



SUMITOMO

LS-238RH5**Basic Machine**

Upper Machinery

UPPER FRAME: All-welded, precision machined unit.**TURNABLE BEARING WITH INTEGRAL RING GEAR:**

Outer race is bolted to upper frame, inner race with internal ring gear is bolted to lower frame. Swing pinion meshes with internal, integral ring gear. A machined surface is provided for mounting turntable bearing.

CONTROL SYSTEM: Remote controlled hydraulic servo for main hoist, aux. hoist, boom hoist and travel. Mechanical linkage type for swing. Working speed can be precisely controlled by lever stroke.

PUMP CONTROL SYSTEM: System reducing pump displacement enables both minute operation and saving energy.

HYDRAULIC SYSTEM: System combining variable displacement axial pumps and fixed displacement gear pumps provides both independent and combined operations of all functions.

Main hoist/aux. hoist/boom hoist — Axial piston motor with counterbalance valve.

Swing motor — Axial piston motors.

Travel motor — Axial piston motors with brake valves. Spring-applied/hydraulic-released multiple disc brakes are fitted.

Hydraulic oil reservoir — 300 liter capacity.

LOAD HOIST ASSEMBLY: Front (main) and rear (aux.) operating drums. Each driven by the bi-directional, axial piston motor through reduction gear powering the rope drum in either direction for hoisting or lowering load.

Clutches — Power hydraulic actuated, internal expanding, self adjusting 2-shoe type.

Brakes — External contracting band type operated by foot pedal with locking latch. For crane mode, automatic brake (spring applied, hydraulically released) is applied when control lever in neutral position. For bucket mode, free-fall is available when control lever in neutral position.

Locks — Electrically operated drum lock pawl.

BOOM HOIST ASSEMBLY: Driven by the bi-directional, axial piston motor through reduction gear powering the rope drum in either direction for hoisting or lowering boom.

Brake — Spring applied, hydraulically released multiple disc type.

Lock — Electrically operated drum lock pawl.

SWING: Driven by axial piston motor, through reduction gear.

Brakes — Brake is applied by spring and released by hydraulic cylinder.

Lock — Mechanically operated pin connection frame lock.

Speed — 2.2 rpm (High), 1.3 rpm (Low)

OPERATOR'S CAB: Full vision compartment with safety glass panels, the completely independent cab is insulated against noise and vibration.

COUNTERWEIGHT: Removable, 7 blocks mounted on rear of upper frame by bolts.

POWER UNIT:

Make & Model	MITSUBISHI 6D22CT
Type	Water-cooled, 4-cycle diesel engine
No. of cylinders	6
Bore & Stroke	130mm x 140mm
Displacement	11,149cc
Rated output	250 ps/2,200 rpm
Max. torque	105 kg-m/1,200 rpm
Fuel tank	450 liters

Lower Machinery

LOWER FRAME: All welded robust rolled steel, box construction.

SIDE FRAMES: All welded robust rolled steel. Connected to lower frame by axle shim packs and pins.

ROLLERS: Heat treated, mounted on bushings with floating seals requiring no further lubrication.

Bottom — 10 pcs. per side frame

Top — 3 pcs. per side frame.

DRIVE SPROCKETS: Heat treated, involute splined to drive shaft mounted on antifriction bearings.

IDLERS: Heat treated, mounted on bushings with floating seals requiring no further lubrication.

TRACKS: Heat treated, self cleaning, one lug type, multiple hinged shoes, 54 pcs. per side frame.

Shoe width — 965mm (standard)

1.118mm (optional extra).

TRACK TENSION ADJUSTER: Adjusted by hydraulic cylinders at the idler blocks. Tension can be automatically released when abnormal load occurred on tracks.

TRAVEL AND STEER: Axial piston motor with reduction gear is located at inner drive end of each crawler side frame. Each track is driven simultaneously or individually for straight-line travel, or pivot turn, or the tracks can be counter-rotated for spin turns.

Brake — Spring applied, hydraulically released multiple disc brakes applied automatically when control lever in neutral position.

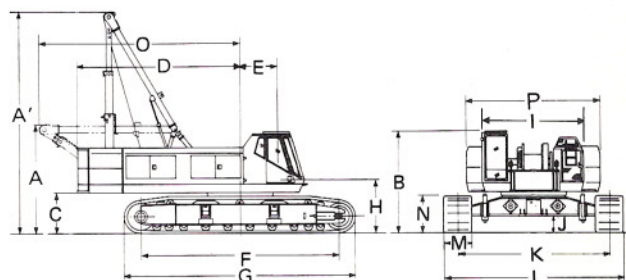
Speed — 4 speed range

1.5/1.0km/h . . . Pump control "OFF" (ordinary)

0.4/0.2km/h . . . Pump control "ON"

General Dimensions

A : Height over low gantry unit	3.675m
A' : Height over high gantry unit	7.500m
B : Height of cab	3.395m
C : Counterweight ground clearance	1.400m
D : Radius of rear end	5.500m
E : Center of rotation to boom foot pin	1.400m
F : Center to center distance of tumbler	6.690m
G : Overall length of crawler	7.790m
H : Height from ground to boom foot pin	2.275m
I : Overall width of house	3.400m
J : Ground clearance	0.565m
K : Center to center distance of crawler	5.100m
L : Overall width of crawler	6.065m
M : Shoe width	0.965m
N : Height of shoe	1.255m
O : Tail swing radius at low gantry	6.770m
P : Overall width of upper machinery	4.500m



We are constantly improving our products and therefore reserve the right to change designs and specifications.

SUMITOMO (S.H.I.) CONSTRUCTION MACHINERY CO., LTD.

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SUMITOMO

LS-238RH5

Clamshell 2.0 ~ 3.0m³

CLAMSHELL BOOMS: Lattice construction; round tubular main chords, alloy hi-ten steel, with bracing of round steel tubing.

Boom connections ... In-line pin connections.

Basic boom ... Two-piece, 18.30m basic length; 7.62m base, 10.68m top section; 1.85 deep and 1.85m wide at connections.

Boom point machinery ... Five head sheaves mounted on anti-friction bearings.

Boom extensions ... Available in 3.05m, 6.10m and 9.15m lengths with pendants.

GANTRY: Retractable high gantry

MAXIMUM CLAMSHELL RATING: 10.0t

LINE SPEED:

Drums	Root dia.	Type	Line speed (Closing, Holding)		Cable dia.
			Pump control "OFF" (Ordinary)	Pump control "ON"	
Holding	546mm	Parallel grooved	High 60 m/min Low 30 m/min	High 15 m/min Low 7.5 m/min	26mm
Closing	546mm	Parallel grooved	High 60 m/min Low 30 m/min	High 15 m/min Low 7.5 m/min	26mm
3rd drum (Option)	320mm	Parallel grooved	60 m/min	15 m/min	16mm
Boom hoist	420mm	Parallel grooved	40 m/min	10 m/min	20mm

Hoisting line speed varies with load.

GANTRY: Retractable high gantry

WORKING WEIGHT AND GROUND PRESSURE:

Shoe width	Weight	Pressure
965mm	105.2 t	0.77 kg/cm ²

With basic boom, 2.5 m³ bucket and counterweight A, B, C, D, E, F, G.
Weight without counterweight and front attachment: approx. 60.5t

COUNTERWEIGHT: A (5.6t), B (4.6t), C (5.6t), D (9.3t), E (7.5t)
F (0.8t), G (0.8t) Total ... 34.2t

SAFETY DEVICE: Boom over hoist limiting device, drum pawl lock for closing, holding and boom hoist drum, swing lock, safety valve in hydraulic circuit, boom angle indicator, boom back stop.

TAGLINE WINDER: Spring-wound, drum-type mounted on boom, double stage type Standard
Spring-wound, drum-type mounted on boom, triple stage type Optional extra
Hydraulic type mounted in front of the revolving frame Optional extra

GRADEABILITY: 30% (17°)
with basic boom, 2.5m³ bucket and counterweight A, B, C, D, E, F, G.

LS-238RH5 CLAMSHELL CAPACITIES AND WORKING RANGES: (in metric tons)

Boom Length (m)											
18.30			21.35			24.40			27.45		
R (m)	A (°)	L (t)	R (m)	A (°)	L (t)	R (m)	A (°)	L (t)	R (m)	A (°)	L (t)
9.0	67.7	10.0									
10.0	64.2	10.0	10.0	68.1	10.0						
12.0	56.9	10.0	12.0	62.2	10.0	12.0	65.9	10.0			
14.0	48.9	10.0	14.0	55.8	10.0	14.0	60.6	10.0	14.0	64.2	10.0
16.0	39.7	10.0	16.0	48.9	10.0	16.0	55.0	10.0	16.0	59.4	10.0
			18.0	41.2	10.0	18.0	48.9	10.0	18.0	54.3	10.0
						20.0	42.2	10.0	20.0	48.9	10.0
									22.0	43.0	10.0

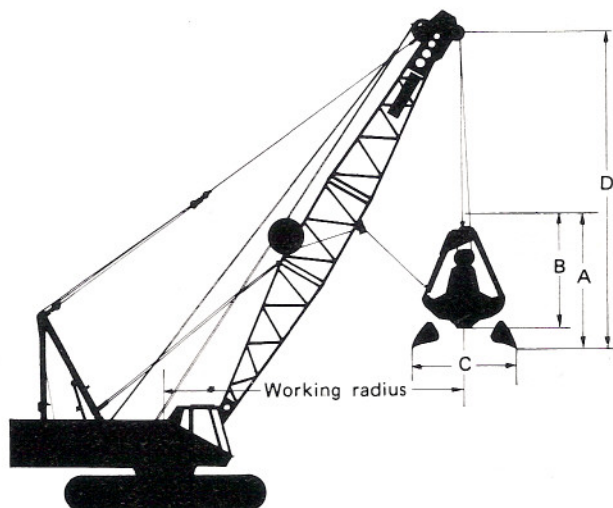
R: Working radius A: Boom angle L: Rated load

Notes:

- Following weight of bucket plus load should not exceed above rated loads.

Bucket capacity	2.0m ³	2.5m ³	3.0m ³
Bucket weight	4.5t	5.5t	6.5t

- Boom length shall not exceed 21.35m.
- Apparent specific gravity of lifting material:
Earth 1.7~1.8t/m³
Gravel 1.8~2.0t/m³
- High gantry is required for all operating conditions.



(in meters)				
	Bucket capacity	2.0m ³	2.5m ³	3.0m ³ *
A	Bucket overall height (opened)	4.52	4.37	5.37
B	Bucket overall height (closed)	3.69	3.46	4.36
C	Bucket opening width	3.24	3.65	3.65
D	Bucket clearance	7.4	7.4	7.4

* Light duty service

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Printed in Japan



SUMITOMO LS-238RH₅



LS-238RH₅ CRANE CAPACITIES (WITH CRANE BOOM):

(in metric tons)

Working radius (m)	Boom length (m)																		
	18.30	21.35	24.40	27.45	30.50	33.55	36.60	39.65	42.70	45.75	48.80	51.85	54.90	57.90	60.95	64.00	67.05	70.10	73.15
5.0	100.0																		
5.3	100.0																		
6.0	84.9	79.0	72.2																
7.0	66.4	66.3	66.2	61.9	55.4														
8.0	54.1	53.9	53.8	53.7	50.9	48.0	43.8												
9.0	45.5	45.2	45.1	45.0	44.9	44.8	42.5	38.4	35.1										
10.0	39.1	39.0	38.9	38.7	38.6	38.5	38.4	36.4	34.4	31.3	28.8								
12.0	30.4	30.2	30.1	30.0	30.0	29.9	29.8	29.6	29.5	29.4	27.2	24.8	22.7	20.8					
14.0	24.8	24.7	24.6	24.5	24.3	24.2	24.1	23.9	23.8	23.7	23.5	23.4	21.9	19.8	17.7	16.5	15.7	14.4	
16.0	20.8	20.7	20.6	20.4	20.3	20.2	20.1	20.0	19.9	19.8	19.6	19.5	19.4	19.2	16.9	15.5	14.9	13.6	11.5
18.0		17.7	17.6	17.5	17.5	17.4	17.2	17.0	16.9	16.8	16.6	16.5	16.4	16.2	16.1	14.6	14.1	12.7	10.9
20.0		15.5	15.4	15.3	15.1	15.0	14.9	14.7	14.6	14.5	14.3	14.2	14.1	13.9	13.8	13.7	13.2	12.0	10.3
22.0			13.6	13.5	13.3	13.2	13.1	12.8	12.7	12.6	12.5	12.4	12.3	12.1	12.0	11.9	11.7	11.1	9.7
24.0				12.1	11.9	11.8	11.7	11.5	11.4	11.3	11.1	10.9	10.8	10.6	10.5	10.3	10.2	10.0	9.1
26.0					10.6	10.5	10.4	10.2	10.1	10.0	9.9	9.8	9.6	9.5	9.3	9.0	8.9	8.8	8.5
28.0					9.7	9.5	9.4	9.3	9.1	8.9	8.8	8.6	8.5	8.3	8.2	8.1	7.9	7.8	7.6
30.0						8.6	8.5	8.3	8.2	8.1	7.9	7.8	7.7	7.5	7.5	7.3	7.1	6.9	6.7
32.0							7.7	7.5	7.5	7.4	7.2	7.1	6.9	6.7	6.6	6.5	6.3	6.2	6.0
34.0								6.8	6.8	6.7	6.5	6.4	6.2	6.1	5.9	5.8	5.6	5.5	5.2
36.0								6.2	6.2	6.1	5.9	5.8	5.7	5.5	5.3	5.2	5.0	4.8	4.6
38.0									5.7	5.6	5.4	5.3	5.2	5.0	4.8	4.6	4.4	4.2	4.0
40.0										5.1	4.9	4.8	4.7	4.5	4.3	4.1	3.9	3.7	3.5
42.0											4.4	4.3	4.2	4.0	3.8	3.6	3.4	3.3	3.0
44.0												4.0	3.9	3.7	3.5	3.4	3.2	3.0	2.5
46.0													3.4	3.3	3.1	3.0	2.7	2.5	2.2
48.0														2.9	2.6	2.5	2.3	2.1	1.9
50.0															2.4	2.3	2.2	2.0	1.6
52.0															2.1	2.0	1.8	1.5	1.3
54.0																1.7	1.5	1.4	1.3
56.0																	1.3		

Notes:

- Capacities shown are in metric tons and are based on 75% of minimum tipping loads — over the side — with machine standing level on firm supporting surface under ideal job conditions. Deductions from the lifting crane capacities must be made for weight of hook block.

Kind of hook block (t)	100	50	30	10
Weight of hook block (t)	1.33	0.84	0.64	0.40

- When operating of the main boom peak sheaves with jib on boom the following deductions in machine lifting capacities must be made.

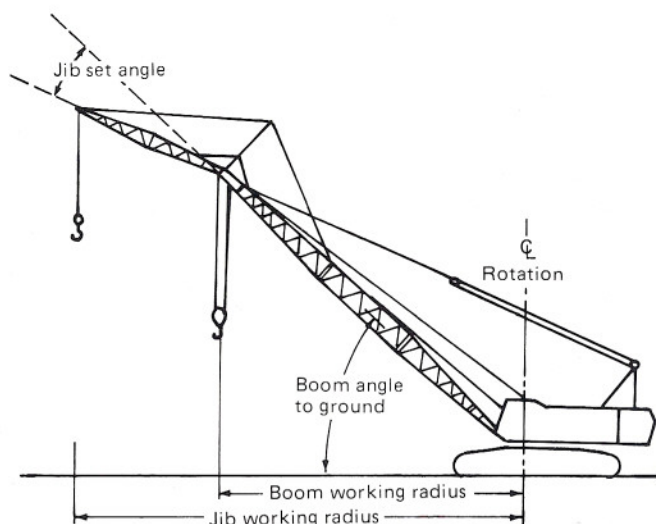
Jib length (m)	12.20	18.30	24.40
Weight to be deducted (t)	2.7	3.1	4.1

- High gantry is required and side frames must be extended for all operating conditions.

LS-238RH₅ JIB CAPACITIES:

(in metric tons)

Jib length (m)	Jib set angle	Max. jib Capacities
12.20	10°	12.0
	30°	8.0
18.30	10°	10.0
	30°	6.0
24.40	10°	6.0
	30°	4.5



Notes:

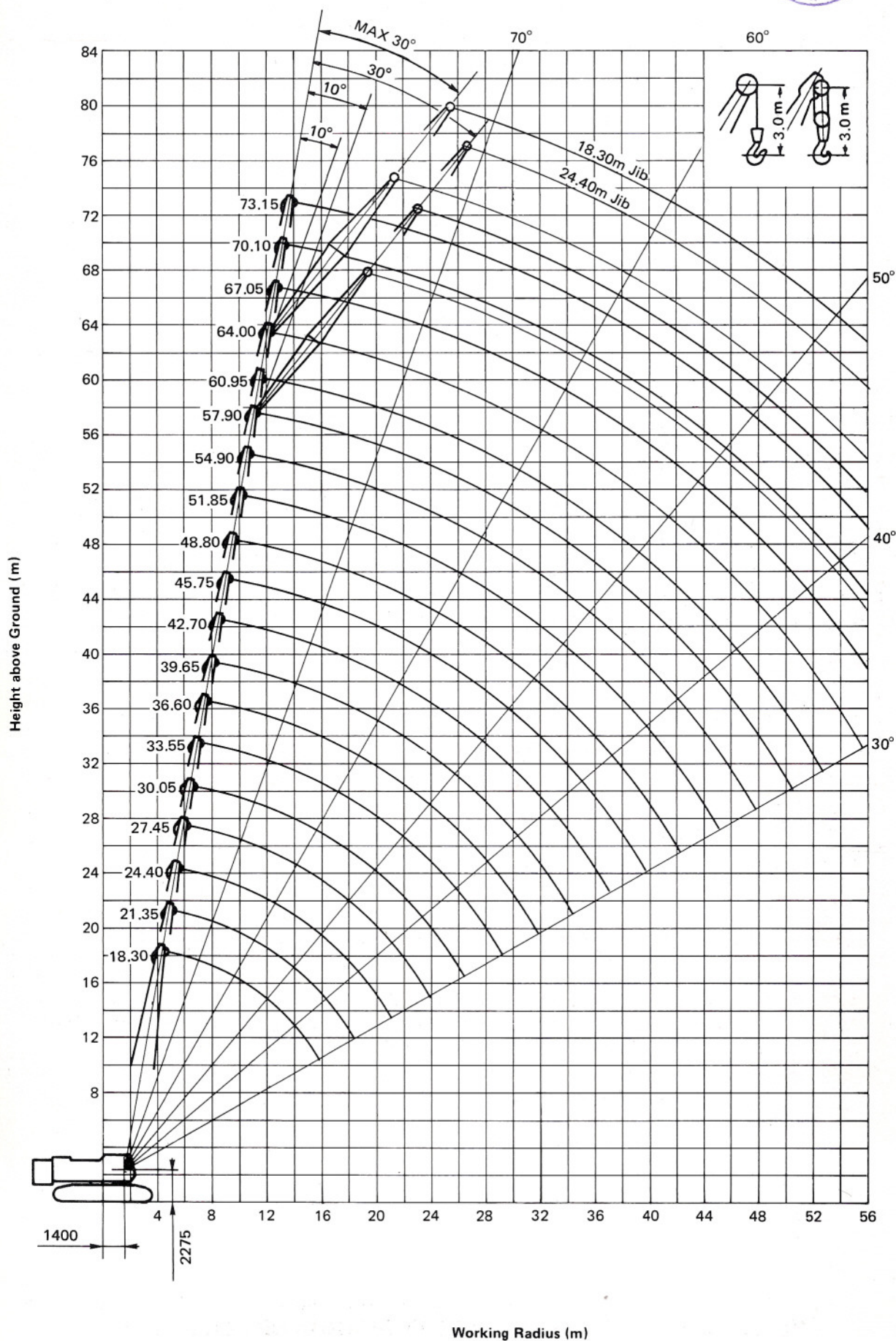
- The jib capacities are equal to the crane lifting capacities of the main boom on which the jib is fixed except that they are restricted by the maximum jib capacities shown left.
- Jib working radius does not exceed the working radius of the main boom which fits the jib.
- Deductions from the jib capacities must be made for weight of jib hook block (0.40 t).
- Available boom length to attach the jib is from 39.65m to 64.00m. The maximum jib length is 24.40m.
- The jib set angle to boom must not exceed 30°.



Crane 100 metric tons



LS-238RH₅ CRANE WORKING RANGES



**SUMITOMO****LS-238RH₅****Crane 100 metric tons****CRANE BOOMS:** Lattice construction; round tubular main chords, alloy hi-ten steel, with bracing of round steel tubing.

Boom connections	In-line pin connections.
Basic boom	Two-piece, 18.30m basic length; 7.62m base, 10.68m top section; 1.85m deep and 1.85 wide at connections.
Boom point machinery	Five head sheaves mounted on antifric-tion bearings.
Boom extensions	Available in 3.05m, 6.10m and 9.15m lengths with pendants. Maximum boom length 73.15m.
Jib	Two-piece; 12.20m basic length with 6.10m long base and top sections, 0.76m deep and 0.91m Wide at connections.
Jib extensions	Available in 6.10m jib extensions. Maxi-mum jib length 24.40m.
Boom plus jib length	57.90m + 24.40m. 64.00m + 18.30m.

HOOK BLOCK:

100t, five sheaves	Standard.
50t, two sheaves	Optional extra.
30t, one sheave	Optional extra.
10t, no sheave	Standard for jib.

GANTRY: Retractable high gantry.**LINE SPEED:**

Drums	Root dia.	Type	Line speed (Hoisting, Lowering)		Cable dia.
			Pump control "OFF" (Ordinary)	Pump control "ON"	
Main hoist (Front)	546mm	Parallel grooved	High 60 m/min Low 30 m/min	High 15 m/min Low 7.5 m/min	26mm
Aux. hoist (Rear)	546mm	Parallel grooved	High 60 m/min Low 30 m/min	High 15 m/min Low 7.5 m/min	26mm
Boom hoist	420mm	Parallel grooved	40 m/min	10 m/min	20mm

HOIST REEVING:

Main hoist										
No pf parts of line	10	9	8	7	6	5	4	3	2	1
Max. load (t)	100.0	90.9	81.6	72.1	62.4	52.5	42.4	32.1	21.6	10.9

WORKING WEIGHT AND GROUND PRESSURE:

Shoe width	Weight	Pressure
965mm	101.2t	0.74 kg/cm ²
1,118mm (Opt)	106t	0.77 kg/cm ²

With basic boom and counterweight.

COUNTERWEIGHT: A (5.6t), B (4.6t), C (5.6t), D (9.3t), E (7.5t), F (0.8t), G (0.8t)
Total . . . 34.2 t**SAFETY DEVICE:** Hook over hoist limiting device, boom over hoist limiting device, boom angle indicator, boom back stop, drum pawl lock for main, aux. and boom hoist drum, safety valve in hydraulic circuit, swing lock, swing alarm, load moment limiter (optional extra).**GRADEABILITY:** 30% (17°)
with basic boom and counterweight.

We are constantly improving our products and therefore reserve the right to change designs and specifications.

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