

EH5000AC-3



DUMP TRUCK

Model Code : EH5000AC-3

Nominal Payload with Standard Equipment : 296 tonnes (326 tons)

Target Gross Machine Operating Weight : 500 000 kg

Engine : Cummins QSKTTA60-CE

Rated Power 2 125 kW (2 850 HP)

Refined engineering and advanced Hitachi AC Drive system technology have created hauling capability well recognized in the surface mining industry.

The EH5000AC-3 continues to prove itself as an exceedingly capable and reliable solution to mine applications worldwide.



Well Matched: EH5000AC-3 & Excavators

Excavator	EX3600-6		EX5600-6		EX8000-6
	BH	LD	BH	LD	LD
Front					
Bucket	*22.0 m ³	21.0 m ³	*34.0 m ³	29.0 m ³	40.0 m ³
Passes	8	8	5	6	4

BH : Backhoe LD : Loading shovel * : SAE, PCSA heaped capacity

AC Drive Proven Performance & Economic Advantages

Hitachi engineered AC drives make your hauler a more valuable asset in your mining operation. Better performance, higher availability, and significant reductions in maintenance and operating costs - result in a lower cost per tonne and a higher return on your investment.

High-Powered Engine

Strong, reliable power is provided by the Cummins QSKTTA60-CE engine. This U.S. Tier 2 emission certified engine maintains a low fuel consumption level.

Long Frame Life

A fabricated box section and rectangular frame rail construction provides superior resistance to bending and torsional loads. One-piece top and bottom flanges eliminate cross member tie-in joints and provide a larger exposed center area for access to major components.

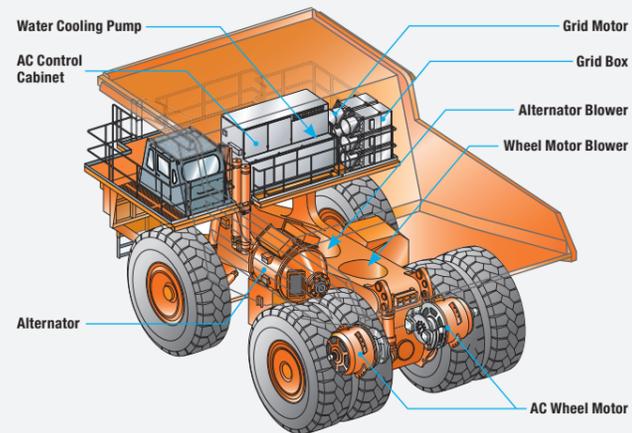
Tough Body

The Hitachi horizontal stiffener design minimizes stress concentrations by dissipating load shocks over the entire body length. Efficiently spaced stiffeners provide additional protection by minimizing distances between unsupported areas.



AC Drive Advantage

Hitachi AC drive technology provides superior truck performance with higher top speeds, better gradeability and stronger electric braking. Hitachi inverter modules provide high rigid truck controllability and efficiency. The Hitachi AC wheel motors do not have commutators and brushes, which improves truck performance by providing reduced maintenance costs, higher truck availability and higher travel speeds. These advantages result in more productivity and lower costs per tonne. Hitachi AC drive systems also power electric train locomotives world wide.

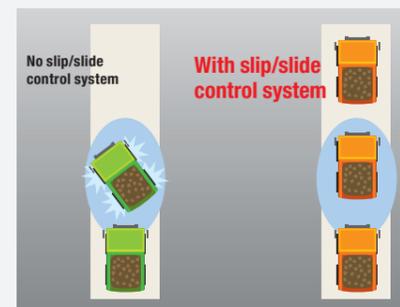


Hitachi Drive Control System

New Hitachi drive control system for optimal operational stability and performance as follows.

1. Slip / slide control system

If the system senses slipping or locking of rear wheels when traveling on slippery or frozen roads, it adjusts the torques of the wheel motors accordingly, bringing the truck more stable traveling.



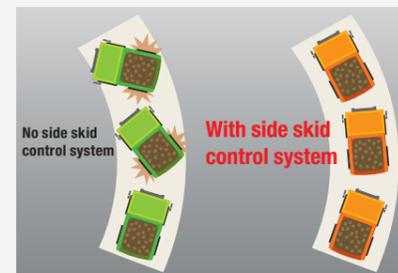
2. Pitch control system

If the system senses pitching when traveling on bumpy roads or stopping abruptly, it adjusts the torques of the wheel motors accordingly to reduce pitching of the truck, resulting in better operating comfort and fewer load spillage.



3. Side Skid control system

If the system senses oversteer or understeer from the newly equipped sensors, it adjusts the torques of the wheel motors accordingly to control the side skidding. This brings the truck smoother movements and more stable traveling and steering.



Note: This system is designed originally to enhance pleasant driving, so please drive at a safety speed or lower, and make periodic maintenance of the haul road.

AC Drive Control

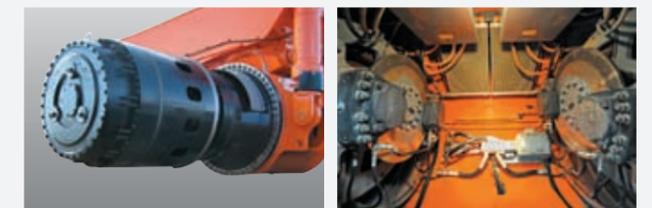
Superior Electric Braking enables the driver to stop the truck using the electric brake pedal only with the exception of emergencies, because the AC drive control system applies the service brakes automatically just before the stopping, resulting in easy machine operation and longer time between service brake maintenance intervals.

Auto Cruise Control keeps vehicle speed constant within the set range by limiting the minimum vehicle speed.

Auto Retarding Control keeps vehicle downhill speed constant within the set range by limiting the maximum vehicle speed.

The AC Drive Wheel Motors

The Hitachi Dual Path Epicyclic Planetary design provides high efficiency and easy maintenance. Allowing the 1st (outer) planetary carrier to travel at wheel speed provides lower operating temperatures. Better component and lubricant life is the result of an inverter controlled lubricant circulation system that includes lubricant cooling and filtration.



Ease of Operation

HI-TECH ROPS/FOPS Cab

The HI-TECH ROPS/FOPS cab has been equipped with a Hitachi controller and a large centrally mounted, color Liquid Crystal Display (LCD) as used in Hitachi large sized excavators. Double wall construction of 11 gauge inner and outer steel panels produces a more structurally sound cab. A three-point rubber isolation-mount arrangement minimizes vibration to the operator compartment.



Note: This image shows a monitor for optional SkyAngle at the left pillar.



Superior Suspension

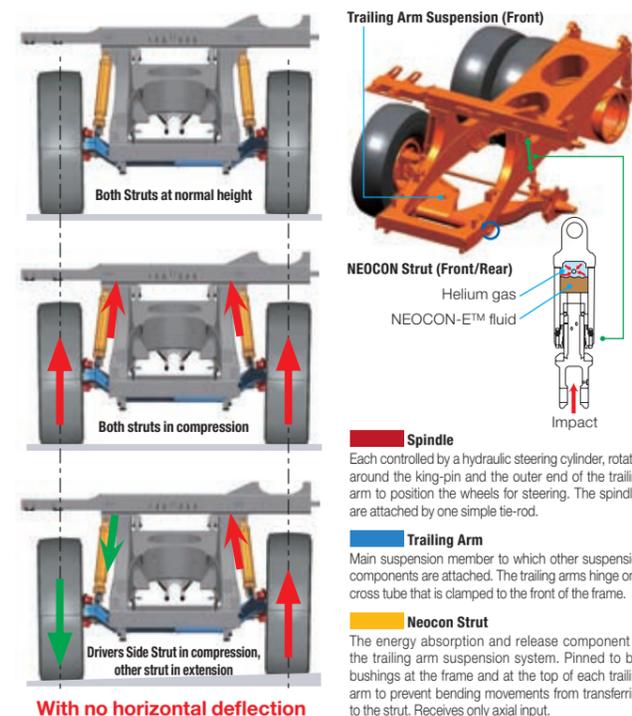
The Hitachi trailing arm suspension system delivers excellent maneuverability, even at higher speeds. The trailing arm layout offers greater ease of servicing while improving truck performance compared to suspended king-pin designs. The pivot mounting of the trailing arm design allows only axial input to the strut and allows wheel movement to the vertical plane only.

Features:

- Lateral forces that act on the front wheels are minimized, resulting in reduced tire scuffing.
- Dynamic friction (side-wall force) within the strut is low due to the features of the trailing arm suspension design, allowing the use of a lighter strut engineered to a smaller diameter and longer stroke.
- The necessary frame bulk (horse-collar structure) needed to mount a suspended king-pin is non-existent.
- The elimination of the “horse-collar” member provides greater engine access.

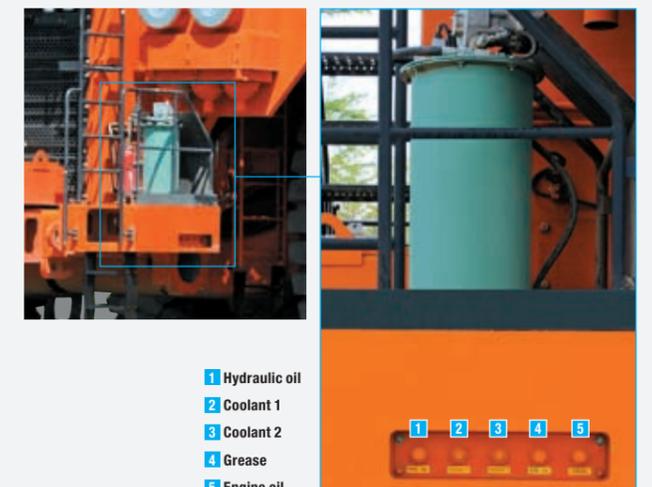
- The NEOCON strut used with the trailing arm suspension, improves operator and component isolation, provides better hauler stability and predictable operational control.
- Locating the king-pin close to the wheel assembly and at a slight angle results in low “Dry Park Steering” effort.
- Development of the compressible media, NEOCON- E™ fluid (proprietary, silicone based, environmentally friendly) for use in the suspension strut with Helium gas, results in an improved energy absorption (isolation) system and an improved energy release (stability) system that responds favorably whether traveling empty or loaded in a wide range of ambient temperatures.

The trailing arm suspension design allows the front struts to be removed and installed without removing the front brakes or tires. This means fewer tools and less labor time are required, resulting in less downtime and higher productivity.



THE FAST FILLING SYSTEM

The fast filling system, provided standard on the left side of the radiator, allows direct access at ground level for fast feeding of coolant, grease, hydraulic oil and engine oil. (Couplers are optional.)



SPECIFICATIONS

ENGINE

Model	Cummins QSKTTA60-CE
Type	4 Cycle Diesel w/ MCR fuel system
Aspiration	2 stage Turbocharged & Low Temperature Aftercooled
Emission Certification	U.S. EPA Tier 2
Gross Power @1900 min ⁻¹ (rpm)	
SAE J1995	2 125 kW (2 850 HP)
Net power @1900 min ⁻¹ (rpm) ...	1 970 kW (2 640 HP)
Maximum Torque @1 500 min ⁻¹ (rpm)	
SAE J1995	10 628N.m (1 084 kgf.m)
No. of Cylinders	16
Bore & Stroke	159 x 190 mm
Displacement	60 L
Starting	24 Volt Electric

ELECTRIC DRIVE

HITACHI AC-Drive System

AC Control Cabinet

Rectifier

Number of units	1
Rated capacity	1 860 kW

Inverter

Number of units	2
Rated capacity per unit	1 200 kVA

Chopper

Number of units	2
Rated capacity per unit	1 950 kW

Equipped with reliable water cooling system Pressurized cabinet to reduce dust. Equipped with lockable doors for safety. Equipped with small inverters to provide Grid motors and Blower motors with adequate AC current. Uniquely constructed for the Rigid Truck application

Alternator

Number of units	1
Capacity	2 050 kVA @ 1 900 min ⁻¹ (rpm)

Equipped with an auxiliary alternator that provides AC current to Grid motors, Blower motors, Control cabinet coolant pump and Final drive oil cooling & filtrating pump. Air cooled by an AC drive blower.

AC Wheel Motor

Number of units	2
Capacity per unit	920 kW

Grid Box (Electric Brake)

Number of modules	6
Capacity per unit	625 kW (3 min.)

Equipped with inverter controlled variable speed cooling fan.

Axle

Planetary Ratio	41.0 : 1
Maximum Speed (Continuous)....	56 km/h

TIRES

Front and Rear	Rim Width (Standard)
53/80R63	914 mm (36 in)
	Rim Width (Optional)
	965 mm (38 in)

Certain job conditions may require higher TKPH (TMPH) in order to maintain maximum production. Hitachi recommends evaluating the job conditions and consulting with the tire manufacturer to make proper selection.

ELECTRICAL SYSTEM

Twenty-four volt system. 140 ampere engine driven alternator. Four 245H52, 12 volt, heavy duty batteries connected in series/parallel.

BODY CAPACITIES

Struck (SAE)	148 m ³
Heaped 3:1	185 m ³
Heaped 2:1 (SAE)	202 m ³
Body capacity and payload subject to change based on customer specific material density and application.	

STEERING SYSTEM

Closed-center, full time hydrostatic power steering system using two double-acting cylinders and a variable displacement piston pump. Hitachi accumulators provide supplementary steering in accordance with ISO 5010 (SAE J1511), supplying a constant steering rate under all conditions. A tilt/telescopic steering wheel with 35 degrees of tilt and 57 mm telescopic travel is standard.

Turning Diameter (ISO 7457)	29.9 m
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HYDRAULIC SYSTEM

Two (2) Hitachi three-stage, double-acting cylinders, with electronic controlled cushioning in retraction and extension, containing dual rod seals and urethane energized scrapers, inverted and outboard mounted. A tandem piston pump combines with four position electronic pilot controlled hoist valve. The electrical controller is mounted to the shift tower.

Body Raise Travel	58 degrees
Body Raise Time	24 sec
Body Down Time (Float)	22 sec

BRAKE SYSTEM

Brake system complies with ISO 3450 (SAE J1473).

Electric Brake

Superior retardation to zero speed on grades is achieved through AC wheel motors in conjunction with six Hitachi resistor grid packages. Service brake blending occurs at speeds below 0.5 km/h. Maximum dynamic braking (Standard)

3 750 kW

Service Brake

An all-hydraulic actuated braking system provides precise braking control and quick system response. The system is pressure proportioned, front to rear, for improved slippery road control.

Front Axle – Dry Disc

Disc Diameter Each (2 discs/axle, 4 calipers/disc)	133.3 cm
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Rear Axle – Oil-cooled Wet Disc

Total Friction Area per Brake	75 760 cm ²
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Secondary

Dual independent hydraulic circuits within the service brake system provide fully modulated reserve braking capability. Both front and rear brakes are automatically applied when loss of supply pressure is detected.

Parking

Two spring on, hydraulic off armature disc brake heads provide effective parking. The braking system complies with ISO 3450 (SAE J1473).

Load/Dump Brake Apply

Through activation of a switch by the operator, a solenoid is energized, sending full brake pressure to apply the rear Wet Disc brakes. For use during the load and dump cycles.

WEIGHTS (Approximate)

Net machine weight stated below includes standard equipment. Net machine weight changes will directly affect the Nominal Payload.

Chassis with Hoist & Body parts	174 000 kg
Body	30 000 kg
Net Machine Weight	204 000 kg
The Net Machine Weight specification includes operator and 100 % fuel.	

Note:

Body parts mean assembled standard parts to the body, such as mud guards, body pads, rock ejector bars, arm guard and fasteners.

Nominal Payload	296 tonnes
Target GMOW	500 000 kg

Weight Distribution	Front	Rear
Empty	48 %	52 %
Loaded	33 %	67 %

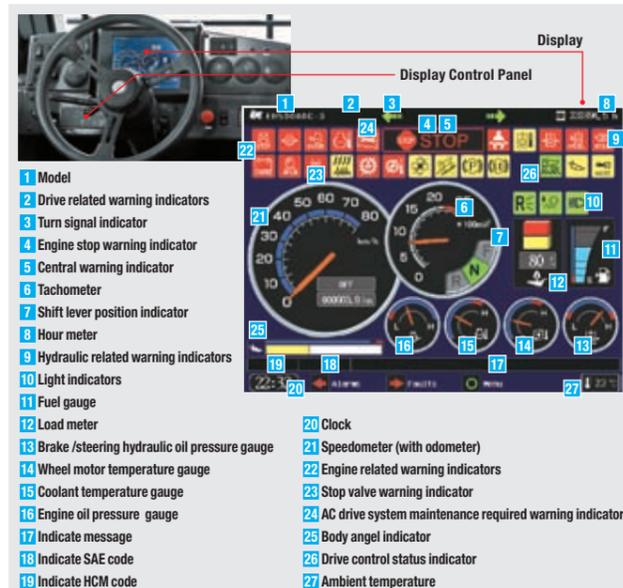
HI-TECH ROPS/FOPS CAB

New HI-TEC ROPS/FOPS Cab

ROPS complies with ISO3471 and SAE J1040-May 94, FOPS complies with ISO3449. A three-point rubber ISO-mount arrangement to the high-arch cross member minimizes vibration transfer to the operator compartment. New wider cab with double full size seat available and enough trainer's leg space brings comfortable operating and training.

Monitoring System

A new Hitachi system monitor provides display information and diagnostics of all onboard systems and controls which include the engine and Hitachi AC drive. Data links offer complete integration, while a color Liquid Crystal Display (LCD) clearly details machine functions. Downtime is minimized with faster and more reliable troubleshooting and analysis. A new Hitachi load monitoring system offers benefits such as better equipment utilization on the jobsite, accurate unit and fleet production results, and benchmark unit statistics against fleet results. Cycle time, distance and cycle count can all be measured and recorded as information that can help in developing higher productivity. The Hitachi load monitoring system is fully integrated with the Hitachi vehicle monitoring system and display interface, avoiding potential failure or error common in aftermarket systems.



Camera Monitoring System

Included as standard safety support equipment, an analog monitor has been mounted to the dashboard to display live camera information of the rear and right front area.

SUSPENSION

Front Suspension

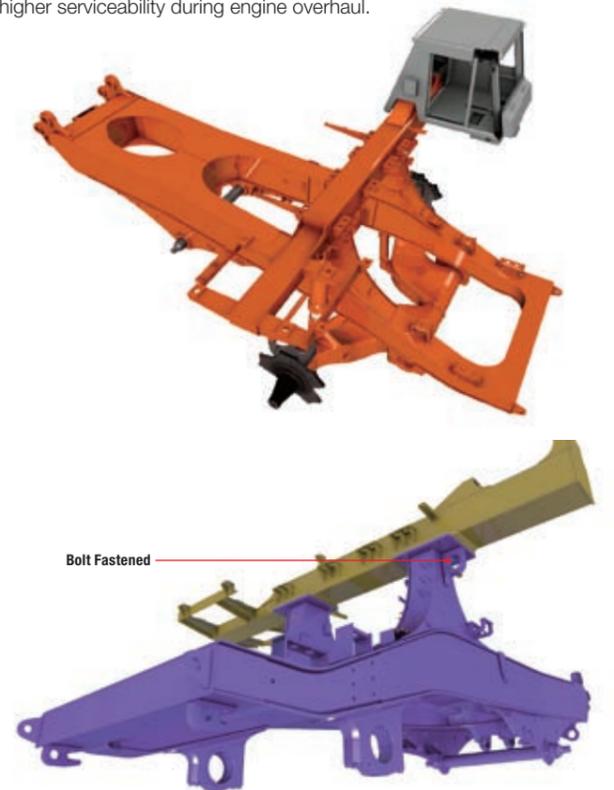
Independent trailing arms make up the front axle. NEOCON struts containing energy-absorbing gas and compressible NEOCON-E™ fluid are mounted between the trailing arms and frame. Inherent in the NEOCON strut design is a variable damping and rebound feature.

Rear Suspension

"A" frame structure, integral with axle housing, links the drive axle to the frame at forward center point with pin and spherical bushing. A track rod provides lateral stability between the frame and drive axle. Heavy-duty rear-mounted NEOCON struts containing energy-absorbing gas and compressible NEOCON-E™ fluid suspend the drive axle from the frame. Integral variable damping and rebound feature included.

FRAME

Full fabricated box section main rails with section height tapered from rear to front. Narrow at the rear to support the loads and wider at the front to allow for engine accessibility. One piece top and bottom flanges that eliminate cross member tie in joints and provide a large exposed center area for access to major components. Large radii minimize stress concentrations. Welded joints are oriented longitudinally to the principal flow of stress for greater durability and more strength. New High Arch Design with bolt fastened cab support brings less assembling time and higher serviceability during engine overhaul.



SPECIFICATIONS

BODY

An extended canopy protects service deck area. High tensile strength 400 BHN abrasion resistant alloy steel is used in thicknesses indicated below:

Floor	16 mm
Front	9 mm
Sides	9 mm
Canopy drop edge	6 mm
Corners	12 mm

High strength 690 N/mm² (100 000 psi) alloy steel is also used for the canopy side members and floor stiffeners. The body is rubber cushioned on the frame.

Optional Body Liners

Floor & Corners	12 mm
Sides & Front	6 mm
Canopy drop edge	6 mm

Special plate thicknesses and partial plates are available.

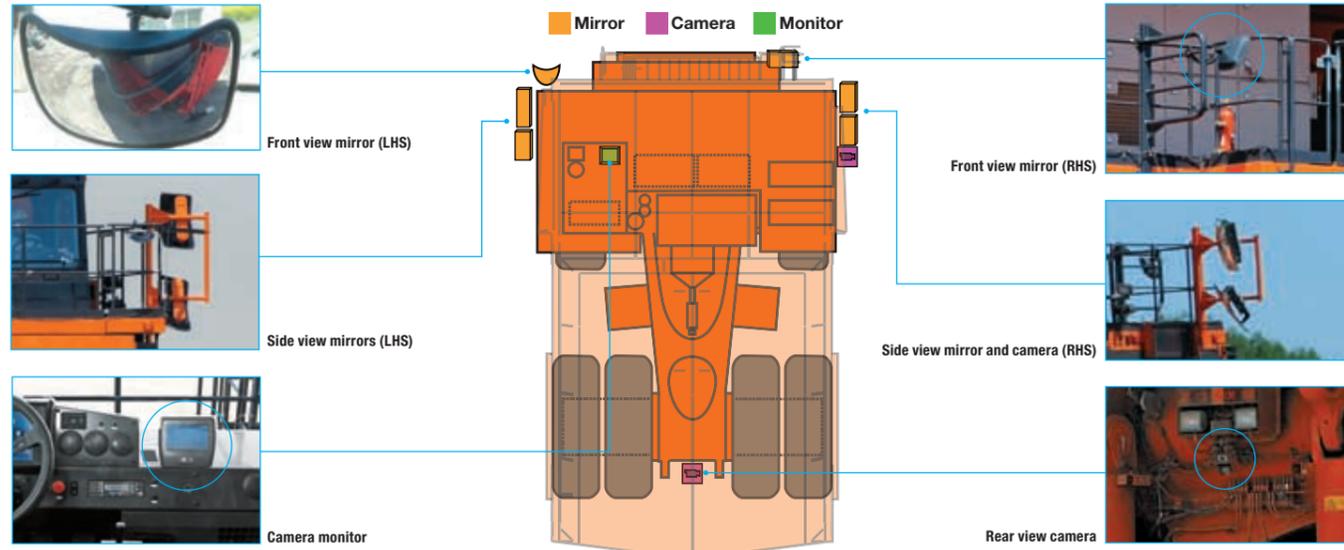


SERVICE CAPACITIES

Crankcase (includes filters)	260 L
Engine Cooling System	725 L
Fuel Tank (Standard)	2 900 L
Fuel Tank (Optional)	5 100 L
Hydraulic system	950 L
Rear Brake cooling system	170 L
Planetary Drives (L & R)	360 L
Front Wheels (L & R)	24 L
Control Cabinet Cooling System	59 L
Main Accumulator	2 X 70 L
Windshield Washer	20 L

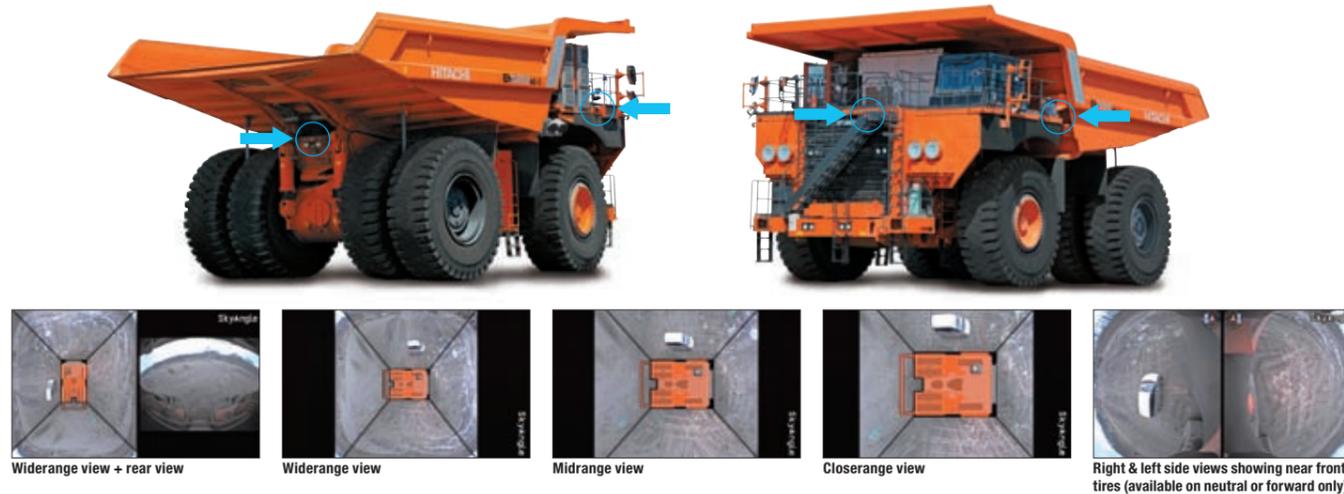
PERIMETER VISIBILITY (STANDARD)

The addition of mirrors and cameras to the base model make the truck compliant to the perimeter viewing requirement of standards ISO 5006 and ISO 14401.



SKYANGLE (OPTIONAL PERIPHERAL VISION SUPPORT SYSTEM)

The SkyAngle feature is available to significantly increase peripheral vision around the dump truck by providing synthesized multiple images captured by cameras specifically positioned at 4 locations around the truck. The feature displays camera views on a single monitor to allow operators an auxiliary means of checking for ground level obstacles.



EQUIPMENT

STANDARD EQUIPMENT

GENERAL

AC drive system	Front view mirror, LHS/RHS
Auto cruise control	Fuel/Water separator
Auto retarding control	Fuel tank, 2 900 L
Automatic lubrication system (Lincoln)	Ground level battery box
Battery isolation switch	Ground level relay box
Body prop cable	IGBT controlled blower fan motors (2)
Control cabinet pressurized/liquid cooled/ lockable	IGBT controlled final drive lubricant motor (1)
Deck mounted muffler	IGBT controlled grid fan motors (6)
Deck mounted stone guards	Load weighing system
Diagonal front stairway	NEOCON suspension struts
Electric controlled hoist system	Rear view camera
Electric horns (4)	Rear view mirrors (4)
Emergency ladders (2)	Rims, 36 inch
Engine access ladders (2)	Side view camera (RHS)
Engine shutdown switch	Suction port shut off valve at hydraulic tank
Beside engine (2)	Supplementary front braking system, accumulators
Ground level, on bumper (1)	Supplementary rear braking system, accumulators
Inside rear axle (1)	Supplementary steering system, accumulators
Fan and belt guards	Tow hooks, front
Fan clutch	Tow lugs, rear
Fast fluid filling system	
Fast fuel filling system provision	
Final drive lubricant cooling	
Final drive lubricant filtration	

CAB

Air conditioner	Override switch
AM-FM radio	Seat with 2-point, 50 mm width seat belt
Auxiliary outlet, 12 volt	Full size operator's seat, air suspension & 6 position
Camera monitor	Regular size trainer's seat, mechanical & adjustable
Engine shutdown switch	Tinted safety glass, with roll-down windows
Heater and defroster	12 volt accessory connection
Integral ROPS/FOPS cab	
LCD system monitor	
Load and dump brake switch	

INDICATORS AND GAUGES SHOWN ON MONITOR DISPLAY

AC drive system maintenance required warning indicator	Hour meter
Ambient temperature	Hydraulic related warning indicators
Body angel indicator	Indicate HCM code
Brake/steering hydraulic oil pressure gauge	Indicate message
Central warning indicator	Indicate SAE code
Clock	Light indicators
Coolant temperature gauge	Load meter
Drive control status indicator	Model
Drive related warning indicators	Shift lever position indicator
Engine oil pressure gauge	Speedometer (with odometer)
Engine related warning indicators	Stop valve warning indicator
Engine stop warning indicator	Tachometer
Fuel gauge	Turn signal indicator
	Wheel motor temperature gauge

MACHINE LIGHTS

Backup lights (2)	Engine compartment lights (2)
Clearance lights (4)	Halogen headlights (8)
Combination stop and tail lights (2)	Payload external indicators, 2 locations of 2 lights each
Deck lights (2)	Rear axle compartment light
Diagonal front stairway light	

OPTIONAL EQUIPMENT

Auxiliary dump connection	Halogen front tire lights (2)
Auxiliary steer connection	Heated mirrors
Body liners (400BHN)	HID headlights (8)
Body prop pins	Loadweight displays (2)
Body sizes **	Rims, 38 inch
Cold weather package **	SkyAngle (peripheral vision support system)
Communication system (alternative) * GPRS communication system	Sound attenuation package **
Satellite data transmitting system	Spare rim
Fast fluid filling system couplers	Tire guards (2)
Fast fuel filling system coupler	Trolley assist configuration **
Fuel tank, 5 100 L	WIU (Wireless Interface Unit) *
Full size operator's seat, air suspension & 6 position, with 3-point, 50 mm width seat belt	
Full size trainer's seat, air suspension & 6 position, with 2-point, 50 mm width seat belt	

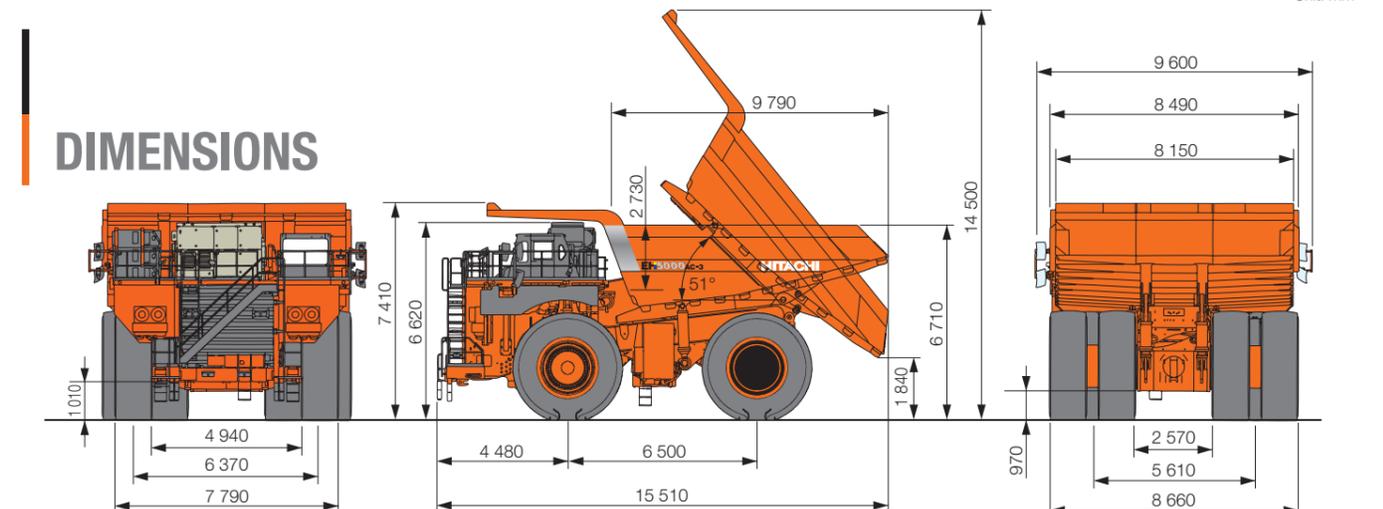
* : The availability of the system depends on licensing regulations in each country. Please contact Hitachi dealer for more information.

** : Engineered on request

OPTIONAL EQUIPMENT WEIGHT

Body liners (400BHN) plates including floor & corners (12 mm thicknesses), sides & front and canopy drop edge (6 mm thicknesses)	9 300 kg
5 100 L fuel tank with 100 % fuel (additional weight to the standard tank with 100 % fuel)	2 200 kg
Loadweight displays (2)	150 kg
Tire guards (2)	190 kg

DIMENSIONS





Before using a machine with a satellite communication system, please make sure that the satellite communication system complies with local regulations, safety standards and legal requirements. If not so, please make modifications accordingly.

These specifications are subject to change without notice. Illustrations and photos show the standard models, and may or may not include optional equipment, accessories, and all standard equipment with some differences in color and features. Before use, read and understand the Operator's Manual for proper operation.