

**90Z6**

90Z6 EPA TIER 3, EU STAGE IIIA - CERTIFIED  
BUCKET CAPACITY 3.4m<sup>3</sup> - 4.5m<sup>3</sup>  
ENGINE POWER 212kW 284HP  
OPERATING WEIGHT 23,230kg



**WHEEL LOADER**

# 90Z6

made in  
Japan **KCM**

Wheel loaders must perform in a wide range of environments. From extreme heat to extreme cold. In dusty conditions and other extreme operating conditions. Owners expect maximum performance and optimum fuel economy from their wheel loaders. The KCM Z6 series of wheel loaders is newly developed using Japanese state of the art engineering. This advanced technology allows the operator to achieve both high performance and excellent fuel economy. In addition, KCM wheel loaders offer outstanding quality, superior cab comfort and long-term durability. All of this in one of the best looking wheel loaders in the industry.



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

# THE KCM DIFFERENCE

## EFFICIENT. POWERFUL. INTELLIGENT. COMFORTABLE

KCM has a long history of pioneering innovation in wheel loaders. As one of the first to adopt Z linkage, KCM has continuously provided the industry with engineering breakthroughs. The Z6 series continues that history with many industry exclusive features. These new designs resulted from input from customers and operators around the world. The Z6 has been engineered from the ground up to be a world class wheel loader.

### 1. EFFICIENT

The Intelligent Operating System of the Z6 provides faster cycles and reduced operating costs.

### 2. POWERFUL

Custom Operating Power Modes allow the operator to select the proper power setting to fit his application to provide the best performance and fuel economy.

### 3. INTELLIGENT

The KCM Intelligent Operating System uses a sophisticated logic based on multiple inputs from machine systems. This system adjusts powertrain and hydraulic components to provide optimum performance in varying working conditions. This allows the Z6 wheel loaders to achieve optimum performance.

### 4. COMFORTABLE

The new Z6 operator compartment features a low-profile dash, full length glass doors, panoramic front window and well-organized storage areas- plus much more. We have total operator comfort in mind!

## PARTNERSHIP

Through our long-term commitment to maintaining a leadership position in technology, service and support, KCM supports an extensive network of independent, local dealers focused on providing you with knowledgeable and experienced sales, service and parts personnel. All backed by dedicated KCM support teams.

Your KCM distributor has the resources, knowledge and personnel to work with you to ensure that you receive the most benefit from your wheel loader investment.



# EFFICIENT. POWERFUL

Efficiency is getting the job done with the least amount of waste. The Z6 are very efficient loaders. The hydraulic system is designed for maximum performance efficiency. The systems and controls allow for efficient operation.

Power and productivity are what KCM loaders are famous for. The Z6 has moved to another level in this area. Strong, responsive engines provide the power to get the job done. Powerful hydraulics make the work easy and the productivity high.



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

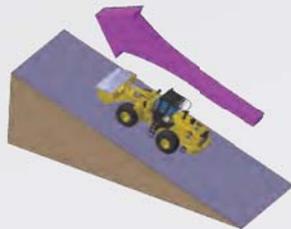
**NEW POWER (P) MODE ACTIVATION**

Two operating modes, Normal and Power modes, allow the operator to select the most fuel efficient and best performing power setting. In the Normal Mode, the operator can get efficient loading in most materials and achieve the highest fuel efficiency. Power mode is used for handling more difficult digging conditions efficiently. The operating modes are easily selected using the convenient switch on the side console.



**NEW RIM PULL FORCE BOOST, QUICK POWER SWITCH**

In many operating conditions, full power is not needed all the time. Usually when digging or climbing hills, the power requirement increases. The Quick Power or Quick P button allows the operator to run in the fuel efficient Normal Mode and receive a rimpull power boost when needed. This provides the best overall performance at the lowest fuel consumption.



**NEW FUEL EFFICIENT HYDRAULICS**

Newly designed load-sensing implement hydraulic system with variable piston pump can make an energy efficient hydraulic line to make the on-demand hydraulic flow to the required job to maximize fuel efficiency.



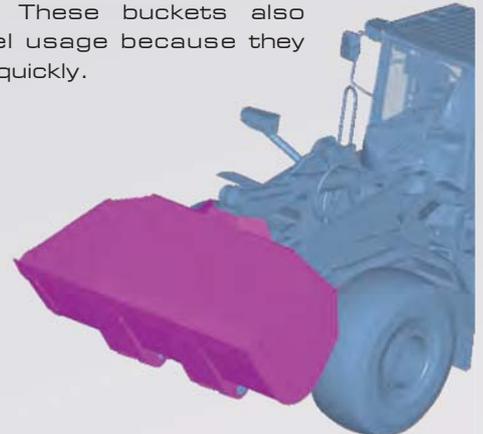
Quick

Slow

Hydraulic flow

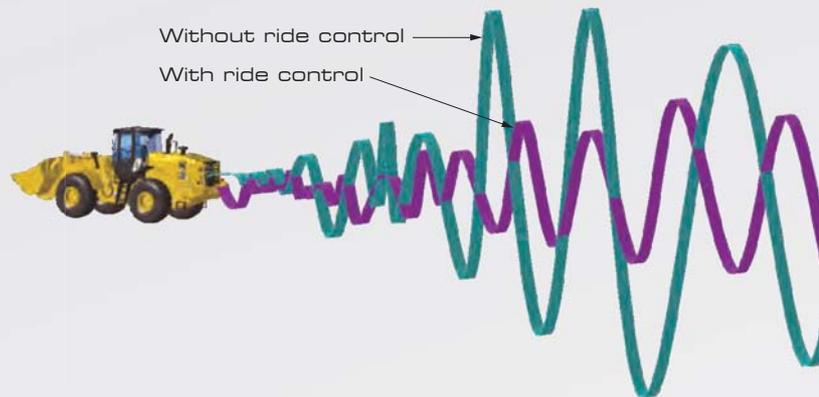
**NEW IMPROVED BUCKET PRODUCTIVITY**

High efficiency general purpose and light material buckets increase productivity. These buckets load easier and retain material better. These buckets also reduce fuel usage because they load more quickly.



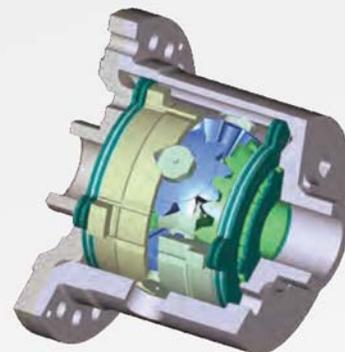
**RIDE CONTROL (optional)**

Ride Control helps to smooth out the ride when the bucket is loaded or empty. This speeds cycles and increases productivity. Operator comfort is improved, reducing fatigue.



**LIMITED SLIP DIFFERENTIAL (optional)**

Limited Slip Differentials (LSD) improves traction in most materials and increases productivity in slippery conditions. Actuation of the limited slip differential is automatic.



# INTELLIGENT

Intelligence in a wheel loader refers to the programming and processes implemented to adapt to the working conditions, improving efficiency and productivity. The KCM Intelligent system is a family of features that optimize the performance of the loader in any working environment and application.



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NEW

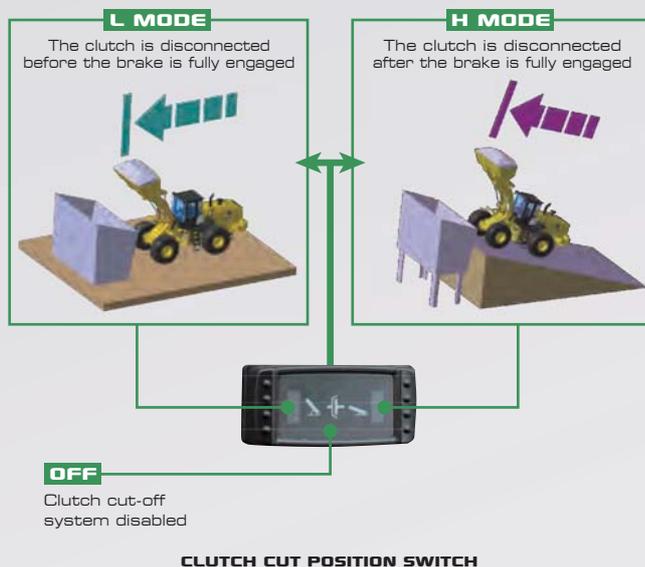
## INTELLIGENT DIGGING SYSTEM

Faster cycles and lower fuel consumption through more efficient balance of hydraulic power with rimpull. When digging materials, the rimpull power of the machine needs to be balanced with the hydraulic power to allow the bucket to load easier. Too much rimpull will increase the digging resistance, waste horsepower and make loading more difficult. Z6 series wheel loader adjusts the rimpull during the digging cycle to provide an optimum balance with the hydraulics. This speeds the loading cycle and does not waste power and fuel unnecessarily.



## SPEED-RESPONDING CLUTCH CUT-OFF SYSTEM

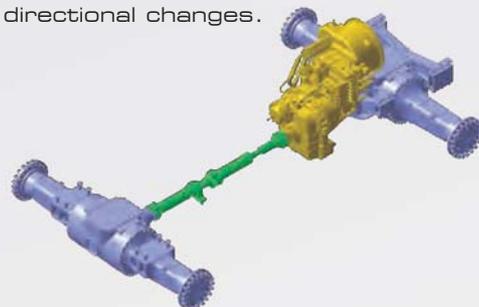
Clutch cut-off timing is adjusted by sensing travel speed and pedal depression for smooth, efficient truck loading. L mode, H mode and OFF are selectable by switch control according to job requirements.



NEW

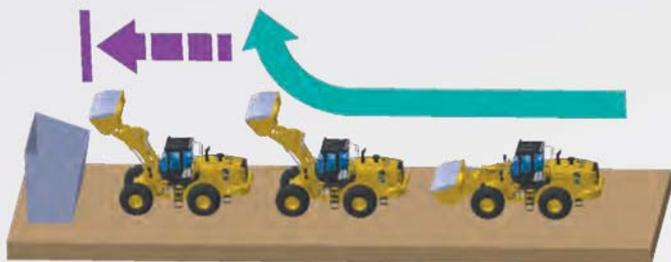
## SMOOTH SHIFT CHANGES

Automotive style smooth transmission shifting increases operator comfort and productivity. Individual clutch modulation provides smooth speed and directional changes.



NEW

## SHIFT CHANGE DELAY MODE FOR FUEL EFFICIENCY AND PERFORMANCE (optional)



Shift change delay mode is provided to avoid an excessive rise in travel speed during digging and loading. When moving forward with the lift arm up, the second gear is kept for eight seconds to prevent over-speed. When reversing, the second gear is kept for eight seconds. These delays to third gear help to keep fuel consumption down ensuring smooth loading.

NEW

## AUTOMATIC DOWN SHIFT MODE

Three transmission shift modes are available to meet varying job conditions and operator preferences. "AUTO 1" mode allows for full automatic speed selection from 1<sup>st</sup> through 4<sup>th</sup> gear to meet the job demands. "AUTO 2" mode is fully automatic from 2<sup>nd</sup>-4<sup>th</sup> allowing the operator to manually select downshifting to 1<sup>st</sup> gear when required, using the down shift Switch (DSS). "MANU" = Manual shift mode allows the operator to select whichever speed range is needed as required.



MODE SELECTION SWITCH

# COMFORTABLE

A comfortable operator is a productive operator. In the KCM Z6s the operator comfort is outstanding. Quiet, convenient, clean and designed for optimum operator comfort, safety and productivity.



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



**NEW**

## PANORAMIC CAB

The spacious panoramic cab offers near all-round visibility through pillar-less bonded windows. The seat and steering wheel can be adjusted to suit the operator, keeping the operator in an optimum position. In-cab noise is suppressed further. Even when the going gets tough, the operator can feel comfortable with less fatigue.

## FULLY-AUTOMATED AIR CONDITIONING WITH BI-LEVEL FUNCTION

The high capacity, thermostatically controlled air conditioner/heater system keeps the cabin comfortable in all weather conditions. Vents provide good defrosting and air circulation, too.



## COMFORT-DESIGNED SUSPENSION SEAT

The mechanical suspension seat is fully adjustable to fit any operator requirements. This seat reduces operator fatigue and increases productivity.

\* The air suspension seat is available as an option.



Suspension seat

## LEVERS FOR EASY OPERATION

Hydraulic controls can be either two lever or single lever control as required. Each is pilot assisted for fingertip control.



Two levers



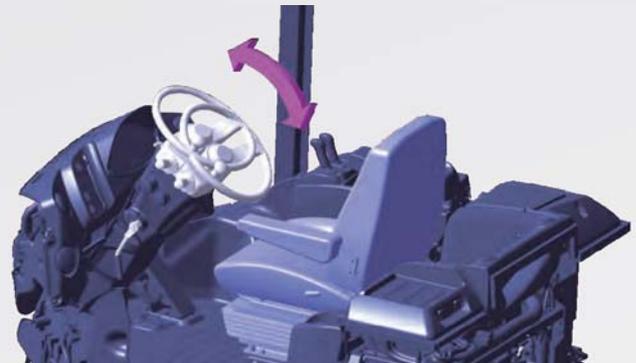
Fingertip control



Grip control

## TILTABLE STEERING WHEEL

The steering wheel is tiltable to fit the wheel to the operator for comfortable operation.



Tiltable steering wheel

## A VARIETY OF STORAGE SPACES



Storage for small items



Hot and cool box



Large storage space



Glove compartment, cigarette lighter and ashtray



Drink holder

# SERVICE SIMPLIFIED

Serviceability and Safety are two keys for KCM Z6 Wheel Loader series.

Outstanding serviceability of KCM Z6 series reduces maintenance time and costs.

High standards for safety insure confidence in the machine so that maximum productivity is possible.



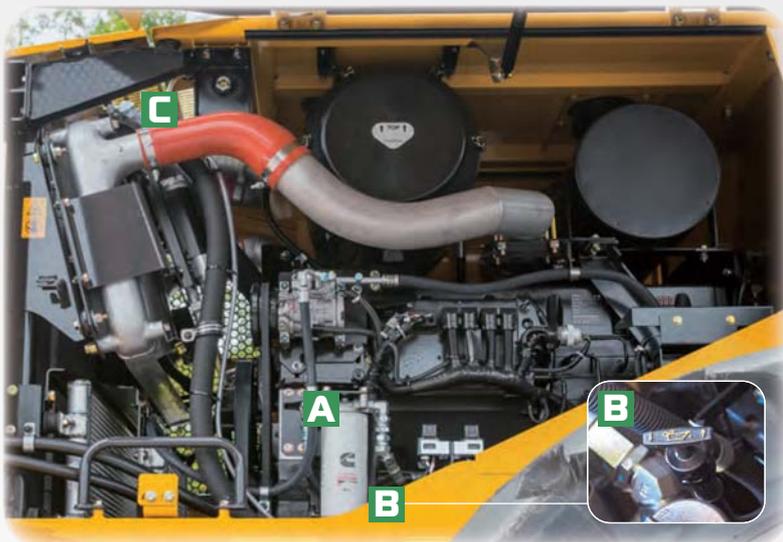
The machines in the picture may include optional items. Please consult your local distributor for the available optional items.

## SIMPLIFIED MAINTENANCE

The engine cover swings up to provide a wide service space.

Filters are concentrated for easy inspection and servicing from the ground.

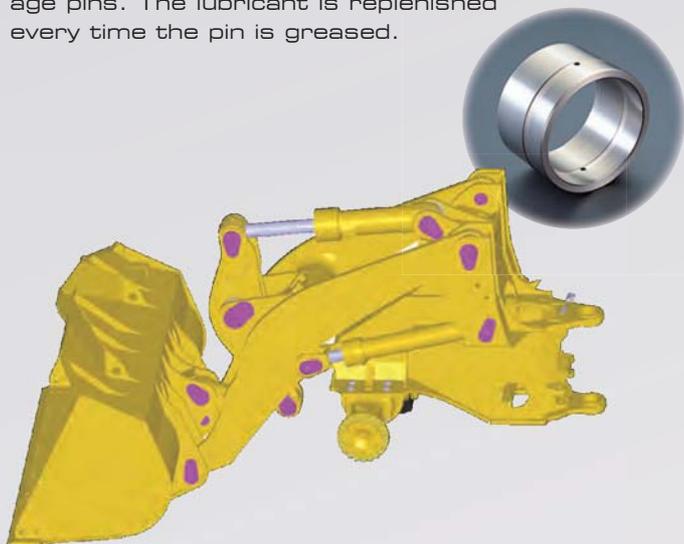
- A** Main fuel filter
- B** Engine oil gauge
- C** Sub tank for coolant



NEW

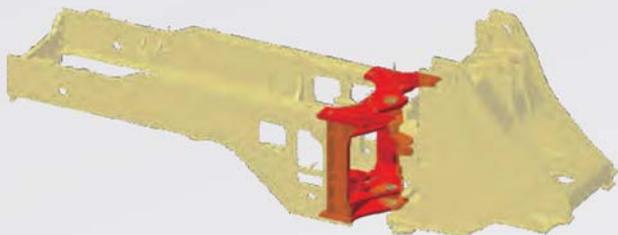
## HN BUSHING EXTENDED LUBE INTERVALS

HN™ bushings extend lubrication intervals on bucket linkage pins to 500 hrs to reduce maintenance time and costs. The patented HN™ bushings are impregnated with high viscosity oil to provide added lubrication. This allows the lubrication interval to be extended on bucket linkage pins. The lubricant is replenished every time the pin is greased.



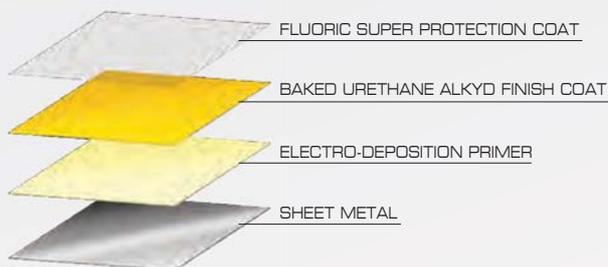
## ROBUST FRAME

The main frame and its joints are thoroughly strengthened. The boxsection structure is adopted around center pins, where concentrated forces are applied, for reinforcement.



## 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 fluoroc super protection coat for durable and attractive finish.



NEW

## ANGLED LADDER

For better safety and easy access to the cabin, the ladders are newly inclined. Additionally the handrails are conveniently placed, too.



## AUTOMATIC REVERSIBLE COOLING FAN TO REDUCE DUST DEPOSITS (optional)

The automatic reversible cooling fan is available to keep the radiator clean at all times. The cooling fan is automatically selfreversed every 30 minutes to blow dust off the radiator.



## 12,000 HRS GREASING INTERVAL FOR UNIVERSAL JOINTS

Sealed universal joints only require greasing every 12,000hrs ; practically maintenance free. It reduces maintenance costs significantly and provides greater durability.

## WIDE FIN PITCH RADIATOR (optional)

Wide fin pitch radiator is available for use in dusty environments, where there are large amounts of airborne debris, to avoid dust clogging and overheating as a result.

# Specification

EPA Tier 3 / EU Stage IIIA  
Model Name : 90Z6

Engine	
Net power (ISO 9249)	212 kW (284HP) /2100 RPM
Make/ Model	Cummins 'QSM11' diesel engine
Type	4-cycle,water-cooled,direct injection with turbocharged and air cooled intercooler
Fuel injection pump	Cummins high pressure injection
Governor	All Speed electrical type
Cooling module type	Hydraulically operated cooling fan with heat sensing system / Pressurized radiator
Number of cylinders	6
Bore and stroke	125mm x 147mm
Total displacement	10.82 liters
Air cleaner	Dry type (double element)
Starter motor	DC 24V-9kW (12.1HP)
Battery	DC12V-114Ah (765CCA) , 2 units

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

Torque converter and transmission		
Torque converter	3-element, 1-stage, 1-phase	
Transmission	Countershaft type, Full power shift	
	Normal mode	Power mode
Speeds: Forward	1st : 6.8km/hr	1st : 6.8km/hr
	2nd: 11.5km/hr	2nd: 11.5km/hr
	3rd: 21.6 km/h	3rd: 21.6 km/h
	4th: 34.7km/h	4th: 34.7km/h
Speeds: Reverse	1st : 6.8km/hr	1st : 6.8km/hr
	2nd: 11.5km/hr	2nd: 11.5km/hr
	3rd: 21.6 km/h	3rd: 21.6 km/h
	4th: 34.7km/h	4th: 34.7km/h

Systems refill capacity	
Fuel tank (diesel fuel)	370L
Engine lubricant (including oil pan)	34L
Engine coolant	40L
T/M & T/C	52L
Axle (front/rear)	48/48L
Hydraulic oil tank	123L
Hydraulic system (including hydraulic tank)	230L

Brake system	
Service brakes	4-wheel, wet disc brake, Controlled by fully hydraulic system, Dual circuit.
Parking/ Emergency brake	Spring-applied, oil pressure-released. Located on transmission axis

Loading system		
Hydraulic cycle time / front end loading, Z bar linkage system		
	Normal mode	Power mode
Lifting time (at full load)	5.8 sec	5.8 sec
Lowering time (empty)	3.0 sec	3.0 sec
Bucket dumping time	1.4 sec	1.4 sec
Total	10.2 sec	10.2 sec

Steering system	
Steering type	Articulated frame steering
Steering mechanism	Hydraulic power steering by Orbitroll

Hydraulic system		
Lift (boom) cylinder	Two(2) double-acting piston type: 145mm x 930mm	
Tilt (bucket) cylinder	One (1) double-acting piston type: 185mm x 510mm	
Steering cylinder	Two (2) double-acting piston type: 70mm x 542mm	
Main oil pump	Variable piston type: 29.4 MPa	
Pilot oil pump	Gear type: 14.7 MPa	
Relief valve set pressure	Loading	29.4 MPa
	Steering	29.4 MPa

Axle system	
Drive system	4-wheel drive
Front and rear axle	Semi-floating type
Tires	26.5-25-20 PR (L3)
Reduction and differential gear	Spiral bevel gear, torque proportioning, single stage reduction
Final reduction gear	Inboard mounted, internal planetary gear
Oscillation angle	±10°

## Equipment data

### Standard equipment

#### Engine

Air filter, double element	Cartridge-type fuel main filter
Air intake, Pre-cleaner (Sy-Klone)	Cummins "QSM 11" diesel engine
Cartridge-type engine oil filter	Engine oil remote drain

#### Powertrain

Automatic transmission with load sensing system	Quick power switch TPD (Torque Proportioning Differential)
Clutch out position switch	Travel mode selector (Auto1-Auto2)
DSS (Down Shift Switch)	
Forward / Reverse lever	
Power mode switch	

#### Cooling system

Cooling fan with heat sensing	Standard fin pitch radiator
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#### Hydraulic system

Bucket auto leveler (Automatic return to dig control)	Hydraulic filters
Control lever for 2 spools control valve 2 levers	Lift arm float system Lift arm kickout
Control lever lock	Reservoir sight gauge

#### Electrical

Backup alarm	Turn signals with hazard switch
Batteries (1 14AH - 765A)	Front lights on cab (2)
Brake & tail lights	Rear lights on rear grille
Clearance lights	
Headlights	

#### Others

Articulation lock bar	Ladders, inclined	Lockable fuel refilling cap	Spring-set/Hydraulic-released parking brake
Counter weight (2,540 kg)	Lift & tie down hooks	Neutral safety start	Standard lift arm
Drawbar with locking pin	Linkage pins, HN bushing	On board information controller	Steps, rear
Front & half covered rear fenders	Lockable engine cover	Single brake pedal	Z-bar loader linkage

#### Cab

Adjustable steering column	Rubber floor mat
Ashtray, cigar lighter	Storage: Cup holder, Document holder, Hot & Cool box, Seatback pocket
Auto control air conditioner with single intake filter	Sun visor
Coat hook	Textured steering wheel with spinner knob
Front / Rear defroster	Safety glass (tempered)
Glove compartment	Windshield washer front and rear
Mechanical suspension seat: fabric, high back, adjustable for armrest angle, fore-aft position, reclining angle, weight and height	Windshield wipers front and rear
Non ROPS / FOPS cab	
Rear view mirrors (inside (2), outside (2))	

#### Monitoring system

<b>Gauge</b> Coolant temperature Fuel Transmission oil temperature	<b>LCD monitor display</b> Clock ECO F-N-R/Shift position Hold Hour meter Odometer Replacement intervals Ride control Speedmeter
<b>Indicator lights</b> Air filter restriction Brake oil low pressure Clearance lights Control lever lock Discharge warning Emergency steering Engine warning Fan reverse Fuel filter restriction Forward/reverse selector switch High beam Hydraulic oil temperature Maintenance Parking brake Power mode Preheat Seat belt Service Transmission oil Lockable engine cover	<b>Warning lights</b> Brake oil low pressure Engine oil low pressure Overheat Steering oil low pressure

### Optional equipment

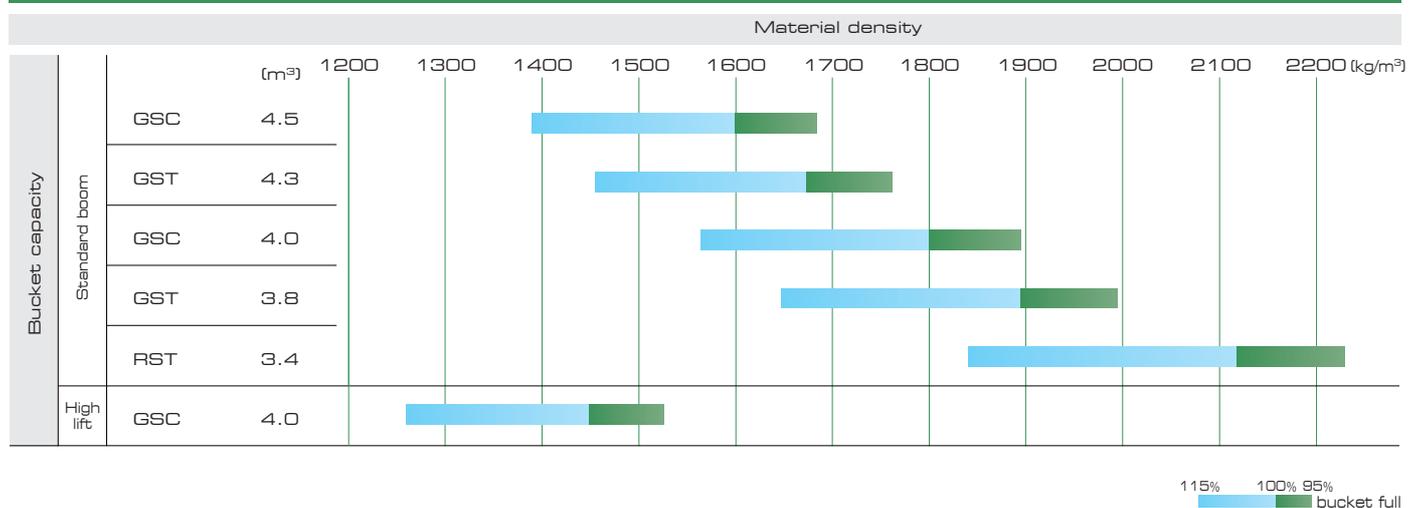
Air intake, rain cap	Bucket cylinder guard	Front & half covered rear fenders with mud flaps	Ride control system (OFF-AUTO type)
Air intake, pre-cleaner (Bowl type)	Control lever multifunction lever (MF lever)	High lift arm	ROPS (ISO3471), FOPS (ISO3449) cab
AM/FM radio	Control lever for 3 spools control valve	Large capacity batteries (147AH-930A)	Rotating lamp
AM/FM radio with AUX for digital audio player	Double (LH & RH) brake pedal	LED rear lamp	Shift change delay mode
Auto control air conditioner with double intake filter	Dual lift arm auto leveler	LSD (Limited Slip Differential)	Wide fin pitch radiator
Automatic reversible cooling fan with heat sensing	Emergency steering	Owner's Site	Work lights, additional front lights on cab (2)
Battery disconnect switch	Forward/Reverse selector switch	Rear under mirror	Work lights, rear lights on cab (2)
Belly guard (Front/Rear frame)	Front & full covered rear fenders with mud flaps	Rear view camera & monitor	12V power outlet

## Bucket data

			Standard boom					Highlift
			General purpose loose material		General purpose stock pile		Rock straight edge	Loose material
			Bolt-on edges	Teeth	Bolt-on edges	Teeth	Teeth	Bolt-on edges
			GSC	GST	GSC	GST	RST	GSC
Bucket capacity	heaped	m <sup>3</sup>	4.5	4.3	4.0	3.8	3.4	4.0
	struck	m <sup>3</sup>	4.0	3.8	3.5	3.3	2.9	3.5
<b>A</b>	Max. dumping clearance	mm	3,010	2,890	3,095	2,975	3,000	3,550
<b>B</b>	Max. dumping reach	mm	1,300	1,370	1,215	1,280	1,235	1,245
<b>C</b>	Max. hinge pin height	mm	4,410					4,865
<b>D</b>	Digging depth (with bucket level)	mm	95	125	95	125	125	95
	Breakout force	kN	177	189	192	207	212	192
	Bucket tilt-back angle at carry position	deg	50					48
<b>E</b>	Overall length	mm	8,910	9,050	8,790	8,930	8,900	9,240
Overall height	<b>F</b> up to cab top	mm	3,470					
	<b>G</b> bucket full raise	mm	6,215		6,100		5,775	6,555
Overall width	<b>H</b> outside tire	mm	2,930					
	<b>I</b> outside bucket	mm	3,100	3,120	3,100	3,120	3,120	3,100
<b>J</b>	Tread	mm	2,230					
<b>K</b>	Wheel base	mm	3,450					
Min. turning radius (bucket carry position)	<b>L</b> at outside bucket	mm	7,360	7,415	7,330	7,385	7,375	7,520
	<b>L'</b> at center of outside tire	mm	6,270					
<b>M</b>	Min. ground clearance	mm	505					
	Full articulation angle	deg	37					
	Operating weight with ROPS cab	kg	23,230	23,090	23,100	22,970	23,180	23,410
Static tipping load	straight	kg	18,080	18,260	18,230	18,410	18,440	15,090
	full turn	kg	15,770	15,930	15,900	16,060	16,090	13,160

The weight and load figure includes counter weight (2,540kg), base tire (26.5-25-20PR L3), ROPS cab, lubricant, coolant, full fuel tank and operator (75kg)

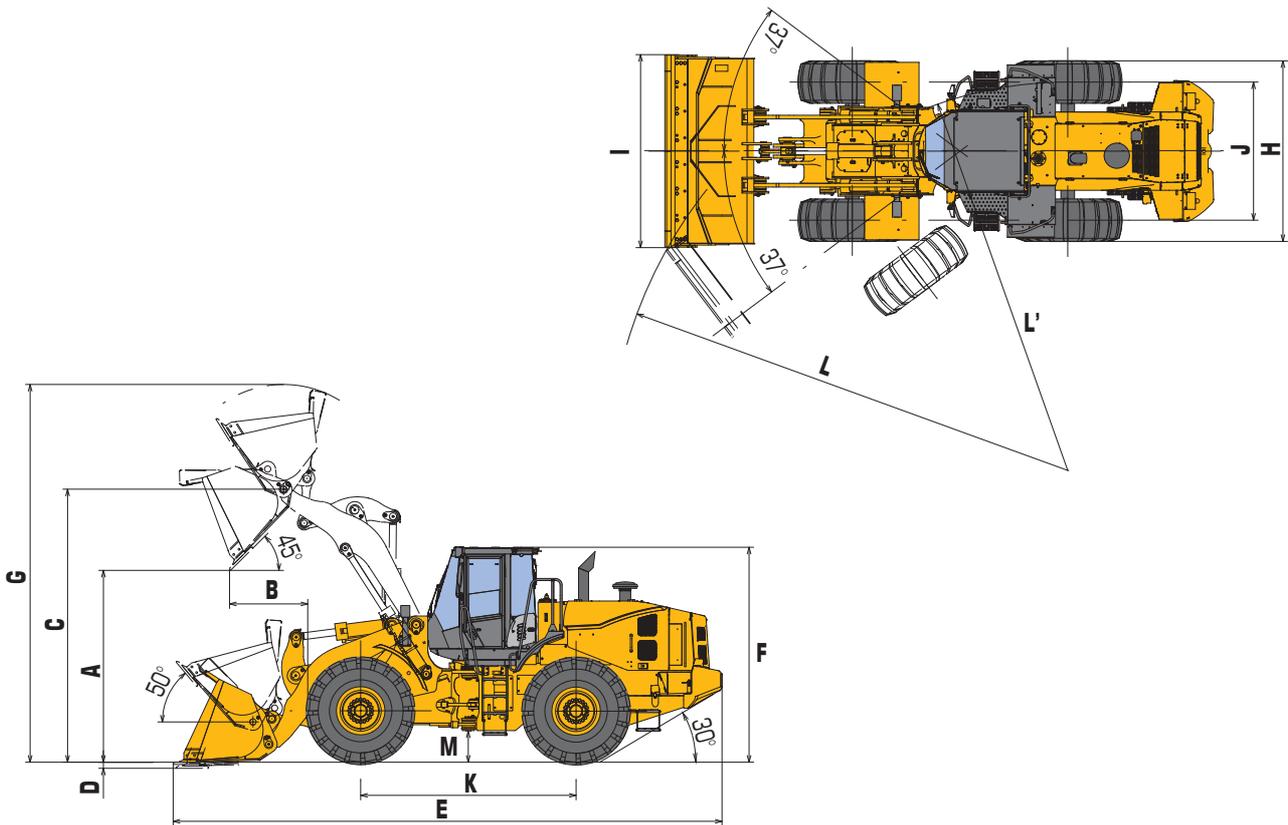
## Bucket selection chart



## Weight and dimensions

Option item		Operating weight	Tipping load			Overall width (outside tire)	Overall height	Overall length
			Straight	Full turn				
Tire	26.5R25 (L3)	kg	±0	±0	mm	±0	±0	±0
	26.5R25 (L4)	kg	+400	+290	mm	+15	+30	-25
	26.5R25 (L5)	kg	+740	+550	mm	+15	+30	-25
	26.5-25-20PR (L3)	kg	±0	±0	mm	±0	±0	±0
	26.5-25-20PR (L4)	kg	+480	+350	mm	±0	±0	±0
	26.5-25-20PR (L5)	kg	+840	+620	mm	±0	±0	±0
Soft cab (instead of ROPS cab)	kg	-250	-230	-200	mm	-	-	-
Belly guard (rear frame)	kg	+95	+100	+90	mm	-	-	-

## Dimensions



Equipped with 26.5-25-20 (L3) tubeless tire, standard boom and ROPSs cab

### 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 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 you require.

## HISTORY

KCM's rich heritage began in 1962 with the development of Japan's first Z-linkage articulated wheel loader. With over 50 years of experience and innovation, KCM is one of the major leaders in the global wheel loader market. Made in Japan has become a sign of quality worldwide and KCM loaders are proud of their Japanese roots. As a specialist in wheel loaders, KCM has focused on satisfying customer needs with technological innovation. "Powerful, Durable, Dependable" a slogan that has not changed since the beginning. For over a half century, KCM has provided high quality and high performance machines as a major producer of wheel loaders. Operating in a wide range of applications and working conditions, KCM loaders set the standard for the industry. KCM continues to develop advanced, cutting edge technologies to continue to provide the market with value.

# KCM



**KCM Corporation**

<http://www.khi.co.jp/kenki/english/>

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