

HITACHI

EH 650

Maximum Payload
36,3 Tonne (40.0 Ton)

**Maximum Payload
with Standard Liners**
34,2 Tonne (37.7 Ton)

Maximum GMW
62 560 kg (137,919 lb)

Engine
Volvo TD 164 KAE
Rated Output 370 kW (496 hp)



Specifications: EH650



ENGINE

Volvo TD 164 KAE, four-stroke direct-injected turbocharged diesel engine with charge air cooler and wet, replaceable cylinder liners.

Cold starter: Cold start aid boosts fuel injection and incorporates starting element to preheat intake air.

Air filter: Cyclone cleaner, main filter of paper type and catch-all safety filter.

Radiator fan: Extraction fan mounted on engine.

Make	Volvo			
Model	TD 164KAE			
Type	4 Cycle			
Aspiration	Turbocharged			
Gross Power (SAE 1995 @ 1800 rpm)	kW	hp	370	496
Net Power (SAE 1349 @ 1800 rpm)	kW	hp	366	491
No. Cylinders	6			
Bore & Stroke	mm	144 x 165		
	in	5.7 x 6.5		
Displacement	liters	in ³	16,1	1,726
Maximum Torque (SAE 1995) @ 1000 rpm	N•m	lb/ft	2 370	1,748
Starting	Electric			



TRANSMISSION

Transmission: Allison M5600AR. Planetary-type transmission with built-in retarder.

Torque converter: Allison TC-683. Torque converter integral with transmission with lock-up in all ranges (except reverse).

This transmission utilizes the Allison Commercial Electronic Control, providing hoist interlock and built-in diagnostics.

Maximum Speeds @ governed engine speed

Range	Ratio	km/h	mph
1	4,00:1	11	6.8
2	2,68:1	16	9.9
3	2,01:1	21	13.0
4	1,35:1	31	19.3
5	1,00:1	42	26.1
6	0,67:1	63	39.1
R1	5,12:1	8	5.0
R2	3,46:1	12	7.5



DRIVE AXLE

Axle shafts: Fully floating axle shafts with planetary hub reductions.

Ratios

Differential	3.17:1
Planetary gear	4.94:1
Total reduction, rear axle	15.65:1



TIRES

Standard - Front and Rear Rim Width
Bridgestone 18.00-33(32)E3 mm in 330 13

Optional tires, brands and treads available.



BODY CAPACITY

Load volume complies with SAE J/ISO 6483.

	m ³	yd ³
Struck (SAE)	17,0	22.2
Heap 2:1 (SAE)	23,5	30.7



WEIGHTS

	kg	lb
Net Machine Weight	26 260	57,892
Maximum GMW with Std. Tires [18.00-33(32)E3] Including Options, 50% Fuel, Operator & Payload Not to Exceed	62 560	137,919
Maximum Payload	36 300	80,027
Major Options Approximate change in Net Machine Weight: Body Liners, Complete	2 100	4,630
Max. Payload with Body Liners, Complete	34 200	75,397
Weight Distribution	FRONT	REAR
Empty	50%	50%
Loaded	32%	68%



HYDRAULIC SYSTEM

Hoist: One 3-stage telescopic cylinder, two stages are double-acting. A hoist stop is built into the cylinder.

Hydraulic system: Load-sensing hydrostatic system. Engine-driven piston pump mounted on the transmission's power take-off. Common reservoir for steering and hoist. Steering is always given priority over the hoist system.

Hoist			
Raise Time with Load	s	12	
Lower Time	s	12	

Hydraulic System			
Relief Pressure	MPa	psi	19 2,755
Flow	l/min	gpm	201 53.1
At Engine Speed	rps	rpm	33 2,000



BRAKE SYSTEM

Service brakes: Uses dual circuit air-operated drum brakes on all four wheels.

Circuit division: Circuit 1 supplies the front brakes. Circuit 2 supplies the rear brakes.

Parking brake: Separate circuit. Spring-actuated drum brakes on all four wheels.

Compressor Capacity			
At	l/min	gpm	430 113.6
And	MPa	psi	0,7 101
	rps	rpm	33 2,000
Pressure Regulator			
Actuate	MPa	psi	0,75 109
Relief	MPa	psi	0,81 117

Brake Area			
Front/Wheel (each)	cm ²	in ²	1 770 274
Rear/Wheel (each)	cm ²	in ²	1 770 274
No. of Reservoirs	3		
Total Volume	l	ft ³	140 4.94

Parking Brake			
Area	cm ²	in ²	7 080 1,097

Retarder: Foot-operated valve activates retarder incorporated into the transmission.			
Capacity	kW	hp	410 550
At	rps	rpm	33 2,000



STEERING SYSTEM

Load-sensing hydrostatic steering system of closed-center type.

Steering Angle				40°
Turning Diameter (SAE J/ISO 5010)	m	ft in	8,0	26'4"
Lock-to-lock turns				3,8
Steering Cylinders				2
Bore	mm	in	63,0	2.5
Stroke	mm	in	500,0	19.69
Piston Rod Diameter	mm	in	40,0	1.57
Relief Pressure	MPa	psi	17,5	2,540

Steering cylinders: Double-acting, one for each wheel, mounted between the steering knuckle arm and brackets on the front axle.

Hydraulic pump: Engine-driven, variable piston pump mounted on the transmission's power take-off. Priority is always given to the steering system over the hoist system.

Supplementary steering: A supplementary steer pump is activated when the pressure in the system falls below 0,5 MPa **73 psi**.



ELECTRICAL SYSTEM

Two 12-volt batteries connected in series.

Voltage	V	24		
Battery capacity	Ah	160		
Alternator	W	1,680		
Starter motor	kW	hp	7,5	10.1



CAB

ROPS-tested and approved steel cab. Cab mounted on rubber pads in the center-of-gravity line. Heat and sound insulated. Heater and defroster. All windows of tinted safety glass.

Operator's seat: Sprung and shock-absorbed with arm rests, head restraint and seat belt. Adjustable to operator's weight. Individual adjustment of both seat and backrest. Seat for instructor.

Sound level in cab max.	dB (A)	75
Operator's seat	ISRI 6000	
Number of exits	1	

Equipment & Dimensions: EH650



SUSPENSION

Same suspension cylinders on all four wheels.

Front axle: A fabricated box beam A-frame connects the wheels to the machine frame through a well-sealed spherical bearing, and gas-over-oil suspension cylinders. This three-point mounted axle provides excellent oscillation and stability.

Rear axle: Similar to the front axle, the rear suspension utilizes an A-frame structure bolted to the rear axle. The assembly is connected to the main frame by a spherical bearing at the front, and two air-over-oil suspension cylinders in the rear.

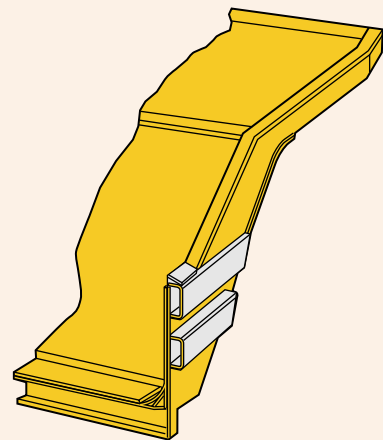
When the machine is loaded, the main frame rests on the rear axle for maximum stability.



BODY

Dumper body: Robust body made of hardened and tempered abrasion-resistant steel plate. The longitudinal stiffeners, made of high-grade steel, eliminate stress concentrations and distribute the force from impacts over the entire length of the body. A flat, sloping floor with rugged, uniformly spaced stiffeners ensures high durability.

The body is geometrically optimized to provide a compact yet spacious unit with a low load height and a low center of gravity for efficient loading. Rubber pads between body and frame. Exhaust-heated body.



Body		N/mm ²	psi	1 250	181,265
Tensile strength					
Hardness		HB		360-440	
Plate Thickness					
Front & Sides	mm	in	10	0.4	
Floor	mm	in	20	0.8	



FRAME

Robust construction with beams of carefully selected steel grade with high yield strength. Main beams of all-welded box section with a minimum of joints. Cross members, gussets and brackets have smooth junctions to the frame. Stresses are distributed evenly over the entire frame.



SERVICE CAPACITIES

	liters	gallons
Crankcase (incl. filters)	60,0	15.9
at change	58,0	15.3
Transmission (incl. filters)	85,0	22.5
at change	50,0	13.2
Rear Axle, Total	60,0	15.9
Cooling System	96,0	25.4
Fuel Tank	550,0	145.0
Hydraulic Tank	75,0	19.8
Hydraulic System (incl. tank)	110,0	29.0

STANDARD EQUIPMENT

BODY EQUIPMENT

Body heating (exhaust) Rock body

HYDRAULIC SYSTEM

Hoist
One three-stage telescoping cylinder, two-stage double-acting

ENGINE AND ELECTRICAL SYSTEM

Alternator Pilot lamps for:
Electric engine inlet body up
air preheater bright lights
charging
Gauges/Instruments: engine oil pressure
fuel gauge flashers and director
pressure, air (two circuits) indicators
pressure, engine oil lock-up
pressure, transmission oil parking brake
speedometer
tachometer
transmission oil temperature

Lights:
backup beams
direction indicators
headlights
bright/dim/asymmetric instrument lighting
lights, backup
lights, cab
lights, parking
lights, tail

SAFETY AND COMFORT

Air conditioning (R134a)
Anti-theft lock
Cab heating with filtered fresh air intake and defroster
Cigarette lighter and ashtray
Ergonomically designed and adjustable operator's seat
Hazard flashers
Horn
Indicator for air cleaner
Instructor's seat
Mud flaps, front wheels
Rear-view mirrors
Reverse alarm
Rock ejectors
Seat belt, operator
Sliding window
Sun visor
Supplementary steering
Tilt steering wheel
Tinted glass
Windshield washers
Windshield wipers

TRANSMISSION

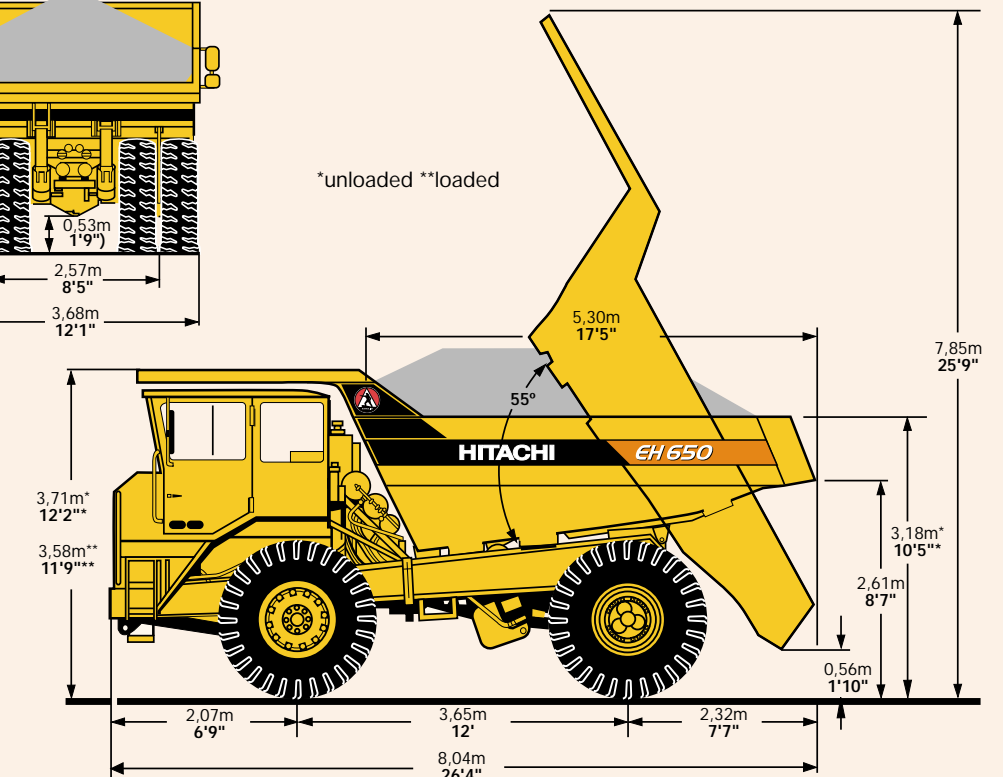
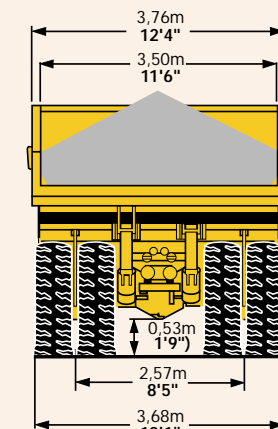
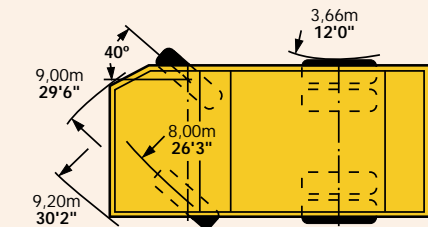
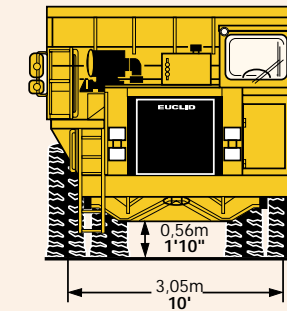
Automatic lock-up transmission
Automatic power shift
Retarder
Torque converter

OPTIONAL EQUIPMENT

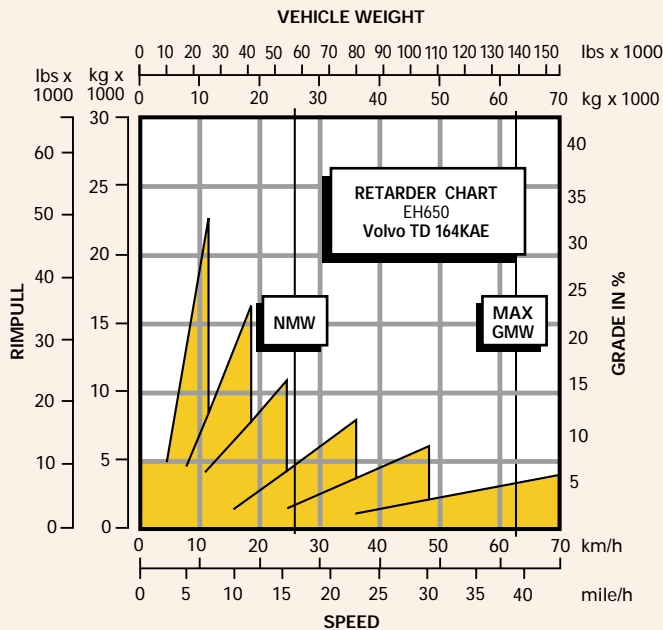
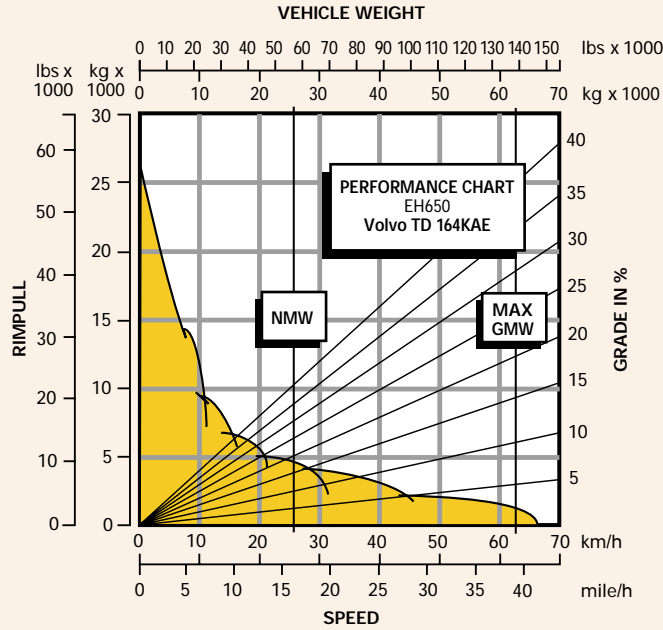
Additional working lights
Body liners
Cab guard
Cab heater, auxiliary
Canopy reinforcement
Engine heater
FOPS
Front wheel protection ring
Heated rear-view mirrors
Mud flaps, rear wheels
PIN plate, EEC

PIN plate, manufactured in Poland
Rims with wooden protection
Seat, air ride operator's
Seat, heated operator's
Seat belt, trainer seat
Spare rim
Spare wheel
Tool kit
Top extension 200 mm (7.9 in)

Standard and optional equipment may vary from country to country. Special options provided on request. All specifications are subject to change without notice.



Performance Data: EH650



INSTRUCTIONS:

Diagonal lines represent total resistance (Grade % plus rolling resistance %). Charts based on 0% rolling resistance, standard tires and gearing unless otherwise stated.

1. Find the total resistance on diagonal lines on right-hand border
2. Follow the diagonal line downward and intersect the NMW or GMW weight line.
3. From intersection, read horizontally right or left to intersect the performance or retarder curve.
4. Read down for machine speed.

NOTE: Photos and illustrations throughout may show optional equipment.

Under our policy of continuous product improvement, we reserve the right to change specifications and design without prior notice. The illustrations do not necessarily show the standard version of the machine.

