Mine dump truck BELAZ-75453 of payload capacity 45 tonnes

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**

- **Model**: Cummins KTA 19-C
- **Diesel four-cycle engine with in-line cylinders arrangement, electronic control system, direct fuel injection, gas-turbine charging and intercooling of charging air.**
- **Rated power @ 2100 rpm, kW (hp)**: 448 (600)
- **Maximum torque @ 1400 rpm, N.m**: 2237
- **Number of cylinders**: 6
- **Cylinders displacement, l**: 14.9
- **Cylinder diameter, mm**: 137
- **Piston stroke, mm**: 169
- **Specific fuel consumption at rated power, g/kWh**: 219
- **Air cleaning is performed by three-stage filter with dry-type elements.**
- **Engine exhaust expulsion is performed through dump truck body.**
- **The engine is equipped with mixed-type lubrication system with "wet" crankcase, fluid cooling system with forced circulation and fluid preheating system.**
- **The engine fluid cooling system is combined with hydromechanical transmission cooling system and multiple-disk oil-cooled brakes.**
- **Oil cooling is performed by oil-to-water heat exchangers.**
- **Starting system is actuated by electric starter.**
- **Electric equipment system voltage, V**: 24

**Transmission**

- **Hydromechanical transmission is equipped with complex one-stage four-wheeled torque converter with automatic locking, four-shaft gearbox with multiplate friction clutches and electrohydraulic actuator of gear change control.**
- **Manual gear change control is available.**
- **Maximum dump truck travel speed, km/h**: 55
- **Hydromechanical transmission 5+2 gearbox ratios:**
  - Forward: 3.84, 2.27, 1.50, 1.055, 0.625
  - Reverse: 6.07, 1.67

**Suspension**

- **Suspension is conventional for front axle and driving axle equipped with trailing arms, central joints and transversal rods. Cylinders are pneumohydraulic (nitrogen and oil) and equipped with inbuilt hydraulic shock absorber. Two cylinders are on the front axe and two cylinders are on the rear axe.**
- **Cylinder piston stroke, mm**:
  - Front: 300
  - Rear: 270

**Steering**

- **Hydrostatic steering with steerable front wheels.**
- **Steering angle, degree**: 41
- **Turning radius, m**: 9.0
- **Overall turning diameter, m**: 20
- **The steering meets ISO 5010 requirements.**

**Brakes**

- **Dump truck brake system meets ISO 3450 international safety requirements and is equipped with service, parking, auxiliary and emergency brake systems.**
- **Service brake system** consists of dry-type single-disk brakes for front wheels and multiple-disk oil-cooled brakes for rear wheels.
- **Actuator is hydraulic and separate for front and rear wheels.**
- **Parking brake system** is disk brake mounted on final drive driving shaft and equipped with spring actuator and hydraulic control.
- **Auxiliary brake system** uses multiple-disk oil-cooled brakes of rear wheels and is equipped with hydraulic actuator.
- **Braking by service brakes with the view of deceleration is effected by separate foot pedal.**
- **Emergency brake system** uses operable circuit of service brakes.

**Hydraulic system**

- **Hydraulic system is combined for body dumping gear, steering and brakes actuator and equipped with gear-type oil pumps and two-stage telescopic body lifting cylinders with one stage of double action.**
- **Body lifting time, s**: 11
- **Body lowering time, s**: 14
- **Maximum pressure in hydraulic system, MPa**: 17
- **Maximum pump delivery @ 2100 rpm, dm³/min**: 342
- **Filtration degree, μm**: 10
**Body**

Welded bucket-type body with engine exhaust heating is equipped with FOPS safety system, protective canopy, device for mechanical fixing in raised position and rock-ejectors.

Body capacity, m³:
- struck: 21.1
- heaped: 29.3

**Frame**

High-strength low-alloy steel welded frame with application of cast elements at the maximum loading points is equipped with box-section variable-height side-members interconnected by cross-members.

**Driving axle**

Mechanical driving axle is equipped with single-stage bevel final drive, bevel differential and planetary hub drives with spur pinions.

Ratios:
- final drive: 3.417
- hub drive: 6.0
- driving axle total: 20.50

**Driveline**

Driveline consists of two open-type cardan shafts with joints on needle bearings that join hydromechanical transmission to engine and driving axle. There is a flexible coupling mounted between front cardan shaft and engine.

**Cab**

Two-man two-door cab is equipped with air-sprung adjustable driver seat, additional trainee seat and adjustable steering column.

The cab meets EN 474-1 and EN 474-6 requirements that specify permissible levels of in-cab noise, vibration, content of hazardous substances and dust. Driver’s workplace meets ROPS safety requirements.

In-cab noise level 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).

**Tires**

Tubeless air tires with quarry tread pattern.

Tire designation: 21.00-35/21.00R35

Inflation pressure, MPa: 0.575/0.7

Rim designation: 15.00-35/3.0

**Weight**

- Maximum payload capacity, kg: 45000
- Unladen weight, kg: 35000
- Gross weight, kg: 80000

<table>
<thead>
<tr>
<th>Weight Distribution on Axles, %:</th>
<th>Unladen</th>
<th>Laden</th>
</tr>
</thead>
<tbody>
<tr>
<td>front</td>
<td>54.0</td>
<td>34.0</td>
</tr>
<tr>
<td>rear</td>
<td>46.0</td>
<td>66.0</td>
</tr>
</tbody>
</table>

**Refill capacities, l**

- Fuel tank: 740
- Engine cooling system: 152
- Engine lubrication system: 57
- Hydromechanical transmission: 305
- Hydraulic system: 300
- Final drive: 32
- Hub drives: 32 (16x2)
- Suspension cylinders:
  - front: 15.6 (7x2)
  - rear: 32.4 (16x2)

**Special equipment**

- Combined fire-fighting system with remote actuation (standard)
- Starting preheater (standard)**
- Centralized lubrication system (standard)
- Heating and conditioning unit (standard)
- Fuel and loading control system (standard)
- Video observation system (standard)
- Telemetering tire pressure control system (standard)
- High-voltage line attention device (standard)

**Overall dimensions, mm**

*Overall dimensions are specified for basic kitting-up of the dump truck

**Excepting dump trucks of tropicalized design

**Towing and braking performance**

[Graphs and charts showing towing and braking performance characteristics]