

Mine dump truck BELAZ-75473 of payload capacity 45 tonnes (50 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	
Model	CUMMINS KTA 19-C
Four-cycle turbocharged direct diesel engine with in-line arrangement of cylinders.	
Rated power @ 2100 rpm, kW (hp)	448(600)
Maximum torque @ 1500-1600 rpm, N.m	2237
Number of cylinders	6
Cylinders displacement, l	18,9
Cylinder diameter, mm	159
Piston stroke, mm	159
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 body.	
Mixed-type lubrication system is designed with "wet" crankcase.	
Fluid cooling system with forced circulation is integrated with cooling system of hydromechanical transmission. Hydromechanical transmission oil cooling is performed by oil-to-water heat exchanger.	
Electric starter starting system.	
Electric equipment system voltage, V	24

Hydromechanical transmission

Hydromechanical transmission with three-shaft matching reduction gear, complex one-stage four-wheeled torque converter with hydraulic clutch mode and automatic locking, four-shaft gearbox with friction clutches and electrohydraulic actuator of gear change control, hydrodynamic blade-type retarder.

Maximum dump truck travel speed, km/h	50
Ratio of matching reduction gear	1,0
Ratios of gearbox:	

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 and driving axles and equipped with longitudinal and transverse rods. Cylinders are pneumohydraulic (nitrogen and oil) with inbuilt hydraulic shock absorber.	
Two cylinders are on the front axle and four cylinders are on the rear axle.	
Cylinder piston stroke, mm	
- front	265
- rear	265

Steering	
Hydrostatic steering with steerable front wheels.	
Steering angle, degree	35
Turning radius, m	10,2
Overall turning diameter, m	23
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 shoe-drum brake gears for front and rear wheels with pneumatic actuator separated for front and rear wheels.	
Parking brake system is permanently closed shoe brake gear on final drive driving shaft with spring actuator and pneumatic control.	
Auxiliary brake system is hydrodynamic retarder on gearbox driving shaft with electric control.	
Emergency brake system uses parking brake and operable circuit of service brakes.	

Hydraulic drive	
Hydraulic system is combined for body dumping gear and steering.	
The system is equipped with gear-type oil pumps, four-stage telescopic body lifting cylinders with one stage of double action.	
Body lifting time, s	25
Body lowering time, s	20
Maximum pressure in hydraulic system, MPa	13,5
Maximum pump delivery @ 2100 rpm, dm ³ /min	260
Filtration degree, mcm	10

Body

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

Body capacity, m³:

struck	heaped 2:1
21,5	27,6
19,8	26,2 (optional)
23,7	29,9 (optional)
28,5	33,9 (optional)
35,9	43,3 (optional)

Weight

Maximum payload capacity, kg	45000	
Unladen weight, kg	33100	
Gross weight, kg	78100	
Dump truck weight distribution on axles, %:		
	unladen	laden
front	45,0	33,0
rear	55,0	67,0



Driving axle

Mechanical driving axle is equipped with single-stage bevel final drive, bevel differential with four pinions 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. Flexible coupling is mounted between front cardan shaft and engine. Front cardan shaft is equipped with protective guard.

Cab

One-man cab is equipped with air-sprung adjustable driver seat and additional side seat. 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).

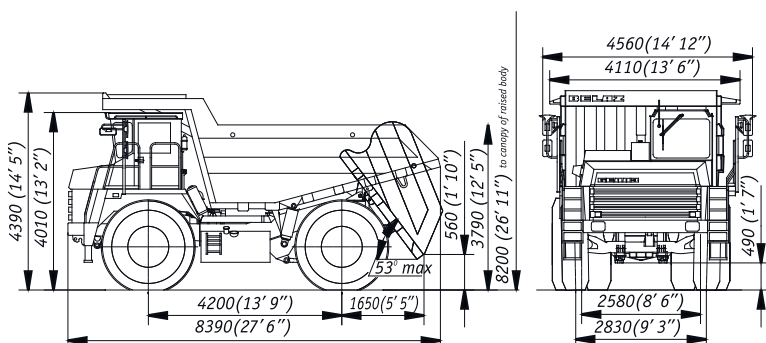
Overall vibration level is not more than 115 dB(A).

Tires

Air tires with quarry tread pattern.

Tire designation	21.00-35 HC 36 (E-4)
Inflation pressure, MPa	0,575
Rim designation	15.00-35/3.0

Overall dimensions, mm*



*Overall dimensions are specified for dump truck with standard options
 **Excepting dump trucks of tropicalized design

Frame

High-strength low-alloy steel welded frame is equipped with box-section variable-height side-members interconnected by cross-members.

Capacities, l

Fuel tank	610
Engine cooling system	173
Engine lubrication system	47
Hydromechanical transmission	70
Hydraulic system	160
Final drive	24
Hub drives	24 (12x2)
Suspension cylinders	24 (4x6)

Special equipment

Fire-fighting system with remote actuation (standard)

Starting preheater (standard)**

Centralized lubrication system (standard)

High-voltage attention device (standard)

Conditioner (option)

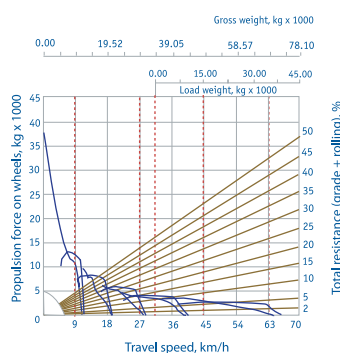
Auxiliary heater (option)

Electric-heated mirrors (optional)

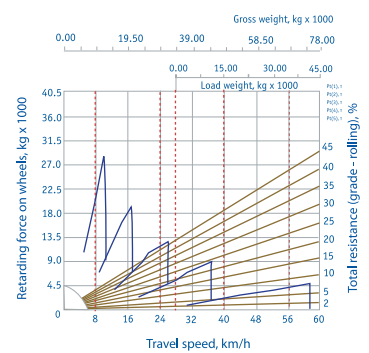
Multiple-disk oil-cooled brakes for rear wheels and dry-type disk brakes for front wheels. Actuator is hydraulic and separate for front and rear wheels (optional).

Propulsion and Retarding

Propulsion performance



Retarding performance



BELAZ

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