

**KOBELCO**

# **ROUGH TERRAIN CRANE**

# **RK250-II**



Max. lifting capacity: 25 metric tons  $\times$  3.5 meters

Max. total length (boom + jib): 42.04 meters

## **SPECIFICATIONS**

# 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. The brake valve allows the operator to select free or automatic braking when the swing control lever is set in neutral.

### SWING PARKING BRAKE

Manual disc brake.

### SWING GEAR

Internal spur gear.

### SLEWING RING

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



### WINCHES

Mounted side by side. Power raising and lowering with inching capability, and free fall. Hydraulic motor drive, spur gear reduction, and automatic fail-safe brake.

### CLUTCHES

Internal-expanding, hydraulic shoe type.

### BRAKES

Band type, with positive and negative brake modes.

### DRUMS

320 mm P.C.D., with 538 mm diameter flanges. Width: 447.3 mm (main) and 227.9 mm (auxiliary).

### HOIST CABLES

IWRC6 × Fi (22 + 7) c/o spin-resist cable. Diameter: 16 mm. Length: 170 m (main) and 90 m (auxiliary).

U4 × Ses (39) non-spin cable optionally available.

### BOOM HOIST

Double-acting hydraulic cylinder with holding valve, inching device and boom angle indicator mounted on the base boom section.



### BOOM TELESCOPE

Full power telescoping by two hydraulic cylinders with holding valves and telescoping assistance cables for the boom 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 three neutral positions and stored in their bases when not in use. Other controls include: two short levers for main and auxiliary winch clutches and negative brake ON-OFF; one short lever for swing parking brake; one lever for telescope change over; one lever for transmission gear selection; swing lock pin; winch drum lock knobs; two pedals for main and auxiliary winch drum brakes; one pedal for engine throttle control; and one travel brake pedal.



### 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. Optional auxiliary seat behind driver's seat is available.

### SAFETY DEVICES (Standard)

Overhoist alarm buzzer, 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), winch drum locks, swing brake lock pin, lock valves for vertical cylinders on outriggers, emergency steering system, about-face steering compensator valve, axle lock-up valve, and swing indicator lamps.

## HYDRAULIC SYSTEM



### PUMPS

Three gear pumps and a single variable plunger pump deliver power to the upper structure and outriggers. The first and second pumps (gear and plunger, respectively) are paired and driven by power take-off. The third and fourth pumps (both gear) are paired and directly driven. The first pump actuates the winch system; the second pump actuates the outriggers, boom hoist, boom telescope, axle-lock cylinder, and winch assist. The third pump actuates the steering, swing, and suspension systems. The fourth pump actuates the pilot circuits for the clutches and negative brake cylinders, steering assist, the optional cab air conditioner, and the optional third drum.

### MOTORS

Three plunger motors power the main hoist, the auxiliary hoist, and the swing, respectively.

### CONTROL VALVES

#### Upper

One 5-stack set for the winch, boom telescope, and boom hoist; one 2-stack set for the clutch and brake; one 1-stack set for the swing.

#### Lower

Six solenoid valves for the outriggers and axle lock; one 3-stack set for steering.

### OIL RESERVOIR

Capacity ..... 395 liters



### EQUIPMENT (Standard)

Radio, windshield wiper/washer, cigarette lighter, ashtray, sun visor, floor mat, engine tachometer, engine hourmeter, tachograph, engine over running alarm, air supply valve, paper-element air cleaner, two working lights, horn, outrigger sight level bubble, load centering button on winch lever (braked swing mode only), towing hooks (one front, two rear).

### EQUIPMENT (Optional)

Cab heater/defroster, air conditioner, oil cooler for hydraulic system and ladder for jib mounting.

## CARRIER

### TYPE

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

### FRAME

Welded box structure of high tensile strength steel.



### 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. The X-type outriggers feature self-storing floats.



### POWER PLANT

Mitsubishi 6D16T turbocharged, water-cooled diesel engine with 4 cycles, 6 cylinders, and direct injection.

Max. output (JIS) ..... 215 PS at 2,800 rpm

Max. torque (JIS) ..... 64 kg·m at 1,600 rpm

### ELECTRICAL SYSTEM

24-volt DC system with two 12-volt, 120 Ah batteries

### FUEL TANK

Capacity ..... 300 liters

### TORQUE CONVERTER

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

### TRANSMISSION

8-speed power shift with high-low range. The transmission shifts to automatic drive when the D range is engaged in the high mode.

Gear ratios (forward and reverse):

Low mode: 1st—2.08; 2nd—1.36; D—0.73; R—2.08

High mode: 1st—5.73; 2nd—3.73; D—2.00; R—5.73

### BRAKES

Service: Air-over hydraulic disc brakes on all wheels; dual caliper on front wheels and single caliper on rear wheels.

Parking: Spring-applied, air-released shoe brake on the output shaft of the transmission.



### STEERING

“Orbitrol” hydraulic steering with emergency 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 in all but the crab mode. The compensator is activated by a reverse steer switch on the front panel.

### SUSPENSION

Front and rear axles are fitted with leaf springs with axle lock-up cylinders that act as shock absorbers.

### FRONT/REAR AXLES

Fully floating drive-steer type axles. Standard non-spin differential on rear axle.

### AXLE LOADINGS

Gross vehicle weight: 26,290 kg; (26,400 kg with operators)

Front: 13,130 kg; (13,200 kg with operators)

Rear: 13,160 kg; (13,200 kg with operators)

### FINAL REDUCTION

2-stage reduction with a ratio of 15:39.

### TIRES

Front/Rear: 16.00-25-28PR(OR)

### LIGHTS

Halogen headlights, license plate light, clearance light, directional lights, parking lights, and back lights.

## ATTACHMENTS

### BOOM

Boom consists of a boom base and three power telescoping sections. The first section telescopes independently and the remaining two sections are paired and extend simultaneously. All-welded, high tensile strength steel box construction.

Fully retracted length ..... 9.54 m

Fully extended length ..... 30.54 m

### JIB (OPTIONAL)

Two-section, side-stored, high tensile strength steel jib with truss construction. Jib swings down under the boom and is fitted to the boom using the auxiliary cable. Adjustable tension members for 5°, 25°, and 45° offsets.

Length ..... 7.5 and 11.5 m

### AUXILIARY SHEAVE (OPTIONAL)

The pin-released auxiliary sheave permits one-part line operation. It must be mounted if a jib is ordered.



### HOOK BLOCKS

Four-sheave, 25 metric ton block with swivel and safety latch.

3 metric ton weighted hook with swivel and safety latch (optional).

## PERFORMANCE

Max. rated lifting capacity: 25.0 metric ton × 3.5 m

Boom length: 9.54 to 30.54 m

Twist jib length: 7.5/11.5 m

Boom derricking angle: 0 to 82°

Boom derricking time: 51.7 sec

Boom telescoping time: 91.8 sec (9.54 to 30.54 m)

Main hoist line speed (4th layer) High: 124 m/min

Low: 60 m/min

Aux. hoist hook speed (2nd layer) High: 107 m/min

Low: 52 m/min

Swing speed: 3.3 rpm

Max. travel speed: 50 km/h

Gradeability: tanθ 0.6

# Lifting Capacities

## Main Boom Lifting Capacities with Outriggers

Operating radius in meters	With outriggers fully extended—360° working area				With outriggers in 5.1 m position—over the side				With outriggers in 3.8 m position—over the side				* With outriggers in 2.21 m position—over the side				Operating radius in meters
	Boom length in meters				Boom length in meters				Boom length in meters				Boom length in meters				
	9.54	16.54	23.54	30.5	9.54	16.54	23.54	30.5	9.54	16.54	23.54	30.5	9.54	16.54	23.54	30.5	
2.5	25,000	18,000			25,000	18,000			25,000				11,730	11,540			2.5
3.0	25,000	18,000			25,000	18,000			25,000				11,730	11,540			3.0
3.5	25,000	18,000	11,500		25,000	18,000	11,500		19,230	18,000	11,500		9,130	8,890	9,620		3.5
4.0	23,000	18,000	11,500		23,000	18,000	11,500		15,100	15,000	11,500		7,400	6,970	7,600		4.0
4.5	21,200	18,000	11,500		21,200	18,000	11,500		12,120	12,120	11,500		6,060	5,670	6,250		4.5
5.0	19,400	16,700	11,500	7,000	17,400	16,000	11,500	7,000	10,190	9,900	9,860	7,000	5,050	4,660	5,240	5,380	5.0
5.5	17,800	15,500	11,500	7,000	14,760	14,600	11,500	7,000	8,700	8,370	8,650	7,000	4,280	3,890	4,420	4,620	5.5
6.0	16,300	14,400	10,850	7,000	12,400	11,920	10,600	7,000	7,400	7,210	7,500	7,000	3,650	3,320	3,800	4,040	6.0
6.5	15,100	13,400	10,250	7,000	10,670	10,380	9,900	7,000	6,350	6,250	6,590	6,730	3,170	2,790	3,270	3,510	6.5
7.0	14,000	12,500	9,700	7,000		9,040	9,150	7,000		5,380	5,870	6,150		2,400	2,840	3,080	7.0
7.5		11,700	9,150	7,000		7,880	8,500	7,000		4,710	5,290	5,530		2,020	2,450	2,690	7.5
8.0		10,460	8,700	6,700		7,020	7,800	6,700		4,230	4,710	4,950		1,730	2,160	2,400	8.0
9.0		8,320	7,700	6,150		5,620	6,200	6,050		3,370	3,800	4,040		1,150	1,680	1,920	9.0
10.0		6,780	6,900	5,600		4,570	5,140	5,450		2,690	3,120	3,370		720	1,300	1,490	10.0
11.0		5,620	6,000	5,150		3,750	4,330	4,570		2,160	2,600	2,840			910	1,150	11.0
12.0		4,760	5,240	4,700		3,170	3,650	3,940		1,730	2,160	2,400				870	12.0
13.0		4,040	4,520	4,300		2,640	3,120	3,370		1,350	1,830	2,070					13.0
13.5		3,750	4,230	4,150		2,400	2,880	3,120		1,150	1,680	1,920					13.5
14.0		3,510	3,940	4,000		2,210	2,690	2,930			1,540	1,780					14.0
15.0			3,460	3,700			2,360	2,550			1,300	1,490					15.0
16.0			3,030	3,320			2,020	2,260			1,060	1,300					16.0
17.0			2,690	2,930			1,730	1,970			910	1,110					17.0
18.0			2,360	2,600			1,490	1,730			720	960					18.0
19.0			2,070	2,360			1,300	1,490			580	820					19.0
20.0			1,830	2,120			1,110	1,350				670					20.0
21.0			1,630	1,870				1,150									21.0
22.0				1,680				1,010									22.0
24.0				1,350				720									24.0
26.0				1,110				480									26.0
28.0				910													28.0
Min. angle	—	—	—	—	—	—	—	22°	—	—	26°	44°	—	43°	56°	63°	Min. angle

## Main Boom Lifting Capacities without Outriggers

Operating radius in meters	Stationary						Pick & Carry (under 2 km/h)						Operating radius in meters
	360° working area			Over the front			360° working area			Over the front			
	Boom length in meters			Boom length in meters			Boom length in meters			Boom length in meters			
	9.54	16.54	23.54	9.54	16.54	23.54	9.54	16.54	23.54	9.54	16.54	23.54	
3.0	9,000	7,300		14,000	9,000		7,000	5,100		10,500	7,500		3.0
3.5	7,600	7,300	4,500	14,000	9,000	6,500	6,200	5,100	3,200	10,500	7,500	5,500	3.5
4.0	6,300	5,620	4,500	12,500	9,000	6,500	5,100	4,900	3,200	9,500	7,500	5,500	4.0
4.5	5,000	4,570	4,500	10,900	9,000	6,500	4,230	3,800	3,200	8,700	7,500	5,500	4.5
5.0	4,130	3,850	4,300	9,130	8,200	6,050	3,460	3,120	3,200	7,310	7,000	5,500	5.0
5.5	3,460	3,170	3,560	7,880	7,020	6,050	2,880	2,600	3,100	6,250	5,870	5,150	5.5
6.0	2,880	2,690	3,080	6,730	6,200	5,650	2,400	2,210	2,600	5,290	5,140	4,800	6.0
6.5	2,400	2,260	2,640	5,870	5,580	5,050	2,020	1,830	2,210	4,620	4,520	4,450	6.5
7.0		1,870	2,310		5,000	4,660		1,540	1,920		3,940	4,150	7.0
8.0		1,350	1,730		3,940	3,940		1,060	1,440		3,080	3,500	8.0
9.0		910	1,350		3,080	3,370		670	1,060		2,400	2,740	9.0
10.0		580	1,010		2,450	2,840			720		1,920	2,260	10.0
11.0			720		1,970	2,360			530		1,540	1,870	11.0
12.0					1,590	1,970					1,250	1,540	12.0
13.0					1,200	1,630					960	1,300	13.0
13.5					1,060	1,490					820	1,150	13.5
14.0						1,350						1,060	14.0
15.0						1,110						870	15.0
16.0						910						720	16.0
17.0						720						580	17.0
18.0						580							18.0
Min. angle	—	43°	56°	—	18°	31°	—	48°	56°	—	18°	36°	Min. angle



# Lifting Capacities

## NOTES:

(With outriggers)

1. Load ratings are the approved lifting capacities on a firm, level surface, and include the weight of the hook block and all other handling accessories.

The ratings do not exceed 75% of the tipping load.

Values in the shaded areas are based on the machine's hydraulic or structural limitations; all others are based on stability.

25-ton hook block weight ..... 210 kg

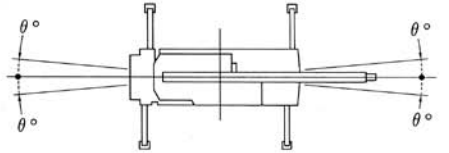
3-ton hook block weight ..... 70 kg

2. The working radii given in the charts allow for loaded boom deflection. Always operate the machine on the basis of actual operating radius.
3. Jib operation must be based on the main boom angle only.
4. Maximum outrigger extension is 6.3 m. Two intermediate extension positions are also provided at 5.1 m and 3.8 m. A minimum extension of 2.21 m is provided with the H-type outriggers only.
5. Over-the-side ratings depend on outrigger extension.

Values for each outrigger position are given separately and must be followed accordingly during operation.

Load ratings over the front and rear assume fully extended outriggers.

Over-the-front area



Outriggers	5.1 m extension	3.8 m extension	2.21 m* extension
$\theta$ (FRONT)	25°	15°	5°
$\theta$ (REAR)	25°	15°	5°

\*For H-type only

6. Ratings with the auxiliary sheave are the same as main boom ratings (less 25-ton hook weight: 210 kg), but should not exceed 3,000 kg.
7. To determine load ratings that fall between those shown in the charts, proceed as follows:
  - a) For boom lengths not shown, use rating for next longer boom length shown.
  - b) For load radii not shown, use rating for next larger radius shown.
8. When operating the boom with the jib extended, deduct the jib weight from the main boom ratings as follows:
  - 7.5 m jib ..... 1,450 kg
  - 11.5 m jib ..... 1,650 kg
 Do not use the auxiliary sheave when the jib is extended.
9. The machine must not be operated under load conditions corresponding to the empty boxes in the charts. Tipping will occur if the boom is lowered below the danger angles indicated. Note that it is possible for the machine to tip when unloaded.
10. Standard hoist reevings are shown below. Single-line load must not exceed 3,125 kg.

Boom length	9.54 m	16.54 m	23.54 m	30.5 m	Aux. sheave
Hook	25-ton	25-ton	25-ton	25-ton	3-ton
Parts of line	8	6	4	4	1

11. Free fall should in principle be restricted to hook only.

When a load must unavoidably be applied, load ratings for free fall operations are one-fifth of rated loads.

Never brake suddenly during free fall.

(Without outriggers)

1. Load ratings are the approved maximum lifting capacities for a firm and level surface, with tires filled to prescribed pressure (7.75 kg/cm<sup>2</sup>), and with axle lock-up cylinder engaged. Ratings include hook block and all other load handling accessories.

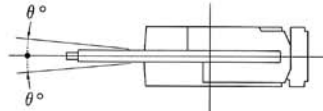
Values in the shaded areas are based on the machine's hydraulic or structural limitations; all others are based on stability.

25-ton hook block weight ..... 210 kg

3-ton hook block weight ..... 70 kg

2. The working radii given in the charts allow for loaded boom deflection. Always operate the machine on the basis of actual operating radius.
3. 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 an over-the-side position.

Over-the-front area



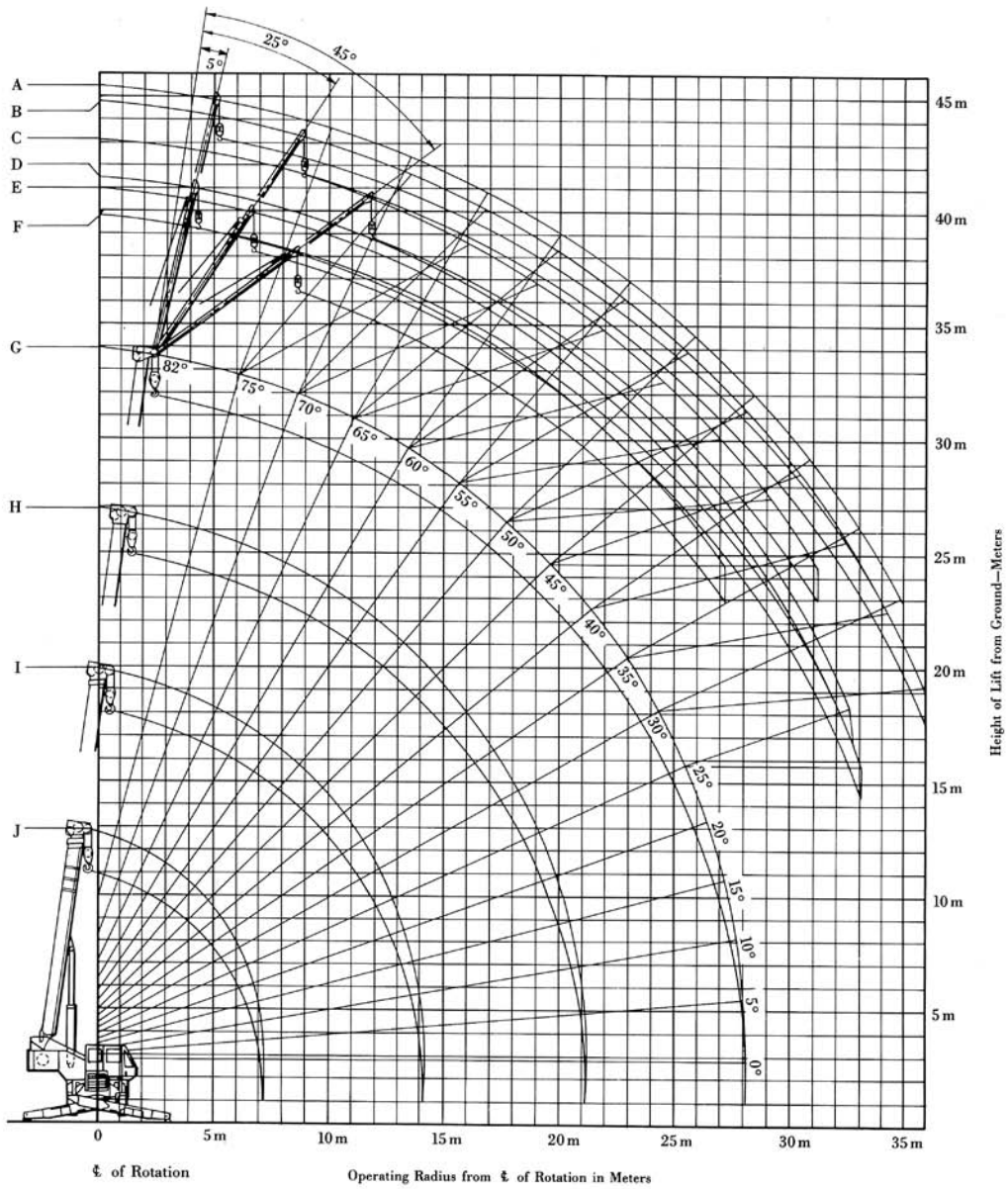
On tires	Stationary load	Pick & carry load
$\theta$ (FRONT)	5°	1°

4. Ratings with auxiliary sheave are the same as main boom ratings (less 25-ton hook weight: 210 kg), but should not exceed 3,000 kg.
5. Do not operate the jib or use free fall.
6. Parking brake and auxiliary operation brake must be applied during stationary load lifting.
7. Pick and carry operations must be done in the low travel mode, with the High/Low switch in the ON position.
8. During pick and carry operations, keep the load close to the ground to avoid swaying, and travel no faster than 2.0 km/h. Avoid cornering, sudden starts, and sudden braking.
9. Do not operate the crane functions while transporting a load.
10. Standard hoist reevings are shown below. Single-line load must not exceed 3,125 kg.

Boom length	9.54 m	16.54 m	23.54 m	30.5 m	Aux. sheave
Hook	25-ton	25-ton	25-ton	25-ton	3-ton
Parts of line	8	6	4	4	1

# Working Ranges

# RK250-II

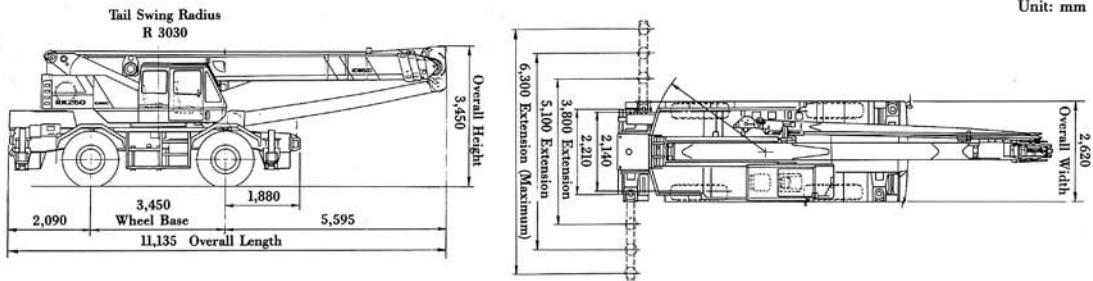


- A 30.54 m Boom+11.5 m Jib (5° offset)
- B 30.54 m Boom+11.5 m Jib (25° offset)
- C 30.54 m Boom+11.5 m Jib (45° offset)
- D 30.54 m Boom+7.5 m Jib (5° offset)
- E 30.54 m Boom+7.5 m Jib (25° offset)
- F 30.54 m Boom+7.5 m Jib (45° offset)
- G 30.54 m Boom
- H 23.54 m Boom
- I 16.54 m Boom
- J 9.54 m Boom

# Dimensions

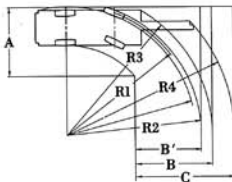
# RK250-II

Unit: mm



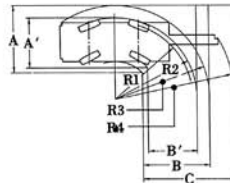
## Turning Radius

### 2-Drive Steering (Front)



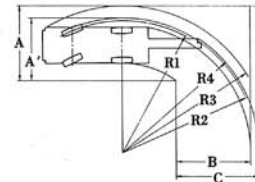
R1	Minimum turning radius	9.3 m
R2	Tire clearance with curb	9.53 m
R3	Carrier clearance	10.35 m
R4	Boom clearance	11.89 m
A	Entrance width (carrier)	4.88 m
B	Exit width (carrier)	4.88 m
B'	Exit width (tires)	5.71 m
C	Extension clearance	7.24 m

### 4-Drive Steering



R1	Minimum turning radius	5.40 m
R2	Tire clearance with curb	5.66 m
R3	Carrier clearance	6.47 m
R4	Boom clearance	8.46 m
A	Entrance width (carrier)	4.53 m
A'	Entrance width (tires)	3.38 m
B	Exit width (carrier)	3.38 m
B'	Exit width (tires)	4.53 m
C	Extension clearance	6.52 m

### 2-Drive Steering (Rear)



R1	Minimum turning radius	9.30 m
R2	Tire clearance with curb	9.53 m
R3	Carrier clearance	10.36 m
R4	Boom clearance	9.63 m
A	Entrance width (carrier)	4.53 m
A'	Entrance width (tires)	3.38 m
B	Exit width (carrier)	5.34 m
C	Extension clearance	5.89 m

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



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