

HITACHI

EH 1600

Maximum Payload
89,7 Tonne (98.9 Ton)

**Maximum Payload
with Standard Liners**
85,7 Tonne (94.4 Ton)

Maximum GMW
160 613 kg (354,086 lb)

Engine
Cummins QST 30
Rated Output 783 kW (1,050 hp)



Specifications: EH1600



ENGINE

Make		Cummins			
Model		QST 30			
Type		4 Cycle			
Aspiration		Turbocharged/Aftercooled			
Rated Output					
(SAE @ 2100 rpm)		kW	hp	783	1,050
Maximum Torque					
@ 1300 rpm		N•M	lb/ft	4 630	3,415
Flywheel Output					
(SAE @ 2100 rpm)		kW	hp	732	982
No. Cylinders		12			
Bore & Stroke		mm	159 x 159		
		in	6 1/4 x 6 1/4		
Displacement		liters	in ³	37,7	2,300
Torque Rise		30%			
Starting		Electric			



TRANSMISSION

Allison DP-8963, planetary type, full automatic shift. Integral torque converter with automatic lock-up to lock-up shifting in all ranges. Remote mounted, 6 forward speeds, 1 reverse. Allison Commercial Electronic Control provides park brake interlock and hoist interlock as well as built in diagnostics.

Maximum Speeds @ Governed Engine Speed with standard 27.00R49()E4 tires or Michelin 31/80R49E4 Tires.**

Range	Gear Ratio	27.00R49		31/80 R49	
		km/h	mph	km/h	mph
1	4.24	10,0	6.2	9,5	5.9
2	2.32	18,2	11.3	17,4	10.8
3	1.69	24,9	15.5	23,8	14.8
4	1.31	32,2	20.0	30,7	19.1
5	1.00	42,2	26.2	40,2	25.0
6	0.72	58,6	36.4	55,8	34.7
R	5.75	7,4	4.6	6,9	4.3



DRIVE AXLE

Power is transferred to wheels through a Euclid model 2657 differential with an externally removable pinion seal and roller bearing open differ-ential. Full floating axle shafts drive the Euclid model 1080 heavy duty planetaries in each wheel. The parallel link mounting with an "A-frame" top member reduces "roll-steer" effect.

Ratios	Standard			
Differential	3.15:1			
Planetary	8.00:1			
Total Reduction	25.20:1			
Maximum Speed				
with 27.00R49(**)E4 Tires	km/h	mph	58,6	36.4
with 31/80R49E4 Tires	km/h	mph	55,8	34.7



TIRES

Standard - Front and Rear	Rim Width			
27.00R49(**)E4 Radial	mm	in	495	19.5
Optional				
31/80 R49E4 Radial Michelin	mm	in	559	22.0



ELECTRICAL SYSTEM

Twenty-four volt lighting and accessories system. 100 amp alternator with integral transistorized voltage regulator. Two 1150 amp, cold cranking, 12-volt, maintenance-free, heavy-duty batteries connected in series/parallel. Standard CONTRONIC II monitoring and central warning system with built-in diagnostics and a standard Liquid Crystal Display (LCD) in the cab.



BODY CAPACITY

	m ³	yd ³
Struck (SAE)	35,4	46.3
Heap 3:1	50,0	65.4
Heap 2:1 (SAE)	57,1	74.6



WEIGHTS

	kg	lb
Chassis & Hoists	57 085	125,850
Body	13 835	30,500
Net Machine Weight	70 920	156,350

Maximum GMW with Standard Tires Including Options, 50% Fuel, Operator & Payload Not to Exceed **160 613 354,086**

Maximum Payload **89 693 197,736**

Major Options
Approximate change in Net Machine Weight:
Regular Duty Body Liners - 400 BHN Steel 4 030 **8,884**

Max. Payload with Regular Duty Body Liners, Complete **85 663 188,852**

Load Weight Distribution **FRONT REAR**
33% 67%



STEERING SYSTEM

Closed-center, full-time hydrostatic power steering system using two double-acting cylinders, pressure limit compensated piston pump, and a brake actuation/steering system reservoir. An accumulator provides supplementary steering in accordance with SAE J1511 and ISO 5010. A tilt/telescopic steering wheel with 35 degrees of tilt and 57,15 mm 2 1/4" telescopic travel is standard.

	m	ft		38°
Steering Angle				71.6
Turning Diameter (SAE)			21,8	
Steering Pump Output				
(@ 2100 rpm)	l/m	gpm	158,1	41.8
System Operating Pressure	kPa	psi	18 961	2,750



HYDRAULIC SYSTEM

Two (2) Euclid two-stage cylinders, double-acting in second stage, internal dampened (extend and retract) inverted and outboard-mounted. Separate hoist/brake cooling reservoir and independent tandem gear pump. Electronically operated control valve. Hoist lever can be mounted on left or right of seat. Equipped with body up speed restriction.

Body Raise Time (Loaded)	s		12.8	
Body Float Down Time	s		12.1	
Brake Cooling Pump Output	l/m	gpm	469,4	124.0
(@ 2100 rpm)				
Hoist Pump Output	l/m	gpm	449,0	118.4
(@ 2100 rpm)				
System Relief Pressure	kPa	psi	20 340	2,950



BRAKE SYSTEM

Brake systems meet or surpass SAE J/ISO 3450.

The Hitachi EH1600 is equipped with an all-hydraulic actuated braking system providing precise braking control and quick system response. The brake control valve is actuated directly at the brake pedal. The controller has a unique variable front to rear brake proportioning that maximizes the stopping performance under slippery road conditions and accounts for weight transfer without having to deactivate front brakes.

Service

Service brakes are all hydraulically actuated. Front disc brakes have two calipers per disc that are internally ported, each containing three pairs of opposing pistons. Rear brakes are oil-cooled wet discs.

Front Axle - Dry Disc

Disc Diameter Each (2 discs/axle)	cm	in	101,6	40
Brake Surface Area Per Axle	cm ²	in ²	14 194	2,200
Lining Area Per Axle	cm ²	in ²	4 129	640
Brake Pressure (Max.)	kPa	psi	13 790	2,000

Rear Axle - Oil-Cooled Wet Disc

Brake Swept Area Per Axle	cm ²	in ²	79 282	12,288
Brake Pressure (Max.)	kPa	psi	10 515	1,525

Secondary

Two independent circuits within the service brake system provide back-up stopping capability. System is manually or automatically applied to stop machine within prescribed braking distance.

Parking

Dry disc mounted on differential input shaft. Two heads, 90° apart, self-adjusting and spring applied, hydraulic release. Controlled by a toggle switch on the dash or automatically applied if brake hydraulic pressure is lost.

Size (Diameter)	mm	in	685,8	27
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Retarder

Foot-operated valve controls all-hydraulic actuation of oil-cooled wet disc brakes on rear axle. System provides constant speed control on downhill hauls.

Capacity

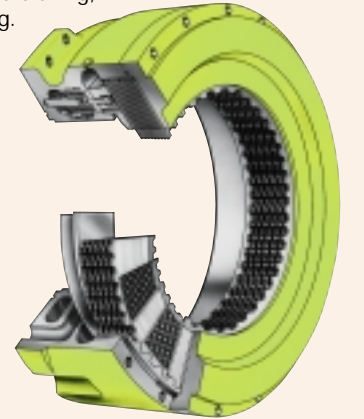
Continuous	kW	hp	1 051	1,410
Intermittent	kW	hp	1 820	2,440



WET DISC BRAKE

The Euclid wet disc brake is engineered for long service life even in the most extreme environments. The wet disc brakes are located on the rear axle and provide service braking, secondary braking and retarding.

The brakes are of a multi-plate design and continuously oil-cooled. The sealed design protects against environmental contamination for prolonged service life. The wet disc brake is designed with automatic retraction and self-adjusting features to prevent drag and compensate for wear. Separate pedals activate the service braking and retarding functions to help the operator keep both hands on the steering wheel.



COMMAND CAB III

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Integral ROPS/FOPS (Rollover Protection Structure) is standard in accordance with SAE J/ISO 3471. Dimensions comply with SAE J/ISO 3411. Double wall construction of 11 gauge inner and outer steel panels, lends itself to a more structurally sound cab. Foam rubber lining material along with foam rubber-backed carpeting and multiple layered floor mat act to absorb sound and control interior temperature. A properly maintained cab from Euclid, tested with doors and windows closed per work cycle procedures in SAE J1166, results in an operator sound exposure L_{eq} (Equivalent Sound Level) of 80 dB(A). A three-point rubber iso-mount arrangement to the deck surface minimizes vibration to the operator compartment.

Excellent Serviceability

A removable front panel allows easy access to service brake valves, retarder valve and heater assembly. The upper dash utilizes four (4) removable panels that house gauges and customer options, each individually accessible. A removable panel located behind the seat provides easy access to the shifting control, CONTRONIC II, and all electrical junction points.

Comfort and Ease of Operation

A wrap-around style dashboard positions controls within easy reach and visual contact. A full complement of easy-to-read gauges, CONTRONIC II monitoring and warning system with Liquid Crystal Display (LCD), a spacious environment, six-way adjustable mechanical seat, tilt/ telescopic steering wheel, filtered ventilation, door locks, and a padded trainer seat, all contribute to operator convenience and comfort.



SUSPENSION

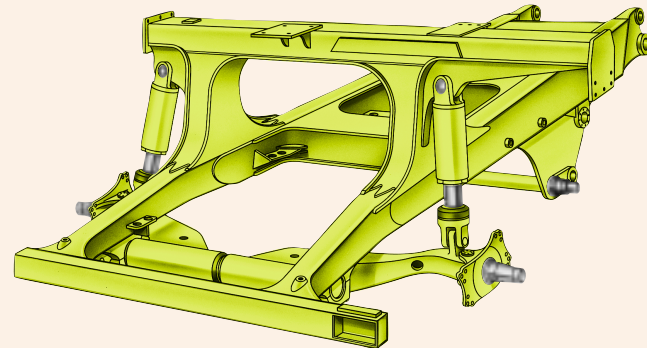
Front Suspension

Independent trailing arm for each front wheel. NEOCON struts containing energy-absorbing gas and environmentally friendly compressible NEOCON-E™ fluid mounted between trailing arm and frame.

Rear Suspension

The cast rear axle housing has a parallel link mounting with an A-Frame top member. This provides a reduced "roll-steer" effect which results in a more stabilized ride and contributes to lower overall frame stress levels. Outboard-mounted NEOCON struts suspend drive axle from frame. NEOCON struts provide variable damping and rebound feature.

The unique trailing arm front suspension absorbs haul road input, minimizing suspension-induced frame twisting while providing independent tire action. Ride struts are mounted with spherical bushings, eliminating extreme sidewall forces by ensuring a purely axial input to the ride strut. The wide track stance of the trailing arm design and long wheel base assure a more stable, comfortable ride. The suspension struts employ gas and NEOCON-E™ fluid as the energy-absorbing media. This suspension continues to absorb energy when extreme dynamic loads are generated which significantly contributes to improved isolation of the operator



and machine components.

The Euclid frame and suspension are designed to work in unison to provide maximum structural integrity and operator comfort. The formed rectangular frame rail construction provides superior resistance to bending and torsional loads while eliminating unnecessary weight. Euclid achieves long frame fatigue life through proven design and manufacturing practices. Smooth frame transitions minimize stress concentrations and steel castings effectively distribute input loads. Frame life is further enhanced by utilizing fatigue resistant weld joints and locating welds in low stress areas.



FRAME

Formed rectangular rails with section height tapered from rear to front, bridged by five cross members, front bumper and front suspension tube. Cross member to frame junctions use large radii to minimize stress. Frame utilizes 345 MPa **50,000 psi** yield strength steel.



BODY

Flat chute type, sloped floor, continuously exhaust heated. High tensile strength 400 BHN abrasion resistant alloy steel is used in thickness of:

	mm	in
Floor	17	11/16
Front	8	5/16
Sides	8	5/16
Canopy	5	3/16
Corner	11	7/16

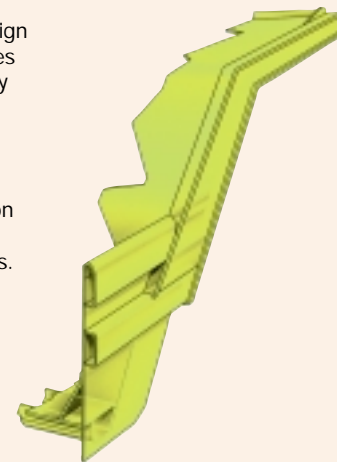
Optional Body Liners (Regular Duty)

Floor, Corners & Top Rails	10	3/8
Sides, Front, End Protection	6	1/4

Optional Body Liners (Heavy Duty)

Floor & Corners	16	5/8
Top Rails	10	3/8
Sides, Front & End Protection	8	5/16
Canopy	6	1/4

The horizontal stiffener design of the Euclid body minimizes stress concentrations in any one area. Load shocks are dissipated over the entire body length. The closely-spaced floor stiffeners provide additional protection by minimizing distances between unsupported areas.



SERVICE CAPACITIES

	liters	gallons
Accumulator	37,9	10.0
Crankcase (incl. filters)	140,0	37.0
Transmission (incl. filters)	98,4	26.0
Cooling System	268,7	71.0
Fuel Tank	1 003,0	265.0
Hydraulic		
Hoist System	318,0	84.0
Steering System	117,0	31.0
Differential	140,1	37.0
Planetaries (both sides)	174,1	46.0
Windshield washer	7,6	2.0

STANDARD EQUIPMENT

GENERAL

Air conditioning
All-hydraulic braking
Automatic transmission shifting
Battery disconnect switch
Body down indicator, mechanical
Body prop cable
Body up and down cushioning
Body up speed restriction w/light
Canopy spill guard
Continuous heated body
Cooling system surge tank
Dagger clamps (rear wheels)
Driveline guard, front
Electric horns
Electric start
Electronic hoist control
Engine belt protection
Fan guard
Fenders
Fixed steering stops
Front brake cut-off switch
Fuel tank sight gauge
Guard rails
HID headlights
Hoist interlock

CAB

Acoustical lining
Air filtration/replaceable element
Ash tray
Cab interior light
Cigar lighter, 12-volt
Door locks
Foot rest (left and right)
Heater and defroster 7.6 kW 26,000 btu
Integral ROPS/FOPS cab
ISO driver envelope
Liquid Crystal Display* (CONTRONIC II)
 Clutch pressure
 Distance traveled
 Engine oil pressure
 Fuel gauge
 Gear selection
 Integrated transmission diagnostics
 Load counter

GAUGES AND INDICATORS

CONTRONIC II monitoring and alarm system, multi-function indicator lights:
Air filter restriction
Alternator
Body up
Brake pressure
Central warning
Converter temperature
Cooling temperature
Do not shift
Engine oil pressure
High beam indicator
Hydraulic filter
Parking brake applied
Retard oil temperature
Steering filter
Steering pressure
Steering temperature
Transmission filter
Transmission oil pressure
Turn signals/hazard
Transmission malfunction

MACHINE LIGHTS

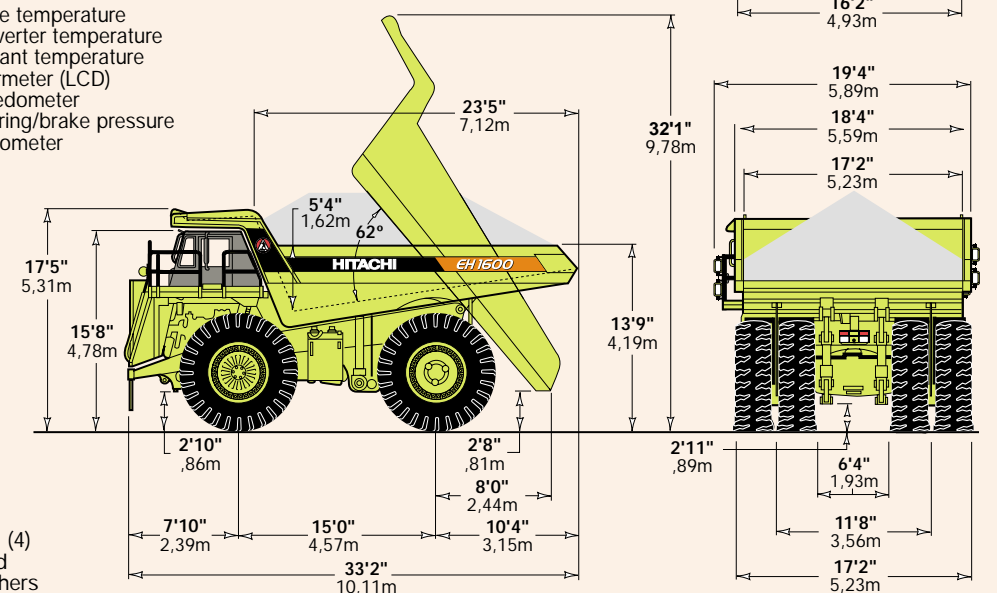
Back-up lights, (2)
Clearance lights (LED), (4)
Dual combination stop and taillights (LED), (2)
HID Headlights, (4)
Turn signals and four-way flashers

Hoist tank sight gauges
ISO decals
LED taillights
Load/dump brake
Mirrors (front)
Mirrors right and left, hand adjustable
Mud flaps-extended
NEOCON suspension struts
Park brake, dry disc
Park brake interlock
Radiator grill guard
Radiator, premium core
Reverse alarm
Rock ejector bars
Steering accumulator
Steering tank sight gauge
Swing-out grille
Tires 27.00R49(**)E4
Tow points, front
Transmission guard
Transmission sight gauge
Water to oil transmission cooler
Wet disc brake wear indicators

Service intervals, job site adjustable
Total engine hours
Total idle hours
Voltmeter
Modular instrumentation
Quick connect test ports
Roll down windows
Rubber floor mat
Safety glass
Seat belts, retractable (operator and trainer)
Seat, mechanical 6 position
Sun visor
Tilt/telescopic steering wheel
Tinted glass all windows
Trainer seat
Windshield washer
Windshield wiper, intermittent
12-volt 50 amp circuit
12-volt accessory connection

Gauges:

Brake temperature
Converter temperature
Coolant temperature
Hourmeter (LCD)
Speedometer
Steering/brake pressure
Tachometer



OPTIONAL EQUIPMENT

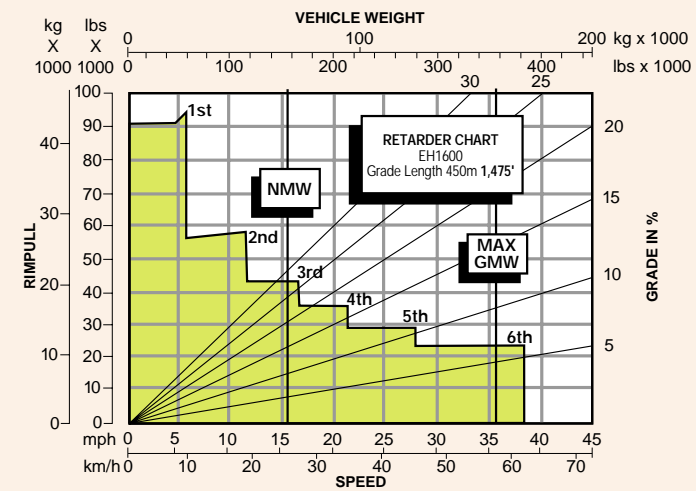
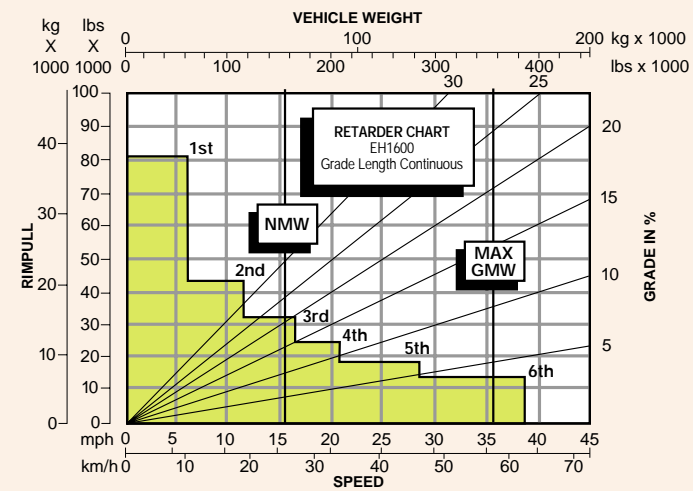
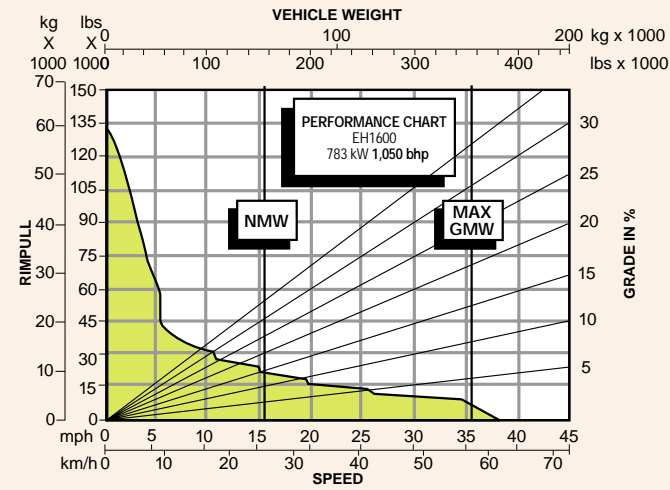
ACTIVE TRACTION CONTROL (ATC) W/ELECTRONIC DOWNHILL SPEED CONTROL (EDSC)
Air suspension seat
Body liners (400 BHN) plates, regular and heavy duty
Canopy spill guard extension
Cold starting aid
Engine compartment lights
Engine, ground level shut-off

Engine heater (oil & coolant)
Extra reverse alarm
Fast fueling, fuel only
Fast coupling service center HAULTRONIC II load weighing system
Lube system, automatic
Lube system, centralized
Radio & tape player
Tires (size, type & rating)

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

Note: Dimensions shown are for empty machine with 27.00R49(**)E4 tires.

Performance Data: EH1600



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 of performance or retarder chart.
2. Follow the diagonal line downward and intersect the NMW or MAX 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.

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