



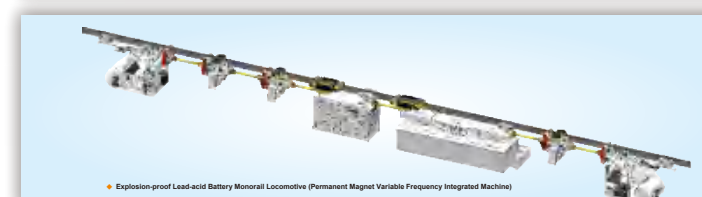
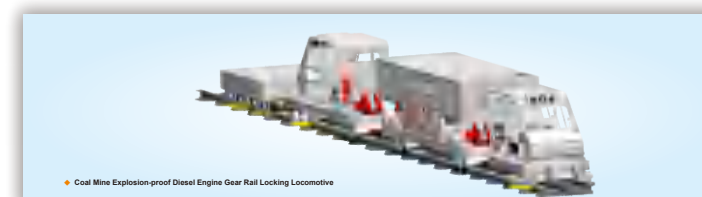
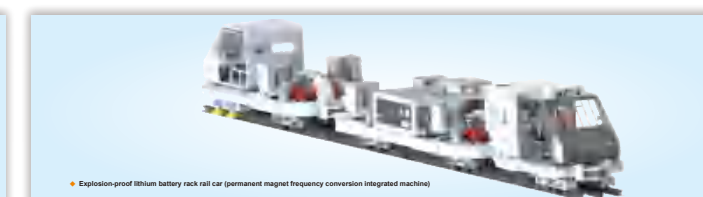
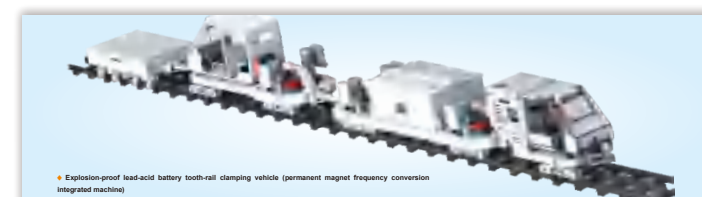
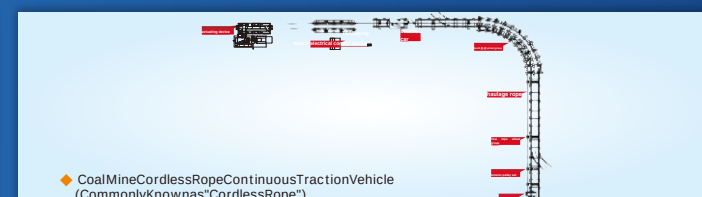
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Hunan · Xiangtan Hengxin Industrial Corporation Ltd ·
Shaoshan

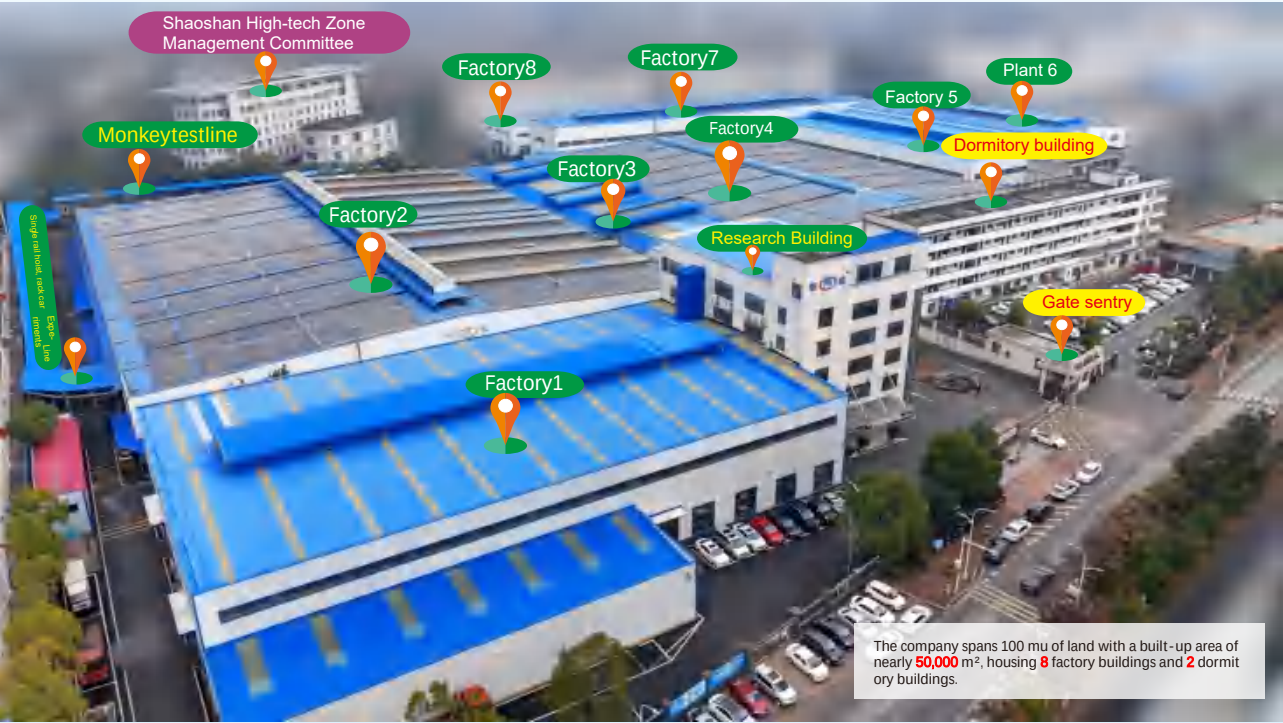
Company Profile

COMPANY PROFILE

Xiangtan Hengxin Industrial Co., Ltd. was founded in 1999 and is located in Shaoshan City, Hunan Province, in the high-tech industrial development zone. The company, with over 400 employees, serves as a member of the national expert group for revising the "Coal Mine Safety Regulations." It also holds leadership roles as vice president of the Provincial Machinery Industry Association, executive vice president of the Provincial SME Association, vice president of the Provincial Quality Association, and founding member of both the Provincial Smart Mine Alliance and the Provincial Brand Promotion Association. Its flagship products include mining monorail hoists, mining rack rail clamping vehicles, mining "monkey cars," mining cordless ropes, mining rope-towed clamping vehicles, underground mine transportation equipment, industrial internet control platforms, and related explosion-proof electrical products. After more than two decades of development, the company has evolved from a niche player in the "monkey car" sector to a leading expert in intelligent mining rail transportation equipment, with products exported to countries across Europe, Southeast Asia, and Africa.

The company has won awards such as the National Science and Technology Progress Excellence Award, the National Invention and Entrepreneurship Award, the Silver Award at the National Invention Expo, the First Prize of China Coal Industry Science and Technology, and the Second Prize of Provincial Science and Technology Progress. It has also been awarded the Gold Award for Quality of Green Mine Mining Equipment and was selected as one of the first batch of national-level specialized, refined, unique, and innovative "Little Giant" key support enterprises. In 2021, it was jointly awarded the "National Market User Satisfaction Benchmark Enterprise" with 11 other companies, including FAW - Volkswagen and Gree Electric Appliances. In the same year, it was also awarded the "China Single Champion Product" alongside eight other companies, including CRRC Zhuzhou Locomotive and Zoomlion from Hunan Province. Additionally, it was honored as a recipient of the Sixth Hunan Provincial Governor's Quality Award, a national-level contract-abiding and credit-worthy unit, a national intellectual property demonstration enterprise, a national green factory, a provincial digital new infrastructure demonstration unit, and a Hunan enterprise standard "leader".

Heng Xin Bird View



- Factory 1 :** Lithium Battery and Diesel Engine Assembly Workshop
- Factory 2 :** Single-track crane, toothed-rail card-rail vehicle debugging workshop
- Factory 3 :** Product delivery workshop
- Factory 4 :** Intelligent CNC machining shop
- Factory 5 :** workshop, single-track hoist, tooth-rail clamping vehicle, riveting and welding
- Factory 6 :** track and switch machining workshop
- Factory 7 :** laser-driven material walkway
- factory 8 :** monkey car product welding workshop

Chief Expert Introduction



Xiao Gongping

Director General, Senior Engineer

Scientific and Technical Payoffs

- ◆ China Coal Industry Science and Technology First Prize
- ◆ Second Prize of Provincial Science and Technology Progress Award
- ◆ Second Prize of Provincial Invention Patent
- ◆ 52 software copyrights
- ◆ 43 invention patents
- ◆ Published 23 papers
- ◆ The Editor-in-Chief Published "Underground Coal Mine Overhead Passenger Device"
- ◆ National Torch Program Project
- ◆ National Major Scientific and Technological Achievements Transformation Project
- ◆ The Pilot Project of the Internet of Things System for the Supervision of the Important Equipment in Coal Mine
- ◆ Chief editor of multiple industry standards and group standards

MAIN ACHIEVEMENTS

- ◆ National Outstanding Entrepreneurs
- ◆ Individuals who have made outstanding contributions to the development of the non-public sector and small and medium-sized enterprises in the province
- ◆ The 7th China Invention Association Invention and Entrepreneurship Award
- ◆ First New Hunan Contribution Award for Outstanding Individuals
- ◆ Top 10 Outstanding Patent Inventors in the Province
- ◆ Top 10 Outstanding Economic Figures in the Province
- ◆ Provincial Leading Talents in Science and Technology Entrepreneurship
- ◆ Leading figures in provincial
- ◆ Provincial May 1st Labor Medal
- ◆ Outstanding Communist Party Member of the Province
- ◆ Provincial Outstanding Quality Worker
- ◆ Outstanding Entrepreneurs of the Province
- ◆ Good people in Hunan
- ◆ High-level talents in Xiangtan City
- ◆ Xiangtan City Professional and Technical Backbone Talents
- ◆ The first batch of outstanding science and technology workers in Xiangtan City
- ◆ Leading Talents in Emerging Industrial Advantageous Chains of Xiangtan City

SOCIAL ROLE

- ◆ Deputy to the 12th Provincial People's Congress
- ◆ Members of the Expert Group for the Revision and Formulation of the "Coal Mine Safety Regulations"
- ◆ Vice Chairman of the Provincial Coal Society
- ◆ Vice President of the Provincial Quality Association
- ◆ Vice President of the Provincial Machinery Industry Association
- ◆ Vice President of the Provincial Association of Small and Medium Enterprises
- ◆ Vice Chairman of the Provincial Brand Promotion Association
- ◆ Provincial Intellectual Property Rights Protection Assistance Consultant
- ◆ Special Expert of the Provincial SME Association Expert Database
- ◆ Vice Chairman of the Provincial Smart Mine Industry Promotion Association
- ◆ Expert of the Third Safety Production Expert Group of Hunan Coal Mine Safety Supervision Bureau
- ◆ Outstanding Entrepreneur Mentor of Provincial SME Management Talent Training Program

The Unique Hengxin Shares

enterprise advantage

▲ Brand Glory and Authority Recognition

The company has been awarded multiple national and provincial/ministerial-level prizes, including the National Science and Technology Progress Excellence Award, the National Invention and Entrepreneurship Award, and the China Coal Industry Science and Technology First-Class Award. It was also recognized as one of the first batch of national-level specialized, refined, and innovative "small giants" key-supported enterprises. In 2021, it shared the title of National Market User Satisfaction Benchmark Enterprise with 11 units, including Yiqi and Geli Electric, and won the China Single Item Champion Product award alongside 8 units, such as Hunan Zhongche Zhuzhou Electric Vehicle and Zhonglian Heavy Industry. Additionally, it is a National Green Factory, a National Intellectual Property Advantage Enterprise, and a National Contract Compliance Credit Unit, demonstrating its leading brand status and authoritative recognition in the industry.

▲ Manufacturing advantages of independent industrial chain

All processing procedures, including blanking, machining, riveting, welding, spraying, component assembly, and final assembly, are independently completed. This ensures higher quality of product manufacturing and more reliable delivery schedules. At the same time, costs can be controlled to the lowest level, thereby maximizing profit margins for customers. In other words, customers can receive products with higher cost-performance ratios, achieving the goal of win-win cooperation with them.

▲ Industry's first export to Europe and Asia

After a comprehensive domestic evaluation by foreign investors, our company, leveraging its robust R&D and manufacturing capabilities as an industry leader along with its high cost-performance ratio, has represented the sector in exporting anti-explosion lithium-ion battery monorail hoists to the Czech Republic in Europe for two consecutive years. Numerous foreign enterprises, including those from Russia and Turkey, have actively engaged with our company regarding the export business of monorail hoist vehicles.

▲ Participate in standard formulation and accident investigation

The company's experts were the only representatives of the industry to serve as members of the national expert group for the revision of the "Coal Mine Safety Regulations." In 2023 and 2025, they were invited to participate as experts in the investigation of underground transportation accidents in Shanxi and Hunan, respectively, highlighting the company's authority and influence in the industry.

▲ One-stop after-sales solution

We provide a full range of products including mine single-rail hoists, tooth-rail clamping cars, monkey cars, rope-pulled clamping cars, infinite ropes, and remote monitoring systems. We guarantee that whether it is a product from a competitor or our own company, we will not discriminate by brand. We offer one-stop after-sales services for underground equipment, thoroughly addressing the after-sales pain points of customers who face "multiple products, multiple manufacturers, and coordination difficulties."

product superiority

★Multi-level braking: The tooth-and-rail locomotive is equipped with three levels of braking power, including one-level disc brake for working braking, two-level brake-up brake for braking within the reducer, and three-level safety brake for track alignment. It was the first in China to standardize normal working braking during regular operation and three-level safety brake for track alignment during abnormal operation in inclined tracks. The single-track hoist is equipped with two levels of braking function, namely working brake and safety brake, to prevent accidents such as uphill rolling and downhill flying.

★Three-level intelligent driving: Level L1 remote-controlled unmanned driving, Level L2 underground centralized unmanned driving, and Level L3 ground-based remote-controlled unmanned driving.

★Machine group AI intelligent scheduling: Based on production requirements, the intelligent scheduling large model of the underground machine group is established to carry out intelligent scheduling of the machine group to improve the operating efficiency and safety performance.

★Voice and audio reporting and alarm functions: During operation, the system provides voice and audio alerts for abnormal information occurring under all road and working conditions of the locomotive, including twelve major categories of information such as start-stop, climbing, turning, track switch opening/closing, safety protection, faults, road condition obstacles, lifting, entry into depot, exit from depot, oil/electricity shortages, etc.

★Advanced Manufacturing Technology: Currently, many industry competitors do not engage in in-house processing but mainly operate assembly plants, with relatively passive progress and quality assurance. In contrast, our company is fully engaged in end-to-end in-house processing across the entire industrial chain. This includes the entire production process from laser cutting of materials to robotic welding and five-axis machining center operations, all of which are informatized and intelligently controlled. We have comprehensively implemented pre-welding and post-processing for key components of the machine vehicle, achieving one-time clamping and forming with high dimensional accuracy, thereby ensuring stable operation of the machine vehicle.

★High operational precision: Currently, most domestic competitors perform machining before welding, making it difficult to ensure the positional tolerance of the products. In contrast, our company conducts all machining after welding, ensuring the precise alignment of the four central axes of the vehicle—namely, the design center, assembly center, traction center, and operational center. Consequently, the locomotive exhibits low operational noise, minimal resistance, reduced power loss, high operational precision, high traction efficiency, and extended service life.

INTELLIGENTIZATION OF VEHICLES

★Mobile Road Condition Detection Robot

First, it adopts road condition perception and data acquisition systems such as 360 line lidar, AI camera recognition, slope recognition, and ultrasonic radar;

Secondly, the edge data processing center with the algorithm is used to process the big data;

Thirdly, the PLC is used to build a data control system to implement classified control of the data system.

The data of these three systems are coordinated to realize intelligent detection of roadway and rail conditions.

Tunnel road condition detection: mainly detect the tunnel environment within 20m in front of the locomotive, including the opening and closing of air doors, personnel intrusion, locomotive climbing and turning and other obstacles, and automatically alarm and stop when the distance from the obstacle is 5 meters.

Track condition detection: It mainly detects the track joint displacement, distortion, switch opening and closing state, etc., and automatically alarms and stops when the distance is 5m from the abnormal place.

Electronic fence function: 3×3×20m automatically generate electronic fence in front of the locomotive, and the locomotive will alarm and stop automatically when the obstacle invades.

★Four-level driving mode

The driver is present in the cab: The driver operates the vehicle directly from the cab, which is a traditional manual driving mode.

L1 Level Follow-vehicle Remote Unmanned Driving: The driver is positioned behind the vehicle, operating it autonomously via remote control equipment. Through onboard robots, real-time monitoring of the locomotive's operational status and track conditions is conducted. Upon receiving an alarm signal, the locomotive automatically stops, or can be manually stopped remotely. The personnel in the follow-vehicle immediately proceed to manually inspect and address operational or track condition issues. Close proximity to the monitoring reduces the risk of accidents.

L2 Level Underground Centralized Control Unmanned Driving: Supported by 5G dedicated networks or industrial loop networks, this system extends L1-level capabilities by enabling centralized control from an underground hub to remotely coordinate and operate single or multiple vehicles. The system automatically routes paths to prevent collisions and congestion, requiring low-latency communication via 5G dedicated networks or industrial loop networks.

L3 Level Ground Remote Unmanned Driving: Based on L2 level, data planning and production task data coordination are carried out for a single unit or a group of units in the wellbore through the ground dispatching center, and a large data model is established to carry out A1+ intelligent dispatching for the group of units in the wellbore.

Mine Tooth Track Card Car

Product Overview

The mine tooth-rail card-rail car is an auxiliary transportation device that operates on conventional or irregular tracks, powered by an explosion-proof battery or diesel engine, and driven by an electric motor or hydraulic motor to rotate a driving gear along a toothed rail. It enables long-distance direct transportation of materials, personnel, and large equipment without transfer.

Product Classification

According to the dynamic output mode, they are divided into three types: coal mine explosion-proof diesel engine steel wheel / tooth rail locomotive, explosion-proof lithium battery tooth rail card rail locomotive (permanent magnet variable frequency motor) and explosion-proof special type lead-acid battery tooth rail card rail locomotive.

According to the form of the running track, it is divided into: ordinary track tooth track card vehicle and irregular track tooth track card vehicle

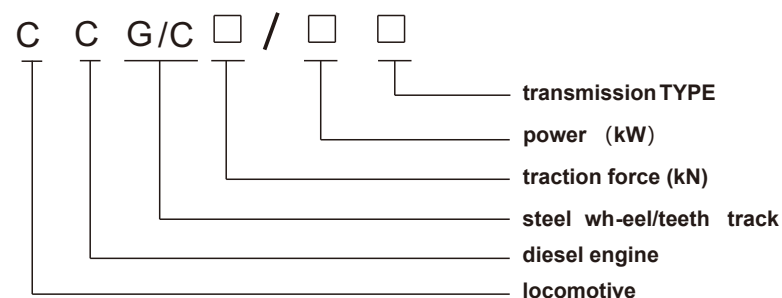
Explosive Fuel Engine Steel Wheel/Tooth Rail Engine Car

product presentation

The explosion-proof diesel engine with steel wheel/teeth track locomotive is mainly composed of cab, main engine drive, brake car and pull rod, which can run on irregular track system or ordinary track system.



Model Definition



Example: CCG / C 538 / 160Y: Coal mine explosion-proof diesel engine with steel wheels/teeth 160kW tracks, traction force 538kN, diesel engine power, hydraulic transmission.

main unit

Pilothouse

The cab consists of an AI road condition detection robot, a cab, a cab frame, and a track clamping device. The cab contains a road condition display screen, a working condition display screen, and an operation control box. When equipped with 3WD and 4WD, the other two drive units are installed on the cab frame, reducing the length of the locomotive.



Cabin A (without drive unit)



Cabin B (with one drive unit)



Cabin C (with two drive units)



Host Driver

The combination of the main engine and the drive unit constitutes the power unit of a rack-and-pinion vehicle.



Main Engine

The vehicle's power unit supplies hydraulic oil to each drive unit. It primarily includes the anti-explosion diesel engine system, hydraulic system, electro-hydraulic control system, and automatic fire suppression system.



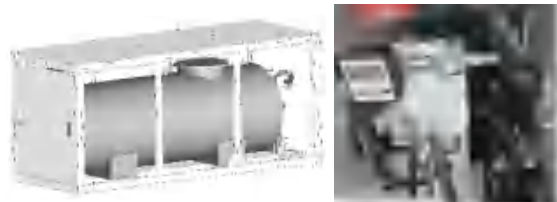
Drive Unit

The drive unit consists of two drive units, each with a traction force of 13.5 kN. Each drive unit is equipped with a two-stage working brake system: a first-stage disc working brake and a second-stage working brake with a retarder brake in the reducer, and the brake is a fail-safe type.



Driver Element

The system is mainly composed of hydraulic motor, planetary reducer, two-stage working brake (with wet brake built in the reducer and disc brake acting on the driving wheel), driving wheel, encoder speed measuring device, centrifugal speed limiting device, driving bracket, wheel swing frame, rail clamping wheel, guide wheel, etc. The driving force of a single driving unit is 135kN.



Liquid Transport Vehicle

The system is designed for liquid storage with capacities of 8 0 0 L and 12 0 0 L, equipped with fire extinguishing, anti-static, and anti-collision safety features, and incorporates a built-in pneumatic diaphragm pump for liquid filling.

technical parameter

loading liquifier

Coal Mine Explosion-Proof Diesel Engine Steel Wheel/Tooth Rail Engine Car Slope Load Comparison Table (Unit: T)

Number of drive units	Pull kN	Falling gradient					
		5°	10°	15°	20°	25°	30°
2	270	90	75	48	32	22	15
3	405	95	85	75	58	43	32
4	538	130	12	100	75	63	50

- Note: 1. The self-weight of a single truck is 3.6 tons.
- 2、 The table shows the safety load of the locomotive (safety load = weight of the locomotive + weight of the cargo).

Performance Parameter Table

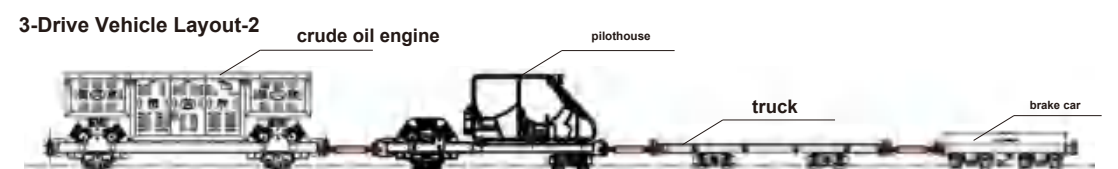
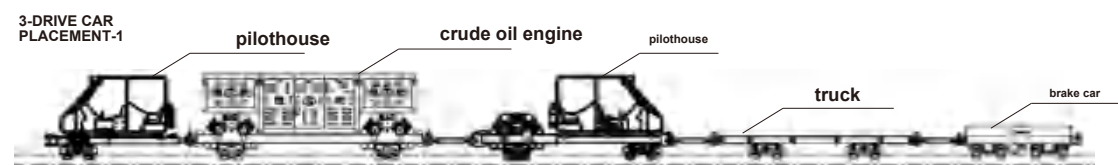
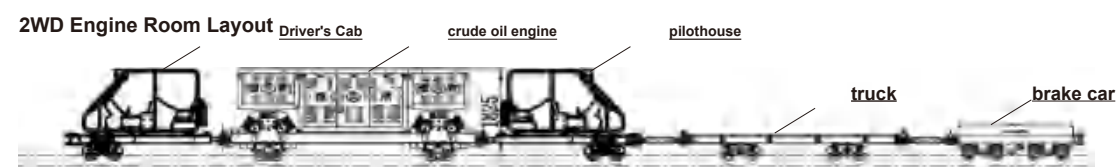
Performance Parameters of Steel Wheel/Tooth Rail for Mine Explosion-Proof Diesel Engine

Parameter name		Parameter values		
Model		CCG/C270/160Y	CCG/C405/160Y	CCG/C538/160Y
Traction force (kN)		270	405	538
Braking force (kN)		405~540	608~810	807~1076
Number of drive units (units)		2	3	4
Number of Brake Units (units)		4	6	8
Maximum OPERATION Running speed (m/s)	Carrying idler	2.5		
	Heavy load	0.8		
Speed limiter actuation value (m / s)		2.645	1.84	1.38
Traction height (mm)		320		
Maximum climbing ability (°)		25		
Gauge (mm)		600/900		
Track type		SMT140-SMJ160/22-24-30-38-42KG		
Horizontal deflection radius (m)		≥4.5		
Vertical deflection radius (m)		≥20		
Vehicle weight (t)		18.6	22.5	25.3
Outline dimension	Long (mm)	12200	14300	16400
	Wide (mm)	1500		
	Gao (mm)	1825		
Hydraulic-pressure System	Explosive Fuel Engine	Power / speed (kW / rpm)	160/2200	
	Oil tank capacity (L)		150	
	Hydraulic pump displacement (mL/r)		280	
	Hydraulic motor displacement (mL / r)		160	
	Main system pressure (MPa)		35	
	Oil pressure (MPa)		3	
Mancar	Release brake pressure (MPa)		15	
	Maximum number of subjects	Per -unit	15	
		Maximum number of permitted tables	3	
Safe Brake car	Number of brake force brake	kN	≥400	
		Number of brake gates	4	

product superiority

- the maximum angle of vehicle climbing a slope is 30°;
- the maximum traction force of the vehicle was 538 kN.
- the transport efficiency was high when the operating speed was less than or equal to 2.5 m/s.
- The vehicle is short in length, equipped with a self-propelled power unit, and capable of continuous non-rotary transfer transportation, demonstrating strong adaptability.
- The full course of the card track operation is highly safe.
- it can transport both materials and people;
- the vehicle can be operated from the cab, also by means of a wireless remote control, and can be remotely operated from the dispatch room.
- The vehicle is equipped with a three-stage braking system; the tail of the unit is also fitted with a safety brake car for backup safety braking during uphill climbs and downhill races.

arrangement diagram



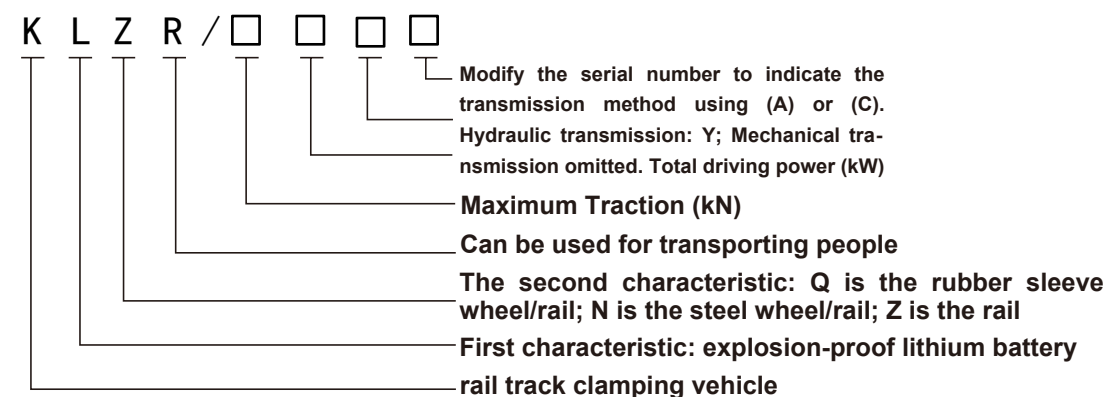
Explosive Lithium Battery Tooth Rail Card Rail Vehicle (Permanent Magnet Variable Frequency-Body Machine)

product presentation

The explosion-proof lithium battery rail car (permanent magnet frequency conversion integrated machine) is mainly composed of the cab, lithium battery drive, brake car, pull rod, etc. It can run on the irregular track system or the ordinary track system.



Model Definition



Example: The explosion-proof lithium battery tooth-rail clamping vehicle (permanent magnet and frequency conversion integrated system) KLZR240/176 is designed for personnel transport, with a maximum traction force of 240kN and a total driving power of 176kW. It features variable frequency speed control and mechanical transmission.

main unit



cab + electro-hydraulic control unit

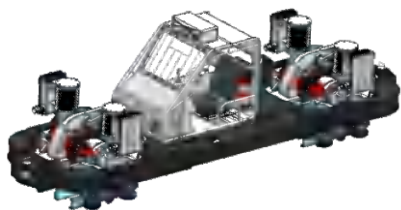
The cab A is equipped with control box, operation condition display screen and road condition display screen, and road condition detection robot, etc.

The electro-hydraulic control unit is composed of hydraulic control system and electrical control system, which can realize the precise control and efficient operation of the locomotive.



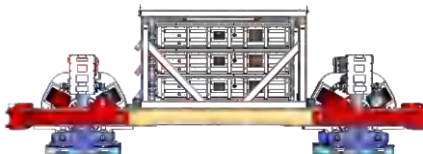
cab + drive unit

The cab is composed of the control room and the driving part, which integrates the control box, the running condition display and the road condition display, and the road condition detection robot. The road condition detection robot has the function of real-time monitoring the running road condition of the locomotive, and can send out the alarm signal when encountering obstacles, and automatically trigger the deceleration or stopping, so as to ensure the running safety.



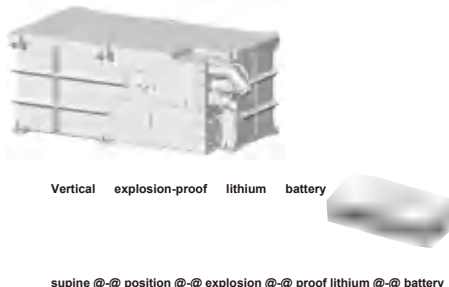
Dual Drive Cab

The design of the cab, two drive units and electro-hydraulic control unit is integrated, which can save space effectively.



Dual-Drive Track-Mounted Battery Car

The basic component of the tooth-rail clamping car is composed of 3~6 boxes of lithium ion battery power supply and two drive units.



Lithium Ion Battery Power Supply

The mine-used explosion-proof lithium-ion battery power supply system consists of multiple explosion-proof lithium-ion battery power units. Each lithium battery power unit has a voltage of 320 V and a rated capacity of no less than 228 A·h. When fully charged, it can provide the locomotive with a range of 15 to 30 km (the actual range depends on the lithium battery capacity, number of drive units, load, slope, and roadway conditions).



Frequency conversion integrated machine drive unit

The system primarily consists of a variable frequency drive (VFD) unit, planetary reducer, working brake (featuring both built-in wet brake and disc brake for the drive wheel), drive wheel, encoder speed sensor, centrifugal speed limiter, drive bracket, wheel swing frame, rail clamping wheel, and guide wheel. The driving capacity of each unit is as follows: two 22kW VFD units provide 60kN traction force, while two 75kW VFD units deliver 135kN traction force.

Lithium Ion Battery Power Charger

Charger protection functions: overcurrent protection, input over/under-voltage protection, overtemperature protection, short-circuit protection, output over/under-voltage protection, fault shutdown, emergency shutdown, lithium battery voltage detection and polarity protection.

Charger human-machine interface: intrinsically safe touch screen, parameter setting, status monitoring, data storage, fault recording, etc.

(a) Charging mode: The program-controlled variable current intermittent fast charging and manual control mode are adopted.

(b) The charger has a full digital display and a simple, reliable man-machine interface. It is equipped with a full digital display that can show the charging time, charging power, charging current, charging voltage, and the temperature inside the charger.



Technical Parameters of Mine Lithium-ion Battery Charger

Project	92kW (single-gun charger)	240 kW (dual-gun charger)
Model	CJL1-92000/660 (A)	CBL1-24000/1140(660)-2(A)
Rated power (kW)	92	240
Rated input voltage (V)	AC660	AC660/1140
Range of Output Voltage	DC200V~400V	DC200~400V
Range of Outcome Current	DC10A~230A	DC50~600A
Rated Operating Frequency	50Hz	50Hz
Cooling-down method	Air blast cooling	Natural air cooling
Precision of Pressure Stability	±0.5%	±0.5%
Flow-Stability Accuracy	±1%	1%
Communication interface	CAN,supports GB/T27930-2015 protocol	
External dimensions (length* width*height)(mm)	1415*1307*1173	2294*1268*1345
Weight (kg)	1650	4500

technical parameter

loading liquifier

Table 1: Load Comparison for 2×22kW Explosion-Proof Lithium Battery Rail-Guided Vehicles (permanent Magnet Frequency Converter Integrated System) With Single-Drive Motor (unit: T)

Number of drive units	Falling gradient				
	5°	10°	15°	20°	25°
4	115	58	32	20	12
6	120	90	53	33	21
8	120	120	70	45	45

Note: 1. The self-weight of a single truck is 3.6 t, and the self-weight of a single brake truck is 2.6 t.

2. the table shows the load as the safe load of the locomotive (safe load = the self weight of the loaded car + the self weight of the load)

Table 2: Load Comparison for 2×75kW (single-Drive Motor Power) Explosion-Proof Lithium Battery Rail-Guided Vehicle permanent Magnet Frequency Converter Integrated Machine) (unit: T)

Number of drive units	Falling gradient					
	5°	10°	15°	20°	25°	30°
1	62	28	15	8	5	3
2		75	48	33	24	17
3		110	75	55	42	32
4		115	110	80	60	45

Note: 1. The self-weight of a single truck is 3.6 t
2、the table shows the load as the safe load of the locomotive (safe load = the self @-@ weight of the loaded car + the self -weight of the load)

Performance Parameter Table

Table 1: Performance Parameters of 2X22kW (Single-Drive Motor Power) Explosion-Proof Lithium Battery Gear-Rail Car (Permanent Magnet Variable Frequency Integrated Machine)

Project		Parameter		
Model		KLZR240/176	KLZR360/264	KLNR480/352
Traction force (kN)		240	360	480
Total power (kW)		176	264	352
Braking force (kN)		360~480	540~720	720~960
Minimum water level turning radius (m)		4. 5		
Minimum vertical deflection radius (m)		20		
Conduct oneself with dignity (t)		24. 64	31. 04	43. 93
Maximum climbing ability (°)		25		
Naked car size (mm) (excluding personnel vehicles and material transport vehicles)		14833	19117	25948
Width (mm)		1600		
Altitude (mm)		1850		
Number of drive units (sets)		4	6	8
Number of brake sets		8	12	16
Maximum operating speed (m / s)	Carrying idler	1. 6		
	Heavy load	0. 8		
Automatic speed limit for railcars (m/s)		1. 8		
Brake car	Emergency braking force (kN)	≥400		
	Automatic speed limit (m/s)	2. 5		
Hydraulic pump model		KP30. 24		
Rated working pressure of hydraulic system (MPa)		≤16MPa		
Gauge (mm)		600/900		
Track type		SMT140-SMJ160/22-24-30-38-42KG		
Drive Any power-generating or power-driven machine	Model	TYBVFT~22 (336) D		
	Driven motor type	Penet Magnetic Frequency Change Singnet		
	Rated power (kW)	22*2		

Table 2: Performance Parameters of 2X75kW (Single-Drive Motor Power) Explosion-Proof Lithium Battery Gear-Rail Car (Permanent Magnet Variable Frequency Integrated Machine)

Project		Parameter			
Model		KLZR135/150	KLZR270/300	KLZR405/450	KLZR538/600
Traction force (kN)		135	270	405	538
Total power (kW)		150	300	450	600
Braking force (kN)		202. 5~270	405~540	607. 5~810	807~1076
Minimum water level turning radius (m)		4. 5			
Minimum vertical deflection radius (m)		20			
Conduct oneself with dignity (t)		24. 9	29. 3	31. 3	36. 3
Maximum climbing ability (°)		25			
Naked car size (mm) (excluding personnel vehicles and material transport vehicles)		39399	40972	44034	45460
Width (mm)		1660			
Altitude (mm)		1850			
Number of drive units (sets)		1	2	3	4
Number of brake sets		2	4	6	8
Maximum operation speed (m/s)	Carrying idler	2			
	Heavy load	0. 8			
Card rail car automatic speed limit value (m/s)		<1. 84			
Brake car	Emergency braking force (kN)	≥400			
	Automatic speed limit (m/s)	2. 5			
Hydraulic pump model		KP30. 24			
Rated operating pressure of hydraulic system		≤16MPa			
Gauge (mm)		600/900			
Track type		SMT140/SMJ160			
Drive Any power-generating or power-driven machine	Model	TYBVFT-75 (640) D			
	Driven motor type	permanent magnetic frequency change signal			
	Rated power (kW)	75*2			

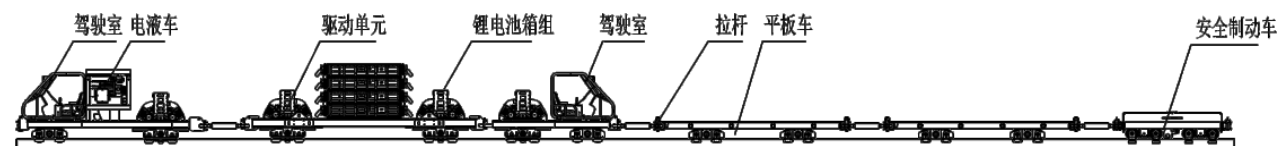
product superiority

- the maximum vehicle climbing angle is 25°
- the maximum traction force of a single drive unit was 13.5 kN.
- the maximum operating speed was 2 m/s.
- The utilization rate of the cells is high, up to 95%, and the lithium battery has a long life.
- The drive unit can be independently controlled, enabling intelligent drive operation, which reduces the failure rate and improves transportation efficiency.
- charging time is short, about 2 hours each time;
- charging is convenient and can be done while the device is in standby mode.
- The vehicle operates with low noise, zero emissions, stable traction force, and green environmental protection.
- The vehicle is short in length, equipped with a self-propelled power unit, and capable of continuous non-rotary transfer transportation, demonstrating strong adaptability.
- The full course of the card track operation is highly safe.
- it can transport both materials and people;
- the vehicle can be operated from the cab, also by means of a wireless remote control, and can be remotely operated from the dispatch room.
- The vehicle is equipped with a three-stage braking system, and a safety brake car is located at the rear of the unit for backup safety braking during uphill climbs and downhill races.

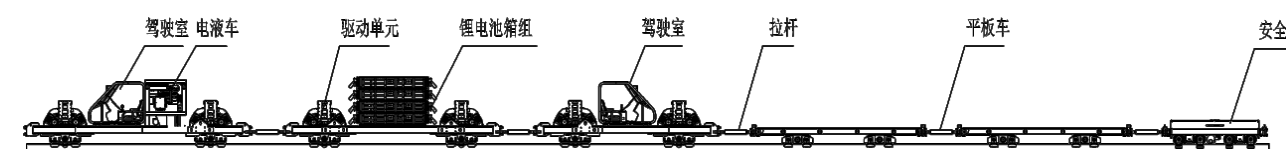
arrangement diagram

22kW

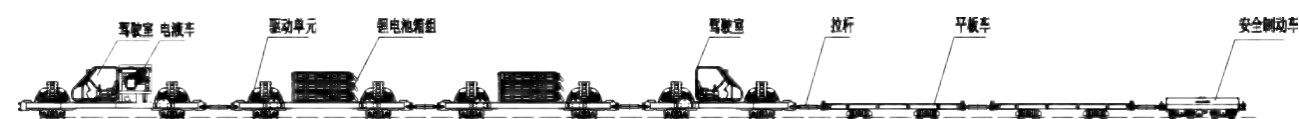
4 Drive Train Layout Diagram (240kN)



6 Drive Train Layout Diagram (360kN)



8 Drive vehicle layout diagram (480kN)



75kW

1 Drive vehicle layout diagram (135kN)



2 Drive Train Layout Diagram (270kN)



3 Drive Train Layout Diagram (405kN)



4-WHEEL-DRIVE TRUCK PLACEMENT FIG. 1 (538kN)

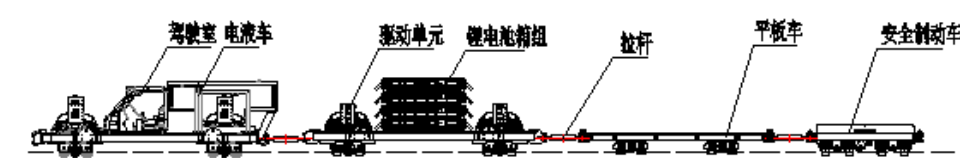


Figure 2 Layout of 4WD Vehicles



Figure 3 Layout of 4WD Vehicles



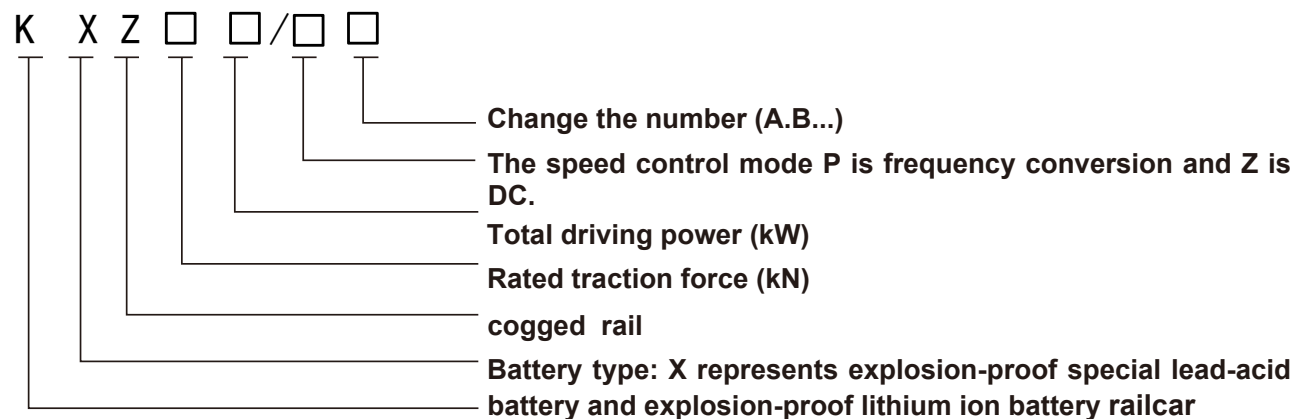
▲ Explosion-Proof Special Lead-Acid Battery Traction Car (Permanent Magnet Variable Frequency-Body Machine)

■ product presentation

The special type explosion-proof lead-acid battery rail car (permanent magnet frequency conversion integrated machine) is mainly composed of cab, drive part, electro-hydraulic control car, lead-acid battery car, pull rod, etc. It can run on irregular track system or ordinary track system.



■ Model Definition



Example: A special explosion-proof lead-acid battery-powered rack-and-pavement vehicle with a rated traction force of 2 4 0 kN and a total driving power of 17 6 kW, featuring variable frequency speed regulation, is designated as model KX Z 2 4 0 /17 6 P.

■ main unit



Driver Element

The main components include a variable frequency speed control unit, a planetary reducer, a working brake (equipped with a wet brake inside the reducer and a disc brake acting on the drive wheel), drive wheels, a coder speed measurement device, a centrifugal speed limiter, a drive bracket, a wheel swing frame, a track clamping wheel, and a guide wheel. The driving force of a single drive unit is 2 2 kW. The traction force of the variable frequency speed control unit is 6 0 kN, and that of the 7 5 kW variable frequency speed control unit is 13 5 kN.

Mine Explosion-Proof and Intrinsic Safety Lead-Acid Battery Charger

The charger is used to charge lead-acid battery power sources and can charge multiple battery packs simultaneously.

(1) The connection method of mine-used explosion-proof charger and battery is one-piece connection

plug and play architecture

(2) The input alternating current voltage is 6 6 0 V/1 1 4 0 V, and the direct current output voltage is

The current is 10 A to 10 0 A and the DC output voltage is 2 0 V to 4 0 0 V.

(3) The charger is equipped with self-diagnostic functionality, which enables it to perform diagnostics before entering operational status.

First, self @-@ examination was performed, which included whether the polarity of the rechargeable battery was reversed or not, and the main

The passage sections are checked for normality, and the self-test is normal before entering the charging state.

(4) The battery pack is equipped with reverse protection functionality, which prevents the charging cable from entering the charging port when connected in reverse. electromodel.

(5) It has protective functions such as overcurrent, overload, short circuit, and overtemperature (charging current is halved after 6 0 ° C).

(6) The charger operates in two charging modes: constant current and constant voltage. (Steps 1-4 are constant current mode, and step 5 is constant voltage mode.)

(7) The charger can automatically complete the entire charging process continuously from the initiation of charging to its conclusion without manual intervention. During each working phase, the system continuously monitors the charging status: voltage, current, and time, among other set values. When any one of these three parameters reaches the preset value, the system automatically transitions to the next charging procedure until the charging is completed. Simultaneously, the charger must also possess the capability for manual intervention during the charging process.

(8) The charger features an intelligent display function, with the display screen capable of real-time presentation of charging status, including: set current, real-time current, set voltage, real-time voltage, and charging duration.

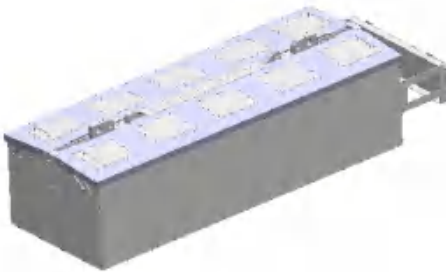


(9) The device is equipped with a fault indication function, capable of displaying fault codes or fault content on the display screen to facilitate fault detection and repair. The charger is used to charge lead-acid battery power supply units and can simultaneously charge multiple battery packs. The charging cable must be longer than 10 meters.

Parameters of Mine Explosion-proof and Lead-acid Battery Charger

Charger MODEL NUMBER	ZBC200/480	ZBC100/400
Explosion-proof sign	Explosive type	Explosive type
Charging voltage	660V/1140V	660V/1140V
Charging current	1~200A	1~100A
Output voltage	210~480V	210~400V
Outline dimension	1470×760×1205mm	1470×760×1205mm

Explosion-Proof Special Type Lead-Acid Battery Power Supply Device



The vehicle is powered by lead-acid battery cells, with a single-cell capacity of 530 A h and a voltage of 336 V, yielding a total installed power capacity of 178.1 kWh.

The "+" and "-" terminals of the battery pack are derived from the dedicated plug of the explosion-proof plug connector, which supplies the main power source for the single-track hoist's explosion-proof electrical control box. The explosion-proof plug connector is a quick-connect electrical connection equipped with a fast-acting fuse to protect the battery pack from damage in the event of a short circuit in the external circuit. Additionally, it features a plug interlock isolation switch, meaning the plug head can only be inserted after the isolation switch is turned off.

technical parameter

loading liquifier

Load comparison table of explosion-proof special type lead-acid battery rack rail car (permanent magnet frequency conversion integrated machine) (unit: t)

载荷	坡度							
	5°	8°	10°	12°	15°	18°	21°	25°
240kN	≥112t	70t	56t	45t	32t	23t	16t	11t
360kN	≥120t	102t	92t	73t	56t	44t	33t	25t
480kN	≥130t	120t	105t	92t	70t	58t	45t	30t

Note: 1. The self-weight of a single truck is 3.6 t, and the self-weight of a single brake truck is 2.6 t.
2. the table shows the load as the safe load of the locomotive (safe load = the self @-@ weight of the loaded car + the self @-@ weight of the load)

Performance Parameter Table

2 × 22KW(Single-drive motor efficiency) Explosion-proof special type lead-acid battery tooth-rail clamping car (permanent magnet frequency conversion integrated machine) performance parameter table

Project/Model	KXZ240/176	KXZ360/264	KXZ480/352
Total driving power (kW)	176	264	352
Maximum Traction (kN)	240	360	480
Brake force (kN)	360~480	540~720	720~960
Minimum level turning radius (m)	4.5	4.5	4.5
Minimum vertical turning radius (m)	20	20	20
Maximum CLIMBING CAPACITY	15°		
Maximum OPERATING SPEED m/s	Carrying idler	2.3	
	Heavy load	0.8	
Carriage weight (t)	24.64	31.03	43.93
Gauge (mm)	600/900		

product superiority

The system uses a battery as the power source, featuring low noise, zero pollution, environmental protection, energy saving, and safety.

- The vehicle is short in length, equipped with a self-propelled power unit, and capable of continuous non-rotary transfer transportation, demonstrating strong adaptability.
- The full course of the card track operation is highly safe.
- it can transport both materials and people;
- the vehicle can be operated from the cab, also by means of a wireless remote control, and can be remotely operated from the dispatch room.
- The vehicle is equipped with a three-level braking system, including a safety brake, which provides backup safety braking for climbing uphill and downhill racing.

Various transport components can be optionally selected according to customer-specific requirements, such as flatbed trucks (capable of transporting support materials, construction materials, straps, cables, small equipment, and spare parts) and personnel vehicles (capable of transporting underground personnel, including 10-person and 15-person vehicles, with a capacity of 30–45 people per trip).

arrangement diagram

4 driving gear arrangement (240 KN)



6 driving gear arrangement (360kN)



8 Drive train layout (480kN)



▲ common parts of mine tooth track card track car



Track-Mounted Truck

Used for transporting materials and scaffolding, classified into light-duty and heavy-duty trucks based on load capacity.



Track Car

The backrest can be adjusted according to the running direction, so that the passengers always face the forward direction. The brake device is equipped with failure safety, which can realize the brake of overspeed relief, and can be controlled manually or automatically.



Fail-Safe Brake

The track brake system is designed in each drive unit's rail clamping device for emergency braking during locomotive uphill rolling and downhill flying. The braking force meets the requirement of 1.5 to 2.0 times the traction force, with the brake force directly acting on both sides of the track, ensuring safe and reliable braking. This is the first safety braking device introduced in the industry.



Braking Trolley

An independent brake car is mounted at the tail or head of the locomotive for emergency braking and backup safety braking of uphill or downhill rolling stock, with braking force equal to the traction force of the locomotive. 1.5~2 times.



Track-Laying Vehicle

Specialized vehicles for track laying and maintenance are used to improve efficiency by replacing manual labor with mechanization.



Aeropropellant Tanker

The air-operated diaphragm pump, which is driven by compressed air, is used to add fuel to the diesel engine, and it is easy to move and operate.



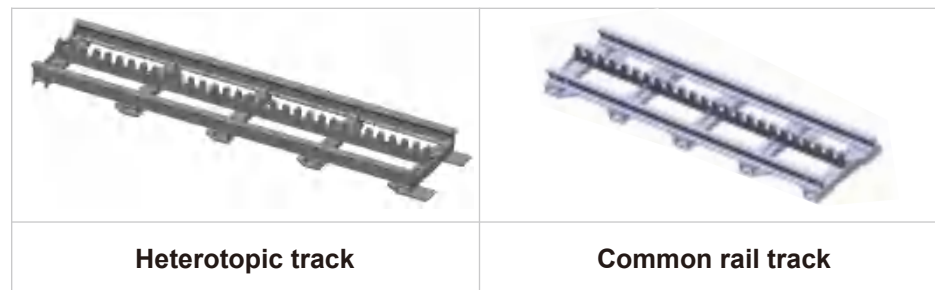
Bar

connectors, used to connect the cab to the drive unit, truck, brake truck, etc.

▲ Mine Tooth Track Card Track Car Track Part

■ Straight track

The standard gauge is laid on straight track with a length of 4 m.

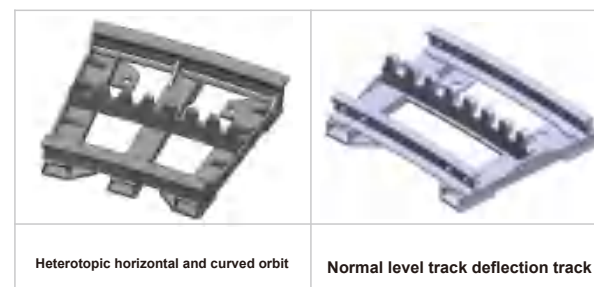


■ horizontal curved rail

Horizontal track 5° (R8594) and 7.5° (R8594) are mainly used for horizontal turn, yard, and intersection.

Bending angle: 5° / 7.5°

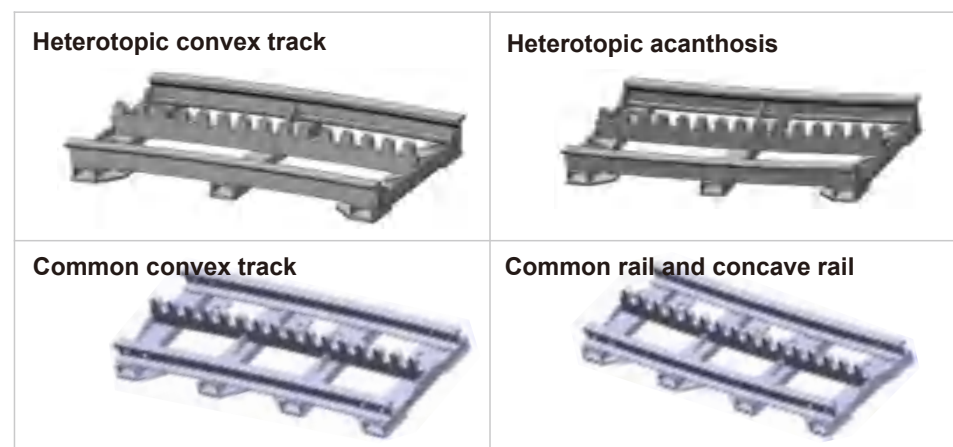
Bending radius: 8.6/14.3 m



■ vertical bending rail

For vertical gradient changes, the points are divided into convex and concave tracks. The bending angles are 3° and 5° respectively.

Bending radius: 21.5m



■ transformation track

primarily used for the connection of an atypical track to a standard track.

Specifications: 2 4/3 0/3 8 kg.



1 m conversion track

■ symmetrical rotating switch

primarily for use in docks and parking lots.

Cone angle: 1 0°

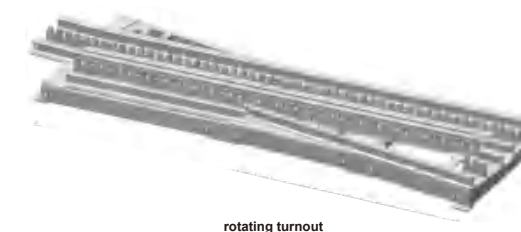
Powering mode: pneumatic/hydraulic

control MODE: MANUAL / MANUALLY CONTROLLED / REMOTE CONTROLLED

net weight per unit: 4 500 kg

External dimensions: 6 5 2 6×2 2 9 3×4 6 0 mm

Disintegrable, maximum disintegration dimensions: 3 0 0×2 13 0×4 5 9.5 mm



rotating turnout

■ translation switch

The level transfer ramp is divided into left-opening level transfer ramp and right-opening level transfer ramp, mainly used for the ramp opening and parking lot. The angle of the ramp opening is 2 5°.

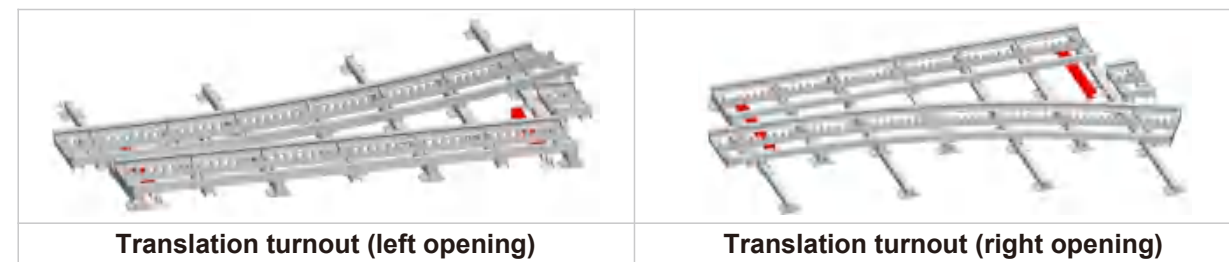
Powering mode: pneumatic/hydraulic

control MODE: MANUAL / MANUALLY CONTROLLED / REMOTE CONTROLLED

net weight per unit: 43 62 kg

External dimensions: 7 4 0 4 × 4 3 8 5 × 3 9 8 mm

disintegrable, maximum disintegration dimensions: 3 15 0 × 116 0 × 19 5 mm



■ crossing turnout

primarily for use in docks and parking lots.

Track center distance: 2 0 2 1 mm

Powering mode: pneumatic/hydraulic

control MODE: MANUAL / MANUALLY CONTROLLED / REMOTE CONTROLLED

net weight per unit: 12 000 kg

External dimensions: 12,000 × 7,284 × 3,98 mm

Disintegrable, maximum disintegration dimensions: 5 0 0×18 5 0×2 2 0 mm



crossing turnout

Mine Single Track Hoist

product OVERVIEW

A mine single-track hoist is an auxiliary transport device powered by explosion-proof batteries, diesel engines, or compressed air, and driven by an electric motor, hydraulic motor, or pneumatic motor to operate on a single track. Single-track hoists can transport materials, personnel, and large equipment, and enable direct long-distance transportation without the need for transfer.

product classification

By power source

Explosion-proof diesel monorail crane
Explosion-proof diesel engine tooth-rail monorail crane
Explosion-proof lithium battery monorail crane (permanent magnet frequency conversion integrated machine)
Explosion-proof lithium battery electro-hydraulic monorail crane (applicable to oil-to-motor car) explosion-proof battery permanent magnet frequency conversion tooth rail monorail crane
Single-engine, dual-drive monorail hoist (rubber-wheel drive + rack drive)

classified by traction drive method

Gears friction transmission: the driving force is transmitted through the friction between the friction wheel and the track.
Gears and racks transmission: the driving force is transmitted by the driving part rolling on the tooth track through the engagement of the gears.
Gum-tooth hybrid drive: horizontal track driven by gum wheels, with simultaneous gum and tooth wheel drive for climbing to increase climbing ability and prevent rolling back.

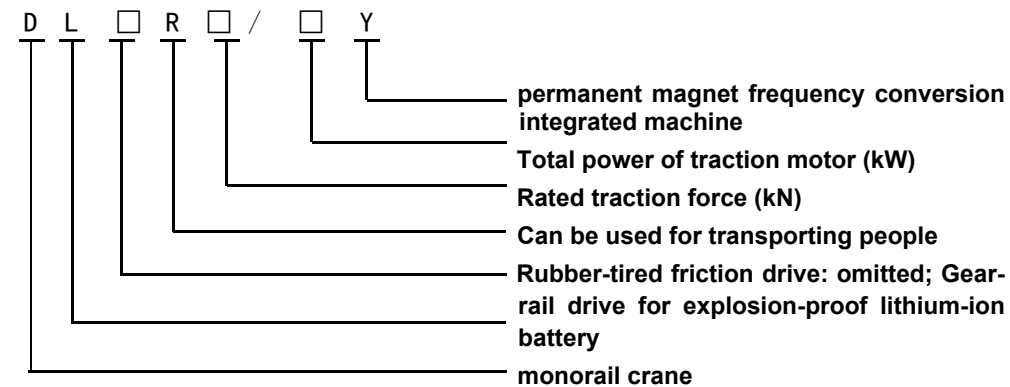
▲ Explosion-proof lithium battery monorail crane (permanent magnet frequency conversion integrated machine)

product presentation

The explosion-proof lithium-ion battery single-track hoist vehicle (permanent magnet variable frequency integrated machine) is mainly composed of the cab, permanent magnet variable frequency electric drive unit, electro-hydraulic control brake (including hydraulic system and electro-hydraulic control system), power supply device (explosion-proof lithium-ion battery), speed protection car, load-bearing car, pull rod, and lifting beam.



Model Definition



Example 1: The single-track crane car with the model number DLR 5 6/2 4 Y indicates that the power source of the single-track crane car is explosion-proof lithium-ion battery, rubber wheel friction transmission, can be used for transporting people, the traction force is 5 6 kN, the total power of the driving motor is 2 4 kW, and the permanent magnet frequency conversion speed regulation is integrated.

Example 2: The single-track crane car with the model DL CR 6 0/8 8 Y indicates that the power source of the single-track crane car is explosion-proof lithium-ion battery, toothed wheel and toothed rail transmission, which can be used for transporting people, with a traction force of 6 0 kN, a total power of 8 8 kW for the drive motor, and a permanent magnet frequency conversion speed regulation integrated machine.

technical parameter

loading liquifier

Table 1: Load Comparison Table for 6kW Explosion-Proof Lithium Battery Monorail Crane (permanent Magnet Frequency Conversion Integrated Machine) (unit: T)

Model\Inclination (°)	5°	10°	15°	20°	25°
DLR56/24Y	23	9	4	/	/
DLR84/36Y	40	19	10	5	2
DLR112/48Y	56	28	16	9	5
DLR140/60Y	72	37	22	14	9
DLR168/72Y	80	44	27	17	11
DLR196/84Y	80	54	33	22	15
DLR224/96Y	80	63	40	27	19
DLR252/108Y	80	72	45	31	22
DLR280/120Y	80	80	51	35	25
DLR308/132Y	80	80	57	39	28
DLR336/144Y	80	80	63	44	32
DLR364/156Y	80	80	70	49	36
DLR392/168Y	80	80	76	54	40

Note: The load in the table is the safe load of the machine (safe load = the weight of the lifting beam plus the weight of the load).

Table 2: Load Comparison for 8.5kW Explosion-Proof Lithium Battery Monorail Crane (permanent Magnet Frequency Conversion Integrated Unit) (unit: T)

Model \Inclination (°)	5°	10°	15°	20°	25°
DLR120/68Y	60	31	18	11	7
DLR150/85Y	78	41	25	17	11
DLR180/102Y	80	49	30	20	13
DLR210/119Y	80	59	37	25	18
DLR240/136Y	80	69	44	31	22
DLR270/153Y	80	78	50	35	25
DLR300/170Y	80	80	57	40	29
DLR314/187Y	80	80	62	44	32
DLR360/204Y	80	80	70	49	36

Note: The load in the table is the safe load of the machine (safe load = the weight of the lifting beam plus the weight of the load).

Table 3: Load Comparison for 15kW Explosion-Proof Lithium Battery Monorail Crane (permanent Magnet Frequency Conversion Integrated Unit) (unit: T)

Model \Inclination (°)	5°	10°	15°	20°	25°
DLR90/90Y	43	21	11	6	3
DLR 120/120Y	60	31	18	11	7
DLR 150/150Y	78	41	25	17	11
DLR 180/180Y	80	49	30	20	13
DLR 210/210Y	80	59	37	25	18
DLR240/240Y	80	69	44	31	22
DLR270/270Y	80	78	50	35	25
DLR300/300Y	80	80	57	40	29
DLR330/330Y	80	80	62	44	32
DLR360/360Y	80	80	70	49	36
DLR390/390Y	80	80	77	54	41
DLR420/420Y	80	80	80	60	45

Note: The load in the table is the safe load of the machine (safe load = the weight of the lifting beam plus the weight of the load).

Table 4: Load Comparison Table for 22kW Explosion-Proof Lithium Battery Monorail Crane (permanent Magnet Frequency Conversion Integrated Machine) (unit: T)

Model \Inclination (°)	5°	10°	15°	20°	25°
DLR60/88Y	26	11	5	1	/
DLR90/132Y	43	21	11	6	3
DLR120/148Y	60	31	18	11	7
DLR150/148Y	78	41	25	17	11
DLR180/264Y	80	49	30	20	13
DLR210/296Y	80	59	37	25	18
DLR240/296Y	80	69	44	31	22
DLR270/296Y	80	78	50	35	25
DLR300/440Y	80	80	57	40	29
DLR330/444Y	80	80	62	44	32
DLR360/444Y	80	80	70	49	36
DLR390/444Y	80	80	77	54	41
DLR420/444Y	80	80	80	60	45

Note: The load in the table is the safe load of the machine (safe load = the weight of the lifting beam plus the weight of the load).

Performance Parameter Table

Table 1: Performance Parameters of 6kW Explosion-Proof Lithium Battery Monorail Crane (Permanent Magnet Variable Frequency Integrated Machine)

Project/Parameter		DLR56/24Y	DLR84/36Y	DLR112/48Y	DLR140/60Y	DLR168/72Y
Traction (kN)		56	84	112	140	168
Motor power (kW)		24	36	48	60	72
Safety Braking Force (kN)		84~112	126~168	168~224	210~280	252~336
Number OF DRIVING PARTS		2	3	4	5	6
Number OF BRAKE		4	5	6	7	8
Maximum speed (m/s)	Heavy load	0.5				
	Carrying idler5	2.0				
Maximum climbing ability (°)		25				
Maximum protection limit (m/s)		2.3				
Vehicle turning radius Footpath (m)	Horizontal	≤4				
	Perpendicular	≤8				
Track model		I140E/I140V/I140E (with toothed strip)				
Single drive unit traction force (kN)		28				
Single driving unit braking force (kN)		42~56				
Single motor power		6kW				
Outside the car Shape dimension	Long (mm)	16500±100	18200±100	20000±100	21600±100	23300±100
	Wide (mm)	1040±20	1040±20	1040±20	1040±20	1040±20
	Gao (mm)	1310±20	1310±20	1310±20	1310±20	1310±20
Self-weight (excluding lifting beam) (t)		11.2	12.4	13.7	14.5	17.5
Lithium battery power supply voltage		DC320V				
Hydraulic pump model		KP30.24				
Rated working pressure of hydraulic system (MPa)		16				

Project/Parameter		DLR196/84Y	DLR224/96Y	DLR252/108Y	DLR280/120Y	DLR308/132Y
Traction (kN)		196	224	252	280	308
Locomotive power (kW)		84	96	108	120	132
Safety braking force (kN)		294~392	336~448	378~504	420~560	462~616
Number of driving parts		7	8	9	10	11
Number of brake		9	10	11	12	13
maximum operating speed (m/s)	Heavy load	0.5				
	Carrying idler	2.0				
Maximum climbing ability (°)		25				
Over-speed protection limit (m/s)		2.3				
Car turn Radius (m)	Horizontal	≤4				
	Perpendicular	≤8				
Ttrack model		I140E/I140V/I140E (with toothed strip)				
Single drive unit traction force (kN)		28				
Single driving unit braking force (kN)		42~56				
Single motor power		6kW				
Outside the car SHAPE DIMENSION	Long (mm)	25200±100	26800±100	28500±100	30200±100	33500±100
	Wide (mm)	1040±20	1040±20	1040±20	1040±20	1040±20
	Gao (mm)	1310±20	1310±20	1310±20	1310±20	1600±20
Lithium battery power supply voltage		18.3	19.1	21.1	22.5	24.6
Lithium battery power supply voltage		DC320V				
Hydraulic pump model		KP30.24				
Rated working pressure of hydraulic system (MPa)		16				

Table 2: Performance Parameters of 8.5kW Explosion-Proof Lithium Battery Monorail Crane
(Permanent Magnet Variable Frequency Integrated Machine)

Project/Parameter		DLR120/68Y	DLR150/85Y	DLR180/102Y	DLR210/119Y	DLR240/136Y
Traction (kN)		120	150	180	210	240
Motor power (kW)		68	85	102	119	136
Safe braking force (kN)		180~240	225~300	270~360	315~420	360~480
Number of driving parts		4	5	6	7	8
Number of brake		6	7	8	9	10
Maximum operating speed(m/s)	Heavy load	0.5				
	Carrying idler	2.0				
Maximum climbing ability (°)		25				
Overspeed protection limit (m / s)		2.3				
Vehicle turning radius	Horizontal	≤4				
	Perpendicular	≤8				
Footpath (m)						
Track model		I140E/I140V/I140E (with toothed strip)				
Single drive unit traction force (kN)		30				
Single driving force (kN)		45~60				
Single motor power		8.5kW				
Outside the car shape dimension	Long (mm)	20000±100	21600±100	23300±100	25200±100	26800±100
	Wide (mm)	1040±20	1040±20	1040±20	1040±20	1040±20
	Gao (mm)	1310±20	1310±20	1310±20	1310±20	1310±20
Self-weight (without lifting beam) (t)		13.7	14.5	17.5	18.3	19.1
Lithium battery power supply voltage		DC320V				
Hydraulic pump model		KP30.24				
Rated working pressure of the hydraulic system (MPa)		16				

Project/Parameter		DLR270/153Y	DLR300/170Y	DLR314/187Y	DLR360/204Y
Traction (kN)		270	300	314	360
Motor power (kW)		84	96	108	120
Safety braking force (kN)		405~540	450~500	471~628	540~720
Number of driving parts		9	10	11	12
Number of brake		11	12	13	14
Maximum operating speed (m/s)	Heavy load	0.5			
	Carrying idler	2.0			
Maximum climbing ability (°)		25			
Over-speed protection limit (m/s)		2.3			
Car rotation	Horizontal	≤4			
Radius of curvature (m)	Perpendicular	≤8			
Tsingle motor powerI		I140E/I140V/I140E (with toothed strip)			
Single drive unit traction force (kN)		30			
Single driving unit braking force (kN)		45~60			
Single motor power		8.5kW			
Outside the car shape dimension	Long (mm)	28500±100	30200±100	33500±100	35200±100
	Wide (mm)	1040±20	1040±20	1040±20	1040±20
	Gao (mm)	1310±20	1310±20	1600±20	1600±20
Self-weight (without lifting beam) (t)		21.1	22.5	24.6	25.4
Lithium battery power supply voltage		DC320V			
Hydraulic pump model		KP30.24			
Rated working pressure of the hydraulic system (MPa)		16			

Table 3: Technical Parameters of 15kW Explosion-Proof Lithium Battery Monorail Crane (Permanent Magnet Variable Frequency Integrated Machine)

Project/Parameter		DLR90/90Y	DLR120/120Y	DLR150/150Y	DLR180/180Y	DLR210/210Y	DLR240/240Y
Traction (kN)		90	120	150	180	210	240
Motor power (kW)		90	120	150	180	210	240
Safety Braking Force (kN)		135~180	180~240	225~300	270~360	315~420	360~480
Number of driving parts		3	4	5	6	7	8
Number of brake		5	6	7	8	9	10
Maximum operating speed(m/s)	Heavy load	0.8					
	Carrying idler	2.0					
Maximum climbing ability (°)		25					
Maximum protection limit (m/s)		2.3					
Vehicle turning radius	Horizontal	≤4					
	Perpendicular	≤8					
Footpath (m)							
Track model		I140E/I140V/I140E (with toothed strip)					
Single drive unit traction force (kN)		30					
Single driving force (kN)		45~60					
Single motor power		15kW					
Outside the car shape dimension	Long (mm)	18200±100	20000±100	21600±100	23300±100	25200±100	26800±100
	Wide (mm)	1040±20	1040±20	1040±20	1040±20	1040±20	1040±20
	Gao (mm)	1310±20	1310±20	1310±20	1310±20	1310±20	1310±20
Self-weight (excluding lifting beam) (kg)		12400	13700	14500	17500	18300	19100
Lithium battery power supply voltage		DC320V					
Hydraulic pump model		KP30.24					
Rated working pressure of the hydraulic system (MPa)		16					

Project/Parameter		DLR270/270Y	DLR300/300Y	DLR330/330Y	DLR360/360Y	DLR390/390Y	DLR420/420Y
Traction (kN)		270	300	330	360	390	420
Motor power (kW)		270	300	330	360	390	420
Safety Braking Force (kN)		405~540	450~600	495~660	540~720	585~780	630~840
Number of driving parts		9	10	11	12	13	14
Number of brake		11	12	13	14	15	16
Maximum operating speed (m/s)	Heavy load	0.8					
	Carrying idler	2.0					
Maximum climbing ability (°)		25					
Excess speed protection limit (m/s)		2.3					
Vehicle turning radius	Horizontal	≤4					
	Perpendicular	≤8					
Footpath (m)							
Track model		I140E/I140V/I140E (with toothed strip)					
Single drive unit traction force (kN)		30					
Single driving force (kN)		45~60					
Single motor power		15kW					
Locomotive Outline dimension	Long (mm)	28500±100	30200±100	33500±100	35200±100	36900±100	38700±100
	Wide (mm)	1040±20	1040±20	1040±20	1040±20	1040±20	1040±20
	Gao (mm)	1310±20	1310±20	1600±20	1600±20	1600±20	1600±20
Self-weight (excluding lifting beam) (t)		21.1	22.5	24.6	25.4	26.2	27
Lithium battery power supply voltage		DC320V					
Hydraulic pump model		KP30.24					
Rated working pressure of hydraulic system (MPa)		16					

Table 4: Performance Parameters of 22kW Explosion-Proof Lithium Battery Monorail Crane
(Permanent Magnet Variable Frequency Electric Integrated Machine)

Project/Parameter		DLR60/88Y	DLR90/132Y	DLR120/148Y	DLR150/148Y	DLR180/264Y
		60	90	120	150	180
Motor power (kW)		88	132	148	148	264
Motor power (kW)		88	132	176	220	264
Safety Braking Force (kN)		90~120	135~180	180~240	225~300	270~360
Number of driving parts		2	3	4	5	6
Number of brakes		4	5	6	7	8
Maximum operating speed(m/ s)	Heavy load	1. 0				
	Carrying idler	2. 0				
Maximum climbing ability (°)		25				
Over-speed protection limit (m/s)		2. 3				
Vehicle turning radius (m)	Horizontal	≤4				
	Perpen- dicular	≤8				
Track model		I140E/I140V/I140E (with toothed strip)				
Single drive unit traction force (kN)		30				
Single driving unit braking force (kN)		45~60				
Single motor power		22kW				
Vehicle external dimension	Long (mm)	16500±100	18200±100	20000±100	21600±100	23300±100
	Wide (mm)	1040±20	1040±20	1040±20	1040±20	1040±20
	Gao (mm)	1310±20	1310±20	1310±20	1310±20	1310±20
Self-weight (excluding lifting beam) (t)		11. 2	12. 4	13. 7	14. 5	17. 5
Lithium battery power supply voltage		DC320V				
Hydraulic pump model		KP30. 24				
Rated working pressure of the hydraulic system (MPa)		16				
Project/Parameter		DLR210/296Y	DLR240/296Y	DLR270/296Y	DLR300/440Y	DLR330/444Y
		210	240	270	300	330
Motor power (kW)		296	396	296	440	444
Locomotive motor power (kW)		308	352	396	440	484
Safety braking force (kN)		315~420	360~480	405~540	450~600	495~660
Number of driving parts		7	8	9	10	11
Number of brake		9	10	11	12	13
maximum operating speed (m/s)	Heavy load	1. 0				
	Carrying idler	2. 0				
Maximum climbing ability (°)		25				
Over-speed protection limit (m/s)		2. 3				
Vehicle turn-ing radius (m)	Horizontal	≤4				
	Perpendicular	≤8				
Track model		I140E/I140V/I140E (with toothed strip)				
Single drive unit traction force (kN)		30				
Single driving unit braking force (kN)		45~60				
Single motor power		22kW				
vehicle external dimension	Long (mm)	25200±100	26800±100	28500±100	30200±100	33500±100
	Wide (mm)	1040±20	1040±20	1040±20	1040±20	1040±20
	Gao (mm)	1310±20	1310±20	1310±20	1310±20	1600±20
Self-weight (excluding lifting beam) (t)		18. 3	19. 1	21. 1	22. 5	24. 6
Lithium battery power supply voltage		DC320V				
Hydraulic pump model		KP30. 24				
Rated working pressure of hydraulic system (MPa)		16				

Table 4 (continued from Page 1): Performance Parameters of 22kW Explosion-Proof Lithium Battery Monorail Crane
(Permanent Magnet Variable Frequency Integrated Machine)

Project/Parameter		DLR360/444Y	DLR390/444Y	DLR420/444Y
		360	390	420
Locomotive power (kW)		444	444	444
Locomotive motor power (kW)		528	572	616
Safety braking force (kN)		520~720	585~780	630~840
Number of driving parts		12	13	14
Number of brakes		14	15	16
maximum operating speed (m/s)	Heavy load	1. 0		
	Carrying idler	2. 0		
Maximum climbing ability (°)		25		
Over-speed protection limit (m/s)		2. 3		
Vehicle turning radius (m)	Horizontal	≤4		
	Perpendicular	≤8		
Track model		I140E/I140V/I140E (with toothed strip)		
Single drive unit traction force (kN)		30		
Single driving unit braking force (kN)		45~60		
Single motor power		22kW		
Car exterior dimensions	Long (mm)	35200±100	36900±100	38700±100
	Wide (mm)	1040±20	1040±20	1040±20
	Gao (mm)	1600±20	1600±20	1600±20
Self-weight (without lifting beam) (t)		25. 4	26. 2	27
Lithium battery power supply voltage		DC320V		
Hydraulic pump model		KP30. 24		
Rated working pressure of hydraulic system (MPa)		16		

▲ Explosion-proof lithium battery dispatching single rail crane (permanent magnet frequency conversion integrated machine)

■ product presentation

The explosion-proof lithium battery scheduling single-track hoist car (permanent magnet frequency conversion integrated machine) is mainly composed of the drive part, power supply device (including explosion-proof lithium ion battery), speed protection car, load car, pull rod, hoist beam,electro-hydraulic control car(including hydraulic system,electrical control system and safety protection) and so on.



single track crane with single drive



dual drive scheduling monorail hoist



Single-drive scheduling single-girder crane expanded to two-drive vehicle



Expansion of Dual-Drive Scheduling Single-Girder Crane to Triple-Drive Vehicle

■ technical parameter

performance PARAMETER TABLE

Table 1: Performance Parameters of Single-Drive Scheduling Single-Girder Crane (Permanent Magnet Variable Frequency Integrated Machine) for Explosion-Proof Lithium Battery

Project/Parameter		DLR30/13Y	DLR30/17Y	DLR30/44Y
Traction motor power (kW)		2×6. 5	2×8. 5	2×22
Maximum operating speed (m/s)		2		
Maximum climbing ability (°)		25		
By minimum curvature radius (m)		Horizontal4 / Vertical8		
Weight of equipment (t)		4. 0		
External dimension of the vehicle	Long (mm)	3070		
	Wide (mm)	1100		
	Gao (mm)	1231		
Number of driving parts		1		
Number of brakes		2		
Braking force (kN)		45~60		
Applicable trail model		I140E/I140V/I140E (with toothed strip)		
Total battery capacity (kW-h)		73. 6		
Lithium battery comprehensive range (km)		10~18km		
Rated working pressure of hydraulic system (MPa)		16		

Table 2: Performance Parameters of Dual-Drive Scheduling Single-Girder Hoist Vehicle (Permanent Magnet Variable Frequency Integrated Machine) for Explosion-Proof Lithium Battery

Project/Parameter	DLR60/34Y	DLR60/88Y
Traction motor power (kW)	4×8.5	4×22
Maximum operating speed (m/s)	2	
Maximum climbing ability (°)	25	
By minimum curvature radius (m)	Horizontal4/Vertical8	
Device weight (t)	5.4	
Outline dimension	Long (mm)	4700
	Wide (mm)	1100
	Gao (mm)	1231
Number of driving parts	2	
Number of brake	4	
Brake force (kN)	90~120	
Applicable trail model	I140E/I140V/I140E (with toothed strip)	
Total capacity of lithium battery (kW·h)	73.6	
Lithium battery endurance (km)	10~18km	
Rated working pressure of hydraulic system (MPa)	16	

Table 3: Performance Parameters of Explosion-Proof Lithium Battery Scheduling Single-Track Crane
(Permanent Magnet Variable Frequency Integrated Machine)

Project/Parameter		DLR90/51Y	DLR120/68Y
Traction motor power (kW)		6×8.5	8×8.5
Maximum operating speed (m/s)		2	
Maximum climbing ability (°)		25	
By minimum curvature radius (m)		Horizontal4/Vertical8	
Weight of equipment (t)		6.8	8.2
Outline dimension	Long (mm)	6400	8100
	Wide (mm)	1100	
	Gao (mm)	1231	
Number of driving parts		3	4
Nuumber of brakes		6	8
Brake force (kN)		135~180	180~240
Applicable Tpplicable trail model		I140E/I140V/I140E (with rack)	
Total battery capacity (kW·h)		73.6	
Lithium battery comprehensive range (km)		10~18km	
Rated working pressure of hydraulic system (MPa)		16	

loading liquifier

Load comparison table for explosion-proof lithium battery-powered single-track crane
(permanent magnet frequency converter integrated machine) (unit: t)

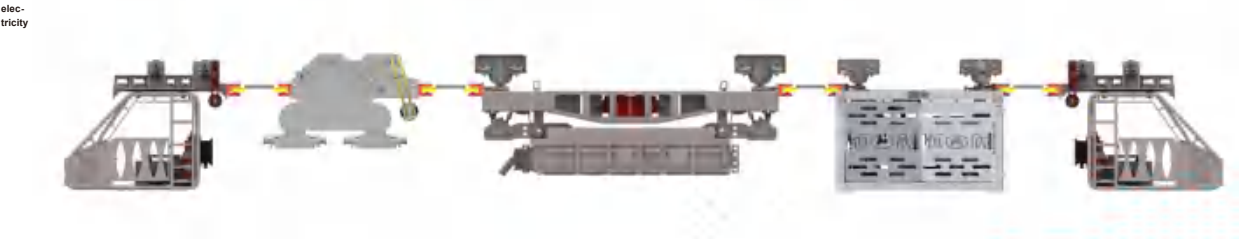
Model\Inclination (°)	0	5	10	15	20	25
DLR30/17Y	28	18	8	4.5	2.5	1.3
DLR56/24Y	55	35	17	10	6.8	4.6
DLR84/36Y	60	55	27	17	11.5	8.2
DLR120/68Y	60	60	40	25	18	13
DLR30/44Y	28	18	8	4.5	2.5	1.3
DLR60/88Y	55	35	17	10	6.8	4.6

Note: The load in the table is the safe load of the machine (safe load = the weight of the lifting beam plus the weight of the load).

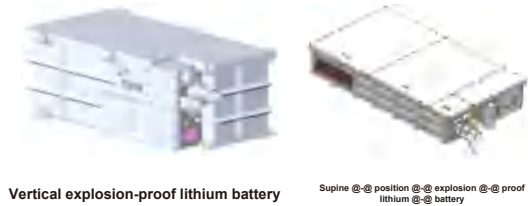
▲ Explosion-proof Lithium Battery Tooth Rail Monorail Hoist
(Permanent Magnet Variable Frequency Integrated Machine)

product presentation

The explosion-proof lithium-ion battery-powered single-track crane (permanent magnet variable frequency integrated machine) primarily consists of the cab, tooth track drive unit, power supply assembly (including explosion-proof lithium-ion battery), speed protection car, load-bearing car, boom, lifting beam, electrical and hydraulic control system (including hydraulic system,



main unit



Explosion-Proof Lithium Battery Power Supply Device

The mine-used explosion-proof lithium-ion battery power supply system consists of multiple explosion-proof lithium-ion battery power units. Each lithium battery power unit has a voltage of 320 V and a rated capacity of no less than 228 A·h. When fully charged, it can provide the locomotive with a driving range of 16 to 50 kilometers (depending on the lithium battery capacity, number of drive components, load, and track conditions).



Electro-Hydraulic Control Car

The electro-hydraulic control system comprises: a speed protection unit, a load-bearing unit, a hydraulic system, and an electro-hydraulic control system. The electro-hydraulic control system performs detection and logical processing of operation signals, running condition signals, and pressure signals in each circuit, and issues control commands based on the processed results to execute control of the locomotive.



Rack Drive Unit

The gear drive unit transmits motion from the permanent magnet integrated drive reducer to the track gear strip, enabling the locomotive to operate. A working brake is installed inside the reducer, and the drive unit is also equipped with a set of safety braking devices.

technical parameter

loading liquifier

Load comparison table for explosion-proof lithium battery single-track crane car
(permanent magnet variable frequency integrated machine)

Vehicle model \Tilt (°)	5	10	12	15	18	20	23	25
DLR56/24Y	23	9	7	4	1	/	/	/
DLR84/36Y	40	19	14	10	7	5	3	2
DLR112/48Y	56	28	22	16	12	9	7	5
DLR140/60Y	72	37	30	22	17	14	11	9
DLR168/72Y	80	44	36	27	20	17	13	11
DLR196/84Y	80	54	44	33	26	22	18	15
DLR224/96Y	80	63	52	40	32	27	22	19
DLR256/108Y	80	72	59	45	36	31	25	22
DLR280/120Y	80	80	66	51	41	35	29	25
DLR308/132Y	80	80	73	57	45	39	32	28
DLR336/144Y	80	80	80	63	51	44	36	32
DLR364/156Y	80	80	80	70	56	49	41	36
DLR392/168Y	80	80	80	76	62	54	45	40

Note: The load in the table is the safe load of the machine (safe load = the weight of the lifting beam plus the weight of the load).

Performance Parameter Table

Table 1: Performance Parameters of the Anti-Explosion Lithium-Ion Battery Single-Track Crane Vehicle
(Permanent Magnet Variable Frequency Integrated Machine)

Project/Parameter		DLCR60/88Y	DLCR90/132Y	DLCR120/148Y	DLCR150/148Y	DLCR180/264Y
Traction force (kN)		60	90	120	150	180
Motor power (kW)		88	132	148	148	264
Locomotive motor power (kW)		88	132	176	220	264
Braking force (kN)		90~120	120~180	180~240	225~300	270~360
Number of driving parts		2	3	4	5	6
Number of work stoppings		2	3	4	5	6
Number of safety brakes		4	5	6	7	8
Maximum OPERATING SPEED (m / s)	Heavy load	1. 0				
	Carrying idler	1. 9				
Maximum climbing ability (°)		25				
Over-speed protection limit (m/s)		2. 18				
Turning radius (m)	Horizontal	≤4				
	Perpendicular	≤8				
Track model		I140E (with toothed strip)				
Single drive unit traction force (kN)		30				
Single driving unit braking force (kN)		45~60				
Single motor power		22kW				
Car exterior dimensions	Long (mm)	17000±100	19000±100	21000±100	22800±100	24800±100
	Wide (mm)	1040±20	1040±20	1040±20	1040±20	1040±20
	Gao (mm)	1310±20	1310±20	1310±20	1310±20	1310±20
Self-weight (excluding lifting beam) (t)		10. 86	11. 89	13. 02	13. 65	16. 48

Table 2: Performance Parameters of Explosion-Proof Lithium-Ion Battery Tooth-Rail Monorail Hoist (Permanent Magnet Variable Frequency Integrated Machine)

Project/Parameter		DLCR210/296Y	DLCR240/296Y	DLCR270/296Y	DLCR300/440Y
Traction (kN)		210	240	270	300
Motor power (kW)		296	296	296	440
Motor power (kW)		308	352	396	440
Braking force (kN)		315~420	360~480	405~540	450~600
Number of driving parts		7	8	9	10
Number of work stoppings		7	8	9	10
Number of safety brakes		9	10	11	12
Maximum operating speed (m/s)	Heavy load	1.0			
	Carrying idler	1.9			
Maximum climbing ability (°)		25			
Maximum protection limit (m/s)		2.18			
Vehicle turning radius Footpath (m)	Horizontal	≤4			
	Perpendicular	≤8			
Track model		I 140 E (with toothed strip)			
Single drive unit traction force (kN)		30			
Single driving unit braking force (kN)		45~60			
Single motor power		22kW			
Ooutside the car shape dimension	Long (mm)	27000±100	28000±100	30700±100	32700±100
	Wide (mm)	1040±20	1040±20	1040±20	1040±20
	Gao (mm)	1310±20	1310±20	1310±20	1600±20
Self-weight (without lifting beam) (t)		17.11	17.74	19.57	20.8

Table 3: Performance Parameters of Explosion-Proof Lithium-Ion Battery Tooth-Rail Monorail Crane
(Permanent Magnet Variable Frequency Integrated Machine)

Project/Parameter		DLCR330/444Y	DLCR360/444Y	DLCR390/444Y	DLCR420/444Y
Traction (kN)		330	360	390	420
Motor power (kW)		444	444	444	444
Motor power (kW)		484	528	572	616
Braking force (kN)		495~660	540~720	585~780	630~840
Number of driving parts		11	12	13	14
Number of work stoppings		11	12	13	14
Number of safety brakes		13	14	15	16
Maximum speed (m/s)	Heavy load	1. 0			
	Carrying idler	1. 9			
Maximum climbing ability (°)		25			
Maximum protection limit (m/s)		2. 18			
Turning radius (m)	Horizontal	≤4			
	Perpendicular	≤8			
Track model		I140E (with toothed strip)			
Single drive unit traction force (kN)		30			
Single driving unit braking force (kN)		45~60			
Single motor power		22kW			
Outside the car APE DIMENSION	Long (mm)	36200±100	38200±100	40100±100	42200±100
	Wide (mm)	1040±20	1040±20	1040±20	1040±20
	Gao (mm)	1600±20	1600±20	1600±20	1600±20
Self-weight (without lifting beam) (t)		22. 73	23. 36	23. 99	24. 62

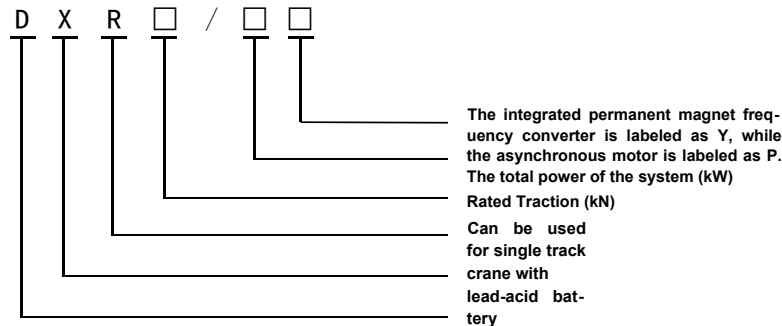
▲ Explosion-proof special type battery monorail crane (permanent magnet frequency conversion integrated machine)

product presentation

The explosion-proof special type battery-powered monorail hoist vehicle (permanent magnet variable frequency integrated machine) is mainly composed of the cab, integrated machine drive unit, electro-hydraulic control vehicle (including hydraulic system, electro-hydraulic control system, and safety protection), power supply device (including lead-acid battery), speed protection car, load-bearing car, pull rod, and hoisting beam.



Model Definition



Example 1: The model DXR308/132Y denotes a special explosion-proof single-rail hoist locomotive with a rated traction force of 308kN and a total power of 132kW from its drive motor. It is suitable for personnel transportation and features a permanent magnet variable frequency integrated motor.

Example 2: The model DX120/72P denotes a special explosion-proof single-rail hoist locomotive, with a rated traction force of 120kN and a total motor power of 72kW. The motor is an asynchronous motor.

technical parameter

loading liquifier

Load comparison table for explosion-proof special type battery-powered single-track hoist vehicle (permanent magnet frequency converter integrated machine) (unit: t)

Vehicle model\Tilt angle ()	5	10	15
DXR140/60Y	73	38	23
DXR168/72Y	80	47	29
DXR196/84Y	80	56	36
DXR224/96Y	80	66	42
DXR252/108Y	80	74	48
DXR280/120Y	80	80	54
DXR308/132Y	80	80	60

Note: The load in the table is the safe load capacity for the machine (safe load capacity = self-weight of the lifting beam + weight of the load).

Performance Parameter Table

Performance Parameters of Explosion-Proof Special Type Battery Single-Track Hoist Vehicle (Permanent Magnet Variable Frequency One-Piece Machine)

Project/Parameter	DXR140/60Y	DXR168/72Y	DXR196/84Y	DXR224/96Y	DXR252/108Y	DXR280/120Y	DXR308/132Y
Traction force (kN)	140	168	196	224	252	280	308
Motor power (kW)	60	72	84	96	108	120	132
Safety braking force (kN)	210~280	252~336	294~392	336~448	378~504	420~560	462~616
Number of driving parts	5	6	7	8	9	10	11
Number of brakes	7	8	9	10	11	12	13
Maximum operating speed (m/s)	Heavy load 0.5						
	Carrying idler 2.0						
Maximum climbing capacity (°)	15						
Overspeed limit protection(m/s)	2.3						
Car turn Radius (m)	Horizontal ≤4						
	Perpendicular ≤8						
Track model	I140E/I140V/I140E (with toothed strip)						
Single driving part traction force (kN)	28						
Single driving unit braking force (kN)	42~56						
Single motor power	6kW						
Outside the car shape dimension	Long (mm)	20800±100	22500±100	24200±100	25900±100	27600±100	29300±100
	Wide (mm)	1020±20	1020±20	1020±20	1020±20	1020±20	1020±20
	Gao (mm)	1450±20	1450±20	1450±20	1450±20	1450±20	1450±20
Self-weight (excluding the lifting beam) (t)	13.5	15.2	16	16.8	18.8	20.2	21
Storage battery Supply voltage	DC336V						
Power of pump stationmotor (kW)	12						
Moderate Model Number	PW215						
Charger model	ZBC200/480						

▲ Explosion-proof special type battery monorail crane (asynchronous motor)

product presentation

The explosion-proof special type battery monorail crane (asynchronous motor) is mainly composed of the cab, the asynchronous motor drive part, the electro-hydraulic control car (including hydraulic system, electrical control system and safety protection), the power supply device (including lead-acid battery), the speed protection car, the load car, the pull rod, the lifting beam, etc.



technical parameter

loading liquifier

LOAD TEST TABLE FOR EXPLOSION-PROOF SPECIAL TYPE ELECTRIC BATTERY MONO-TRACK CRANE (ASYNCHRONOUS MOTOR)

Model \Inclination (°)	5°	10°	15°
DX40/24P	15	5	/
DX60/36P	26	11	4
DX80/48P	37	17	8
DX100/60P	48	23	13
DX120/72P	60	30	17

Note: The load in the table is the safe load capacity for the machine (safe load capacity = self-weight of the lifting beam + weight of the load).

Performance Parameter Table

Performance Parameters of Explosion-Proof Special Type Battery Monorail Locomotive (Asynchronous Motor)

Item / Parameter		DX40/24P	DX60/36P	DX80/48P	DX100/60P	DX120/72P
Traction force (kN)		40	60	80	100	120
Motor power (kW)		24	36	48	60	72
Braking force (kN)		60~80	90~120	120~160	150~200	180~240
Number of driving parts		2	3	4	5	6
Number of brakes		4	5	6	7	8
Maximum operating speed (m/s)	Heavy load	0.5				
	Carrying idler	1.5				
Maximum climbing ability (°)		15				
Overspeed protection limit (m / s)		1.725				
Vehicle turning radius Footpath (m)	Horizontal	≤ 4				
	Perpendicular	≤ 8				
Track model		I140E/I140V/I140E (with toothed strip)				
Single drive unit traction force (kN)		20				
Single driving force (kN)		30~40				
Single motor power		6kW				
Outside the car SHAPE DIMENSION	Long (mm)	14300±100	15700±100	17000±100	18500±100	22500±100
	Wide (mm)	1020±20	1020±20	1020±20	1020±20	1020±20
	Gao (mm)	1450±20	1450±20	1450±20	1450±20	1450±20
Self-weight (without lifting beam) (t)		10.2	11.4	12.7	13.5	14.3
Battery source voltage		DC252V				
Power of pump station motor (kW)		12				
Reducer model number		BTB70A43~02~00				
Charger model number		ZBC100/400				

▲ Explosion-proof lithium battery single engine double drive monorail crane (permanent magnet frequency conversion integrated machine)

product presentation

The explosion-proof lithium battery single-engine double-drive monorail crane (permanent magnet frequency conversion integrated machine) is mainly composed of cab, rubber wheel drive part, tooth rail drive part, electro-hydraulic control car (including hydraulic system, electrical control system and safety protection), speed protection car, load car, pull rod, lifting beam, etc.



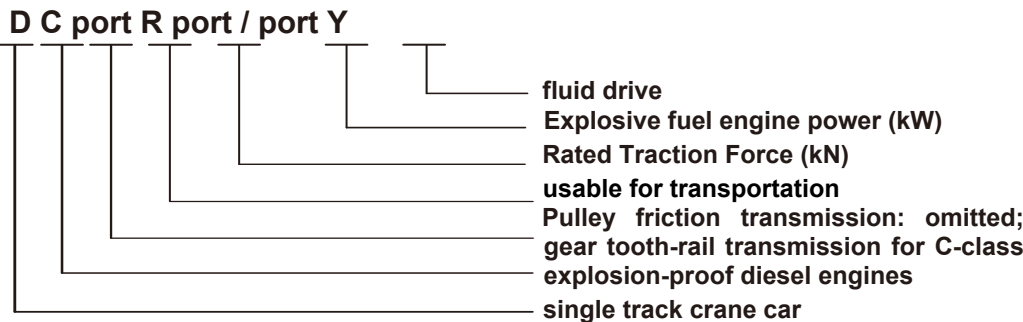
▲ Explosion-proof diesel monorail crane

product presentation

The explosion-proof diesel locomotive is mainly composed of cab, drive unit, main engine, cooling unit, speed protection car, load car, pull rod and lifting beam.



Model Definition



Example 1: The model DCR390/160Y denotes a single-rail crane with a rated traction force of 390kN, powered by a 160kW diesel engine and hydraulic-driven rubber-wheel friction transmission.
Example 2: The model DCCR360/160Y features a rated traction force of 360kN and a diesel engine output of 160kW, with a hydraulic-driven gear transmission for a single-rail crane.

main unit



Swing Arm Type Half Motor Drive Device

The swing-arm semi-motor drive assembly consists of a hydraulic semi-motor, traveling wheel, friction wheel, braking system, left and right swing arms, and clamping cylinders. It adopts a swing-arm support structure, connecting to the friction wheel via a short intermediate shaft. The rated traction force is 3 0 KN, and it is equipped with both a working brake and a safety brake, each with a braking force of 4 5 kN.



Full Motor Drive

The full motor drive system consists of a hydraulic full motor, driving wheels, friction wheels, guide wheels, braking device, clamping cylinder, and valve assembly. The hydraulic full motor is directly connected to the friction wheels. This drive system features a simple structure and easy maintenance. Each drive unit is equipped with both working brakes and safety brakes on both sides, with a braking force of 45kN.



Main Engine

The main unit consists of an explosion-proof diesel engine, a closed variable displacement pump, a water washing tank, a hydraulic oil tank, a fuel tank, a diesel engine cooling system, and an automatic fire extinguishing device. The accompanying explosion-proof diesel engine meets the National III emission standards and can be safely used in underground high-gas and dust environments. The engine features a compact size, high torque reserve, and constant low-speed torque output.

The hydraulic components utilize imported brands with high reliability. The main pump employs a DA-controlled closed hydraulic system, ensuring smooth locomotive operation without silencing and minimal pollution. Equipped with electro-hydraulic control and full hydraulic braking, it enables continuous direct transportation of ultra-long working faces from ground or underground parking areas. The system features an automatic fire suppression device that detects temperature autonomously to trigger fire extinguishing, while also providing a manual trigger for manual activation.



Cooling Device for Diesel Monorail Hoist

The cooling assembly consists of a cooling box frame, a hydraulic oil and air cooling heat dissipation system, and an electrical control system, which is generally suspended below the drive unit.



Translation Type Half Motor Drive Device

The transverse semi-motor drive assembly consists of a hydraulic semi-motor, roller support, traveling wheel, friction wheel, guide wheel, braking device, and clamping cylinder. The transverse semi-motor adopts a transverse support structure, connecting through a medium-length shaft to the friction plate with a rated traction force of 3 0 KN, while the brake exerts a braking force>4 5 KN.

technical parameter

loading liquifier

Table 1 Comparison of Maximum Load and Transport Slope for 110 KW Explosion-Proof Diesel Monorail Hoist

Model\Inclination (°)	5	10	15	20	25
DCR360/110Y	80	80	74	54	42
DCR300/110Y	80	80	60	44	34
DCR270/110Y	80	80	53	39	30
DCR240/110Y	80	70	46	33	25
DCR210/110Y	80	60	40	28	21
DCR180/110Y	80	51	33	24	18
DCR150/110Y	78	43	28	20	15
DCR120/110Y	61	33	22	15	11

Note: The load in the table is the safe load of the machine (safe load = the weight of the lifting beam plus the weight of the load).

Table 2: LOAD COMPARISON OF 1 6 0 KW EXPLOSIVE PROTECTIVE OIL ENGINE SINGLE-TRACK CRANE VEHICLE

	5	10	15	20	25
DCR420/160Y	80	80	80	64	50
DCR390/160Y	80	80	80	59	46
DCR360/160Y	80	80	74	54	42
DCR330/160Y	80	80	66	49	38
DCR300/160Y	80	80	60	44	34
DCR270/160Y	80	80	53	39	30
DCR240/160Y	80	70	46	33	25
DCR210/160Y	80	60	40	28	21
DCR180/160Y	80	51	33	24	18
DCR150/160Y	78	43	28	20	15
DCR120/160Y	61	33	22	15	11

Note: The load in the table is the safe load of the machine (safe load = the weight of the lifting beam plus the weight of the load).

Performance
Parameter Table

Table 1: Performance Parameters of 110 KW Explosion-Proof Diesel Tractor

Project/Parameter		DCR120/110Y	DCR150/110Y	DCR180/110Y	DCR210/110Y
Traction force (kN)		120	150	180	210
Braking force (kN)		180~240	225~300	270~360	315~420
Number of driving parts		4	5	6	7
Number of brakes		10	12	14	16
Maximum operating speed (m/s) (Full Drive / 4WD)		2.2/2.2	1.7/2.2	1.4/2.2	1.2/2.2
Maximum climbing ability (°)		25			
Track deflection radius (m)	Horizontal	≥4			
	Perpendicular	≥8			
Steel rail type		140E/140V/140E (with toothed strip)			
Single drive unit traction force (kN)		30			
Single driving force (kN)		45~60			
Vehicle dimensions (length × width × height) in meters		17.4 × 1 × 1.3	19.1 × 1 × 1.3	20.1 × 1 × 1.3	22.5 × 1 × 1.3
Self-weight (without lifting beam) (t)		7.58	9.7	10.4	11.9
Explosive charge Oil engine	Model	MA6107DZLYFB (A)			
	Power / Speed (kW / rpm)	110/2200			
Oil tank capacity (L)		150			
Hydraulic pump model		A4VG280			
Hydraulic motor model		MCR5H565			
Hydraulic pump displacement (mL / r)		280			
Hydraulic motor displacement (mL/r)		565			
Main system pressure (mpa)		35			

Project/Parameter		DCR240/110Y	DCR270/110Y	DCR300/110Y	DCR330/110Y	DCR360/110Y
Traction force (kN)		240	270	300	330	360
Braking force (kN)		360~480	405~540	450~600	495~660	540~720
Number of driving parts		8	9	10	11	12
Number of brakes		18	20	22	24	26
Maximum operating speed (m/s)(Full Drive / 4WD)		1/2.2	0.9/2.2	0.8/2.2	0.7/2.2	0.6/2.2
Maximum climbing ability (°)		25				
Track deflection radius(m)	Horizontal	≥4				
	Perpendicular	≥8				
Steel rail type		I140E/I140V/I140E (with toothed strip)				
Single drive unit traction force (kN)		30				
Single driving force (kN)		45~60				
Car exterior dimensions Length × Width × Height in meters		24.2 × 1 × 1.3	25.9 × 1 × 1.3	27.6 × 1 × 1.3	29.3 × 1 × 1.3	31.0 × 1 × 1.3
Self-weight (without lifting beam) (t)		12.6	13	13.4	14.2	14.5
Explosion proof rude oil engine	Model	MA6107DZLYFB (A)				
	Power / Speed (kW / rpm)	110/2200				
Oil tank capacity (L)		150				
Hydraulic pump modelHydr		A4VG280				
aulic motor model		MCR5H565				
Hydraulic pump displacement (mL / r)		280				
Hydraulic motor displacement (mL/r)		565				
Main system pressure (mpa)		35				

Table 2: Performance Parameters of 160 KW Anti-Explosion Diesel-Oil Single-Track Hoist Truck

Project/Parameter		DCR150/160Y	DCR180/160Y	DCR210/160Y	DCR240/160Y
Traction (kN)		150	180	210	240
Braking force (kN)		225~300	270~360	315~420	360~480
Number OF DRIVING PARTS		5	6	7	8
Number OF BRAKE		12	14	16	18
Maximum operating speed (m/s) (Full Drive/4WD)		1.7/2.2	1.4/2.2	1.2/2.2	1/2.2
Maximum climbing ability (°)		25			
Track deflection radius (m)	Horizontal	≥4			
	Perpendicular	≥8			
Steel rail type		140 E / 140 V / 140 E (with toothed strip)			
Single drive unit traction force (kN)		30			
Single driving force (kN)		45~60			
Car exterior dimensions Length × Width × Height in meters		19.1 × 1 × 1.3	20.1 × 1 × 1.3	22.5 × 1 × 1.3	24.2 × 1 × 1.3
Self-weight (excluding lifting beam) (t)		9.7	10.4	11.9	12.6
Explosion-proof diesel engine	Model	MA6107DZLYFB (A)			
	Power/Speed (kW/rpm)	160/2200			
Oil tank capacity (L)		150			
Hydraulic pump modelHydrau		A4VG280			
lic motor model		MCR5H565			
Hydraulic pump displacement (mL/r)		280			
Hydraulic motor displacement (mL/r)		565			
Main system pressure (MPa)		35			

Project/Parameter		DCR270/160Y	DCR300/160Y	DCR330/160Y	DCR360/160Y	DCR390/160Y	DCR420/160Y
Traction (kN)		270	300	330	360	390	420
Braking force (kN)		405~540	450~600	495~660	540~720	585~780	630~840
Number OF DRIVINGPARTS		9	10	11	12	13	14
Number of brakes		20	22	24	26	28	30
Maximum operating speed (m/s)(Full Drive/4WD)		0.9/2.2	0.8/2.2	0.7/2.2	0.6/2.2	0.5/2.2	0.5/2.2
Maximum climbing ability (°)		25					
Track turning radius (m)	Horizontal	≥4					
	Perpendicular	≥8					
Steel rail type		I140E/I140V/I140E (with toothed strip)					
Single drive unit traction (kN)		30					
Single driving unit braking force (kN)		45~60					
Car exterior dimensions Length × Width × Height in meters		25.9 × 1 × 1.3	27.6 × 1 × 1.3	29.3 × 1 × 1.3	31.0 × 1 × 1.3	32.7 × 1 × 1.3	34.4 × 1 × 1.3
Self-weight (excluding lifting beam) (t)		13	13.4	14.2	14.5	15.5	16.4
Explosion proof rude oil engine	Model	MA6107DZLYFB (A)					
	Power/Speed (kW/rpm)	160/2200					
Oil tank capacity (L)		150					
Hydraulic pump modelHy		A4VG280					
draulic motor model		MCR5H565					
Hydraulic pump displaceme nt (mL/r)		280					
Hydraulic motor displacement (mL/r)		565					
Main system pressure (MPa)		35					

▲ Explosion-proof diesel locomotive with single track crane

■ Product Presentation

The main parts of the explosion-proof diesel engine single-track crane consist of the drive unit, the main engine, the speed protection car, the load car, the pull rod, and the lifting beam.



■ product superiority

- ◆ The overall structure is compact and highly integrated, reducing the size of the machine vehicle, thereby better adapting to the transportation of materials in narrow spaces.
- ◆ The diesel engine is used, and the fuel is easy to refuel, so there is no worry about continuous sailing.
- ◆ remote control operation: based on a wireless remote control system with remote scheduling capability;
- ◆ The speed of operation is fast, which can reach 2.2 m/s.
- ◆ The traction force of the vehicle is 30 kN for single drive and 60 kN for double drive.
- ◆ the slope of the operation can be as large as 25°.
- ◆ The number of drive axles can be expanded to 5, and the total traction force reaches 150 kN.

■ technical parameter

loading liquifier

Load Comparison Table of Single-Girder Crane Truck for Explosion-Proof Diesel Engine Scheduling (unit: T)

Model\Inclination (°)	0°	5°	10°	15°	20°	25°
DCR60/45Y	58	37	17	10	6.5	4.1
DCR90/45Y	60	59	30	18	12.8	9.2
DCR120/45Y	60	60	41	26	18.5	13.8
DCR60/65Y	58	37	17	10	6.5	4.1
DCR90/65Y	60	59	30	18	12.8	9.2
DCR120/65Y	60	60	41	26	18.5	13.8
DCR150/65Y	60	60	52	34	24	18

Note: The load in the table is the safe load of the machine (safe load = the weight of the lifting beam plus the weight of the load).

Performance Parameter Table

Table 1: Performance Parameters of Single-Track Hoist Vehicle for Anti-Explosive Diesel Engine

Project/Parameter		DCR60/45Y	DCR60/65Y
Power/rotations of the diesel engine (kW / rpm)		45/2200	65/2200
Maximum operating speed (m / s)		2.2	
Maximum climbing ability (°)		25	
Through minimum curvature radius (m)	Horizontal	4	
	Perpendicular	8	
Device weight (t)		6.0	
Outline dimension	Long (mm)	3800	
	Wide (mm)	900	
	Gao (mm)	1500	
Number of driving parts		2	
Number of brakes		4	
Braking force (kN)		90~120	
Applicable trail model		I140E/I140V/I140E (withtoothedstrip)	
Hydraulic pump model		A4VG125	
Main system operating pressure (MPa)		35	

Table 2: Technical Parameter Table for Single-Track Hoist Vehicle of Anti-Explosive Diesel Engine (Extended Number of Drive Units)

Project/Parameter		DCR90/45Y	DCR120/45Y	DCR90/65Y	DCR120/65Y	DCR150/65Y
(Engine power/rpm) kW / rpm		45/2200			65/2200	
Maximum operating speed (m / s)		2. 2				
Maximum climbing ability (°)		25				
Through minimum curvature radius (m)		Horizontal	4			
		Perpendicular	8			
Device weight (t)		6. 8	7. 6	6. 8	7. 6	8. 4
Outline dimension	Long (mm)	5300	6800	5300	6800	8300
	Wide (mm)	900				
	Gao (mm)	1. 5				
Number OF DRIVING PARTS		3	4	3	4	5
Number OF BRAKE		6	8	6	8	10
Braking force (kN)		135~180	180~240	135~180	180~240	225~300
Applicable TRAIL MODEL		I 1 4 0 E / I 1 4 0 V / I 1 4 0 E (with toothed strip)				
Hydraulic pump model		A4VG125				
Main system operating pressure (MPa)		35				

Explosion-proof diesel engine tooth-rail monorail crane

product presentation

The explosion-proof diesel engine single-gear track crane truck is mainly composed of the cab, hydraulic gear drive unit, diesel engine main engine, cooling unit, speed protection car, load car, pull rod, and lifting beam.



main unit



Cooling unit

The cooling unit consists of a cooling box frame, a hydraulic oil and air cooling system, and an electrical control system, and is generally suspended below the drive unit.



Diesel Engine Gear Drive

The gear drive assembly transmits motion from the shaft end gear to the track gear strip via a hydraulic motor, enabling the locomotive to operate. The hydraulic motor is equipped with an automatic braking system, and a safety braking device is installed at the rear.



Main Engine

The main unit consists of an explosion-proof diesel engine, a closed variable displacement pump, a water washing tank, a hydraulic oil tank, a fuel tank, a diesel engine cooling system, and an automatic fire extinguishing device. The accompanying explosion-proof diesel engine meets the National III emission standards and can be safely used in underground high-gas and dust environments. The engine features a compact size, high torque reserve, and constant low-speed torque output.

The hydraulic components utilize imported brands with high reliability. The main pump employs a DA-controlled closed hydraulic system, ensuring smooth locomotive operation without silencing and minimal pollution. Equipped with electro-hydraulic control and full hydraulic braking, it enables continuous direct transportation of ultra-long working faces from ground or underground parking areas. The system features an automatic fire suppression device that detects temperature autonomously to trigger fire extinguishing, while also providing a manual trigger for manual activation.

technical parameter

loading liquifier

LOADING TABLE FOR EXPLOSION-PROOF OIL ENGINE GEAR RAIL SINGLE-TRACK LIFTING TRUCK (unit: T)

Model slope (°)	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	25°
DCCR360/160Y	80	80	80	80	80	80	80	73	65	59	52
DCCR330/160Y	80	80	80	80	80	80	75	66	59	53	46
DCCR300/160Y	80	80	80	80	80	78	68	60	53	48	41
DCCR270/160Y	80	80	80	80	80	70	60	53	47	42	37
DCCR240/160Y	80	80	80	80	72	61	53	46	41	37	32
DCCR210/160Y	80	80	80	74	62	53	45	40	35	31	27
DCCR180/160Y	80	80	78	63	52	44	38	33	29	26	22
DCCR150/160Y	80	80	63	51	42	36	31	26	23	21	17
DCCR120/160Y	80	65	49	39	32	27	23	20	17	15	12

Note: The load in the table is the safe load of the machine (safe load = the weight of the lifting beam plus the weight of the load).

Performance Parameter Table

Table 1: Performance Parameters of Single-Track Hoist Vehicle for Anti-Explosive Diesel Engine

Project/Parameter		DCCR360/160Y	DCCR330/160Y	DCCR300/160Y	DCCR270/160Y
Traction force (kN)		360	330	300	270
Braking force (kN)		540~720	495~660	450~600	405~540
Number OF DRIVING PARTS		12	11	10	9
Number OF BRAKE		14	13	12	11
Maximum OPERATING SPEED (m / s)	Half displacement	1. 3	1. 4	1. 54	1. 72
	Total DISPLACEMENT	0. 65	0. 7	0. 77	0. 86
Maximum climbing ability (°)		25			
Overspeed protection limit (m / s)		2. 4			
Track deflect-ion radius (m)	Horizontal	≥ 4			
	Perpendicular	≥ 8			
Track MODEL		I 14 0 E (with toothed strip)			
Single drive unit traction force (kN)		30			
Single driving force (kN)		45~60			
Car shape Size	Long (mm)	29000±100	27300±100	25300±100	24300±100
	Wide (mm)	1000±20	1000±20	1000±20	1000±20
	Gao (mm)	1300±20	1300±20	1300±20	1300±20
Self-weight (without lifting beam) (t)		15. 22	14. 48	13. 74	13
Explosive Fuel Engine	Model	MA6107DZLYFB (A)			
	Power / Speed (kW / rpm)	160/2200			
Axial COLUMN PUMP MODEL		A4VG280HP			
Type of hydraulic motor		MS18			
Hydraulic pump displacement (mL / r)		280			
Driving system pressure (MPa)		35			
Support system pressure (MPa)		18			

Table 2: Performance Parameters of Single-Track Hoist for Explosion-Proof Diesel Engines

Project/Parameter		DCCR240/160Y	DCCR210/160Y	DCCR180/160Y	DCCR150/160Y	DCCR120/160Y
Traction (kN)		240	210	180	150	120
Braking force (kN)		360~480	315~420	270~360	225~300	180~240
Number OF DRIVING PARTS		8	7	6	5	4
Number OF BRAKE		10	9	8	7	6
Maximum operating speed (m/s)	Half displacement	1.94	2.1	2.1	2.1	2.1
	Total DISPLACEMENT	0.97	1.1	1.29	1.5	1.9
Maximum climbing ability (°)		25				
Overspeed protection limit (m / s)		2.4				
Track deflect-ion radius (m)	Horizontal	≤4				
	Perpendicular	≤8				
Steel rail type		I 14 0 E (with toothed strip)				
Single drive unit traction force (kN)		30				
Single driving force (kN)		45~50				
Outside the car SHAPE DIMENSION	Long (mm)	22200±100	21000±100	19700±100	18500±100	16600±100
	Wide (mm)	1000±20	1000±20	1000±20	1000±20	1000±20
	Gao (mm)	1300±20	1300±20	1300±20	1300±20	1300±20
Self-weight (without lifting beam) (t)		12.26	11.52	10.78	10.04	9.3
Explosive fuel oil Machine	Model	MA6107DZLYFB(A)				
	Power / Speed (kW / rpm)	160/2200				
Axial COLUMN PUMP MODEL		A4VG280HP				
Type of hydraulic motor		MS18				
Hydraulic pump displacement (mL / r)		280				
Driving system pressure (MPa)		35				
Support system pressure (MPa)		18				

▲ Mine Pneumatic Single Track Hoist

■ product presentation

The mine pneumatic single-girder hoist consists primarily of a drive assembly, a load carriage, a brake carriage, a pneumatic hose, a pull rod, a pneumatic system, and safety protection. It utilizes compressed air as the power source to drive a pneumatic motor, which in turn operates a rubber or gear wheel along the track. This equipment is suitable for short-distance dispatch or relay transportation in tunneling operations. The device does not produce exhaust gas, making it particularly appropriate for working conditions with poor ventilation. Operation is performed via a handle attached to the equipment. It is mainly used for transporting materials and equipment that require advanced support at the upper and lower ends of working faces in coal mines, as well as for other short-distance transportation needs underground.

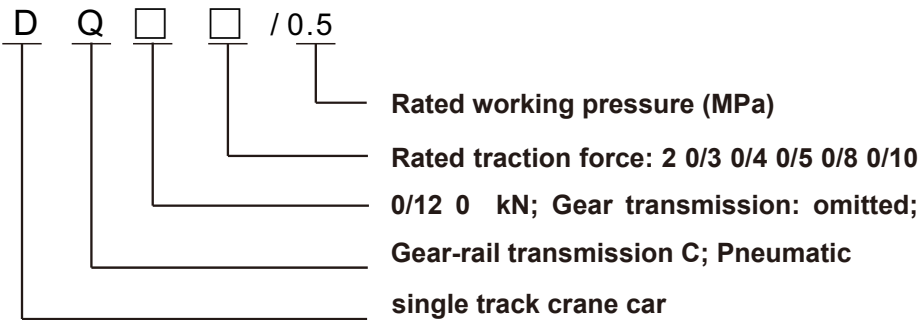
merit :

- ◆ energy saving and environmental protection, no pollution;
- ◆ The system is powered by downhole pressure air.
- ◆ the procedure was performed with pure pneumatic control and no risk of deflagration.
- ◆ The vehicle itself is short, lightweight, and highly maneuverable.

shortcoming :

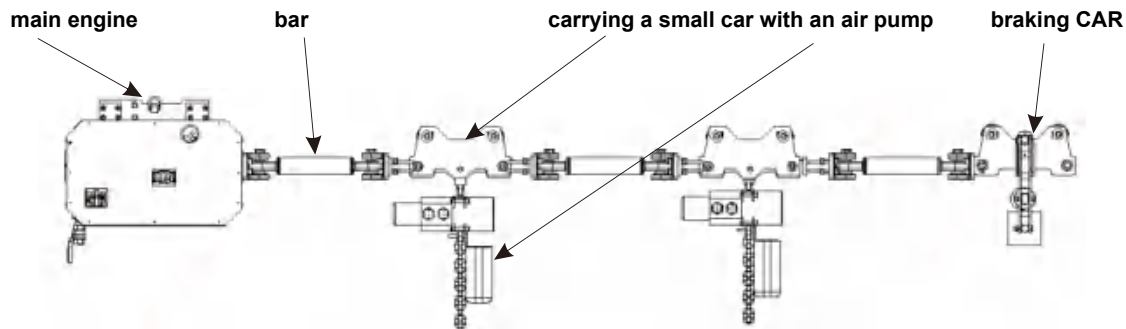
- ◆ noise is high.
- ◆ at low temperature, the aerodynamic elements are easy to freeze, and the locomotive can not be used;
- ◆ The driving capacity is small, and the maximum traction force is 120 kN.
- ◆ The power source was taken from the air duct on the wall of the chamber, and the trachea had to be reinserted after about 50 m of operation.
- ◆ The applicable slope is relatively small, with the slope ≤ 20°

■ Model Definition



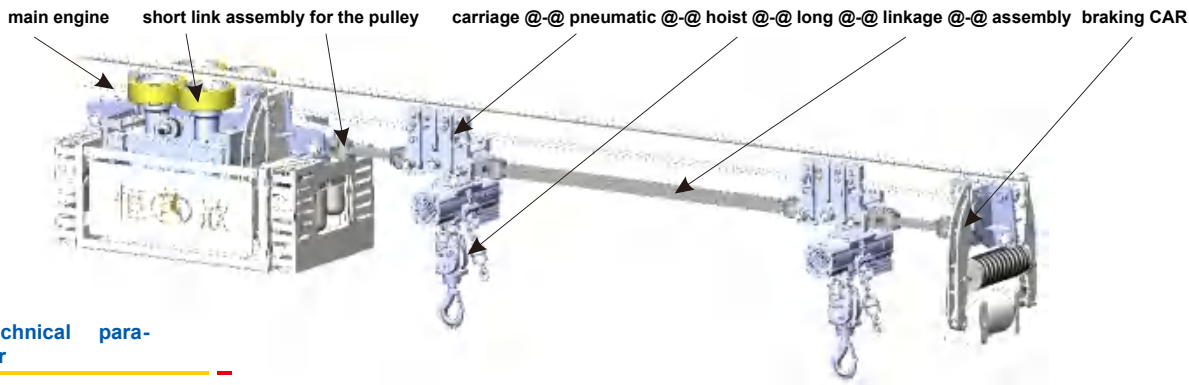
Pneumatic toothed rail monorail crane

A device driven by the engagement of a toothed gear and a toothed strip after reduction by a pneumatic motor reduction mechanism.



pneumatic monorail crane

A device driven by the engagement of a toothed gear and a toothed strip after reduction by a pneumatic motor reduction mechanism.



technical parameter

loading liquifier

Aerodynamic Single-Track Crane Load Control Table (Unit: T)

Falling gradient (°)		0°	5°	10°	15°	20°
Maximum load capacity (t)	DQ20/0.5	12	10	5.5	3.5	2.5
	DQ30/0.5	12	12	9	6	4.5
	DQ40/0.5	20	20	15.5	11	8
	DQC45/0.5	20	17.2	14.2	10.2	7.2
	DQ50/0.5	20	20	15.3	10.6	8.1
	DQ80/0.5	40	28	23	12.9	12
	DQ100/0.5	40	35	28.8	19	15.1
	DQ120/0.5	40	40	34.9	24.3	18.5

Note: 1. The load capacity in the table refers to the safe load capacity of the locomotive (safe load capacity = weight of the lifting beam + weight of the cargo).

2、The on-site gas consumption requirements are as follows: DQ50/0.5 requires 9 m³/min, DQ80/0.5 requires 16 m³/min, DQ100/0.5 requires 18 m³/min, and DQ120/0.5 requires 20 m³/min.

Performance Parameter Table

Aerodynamic Single-Track Crane Performance Parameters Table

Order number	Technical parameter		Specifications and models		
			DQ20/0.5	DQ30/0.5	DQ40/0.5
1	Working gas pressure (Mpa)		0.4~0.6	0.4~0.6	0.4~0.6
2	Rated Traction (kN)	Pressure 0.4 MPa	18	28	38
		Pressure 0.5 MPa	20	30	40
		Pressure 0.6 MPa	22	32	42
3	Maximum OPERATING SPEED (Horizontal) (m/s)		0.4		
4	Maximum climbing ability (°)		20		
5	Minimum horizontal Turning radius (m)		4		
6	Vertical minimum radius of curvature (m)		8		
7	Maximum lifting weight (t)		12	20	
8	Braking force (kN)		30~40	45~60	60~80
9	Overall dimensions of a car Length x Width x Height (mm)		4650×790×840		
10	Total vehicle weight (t)		0.92	0.98	1.02
11	Air motor	Model	AMC4.5		AMC5.5
		Power /kW	4.5kW x2		5.5kW x2
		Gas consumption	8m³/min		9m³/min
12	Aerodermatoma	Model	HQ6- (3-16)		HQ10- (3-16)
		Power /kW	3.5x2		
		Gas consumption	1.7m³/minx2		2.0m³/minx2
13	Track MODEL	/	I140V/I140E		
14	Control method	/	Lever key		

▲ General Parts of Mine Single Track Hoist

■ pilothouse

The cab has no control box, road and working condition display screen, emergency brake valve, road condition detector, etc.



Pilothouse			
Length x Width x Height	1.9m×1m×1.5m	Horizontal radius of curvature	4m
Conduct oneself with dignity	0.9t	Vertical radius of curvature	8m
Applicable SLOPE	25°	Bottom track base height	1.37m

■ horizontal safety brake

The safety brake device is installed at both ends of key components such as the lifting beam, main engine, power supply unit, and passenger cabin of the single-pole crane. It is used to implement a secondary safety brake when the primary brake device fails, thereby enhancing the safety performance of the single-pole crane.



Sitting @-@ down safety brake			
Length x Width x Height	0.84m×0.645m×0.315m	Horizontal radius of curvature	4m
Conduct oneself with dignity	0.24t	Vertical radius of curvature	8m
Applicable SLOPE	25°	Rated BRAKE POWER	45kN~60kN

■ vertical safety brake

The safety brake device is installed at both ends of key components such as the lifting beam, main engine, power supply unit, and passenger cabin of the single-pole crane. It is used to implement a secondary safety brake when the primary brake device fails, thereby enhancing the safety performance of the single-pole crane.



Standing safety brake			
Length x Width x Height	0.55m×1m×0.75m	Horizontal radius of curvature	4m
Conduct oneself with dignity	0.24t	Vertical radius of curvature	8m
Applicable SLOPE	25°	Rated BRAKE POWER	45kN~60kN

■ Mobile Road Condition Detection Robot



The perception system, composed of AI cameras, LiDAR, and inclinometers, collects data; the big data undergoes intelligent processing through a edge data processing center equipped with algorithms; and a data control system established by a mobile controller implements classification control over the data. The data from these three systems collaboratively achieve intelligent detection and control of the locomotive.

■ mechanical intelligent rail detector

The mechanical intelligent track detection device is installed at both ends of the single-track hoist car and is used to trigger emergency braking when the track belly plate is uneven, the track joint is misaligned, or there are obstacles ahead. It can also trigger emergency braking when the switch is not properly operated or other reasons cause the locomotive to derail.



Mechanical intelligent track detection device			
Length x Width x Height	1m×0.3m×0.5m	Maximum LOAD	16t
Conduct oneself with dignity	0.6t	But through the angle of the climb	≤30°
Horizontal radius of curvature	4m	Vertical radius of curvature	8m

■ Material box

The material box comprises a hoisting structure and a box body. The box body capacity can be customized according to the mine's requirements for loading materials such as drift rods and gangue. The material box is divided into a bottom-unloading structure and a side-flipping structure. When transported to the designated location, the bottom panel or side of the material box can be opened to allow the cargo to fall, thereby significantly reducing the time required for loading and unloading.

◆ discharge material box



Discharge material box			
Rated LOAD	6t	Rated capacity	2.5m ³
Outline dimension	3.3m×1.2m×1.2m	Conduct oneself with dignity	1.7t

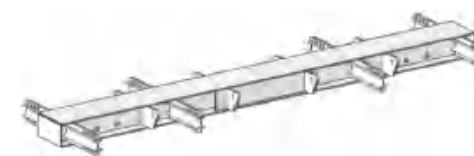
◆ side FLIP MATERIAL BOX



Side FLIP MATERIAL BOX			
Rated LOAD	4t	Rated capacity	2.5m ³
Outline dimension	3.3m×1.2m×1m	Conduct oneself with dignity	1.1t

■ multi-function hoisting frame

co-hoisting beam hoisting mine car or person car.



Multifunctional Hanger			
Length x Width x Height	4.2m × 1.1m × 0.2m	Maximum LOAD	16t
Conduct oneself with dignity	0.6t		

gas driven transfer car

The pneumatic transfer cart is used for battery source replacement. Its wheels are driven by an air motor to move along a ground track. During battery source replacement, the battery box is lowered onto the transfer cart via a lifting beam, and the transfer cart transports the battery box to a charging cabinet for charging.



Gas-driven, replacement, small car			
Applicable TRACTOR MODEL	30kg/m	Applicable track gauge	1906
Specified load	8t	Working pressure	0.3~0.7MPa
Outline dimension	2.8m×1.4m×0.45m	Conduct oneself with dignity	1.25t

liquid displacement transfer trolley

The liquid-powered transfer cart is used for battery power source replacement. Its wheels are driven by hydraulic motors to move along a ground track. During battery power replacement, the battery box is lowered onto the transfer cart via a lifting beam, and the cart transports the battery box to a charging cabinet for charging.



Liquid-driven, exchangeable, small car			
Applicable TRACTOR MODEL	30kg/m	Applicable track gauge	1906
Specified load	8t	Working pressure	3MPa
Outline dimension	2.8m×1.4m×0.45m	Conduct oneself with dignity	1.25t

aeropropellant tanker

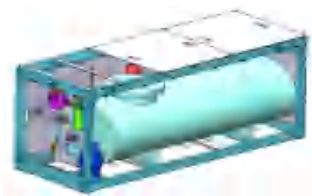
The pneumatic fueling machine is used for refueling diesel monorail hoist cars, and its power source is compressed air from underground coal mines.



Aerodynamic fuel pump			
Rate of flow	70L/ min	Working pressure	0.3 ~ 0.8 MPa
Conduct oneself with dignity	57kg		

Liquid transport vehicle

A liquid transport vehicle is used to store and transport liquids and is equipped with a refueling capability, powered by compressed air from a coal mine.



Liquid TRANSPORTER			
Volume	1200L	Working pressure	0.3 ~ 0.8 MPa
Conduct oneself with dignity	0.85 t	Rate of flow	70L/ min
Outline dimension	2.9m ×1.1m ×1.1m		

car carrier

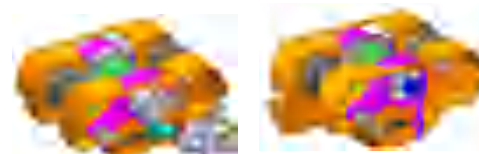
The carrier car is used to hoist single-track components such as the hoisting beam, main machine, and electro-hydraulic vehicle.



Carrying MINI			
Carrying capacity	≤4t	Bearing wheel diameter	118 mm
Conduct oneself with dignity	53Kg	Outline dimension	470 mm×316 mm×276 mm

speed protection car

The single rail crane speed protection trolley is equipped with centrifugal speed limiting device and encoder speed measuring device, which is installed above the electro-hydraulic car and diesel engine main body. When the locomotive running speed exceeds 15% of the design maximum running speed, the locomotive is controlled to brake urgently.



Speed PROTECT CAR			
Carrying capacity	≤4t	Bearing wheel diameter	118mm
Conduct oneself with dignity	64Kg	Outline dimension	470mm×316mm×276mm
Trigger speed (adjustable)	2.2m/s		

Lifting Beam Series

Lifting beams are classified by tonnage into: 6 t, 8 t, 16 t, 3 2 t, 4 8 t, etc. By actuator type, they are categorized as hydraulic cylinder lifting beams and hydraulic hoist lifting beams. By application scenario, they are divided into transport-type lifting beams (standard type) and rotary lifting beams. Lifting beams are used for material transportation, equipment hoisting, and other functions, and can be operated manually or remotely.

6t double hook lifting beam



6t double hook hoist beam performance parameter table			
Rated LOAD	6t	Working pressure	12MPa
Length × width × invalid height	3.6m×0.65m×0.77m	Horizontal radius of curvature	4m
Conduct oneself with dignity	0.76t	Vertical radius of curvature	8m
Hoisting crane depth	2m	Hoisting speed	1.6m/min

8-ton crane for lifting a pumpkin



8t Ho Lu Qi Liang Performance Parameter Table			
Rated LOAD	8t	Working pressure	12MPa
Length × width × invalid height	5.86m×0.71m×0.56m	Horizontal radius of curvature	4m
Conduct oneself with dignity	1.1t	Vertical radius of curvature	8m
Hoisting speed	1.6m/min	Hoisting crane depth	2m

16t Cucumber Hoisting Beam (Type A)



Performance Parameters Table of 16t Carrot Hoisting Beam (Type A)			
Rated LOAD	16t	Working pressure	12MPa
Length × width × invalid height	5.86m×0.62m×0.65m	Horizontal radius of curvature	4m
Conduct oneself with dignity	1.2t	Vertical radius of curvature	8m
Hoisting speed	1.6m/min	Hoisting crane depth	2m

16t Cucumber Hoisting Beam (Type B)



Performance Parameters Table of 16t Carrot Hoisting Beam (Type B)			
Rated LOAD	16t	Working pressure	12MPa
Length × width × invalid height	5.86m×0.62m×0.5m	Horizontal radius of curvature	4m
Conduct oneself with dignity	1.72t	Vertical radius of curvature	8m
Hoisting speed	1.6m/min	Hoisting crane depth	2m

32-ton crane for lifting a pumpkin



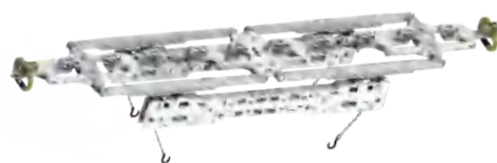
32t Hoist Beam Performance Parameter Table			
Rated LOAD	32t	Work stress	12MPa
Length × width × invalid height	13.2m×2.05m×0.75m	Horizontal radius of curvature	4m
Conduct oneself with dignity	6.94t	Vertical radius of curvature	10m
Hoisting speed	1.6m/min	Hoisting crane depth	2m

32t cylinder lifting beam (ultra-thin type)



32T HYDRAULIC CYLINDER PERFORMANCE PARAMETERS TABLE (ULTRATHIN)			
Rated LOAD	32t	Work stress	12MPa
Length × width × invalid height	10.5m×2.02m×0.35m	Horizontal radius of curvature	6m
Conduct oneself with dignity	8.6t	Vertical radius of curvature	12m
Hoisting speed	1.2m/min	Hoisting crane depth	2m

48t cylinder lifting beam (ultra-thin type)



48t CYLINDER PERFORMANCE PARAMETERS TABLE FOR LIFTING BEAMS (ULTRATHIN)			
Rated LOAD	48t	Work pressure	12MPa
Length × width × invalid height	13.8m×2.2m×0.33m	Horizontal radius of curvature	8m
Conduct oneself with dignity	12.4t	Vertical radius of curvature	10m
Hoisting speed	1.0m/min	Hoisting crane depth	2m

48t super-thin hoisting beam for pumpkins



48t Ho Lu Qi Liang Performance Parameter Table (Ultra-Thin Type)			
Rated LOAD	48t	Working pressure	12MPa
Length × width × invalid height	13.8m×2.2m×0.33m	Horizontal radius of curvature	8m
Conduct oneself with dignity	10t	Vertical radius of curvature	10m
Hoisting speed	1.4m/min	Hoisting crane depth	2m

48-ton gourd lifting beam



48t Hoist Beam Performance Parameter Table (Standard Type)			
Rated LOAD	48t	Working pressure	12MPa
Length × width × invalid height	13.5m×2.2m×0.87m	Horizontal radius of curvature	8m
Conduct oneself with dignity	10t	Vertical radius of curvature	15m
Hoisting speed	1.4m/min	Hoisting crane depth	2m

48t rotating crane beam



48t Rotary Hoisting Beam Performance Parameters Table			
Rated LOAD	48t	Working pressure	12MPa
Length × width × invalid height	4.5m×1.85m×0.7m	Horizontal radius of curvature	6m
Conduct oneself with dignity	6.6t	Vertical radius of curvature	12m
Hoisting crane depth	2m	Hoisting speed	1.2m/min
Angle of rotation	90°		

Passenger compartment

The locomotive is equipped with standard 12-18 seat and other different specifications of personnel and cars, which can complete the underground different needs of personnel transportation work, and can transport up to 45 people at a time.

The passenger car is equipped with a load cell and a lifting beam suspension ear, allowing direct loading of the entire unit via the load cell or suspension of the passenger car on the lifting beam. Additionally, a ladder is provided to accommodate higher elevations in tunnels.

the fixed configuration of the human vehicle on the machine vehicle is as follows:

- ★ one is a dedicated transport vehicle, in which the person and vehicle are loaded directly into the machine through a carrying cart.
- ★ The other is a detachable passenger car, which is suspended on the lifting beam when passengers are needed, and can be lifted to carry goods after the passenger car is unloaded.

★ in addition, there are enclosed and open passenger cars.

the vehicle is equipped with an emergency stop device.

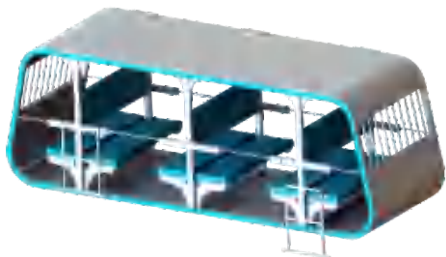
Standard passenger vehicle specification parameters table			
Rated CARCASS	12	15	18
Dimensions (m)	4.3×1.3×1.5	4.3×1.3×1.5	4.3×1.4×1.9
Body weight(kg)	1300	1300	1500



12 SEAT SITUATION OPEN TYPE
PASSAGE CAR



15 @-@ SEAT OPEN TRUCK

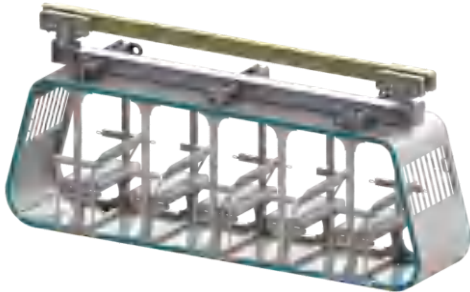


18-SEAT OPEN-STRUCTURE PASSENGER VEHICLE

In addition to the standard passenger vehicle, the vehicle can be customized to accommodate 8 or 10 passengers, depending on the customer's request and actual conditions.



eight SEAT enclosed passenger vehicle



10-seat open passenger vehicle

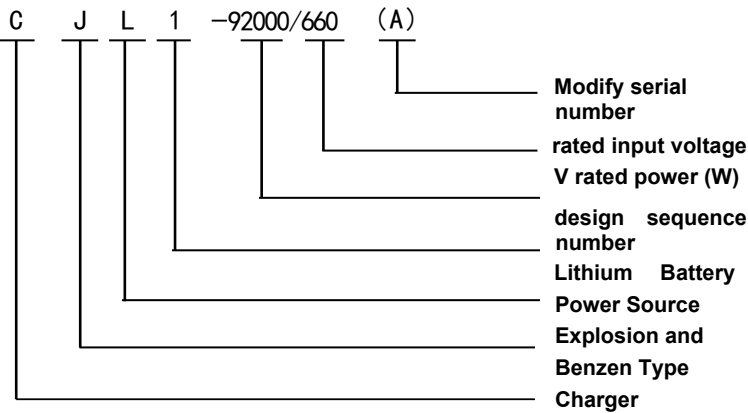
charging generator

Product Overview

CJ L 1-9 2 0 0 0/4 0 0 (A) Mine-used explosion-proof and safety-type lithium-ion battery power charger (abbreviated as charger) is suitable for charging lithium-ion batteries used in coal mines.



Model Definition



technical parameter

Project	92kW (single-gun charger)	240 kW (dual-gun charger)
Model	CJL1-92000/660 (A)	CBL1-24000/1140(660)-2(A)
Rated power (kW)	92	240
Rated input voltage (V)	AC660	AC 660/1140
Range OF OUTPUT VOLTAGE	DC200V~400V	DC 200/400V
Range OF OUTCOME CURRENT	DC10A~230A	DC 50/600A
Rated OPERATING FREQUENCY	50Hz	50Hz
Cooling-down method	Air blast cooling	Natural air cooling
Precision OF PRESSURE STABILITY	±0.5%	±0.5%
Flow @-@ STABILITY ACCURACY	±1%	1%
Communication interface	CAN,supports GB/T27930-2015 protocol	
External dimensions (length*width*height) (mm)	1415*1307*1173	2294*1268*1345
Weight (kg)	1650	4500

demonstration of the type

Model	AC input		DC output		Scope of application
	Number of ph-ases	Voltage V	Rated current A	Range of regulation V	Lithium ion battery
CJL1-92000/660(A)	3	660	230	200~400	DC250 ~365V
CBL1-24000/1140(660)-2(A)	3	660/1140	600	200~400	DC250 ~365V

operational principle

After being powered through the power switch and AC contactor, the charger delivers DC output via rectification and a three-phase half-controlled bridge rectifier. The control circuit adjusts the trigger pulse phase shift by setting values and using current/voltage feedback, thereby regulating the conduction angle of the IGBT to vary the DC output current according to the set value. The main circuit's DC side is equipped with a filter reactor, overcurrent relay, and a secondary current-limiting diode, while the main circuit is also fitted with a fuse. In case of any phase short circuit, the AC contactor opens to ensure the phase is isolated from operation.

explosion-proof form

The explosion-proof type of the charger is mine explosion-proof and intrinsically safe.
Explosion-proof rating:92kW is Ex db ib I Mb;2 4 0 KW is Ex db I Mb.

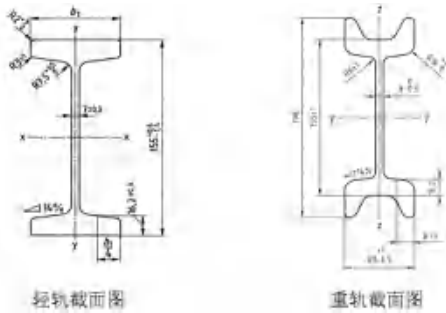
Product Features

- ◆ It features both automatic and manual charging modes, supporting constant current and constant voltage charging modes.
- ◆ the setup of this case display is simple and intuitive, and the data displayed are abundant.
- ◆ equipped with standard communication interfaces and supports big data collection;
- ◆ high-performance control chips, mature configurations, low product failure rates, and high reliability;
- ◆ the iron-silicon magnetic core reactor has high magnetic flux density, low loss, and low operating noise;
- ◆ The system is equipped with an emergency stop function, which allows for one-button shutdown in emergency situations.

Track Components of Mine Single Track Hoist

The monorail system features two track types: I140E light rail and I140V heavy rail. Track lengths include standard 1.0m, 1.5m,2.0m,2.4m, and 3.0m, with custom-length options available for special requirements.

The cross-sectional diagrams of the two rail types—light rail I140E (compliant with DIN20593-1-2002) and heavy rail I140V (compliant with DIN20593-3-2004)—are shown below (b1=69 mm).



Light/Heavy Track Parameters

Order number	Name	Specifications	Width × Height (mm)	Quality
1	Light rail	I 140E	69±0. 5×155 ± ⁰ _{-1.4} , ventral plate 7±0.3	26. 4Kg/m
2	Heavy rail	I 140V	69 ± ^{+1.5} _{-0.5} × 19 8±1, ventral plate 8 ^{+0.5} ₀	35. 5Kg/m

I140V heavy-duty rail



(1) Standard Heavy Straight Rail (Type A)

Standard track lengths commonly include 2m, 2.4m, and 3.0m, with minor adjustments of 1m or 1.5m made for on-site local requirements. Track lengths can be customized according to the specific needs of the mining operation.



(2) Standard Heavy Straight Rail (Type B)

Standard track lengths commonly include 2m, 2.4m, and 3.0m, with minor adjustments of 1m or 1.5m made for on-site local requirements. Track lengths can be customized according to the specific needs of the mining operation.



(3) Standard Heavy-Duty Straight Rail (Type A)

The standard track lengths are commonly available in 2m, 2.4m, and 3.0m sizes. Track lengths can be customized according to the requirements of the mining company.



(4) Standard Heavy-Duty Straight Rail (Type B)

The standard track lengths are commonly available in the following sizes: 2 m, 2.4 m, and 3.0 m. Track lengths can be customized according to the requirements of the mining company.



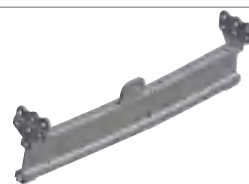
(5) Heavy Level Track

The standard curve rail length is 1 m, 1.5 m, and 2 m, with horizontal turning radii of R4m, R6m, R8m, R9m, and R10m. The length and turning radius of the horizontal curve rail can be customized according to the requirements of the mining company.



(6) Heavy Vertical Curved Rail

The standard deflection track arc length is 1 m, 1.5 m, and 2 m, and the vertical deflection radius is R 10 m, R 12 m, and R 15 m. The length of the vertical deflection track and the vertical deflection radius can be customized according to the requirements of the mine.



(7) heavy vertical convex curved rail

The standard track arc length is 1 m, 1.5 m, 2 m, and the vertical turning radius is R10 m, R12 m, R15 m.



(8) Heavy Combined Track (Concave) (Type A)

The standard track lengths are commonly available in the following sizes: 1 m, 1.5 m, 2.0 m, 2.4 m, and 3.0 m, and can be customized according to the requirements of the mine.



(9) Heavy Combined Track (Concave) (Type B)

The standard track lengths are commonly available in the following sizes: 1 m, 1.5 m, 2.0 m, 2.4 m, and 3.0 m. Track lengths can be customized according to the requirements of the mining company.



(10) Heavy Combined Switch Rail (Convex) (Type A)

The standard track lengths commonly available are 1 m, 1.5 m, 2.0 m, 2.4 m, and 3.0 m, and the track length can be customized according to the requirements of the mine.



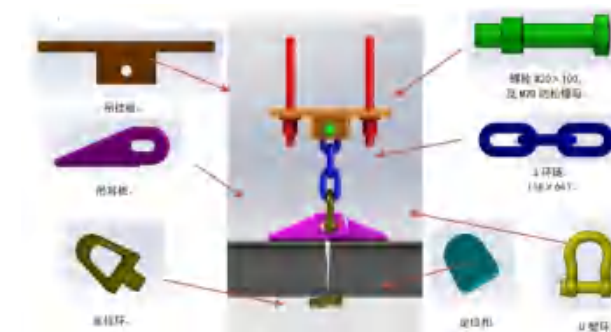
(11) Heavy Type of Convex Switch Rail (Type B)

The standard track lengths are commonly available in the following sizes: 1 m, 1.5 m, 2.0 m, 2.4 m, and 3.0 m. Track lengths can be customized according to the requirements of the mining company.



■ 1140E light rail

the 1 4 0 E light rail is divided into a loop track and a bell track.



standard light straight track assembly

(The red parts are the anchor rods, matching nuts, and anchor rod support plates provided by the mine itself.)



light rail buckle loop track



light track bell track

(1) standard light straight rail

Standard track lengths commonly include 2 m, 2.4 m, and 3.0 m, with minor adjustments of 1 m or 1.5 m made for on-site local adjustments. Track lengths can be customized according to the specific requirements of the mining operation.



Light straight rail (bell type)



Light straight rail (clip)

(2) light straight rail with crossbar

The standard track lengths commonly available are 1 m, 1.5 m, 2 m, 2.4 m, and 3.0 m. Track lengths can be customized according to the requirements of the mining site.



(3) light horizontal curved rail

The standard bending rail arc length is 1 m, 1.5 m, 2 m, and the horizontal bending radius is R4 m, R6 m, R8 m. The length and bending radius of the horizontal bending rail can be customized according to the requirements of the mine.



(4) light vertical concave curved rail

The standard track length is 1 m, 1.5 m, 2 m, and the vertical turning radius is R10 m, R12 m, R15 m.



(5) light vertical convex curved rail

The standard deflection track arc length is 1 m, 1.5 m, and 2 m, and the vertical deflection radius is R 10 m, R 12 m, and R 15 m. The length of the vertical deflection track and the vertical deflection radius can be customized according to the requirements of the mine.



(6) concave turnout rail

The standard track lengths are commonly available in the following sizes: 1 m, 1.5 m, 2.0 m, 2.4 m, and 3.0 m, and the track length can be customized according to the requirements of the mine.



(7) convex turnout

The standard track lengths commonly available are 1 m, 1.5 m, 2.0 m, 2.4 m, and 3.0 m. Track lengths can be customized according to the requirements of the mining company.



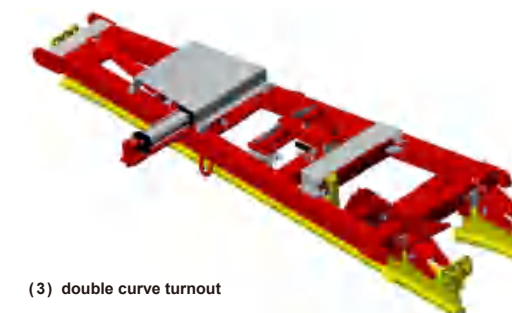
■ turnout

The switch is used for the single track crane track section, which is divided into left open switch, right open switch, double open switch (symmetrical switch).

left open channel

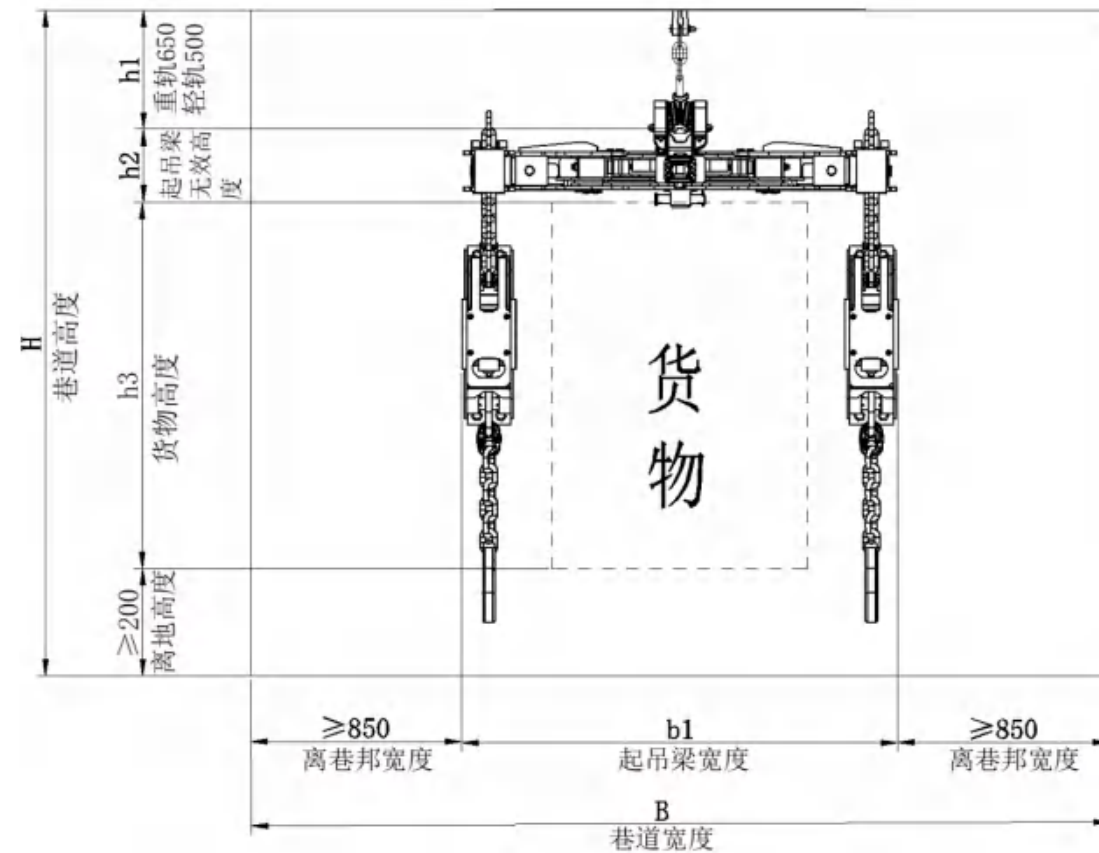


(2) right hand turnout



(3) double curve turnout

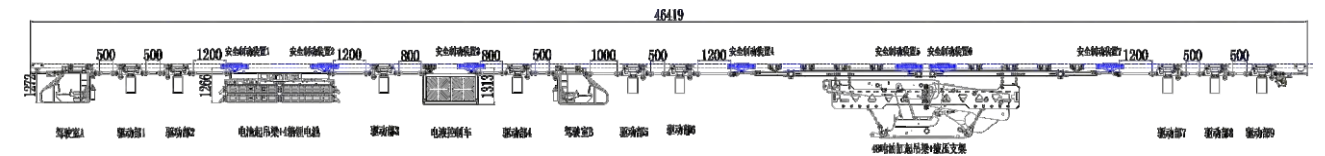
▲ technical index of installation condition



Name	Height OF INEFFECTIVE LIFT BEAM	Width OF THE LIFT BEAM
32-ton hoist beam	750mm	2050mm
32 TONS CYLINDRICAL LIFT BEAM (ULTRATHIN)	350mm	2050mm
48-ton Ho Lu Qi hoisting beam (ultra-thin type)	350mm	2650mm
48 TONNE CYLINDRICAL LIFT BEAM (SUPER THIN)	350mm	2200mm

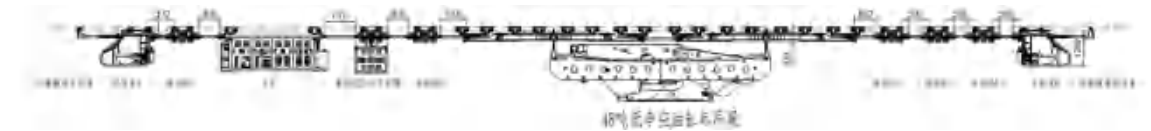
▲ project case

■ adding safety brake units to locomotives

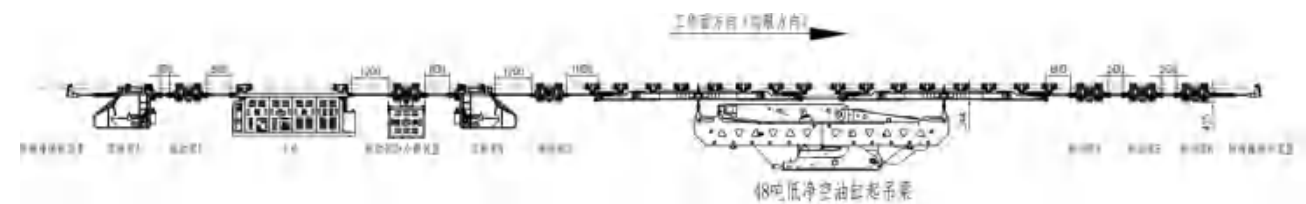


The locomotive is equipped with a fail-safe type of working brake and a safety brake. The working brake is used for normal start-stop operations, while the safety brake is activated when the working brake fails or during slope braking. The two brake systems operate independently. During startup, the safety brake is released first, followed by the working brake. During stoppage, the working brake is applied first, followed by the safety brake.

■ two WAYS IN WHICH ULTRATHIN LIFT BEAMS TRANSPORT LARGE HYDRAULIC SUPPORTS

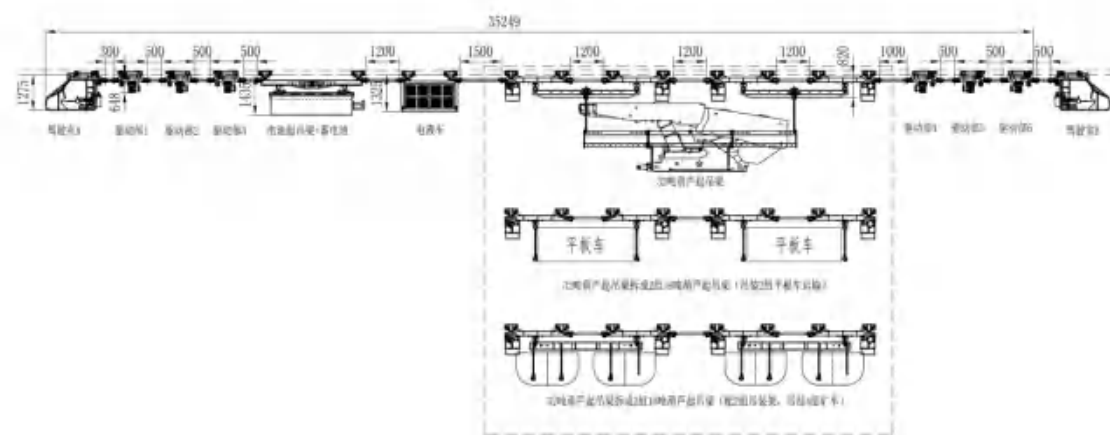


Method 1: The lifting beam is positioned at the mid-position, suitable for transportation scenarios with ample aisle space. The driver has a wide field of view when operating the vehicle. A low-clearance hydraulic cylinder or a hoist is used to raise the beam, commonly employed for transporting large-tonnage hydraulic supports.

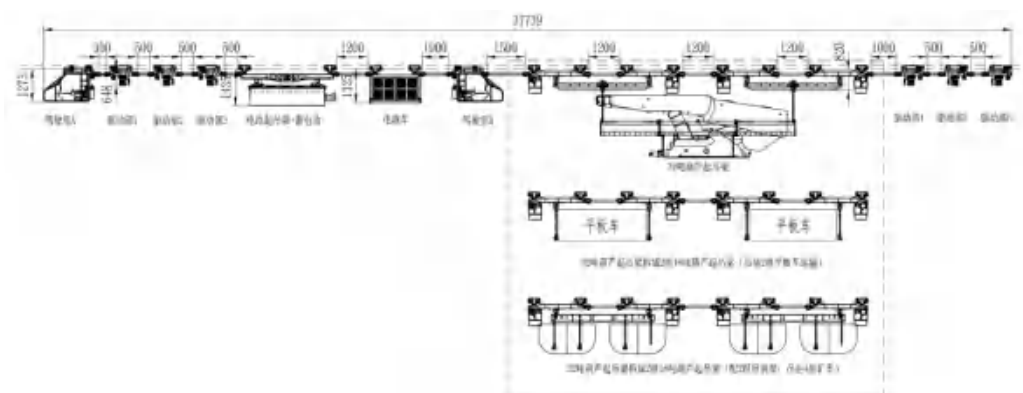


Method 2: The lifting beam is positioned at the most anterior position, which is suitable for the direct transportation of the hydraulic scaffold to the working surface.

two WAYS IN WHICH A HU LU QI HUI LIANG TRANSPORTS LARGE HYDRAULIC SUPPORTS



Method 1: The lifting beam is positioned at the mid-point, suitable for transportation scenarios with ample roadway space. When the driver has a wide field of view, the hoist beam can be deployed. It can also be disassembled into smaller bucket-type lifting beams for transporting flatbed trucks, mining trucks, and other small cargo items.



Method 2: The lifting beam is positioned at the most anterior location, suitable for directly transporting the hydraulic support to the working surface. This method employs a pulley-driven lifting beam, which can also be disassembled into smaller lifting beams for transporting flatbed trucks, mining trucks, and other small cargo.

transportATION OF SMALL HYDRAULIC SUPPORTS



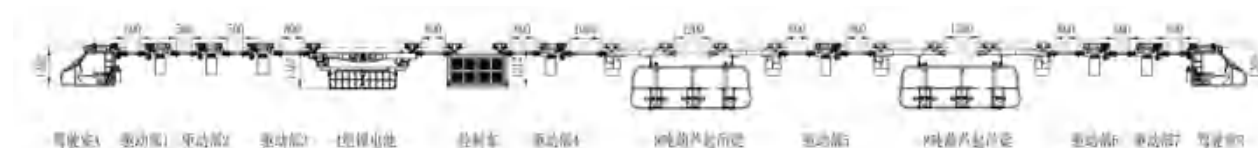
a 16 @-@ ton crane with a straight crossbeam is used to lift the sling, which can be used to transport small hydraulic supports.

mode OF TRANSPORTATION OF PEOPLE AND VEHICLES



a personnel @-@ transport group configuration that delivers personnel directly to a workstation, with a maximum of 4 5 people per transport

personnel AND GOODS transported by the same train (no cargo allowed when transporting personnel)



The vehicle adopts a lifting beam suspension method, effectively reducing the overall length of the vehicle, enabling rapid switching between transporting people and cargo.

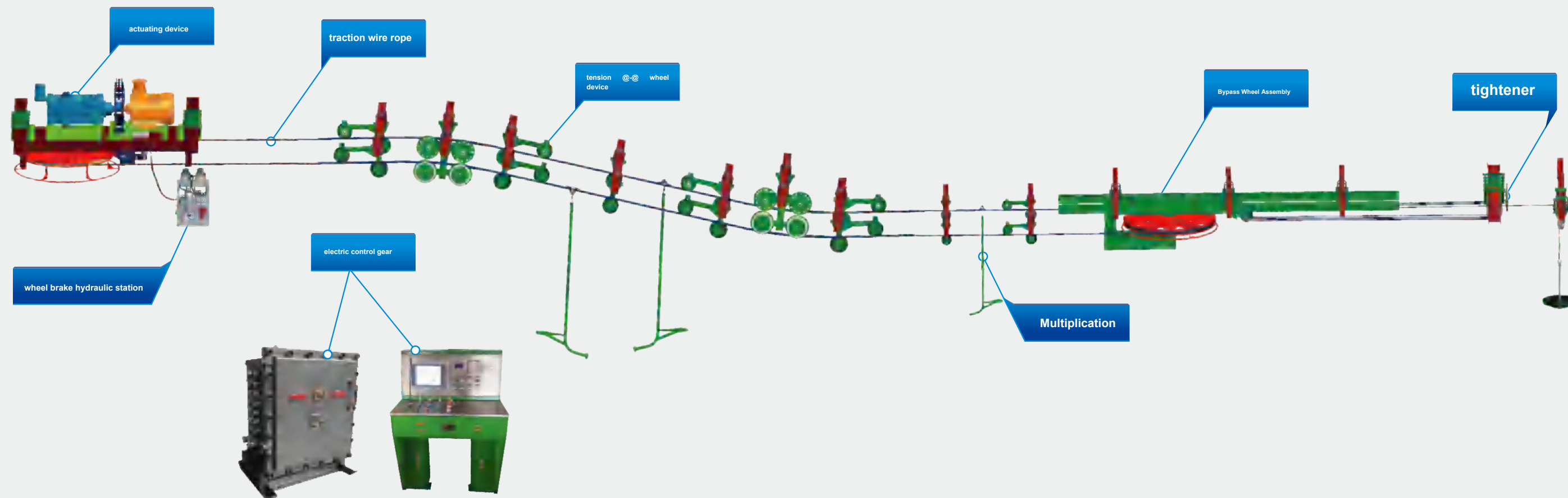
Mine Overhead Passenger Device (commonly Called "monkey Car")

product OVERVIEW

The mine overhead passenger transport system is primarily designed for personnel transportation in inclined shafts or level roadways. It consists of a drive mechanism, pressure-bearing wheel assembly, traction wire rope, passenger carrier, loop wheel assembly, tensioning device, safety protection system, and electrical control unit. The system operates by installing the wire rope on the drive wheel, pressure-bearing wheel assembly, and loop wheel. After being tensioned by the tensioning device, the drive mechanism generates power to drive the wire rope in continuous cyclic motion. The passenger carrier attached to the wire rope ascends or descends with its movement, thereby achieving the purpose of transporting personnel.

▲ The First Generation of Monkey Car-Mechanical Drive Overhead Passenger Device (Commonly Known as Mechanical Monkey Car)

structural representation



model DEFINITION

R J □ □ □ □ □ □ □ □

修改序号：(A)、(B)...

驱动方式：Frequency conversion speed control is P, DC speed control is Z, hydraulic speed control is U, switched reluctance is D, AC motor without hydraulic tensioning (Y), heavy hammer tensioning without

张紧方式：Maximum applicable incline, in degrees (°) / Maximum transport distance, in meters (m)

补充参数：Driving power, in kilowatts (kW)

主参数：The hydraulic station is labeled Z, the electro-hydraulic brake is labeled Y, and the pneumatic system is labeled Q.

制动方式：Bidirectional movable anchor (H), bidirectional large-angle detachable anchor (K), bidirectional fixed anchor (not specified), unidirectional movable anchor (DH), unidirectional large-angle detachable anchor (DK), unilaterally fixed anchor (D)

乘人装置类别：airCrew

Example: An overhead passenger device with movable cable clamp, driven by AC motor, braked by electro-hydraulic brake, and tensioned by heavy hammer, with a maximum applicable inclination of 18°, a maximum transportation distance of 600m, and a driving power of 22kW: RJHY22-18/600(A).

▲ The Second Generation of Monkey Car-Hydraulic Drive Overhead Passenger Device (commonly called Hydraulic Monkey Car)

Patent No.: ZL200910042683.6 ZL201710219980.8

■ product superiority

● vehicle STOP SAFETY SELF LOCKING FUNCTION

When the monkey car stops normally or stops due to failure, the hydraulic system has its own braking function, which can lock the driving wheel completely under the action of external force and prevent the wheel from rotating, thus avoiding the danger of the monkey car slipping or flying when the braking force of the wheel-side brake is insufficient.

● step @-@ free speed @-@ control function

The speed of the monkey car can be set by stepless speed control, which can not only ensure the safety of the steel wire rope and equipment at low speed (0.4m/s), but also improve the running efficiency of the monkey car.

● soft start, soft stop

The function of slow acceleration and slow deceleration can be realized.

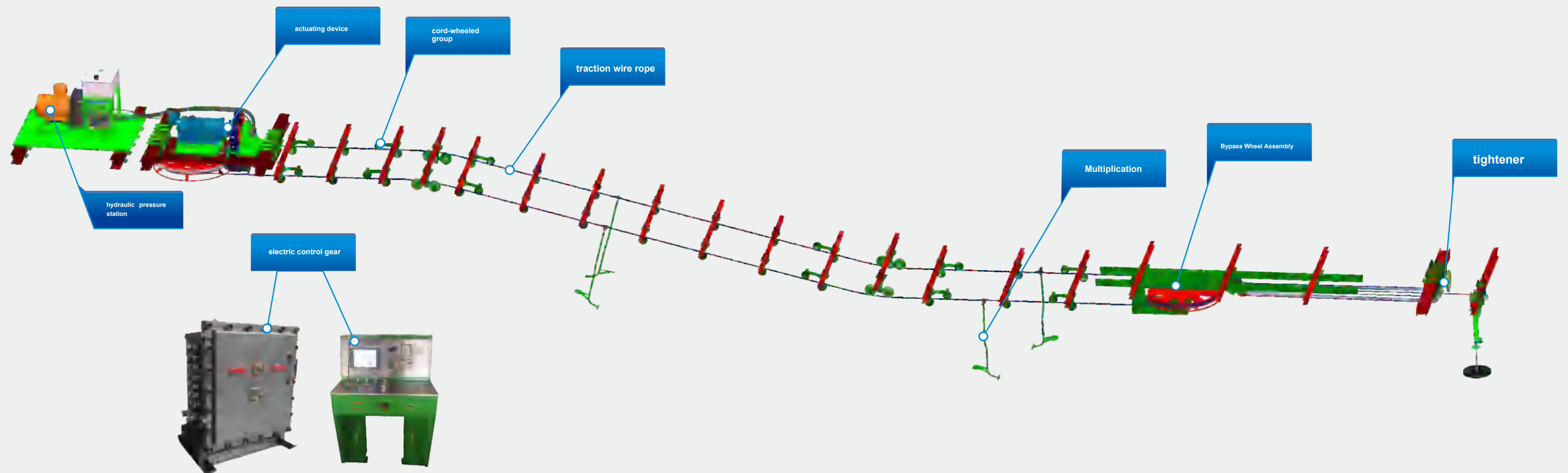
● uncontrolled SIGNAL INTERFERENCE

when the frequency of the anti-explosion device is adjusted, the control signal of the "monkey car" or the peripheral equipment is subject to harmonic interference, grid pollution, and fever.

● installation POSITION IS NOT LIMITED

the installation position is not limited because of the small volume of the hydraulic component and the absence of a tilt angle limit.

■ structural representation



technical parameter

First and Second Generation Monkey Car Classification Table

Model	Name	Slope of roadway (linear measure)	Running speed (m/s)	Volume (human being /h)	Embrace Form Type	Static state High and low Car	Deliver Way	Chair @-@ hanging	Wheel	Applicable to Narrow opening Width
RJY	Aerial passenger device for mine fixed rope hoist	$28 \geq a > 25$ $25 \geq a > 0$	≤ 0.8 ≤ 1.2	600	G	Cannot	Bidirectional OP- ERATION	Do not remove	Can	2500
RJZ										
RJDY		$28 \geq a > 25$ $25 \geq a > 0$	≤ 0.8 ≤ 1.2	200	G	Cannot	Unidirectional operation	Pick	Can	2000
RJDZ										
RJHY	Mine hoisting and lowering sling AirCrew	$18 \geq a > 14$ $a \leq 14$	≤ 1.4 ≤ 1.7	1000	HM	Can	Bidirectional OP- ERATION	Pick	Can	2200
RJHZ										
RJDHY		$18 \geq a > 14$ $a \leq 14$	≤ 1.4 ≤ 1.7	500	HM	Can	Unidirectional operation	Pick	Can	2000
RJDHZ										
RJKY.		$a \leq 25$	≤ 1.2	600	HK	Can	Bidirectional OP- ERATION	Pick	Can	2200
RJKZ										
RJDKY		$a \leq 25$	≤ 1.2	300	HK	Can	Unidirectional operation	Pick	Can	2000
RJDKZ										

security guard

Protection under state standards			
Order number	Protection NAME	Order number	Protection NAME
1	Under-and over-speed protection	8	Anti-slippage RING PROTECTION
2	Off @-@ position PROTECTION	9	Full @-@ line stop @-@ protection
3	Slip @-@ protection	10	Climbing PROTECT
4	Decompression PROTECTION	11	Distance CONTROL AND PROTECTION
5	Temperature PROTECTION OF REDUCER OIL	12	Drive @-@ INSTRUMENTS SECONDARY BRAKE PROTECTION
6	Axial PROTECTION	13	Chair anti-sway protection
7	Anti @-@ reversal @-@ protection	14	Tight @-@ travel @-@ limit protection

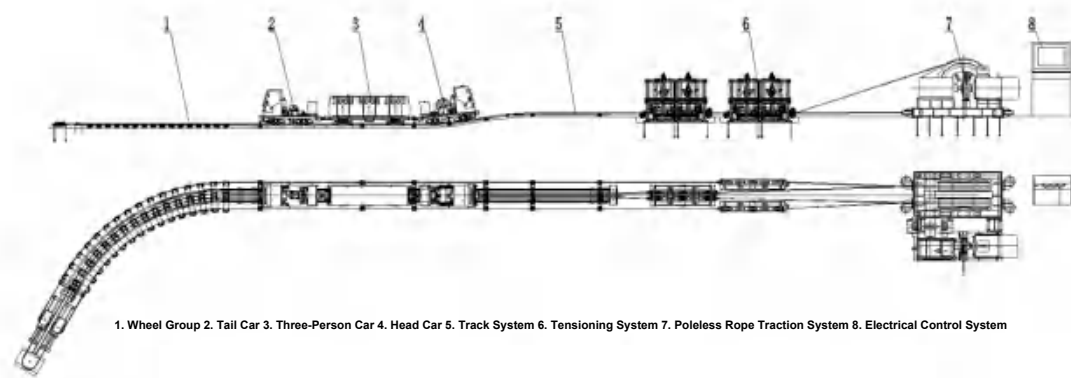
Additional PROTECTIVE MEASURES			
Order number	Protection NAME	Order number	Protection NAME
1	SystemATIC ESTATIC PROTECTION	8	Black box
2	Failure PROTECTOR	9	Enforcement INSPECTIONS
3	Head @-@ tail wheel @-@ entry rope @-@ mouth protection device	10	Reminders TO CHANGE OIL IN REDUCER
4	Steel wire rope brake	11	Steel wire rope gripper
5	Flight CHAIR SETTING	12	Positive @-@ pressure detection device for safety brake
6	REDUCER OIL LEVEL PROTECTION	13	Temperature PROTECTION OF THE EXTERNAL SHELL OF THE ELECTRIC MACHINE
7	Wire rope in line inspection device		

Mine Rope Traction Card Rail Car

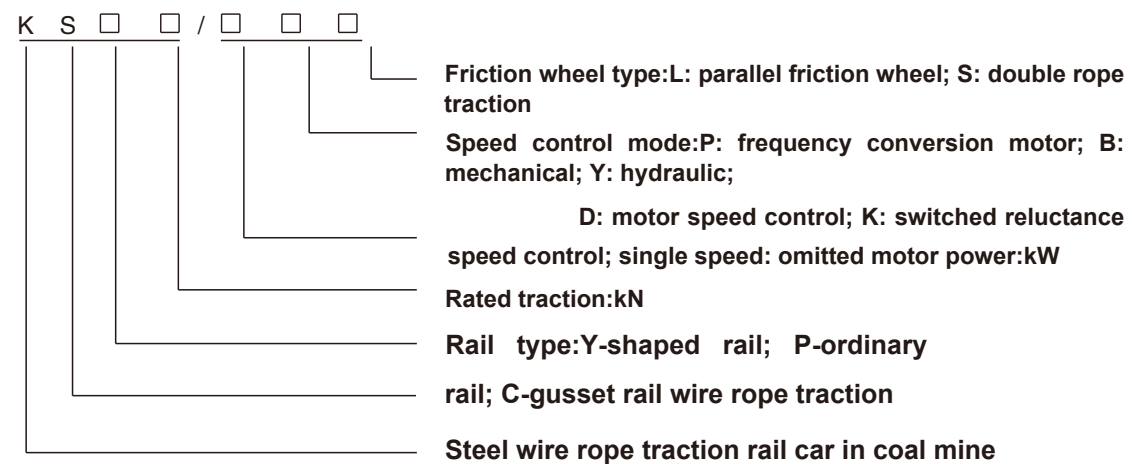
product OVERVIEW

The mine rope traction rail car, which absorbs the advanced technology of rail car abroad and the experience of our company in the long-term research and development of the continuous traction car of the infinite rope, develops a kind of rail transportation equipment which uses the steel wire rope as the power traction and implements the whole course of rail car running on the ordinary track, which is called "mine rope traction rail car".

The rope-guided rail clamping system comprises a continuous rope traction system (featuring winch, tensioning mechanism, track-mounted pressure rollers, tail wheel, and electronic control), clamping brake cars (head and tail units), passenger transport cars, and track clamping forks. This system enables full train clamping operation on standard tracks, ideal for long-distance, steep-gradient, multi-curve, undulating tunnel, and non-standard track conditions without requiring material, equipment, or personnel transfers. With advantages including rope-free operation, track retention, overturning prevention, and automatic speed-limit braking, it significantly enhances transportation efficiency and safety for personnel, materials, and equipment, making it the optimal choice for mine auxiliary rail transport.



Model Definition



Example: A standard track coal mine underground wire rope traction car with rated traction force of 120kN and motor power of 132kW, using variable frequency motor speed control for single-rope traction: KSP120/132PL.

technical feature

black @-@ hooded @-@ operation @-@ information @-@ recorder
Patent No.: ZL 2014 20465681.4

The information of the operation of the equipment, such as the security protection information, the alarm and the operation control information, is recorded and stored for 30 days, and the information stored in the "black box" cannot be changed or deleted by human, so as to provide the basis for the analysis of the operation of the equipment.

Wireless VIDEO SYSTEM

The system uses optical fiber transmission and WiFi communication technology, and adopts fixed and mobile video surveillance mode. It realizes the visual operation of vehicles and equipment in the process of operation by using the remote video surveillance system.

Real-Time Traction Force Detection

The system performs real-time monitoring and displays the wire rope tension value. When the tension exceeds the design threshold, it automatically triggers a stop lock.

Wireless Vehicle Remote Control System

The remote control console is embedded in the mobile carriage, which has many control functions such as forward, backward, stop, speed increase, speed decrease, emergency stop and reset. At the same time, the current speed, position, brake pressure, power and other operating parameters can be displayed on the remote control console panel.

Monitoring OF BRAKE PRESSURE

The hydraulic pressure of the brake is monitored in real time. When the detected pressure is lower than the design value, the vehicle will automatically lock up.

Pre @-@ Mission MONITORING OF PERSONNEL

The mobile intrinsically safe camera and the fixed explosion-proof camera can be set in the personnel detection mode to monitor the position of the personnel in front and side of the vehicle, and the interlocking control with the electronic control system to ensure the safety of the operation.

Monitoring OF HYDRAULIC LOCKING STRING PRESSURE

The hydraulic system pressure of the locking rope device is monitored in real time. When the detected pressure is lower than the design value, the system will automatically stop and lock.

Real-Time Monitoring of Steel Wire Rope

The electric control console can record and display the relevant detection data of the traction wire rope, and set up the voice alarm and display of the wire rope wear level. When the wire rope is stretched or worn to the limit, the system will automatically stop and lock.

Automatic Detection of Dedicated Lanes

When the train runs to the front of the turnout, the system automatically detects the direction of the turnout opening and positions the turnout in a straight-ahead position to ensure the train can pass through the turnout normally.

security guard

◆ Offside Protection

When the vehicle exceeds the parking space without stopping, the protection activates and immediately halts the operation of the "poleless rope".

◆ Overspeed Protection

When the "infinite rope" exceeds the speed limit or slips, the protection mechanism activates to immediately stop its operation.

◆ Tension Drop Protection

When the system loses constant tension due to factors such as slackness of the traction steel wire rope, the equipment cannot operate safely, and the system will automatically stop running.

◆ Brake Failure Protection

Before the motor starts, the brake must be released, meaning it should be in a non-braked state. If the brake is not released promptly before the motor starts, the motor will not start.

◆ Automatic Speed Limit Brake Protection

When the train speed exceeds the preset value, the brake automatically engages to stop the train, with immediate locking and alarm.

◆ Reducer Oil Temperature Protection

When the temperature of the reducer oil exceeds the preset value, the protection activates, causing the equipment to shut down immediately with an alarm.

◆ Down Slope Point Anti Run Rope Protection

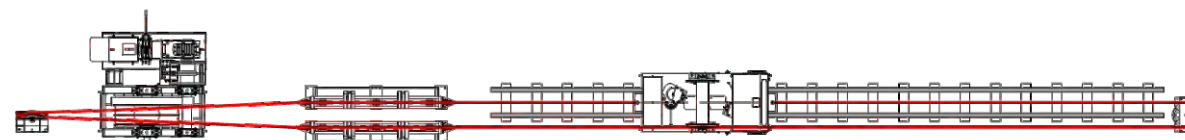
In the changeable slope, the load of the up and down roadway may cause the steel wire rope to detach from the rope wheel, which will affect the safe operation of the equipment.

The down slope point anti-run rope protection structure is simple and reliable, and can effectively ensure that the wire rope does not detach from the rope pressure wheel.

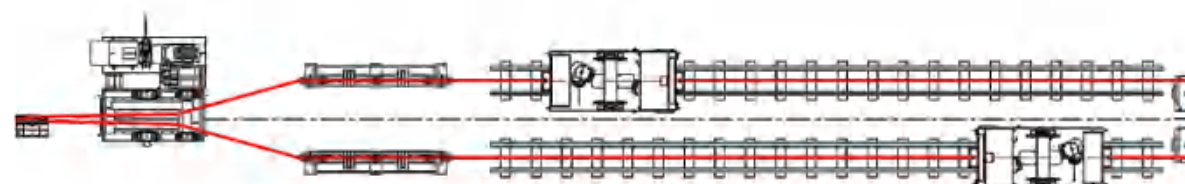
layout

According to the traction mode of wire rope, it is divided into single rope traction and double rope traction. According to the arrangement of the track, it is divided into single track two-way transportation and double track two-way transportation.

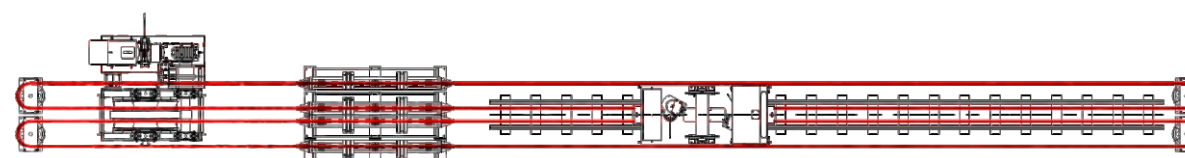
▲ single track single rope bi-directional transport



▲ dual track single rope bi-directional transport



▲ single track double rope bidirectional transport



▲ Technical Parameters Table of Single Rope Traction Rail Car in Coal Mine

Technical parameter name		Technical parameter											
Main engine	Model	KSP120/132PL (A)	KSP130/160PL (A)	KSP130/200PL (A)	KSP160/160PL (A)	KSP160/200PL (A)	KSP160/280PL (A)	KSP160/315PL (A)					
	Maximum drawbar pull (kN)	120	130	130	160	160	160	160					
	Cargo Transporter	90	100	100	100	100	100	100					
	Traction speed (m/s)	1.2	1.2	1	1	1	1	0.9					
	Over-speed protection limit (m/s)	1.5	1.5	1.3	1.3	1.3	1.3	1.1					
	Mode of speed regulation	Frequency control	Frequency control	Frequency control	Frequency control	Frequency control	Frequency control	Frequency control					
	Winch drum diameter (mm)	1400	1600	1600	1600	1600	1600	1600					
	Motor power (kW)	132	160	200	160	200	280	315					
	Long	3052	3252	3252	3252	3376	3376	3376					
	Wide	3078	3078	3078	3078	3178	3178	3178					
	Winch size (mm)	1663	1863	1863	1863	1915	1915	1915					
	Gao	1400-2500	1192-2500	1192-2500	1475-2500	1475-2500	1475-2500	1475-2500					
	Hauling distance (m)	1400-2500	1192-2500	1192-2500	1475-2500	1475-2500	1475-2500	1475-2500					
	Maximum transport slope (°)	18											
	Minimum horizontal turning radius (m)	9											
Wire rope	Minimum vertical turning radius (m)	15											
	Specifications	6×19S-1670											
	Diameter (mm)	28	30	32	32	32	32	32					
	Minimum breaking force (kN)	432	496	564	564	564	564	645					
	Track type (kg/m)	24、30、38											
Number of people and vehicles	Gauge (mm)	600/900											
		3											
	Single-person vehicle capacity	15	15	15	15	15	15	15					
	Load capacity of a single truck (t)	35	40	45	40	45	45	45					
	The slope is ≤18°	24	26	26	26	26	26	26					
Maximum towing weight (t)	The slope is ≤15°	26	30	30	30	30	30	30					
	The slope is ≤10°	35	40	40	40	40	40	40					
	Slope ≤ 5°	40	40	40	40	40	40	40					

▲ Technical Parameters Table 2 of Double Rope Traction Rail Car in Coal Mine

Technical parameter name		Technical parameter											
Main engine	Model	KSP2 × 80/160PS (A)	KSP2 × 80/200PS (A)	KSP2 × 80/250PS (A)	KSP2 × 80/315PS (A)	KSP2 × 120/400PS (A)	KSP2 × 140/560PS (A)						
	Maximum drawbar pull (kN)	160	160	160	160	220	280						
	Cargo Transporter	100	100	100	100	100	100						
	Traction speed (m/s)	1	1	1	0.9	0.9	0.8						
	Over-speed protection limit (m/s)	1.3	1.3	1.3	1.1	1.1	1						
Hauling distance (m)	Mode of speed regulation	Frequency control	Frequency control	Frequency control	Frequency control	Frequency control	Frequency control						
	Winch drum diameter (mm)	1600	1600	1600	1600	1600	1600						
	Power of motor (kW)	160	200	250	315	400	560						
	Long	3376	3376	3376	3376	3476	3480						
	Wide	3078	3078	3078	3078	3178	3250						
Hauling distance (m)	Winch size (mm)	1965	1965	1965	1965	2066	2066						
	Gao	1037-2500	1037-2500	1037-2500	1037-2500	1400-2500	1400-2500						
	Maximum transport slope (°)	18											
	Minimum horizontal turning radius (m)	9											
	Minimum vertical turning radius (m)	15											
Wire rope	Specifications	6 × 19S-1670											
	Diameter (mm)	26	26	26	26	28	30						
	Minimum breaking force (kN)	372	372	372	372	432	496						
Track type (kg/m)		24、30、38											
Gauge (mm)		600/900											
Number of people and vehicles													
Single-person vehicle capacity		15	15	15	15	15	15						
Load capacity of a single truck (t)		40	45	45	45	45	45						
Maximum towing weight (t)	The slope is ≤18°.	26	26	26	26	26	26						
	The slope is ≤15°.	30	30	30	30	30	30						
	The slope is ≤10°.	40	40	40	40	40	40						
	Slope ≤ 5°	40	40	40	40	40	40						