TR100E brings users a new experience

Security

Heavy-load downhill descent technology
Hill-start assist and limp-stop control
Battery high-voltage interlock
Surround view (optional)
Front dry and rear wet disc brakes + electric regenerative brake
Integrated electric control cabinet

Reliability

High-strength frame
High-efficiency and energy-saving U-shaped carriage
Optimized hydraulic system configuration
High-quality electrical and hydraulic components configuration

Economical

Large capacity power battery
High power direct drive motor

Comfort

Large space, wide field of vision, low noise cab
Four-way adjustable steering wheel
CAN bus gear/lift handle
High-quality air suspension seat configuration

Intelligent

Domain control technology based on CAN bus network Vehicle information management system
Mine car remote health monitoring and diagnosis platform (optional) Unmanned driving system (optional)

Security

Heavy-load downhill descent technology

When a heavily loaded vehicle is traveling downhill, electric feedback braking is used to ensure that the wheels move at the set speed. Sufficient deceleration capability can effectively control the vehicle speed at any time, improve vehicle safety, and reduce the driver's labor intensity.

Hill start assist and limp control

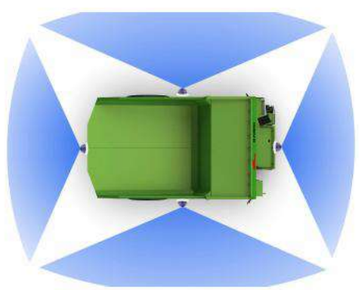
When the vehicle is heavily loaded and parked on a steep slope, the hill start assist can prevent the vehicle from sliding down the slope and causing safety hazards. In case of low-level faults, the vehicle can be driven to the repair station by relying on the limp home function.

Battery high voltage interlock

The vehicle's high-voltage system has a high-voltage interlocking function to prevent human error in operation, incorrect plugging and unplugging of high-voltage components and connectors, and prevent the risk of electric shock to personnel.

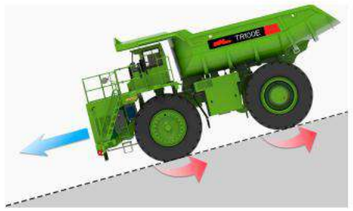
Surround image (optional)

When the entire vehicle is equipped with 360° panoramic images, the 7 -inch LCD screen in the cab provides a panoramic display, ensuring that each mine car is operated in an environment without blind spots, providing protection for mine management and mine car operation safety.



Front dry and rear wet disc brakes + electric regenerative brake

The brake pedal combines hydraulic braking and electric feedback braking functions. The front section is electric feedback braking. When going downhill, electric feedback braking is used to recover electric energy, and the braking energy is fed back to the power battery to improve endurance. The rear section is mechanical braking.
The braking response of the mine car is faster, the braking distance is shorter, and the maintenance cycle of the brake system is longer.



Integrated electric control cabinet

Integrated electric control cabinet, integrated high-voltage box, battery management system BMS, traction motor inverter, auxiliary motor inverter, pre-charging circuit, manual maintenance switch MSD, fuse, voltage and current sensor, detection device, controller, 24V charger, etc., convenient for centralized inspection and maintenance.

Reliability

High-strength frame

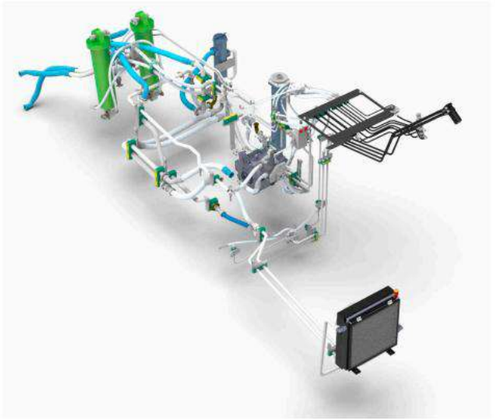
The frame structure is a full box section. It has an integral front bumper and a closed circular crossbeam. The high stress parts of the circular crossbeam, torsion cylinder and the connection between the rear tail seat and the longitudinal beam are made of high-strength alloy steel castings.

Energy-efficient U-shaped carriage

The overall structure of the carriage is a U-shaped structure, with an I shaped transverse buffer rib groove at the bottom. This structure can effectively reduce welding stress and welding deformation, and has sufficient strength and rigidity. It can effectively carry the weight of the carriage and materials while reducing weight.
The main structure of the carriage floor is made of high-hardness, high -strength, high-quality wear-resistant steel.
A large-capacity coal hopper carriage is optional.

Hydraulic system optimization configuration

According to the actual working conditions of mining dump trucks in open-pit mines, combined with the characteristics of mining dump trucks ' compact structure and dense hydraulic pipelines, the hydraulic pipelines of the entire vehicle are optimized. The pipeline layout makes full use of the space, realizes orderly arrangement, clear layers, and rigid fixation, thereby avoiding leakage caused by cross-wear of pipelines, vibration fatigue, thermal expansion and contraction, etc.



High-quality electrical and hydraulic components

High-quality wiring harnesses, connectors, pipe joints, clips and other electrical components fully guarantee the mine car's long-term reliability and durability in open-pit mines with high vibration, strong rain corrosion and poor maintenance conditions.

Economical

High efficiency, environmental protection, energy saving

Large capacity power battery

Lithium iron phosphate power battery, high cycle life helps improve the cost performance of the whole vehicle, high safety, high energy density helps to make the whole vehicle lighter and extend the driving range, and high reliability helps to reduce the failure rate of the whole vehicle. Zero emission, energy saving and environmental protection.

High cycle life
high safety,
high energy density,
high reliability,
low failure rate

High power direct drive motor

The high-power direct-drive motor eliminates the original gearbox, bearing and other high-failure components, and does not require lubricating oil, making the structure simpler and maintenance-free throughout the life cycle. While providing customers with high-quality services, it also reflects considerable economic value and contributes to the creation of a green mine.

Maintenance-free
high power
low failure rate
zero emission

Intelligent

Domain control technology based on CAN bus network

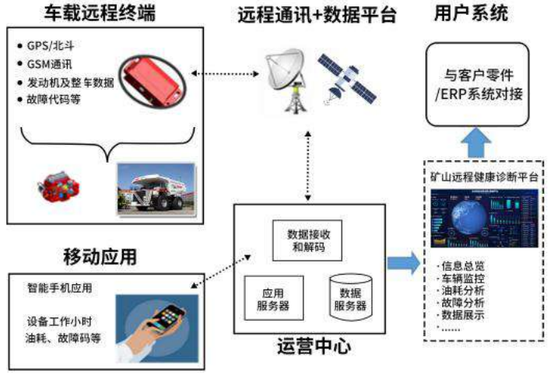
The electrical system adopts a new technology with a central controller as the core and multiple controllers for coordinated control in different domains. Multiple domain controllers and digital power distribution units are distributed throughout the vehicle. Domains are divided according to functions and locations, and then networked with devices in the domain to build a distributed domain control architecture based on the CAN bus network. While improving control efficiency, it also improves the digitalization, informationization and modularization level of the mine car, making the functions of the mine car highly versatile, configurable and scalable, and able to meet the customization needs of various users. The number of wiring harnesses is reduced by more than 60%.

Vehicle Information Management System

The vehicle information management system provides a good operating platform for the interaction between the driver and the mine car through the intelligent mine car terminal display, which is convenient for the driver to grasp the operation status of the mine car in real time and provides a visual graphic display of multiple key data and status of the mine car. It realizes the information collection of various components of the vehicle, including power batteries, drive systems, traction motors, oil pump motors, etc.; it displays important data of the vehicle and has such as fault alarm functions.

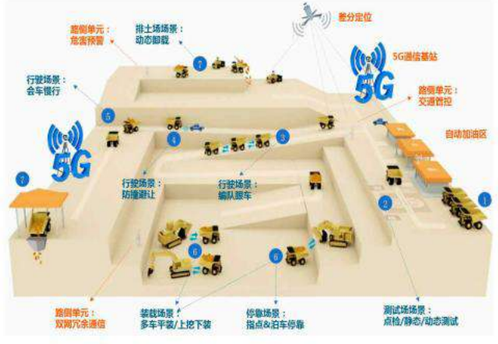
Mine car remote health monitoring and diagnosis platform (optional)

The application of vehicle networking technology enables each vehicle to enter the mine car remote The process health monitoring and diagnosis platform enables mine management to be information-based, remote and dynamic; and realizes all-round management of vehicle operation, safety, fuel consumption, maintenance, etc.



Unmanned driving system (optional)

North Hauler Joint Stock Co.provides users with efficient and reliable unmanned mining dump truck system solutions, with two unmanned driving technology solutions available: pre-installed and modified, fully meeting users' technical needs for building smart mines.



Comfort

Large space, wide field of view, low noise cab

The cab is designed with wide panoramic glass on the front, back, left and right sides to improve the driver's vision; there is enough expandable space inside to meet the needs of different groups of people; professional double-layer glass, double-layer sealing, and the use of sound insulation cotton effectively reduce noise and reduce the driver's discomfort; high-end and stable interior design and ergonomic layout create a quiet and comfortable driving environment for the driver.

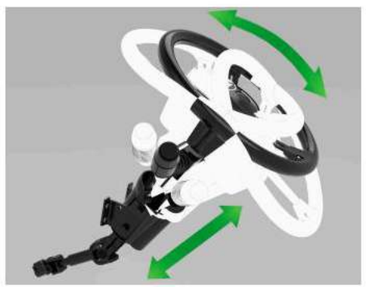
CAN bus gear position/lift handle

The application of CAN bus gear/
lifting handle technology makes the four lifting gears (lift, lower, float, hold) respond faster; the configuration of high-quality lifting handle brings the driver a more relaxed and convenient control experience; the oil-free pipe is connected to the cab, creating a cleaner driving environment inside the cab.

High-quality air suspension seat

High-quality air suspension seat effectively alleviates the discomfort caused by equipment vibration to the driver, providing a comfortable driving experience for the driver. The front and rear position and tilt angle of the seat can be adjusted to meet the driving habits of different groups to the greatest extent.

Four-way adjustable steering wheel



Technical Parameters

Direct drive motor

Rated/peak power (kW)	655/1265@60s
Rated/peak torque (Nm)	8950/21502@60s
Rated operational voltage (V)	550
Maximum speed(rpm)	3050
Cooling method	Forced air cooling

Power battery

Battery Type	Lithium Iron Phosphate
Voltage Platform (V)	850
Battery Capacity (kWh)	770
Heating Method	Membrane heating/liquid heating
Cooling Method	Liquid cooling

Car body

The main body of the carriage is made of high-hardness, high-strength high-quality wear-resistant steel plate. The cab protection plate complies with ISO3471 standards.

Volume	Stacking 2:1 (SAE)	60m³ (78.5yd³)

Oil pump motor

Power (kW)	25/139@30S
Torque (Nm)	158/632@30S
Rated speed (rpm)	1510
Maximum speed (rpm)	2100
Cooling method	Self-cooling

The lifting system

is set up independently of the steering hydraulic system. Two two-stage lifting cylinders are installed on the inside of the frame, and the second stage of the cylinder is double-acting.

System	190bar(2750lbf/in²)
pressure Lifting hydraulic pump flow (at 2100rpm)	365L/min (97US gal/min)
Working time: Lifting	16.3 sec
Working time: Lowering	18 sec

Braking system

Service Brake - Fully hydraulic brake control system. Electric motor driven pressure compensated piston pump provides power for braking and steering. Independent front and rear control circuits are equipped with a nitrogen/oil accumulator to store energy for emergency braking.
Parking Brake - Hydraulic release, applied by spring loading pistons on front/rear brake disc packs.

Electric regenerative braking - When the vehicle releases the accelerator pedal, the motor becomes a generator and the vehicle enters the electric regenerative braking mode. The generated electricity is charged into the power battery to increase the vehicle's endurance.
Auxiliary braking - The parking brake button provides driving and parking brakes through solenoid valve control; it can be automatically implemented when the engine is turned off; when the system pressure drops to a predetermined value, the parking brake is automatically applied. The braking performance meets ISO3450 standards.

Front brake	Dry disc brake
	Brake disc diameter: 965mm (38in)
	Total brake disc area: 2064cm² (320in²)
Rear brake	Composite oil-cooled disc brakes, fully dust and water resistant
	Total braking surface area: 87567cm² (13573in²)

The drive axle

has heavy-duty, fully floating half shafts, a spiral bevel gear main reducer with a first-stage reduction and planetary gear wheel reducers on both sides of the wheel.

	Gear Ratio
Main reducing gear	Standard: 2.16:1 Optional: 2.16:1
Hub reduction gear	Standard: 13.75:1 Optional: 10.50:1
Total reduction ratio	Standard: 29.70:1 Optional: 22.68:1

Steering system

An independent hydraulic system is equipped with a neutral normally closed steering valve, accumulator and gear pump. The accumulator can provide uniform steering regardless of the engine speed; even if the engine power is lost, the accumulator can promptly provide at least two emergency power cycles from left to right. When the low pressure warning light is on, it indicates that the system pressure is lower than the safety limit of 82bar (1186lbf/in²) , reminding the driver to pay attention. The steering performance meets ISO5010 SAEJ53 standards.

Maximum steering angle of wheels	39°

Suspension

Front suspension: Independent kingpin suspension with self-contained variable nitrogen/oil ratio suspension cylinder.
Rear suspension: Self-contained variable nitrogen/oil ratio suspension cylinder connected to A-frame and lateral stabilizer bar.

Maximum impact stroke	Front	235mm (9.25in)
	Rear	175mm (6.90in)
Maximum swing of rear axle	±7°	

tire

Standard type: front and rear wheels 27.00-49 (48PR) E-4
Rim width: 19.5in
Under special working conditions, if the t-km/h (ton-mile/h) value of the specified standard tire may exceed the limit, please consult the tire manufacturer for the best choice.

TR100E

Standard accessories

Cab

Sound proof interior	Door locks
ROPS Cab Guard	Floor mat
ISO3471/SAE J386 Interior wall	Heater/Defroster
Lights	Adjustable seat
Passenger seat	Seat belt SAE J386
Seats adjustable	Full width sunshade
Steering column	Wipers/washers
Tinted glass Multi-purpose storage box	Radio

Control elements

Slow-motion control handle	Combination switch
CAN bus gear selector handle	CAN bus lift selector handle
Main power switch	Manual key switch
Steering alarm switch	Manual control switch
High and low beam	CAN bus switch body
Switch Central controller VCU	Intelligent power distribution module

Instrument components

Turn indicator	Headlight high/low beam indicator
Hydraulic oil temperature indicator	Front brake accumulator low pressure indicator
Rear brake accumulator low pressure indicator light	Steering accumulator low pressure indicator light
Parking brake indicator light	Service brake indicator light
Coolant level warning light	Fog light indicator
Battery voltage indicator	Power battery level display icon
Overspeed warning	Battery temperature gauge
light Gear position display	Hydraulic oil level indicator
Speed/odometer	Speed/hour meter
Cooling system temperature gauge	

overall

Steering hydraulic	Electric air conditioning, PTC heating
Accumulator disc brake	Servo lift controller
radiator traction motor	Pressure detection point
Bottom guard plate power	Reversing alarm
Distributor PDU Battery	LED reverse lights
Stone deflector	LED headlights
Ejector dual tone electric	Fender
Driver arm guard	Disc brake system
Parking controller	Auxiliary emergency brake system
Rearview mirror	Safety latch
Compound radiator	Rear retarder indicator light
Separate steering and lifting systems	Side/tail/braking/steering
Flashing indicator combination lights	

Optional accessories

1034kWh power battery	Fire extinguisher
77.5m3 apacity expansion compartment	Automatic weighing system
Compartment wear-resistant lining	Tool
10.5:1 wheel side reducer	Foldable and extendable spill guard
Cold-proof curtain	27.00R49** radial tire
360° surround imaging	Remote health monitoring and diagnosis platform
Unmanned driving system	Automatic lubrication system

Weight parameters

	kg	lb
Chassis with lifting cylinder	54500	120151
Standard carriage	12500	27557
Kerb weight	67000	147709
Rated loading capacity	91000	200620
Rated load Maximum gross vehicle weight	1 58000	348330

Weight distribution	Front axle	Rear axle
Empty	49%	51%
Fully loaded	34%	66%

*Maximum gross vehicle weight includes options, all accessories, full fluids and payload.

Maintenance fill fluid capacity

	L	(US gal)
Battery box (front)	8	(2.1)
Battery box (left)	8	(2.1)
Battery box (right)	8	(2.1)
Electric control cabinet	10	(2.6)
Differential gear	61	(16.1)
Differential Hydraulic oil tank (total)	414	(109.4)
Hydraulic system (total)	900	(237.7)
Wheel reducer (total)	57	(15.1)
Front suspension (each)	27	(7.1)
Rear suspension (each)	18	(4.8)

Vehicle size