

BH60M

REAR DUMP TRUCK

- High Performance
- Enhanced Productivity
- Increased Reliability
- Excellent Serviceability
- Exceptional Manoeuvrability
- Superior Operator Comfort
- Improved Safety



Max. payload	: 54,500 kg
Capacity (heaped) SAE/ISO 2:1	: 36.4 m ³
Flywheel power (net)	: 485 kW(650hp)@ 2100 rpm

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REAR DUMP TRUCK

Salient Features :

Performance :

High power engine, AVTEC with CEC-2 system, planetary drive axle for optimum combination of speed and tractive effort.

Productivity :

High power to weight ratio allows higher acceleration and gradeability. Wide target area, large volumetric capacity body and low loading height ensure high productivity.

Reliability :

AVTEC Automatic power shift transmission with CEC-2 for ease of operation. AVTEC torque converter ensures steady engine revolutions in response to variation of load, eliminates lugging and stalling of engine.

Serviceability :

Easier to maintain and repair due to unitised design and easy accessibility.

Manoeuvrability :

Orbitrol full time power steering, shorter turning radius provides higher manoeuvrability.

Comfort :

Ideally located spacious cabin with ergonomically designed operator control offers maintenance comfort and operational ease.

Safety :

Features include ROPS cabin, emergency steering, sealed oil cooled disc brake.



ENGINE

Make Model Type	Cummins KTTA 19-C / Diesel, 4-stroke, 2 stage turbocharged, and after cooled, direct injection water cooled	QSK 19-C Diesel, 4-stroke, turbocharged, Charged air cooled, Electronic Engine & water cooled	BEML BSA6D170A-1 Diesel, 4 stroke, twin turbocharged, and after cooled, direct injection water cooled
Flywheel power	485kW(650hp)@2100 rpm		
Maximum torque	2863Nm(292kg-m)@1400 rpm		
Cylinders	6 inline		
Bore & Stroke	ø159x159mm	ø159x159mm	ø170x170mm
Displacement	19.0 ℓ	19.0 ℓ	23.15ℓ
Electricals	Cummins	BEML	
Alternator	24V, 75	24V, 100A	
Starting motor	24V, 9 kW	7.5 kW x 2 nos.	
Battery	2 x 12 V, 200Ah	2 x 12V, 200Ah	



POWER TRAIN

Transmission						
AVTEC M6610A						
AVTEC electronic shift control (CEC-2), TC 683 Torque Converter, reverse and downshift inhibitor, Six Forward and two reverse speeds. Reverse is torque converter drive. First gear has both converter drive and direct drive. Gears second through sixth are direct for maximum efficiency (converter drive is used momentarily for smooth shifting).						
Final Drive						
Planetary final drive with full floating axle shafts and plug-in differential carrier assembly.						
RATIOS :						
Bevel set (differential)	:	3.85:1				
Planetary	:	5.70:1				
Total reduction	:	21.93:1				
Maximum speed	:	56.73 km/h				
Travel Speeds (km/h)						
Range	1st	2nd	3rd	4th	5th	6th
Forward	9.5	14.2	18.2	28.2	38.1	56.7
Reverse		R1:-7.4		R2:-12.1		



STEERING SYSTEM

Orbitrol power steering control with pressure compensating steering pump and two double-acting steering cylinders. Front Hydrail suspensions serve as steering kingpins to provide excellent manoeuvrability. Automatic supplemental, accumulator steering is standard.	
Turning circle radius	10.5 m
Vehicle clearance diameter	24 m
Steering pump capacity	85.9 ℓ / min

STANDARD EQUIPMENT

Cab : Operator seat, Rubber floor mat, Sun visor, Windshield safety glass, Windshiled wiper and washer

General equipment : Air cleaner, dry type, Alternator, Body position indicator, Brakes, Caliper disc (front) Brakes oil disc (rear) Cold weather start aid (BEML Engine), Drive line protector, Electric system - 24 Volt, Fan, Guard, engine & transmission belly, Mirrors, rectangle LH, convex RH, Mud flaps for deck and tanks, Rock ejectors, Starter, electric, Starter key switch Two hooks, front & rear, Tow pins, rear, Air conditioner system.

Lighting : Back-up light, Dual combination stop and tail, Four headlamps with dimmer all Halogen, Turn signal + Hazard

Instrumentation gauges : Brake oil temperature, Engine oil pressure, Speedometer, Tachometer, Transmission oil pressure, Transmission oil temperature, Voltmeter.

Warning lights with Alarming : Brake lock, Brake/Hydraulic oil temperature, Coolant temperature, Low Brake pressure, Emergency steering, Engine oil pressure, Filter restriction-hydraulic, transmission, Parking brake, Steering accumulator pre-charge, Reverse flash

Standard Safety equipments : Battery relay, Back-up alarm (Audio-Visual), Body, prop pin and storage, Brakes, emergency-manual & automatic, Brake, wheel lock, Brake, Parking, Fan guard, handrails, Horn electric, Auto Retarder, Seat belts, operator and passenger seat, Engine coolant level, Automatic lubrication system, Electrically operated emergency steering system, Automatic fire suppression system, Skid resistant coating on walkways, Body lock, Steering lock

OPTIONAL EQUIPMENT & ACCESSORIES

Coolant level - Engine, Cab heater, Coal body, Body wear bars, Cold weather starting aid, Tyre inflation kit, Suspension and accumulator charging kit, On board payload system, Rear view Camera, VIMS (Vital Information Management System, Driver fatigue monitor system





TYRES

Standard tyre	24 x 35, 48 PR (E-4)
Optional	24 R 35, (Radial)
Rim	17.5 x 35
BEML recommends the user to evaluate all job conditions and consult the tyre manufacture to make proper tyre selection	



BRAKES

Front : Hydraulically actuated Rockwell calliper disc Braking Surface : 2,632 cm²

Rear : Oil-cooled hydraulically actuated multiple disc brakes provide both service and dynamic retarding. Brakes are sealed for protection from environmental contaminants. Braking Surface : 58193 cm²

Automatic emergency brake system : Unique designed brake control module constantly monitors brake pressure in the dual brake accumulators and will activate an audio - visual alarm if pressure on either accumulator drops below a tolerable level. If pressure should continue to drop, service brakes will automatically apply.

Manual emergency braking system : In the event of failure of the brake pedal, the service brakes can be manually applied by an operator switch located on the instrument panel.

Parking brake : Dry caliper disc-type mounted on axle input flange. Spring applied hydraulically released, the parking brake will automatically apply if hydraulic pressure is lost.

Dynamic retarder : Constant speed retarder is provided by a separate foot pedal for the retarder function, allowing the operator to apply the retarder without removing his hands from the steering wheel. The foot operated valve controls the hydraulically actuated oil-cooled wet disc brakes on the rear axle.

Wheel brake lock : Controlled by a switch on control panel activates and locks brakes while loading and dumping.



SUSPENSION

Hydair : Variable rate independent oil pneumatic suspension cylinders with integral rebound control. Suspension stroke front and rear is 276 mm.

Load/Deflection rate	Front	Rear
Empty (kg/cm ²)	637	435
Loaded (kg/cm ²)	2401	24385



SYSTEM REFILL CAPACITIES

System	Capacity (l)
Engine lube oil	49.2
Cooling systems	181.7
Fuel tank	770
Hydraulic tank	360
Transmission (sump plus ext. filters, lines, etc...)	79.6
Final drive	212.2
Front spindle grease (EP-2)	13 kg



V-BODY

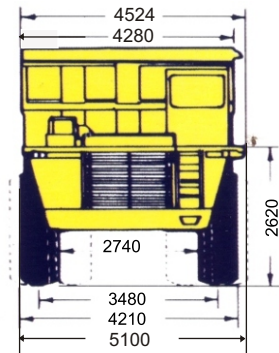
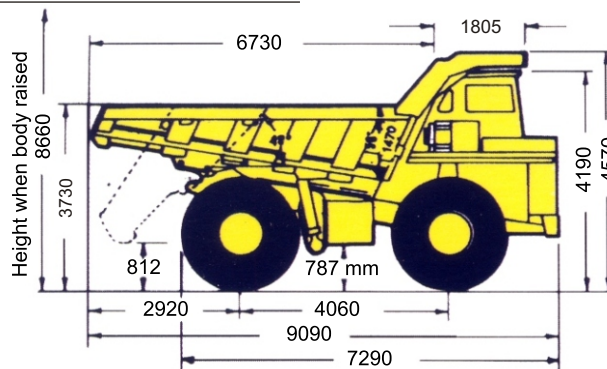
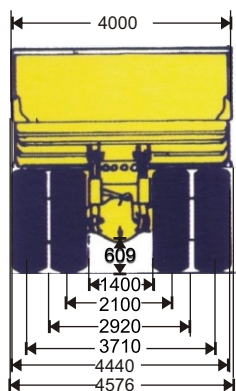
ROCK TYPE

V-shaped body with single-slope flat floor provides optimum carrying capacity and smooth, controlled dumping. Wide horizontal bolsters provide rigid support for the high tensile, heat-treated steel side. Bolt on body rubber pads cushion prevents the frame from loading shocks and are easily replaceable. Pivot exhaust heating is standard.

Material	Thickness
Floor Plates	20 mm
Front Plates	12 mm
Side Plates	10 mm

Volumetric Capacity

Struck Capacity	26.0 m ³
Heaped Capacity (SAE/ISO)2:1	36.4 m ³



Material and specifications are subject to change without notice, Illustrations may include optional equipment & accessories



CABIN

Integral ROPS cabin, engineered to provide superb working comfort, excellent visibility and maximum production efficiency. Features include tinted safety-glass, fully adjustable operator's seat with seat belt, fresh air fan, insulation for sound and temperature control, convenient gauge arrangement, left and right hand external mirrors and sun visor.



MASS

Net vehicle mass	43,500 kg	
Rated payload	54,500 kg	
Gross vehicle mass	98,000 kg	
Mass distribution	Empty (kg)	Loaded (kg)
Front axle	21,385	33,040
Rear axle	22,115	64,960



FRAME

Box section main rails, proportioned to accommodate relative behind and torsional loads, are connected by tubular cross members, an integral front bumper and rugged, continuous horse collar. Cross member to frame joints use large radii to minimise stress. The frame rails and other structural plates are fabricated from high yield strength steel. Castings at the rear cross members incorporate the body pivot, body-up pins and rear suspension strut pivot, as well as the panhard rod attachment.



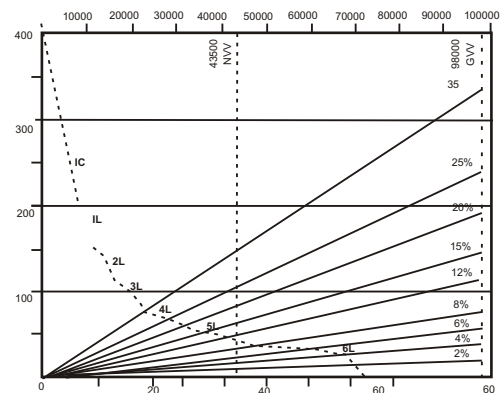
BODY HOIST

Twin , two-stage hydraulic cylinders mounted outside frame rails for accessibility. Electro-hydraulic control provides quick response. Hydraulic system has dual full-flow, remote-mounted filters.

Pump capacity	316 l / min
Relief valve setting	18.96 Mpa (192.5 kg/cm ²)
Body raise time	13±2 seconds



PERFORMANCE



How to use this chart :

1. Enter chart at (gross vehicle weight)
2. Determine total resistance, (grade in percent plus rolling resistance)
3. Connect point on weight scale with point on total resistance scale and project it to tractive effort scale effort scale. Read required tractive effort.
4. Read horizontally from required tractive effort to intersect to appropriate.

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बी ई एम एल लिमिटेड

BEML LIMITED

A Govt. of India Miniratna Company Under Ministry of Defence

Rear Dump Truck

BH35-2

BH40

BH60M

BH85-1

BH100

BH150E

BH205E

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