

# ZW220



## WHEEL LOADER

Model Code: ZW220-5A

Max. Engine Power: 144 kW (193 HP)

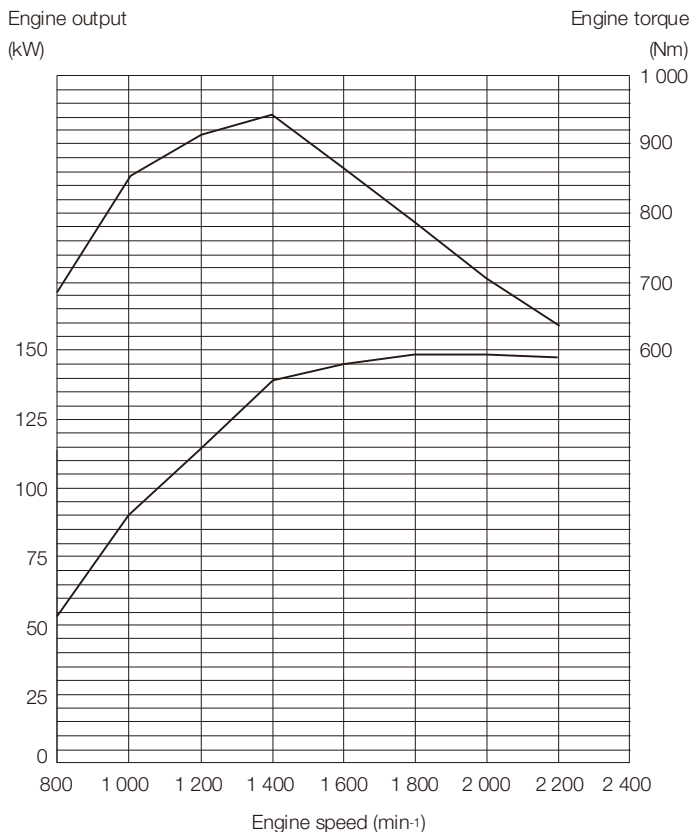
Operating Weight: 16 810 - 17 450 kg

Bucket ISO Heaped: 2.7 - 4.4 m<sup>3</sup>

# SPECIFICATIONS

## ENGINE

Model .....	CUMMINS QSB6.7
Type .....	4-cycle water-cooled, direct injection
Aspiration .....	Turbocharger and intercooled
No. of cylinders .....	6
Maximum power	
Gross .....	145 kW (194 HP) at 2 000 min <sup>-1</sup> (rpm)
ISO 9249, net .....	144 kW (193 HP) at 1 800 min <sup>-1</sup> (rpm)
Maximum torque .....	931 Nm at 1 400 min <sup>-1</sup> (rpm)
Bore and stroke .....	107 mm X 124 mm
Piston displacement .....	6.690 L
Batteries .....	120 Ah - 760 A Std
	155 Ah - 900 A Large
Air cleaner .....	Two element dry type with restriction indicator



## POWER TRAIN

Transmission .....	Torque converter, countershaft type powershift with computer-controlled automatic shift and manual shift features included.
Torque converter .....	Three element, single stage, single phase
Main clutch .....	Wet hydraulic, multi-disc type
Cooling method .....	Forced circulation type
Travel speed* Forward / Reverse	
1st .....	6.7 / 7.0 km/h (6.7 / 7.1 km/h)
2nd .....	11.4 / 12.0 km/h (11.7 / 12.3 km/h)
3rd .....	16.7 / 25.9 km/h (17.5 / 27.3 km/h)
4th .....	24.8 km/h (26.1 km/h)
5th .....	37.4 km/h (37.4 km/h)
*With 23.5-25-16PR (L3) tires	
( ): Data at Power Mode	

## AXLE AND FINAL DRIVE

Drive system .....	Four-wheel drive system
Front & rear axle .....	Semi-floating
Front .....	Fixed to the front frame
Rear .....	Trunnion support
Reduction and differential gear .....	Two stage reduction with conventional differential
Oscillation angle .....	Total 24° (+12°, -12°)
Final drives .....	Heavy-duty planetary, mounted outboard

## TIRES

Tire size .....	23.5-25-16PR (L3)
Optional .....	Refer to standard & optional equipment list

## BRAKES

Service brakes .....	Outboard mounted fully hydraulic 4 wheel wet disc brake. Front & rear independent brake circuit
Parking brakes .....	Spring applied, hydraulically released, dry disc type with external output shaft

## STEERING SYSTEM

Type .....	Articulated frame steering
Steering angle .....	Each direction 40° ; total 80°
Cylinders .....	Double-acting piston type
No. x Bore x Stroke .....	2 x 70 mm x 442 mm

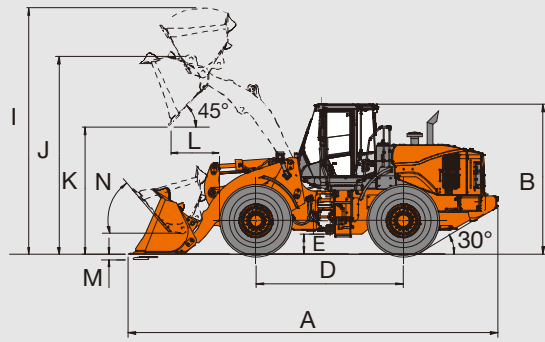
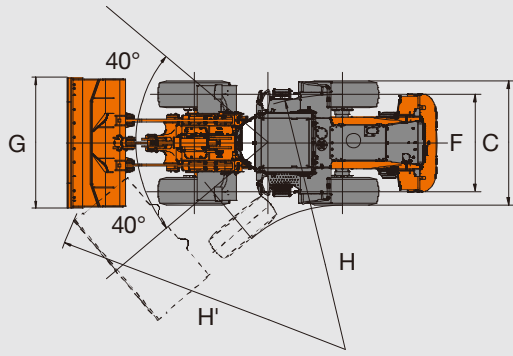
## HYDRAULIC SYSTEM

Arm and bucket are controlled by independent control lever	
Arm controls .....	Four position valve ; Raise, hold, lower, float
Bucket controls with automatic bucket return-to-dig control .....	Three position valve ; Roll back, hold, dump
Main pump (Serve as steering pump)	
.....	Variable Displacement Axial Plunger Pump
Maximum flow .....	271 L/min at 2 170 min <sup>-1</sup> (rpm)
Maximum pressure ..	27.4 MPa
Fan pump	
.....	Fixed Displacement Gear Pump
Maximum flow .....	80.5 L/min at 2 200 min <sup>-1</sup> (rpm)
Maximum pressure ..	14.7 MPa
Hydraulic cylinders	
Type .....	Double acting type
No. x Bore x Stroke ...	Arm : 2 x 130 mm x 880 mm
	Bucket : 1 x 165 mm x 510 mm
Filters .....	Full-flow 15 micron return filter in reservoir
Hydraulic cycle times	
Lift arm raise .....	5.9 s (5.6 s)
Lift arm lower .....	3.3 s (3.3 s)
Bucket dump .....	1.2 s (1.2 s)
Total .....	10.4 s (10.1 s)
( ): Data at Power Mode	

## SERVICE REFILL CAPACITIES

Fuel tank .....	255 L
Engine coolant .....	25 L
Engine oil .....	25 L
Torque converter & transmission .....	40 L
Front axle differential & wheel hubs .....	35 L
Rear axle differential & wheel hubs .....	35 L
Hydraulic oil tank .....	114 L

## DIMENSIONS & SPECIFICATIONS



Bucket type			Standard arm						
			General purpose				Rock bucket	Coal bucket	
			Bolt-on cutting edge		Bolt-on teeth		Bolt-on teeth	Bolt-on cutting edge	
Bucket capacity	ISO heaped	m³	3.2	3.4	3.1	3.3	2.7	4.0	4.4
	ISO struck	m³	2.6	2.8	2.7	2.8	2.3	3.5	3.8
A Overall length			8 200	8 250	8 350	8 390	8 290	8 390	8 480
B Overall height			3 375						
C Width over tires			2 785						
D Wheel base			3 300						
E Ground clearance			455						
F Tread			2 160						
G Bucket width			2 910						
H Turning radius (Centerline of outside tire)			5 620						
H' Loader clearance radius, bucket in carry position			6 590	6 600	6 630	6 650	6 620	6 640	6 670
I Overall operating height			5 480	5 530	5 480	5 530	5 480	5 660	5 750
J Height to bucket hinge pin, fully raised			4 090						
K Dumping clearance 45 degree, full height			2 920	2 880	2 810	2 780	2 850	2 780	2 720
L Reach, 45 degree dump, full height			1 110	1 140	1 190	1 220	1 150	1 240	1 300
M Digging depth (Horizontal digging angle)			100	100	120	120	120	100	100
N Max. roll back at carry position			50						
Static tipping load *	Straight	kg	13 650	13 600	13 880	13 820	13 220	13 430	14 100
	Full 40 degree turn	kg	11 800	11 750	12 010	11 950	11 370	11 580	12 160
Breakout force		kgf	15 150	14 580	16 460	15 820	17 100	13 010	12 150
		kN	149	143	161	155	168	128	119
Operating weight (with non ROPS / FOPS cab)*			16 890	16 930	16 810	16 850	17 380	17 040	17 450

Note: All dimensions, weight and performance data based on ISO 6746-1:1987, ISO 7131:2009 and ISO 7546:1983

\*: Static tipping load and operating weight marked with\* include 23.5-25-16PR (L3) tires (No ballast) with lubricants, full fuel tank and operator.

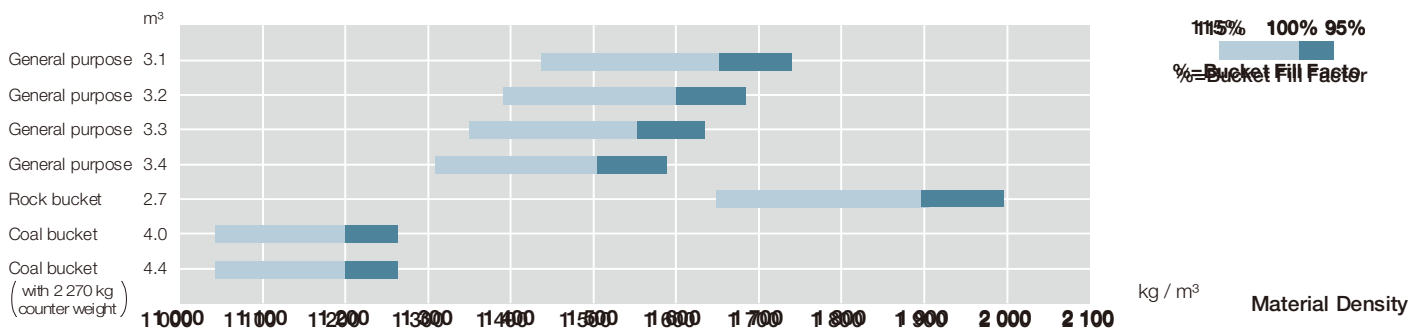
Machine stability and operating weight depend on counterweight, tire size and other attachments.

Data regarding 4.4 m³ coal bucket are with 2 270 kg counter weight.

## WEIGHT CHANGE

Option item		Operating weight (kg)	Tipping load (kg)		Overall width (mm) (outside tire)	Overall height (mm)	Overall length (mm)
			Straight	Full turn			
Tire	23.5-25-16PR (L3)	±0	±0	±0	±0	±0	±0
	23.5-25-20PR (L3)	+30	+20	+20	±0	±0	±0
	23.5R25 (L3)	+100	+70	+60	+40	-10	+10
	23.5R25 (L5)	+700	+530	+470	+50	+20	-10
Belly guard		+170	+120	+110	-	-	-
ROPS / FOPS Cab		+210	+160	+140	-	-	-
2 270 kg Counter weight		+340	+780	+690	-	-	-

## BUCKET SELECTION GUIDE



# EQUIPMENT

● ..... Standard equipment

○ ..... Optional equipment

## OPERATOR'S STATION

Adjustable steering column	●
Ashtray, cigar lighter	●
Audio	
AM/FM radio	●
AM/FM radio with AUX for digital audio player	○
Auto control air conditioner	
with single intake filter	●
with double intake filter	○
Cab	
Non ROPS / FOPS cab	●
ROPS (ISO347 1), FOPS (ISO3449)	○
Coat hook	●
Front/Rear defroster	●
Glove compartment	●
Rear view camera & monitor	○
Rear view mirrors	
Inside (2)	●
Outside (2)	●
Outside (Heated, 2)	○
Retractable seat belt, 50mm	●
Rubber floor mat	●
Seat	
Mechanical suspension seat: fabric, high back, adjustable for armrest angle, fore-aft position, reclining angle and weight-height.	●
Air suspension seat with headrest and heater: fabric, high back, adjustable for armrest angle, damper, fore-aft position, headrest height and angle, inclination of the seat, lumbar support, reclining angle, seat depth and weight-height.	○
Storage	
Cup holder	●
Digital audio player holder	●
Document holder	●
Hot & cool box	●
Seatback pocket	●
Sun visor	●
Textured steering wheel with spinner knob	●
Safety glass (tempered)	●
Windshield washer front and rear	●
Windshield wipers front and rear	●

## ELECTRICAL SYSTEM

Backup alarm	●
Batteries	
Standard batteries (120AH-760A)	●
Large capacity batteries (155AH-900A)	○
Battery disconnect switch	○
Immobilizer key	○
12V power outlet	○

## COOLING SYSTEM

Fan	
Cooling fan with heat sensing	●
Automatic reversible cooling fan with heat sensing	○
Fan guard	●
Radiator	
Standard fin pitch radiator	●
Wide fin pitch radiator	○

## LIGHTS

Brake & tail lights	●
Clearance lights	●
Headlights	●
Rotating lamp	○
Turn signals with hazard switch	●
Work lights	
Front lights on cab (2)	●
Rear lights on rear grille side cover (2)	●
Additional front lights on cab (2)	○
Rear lights on cab (2)	○

## POWER TRAIN

Automatic transmission with load sensing system	●
Clutch cut position switch	●
Differential	
Conventional differential	●
LSD (Limited Slip Differential, front)	○
DSS (Down Shift Switch)	●
Forward/Reverse lever	●
Forward/Reverse selector switch	○
Power mode switch	●
Quick power switch	●
Travel mode selector (Auto1-Auto2)	●
1st speed fixed switch	●

## ENGINE

Air intake	
Rain cap	●
Pre-cleaner (Sy-Klone)	○
Pre-cleaner (Bowl type)	○
Air filter double elements	●
Cartridge-type engine oil filter	●
Cartridge-type fuel pre-filter	●
Cartridge-type fuel main filter	●
Engine oil remote drain	●

## MONITORING SYSTEM

Gauge: coolant temperature, fuel, transmission oil temperature	●
Indicator lights: 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 temperature, transmission warning, turn signals, water separator, work lights	●
LCD monitor display: clock, ECO, F-N-R/Shift position, hold, hour meter, odometer, replacement intervals, ride control, speedometer	●
Warning lights: brake oil low pressure, engine oil low pressure, overheat, steering oil low pressure	●

## BRAKE SYSTEM

Front & rear independent brake circuit	●
Outboard mounted fully hydraulic 4 wheel wet disc	●
Pedal	
Single brake pedal	●
Double (LH & RH) brake pedal	○
Spring-set/Hydraulic-released parking brake	●

## HYDRAULIC SYSTEM

Bucket auto leveler (Automatic return to dig control)	●
Control lever	
for 2 spools control valve	
2 levers	



●

Multifunction lever (MF lever)



○

for 3 spools control valve

MF lever & AUX lever for 3rd function



○

2 levers & AUX lever for 3rd function



- Inside layout pattern (3rd - bucket - liftarm)

○

- Outside layout pattern (Bucket - liftarm - 3rd)

○

for 4 spools control valve

MF lever & AUX joystick lever for 3rd & 4th function



○

2 levers & AUX 2 levers for 3rd & 4th function

- Inside layout pattern (4th - 3rd - bucket - liftarm)



○

2 levers & AUX joystick lever for 3rd & 4th function



○

Control lever lock switch	●
Dual lift arm auto leveler	○
Hydraulic filters	●
Lift arm float system	●
Reservoir sight gauge	●
Ride control system (OFF-AUTO type)	○

## TIRES

23.5-25-16PR (L3)	●
23.5-25-20PR (L3)	○
23.5R25 (L3)	○
23.5R25 (L5)	○

## MISCELLANEOUS

Articulation lock bar	●
Belly guard (Bolt on type)	○
Bucket cylinder guard	○
Counter weight	
1 930 kg counter weight	●
2 270 kg counter weight	○
Drawbar with locking pin	●
Emergency steering	○
Fenders	

for 23.5-25-16PR

Front & half covered rear fenders

●

Front & full covered rear fenders with mud flaps

○

Front & half covered rear fenders with mud flaps

○

Global e-service

●

Lift arm

Standard lift arm

●

High lift arm

○

Lift & tie down hooks

●

On board information controller

●

Pilfer proof

Battery cover with locking bracket

●

Lockable engine cover

●

Lockable fuel refilling cap

●

Theft prevention system\*

○

Standard and optional equipment may vary by country, so please consult your Hitachi dealer for details.

\* Hitachi Construction Machinery cannot be held liable for theft, any system will just minimize the risk of theft.

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