

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/kW hr	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:		
gears	forward	reverse
1	3,84	6,07
2	2,27	1,67
3	1,50	
4	1,055	
5	0,625	

Suspension

Suspension is conventional for front axle and driving axle and 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 axle and two cylinders are on the rear axle.

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, dm ³ /min	342
Filtration degree, mcm	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	heaped 2:1
21,1	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

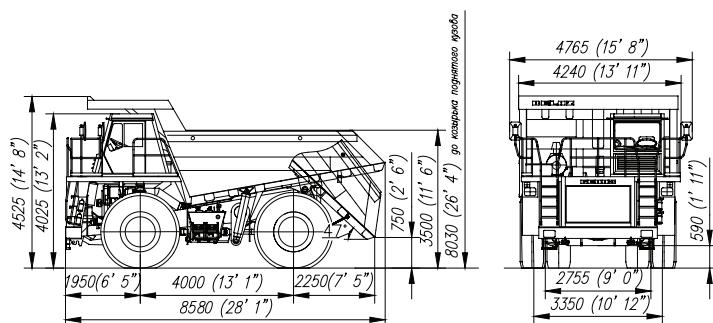
Inflation pressure, MPa

0,575/0,7

Rim designation

15.00-35/3.0

Overall dimensions, mm*



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

**Excepting dump trucks of tropicalized design

Weight

Maximum payload capacity, kg	45000
Unladen weight, kg	35000
Gross weight, kg	80000
Dump truck weight distribution on axles, %:	
unladen	laden
front 54,0	34,0
rear 46,0	66,0

Refill capacities, l

Fuel tank	740
Engine cooling system	152
Engine lubrication system	57
Hydromechanical transmission	105
Hydraulic system	300
Final drive	32
Hub drives	32 (16x2)
Suspension cylinders:	
front 15,6 (7,8x2)	
rear 32,4 (16,2x2)	

Special equipment

Combined fire-fighting system with remote actuation (standard)

Starting preheater (standard)**

Centralized lubrication system (standard)

Heating and conditioning unit (standard)

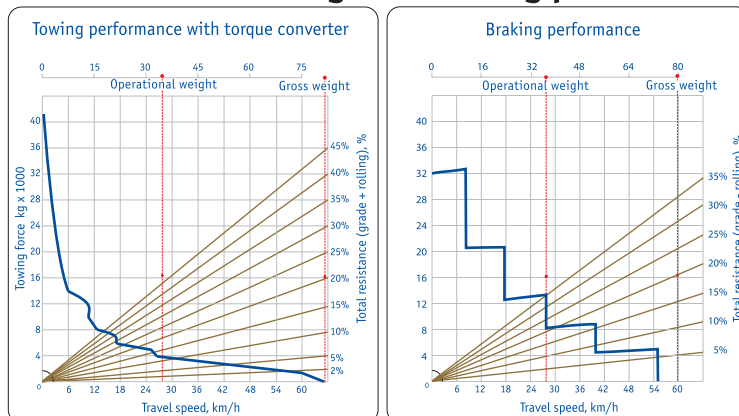
Fuel and loading control system (standard)

Video observation system (standard)

Telemetering tire pressure control system (standard)

High-voltage line attention device (standard)

Towing and braking performance



BELAZ

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