

# Mine dump truck BELAZ-75471 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	YaMZ-8401.10-06
Four-cycle gas-turbocharged direct diesel engine with V-type cylinders arrangement.	
Rated power @ 2100 rpm, kW (hp)	405 (550)
Maximum torque @ 1300-1500 rpm, N.m	2254
Number of cylinders	12
Cylinders displacement, l	25,86
Cylinder diameter, mm	140
Piston stroke, mm	140
Specific fuel consumption at rated power, g/kW hr	223
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.	
Oil cooling is performed by oil-to-water heat exchanger.	
Starting system is actuated by pneumatic starter.	
Electric equipment system voltage, V	24

## Transmission

Hydromechanical transmission is equipped 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 axle and driving axle and equipped with longitudinal and transversal rods. Cylinders are pneumohydraulic (nitrogen and oil) and equipped 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 regulations and requirements. The system is equipped with service, parking, auxiliary and emergency brake systems.

**Service brake system** is 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 system

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 <sup>3</sup> /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, m<sup>3</sup>:

struck	heaped 2:1
21,5	27,6

## Frame

High-strength low-alloy steel welded frame 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 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

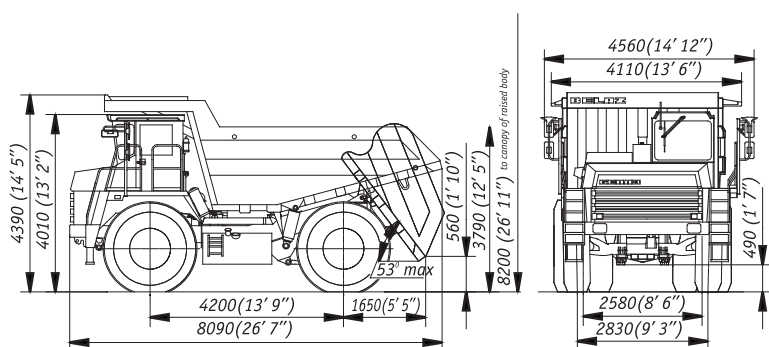
Air tires with quarry tread pattern.

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 basic kitting-up of the dump truck

## 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

## Refill capacities, l

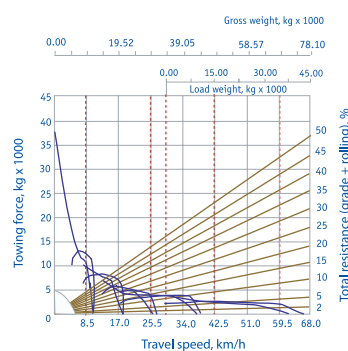
Fuel tank	610
Engine cooling system	135
Engine lubrication system	65
Hydromechanical transmission	70
Hydraulic system	160
Final drive	24
Hub drives	24 (12x2)
Suspension cylinders	24 (4x6)

## Special equipment

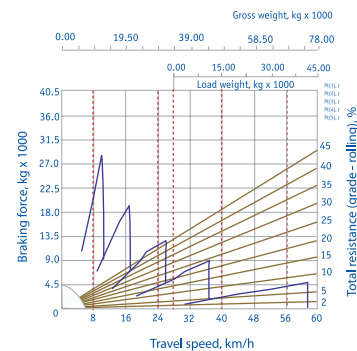
- Fire-fighting system (standard)
- Preheating system of fluid type (optional)
- Automatic lubrication system (optional)
- Air conditioner (optional)
- Electric-heated mirrors (optional)
- Attention device of approach to high-voltage line (optional)

## Towing and braking performance

Towing performance with torque converter



Braking performance



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