Kawasaki
KCM
Committed to the Future

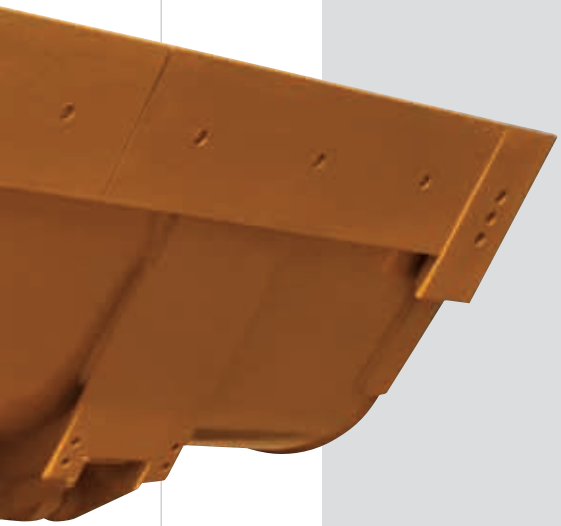
85Z5

WHEEL LOADER

Direct-injection, turbocharged 163kW(218hp) engine
Operating weight 21ton, Bucket capacity 3.2-4.0m³
Strong and robust main structures
Tough and proven hydraulic components
Productive and dependable performance

THE ADVANCED TRADITION
SIMPLE
DURABLE
DEPENDABLE

The machines in the pictures may include optional items.
Please consult your local KCM distributor for the available optional items.



The outstanding performance of KCM wheel loaders has been proven all over the world.

Continuous improvement in quality since its release, the KCM wheel loaders offer long service life and outstanding productivity.

KCM, a major Japanese manufacturer of wheel loaders for over half of a century combines innovative technologies and real world experience to produce the finest wheel loader in the industry.

Simple and straight forward, KCM eliminates excessive functions to enhance productivity, durability, reliability, and lower operating costs.

Overall simple design makes maintenance easier and reduces costs.

KCM focuses on simple design to offer the highest reliability and the easiest maintenance with minimum down time.

"KCM Made" major components such as the transmission and axle are developed and manufactured by experienced personnel that concentrate their knowledge and technologies to produce the best components for KCM wheel loaders.

SOPHISTICATED PERFORMANCE

JAPANESE ENGINE WITH MECHANICAL GOVERNOR

Japanese engines provide a high quality source of power. Time-proven, high quality mechanical engine governor minimizes maintenance requirements. Compared with electronic controlled high pressure fuel injection system, a wide range of fuel and engine oil can be used. The engine does not require any special diagnostic equipment or computer for service.

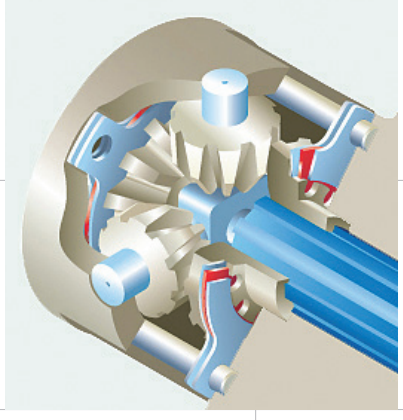
*For the range of fuel, please consult your local KCM distributor.

TPD

Standard Torque Proportioning Differentials (TPD) improve traction in slippery conditions.

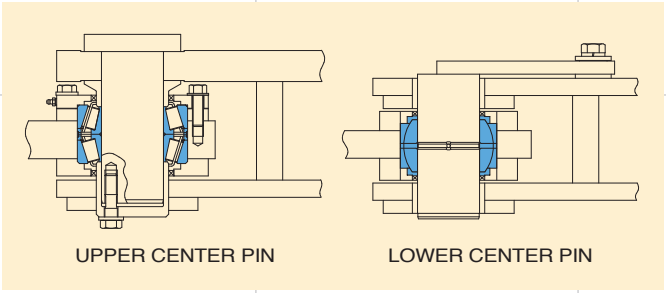
LSD (OPT)

For applications with extreme traction requirements, the optional Limited Slip Differential (LSD) provides additional traction capability.



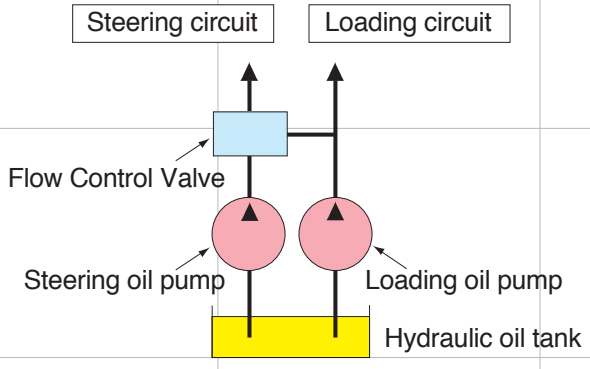
CENTER PIN

KCM center pin design is rugged and durable, providing thousands of hours of trouble free operation. The spherical bearing mounted on the lower center pin area absorbs heavy stresses caused by digging.



LOAD SENSING HYDRAULIC SYSTEM FOR STEERING LINE

An energy efficient design of the hydraulic system provides for steering flow to supplement the main circuit once steering demand is met. This allows for full utilization of the pump capacity for efficient operation in all conditions.

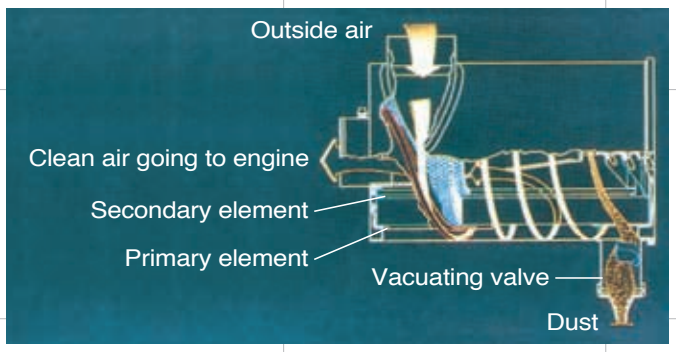


WET DISC BRAKE

Outboard mounted wet disc service brake can minimize maintenance time since the brakes are accessible without removing the axle.

DOUBLE-ELEMENT AIR CLEANER

The double-element air cleaner filters the outside air to supply clean air for the engine. Accumulated dust is automatically discharged through valves when the engine stops.

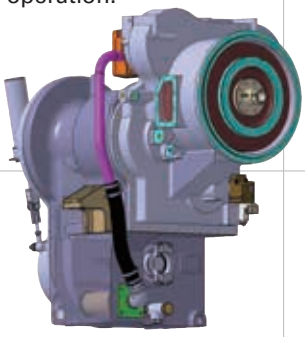


PARKING BRAKE

The parking brake is a spring-applied, oil pressure-released, drum type. Based on this proven design, parking brake maintenance and adjustment can be easily done.

TRANSMISSION

Fewer parts and the simple structure of the counter shaft transmission minimizes maintenance time and cost. Transmission control can be done by using simple, twist grip, single lever which helps an operator to focus on bucket operation.



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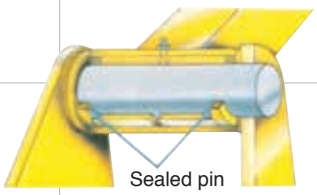
BEST OF BOTH WORLDS, PRODUCTIVE AND DEPENDABLE

HOIST ARM & BUCKET

With strong and robust hoist arms and linkage, KCM loaders perform well in a wide variety of applications. High breakout force and excellent bucket rollback mean bigger loads and better load retention. Buckets are designed for easy loading and are equipped with bolt-on cutting edges or teeth for easy changing. The bucket leveler and boom kickout are standard.

SEALED BUCKET HINGE PIN

The special seal in the bucket hinge pin provides excellent sealing and grease retention which extends pin life.



HYDRAULIC GEAR PUMP

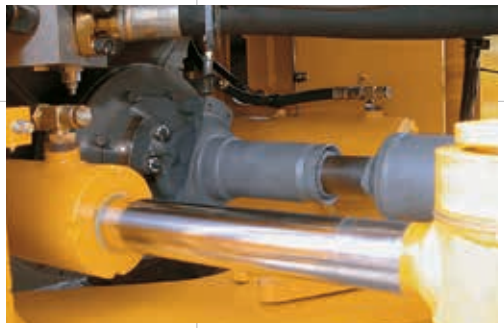
A proven gear pump is the heart of the hydraulic system. The durable and dependable design of this gear pump provides excellent performance. Gear pumps are dirt-tolerant and heat resistant even under extremely tough job conditions. Its simple structure makes maintenance cost low.

FULL BOX FRAME CHASSIS

Full box section frame is the strongest in the industry and resists twisting loads better than plate frames.

INCREASED GREASING INTERVALS FOR UNIVERSAL JOINTS

Sealed universal joints only require greasing every 12000hours. This reduces maintenance costs significantly and provides greater durability.

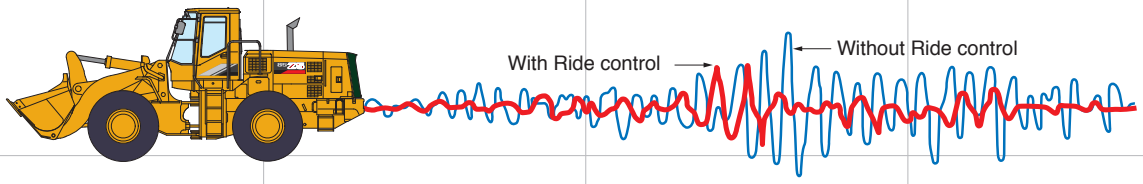


BUFFER RINGS IN HYDRAULIC CYLINDER

The hydraulic cylinders utilize a buffer ring to improve sealing capability to reduce leakage.

RIDE CONTROL (OPT)

Ride Control provides stable load handling during load and carry operation. It reduces bouncing of the equipment while traveling, improves safety, productivity and operator comfort. The system comes with speed sensitive, automatic on/off feature.



EASY ACCESS SIMPLIFIES SERVICING

Maintenance is enhanced with the engine access panels that can be opened wide for better access.
Filters are conveniently located for easy change and the grease fittings are grouped to reduce maintenance time and insure proper lubrication.

SIMPLE & EFFICIENT, ONE-TOUCH OPEN-TOP RADIATOR GRILLE

To facilitate cleaning the radiator, the radiator grille swings open with pneumatic support gas springs.

HALOGEN HEAD LAMPS

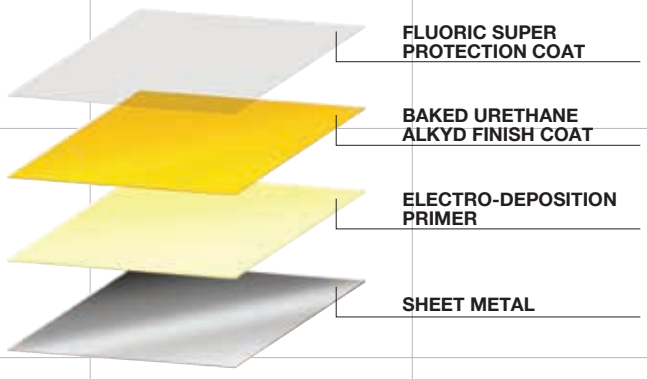
Front and rear working lights are bright, halogen lamps for improved safety and visibility.

LED REAR LAMPS (OPT)

Long life, LED lamps are available as an option for the rear tail lights.
These lights are very bright and durable.

HIGH QUALITY FINISH PAINT FOR SHEET METAL PARTS

KCM's sophisticated painting process utilizes ED (Electro-deposition) primer, a baked Urethane Alkyd finish coat as well as a fluoric super protection coat for a durable and attractive finish.



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THE COMFORT ZONE "NO OTHER PLACE LIKE THIS CAB"

CAB (OPT)

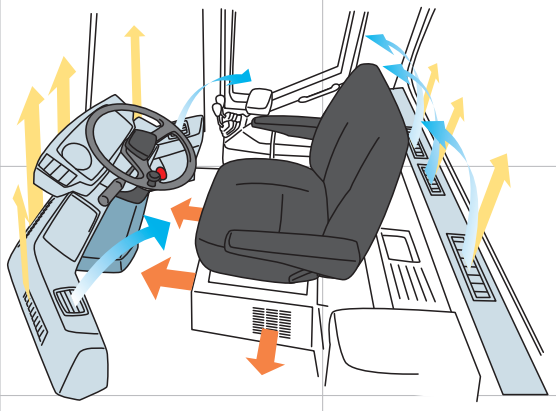
Excellent visibility in all directions is enhanced with both inside and outside mirrors.
The front windshield is flat glass mounted in rubber gaskets that make windshield replacement fast and easy.
Viscous mounting of the cab reduces vibration and noise.

ROPS/FOPS CAPABILITY (OPT)

The operator's cab is fully certified to meet all ROPS (Rollover Protective Structure) and FOPS (Falling Object Protective Structure) regulations.

FULLY AUTOMATIC HEATER AND AIR CONDITIONER (OPT)

The thermostatically controlled air conditioner/heater provides automatic adjustment to keep the operator comfortable in any environment.
The high capacity vents provide adequate airflow for efficient defrosting and an even temperature distribution.
By pressurizing the cab, the climate control system keeps dust out of the cab.



MULTI ADJUSTABLE FUNCTION OPERATOR'S SEAT

The fully adjustable suspension seat offers excellent comfort to reduce operator fatigue and increase productivity.

AT-A-GLANCE METERS AND GAUGES

The exact conditions of the machine can be instantly checked from the gauges and indicator lights on the instrument panel; speedometer, engine water temp. gauge, transmission oil temp. gauge, fuel indicator, engine hour meter, and various other warning and indicator lights.

BOOM AND BUCKET CONTROL LEVERS

The pilot operated hydraulic control levers with wrist rest give the operator better control. Downtime can be minimized, thanks to the simplified mechanical structure.

DOWNSHIFT BUTTON

The downshift button located on the boom control lever provides for quick, convenient downshifting from 2nd gear to 1st gear.

TILT AND TELESCOPIC STEERING

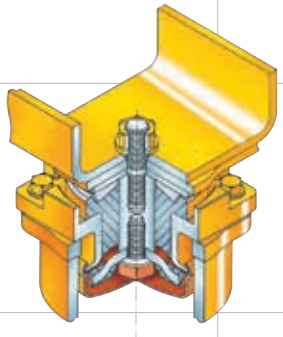
The tilt and telescopic steering column adjusts to fit a variety of operator needs and offers greater comfort and efficiency.

CUP HOLDERS

Cup holders are available on the console box.

VISCOUS MOUNT

Viscous mounting of the cab effectively reduces noise and vibration that provides greater comfort for an operator.



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OPERATING SPECIFICATIONS

Engine

Make & model	HINO "J08C-TI" diesel engine	
Type	4-cycle, water-cooled, direct injection, with turbocharged and air cooled intercooler	
Rated power	Gross - SAE J1995	184 kW (246 hp)/2,200 rpm
	Net - ISO 9249 SAE J1349 80/1269/EEC	163 kW (218 hp)/2,200 rpm
Maximum torque	Gross	970 N•m (99 kgf•m)/1,400 rpm
	Net	912 N•m (93 kgf•m)/1,200 rpm
Number of cylinders (bore × stroke)	6 114 mm × 130 mm	
Total displacement	7961 cc	
Cooling type	Hydraulic drive pusher type fan Pressurized radiator	
Fuel injection pump	Bosch type	
Governor	All-speed mechanical type	
Air cleaner	Dry type (Double element)	
Generator	AC 24V 1.2 kW (50 ampere)	
Starter motor	DC 24V 4.5 kW (6.0 hp)	
Batteries	DC 12V 108 Ah × 2	

Torque converter & Transmission

Torque converter	Make & model	KCM 3-element, 1-stage, 1-phase	
	Stall torque ratio	3.42	
Transmission	Make & model	KCM, Full power shift Countershaft type	
	Clutch type	Wet hydraulic, multi disc	
Traveling speed		Forward	Reverse
	1st	7.5 km/h	7.7 km/h
	2nd	12.6 km/h	13.0 km/h
	3rd	21.2 km/h	21.8 km/h
	4th	35.7 km/h	36.5 km/h
Reduction gear ratio		Forward	Reverse
	1st	3.910	3.792
	2nd	2.283	2.214
	3rd	1.296	1.257
	4th	0.693	0.672

Axles & Final drives

Type	4-wheel drive
Axle make & type	KCM Full floating type
Differential gear	Spiral bevel gear, torque proportioning, single stage reduction gear ratio 4.333
Final reduction gear	Outboard mounted, Internal planetary gear gear ratio 5.333
Rear axle oscillation angle	± 14°
Tire (standard)	23.5 (L3) Tubeless
Wheel rim	19.50 × 25

Brake system

Service brake	4-wheel wet-disc Controlled by fully hydraulic system Dual circuits
Parking brake	Spring applied oil pressure released type located on front driveline
Emergency brake	Same as parking, applied on failure in brake line

Steering system

Type	Articulated frame steering, hydraulic power steering unit, pilot operated type
Steering valve	Kawasaki, Orbitroll and spool type
Full articulation angle	37° to each side

Loading system

Type	Front end loading, Z bar linkage system	
Bucket dumping angle at fully raised	45°	
Hydraulic cycle time	Lifting (at full load)	6.5 sec
	Lowering (empty)	4.2 sec
	Dumping	1.4 sec
	Total cycle time	12.1 sec

Hydraulic system

Oil pump	Steering oil pump	Gear type, 238 lit/min 6.9 Mpa (70 kgf/cm²) @2,200 rpm
	Main oil pump	Gear type, 108 lit/min, 6.9 Mpa (70 kgf/cm²) @2,200 rpm
	Pilot oil pump	Gear type, 76.2 lit/min, 6.9 Mpa (70 kgf/cm²) @2,200 rpm
Control valve	Loading	Multiple control valve
	Steering	Kawasaki, Orbitrol and spool type
Lift cylinder	Type	Double acting piston
	Number,bore × stroke	2 × 160 mm bore × 860 mm stroke
Tilt cylinder	Type	Double acting piston
	Number,bore × stroke	1 × 190mm bore × 544 mm stroke
Steering cylinder	Type	Double acting piston
	Number,bore × stroke	2 × 90mm bore × 440 mm stroke
Relief set pressure	Control valve	20.6 Mpa (210 kgf/cm²)
	Steering valve	20.6 Mpa (210 kgf/cm²)

Service refill

Fuel tank	300 lit
Engine lubricant (including oil pan)	23 lit
Engine cooling water	33 lit
T/M & T/C	53 lit
Axle front/rear	154 lit
Hydraulic oil tank	120 lit
Hydraulic system (including oil tank)	210 lit

Weight change

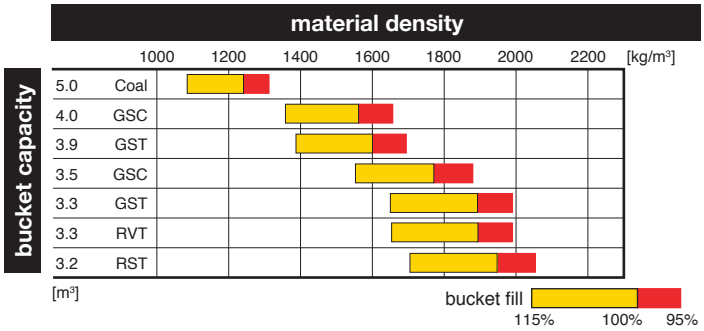
Option item		Operating weight(kg)	Tipping load(kg)		Overall width(mm) (outside tire)	Vertical dimensions (mm)	Overall length(mm)
			Straight	Full turn			
Canopy (instead of ROPS cab)		-450	-430	-370	—	-65	—
Soft cab (instead of ROPS cab)		-230	-220	-190	—	—	—
Removal ROPS cab		-520	-505	-430	—	-270	—
Tires	23.5R25(L3)	±0	±0	±0	±0	±0	±0
	23.5R25(L4)	+420	+310	+270	+30	±0	±0
	23.5R25(L5)	+560	+415	+360	±0	±0	±0
	26.5R25(L3)	+560	+415	+360	+60	+60	-50
	26.5R25(L4)	+960	+710	+620	+75	+60	-50
	23.5-25-16PR(L3)	±0	±0	±0	±0	±0	±0
	23.5-25-16PR(L5)	+780	+565	+485	—	—	—
	26.5-25-20PR(L3)	+660	+475	+410	+85	+60	-50
Belly guard		+95	+100	+90	—	—	—

Bucket

				Standard boom						
				General purpose				Rock Straight-edge	Rock V-edge	Coal Straight-edge
				Bolt-on edges	Teeth	Bolt-on edges	Teeth	Teeth	Teeth	Bolt-on edges
				GSC	GST	GSC	GST	RST	RVT	
Bucket capacity	heaped		m^3	4.0	3.9	3.5	3.3	3.2	3.3	5.0
	struck		m^3	3.5	3.3	3.0	2.8	2.7	2.8	4.2
Max. dumping clearance		a	mm	3,035	2,945	3,105	3,015	2,945	2,840	3,060
Max. dumping reach		b	mm	1,190	1,250	1,120	1,180	1,235	1,355	1,170
Max. hinge pin height			mm	4,250						
Digging depth (with bucket level)		c	mm	130	145	130	145	155	155	120
Breakout force			kN	164	178	177	193	185	167	125
Bucket tilt-back angle	at carry position		deg	50°						
Overall length		d	mm	8,330	8,445	8,230	8,345	8,420	8,575	8,300
Overall height	up to cab top		mm	3,475						
	bucket full raise	e	mm	5,820	5,820	5,700	5,700	5,570	5,570	5,810
Overall width	outside tire		mm	2,845						
	outside bucket	f	mm	3,100	3,120	3,100	3,120	3,115	3,115	3,800
Tread			mm	2,230						
Wheel base			mm	3,300						
Min. turning radius	at outside bucket	g	mm	7,035	7,070	7,015	7,055	7,075	7,075	7,060
(bucket carry position)	at center of outside tire		mm	6,045						
Min. ground clearance			mm	475						
Full articulation angle			deg	37°						
Operating weight	with ROPS CAB		kg	20,050	19,860	19,930	19,750	20,095	20,195	20,185
Static tipping load	straight		kg	14,910	15,165	15,095	15,330	14,495	14,085	14,345
	full turn		kg	13,010	13,230	13,165	13,375	12,645	12,290	12,515

The weight and load figure includes 23. 5 (L3) tubeless tire, ROPS cab, lubricant, coolant, full fuel tank and operator (75kg).

Bucket selection charts



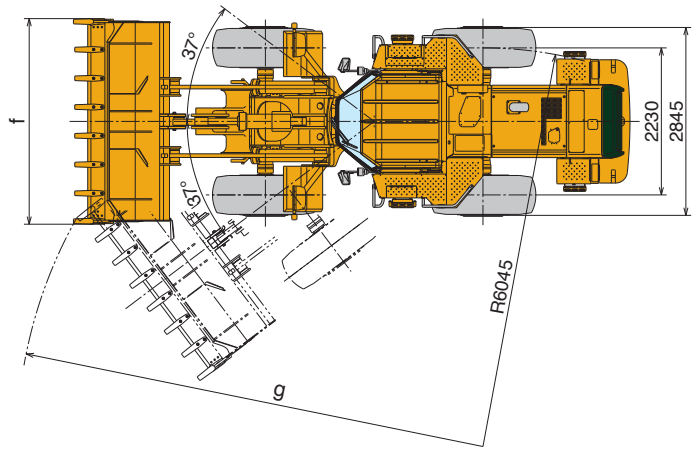
Material density

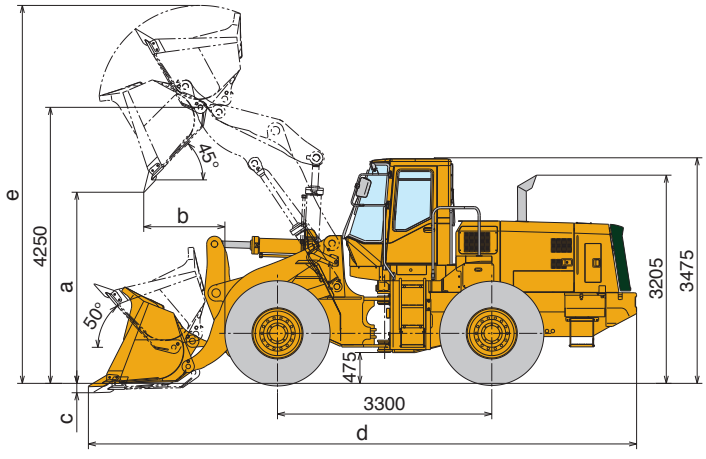
Approx. material weights per cubic meter

Basalt, granite, piled	1537 kg/m³
Clay and gravel, dry	1601 kg/m³
Earth, mud, wet	1729 kg/m³
Granite, broken	1537 kg/m³
Gravel	1761 kg/m³
Gypsum	2268 kg/m³
Limestone, coarse, sized	1569 kg/m³
Sand, dry	1681 kg/m³
Sandstone, quarried	1313 kg/m³
Stone or gravel. 3/4" size	1569 kg/m³

Remarks

* Materials and specifications are subject to change without notice and without any obligation on the part of the manufacturer.
* This information, while believed to be completely reliable, is not to be taken as warranty for which we assume legal responsibility.
* Dumping clearance and reach are measured from bucket edge in accordance with SAE J732C.
* Color for model shown in this brochure is a standard KCM yellow.
* Counterweight(option) should not be used with tire ballast.
* This specification sheet may contain attachments and optional equipment which are not available in your area. Please contact your local KCM distributor for those items which your require.





Equipped with GST bucket, 23.5 (L3) tubeless tire and ROPS cab.

85Z5

STANDARD EQUIPMENT

*Standard specifications may vary. Please consult your KCM distributor for more information.

Electrical
50 ampere generator
Back up alarm
Brake and tail lights
Electric starter
Halogen headlights with high and low beams (2 front)
Halogen working lights (2 front and 2 rear)
Turn signals with four-way flasher

Gauges and indicators
Air cleaner warning lamp
Auto shift indicator lamp
Battery charge lamp
Brake pressure warning lamp
Engine coolant temperature gauge and warning lamp
Engine oil pressure warning lamp
Fuel level gauge
High beam indicator lamp
Hour meter
Neutral indicator lamp
Parking brake indicator lamp
Speedometer
Torque convertor oil temperature gauge and warning lamp
Transmission control warning lamp
Transmission declutch lamp
Transmission status monitor
Working light indicator lamp

Operator environment
Adjustable operator seat with suspension
Ashtray
Cup holder
Boom/bucket control dual levers
Electric dual horns
Down shift button
Telescopic and tilt steering wheel

Power train
Air cleaner, double elements dry type
Auto ejective type pre-cleaner
HINO J08C-TI diesel engine
Full hydraulic enclosed wet multi-disc brakes
Hydraulic engine radiator cooling fan
KCM auto shift transmission
KCM axles, torque proportioning differentials (front/rear)
KCM torque converter
Low maintenance drive shafts
Tires, 23.5 (L3) tubeless

Others
Bucket leveler
Drawbar hitch with pin
Handrails
Kickout device
Ladders, left and right
Loading linkage, sealed Z-bar type single cylinder
Secondary brake

OPTIONAL ITEMS

Automatic reversible cooling fan
Cab (non ROPS/FOPS)
(left and right doors open, walk-through design)
Cab (ROPS/FOPS)
(left and right doors open, walk-through design)
Canopy (two pillar with plastic roof)
Canopy (with ROPS/FOPS)
CD player with radio (AM/FM stereo)
Emergency steering
Front and rear wide fenders
Full automatic air conditioner
High lift boom arm
Hydraulic circuit for quick coupler pins
Hydraulic three spool valve system
LED rear lamps
Limited slip differential
Mudflaps
Pre cleaner (bowl type)
Quick coupler
Radio-ready kit
(12V convertor, antenna and wiring, stereo speakers)
Ride control (speed sensitive automatic)
Seat belt
Several bucket and tire options are available
Transmission belly guard
Vandalism protection kit

Cab specifications
Cigarette lighter
Coat hook
Floor mat
Front wiper and washers
Lockable doors with sliding windows by regulator handles (left and right)
Rearview mirrors (interior and exterior)
Rear wiper and washers (option)
Storage compartment
Sun visor
Tinted safety glass (tempered glass)

made in Japan KCM

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