



YUTONG ELECTRIC OFF-HIGHWAY MINING TRUCK



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YUTONG GROUP

Full speed ahead for a world-leading new energy commercial vehicle group

Yutong Bus—Leading the World in Production and Marketing Scale

Yutong Bus, as the flagship division of Yutong Group, is a globally renowned leader in the bus industry. Its product range caters to diverse market segments, including buses, long distance coaches, tourism coaches, commuters, school buses, and special mobility.

In 2023, Yutong Bus achieved a global sales volume of 36,518 units, generating a turnover of RMB 36.23 billion and maintaining an annual production capacity of over 60,000 units. The share for its large and medium buses in global market is more than 10%. By the end of 2023, it had sold more than 180,000 new energy buses cumulatively, establishing itself as a global leader in terms of production and sales scale.

Yutong is a prominent commercial vehicle group specializing in buses and trucks, with a comprehensive product lineup including buses, trucks, special-purpose vehicles, sanitation equipment, and construction machinery.

Yutong Truck

Yutong Truck, a burgeoning sector of the Yutong Group, capitalizes on its vehicle manufacturing capabilities, industry operation capabilities, and the technical advantages of its HV system of new energy vehicles. Targeting market segments such as tractor trucks, dump trucks, mixer trucks, express & e-commerce express, supermarket distribution, less-than-truckload logistics, Yutong offers a range of new energy heavy and light trucks that are energy-efficient, environmentally friendly, intelligent, safe, reliable, and built to last.

By the close of 2023, around 17,000 new energy trucks have been sold.

Accumulated sales volume of new energy vehicle exceeded

190,000+
units

In 2023, the group's annual sales exceeded

45,378+
units

Exported to over 100 countries and regions worldwide

100+

In 2023, New energy buses' sales exceeded

7,800+
units

YUTONG

ENTIRE RANGE OF PRODUCTS CURRENTLY AVAILABLE

YTK105E

YTK90E



Zero-Carbon Enterprise

Yutong integrates carbon emission goals with its own development, aiming to create a zero-carbon, green transportation enterprise.

The green and low-carbon characteristics of new energy commercial vehicles align with the public demand for a green transition in production and lifestyle, as well as a rational energy allocation, and have gained broad recognition among the public.

By 2023, Yutong new energy has achieved

Fuel saving of **8.4** billion liters

Gas saving of **1.3** billion Nm³

Reducing PM2.5 by **2,989** tons

Reducing CO₂ emission by **24,970,000** tons

Reducing NO₂ emission by **145,362** tons

Equivalent to afforestation of **120,000** ha

ADVANTAGES OF YUTONG ELECTRIC OFF-HIGHWAY MINING TRUCK

Drawing from its experience in research and development, and the use of 190,000 battery electric commercial vehicles across more than 30 different working conditions in mining areas, Yutong is dedicated to addressing key challenges in six areas. This effort aims to establish a battery electric off-highway mining truck HV system that fulfills the demands of mining areas. Following rigorous testing, including some of the most stringent tests globally, Yutong guarantees the reliable and stable operation of Yutong electric off-highway mining trucks across expansive mining areas. With an uptime of 95%, which surpasses conventional mining trucks by nearly 20%, these electric trucks can transport nearly 200,000 more tons of ores annually, translating into significant economic benefits.



**Reliable battery, motor
and electric control systems**



Enhanced Safety



Autonomous driving



RELIABLE BATTERY, MOTOR AND ELECTRIC CONTROL SYSTEMS

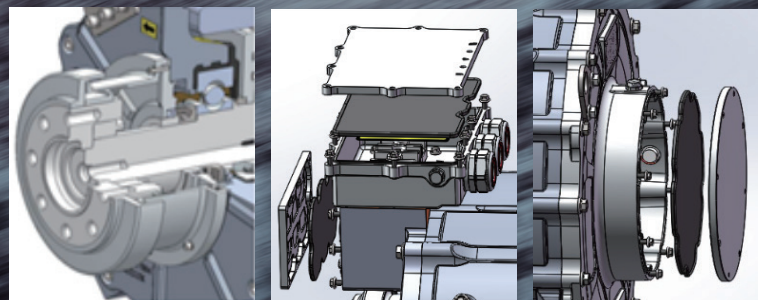
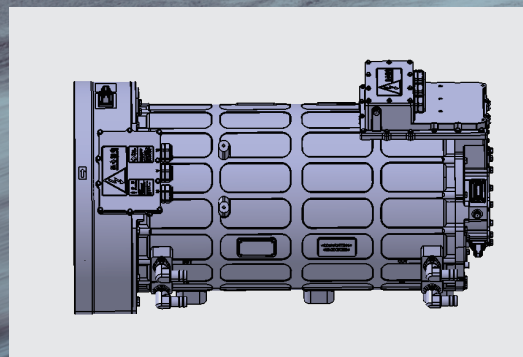
Batteries with High Structural Strength

Yutong has established specialized standards for battery packs used in mining vehicles. Through multiple cycles of testing, validation, and refinement, Yutong has developed a robust battery pack tailored for mining environments and extended lifespan demands of mining operations.



Stable and Durable Motor

The motor features unique mud protection for shaft extension, as well as an anti-condensation structure, allowing it to function reliably in hot and humid conditions.



High Protection Grade

The high-grade protection system, rated IP68 and IP6K9K, effectively increases the motors and batteries' resistance to extreme wet weather conditions. This enhancement boosts the reliability and stability of the motor and battery, ensuring they meet the vehicle's uptime requirements (which currently exceed 95%), and leading to increased profits from mining transport operations.



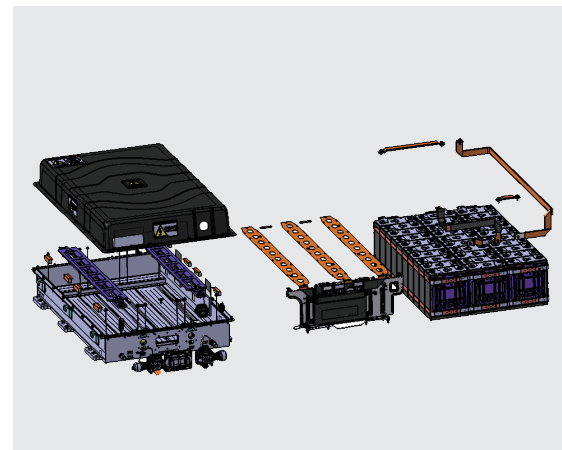
Highly Integrated System

With fewer high-voltage connection points, potential failure spots are effectively reduced.



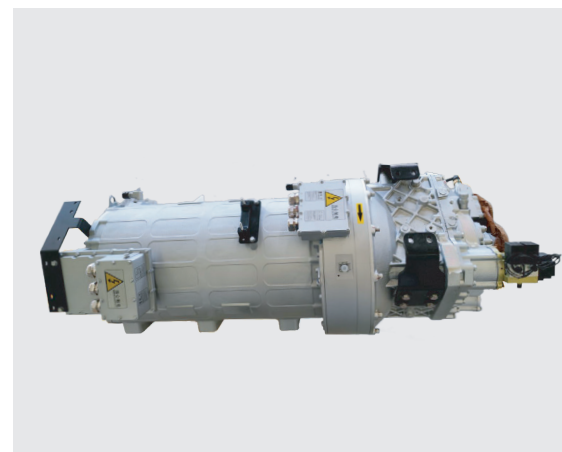
Stable Battery Temperature

With the battery liquid cooling system, the working temperature of the battery can be effectively controlled to improve the reliability of the vehicle and ensure the stable operation of customers. This leads to reduced charging duration, prolonged service life of batteries, and cost savings for customers.



Good Electromagnetic Compatibility

The electromagnetic field strength significantly falls beneath the threshold mandated by the Chinese national standard GB 8702-2014 *Controlling Limits for Electromagnetic Environment* across static, driving, and charging modes. This prevents mutual interference, guarantees precise data transfer, and ensures reliable connectivity.



Strict Battery Verification Standards

Drawing upon its experience of developing and utilizing 190,000 battery electric commercial vehicles, Yutong has established rigorous testing standards (200 kN pinch, nail penetration, vibration, thermal propagation, and corrosion resistance) that far exceed the industry and national benchmarks, leaving no minor flaw unaddressed.





ENHANCED SAFETY

Yutong is committed to an unending pursuit of safety, implementing a variety of technical solutions to guarantee the safe operation of vehicles.

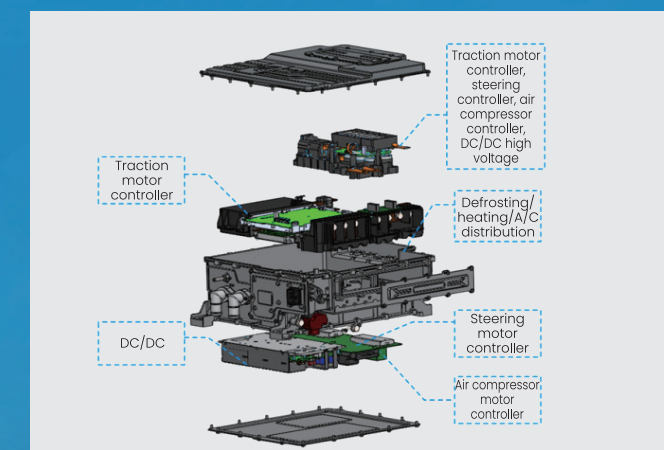
Five Measures to Ensure Driving Safety

- ① The driver cabin boasts a robust closed-ring that meets ROPS standards.
- ② The user-friendly control and excellent visibility help in reducing driver fatigue.
- ③ The driver cabin's efficient thermal insulation for climate control guarantees comfort for both driver and passengers.
- ④ The use of a hydro-pneumatic suspension tunes the offset frequency of the front suspension to closely match the frequency of human walking, enhancing the driver's comfort.
- ⑤ The full-air suspended driver seat mitigates the impact of harsh conditions on mining roads, lessening disruption to the driver.



Dual Control System to Ensure Vehicle Safety

The control system features a dual-control system with intellectual property rights to mitigate the risk of the vehicle becoming uncontrollable in the event of a single control system failure during heavy-load downhill.



Monitoring System to Ensure Battery Safety

Yutong has pioneered the development of a 24-hour monitoring system for traction batteries, which allows for round-the-clock monitoring and early warning of battery status, enhancing the safety of the battery system.



Unique Lighting for a Safe Visual Field

High-intensity LED fog lights and headlamps are designed with intuitive lighting logic (activating the low beam assist when the high beams are on in the front combination lamp), which significantly enhances the vehicle's frontal illumination at night. During reversing, the rear work lights automatically turn on, improving the lighting conditions behind the vehicle for nighttime maneuvers and unloading, and as a result, increasing safety.



Stable Signal to Ensure Driving Safety

YUTONG electric off-highway mining trucks are controlled by software systems, with precise, lossless data transmission being crucial for stable operation. They are equipped with wiring harnesses that have proprietary intellectual property rights and are designed to resist electromagnetic interference, ensuring that control signals are transmitted stably and precisely, keeping the vehicle under the driver's control at all times.



Intelligent Control to Ensure Safe Operation

Through online self-learning technology and output power monitoring, real-time diagnostics and torque validation of electric drive system parameters can be conducted. This enables prompt alerts and safeguards, ensuring the vehicle's safe operation.

Cooling System to Ensure Temperature Control Safety

The battery's independent cooling system ensures temperature control within safe limits, preventing issues with overheating and enhancing the safety of the battery system.



AUTONOMOUS DRIVING SOLUTION CHASSIS-BY-WIRE PLATFORM

AUTONOMOUS DRIVING, SAFE OPERATION

Driven by the "Carbon peak and carbon neutrality" policy, mining enterprises will accelerate the construction of "green mines" and the implementation of new energy mining trucks. Unmanned intelligent mine has become an essential component in promoting the safe, efficient and green development of global mining industry.

Yutong electric off-highway mining trucks are fully equipped with unmanned chassis by wire, developed in collaboration with several relevant enterprises. They have introduced a range of electric off-highway mining trucks, varying from 90 to 130 tons, tailored to the specific needs of mines across different regions. This initiative ensures safe production throughout the entire mining operation while meeting production requirements.

01
Steer-by-wire

02
Brake-by-wire

03
Low-voltage
double-circuit
power supply

04
Drive-by-wire
throttle,
lift-by-wire



One carrier

The drive-by-wire design has complete functions and accurate response, which is the key carrier to realize autonomous driving.

SUCCESSFUL CASES

Supporting Southeast Asia's First Green Smart Mine

In November 2022, Thailand's inaugural 5G+ autonomous driving smart green mining project was successfully contracted, marking a major milestone for Yutong's mining truck operations in penetrating overseas markets. In this collaboration, Yutong intends to contribute high-quality products and extensive service support capabilities. By joining forces with leading companies from different industries, Yutong aims to support the growth of green, smart mines in Thailand and make a concerted effort to protect the green planet.



PROFESSIONAL SERVICES

Focusing on the distinct operational and service challenges faced by truck customers in different countries, Yutong provides extensive global after-sales services, setting up a first-rate specialized maintenance system for new energy vehicles in the industry.

4
Global distribution centers

10
Parts distribution centers

84
Overseas parts dealers

325
Secondary service outlets

15-minute
Response to demand

24-hour
Emergency rescue service

CUSTOMER CASES

Stable Operation in High-temperature and High-humidity Environments

In 2022, the second-largest cement producer, TPI Polene Public Company Limited (TPIPL), received the first delivery of two YUTONG electric off-highway mining trucks. To better suit the local mining environment, enhancements were made to key components such as battery protection on top of the existing advantageous vehicle models. These optimizations were specifically tailored for the high-temperature and high-humidity conditions in Thailand. The vehicles performed exceptionally well upon delivery and received high praise and recognition from the customers. Just a year later, in 2023, TPIPL made another purchase of 10 YUTONG electric off-highway mining trucks.



Main Specifications		YTK90E(RHD)
Item	Parameter	
Basic parameters		
Length × Width × Height (mm)	9,445 × 3,450 × 4,150	
Wheelbase (mm)	4,000+1,550	
Maximum gradeability (%)	40	
Minimum turning diameter (m)	≤22	
Rated power (kW)	430	
Peak power (kW)	700	
Rated torque (N.m)	2,736	
Maximum speed (km/h)	40	
Body raise time/lower time (s)	28/25	
Rated payload (kg)	60,000	
New energy configuration		
Vehicle control unit	Yutong self-made VCU	
Battery capacity	396.44kWh (optional 528.59kWh)	
Traction motor system	Yutong E-drive system (E3 controller), dual five-in-one controller	
Chassis		
Transmission	Three-gear AMT	
Front axle/middle axle/rear axle	Rated payload 20/35/35t, drum-type brake	
Suspension system	Front hydro pneumatic suspension + rear leaf spring balance suspension (maintenance-free balance shaft)	
Tire	14.00R25 steel wire tire	
Frame	High-strength steel	
Upperstructure		
Body hoists	One-direction hydraulic lifting cylinder	
Body capacity (m³)	34 (struck, earthwork container)	

Overall dimensions		Parameter (mm)
L1 Front overhang		1,880
L2 Wheelbase L2		4,000
L3 Wheelbase L3		1,550
L4 Rear overhang		2,015
L5 Body length		5,900
L Overall length		9,445
H1 Cab height		3,435
H2 Height of container above ground		3,650
H3 Container height		1,800
H Overall height		4,150
Ba Wheel tread		2,710
Bb Overall width		3,450
Bc Max width		3,950

Disclaimer: this configuration table is for reference only and not used as the basis for contract negotiation. The actual vehicle shall prevail.

Main Specifications		YTK90E(LHD)
Item	Parameter	
Basic parameters		
Length × Width × Height (mm)	9,445×3,450×4,150	
Wheelbase (mm)	4,000+1,550	
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Ba Wheel tread		2,710
Bb Overall width		3,450
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Main Specifications		YTK105E(RHD)
Item	Parameter	
Basic parameters		
Length × Width × Height (mm)	9,845×3,750×4,250	
Wheelbase (mm)	4,200+1,750	
Maximum gradeability (%)	35	
Minimum turning diameter (m)	≤23	
Rated power (kW)	430	
Peak power (kW)	700	
Rated torque (N.m)	2,736	
Maximum speed (km/h)	35	
Body raise time/lower time (s)	23/24	
Rated payload (kg)	70,000	
New energy configuration		
Vehicle control unit	Yutong self-made VCU	
Battery capacity	396.44kWh (optional 528.59kWh)	
Traction motor system	Yutong E-drive system (E3 controller), dual five-in-one controller	
Chassis		
Transmission	Three-gear AMT	
Front axle/middle axle/rear axle	Rated payload 25/40/40t, drum-type brake	
Suspension system	Front hydro pneumatic suspension + rear leaf spring balance suspension (maintenance-free balance shaft)	
Tire	16.00R25 steel wire tire	
Frame	High-strength steel	
Upperstructure		
Body hoists	One-direction hydraulic lifting cylinder	
Body capacity (m³)	40 (struck, earthwork container)	

Overall dimensions		Parameter (mm)
L1 Front overhang		1,880
L2 Wheelbase L2		4,200
L3 Wheelbase L3		1,750
L4 Rear overhang		2,015
L5 Body length		6,300
L Overall length		9,845
H1 Cab height		3,540
H2 Height of container above ground		3,750
H3 Container height		1,800
H Overall height		4,250
Ba Wheel tread		2,790
Bb Overall width		3,750
Bc Max width		3,950

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Main Specifications		YTK105E(LHD)
Item	Parameter	
Basic parameters		
Length × Width × Height (mm)	10,045×3,750×4,250	
Wheelbase (mm)	4,400+1,750	
Maximum gradeability (%)	35	
Minimum turning diameter (m)	≤24	
Rated power (kW)	430	
Peak power (kW)	700	
Rated torque (N.m)	2,736	
Maximum speed (km/h)	35	
Body raise time/lower time (s)	23/24	
Rated payload (kg)	70,000	
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