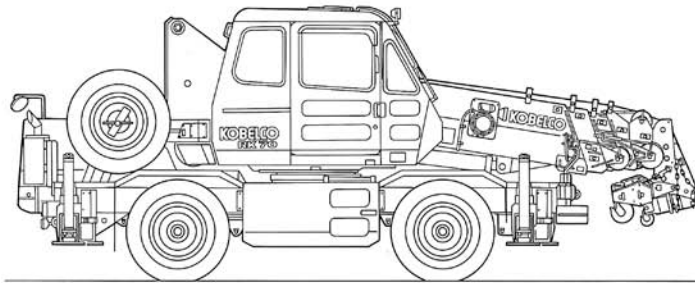


MINI ROUGH TERRAIN CRANE

RK70



SPECIFICATIONS

Max. Lifting capacity: 7.0 metric tons x 2.5 meters
Max. Boom Length: 21.2 meters

KOBELCO
◆ KOBELCO STEEL, LTD.

Specifications

UPPER STRUCTURE



SWING UNIT

A hydraulic piston motor drives the swing pinion through a deck-mounted planetary gear reducer for 360° continuous rotation.

Hydraulic flow into the swing motor is controlled by a manual valve in the swing circuit.

SWING PARKING BRAKE

Spring applied hydraulically released disc brake built in swing motor

SWING GEAR

Outernal spur gear

SLEWING RING

Integral with the swing gear, with a single row of ball bearings



WINCH

Mounted on the boom base section, Power hoisting and lowering with inching capability, and free fall. Hydraulic motor drive, spur gear reduction, and counterbalance valve. Main and auxiliary drums located side by side.

CLUTCHES

Internal-expanding, hydraulic shoe type.

BRAKES

Band type, with positive and negative brake modes.

DRUMS

180mm P.C.D., with 330mm diameter flanges. Width: 216.3mm (main) and 121.3 mm (auxiliary).

HOIST CABLES

IWRC6xFi (22+7) c/o spin-resist cable. Diameter: 10mm. Length: 115m (main) and 50m (auxiliary).

BOOM HOIST

Double-acting hydraulic cylinder with holding valve, inching device.



BOOM TELESCOPE

Full power telescoping by two hydraulic cylinders with holding valves and telescoping assistance cables for the boom extension of 3rd and 5th tip section.

CONTROLS

Five adjustable hand control levers for swing, telescope, main winch, auxiliary winch, and boom hoist (with pedal). These can be tilted in variable angle for neutral positions and stored in their bases when not in use. Other controls include: two short levers for main and auxiliary winch clutches and selection of free fall; one switch for swing parking brake; one lever for telescope change over; one lever for transmission gear selection; two pedals for main and auxiliary winch drum brakes; one pedal for engine throttle control; and one travel brake pedal. Optional joy-stick type levers are available.



OPERATOR'S CAB

All-weather; wide-view cab with safety glass, sliding door; roll-down window, and sliding roof window with wiper. Adjustable driver's seat with seat belt.

SAFETY DEVICES (Standard)

Overhoist shut-off, relief valves in hydraulic circuits, holding valves for boom hoist and telescope cylinders, counterbalance valve for winch motor, Check and Safety Monitor, overload warning device (automatic shut-off), safety lock lever stand, boom rest, lock valves for vertical cylinders on outriggers, rear steer auto-lock, about-face steering compensator valve, axle lock-up valve (optional for X-type outrigger carrier), and swing flasher lamps, Programmable Operating Zone System, Automatic Outrigger Extension sensor, and Excess Swing Alert.

HYDRAULIC SYSTEM



PUMPS

One vane pump and three-tandem gear pump deliver power to the upper structure and outriggers. The first gear pump displacement is 95 liters/min. for outriggers and hook hoist. The second gear pump displacement is 95 liters/min. for steering, boom hoisting, boom telescoping, and hook hoist. The third gear pump displacement is 65 liters/min. for swing and cab cooler. The one vane pump is 10 liters/min. for pilot control circuit.

MOTORS

Two piston motors power the main and auxiliary winches and the swing, respectively.

CONTROL VALVES

Upper

One 4-stack set for the winch, boom telescope, swing, and boom hoist; one 4-stack set for the clutch and brake; one 1-stack set for the swing.

Lower

One spool and four-solenoid valves for the outriggers; one spool valve for steering.

OIL RESERVOIR

Capacity 149 liters



EQUIPMENT (Standard)

Radio, windshield wiper/washer, cigarette lighter, ashtray, sun visor, floor mat, engine tachometer, hourmeter, paper-element air cleaner, four working lights, horn, outrigger sight level bubble, automatic hook holder, cab heater/defroster, and cabcooler.

EQUIPMENT (Optional)

Oil cooler for hydraulic system. Optional two tandem drums powered independently are available for simultaneous operation of main and auxiliary winches.

CARRIER

TYPE

4-wheel drive (4x4), with 2-wheel (4x2) drive select for high speed mode.

FRAME

Welded box structure.



OUTRIGGERS

KOBELCO hydraulic H- or X-type outriggers. Eight double-acting hydraulic cylinders provide independent horizontal and vertical movement for each outrigger. Outriggers can be set from inside the cab or at the side of the carrier.



POWER PLANT

ISUZU 4BD1 turbocharged, water-cooled diesel engine with 4 cycles, 4 cylinders, and direct injection.

Max. output (DIN) 140 PS at 3,000 rpm
 Max. torque (DIN) 34kg·m at 1,900 rpm
 Displacement 3,856cc

ELECTRICAL SYSTEM

24-volt DC system with two 12-volt, 65 Ah batteries

FUEL TANK

Capacity 190 liters

TORQUE CONVERTER

Single-stage, torque converter with automatically controlled lock-up clutch.

TRANSMISSION

10-speed with high-low range. The transmission shifts to automatic drive in D range.

Gear ratios (forward and reverse):

Lower mode: 1st-4.602; 2nd-2.357; 3rd-1.5;
 Over Drive-1.086; R-3.938

High mode: 1st-3.068; 2nd-1.571; 3rd-1.00;
 Over Drive-0.724; R-2.625

BRAKES

Service: Vacuum-servo hydraulic disc brakes on all wheels; single caliper on front and rear wheels.

Parking: Spring-applied, hydraulically-released shoe brake on the out-put shaft of the transfer. Complementary disc brake actuator on all wheels can be also applied.



STEERING

"Orbitrol" hydraulic steering system. Four steering modes are provided: normal, cramp, crab, and rear. Adjustable steering wheel.

About-Face Steering Compensator

An about-face steering compensator makes it possible to travel in reverse with the same handling characteristics as forward travel. The compensator is activated by a reverse steer switch on the front panel.

SUSPENSION

Front and rear axles are fitted with leaf springs with shock absorbers.

FRONT/REAR AXLES

Fully floating drive-steer type axles.

AXLE LOADINGS

H type (X type)

Tire	BIAS (with tubes) 10.00-20-14PR RADIAL (with tube) 10.00R20-14PR	RADIAL (tubeless) 275/80R22.5	WIDE RADIAL 13/80R20
Gross-Vehicle Weight	11,535 (11,735)	11,485 (11,685)	11,635 (11,845)
Front	5,740 (5,835)	5,715 (5,815)	5,790 (5,890)
Rear	5,795 (5,900)	5,770 (5,870)	5,845 (5,955)

FINAL REDUCTION

Differential; 4.11:1

Transfer; 3.412:1 (High)

5.123:1 (Low)

TIRES

Bias with tube 10.00-20-14PR

Radial with tube 10.00 R20-14PR

Tubeless radial 275/80-R22.5

Wide radial 13/80-R20

LIGHTS

Headlights, license plate light, clearance light, directional lights, parking lights, and back light.

ATTACHMENTS

BOOM

Boom consists of a boom base and five power telescoping sections. The first, second and third sections are paired and extent simultaneously, as do the fourth, fifth and sixth sections. All-welded, high tensile strength steel box construction.

Fully retracted length 5.1m

Fully extended length 21.2m

AUXILIARY SHEAVE

The auxiliary sheave permits one-part line operation.



HOOK BLOCKS

3-sheave, 7 metric ton block with safety latch.

1.4 metric ton hook with swivel and safety latch.

PERFORMANCE

Max. rated lifting capacity: 7.0 metric ton x 2.5m

Boom length: 5.1 to 21.2m

Boom derricking angle: -8.8 to 80.5°

Boom derricking time: 28.5 sec

Boom telescoping time: 49.5 sec (5.1 to 21.2m)

Main hoist line speed (5th 111m/min layer)

Aux. hoist line speed (4th 104m/min layer)

Swing speed: 2.5rpm

Max. travel speed: 49km/h

Gradeability: tanθ 0.62

Lifting Capacities

NOTES FOR LIFTING CAPACITIES

GENERAL NOTES

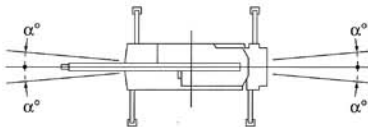
- Lifting capacities listed apply only to the machine as originally manufactured and designed by KOBEL STEEL, LTD. modifications to this machine or use of equipment other than that specified can reduce operating capacity.
- Construction equipment can be dangerous if improperly operated or maintained. Operation and maintenance of this machine must be in compliance with the information in the operation, safety and maintenance manual supplied with machine. If this manual is missing, order replacement.

OPERATION WITH OUTRIGGERS

- For outrigger operation, outriggers shall be fully extended with tires free of supporting surface before operating crane.
- Total rated loads shown on the chart are the maximum allowable crane capacities and are based on the machine standing level on firm supporting surface under ideal job conditions. Depending on the nature of the supporting surface, it may be necessary to have structural supports under the outrigger floats to spread the load to larger bearing surface.
- Capacities do not exceed 78% of the tipping loads. Capacity factors other than machine stability such as structural competence are shown by bold lines.
- Weight of hooks, hook blocks, slings and other lifting devices are a part of the total load. Their total weight must be subtracted load to obtain the weight that can be lifted.
7.0-ton hook block weight 76kg
1.4-ton hook block weight 25kg
- The working radius given in the charts allow for loaded boom deflection. Always operate the machine on the basis of actual operating radius.
- Total rated loads are based on freely suspended load and mark no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, side loads, etc. Side pull on boom or jib is extremely dangerous.
- Maximum outrigger extension is 4.4m. Two intermediate extension positions are also provided at 3.6m and 2.7m. Minimum outrigger extension is 1.65m.
Over-the-side ratings depend on outrigger extension. Values for each outrigger position are given separately and must be followed accordingly during operation. Load rating over the front and rear assume fully extended outrigger position.

Over-the-front area

Over-the-rear area



Outriggers	3.6m extension	2.7m extension	1.65m extension
α° (FRONT)	28	20	5
α° (REAR)	28	20	5

- Ratings of the auxiliary sheave are the same as main boom ratings, but should not exceed 1,400kg. Ratings of the auxiliary sheave are calculated by deducting 1.4-ton hook weight (70kg) from main boom ratings.
- To determine load ratings that fall between those shown in the charts, proceed as follows:
 - For boom lengths not listed use rating for next longer boom length or next shorter boom length, whichever is smaller.
 - For load radii not shown, use rating for next larger radius.

- To attempt to lift loads in the area other than those listed in the rated load charts, the machine may tip or collapse.
- Standard hoist reevings are shown below. Rated single-line pull must not exceed 1,400kg.

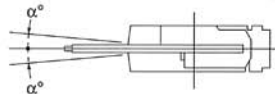
Boom length	5.1m	8.4m	11.6m	16.4m	21.2m	Aux. sheave
Hook	7-ton	7-ton	7-ton	7-ton	7-ton	1.4-ton
Parts of line	6	4	4	4	4	1

- Free fall should in principle be done with no load on a hook. When a load must unavoidably be applied, load allowance for free fall operations are restricted to one-fifth of rated loads at the given load radius.
Never brake suddenly during free fall, or machine may tip.

OPERATION WITHOUT OUTRIGGERS (ON TIRES)

- Suspension lock-up cylinder is available for X-type outrigger carrier as option.
Do not attempt to lift loads other than over the front area with H-type outrigger carrier with which suspension lock-up is not available.
- Load ratings are the allowable maximum lifting capacities for a firm and level surface, with tires filled to prescribed pressure; Bias (6.75kg/cm²), Radial (7.25kg/cm²), Tubeless Radial (8.25kg/cm²) and wide Radial (6.00kg/cm²). Damaged tires are hazardous to safe operation of crane. Ratings include hook block and all other load handling accessories.
Values in the bold line are based on the machine's hydraulic or structural limitations; all others are based on stability.
7-ton hook block weight 76kg
1.4-ton hook block weight 25kg
- The working radius given in the charts allow for loaded boom deflection. Always operate the machine on the basis of actual operating radius.
- Load ratings differ for over-the-front and 360° operation. Care must be taken to avoid overload when swinging a load from an over-the-front position to a over-the-side position.

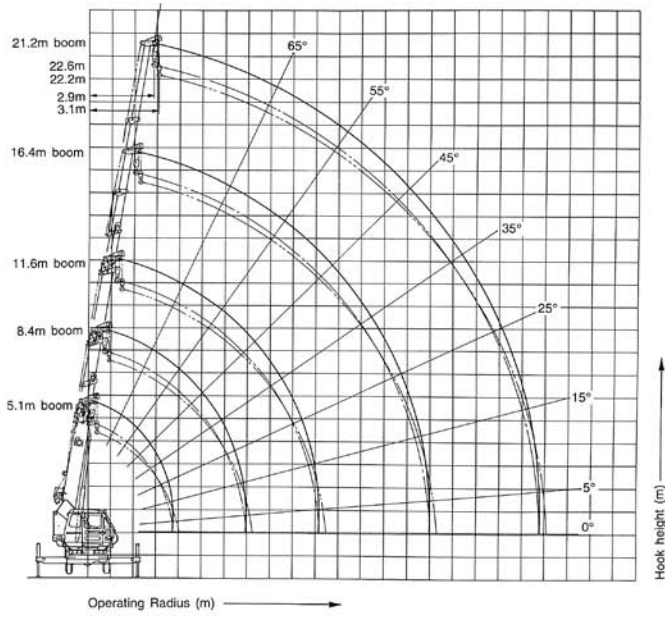
Over-the-front area



On tires	Stationary	Pick & carry
α° (FRONT)	1°	1°

- Ratings of the auxiliary sheave are the same as main boom ratings, but should not exceed 1,400kg. Ratings of the auxiliary sheave are calculated by deducting 1.4-ton hook weight (70kg) from main boom ratings.
- Do not use free fall.
- Parking brake and auxiliary operation brake must be applied during stationary load lifting.
- Pick and carry operations must be done in the low travel mode.
- During pick and carry operations, keep the load close to the ground to avoid swaying, and travel no faster than 2.0km/h. Avoid cornering, sudden starts (acceleration), and sudden braking. Boom must be centered over the front area.
- Do not operate the crane functions while carrying the load.
- Single-line load must not exceed 1,400kg.

Working Ranges



With outrigger in 4.4m position — 360° working area

(METRICTON)

Operating radius in meters	Boom length in meters				
	5.1	8.4	11.6	16.4	21.2
1.0	7.00	4.90			
1.5	7.00	4.90	4.90		
2.0	7.00	4.90	4.90		
2.5	7.00	4.90	4.90	3.90	
3.0	6.10	4.90	4.90	3.90	2.00
3.5	5.30	4.90	4.90	3.90	2.00
4.0	4.90 (3.7m)	4.50	4.50	3.60	2.00
4.5		3.85	3.87	3.30	2.00
5.0		3.33	3.37	3.05	2.00
5.5		2.95	2.97	2.82	1.85
6.0		2.62	2.65	2.56	1.70
7.0		2.15 (6.9m)	2.14	2.15	1.50
8.0			1.70	1.84	1.40
9.0			1.40	1.60	1.23
10.0			1.20	1.40	1.09
11.0			1.16 (10.2m)	1.20	0.98
12.0				1.02	0.89
13.0				0.85	0.82
14.0				0.69	0.75
15.0				0.55	0.69
16.0					0.59
17.0					0.51
18.0					0.43
19.0					0.36
20.0					0.35 (19.8m)
21.0					
Min. angle	—	—	—	—	—

With outrigger in 3.6m position — over the side

(METRICTON)

Operating radius in meters	Boom length in meters				
	5.1	8.4	11.6	16.4	21.2
1.0	7.00	4.90			
1.5	7.00	4.90	4.90		
2.0	7.00	4.90	4.90		
2.5	7.00	4.90	4.90	3.90	
3.0	6.10	4.90	4.90	3.90	2.00
3.5	5.30	4.90	4.90	3.90	2.00
4.0	4.90 (3.7m)	4.50	4.50	3.60	2.00
4.5		3.85	3.87	3.30	2.00
5.0		3.33	3.37	3.05	2.00
5.5		2.85	2.97	2.82	1.85
6.0		2.46	2.52	2.56	1.70
7.0		1.89 (6.9m)	1.87	2.03	1.50
8.0			1.40	1.57	1.33
9.0			1.02	1.22	1.18
10.0			0.78	0.96	1.04
11.0			0.76 (10.2m)	0.75	0.91
12.0				0.57	0.78
13.0				0.44	0.65
14.0				0.34	0.53
15.0				0.27	0.42
16.0					0.33
17.0					0.26
18.0					0.19
19.0					0.13
20.0					
21.0					
Min. angle	—	—	—	—	17°

With outrigger in 2.7m position — over the side

(METRICTON)

Operating radius in meters	Boom length in meters				
	5.1	8.4	11.6	16.4	21.2
1.0	7.00	4.90			
1.5	7.00	4.90	4.90		
2.0	7.00	4.90	4.90		
2.5	7.00	4.90	4.90	3.90	
3.0	6.10	4.90	4.10	3.90	2.00
3.5	4.40	4.07	3.60	3.90	2.00
4.0	4.20 (3.7m)	3.26	2.98	3.60	2.00
4.5		2.63	2.40	2.90	2.00
5.0		2.10	1.98	2.43	2.00
5.5		1.71	1.64	2.05	1.85
6.0		1.40	1.36	1.76	1.70
7.0		1.07 (6.9m)	1.00	1.31	1.30
8.0			0.66	0.96	0.97
9.0			0.41	0.70	0.76
10.0			0.23	0.50	0.60
11.0			0.21 (10.2m)	0.34	0.47
12.0				0.21	0.35
13.0					0.26
14.0					0.17
15.0					
16.0					
17.0					
18.0					
19.0					
20.0					
21.0					
Min. angle	—	—	—	37°	45°

With outrigger in 1.65m position — over the side (H-type outrigger only)

(METRICTON)

Operating radius in meters	Boom length in meters				
	5.1	8.4	11.6	16.4	21.2
1.0	7.00	4.90			
1.5	7.00	4.90	4.90		
2.0	5.40	4.90	4.90		
2.5	3.54	3.27	3.25	2.10	
3.0	2.60	2.40	2.35	2.10	1.40
3.5	2.01	1.81	1.80	2.10	1.40
4.0	1.81 (3.7m)	1.38	1.35	1.67	1.40
4.5		1.10	1.05	1.35	1.40
5.0		0.87	0.85	1.08	1.22
5.5		0.67	0.63	0.85	1.03
6.0		0.49	0.45	0.67	0.85
7.0		0.23 (6.9m)	0.18	0.40	0.56
8.0				0.20	0.36
9.0					0.20
10.0					0.10
Min. angle	—	—	47°	57°	59°

**ON TIRE 1 (only over the front)
NO SUSPENSION lock-up**

Operating radius in meters	Boom length in meters
	5.1m – 8.4m
5.0	1.00 TON

**ON TIRE 2 — optional lock-up suspension engaged
(For X-type outrigger only)**

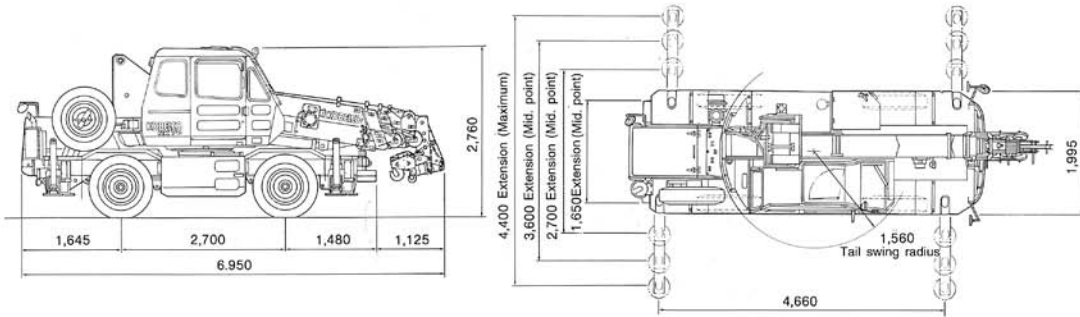
(METRICTON)

Operating radius in meters	360° Swing radius			Over the front		
	Boom length in meters					
	5.1	8.4	11.6	5.1	8.4	11.6
1.0	1.70	1.70		3.20	3.20	
1.5	1.70	1.70	1.70	3.20	3.20	3.20
2.0	1.37	1.32	1.32	3.00	3.00	3.00
2.5	0.92	0.86	0.86	2.60	2.54	2.53
3.0	0.61	0.55	0.54	2.15	2.09	2.09
3.5	0.39	0.30	0.26	1.80	1.73	1.73
4.0	0.32 (3.7m)	0.18	0.12	1.69 (3.7m)	1.44	1.44
4.5		0.12			1.20	1.20
5.0					1.00	1.00
5.5					0.82	0.81
6.0					0.67	0.66
7.0						0.42
8.0						0.25

Dimensions

RK70

Unit: mm



Exit Width

Unit: mm

Carrier		
<p>4-Drive Steering</p> <p>to the left to the right</p> <p>3,263 3,260</p> <p>3,263 3,260</p>	<p>2-Drive Steering</p> <p>to the left to the right</p> <p>3,939 3,944</p> <p>3,939 3,944</p>	<p>2-Drive Steering (Rear)</p> <p>to the left to the right</p> <p>3,970 3,965</p> <p>3,970 3,965</p>
Carrier with Boom		
<p>4-Drive Steering</p> <p>to the left to the right</p> <p>3,413 3,471</p> <p>3,413 3,471</p>	<p>2-Drive Steering</p> <p>to the left to the right</p> <p>3,972 4,053</p> <p>3,972 4,053</p>	<p>2-Drive Steering (Rear)</p> <p>to the left to the right</p> <p>3,970 3,965</p> <p>3,970 3,965</p>

Note: RK70 can be driven with no boom overhang.

Note: Due to our policy of continual product improvement, all designs and specifications are subject to change without advance notice.

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