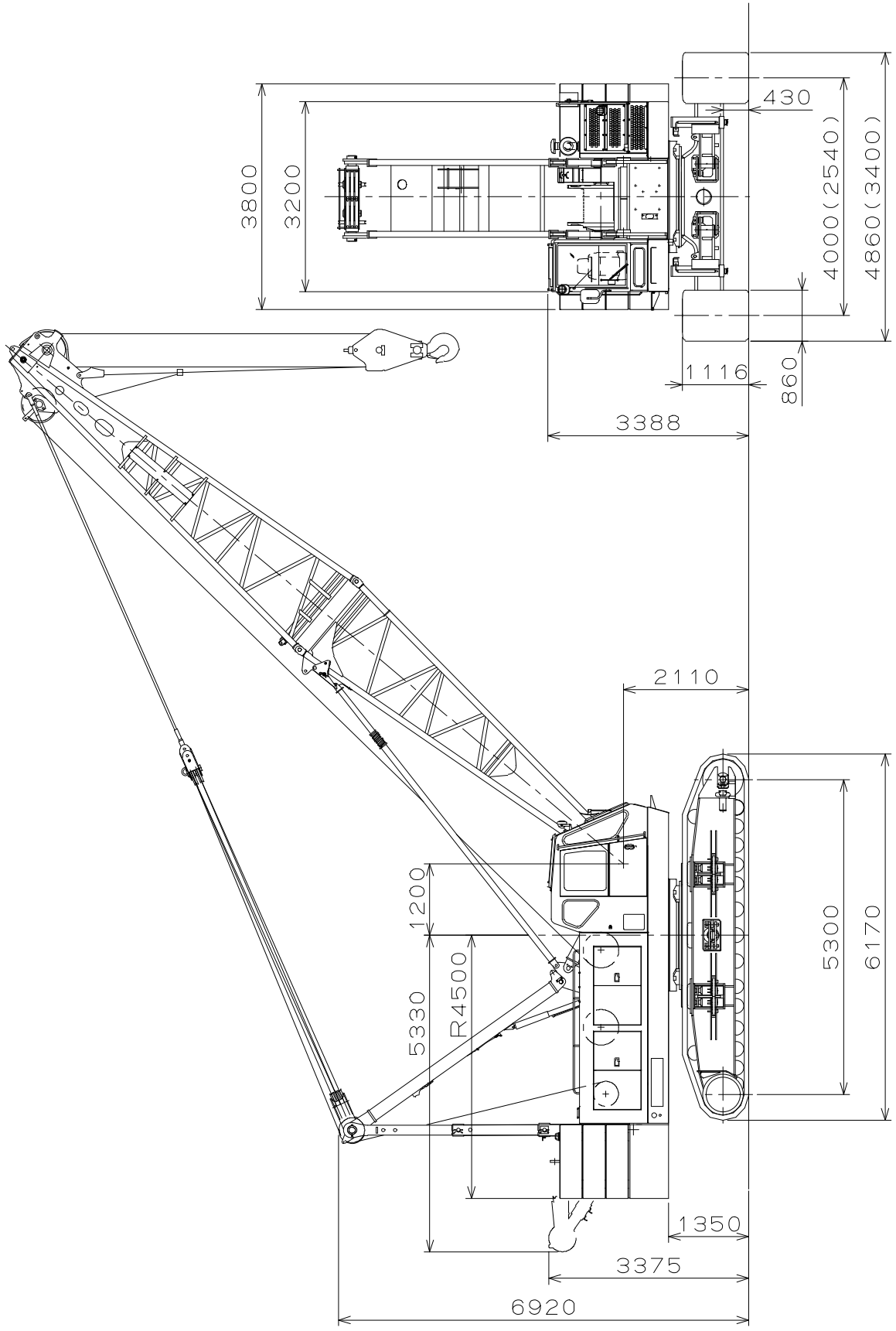
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1. GENERAL DIMENSIONS (DH900-5)



() shows when retracted.

2. SPECIFICATIONS OF CRAWLER CRANE

Description		Basic Machinery
Maximum lifting load		90 t × 4.0 m
Basic boom length		13 m
Maximum boom length		58 m
Maximum length of boom+auxiliary sheave		55+1 m
Line speed	Main drum high/low	* 121~56 / 28 m / min
	Auxiliary drum high/low	* 121~56 / 28 m / min
	Boom drum	* 47 m / min
	Third drum	* 43 m / min
Swing speed		3.4 min ⁻¹ (3.4 rpm)
Travel speed		* 1.5 / 1.0 km/h
Gradeability (Basic machine)		* 40 %
Engine	Model	HINO J08E-TM
	Output	209kW(284PS) / 2,100min ⁻¹
Operating mass (13m boom + 90t hook)		90.0 ton
Average ground pressure		96 kPa gf / cm ²)

“*” marked speed changes in accordance with load.

3. RATED LIFTING LOAD

RATED LIFTING LOAD TABLE

(unit:ton)

Radius(m)	13m boom	16m boom	19m boom	22m boom	25m boom	28m boom	31m boom	34m boom	37m boom	40m boom	43m boom	46m boom	49m boom	52m boom	55m boom	58m boom	Radius(m)
3.8	90.0																3.8
4.0	90.0	75.0t 4.4m															4.0
4.5	75.0	75.0	65.0t 4.9m														4.5
5.0	67.0	67.0	65.0	60.0t 5.4m	55.0t 5.9m												5.0
6.0	55.0	55.0	55.0	55.0	55.0	48.0t 6.4m											6.0
7.0	44.4	44.2	44.1	44.0	43.8	43.7	43.6	39.3t 7.5m									7.0
8.0	36.8	36.6	36.4	36.3	36.2	36.0	35.9	35.8	35.7	32.4t 8.5m							8.0
9.0	31.3	31.1	31.0	30.9	30.7	30.6	30.4	30.3	30.2	30.0	29.7	24.0t 9.6m					9.0
10.0	27.2	27.0	26.9	26.8	26.6	26.5	26.3	26.2	26.1	25.9	25.8	24.0	24.0t 10.1m	22.0t 10.6m	19.4t 11.1m	17.3t 11.6m	10.0
12.0	21.5	21.3	21.1	21.0	20.8	20.7	20.6	20.4	20.3	20.1	20.0	19.9	19.7	19.6	19.4	17.3	12.0
14.0	20.1t 12.6m	17.5	17.3	17.2	17.0	16.9	16.7	16.6	16.5	16.3	16.2	16.1	15.9	15.8	15.7	15.5	14.0
16.0		15.7t 15.2m	14.6	14.5	14.3	14.1	14.0	13.6	13.7	13.6	13.4	13.3	13.1	13.0	12.9	12.7	16.0
18.0			12.7t 17.8m	12.4	12.2	12.1	11.9	11.8	11.7	11.5	11.4	11.3	11.1	11.0	10.8	10.7	18.0
20.0				10.8	10.6	10.5	10.3	10.2	10.1	9.9	9.8	9.7	9.5	9.4	9.2	9.1	20.0
22.0				10.5t 20.4m	9.3	9.2	9.0	8.9	8.8	8.6	8.5	8.4	8.2	8.1	8.0	7.8	22.0
24.0					8.8t 23.0m	8.2	8.0	7.9	7.8	7.6	7.5	7.3	7.2	7.0	6.9	6.7	24.0
26.0						7.5t 25.6m	7.1	7.0	6.9	6.7	6.6	6.5	6.3	6.2	6.0	5.8	26.0
28.0							6.4	6.3	6.1	6.0	5.8	5.7	5.5	5.4	5.3	5.1	28.0
30.0							6.3t 28.2m	5.6	5.5	5.3	5.2	5.1	4.9	4.8	4.7	4.5	30.0
32.0								5.4t 30.8m	5.0	4.8	4.7	4.5	4.4	4.2	4.1	3.8	32.0
34.0									4.6t 33.4m	4.3	4.2	4.1	3.9	3.7	3.5	3.3	34.0
36.0										3.9	3.8	3.6	3.4	3.2	3.0	2.8	36.0
38.0											3.3	3.2	2.9	2.8	2.6	2.4	38.0
40.0											3.2t 38.6m	2.8	2.6	2.4	2.2	2.0	40.0
42.0												2.6t 41.2m	2.2	2.0	1.9		42.0
44.0													1.9t 43.8m	1.7			44.0
No. of partline	8	7	6	5	5	4	4	4	3	3	3	2	2	2	2	2	No. of partline
Boom angle	80° ~ 30°	80° ~ 30°	80° ~ 30°	80° ~ 30°	80° ~ 30°	80° ~ 30°	80° ~ 30°	80° ~ 30°	80° ~ 30°	80° ~ 30°	80° ~ 30°	80° ~ 30°	80° ~ 30°	80° ~ 35°	80° ~ 43°	80° ~ 48°	Boom angle

AUXILIARY SHEAVE LIFTING LOAD TABLE

(unit:ton)

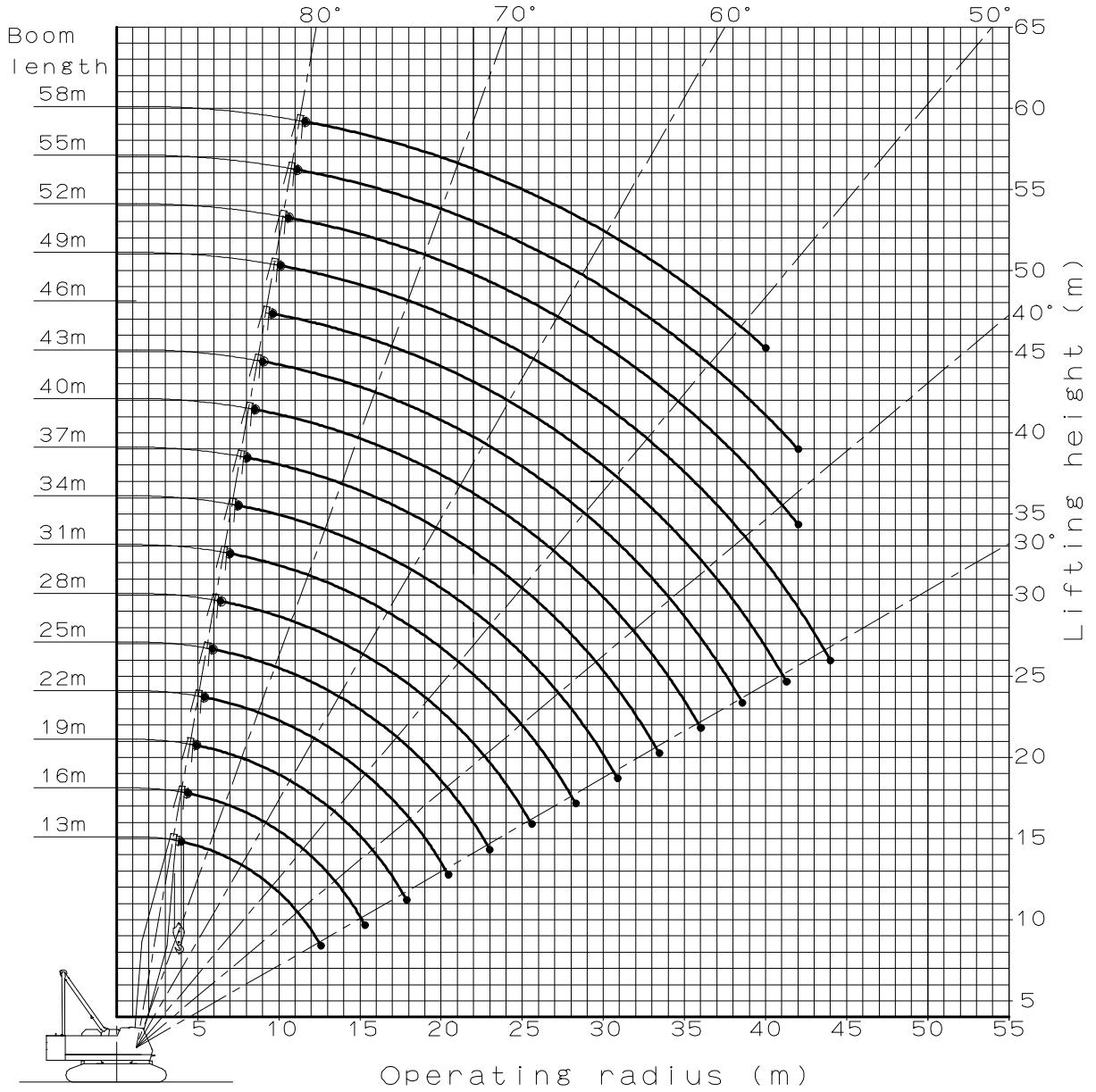
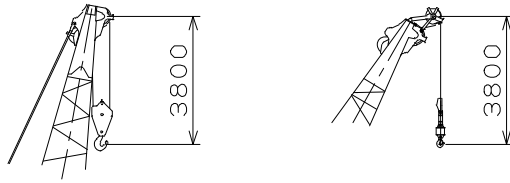
Radius(m)	13m boom	16m boom	19m boom	22m boom	25m boom	28m boom	31m boom	34m boom	37m boom	40m boom	43m boom	46m boom	49m boom	52m boom	55m boom	Radius(m)
5.0	12.0															5.0
6.0	12.0	12.0	12.0													6.0
7.0	12.0	12.0	12.0	12.0	12.0											7.0
8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0									8.0
9.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0							9.0
10.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0					10.0
12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
14.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	14.0
16.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	16.0
18.0				11.7	11.5	11.4	11.2	11.1	11.0	10.8	10.7	10.6	10.4	10.3	10.1	18.0
20.0				10.1	9.9	9.8	9.6	9.5	9.4	9.2	9.1	9.0	8.8	8.7	8.5	20.0
22.0					8.6	8.5	8.3	8.2	8.1	7.9	7.8	7.7	7.5	7.4	7.3	22.0
24.0						7.5	7.3	7.2	7.1	6.9	6.8	6.6	6.5	6.3	6.2	24.0
26.0							6.4	6.3	6.2	6.0	5.9	5.8	5.6	5.5	5.3	26.0
28.0							5.7	5.6	5.4	5.3	5.1	5.0	4.8	4.7	4.6	28.0
30.0								4.9	4.8	4.6	4.5	4.4	4.2	4.1	4.0	30.0
32.0									4.3	4.1	4.0	3.8	3.7	3.5	3.4	32.0
34.0										3.6	3.5	3.4	3.2	3.0	2.8	34.0
36.0										3.2	3.1	2.9	2.7	2.5	2.3	36.0
38.0											2.6	2.5	2.2	2.1	1.9	38.0
40.0												2.1	1.9	1.7	1.5	40.0
42.0													1.5	1.3	1.2	42.0
44.0														1.0		44.0
Boom angle	78° ~ 44°	77° ~ 45°	79° ~ 45°	78° ~ 38°	79° ~ 39°	78° ~ 40°	79° ~ 35°	79° ~ 36°	80° ~ 37°	79° ~ 33°	80° ~ 35°	78° ~ 36°	79° ~ 40°	79° ~ 44°	80° ~ 50°	Boom angle

4. NOTES

1. The rated lifting loads shown in the table do not exceed 78% of tipping loads with the machine on firm and level surface and its gantry frame to be fully erected and its crawlers to be fully expanded. The front stability of the machine is 1.15 and more.
2. The rated lifting loads shown in the tables include the weights of all lifting devices such as hook block, bucket, etc. The lifting load can be actually lifted is the rated lifting load minus the weight of all lifting attachments.
3. The rated lifting loads of auxiliary sheave are the rated lifting load of main boom minus 0.7t but not exceeds 12.0t. When the main hook block is attached, the lifting load to be actually lifted with auxiliary sheave is the previous calculated lifting load minus the weight of main and auxiliary hook blocks.
4. When the auxiliary sheave is provided, the load to be actually lifted with the main boom is the rated lifting load minus 1.0t, the weight of auxiliary sheave (Including the weight of auxiliary hook block).
5. The auxiliary sheave can be attached to the main boom of up to 55m long.
6. The maximum lifting load is also depending on hook block capacity and number of rope-part line as below table.

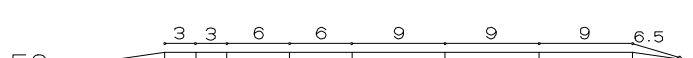
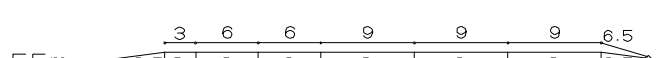
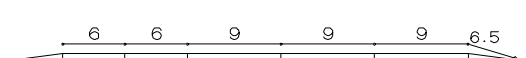
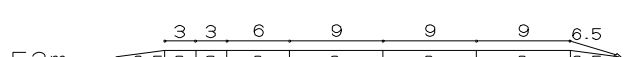
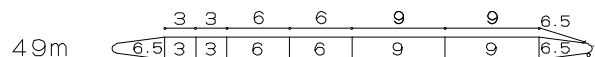
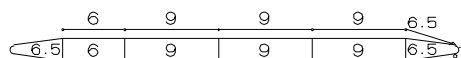
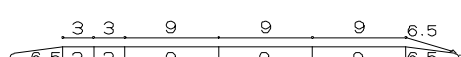
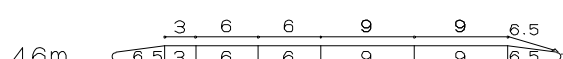
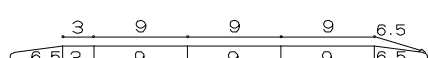
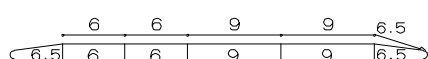
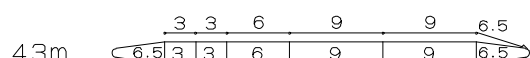
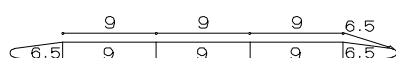
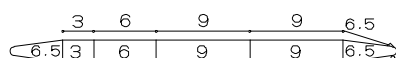
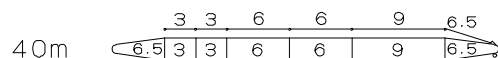
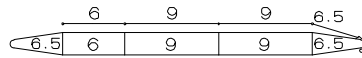
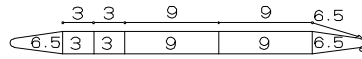
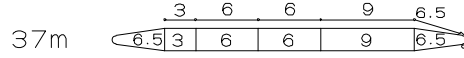
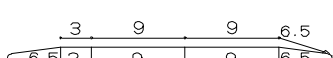
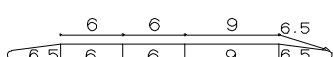
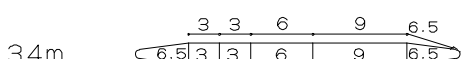
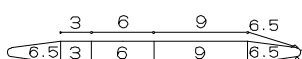
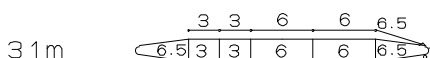
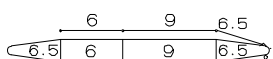
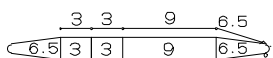
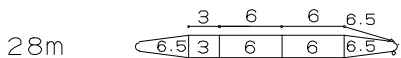
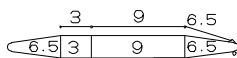
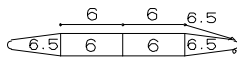
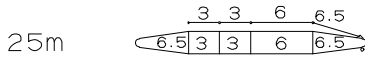
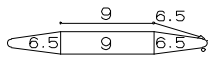
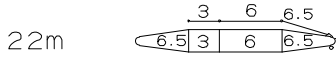
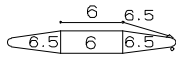
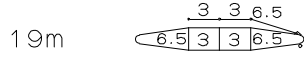
Hook (t)	Weight (kgf)	Maximum lifting load of hook and part-line (t)							
		8-line	7-line	6-line	5-line	4-line	3-line	2-line	1-line
90	950	90.0	84.0	72.0	60.0	48.0			
50	740				50.0	48.0	36.0	24.0	12.0
30	600						30.0	24.0	12.0
12	300								12.0

5. OPERATING RANGE

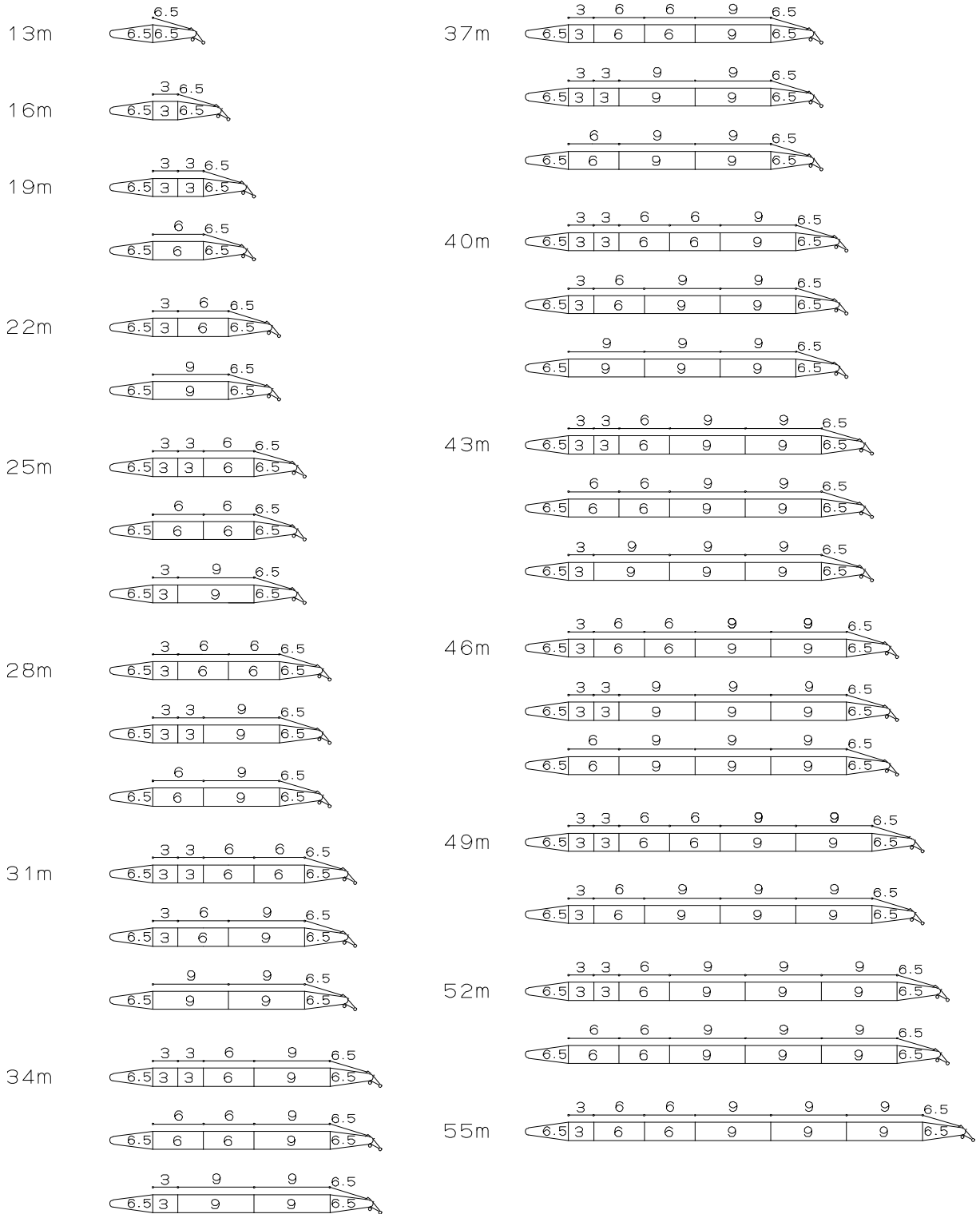


6. BOOM AND PENDANT ROPE COMPOSITIONS

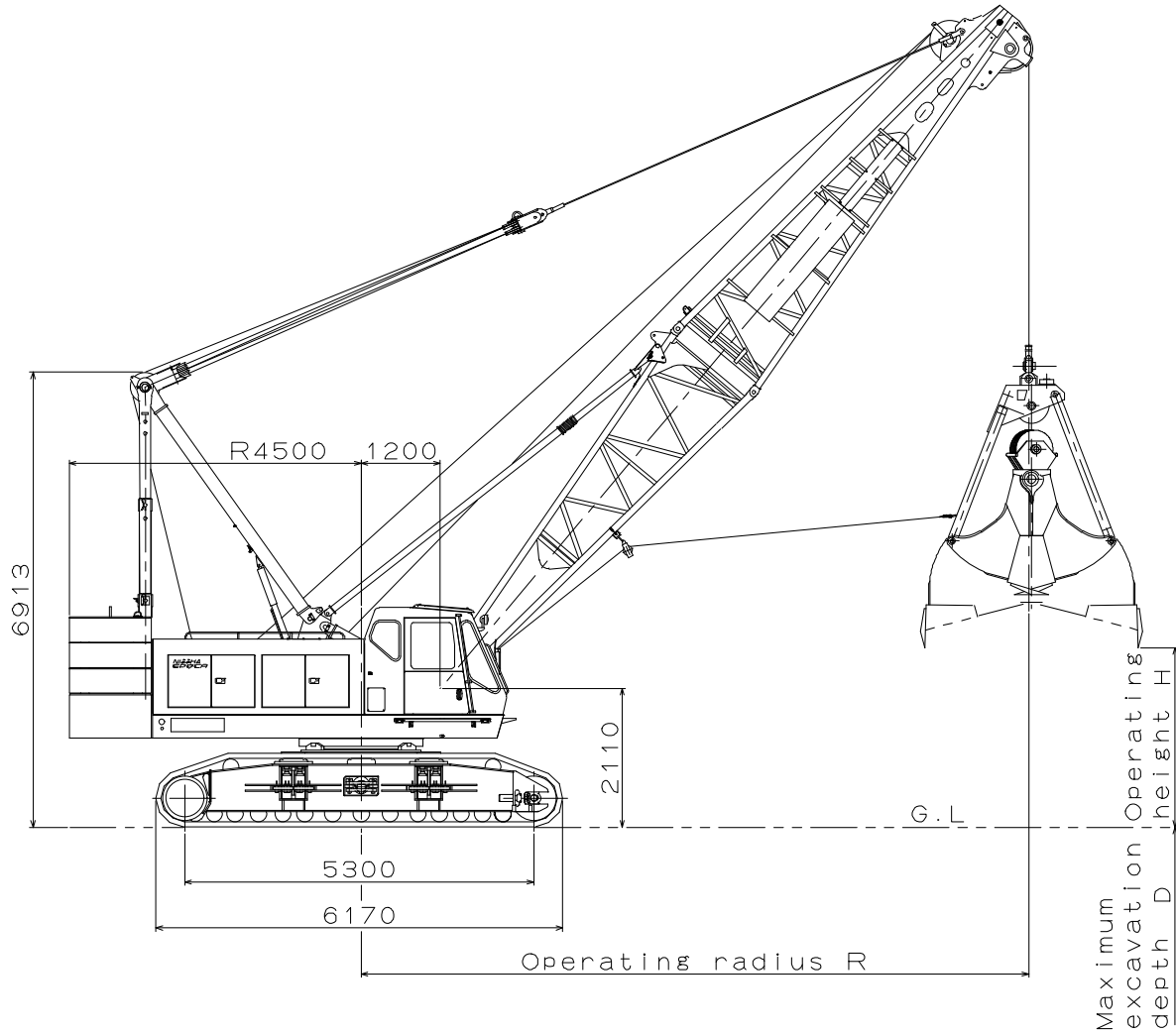
MAIN BOOM AND PENDANT ROPE



MAIN BOOM WITH AUXILIARY SHEAVE AND PENDANT ROPE



7. CLAMSHELL



● Specifications

Bucket capacity (m ³)	2.5	
Permissible weight (t)	12.0	
Boom length (m)	13~22	
Rope speed	Hoisting (m/min)	*121~56/28
	Opening (m/min)	*121~56/28
	Boom hoist (m/min)	*47
	Boom lowering (m/min)	*47
Swing speed (min ⁻¹) <rpm>	3.4 <3.4>	
Travel speed (km/h)	1.0(Low)/1.5(High)	
Gradeability (%)	40	
Average ground pressure (kpa) <kgf/cm ² >	102.2 <1.04> (13m boom+2.5m ³ bucket)	
Engine	Maker/model	HINO J08E-TM
	Output (kW/min ⁻¹) <ps/rpm>	209/2100 <284/2100>
Operating mass (t)	95.1 (13m boom+2.5m ³ bucket)	

*Varies depending on the load applied.

● Operating range

Boom length (m)	13				16				19				22			
Boom angle (°)	35	45	55	65	35	45	55	65	35	45	55	65	35	45	55	65
Radius (m)	12.3	10.9	9.2	7.3	14.8	13.1	11.0	8.6	17.3	15.2	12.7	9.9	19.7	17.3	14.4	11.1
Permitting lifting weight (t)	12.0				12.0				12.0				9.9	11.8	12.0	
Max. excavation depth D (m)	40															
Opening height H (m)	2.4	4.2	5.7	6.9	4.1	6.3	8.1	9.6	5.8	8.4	10.6	12.3	7.6	10.5	13.0	15.0

Note 1. The permissible lifting weight is the weight of limitation of bucket plus the materials excavated into bucket so that the capacity of bucket shall be depending on the material to be excavated.

Note 2. Above table shows when 2.5m³ clamshell bucket is attached.

Note 3. The maximum excavating depth depends on the length of the tagline rope(Standard length: 50m).

Note 4. Weight of standard clamshell bucket: 2.0m³ = 4.5t, 2.5m³ = 5.5t.

8. TRANSPORTATION DIMENSIONS AND WEIGHT

No.	Description	Weight (ton)	Dimensions L×W×H(m)	Remark
1	Basic machine	30.64	7.70×3.20×2.96	Excluding side frame, gantry, jack counterweight, boom. With third drum
2	Gantry	1.98	6.66×1.45×0.47	
3	Basic machine + Gantry	32.62	7.70×3.20×3.00	With third drum
4	Crawler side frame (One side)	9.60	6.17×1.14×1.12	Use 1 pair
5	Jack (1 pc)	0.39	1.40×1.26×0.45	Use 4 pcs
6	Counter weight (Upper)	6.58	3.80×1.25×0.54	
7	Counter weight (Middle upper)	6.58	3.80×1.25×0.54	
8	Counter weight (Middle lower)	6.58	3.80×1.25×0.54	
9	Counter weight (Lower)	11.01	3.80×1.25×0.83	With bolts
10	6.5m boom base	1.25	6.71×1.80×1.85	
11	6.5m boom top	1.87	7.09×1.65×1.73	With pendant rope (0.13 tons)
12	Boom back stop	0.20	5.04×0.30×0.15	1 pair
13	Main winch rope	0.73	1.00×1.00×1.00	
14	Upper spreader	0.38	1.70×0.71×0.34	
15	3m boom insert	0.49	3.15×1.65×1.75	With pendant rope (0.08 tons)
16	6m boom insert	0.80	6.15×1.65×1.75	With pendant rope (0.12 tons)
17	9m boom insert	1.13	9.15×1.65×1.75	With pendant rope (0.15 tons)
18	Auxiliary sheave	0.24	1.20×0.70×0.69	
19	90 ton hook block	0.95	1.94×0.72×0.47	
20	50 ton hook block	0.74	1.85×0.72×0.43	
21	30 ton hook block	0.60	1.68×0.72×0.35	
22	12 ton hook block	0.30	1.55×0.30×0.25	With swivel joint

9. STANDARD EQUIPMENTS

Basic machine

- Speed control
- Head lights
- Steps
- Side mirror
- Gantry sheave greasing piping
- Electric fuel pump
- Jacks
- Replace weight for third drum
- Standard tool set
- Standard spare parts

Operator's cab

- Air conditioner
- AM/FM auto-tuning radio
- Microphone / speaker
- Front wiper (Intermittent)
- Roof / front lower wiper
- Window washer
- Grip acceleration of engine
- Green color wind shield
- Floor mats
- Foot rest
- Cigar lighter
- Ash tray
- Sight level meter
- Room light

Safety device

- Swing lock
- Swing alarm & buzzer, flushing lamps
- Brake pedal unlock alarm
- Electric pawl lock (Main, aux., boom)
- Auto brake when engine stopped
- Ok monitor
- Brake pedal cover (Same color of lever)
- Non-slip pads along walking area
- Gate lock lever
- Neutral braking/free change-over switch
- Neutral braking/free change-over lamp
- Neutral braking lock switch
- Neutral braking (Main, aux. boom motors and travel motors)
- Moment limiter
- Boom back stop
- Boom hoist limiting device
- Secondary boom hoist limiting device
- Hook over-hoist preventive device

Front-end attachment

- 13m basic boom with 6.5m pendant rope
- 90 tons hook block (4 sheaves)
- Main drum rope ($\phi 28 \times 200m$)
- Boom drum rope ($\phi 20 \times 165m$)
- Boom angle meter

10. OPTIONAL EQUIPMENTS

Basic machine

- Third drum (with free fall function)
- Foot pedal type boom winch control (L.H. side)
- Ladder (R.H side)
- Under cover of operator's cab
- 150 amp. large batteries
- Tool box (Large size : no use tagline)
- Tool box (Middle size : use std.tagline)
- Drum mirror
- Drum lights
- Main/aux. control lever position interchanging
- Main/aux. brake pedal position interchanging
- Sidesteps (Surround house)
- Hanger (Use for side frame)

Operator's cab

- Powerful heater (Use for cold area)
- Sun blind
- Roof guard

Safety device

- Moment limiter indicator (3 colors)
- Voice alarm in swinging
- Voice alarm in traveling
- Pawl lock indicator
- Camera & sensor
- Auto stop cancel switch cover with key lock

Front-end attachment

- 3m boom insert with pendant rope
- 6m boom insert with pendant rope
- 9m boom insert with pendant rope
- Aux. sheave (1 sheave, with hook over-hoist preventive device)
- Aux. sheave (2 sheave, with hook over-hoist preventive device)
- 50 tons hook block (3 sheaves)
- 30 tons hook block (1 sheaves)
- 12 tons hook block with swivel joint
- Aux. drum rope ($\phi 28 \times 130\text{m}$)
- Third drum rope ($\phi 22.4 \times 130\text{m}$)
- Catwalk (Basic, insert)
- Name plate on the side of boom top
- Wooden buffers underside boom top
- Wooden buffers underside boom base
- Hydraulic tagline (Standard type)
- Hydraulic tagline (Powerful type)
- Depth meter

11. GENERAL CONDITIONS

This specification shall cover the standard specification of hydraulic crawler crane: model DH900-5 (here-in-after called “The machine”) manufactured by NIPPON SHARYO, LTD.

The general arrangement and principal dimensions of the machine are shown in the drawings attached.

1) DESIGN AND WORKMANSHIP

The machine shall be designed to perform the maximum efficiency with the least fuel consumption and the lowest maintenance costs.

The workmanship shall be of the first class in all respects.

The machine shall be built for simple mechanical arrangement and easy in inspection and maintenance.

2) MATERIALS

The materials used in the manufacture of the machine shall be of the highest quality, free from defects and imperfections.

Principal materials such as bolts, nuts, seals and steel plates used in the machine confirm to the Japanese Industrial Standards. (Almost equal to ISO)

3) TEST AND INSPECTION

Routine test and inspection in our factory shall be final.

4) PAINTING AND LETTERING

Under-coating by anti-rust paint and enamel finishing shall be performed in accordance with manufacturer’s standard practice.

Main parts of the equipment shall be painted in NISSHA Green and other equipment in manufacturer’s standard.

5) SERVICE CONDITIONS

The equipment shall meet the following service conditions.

Ambient temperature: -10 °C or higher and 40 °C or lower.

6) WARRANTY

All the machines specified herein shall be warranted by us for a period of twelve (12) calendar months after the date of being to put into operation, or fourteen (14) months after the date of shipment at a Japanese port, or one thousand engine operation hours according to the service hour meter, whichever is soonest.

The warranty shall cover defects in design, materials and workmanship only, shall not applicable to damage sustained mishandling of the machine or normal wear and tear.

The warranty shall not be applicable to the parts and materials mentioned below.

- ① Linings as brake/clutch bands and disc.
- ② Wear plates
- ③ Wire ropes
- ④ Rubber made parts
- ⑤ Seals as o-rings, seal rings, back-up rings, etc.
- ⑥ Gaskets and sheet packings
- ⑦ Filter elements
- ⑧ Batteries
- ⑨ Electric wiring
- ⑩ Glasses
- ⑪ Other quick moving parts
- ⑫ Lubricants

... concluded