

**FAST
PROFESSIONAL
METICULOUS**



TUNNEL MINE EQUIPMENT

The Value of TMG **ROBUST** **RELIABLE** **RESPONSIBLE**

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青 島 土 木 金 装 备 科 技 有 限 公 司

Underground Trackless Equipment

Diesel LHD

Diesel LHD is a kind of loading, transporting and unloading combined operation equipment specially designed for underground operation with low body, central hinge and front loading. It can not only be used for ore removal and slag removal in the stop e, but also be used for ore unloading to low pass, higher transport vehicle or truck, and can also be used to transport equipment, auxiliary materials, road repair and road paving. Railway and highway tunnels can also be used for a wide range of applications.



Advantages

- ★ Original Deutz, Cummins/Benz Engines
- ★ DANA torque converter and transmission
- ★ DANA or Kessler axle
- ★ Four wheel drive, rear axle/rear body swing
- ★ Intelligent remote control function of line of sight and beyond line of sight
- ★ High production efficiency
- ★ Compact and flexible design suitable for narrow roadway
- ★ Wet type forced cooling closed spring wheel side braking system is adopted for reliable braking
- ★ Comfortable ergonomic driving space
- ★ Reliability ensures continuous improvement of output

Main Performance Parameters of Diesel LHD

Model	TL202A	TL202T	TL204	TL306	TL410	TL514
Name	1m3 LHD	1m3 LHD	2m3 LHD	3m3 LHD	4m3 LHD	6m3 LHD
Rated Load (T)	2	1.8	4	6	10	14
Engine Power (kW)	56	56	63	136	170	250
Bucket Volume (m)	1	0.76	2	3	4	6
Max.Shoveling Force (kN)	53	53	102	109	200	245
Max.Tractive Force (kN)	50	50	104	122	236	303
Length(mm)	6054	6400	7000	8287	9500	10520
Width(mm)	1300	1300	1770	2038	2550	2765
Height (mm)	2000	2120	2050	2113	2390	2550
Operation Weight (kg)	7000	7800	13000	18050	27100	38200
Remarks	TL202A=hydro-static type,TL202T=transmission type.					

Electric Battery & Cable LHD

Our electric LHD has the characteristics of compact structure, convenient operation, no waste gas pollution, low energy consumption, low noise, low operation cost, and high production efficiency. It is a new type of equipment for High efficiency and energy conservation in underground mines. The locking device of the central hinge belt makes the equipment more safe and reliable during maintenance.



Advantages

- ★ No tail gas emission, effectively improving the air quality of tunnel.
- ★ Low noise, improved working environment.
- ★ The motor has large reserve power for more complex and harsh working conditions.
- ★ Battery charging mode can be charged and discharged.
- ★ The battery can exchange power with other equipment, greatly improving the utilization rate.
- ★ Battery LHD is more flexible than the cable electric LHD. It can be transferred by itself without traction, and it can improve production efficiency.
- ★ High production efficiency hydraulic system uses internationally renowned Brand pump valves to reduce failure rate and ensure attendance Compact and flexible design suitable for narrow tunnel.
- ★ Transmission system adopts the imported Dana and Kessler.
- ★ Working/Emergency/Parking Brake is spring brake, hydraulic release.
- ★ The driving and maintenance space meet the national standards and ergonomic requirements.
- ★ Automatic limit and free reeling device.

Model	TL202B	TL204B	TL306B	TL410B	TL514B	TL204E	TL306E	TL410E	TLT514E
Name	1m3 battery LHD	2 m3 battery LHD	3m3 battery LHD	4.5m3 battery LHD	6m3 battery LHD	2m3 electric LHD	3m3 electric LHD	4.5m3 electric LHD	6m3 electric LHD
Rated load weight (t)	2	4	7	10	14	4	6	10	14
Motor power (kW)	50/80	80/135	80/150+75/130	110/200+75/130	135/220+80/135	75	90	130	160+75
Battery level (kWh)	90.2	127.7	190.5	255.5	350.1	/	/	/	/
Bucket volume (m)	1	1.9	3	4.5	6	2	3	4.5	6
Max. shoveling force (kN)	45	102	112	195	225	102	105	187	230
Max.Tractive Force (kN)	54	110	150	240	355	105	140	230	315
L (mm)	5880	6980	8894	10509	11050	6980	8894	10509	10465
W (mm)	1300	1632	1920	2133	2840	1632	2040	2133	2840
H (mm)	2000	2086	2159	2352	2600	2086	2159	2352	2600
Overall Operation Weight	7400	13800	18500	29200	37600	13000	17600	28200	35000

Underground Trackless Equipment

Diesel U/G Mining Truck

Our diesel engine mining truck, relying on its excellent power, excellent slope braking deceleration capacity and higher productivity, is well accepted by our clients. It has much advantages of high reliability, comfortable operation, strong power and convenient maintenance. The mining truck is mainly used in the harsh underground environment and is suitable for long-distance transportation. It is reliable, durable, powerful and has a large load.



Advantages

- ★ Original Deutz, Cummins, Benz Engines
- ★ DANA torque converter and transmission
- ★ DANA or Kessler axle
- ★ Four wheel drive, rear axle/rear body swing
- ★ Intelligent remote control function of line of sight and beyond line of sight
- ★ High production efficiency
- ★ Compact and flexible design suitable for narrow tunnel
- ★ Wet type forced cooling closed spring wheel side braking system is adopted for reliable braking
- ★ Comfortable ergonomic driving space
- ★ Reliability ensures continuous improvement of output

Diesel Mining Truck Main Parameters

Model	TT208	TT310	TT312	TT316	TT420	TT535
Rated Load (t)	8	11	12	16	20	35
Engine Power (kW)	66	113	112	162	264	354
Carriage Box Volume (m)	3.8	5.1-6	6	5-6	8	21
Max.Tractive Force (kN)	98	126	100	185		
Length (mm)	5900	6940	7420	8020	9250	11431
Width (mm)	1500	2000	2048	2240	2440	3146
Height (mm)	2080	2100	2270	2300	2498	3116
Overall Weight (kg)	7200	9500	12000	15500	22100	35000
Remarks	TT310, T1=TMG; T2=Truck; 3=Tunnel section; 10=payload 10 ton					

Electrical Mining Truck Series

Our electric mining truck has the obvious advantages of environmental protection, no emission, good energy-saving effect and low cost, and it is easy to promote with less investment in the transformation of existing equipment. Especially on the basis of "zero emission", high energy cost rate can be saved compared with fuel trucks, which can bring excellent economic benefits to mine users. New equipment with high efficiency and energy saving. The locking device of the central hinge belt makes the equipment more safe and reliable during maintenance.

Advantages

- ★ No Tail Gas Emission, improve air quality of tunnel
- ★ Low noise to improve working environment
- ★ Big motor reserve power to fit for complex and harsh working conditions.
- ★ Battery has both modes of charge and discharge
- ★ Battery can exchange power with other equipment
- ★ The driving and maintenance space meet the national standards and ergonomic requirements
- ★ Compact and flexible design suitable for narrow tunnel.
- ★ The transmission system adopts the imported Dana and Kessler
- ★ Working/Emergency/Parking Brake is spring brake, hydraulic release
- ★ High production efficiency hydraulic system uses internationally renowned Brand pump valves to reduce failure rate and ensure attendance
- ★ CANbus Control technology, real-time monitoring of equipment operation status, fault diagnosis and maintenance tips

Electric Mining Truck Main Performance Parameter

Model	TT310E	TT316E	TT420E	TT530E	TT540E	TT550E
Rated Load Weight (t)	10	15	20	30	40	50
Motor Power (kW)	100/180	130/215	100*2/200*2	160*2/250*2	220*2/300*2	250*2/320*2
Carriage Volume (m)	5	7.5	10	14.5	22.5	27.8
Max.Tractive Force (kN)	200	196	260	350	430	456
L (mm)	7890	8450	9150	10180	11000	11750
W (mm)	1990	2265	2180	3065	3050	3350
H (mm)	2109	2400	2400	2117	3050	3080
Overall Weight (kg)	13500	17300	22400	34100	40500	48000
Battery Level (kWh)	120-200	150-220	170-250	250-350	300-420	360-540

TU Series Multifunctional Service Vehicle

This series of models are underground mining auxiliary equipment developed for special purposes and targets, such as auxiliary transportation, auxiliary operation and auxiliary service in underground mines. Use articulated front and rear frames, with small turning radius and steering gear, and are suitable for underground tunnel mines operation. The cab compartment is designed according to ISO ROPS/FOPS standards to ensure personnel safety. The control system is designed based on CAN-BUS. The on-board display screen can display various parameters of vehicle operation in real time, and has fault prompt alarm and self diagnosis functions.



Advantages

- ★ Digital visual real-time monitoring system.
- ★ Four wheel drive, good adhesion, and overall swing of rear axle/rear car body.
- ★ The driving and maintenance space meet the national standards and ergonomic requirements.
- ★ The cab conforms to ergonomics, ensuring operation comfort and safety.
- ★ Compact and flexible design suitable for narrow tunnel.
- ★ Good stability, high safety, strong driving force and good climbing performance.
- ★ Driveline system adopts DANA, KESSLER etc.
- ★ The closed wet multi disc brake is adopted for the braking system, spring brake, hydraulic release are used for the working / emergency /parking brake, which are safe and reliable.
- ★ Hydraulic system with high production efficiency uses internationally renowned pump valves to reduce the failure rate and ensure the attendance rate.
- ★ CAN bus control technology, real-time monitoring of equipment operation status, fault diagnosis and maintenance tips.

Multifunction Engineering Service Vehicle Main Parameters

Specs/Model	TU312	TU305	TU308
Power (kw)	112 kw/2300 rpm	63kw/2300 rpm	87kw/2300 rpm
Overall Dimensions L×W×H mm	7587x2040x2320 mm	6612x1800x2000mm	6800x1950x2000 mm
Operation weight (kg)	12600	6600	8600
Min.Ground Clearance (mm)	274	260	260
Steering Radius (mm)	4200	3800	3800
	7050	5780	5780
Rated Load (kg)	12000	5000	8000
Remarks	T=TMG;U=utility vehicle;12=12 ton payload		

Multifunctional Service Vehicle



As a technical-oriented enterprise in the field of trackless equipment, we have rich technical research and production experience in the field of trackless equipment. We can customize and develop the equipment that customers need based on their actual needs.

Rock Drill Drifter

We specialize in manufacturing various hydraulic rock drills, impact power heads, spiral drills, and other advanced drilling equipment for road engineering construction, geological exploration, foundation reinforcement, mining, and other purposes such as highways, railways, and tunnels. Currently serving multiple central enterprises, state-owned enterprises, large group enterprises, and well-known enterprises in the drilling and chiseling industry both domestically and internationally, it is an advanced factory that integrates design, manufacturing, sales, and service.

Our processing and inspection equipment are high-precision equipment imported from Europe, the United States, and Japan, ensuring the quality and efficiency of production. The leading technology and R&D team ensure the perfection and maturity of existing products, as well as the development and manufacturing of new products.



CNC Machining Center



TEST BENCH TESTING



APPLICATION ON DRILL JUMBOS

Advantages

- ★ Our hydraulic rock drill has significant advantages such as energy conservation, high efficiency, and good working conditions. The hydraulic rock drill is the core component of the rock drilling jumbo.
- ★ High strength body, long service life, and long maintenance intervals.
- ★ The system is stable, structurally scientific, easy to maintain, compact in structure, and has good stability.
- ★ The size to cross-section ratio of the impact piston makes it easier to generate greater impact force.
- ★ Scalable design for most models, leaving ample space for power upgrades, which can be achieved by replacing only a small number of components.
- ★ Finite element simulation and optimization of structural design for a more perfect appearance.

DRIFTER PARTS



Backhoe Loader

TMG870 new generation backhoe loader upgraded on the basis of the mature equipment and technical performances of present products, including the upgrade of engine emission, lightweight upgrade of structural parts, and of working device parameters, to further improve the comfort, safety, maintainability, reliability, supportability, and economy of the product.



Advantages

- ★ Ensure strong soil holding capacity.
- ★ Features high operation efficiency, with the breakout force up to 63kN.
- ★ Features good levelness of bucket and rapid operations.
- ★ The ultra-high discharge height (2770mm) and ultra-high breakout force (66kN) lead the top of efficiency of products.
- ★ Large space, good sound and heat insulation, and good shock absorption.

TMG Backhoe Loader Main Parameters

Name	TMG870	TMG388	TMG30-25
Bucket Capacity	1 m3	1 m3	1 m3
Backhoe Capacity	0.3 m3	0.3 m3	0.1-0.4 m3
Operation weight (kg)	7600	8200	7600
Break force (kN)	66	38	38
Max.Tractive force (kN)	60	39	39
Bucket Digging Force (kN)	63	46.5	46.5
Loading Lifting Capacity (kg)	2500	2500	2500
Dumping Height (mm)	2770	2650	2795
Max. Digging Depth	4425	4082	4082
Wheelbase (mm)	2180	2500	2250
Min. Ground Clearance (mm)	325	300	300
Overall Dimensions (mm)	7440×2350×3450	6230x2365x3752	5910x2268x3760
Rated Power (Kw/hp)	70-82	75/100	75/102
Tyre	14-17.5/19.5L-24	14-17.5/19.5L-24	14-17.5/19.5L-24
Remarks			

Drive-train System Product

China Professional Drive-train System Products

---Transmission,Torque Converter,Axle Expert from China for Engineering Equipment, Mining Equipment,Construction Equipment, Agricultural Equipment etc



Based on our strong transmission system production and research and development capabilities, we provide customers with matching, optimization, technical design, product transformation, new product research and development, and technical output of drive-train system products of mining machinery and engineering machinery. Products mainly includes transmission, torque coverter,axles etc. Accept product customization.

Our transmission, torque converter and axle products' parameters are adapt to various working conditions and various kindly of applicable machines, including wheel loader,backhoe loader, telescopic handler, excavator, grader, roller, crane, agricultural machines as well as underground mining equipment including underground loaders, underground mining trucks, utility vehicles, drill jumbos etc.



Hydraulic System Parts

TMG is committed to providing customized hydraulic system solutions to customers, guided by customer needs, deepening technology driven quality upgrades, and creating hydraulic products that are "user-friendly, durable, and indestructible".

TMG focus on the development, manufacture and supply of China made middle and high-end hydraulic cylinders, hydraulic valves, hydraulic accessories, and hydraulic system products, and apply them in our equipment.

In the spirit of perseverance, dedication, and innovation, TMG helps customers design the safest and most efficient hydraulic component solutions. At present, our hydraulic components products have been exported in bulk to more than 20 countries and regions such as Russia, Australia, Japan, and Europe, and are widely used in engineering machinery, tunnel machinery, handling machinery, marine machinery, environmental sanitation machinery, high-altitude work machinery, bridge machinery, metallurgy and construction machinery, water conservancy machinery, new energy power generation, and many other fields.

Product range:

Hydraulic cylinders

Hydraulic valves

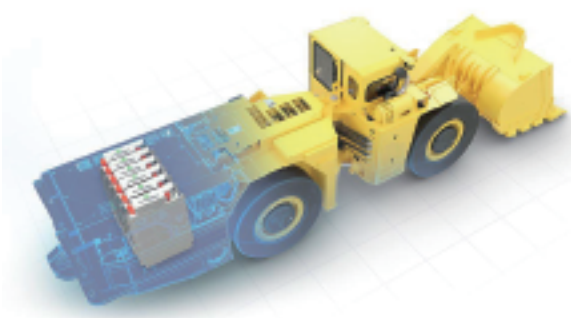
Hydraulic system design

Hydraulic accessories



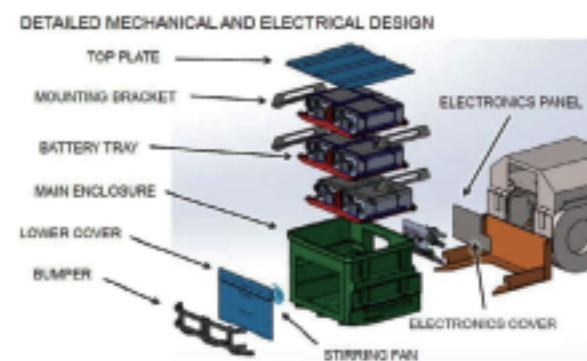
Electrical Drive-train System for Underground Mining Equipment

Battery Loading Technology



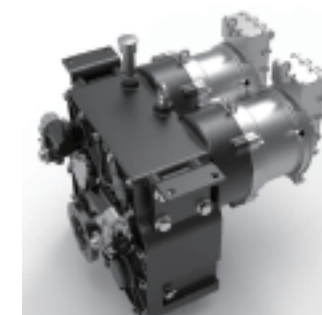
Advantages

- ★ 80% reduction in energy costs.
- ★ The operator works in a quiet environment and is healthy and happy.
- ★ Save more than 50% in maintenance cost and time.
- ★ Environmental improvements from zero emissions, and significant reductions in carbon emissions.
- ★ Excellent economic and social benefit indicators are really attractive and promote the rapid development of electric systems in the field of construction machinery.



Permanent magnet Synchronous Flat Wire Motor

Permanent magnet synchronous flat wire motor is a type of motor mainly composed of stator components, rotor components, and other auxiliary components. Its characteristic is the use of permanent magnet excitation, and the shape of the rotor component is similar to that of a card, so it is also known as a card issuing motor or a Hair pin motor.



Advantages

- ★ Dual motor drive, intelligent distribution of dual motor loads, long motor life and high power conversion efficiency.
- ★ Advanced electronic automatic shifting, dual-motor cross-variable shifting, uninterrupted power, reliable and comfortable.
- ★ Precisely configured helical gear system, efficient and quiet transmission.
- ★ Equipped with shock protection components as standard to protect the electric system and gears to run stably at high speed and not afraid of any transmission shock.



Advantages

- ★ Driven by permanent magnet synchronous motor, efficient and quiet.
- ★ Automotive-grade forced lubrication air pump, which can ensure long-lasting work.
- ★ Full make use of helical gear transmission, efficient and quiet.
- ★ Use the industry's best working and steering gear pumps to provide ample hydraulic power for the working system.

Advantages

- ★ Permanent magnet synchronous motor, flat wire stator structure, high efficiency, small size and high reliability.
- ★ Ultra-short end structure makes the motor outperform conventional flat wire motors.
- ★ Excellent manufacturing process to ensure power Reliable and quiet machine.
- ★ Each motor has been carefully calibrated by a professional team, with high power conversion efficiency and fast and accurate response.



QINGDAO TUNNEL MINE EQUIPMENT TECHNOLOGY CO., LTD.

Qingdao Tunnel Mine Equipment Technology Co., Ltd. is a professional enterprise integrating production and trade, providing customers with high-quality machinery and Off-highway drive-train system components products for mining, construction and heavy industry field.

As a special partner of XCMG and SEM, we make good use of the resource sharing platform of SEM and XCMG to build our own underground trackless equipment under ISO standard system.

We use the production and quality system of SEM and XCMG as our production guidance, supply chain sharing, and customized TMG comprehensive underground mining vehicle solution.

We have wide range series of mining machinery and construction machinery products, can customize products according to the needs of customers. In addition, we are the first company in China to supply full range of drivetrain system assemblies to foreign countries, providing customers with customized key components product solutions and technical solutions.

In addition to supplying mining and construction equipment products at home and abroad, we also give our clients integrated solution of technical consultation, output of industrial vehicle design scheme, international project cooperation, technology output and service etc.

We are proud of our technology research and development capabilities, which is derived from our excellent technical engineer team, the long-term evolution of the industry's technology capability and continuous innovation. It is never our habit to be complacent. Everything we do is based on the development trend of the industry, the diversified needs and satisfaction of our customers.

With adhere to the development concept of "Technology as the Root, Honesty as the Foundation, Innovation and Green Development", and the principle of "Quality is Brand, Brand is Future", we are committed to providing our customers with high-quality, cost-effective and satisfied services.

We look forward to meeting you in this world and establishing long-term win-win cooperation relationship with you.



Underground Mining Equipment Drive-train System Product

To win with details and provide customers with all-round, professional, satisfactory and consulting solutions.

Mission

To provide customers with high value-added and cost-effective products and value-added services beyond products, and create China's advanced mining equipment technology brand to the world.