

# 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		kW	hp	783	1,050
(SAE @ 2100 rpm)					
Maximum Torque		N•M	lb/ft	4 630	3,415
@ 1300 rpm					
Flywheel Output		kW	hp	732	982
(SAE @ 2100 rpm)					
No. Cylinders		12			
Bore & Stroke		mm	159 x 159		
		in	6 1/4 x 6 1/4		
Displacement		liters	in <sup>3</sup>	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			
<b>Maximum Speed</b>		km/h	mph	
with 27.00R49(**)E4 Tires		58,6	36.4	
with 31/80R49E4 Tires		55,8	34.7	



## TIRES

Standard - Front and Rear	Rim Width			
27.00R49(**)E4 Radial	mm	in	495	19.5
<b>Optional</b>				
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 <sup>3</sup>	yd <sup>3</sup>
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 33% REAR 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 <sup>2</sup>	in <sup>2</sup>	14 194	2,200
Lining Area Per Axle	cm <sup>2</sup>	in <sup>2</sup>	4 129	640
Brake Pressure (Max.)	kPa	psi	13 790	2,000

### Rear Axle - Oil-Cooled Wet Disc

Brake Swept Area Per Axle	cm <sup>2</sup>	in <sup>2</sup>	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.

<b>Size (Diameter)</b>	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.

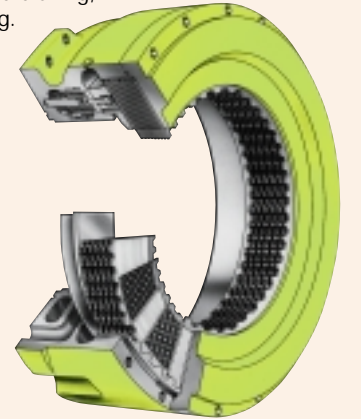
<b>Capacity</b>				
Continuous	kW	hp	1 051	1,410
Intermittent	kW	hp	1 820	2,440



## 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

### COMMAND CAB III

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<sub>eq</sub> (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

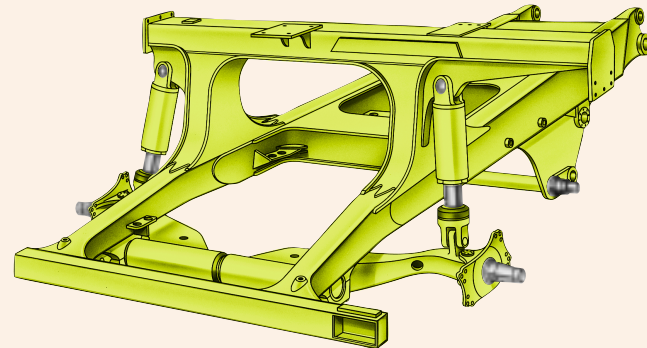
### Front Suspension

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

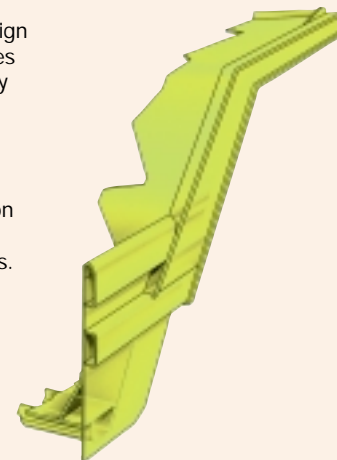
### Optional Body Liners (Regular Duty)

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

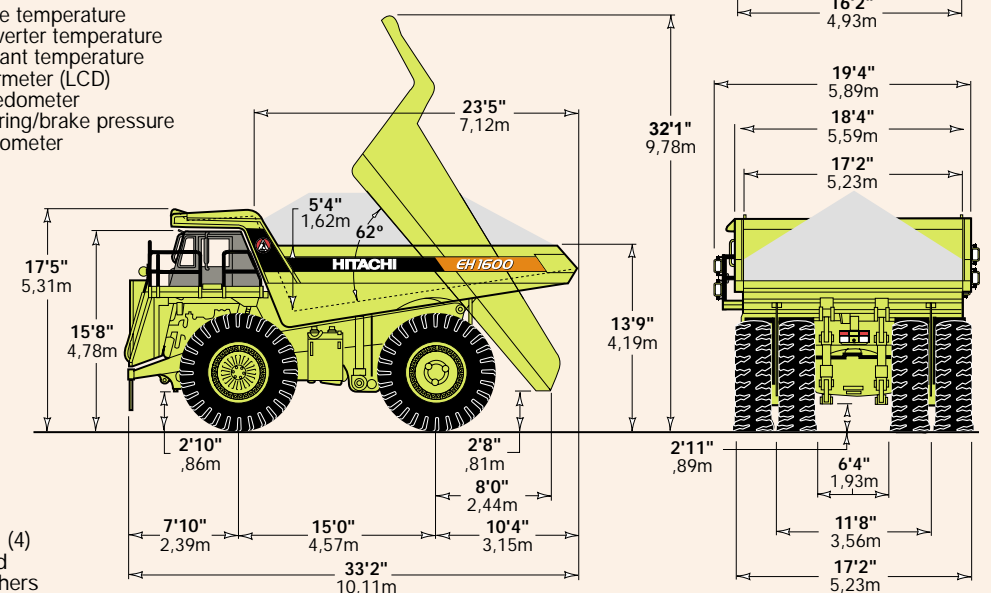
Back-up lights, (2)  
Clearance lights (LED), (4)  
Dual combination stop and taillights (LED), (2)

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

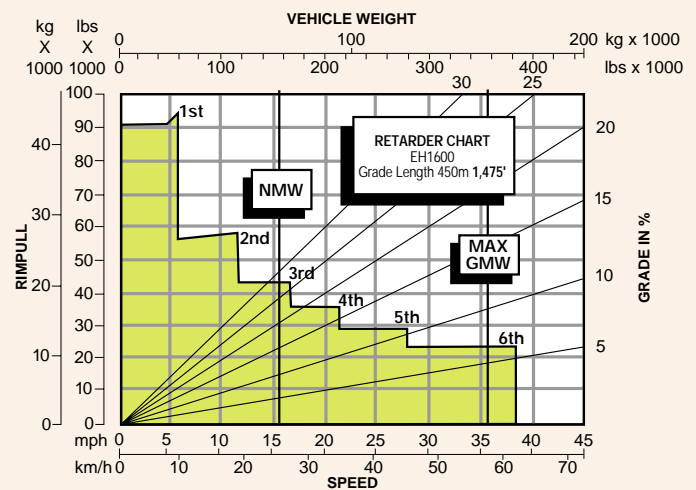
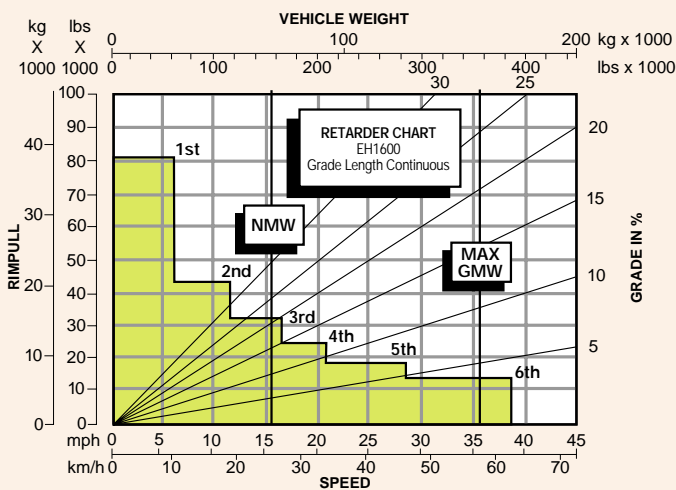
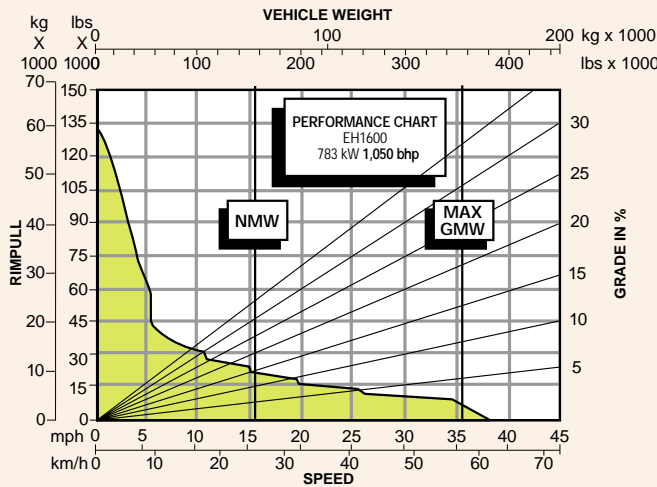
ACTIVE TRACTION CONTROL (ATC) W/ELECTRONIC DOWNHILL SPEED CONTROL (EDSC)  
Air suspension seat  
Body liners (400 BHN) plates, regular and heavy duty  
Canopy spill guard extension  
Cold starting aid  
Engine compartment lights  
Engine, ground level shut-off

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 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.*

