Mine dump truck BELAZ-75309 of payload capacity 220 tonnes (243 short tons)

It's designed for transportation of rock mass in difficult mining and technical conditions of deep mines, at mineral deposit open pits on technological roads under various climatic operating conditions (at ambient temperature from -50 to +50 °C).

Engine

<table>
<thead>
<tr>
<th>Model</th>
<th>MTU DD 16V4000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel, four-cycle engine with V-type cylinders arrangement, electric control system, direct fuel injection, gas turbine charging and intermediate cooling of the charged air. The engine complies with toxic substances emission requirements of Tier 1.</td>
<td></td>
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<tr>
<td>Full power @ 1900 rpm, kW (hp)</td>
<td>1715 (2300)</td>
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<tr>
<td>Maximum torque @ 1500 rpm, N.m</td>
<td>9313</td>
</tr>
<tr>
<td>Number of cylinders</td>
<td>16</td>
</tr>
<tr>
<td>Cylinders displacement, l</td>
<td>190</td>
</tr>
<tr>
<td>Cylinder diameter, mm</td>
<td>165</td>
</tr>
<tr>
<td>Piston stroke, mm</td>
<td>190</td>
</tr>
<tr>
<td>Specific fuel consumption at rated power, g/KW hr</td>
<td>198</td>
</tr>
<tr>
<td>Air cleaning is performed by three-stage filter with dry-type elements. Exhaust gases evacuation is being made through body structure. Lubrication system is of forced circulation type under pressure with “wet” crankcase design.</td>
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</tr>
<tr>
<td>Cooling system is of double-circuit fluid type with forced circulation. Oil cooling - through water-to-oil heat exchanger. Starting system features pneumatic starter. Cooling system impeller drive – hydraulic clutch with automatic control. Switching on and off is carried out by thermostat.</td>
<td></td>
</tr>
<tr>
<td>Starting system air pressure, MPa</td>
<td>0.6-0.8</td>
</tr>
<tr>
<td>Electric system voltage, V</td>
<td>24</td>
</tr>
</tbody>
</table>

Suspension

Conventional suspension for front axle and driving axle comprises trailing arms with central hinges and transversal rods. Cylinders are pneumohydraulic (nitrogen and oil) with in-built hydraulic damper, two cylinders both on the front axle and on the rear axle.

- Cylinder piston stroke, mm
  - front: 320
  - rear: 290

Steering

Hydrostatic.

Steerable front wheels.

Steerable wheels rotation angle, degrees | 39
Turning radius, m | 15
Overall turning diameter, m | 34

Meets the requirements of ISO 5010.

Brakes

The braking system meets international safety requirements according to ISO 3450 and comprises service, parking, auxiliary and emergency brakes.

Service brake:

- Front wheels - disk brake with four gears per disk.
- Rear wheels - disk brake with two gears per disk and automatic clearance adjustment. The disks are mounted on the shafts of traction electric motors.
- Separate hydraulic drive for front and rear wheels. Parking brake - two constantly closed brake gears of rear wheels per disk. Spring actuation, hydraulic control.
- Auxiliary brake - electrodynamic braking with traction electric motors with forced air cooling of brake resistors.
- Emergency brake - parking brake and intact circuit of service brake are used.

Brake resistors | YBTP 2x600 – 2 pcs
Power, kW | 2400
Body

Bucket type body is a welded structure with FOPS, has a protective canopy and is heated by exhaust gases. It is equipped with a device for mechanical locking in raised position as well as with rock-deflectors and rock-ejectors.

Body capacity, cub. m: struck 102.4, heaped 141.1

Frame

Frame is a welded structure of high-strength low-alloyed steel with casting and welded elements in high load zones. Longitudinal box-section variable height side rails are interconnected by cross-members.

Hydraulic drive

Combined hydraulic system for body hoist, steering and brake drive.

Oil pump: double-section axial-piston and variable-flow type.

Body hoist cylinders are telescopic with three stages and one stage of double action.

Body raising time, s: 22
Body lowering time, s: 33
Max pressure in hydraulic system, MPa: 18
Max pump delivery @ 2900 rpm, dm³/min: 698
Filtering degree, mcm: 10

Cab

Two-seat, two-door, with pneumatically cushioned adjustable operator seat, additional seat for probationer and adjustable steering column. Operator's workplace complies with ROPS safety system requirements. The cab meets the requirements of EN 474-1 and EN 474-6 for permissible limits of internal sound levels, vibration, concentration of poisonous substances and dust. Noise level inside the cab is not more than 80 dB(A). Local vibration level is not more than 126 dB(A). Overall vibration level is not more than 115 dB(A).

Special equipment

Fire-fighting system (standard)
Starting preheater (standard)
Air conditioner (standard)
Automatic lubrication system (option)
Telemetering tire inflation control system (option)
High-voltage line proximity alarm (option)
 extermination of the bottom body (option)
Exhaust gases evacuation through mufflers (option)

Capacities, l

Fuel tank: 2900
Engine cooling system: 650
Engine lubrication system: 240
Hydraulic system: 790
Motor-wheel reduction gears: 210 (105x2)
Suspension cylinders: 97.4 (48.7x2)
- front: 103.0 (51.5x2)
- rear: 136.0

Weight

Maximum payload capacity, kg: 400000
Unladen weight, kg: 156100
Gross weight, kg: 376100
Weight distribution on axles, %:
unladen: 45
loaded: 55
rear: 33

Tires

Radial or bias pneumatic tubeless tires with quarry tread pattern.
Designation: 40.00R57; 46/90-57
Internal pressure, MPa: 0.7; 0.605
Rim designation: 29.00-57/6.0

Overall dimensions, mm *

Propulsion and Retarding

*Overall dimensions are specified for dump truck with standard options

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