DEEPLY CULTIVATING THE MINING INDUSTRY AS A CRAFTSMAN STANDING FIRM LIKE A ROCK FOR A CENTURY

Hebi Wanfeng Mining Machinery Manufacturing Co.Ltd.

+86 138 3921 2896

+86 138 3921 2896

info@wf-cn.com

https://www.Mininghoist.com https://www.wf-cn.com

Qibin District, Hebi City, Henan Province, at the intersection of Heqi Avenue and Xin'an Jiang Road.

Product manual

Hebi Wanfeng Mining Machinery Manufacturing Co.Ltd.

Wanfeng's Eternal and Unchanging Mission

為礦山服
牢記安全
不忘諾言
務

Mining Equipment Total Solution Expert

CONTENT

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In 1985, as the winds of reform and opening-up swept across the central plains, Wanfeng machinery embarked on its journey in the beautiful land of Hebi. Overcoming challenges and striving forward, The company has pursued its dream of brand development and corporate growth.

Embarking on the path of brand building, Wanfeng has become a large-scale, comprehensive, and robust professional manufacturer of mining equipment with outstanding products. The company was among the first to obtain ISO9001 quality management system certification, occupational health and safety management system certification, environmental management system certification, and EU CE certification. Over 300 products have earned national mandatory certifications for mining equipment(ma and ka) and received provincial honors as high-tech innovative products. Wanfeng vigorously implements a talent-driven strategy, attracting top-tier technical professionals from china's machinery manufacturing sector to build a comprehensive, innovative, and forward-thinking technical team.

Located in Hebi city's urban-rural integration demonstration zone and Shancheng district, Henan province, the company occupies a total area of 130,000 square meters. It possesses over 200 units of modern specialized production and testing equipment, with total assets exceeding 470 million yuan and a workforce of over 300 employees. Wanfeng is a modern machinery manufacturing enterprise integrating r&d, production, sales, and service.

The company manufactures mining equipment including JKMD and JKM series multi-rope friction hoists, JK and JKB single-rope winding mine hoists, JTP and JTPB mining winches, JZ series sinking winches, sinking headframes, permanent headframes, vertical shaft movable metal formwork, central swivel rock grab, hooks, buckets, sheaves, mine cars, and electrical automation systems.

Wanfeng machinery delivers cutting-edge technical services, one-stop equipment solutions, and comprehensive support for product installation and after-sales service. Trusted by domestic and international clients, Wanfeng machinery has become the preferred choice for numerous mining industry customers. As a leader in mechanical manufacturing,Wanfeng machinery has consistently championed technological innovation since its inception, manufacturing more efficient, safer, and sustainable premium products while providing superior service.

Exquisite production techniques, standardized quality inspection procedures, professional technical services, integrity in contract fulfillment, efficient execution, and dedicated service—all relentlessly pursued! This is Wanfeng's enduring mission to global customers.

130000㎡
Covering area

470 million+
Total assets

380 employees+
Active employees

256 units
Testing equipment

40 只争朝夕 不负韶华

（1985–2025）

1985

October 1985
Hebi Shilin Great Wall Mining Machinery Factory was established.

2006

March 2006
Hebi Wanfeng Mining Machinery Manufacturing Co., Ltd. established
August 2006
Obtained ISO 9001 Quality Management System Certification
December 2006
Hebi City, Henan Province JTP Series and JK Series
Single/Double Drum Winches and Hoists launched into the market

2007

October 2007
Obtained National Security Mark Certification for the product
MA.KA Certificate

2014

November 2014
Obtained the Certificate of Product Import and Export Qualification

2015

January 2015
Products exported to Africa, South America,2014Europe, and other regions July 2015
Designated as a Henan Province E- commerce Enterprise by the Henan Provincial Department of Commerce
December 2015November 2014
Obtained the Certificate of Product Import and Export QualificationEstablished Henan Wanfeng Machinery Manufacturing Co., Ltd.

2018

August 18, 2018
Issued by the Henan Provincial Work Safety Supervision Administration
Certificate of Level II Work Safety Standardization Enterprise

2019

February 2019
Awarded Municipal Civilized and Trustworthy Enterprise Title
April 2019
Products Obtained EU CECertification
November 2019
Company Signed Industry-Academia-Research Collaboration Agreement with Taiyuan University of Science and Technology
December 2019
Awarded Hebi Trustworthy Small and Medium Enterprise Certificate

2025

High-Tech Enterprise
Henan Provincial Specialized, Refined, Distinctive, and Innovative Enterprise
Henan Provincial Intelligent Mine Hoist Engineering Technology R&D Center
Three Management System Certifications

A

PRODUCT CENTER

Mine Hoist Series Products

JKMD Floor–mounted multi–rope friction mine hoist

Product Overview

The multi-rope friction hoist mainly consists of a motor, reducer, friction wheel, braking system, depth indicator, speed and overspeed protection

system, and control system. It can be driven by either an AC or DC motor. When using a low-speed motor, the reducer is not required, as the motor can be directly connected to the drum spindle, or the motor rotor can be mounted at the end of the drum spindle.

The braking system is a critical component to ensure safe hoist operation. In emergency situations, the hydraulic braking system provides a two- stage adjustable braking torque, allowing the hoist to stop safely and smoothly without excessive impact. For AC motor-driven hoists, the braking system also features highly sensitive torque adjustment to precisely control the operating speed when approaching the stopping point.

According to installation type, multi-rope friction hoists are divided into tower-mounted and floor-mounted models. They are mainly used in coal mines, metal mines, and non-metal mines for vertical shaft lifting of materials, personnel, and equipment.

Since the supporting electrical equipment is non-explosion-proof, these hoists are not suitable for environments with gas, coal dust, or other flammable and explosive media.

The JKMD and JKM series floor-mounted multi-rope friction hoists are designed and manufactured in compliance with: Q/HBWF006-2024 (Enterprise Standard for Multi-rope Friction Hoists)

AQ1036-2007 (Safety Inspection Specifications for Multi-rope Friction Hoists in Coal Mines) GB/T10599-2023 (National Standard for Multi-rope Friction Hoists)Coal Mine Safety Regulations

This hoist adopts the principle of flexible friction transmission. The wire rope is wrapped around the friction pulley, and the lifting or lowering of heavy loads and personnel is achieved through the frictional force between the rope and the friction lining.

JKMD Technical Specifications–Floor–mounted Multi–rope Friction Hoists

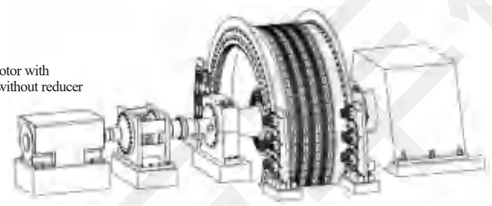
No.	Product Model	Friction Wheel Diameter	Number of Wire Ropes	Friction Factor	Maximum Static Tension of Wire Rope	Maximum Static Tension Difference of Wire Rope	Maximum Wire Rope Diameter	Spacing of Wire Ropes	Maximum Hoisting Speed		Sheave Diameter	Wire Rope Inclination Angle
									With Reducer	Without Reducer		
		m	Rope(s)		kN	kN	mm	mm	m/s		m	(∘)
1	JKMD1.6x4	1.60	4	0.25	120	35	16	250	8.0	16.0	1. 60	40至90
2	JKMD–1.85x4	1.85			180	55	20		10.0		1.85	
3	JKMD–2 x 4	2.00			215	65	22				2.00	
4	JKMD–2.25x4	2.25			280	80	24				2.25	
5	JKMD–2.6x4	2.60			330	100	28	300	15.0		2.60	
6	JKMD–2.8x4	2.80			420	120	30				2.80	
7	JKMD–3x4	3.00			480	140	32				3.00	
8	JKMD–3.25 x4	3.25			620	180	36				3.25	
9	JKMD–3.5x4	3.50			700	200	38				3.50	
10	JKMD–3.5 x6		6		1050	300			—	18.0		
11	JKMD–4x4	4.00	4		950	270	44	350			4.00	
12	JKMD–4 x6		6		1400	400						
13	JKMD–4.5 x4	4.50	4		1200	350	50				4.50	
14	JKMD–4.5x6		6		1750	500						
15	JKMD–5x4	5.00	4		1400	400	54				5.00	
16	JKMD–5 x6		6		2000	600						
17	JKMD–5.5 x4	5.50	4		1750	500	60				5.50	
18	JKMD–5.5x6		6		2400	700						
19	JKMD–5.7x4	5.70	4		1850	530	62				5.70	
20	JKMD–6x4	6.00			2000	600	66			20.0	6.00	
21	JKMD–6x6		6		2700	700						
22	JKMD–6.2x4	6.20	4		2200	630	68				6.20	
23	JKMD–6.5x4	6.50			2500	700	72				6.50	
24	JKMD–6.5x6		6		3250	900		400				
25	JKMD–6.75x4	6.75	4		2650	730	74				6.75	
26	JKMD–6.75x6		6		3500	900						
27	JKMD–7x4	7	4		2800	800	76				7.00	
28	JKMD–7x6		6		3750	1000		425				
29	JKMD–7.5x4	7.50	4		3200	900	82				7.50	
30	JKMD–7.5x6		6		4450	1200						

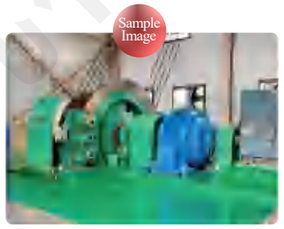
The product specifications listed in this table are the preferred specifications.
During selection, if the anti-slip calculation of the system does not meet the requirements, the entire hoisting system may be adjusted. If the requirements are still not met, select the next higher specification.
For large multi-rope friction hoists with high installed power, where single-drive transmission cannot meet operational requirements, TypeIV dual-motor drive is preferred.

Product Model Examples

JK MD - □ × □ □ □

- Improvement Serial Number
- Drive Type Code:I – Single motor with reducer II – Dual motor with reducer III – Single motor without reducer IV – Dualmotor without reducer
- Number of Wire Ropes
- Friction Wheel Diameter (m)
- D – Floor-mounted, Tower-mounted – no designation
- Friction Type
- Mine Shaft
- Winch Type

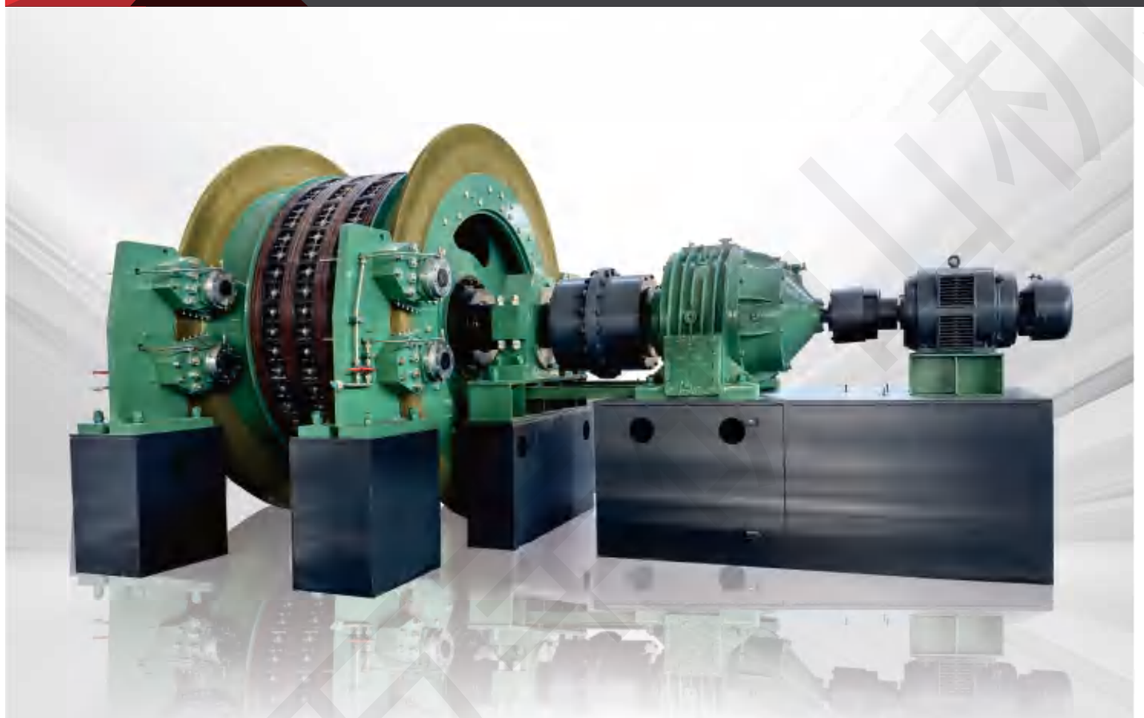




Example: For a friction wheel diameter of 2.8m with 4 wire ropes, the product model for a single-motor, gear-reducer-equipped, variable-frequency speed-regulated, floor-mounted, multi-ropefriction hoist is: JKMD-2.8×4P I;

Example: For a friction wheel diameter of 3.25m with 4 steel ropes, the product model for a single-motor, gear-reducer-equipped, variable-frequency speed-regulated, floor-mounted, multi-ropefriction hoist is: JKMD-3.25×4P I;

JKM Tower-mounted Multi-rope Friction Hoist



Product Overview

The multi-rope friction hoist primarily consists of a motor, reducer, friction wheel, braking system, depth indicator, speed and overspeed protection system, and control system. It can be driven by either an AC or DC motor. When a low-speed motor is used, a reducer may not be required, as the motor can be directly connected to the drum spindle, or the motor rotor can be mounted at the end of the drum spindle.

The braking system is a critical component for safe hoist operation. In emergencies, the hydraulic braking system provides a two-stage adjustable braking torque to ensure timely stopping without excessive impact. For AC motor-driven hoists, the braking system also features sensitive torque adjustment to accurately control speed near the stopping point.

Based on installation type, multi-rope friction mine hoists are divided into tower-mounted and floor-mounted models. They are mainly used in coal mines, metal mines, and non-metal mines for vertical shaft lifting of materials, personnel, and equipment. As the associated electrical equipment is non-explosion-proof, these hoists are not suitable for environments containing gas, coal dust, or other flammable and explosive media.

The JKMD and JKM series multi-rope friction hoists are designed and manufactured in accordance with: Q/HBWF006-2024 – Enterprise Standard for Multi-rope Friction Hoists AQ1036-2007 – Safety Inspection Specifications for Multi-rope Friction Hoists in Coal Mines GB/T10599-2023 – National Standard for Multi-rope Friction Hoists Coal Mine Safety Regulations

These hoists adopt the principle of flexible friction transmission, where wire ropes are placed over the friction wheel. Lifting or lowering of heavy loads and personnel is achieved through the frictional force between the wire ropes and friction lining.

JKM Technical Specifications–Tower-mounted Multi-rope Friction Hoists

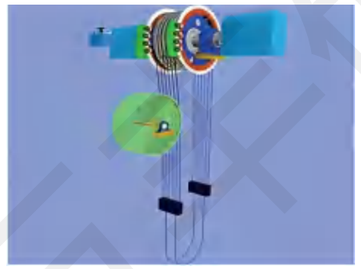
No.	Product Model	Friction Wheel Diameter	Number of Wire Ropes	Coefficient of Friction	Maximum Static Tension of Wire Rope		Maximum Static Tension Difference of Wire Rope	Maximum Wire Rope Diameter		Spacing of Wire Ropes	Max. Lifting Speed		Guide Sheave
					With Guide Sheaves	Without Guide Sheaves		With Guide Sheaves	Without Guide Sheaves		With Reducer	With out Reducer	
		m	Rope(s)		kN			mm			m/s		m
1	JKM-1.3x4	1.30	4		—	150	40	—	16	200	5.0	—	—
2	JKM-1.6x4	1.60			—	165	50	—	20		8.0		
3	JKM-1.85x4	1.85			180	200	55/60	20	22		10.0	16.0	⩾0.08d
4	JKM-2x4	2.00			215		65	22					
5	JKM-2.25x4	2.25			280		80	24					
6	JKM-2.8x4	2.80	4		420		120	30		250	15.0		
7	JKM-2.8x6		6		620		180						
8	JKM-3 x4	3.00	4		480		140	32		300			
9	JKM-3x6		6		740		220						
10	JKM-3.25x4	3.25	4	0.25	620		180	36					
11	JKM-3.5x4	3.50	4		700	—	200	38	—		—	18.0	
12	JKM-3.5x6		6		1050		300						
13	JKM-4x4	4.00	4		950		270	44					
14	JKM-4x6		6		1400		400						
15	JKM-4.5x4	4.50	4		1200		350	50					
16	JKM-4.5x6		6		1750		500						
17	JKM-5x4	5.00	4		1400		400	54					
18	JKM-5 x6		6		2000		600						
19	JKM-5 x8		8		2550		700						

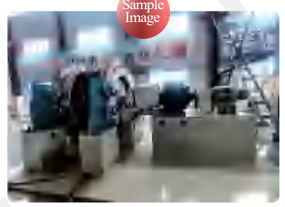
1. In Max. Static Tension Difference (Serial No. 3, JKM-1.85×4), numerator = with guide sheaves, denominator = without guide sheaves.
2. The table lists preferred product specifications.
3. d = selected wire rope diameter (mm).
4. If the anti-calculation fails, adjust the hoisting system or select the next higher spec.
5. For high-power, large hoists, where a single drive is insufficient, the Type IV dual-motor drive is preferred.

Product Model Examples

JKM-□×□□□

- Improvement Serial Number
- Drive Type Code:I – Single motor with reducer II – Dual motor with reducer III – Single motor without reducer IV – Dualmotor without reducer
- Number of Wire Ropes
- Friction Wheel Diameter (m)
- Friction Type
- Mine Shaft
- Winch Type





Example: A multi-rope friction hoist with a friction pulley diameter of 1.85m, four steel ropes, and a single motor with a speed reducer and variable frequency speed control is model JKM-1.85×4P I.
Example: A multi-rope friction hoist with a friction pulley diameter of 2.25m, four steel ropes, and a single motor with a speed reducer and variable frequency speed control is model JKM-2.25×4P I.

JK Single–rope Winding Mine Hoist

Product Overview

The electric motor transmits power to the drum winding the wire rope through a reducer, enabling the hoisting and lowering of containers. Speed regulation is achieved via electrical control. The disc brake is hydraulically and electrically controlled. Depth indication of the hoisting container is provided by various position-indicating systems. A combined mechanical,electrical, and hydraulic control system, including sensors and control components, monitors and protects the hoist. Information transfer inside and outside the hoist is realized using computer and network technology.

The JK and 2JK series single-rope winding hoists are mainly used in vertical or inclined shafts of coal, metal, and non-metal mines for lifting coal, materials, personnel, and lowering equipment or other cargo. They can also be used for other traction and transport applications.

These hoists are designed and manufactured in accordance with:

Q/HBWF003-2016 – Enterprise Standard for Single-rope Winding Mine Hoists

AQ1035-2007 – Safety Inspection Specification for Single-rope Winding Hoists in Coal Mines

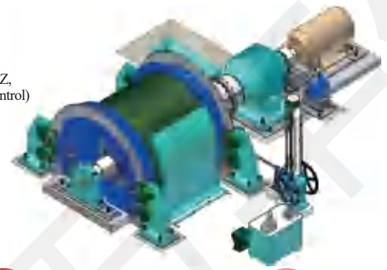
GB/T20961-2018 – National Standard for Single-rope Winding Mine Hoists

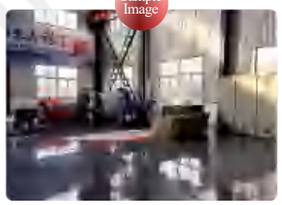
Coal Mine Safety Regulations

Product Model Examples

2JKB - □×□□□

- Improvement Serial Number
- Additional Features (VFD = P, DC Speed Control = Z, Switched Reluctance = D, No mark for Resistive Control)
- Drum Width (m)
- Drum Diameter (m)
- Explosion-proof (No mark for Non-explosion-proof)
- Mine Hoist
- Winch Type
- Double Drum (No mark for Single Drum)





Example: A double-reel, simple-rope mine hoist with a drum diameter of 3.0m and a width of 1.5m, using variable frequency drive is model number 2JK-3.0x1.5P.

Example: A single-reel, simple-rope mine hoist with a drum diameter of 2.5m and a width of 2.0m, using variable frequency drive is model number JK-2.5x2.0P.

JK Technical Parameters Table for Single–rope Winding Mine Hoists

No.	Product Model	Hoisting Drum			Max. Static Tension	Wire Rope Max Diameter	Hoisting Height / Transport Length			Max Lifting Speed
		Quantity	Diameter	Width			HSingle-layer	Double-layer	Triple-layer	
		piece(s)	m		kN	mm	m			m/s
1	JK–2X1.5P	1	2.0	1.50	60	25	280	605	962	7.0
2	JK–2X1.8P			1.80			350	746	1176	
3	JK–2X2P			2.00			390	826	1305	
4	JK–2.5X2P		2.5	2.00	90	31	393	832	1312	9.0
5	JK–2.5X2.3P			2.30			463	974	1528	
6	JK–3X2.2P		3.0	2.20	130	37	435	917	1447	12.0
7	JK–3X2.5P			2.50			506	1060	1664	
8	JK–3.5X2.5P		3.5	2.50	170	43	501	1049	1654	12.0
9	JK–3.5X2.8P			2.80			572	1193	1871	
10	JK–4X2.2P		4.0	2.20	245	50	415	875	1395	14.0
11	JK–4X2.5P			2.25			470	990	1576	
12	JK–4X2.7P			2.70			532	1110	1752	
13	JK–4X3P			3.00			560	1188	1890	
14	JK–4.5X3P		4.5	3.00	280	56	597	1242	1958	
15	JK–5X3P		5.0	3.00	350	62	593	1232	1948	
16	JK–5X3.5P			3.50			710	1469	2307	

Notes:
The Maximum Hoisting Height or Inclined Length is a reference value calculated based on the maximum wire rope diameter.
The Maximum Hoisting Speed is based on a single-layer winding calculation.
The product specifications listed in this table are the preferred specifications.

2JK Single–rope winding type mine hoist

Product Overview

The motor transmits power to the drum via a reducer to wind the wire rope, enabling the lifting and lowering ofcontainers. Speed regulation is achieved through electrical control, while the disc brake is operated by a combined hydraulic and electrical system. Various position indicators provide accurate depth indication of the container. Acoordinated mechanical, electrical, and hydraulic control system ensures full monitoring and protection of the hoist, with computer and network technology enabling seamless internal and external data communication.

The JK and 2JK series single-rope winding mine hoists are mainly used in vertical or inclined shafts of coal, metal, and non-metal mines for hoisting coal, materials, personnel, and equipment. They can also be used for other traction and transportation purposes.

These series are designed and manufactured in accordance with the enterprise standard Q/HBWF003-2016(Single-Rope Winding Mine Hoist), the industry standard AQ1035-2007 (Safety Inspection Code for Single-Rope Winding Mine Hoists for Coal Mines), the national standard GB/T20961-2018 (Single-Rope Winding Mine Hoist), and the Coal Mine Safety Regulations.

2JK Technical Parameters of Single–Rope Winding Mine Hoist

No.	Product Model	Drum				Max Static Tension	Max Static Tension Diff	Maximum Wire Rope Diameter	Hoisting Height / Transport Length			Maximum Hoisting Speed
		Quantity	Diameter	Width	Double Drum Distance				HSingle-layer	Double-layer	Triple-layer	
		piece(s)	m		mm	kN	kN	mm	m			m/s
1	2JK–2X1P	2	2.0	1.00	1090	60	40	25	163	369	605	7.0
2	2JK–2X1.25P			1.25	1340				222	487	784	
3	2JK–2X1.5P			1.50	1590				245	554	908	
4	2JK–2.5X1.2P		2.5	1.20	1290	90	55	31	205	453	738	9.0
5	2JK–2.5X1.5P			1.50	1590				276	595	953	
6	2JK–2.5X1.8P			1.80	1890				332	715	1145	
7	2JK–3X1.5P		3.0	1.50	1590	130	80	37	270	584	942	12.0
8	2JK–3X1.8P			1.80	1890				341	727	1159	
9	2JK–3X2P			2.00	2090				378	807	1286	
10	2JK–3X2.2P			2.20	2290				416	888	1415	
11	2JK–3.5X1.7P		3.5	1.70	1790	170	115	43	312	667	1074	
12	2JK–3.5X2.1P			2.10	2190				407	858	1364	
13	2JK–3.5X2.4P			2.40	2490				464	978	1555	
14	2JK–3.5X2.6P			2.60	2690				502	1056	1680	
15	2JK–4X1.7P		4.0	1.70	1790	245	165	50	318	670	1072	14.0
16	2JK–4X2.1P			2.10	2190				392	828	1324	
17	2JK–4.5X2.2P			2.20	2290	280	185	56	410	864	1385	
18	2JK–5X2.3P		5.0	2.30	2390	350	230	62	429	900	1446	
19	2JK–5.5X2.4P		5.5	2.40	2490	425	280	68	447	936	1506	
20	2JK–6X2.5P		6.0	2.50	2590	500	320	75	457	957	1543	

Note 1: Maximum lifting height or inclined length is a reference value calculated based on the maximum wire rope diameter.

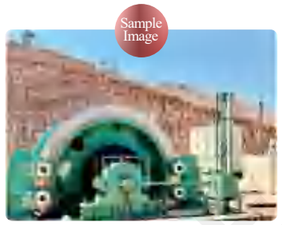
Note 2: Maximum lifting speed is calculated based on one single-layer winding.

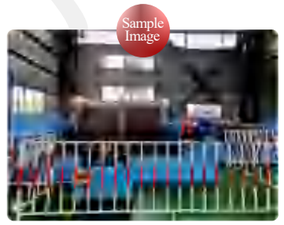
Note 3: The product specifications in this table are the preferred specifications.

Product Model Examples

2JKB - □×□□□

- Improvement Serial Number
- Additional Features (VFD = P, DC Speed Control = Z, Switched Reluctance = D, No mark for Resistive Control)
- Drum Width (m)
- Drum Diameter (m)
- Explosion-proof (No mark for Non-explosion-proof)
- Mine Hoist
- Winch Type
- Double Drum (No mark for Single Drum)





Example: A double-reel, simple-rope mine hoist with a drum diameter of 3.0m and a width of 1.5m, using variable frequency drive is model number 2JK-3.0x1.5P.

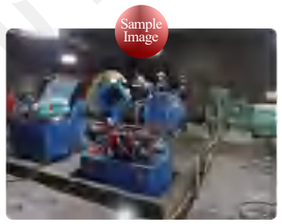
Example: A single-reel, simple-rope mine hoist with a drum diameter of 2.5m and a width of 2.0m, using variable frequency drive is model number JK-2.5x2.0P.

JKB、2JKB Explosion–Proof Single–Rope Winding Hoist

Product Model Examples

2 JK B - □ × □ □ □

- Improvement Serial Number
- Additional Features (VFD = P, DC Speed Control = Z, Switched Reluctance = D, No mark for Resistive Control)
- Drum Width (m)
- Drum Diameter (m)
- Explosion-proof (No mark for Non-explosion-proof)
- Mine Hoist
- Winch Type
- Double Drum (No mark for Single Drum)



Example: A double-drum, single-rope mine hoist with a drum diameter of 3.0m and a width of 1.5m, using variable frequency drive is model number 2JK-3.0x1.5P.

Example: A single-drum, single-rope mine hoist with a drum diameter of 2.5m and a width of 2.0m, using flameproof variable frequency drive is model number JKB-2.5x2.0P.

Product Overview

The JKB series single-rope winding mine hoists are designed for shallow to medium-depth coal, metal, and non-metal mines. They are used for hoisting coal, ore, gangue, personnel, and lowering materials, tools, and equipment from the surface. Depending on user requirements, the hoist's motor control can be configured with Variable Frequency Drive (VFD) speed control.

The JKB and 2JKB series are suitable for vertical or inclined shafts and can also be used for other traction and transport purposes. These hoists are designed and manufactured in accordance with:Enterprise Standard Q/HBWF003-2016 – Single-Rope Winding Mine HoistIndustry Standard AQ1035-2007 – Safety Inspection Code for Single-Rope Winding Hoists for Coal Mines National Standard GB/T20961-2007 – Single-Rope Winding Mine HoistCoal Mine Safety Regulations

Powered by an electric motor, the hoist uses a coupling, reducer, main shaft, and sheave system as its transmission and working mechanism. Wire ropes lift and lower containers in the shaft, while the brake, depth indicator, and other control systems ensure stable operation.

The motor speed is adjusted via the reducer to give the drum the desired rotational speed, allowing the wire rope and attached container to move at the required linear speed. For double-drum hoists, the floating drum can rotate relative to the fixed drum to achieve rope adjustment.

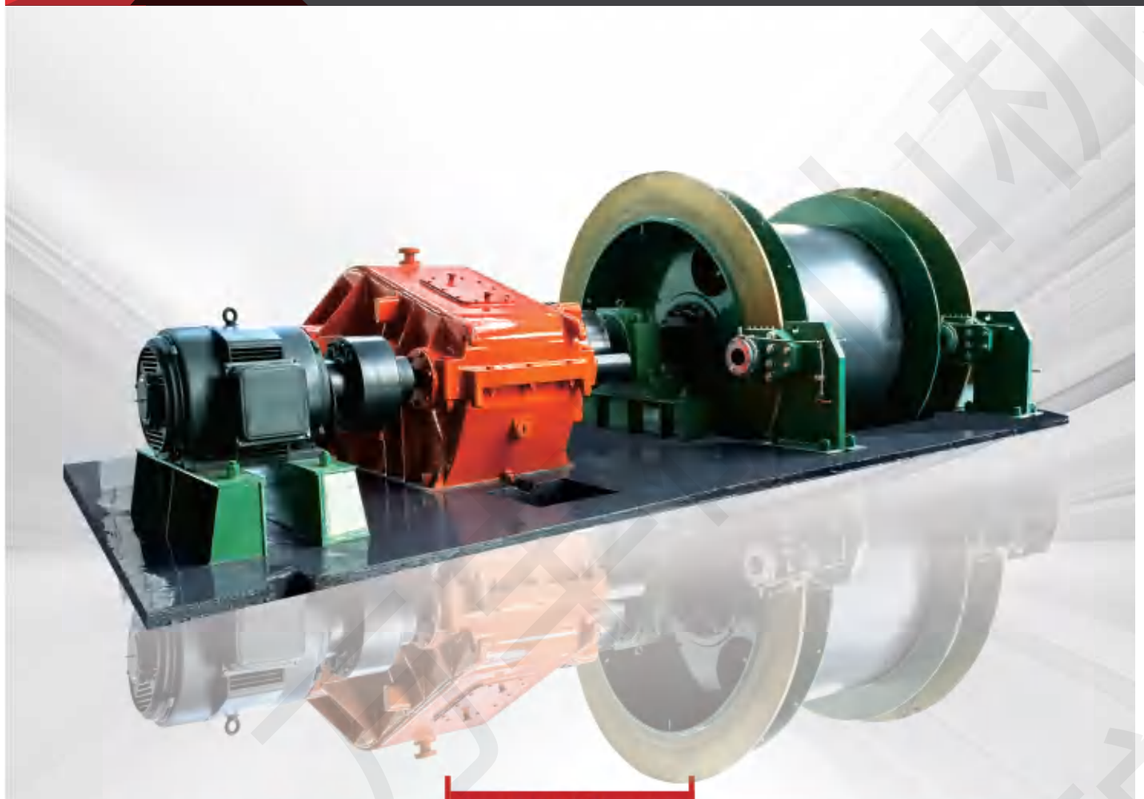
JKB、2JKB Technical Parameters–Explosion–proof Single–Rope Winding Hoist

No.	Product Model	Drum				Max Static Tension	Max Static Tension Diff	Maximum Wire Rope Diameter	Hoisting Height / Transport Length			Maximum Hoisting Speed
		Quantity	Diameter	Width	Double Drum Distance				HSingle-layer	Double-layer	Triple-layer	
		piece(s)	m		mm	kN	kN	mm	m			m/s
1	JKB–2X1.5P	1	2.0	1.50	/	60	/	25	280	605	962	7.0
2	JKB–2X1.8P			1.80					350	746	1176	
3	JKB–2X2P			2.00					390	826	1305	
4	JKB–2.5X2P		2.5	2.00		90		31	393	832	1312	9.0
5	JKB–2.5X2.3P			2.30					463	974	1528	
6	JKB–3X2.2P		3.0	2.20		130		37	435	917	1447	12.0
7	JKB–3X2.5P			2.50					506	1060	1664	
8	JKB–3.5X2.8P			2.80					501	1049	1654	
9	2JKB–2X1P	2	2.0	1.00	1090	60	40	25	163	369	605	7.0
10	2JKB–2X1.25P			1.25	1340				222	487	784	
11	2JKB–2.5 X1.2P		2.5	1.20	1290	90	55	31	245	554	908	9.0
12	2JKB–2.5 X1.5P			1.50	1590				205	453	738	
13	2JKB–3 X1.5P		3.0	1.50	1590	130	80	37	276	595	953	12.0
14	2JKB–3 X1.8P			1.80	1890				332	715	1145	
15	2JKB–3.5 X1.7P		3.5	1.70	1790	170	115	43	270	584	942	
16	2JKB–3.5 X2.1P			2.10	2190				341	727	1159	

Note: 1. The maximum hoisting speed is an estimated value based on the nominal diameter of the drum, for one layer of winding.

Note: 2. The maximum hoisting speed of the hoist shall comply with the requirements of Sections 5.2.13 to 5.2.15.

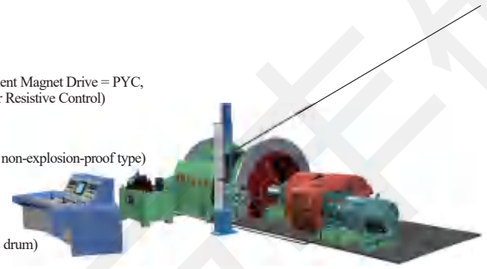
JTP（B）、2JTP（B）Mine Hoist Winch

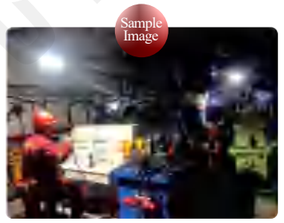


Product Model Examples

□ JTPB - □ × □ □ □

- Improvement Serial Number
- Additional Features (VFD = P, Permanent Magnet Drive = PYC, Switched Reluctance = D, No mark for Resistive Control)
- Drum Width (m)
- Roll diameter, in meters (m)
- Explosion-proof type (not included for non-explosion-proof type)
- Disc Brake
- Mine hoist
- hoist
- Number of Drums (No mark for single drum)





Example: For a single-drum disc brake mining hoist with a drum diameter of 1.2m and width of 1.0m, utilizing variable frequency speed control, the product model is: JTP-1.2x1.0P.

Example: For a single-drum disc brake mining hoist with a drum diameter of 1.6m and width of 1.2m, employing explosion-proof variable frequency speed control, the product model is: JTPB-1.6x1.2P.

Product Overview

The JTP and 2JTP series mining hoists are primarily used in inclined roadways or small vertical shafts of coal mines, metal mines, and non-metal mines for hoisting materials or personnel.

The JTPB mining hoist is a special explosion-proof device designed for flammable and explosive environments (such as gas or coal dust mines), incorporating specialized explosion-proof technology in its structure and safety features.

The JTP and 2JTP series products comply with the following standards: AQ1033-2007 “Safety InspectionSpecifications for JTP Type Mining Winches in Coal Mines” JB/T7888-2010 “Industry Standard for JTP Type Mining Winches in Coal Mines” Q/HBWF004-2017 “JTP Type Mining Winches”

2010 “JTP Type Mining Hoist,” Q/HBWF004-2017 “JTP Type Mining Hoist,” “Coal Mine Safety Regulations,” and GB16423-2020 “Safety Regulations for Metal and Non-Metal Mines.”

When the main motor is started, power is transmitted from the motor rotor to the high-speed shaft of the reducer via an elastic coupling. After transmission and reduction through the reducer, power is then transferred from thereducer's driven shaft to the main shaft assembly via a gear coupling.

By continuously reversing the motor's rotation direction, the drum can either wind or release the steel wire rope, enabling the hoisting container to perform periodic reciprocating vertical movement within the shaft.

JTP(B)、2JTP(B) Technical Specifications Table for Type Mining Hoisting Winch

No.	Product Model	Drum				Max Static Tension	Max Static Tension Diff	Hoisting Height/ Transport Length			wire rope		Motor Speed ≥	Overall dimensions	equipment weight
		Quantity	Diameter	Width	Double Drum Distance			Hsingle -layer	Double -layer	Triple -layer	diameter	Maximum boost speed			
		piece(s)	mm			kN		m			mm	m/s	r/min	m	Kg
1	JTP–1.0X0.8P	1	1000	800	/	20	/	135	275	418	16	1.6	⩽ 1000	4.1X4.0X1.6	6200
2	JTP–1.0X1.0P			1000				169	345	524				4.3X4.0X1.6	6300
3	JTP–1.2X1.0P	1	1200	1000		30	/	165	337	512	20	2.6		5.0x5.0x2.2	8500
4	JTP–1.2X1.2P			1200				199	405	615				5.2x5.0x2.2	8700
5	JTP–1.6X1.2P	1	1600	1200		45	/	216	441	670	24.5	4.1		6.4x5.4x2.2	13200
6	JTP–1.6X1.5P			1500				271	552	838				6.7x5.4x2.2	14000
7	2JTP–1.2X0.8P	2	1200	800	890	30	20	131	268	408	20	2.6		6.2x5.0x2.2	10500
8	2JTP–1.2X1.0P			100	1090			165	337	512				6.6x5.0x2.2	11000
9	2JTP–1.6X0.9P	2	1600	900	990	30	30	160	328	500	24.5	4.1		7.2x5.4x2.2	14500
10	2JTP–1.6X1.2P			1200	1290			216	441	670				7.8x5.4x2.2	15200

Note 1: The maximum hoisting speed is an approximate value based on the nominal diameter of the drum and a single layer of winding.

Note 2: JTPB denotes explosion-proof mining hoisting winches. Their mechanical parameters are identical to the JTP series, with only modifications to the motor, electrical control system, and hydraulic station configuration.

JTK、2JTK Mine Hoist Winch

Product Overview

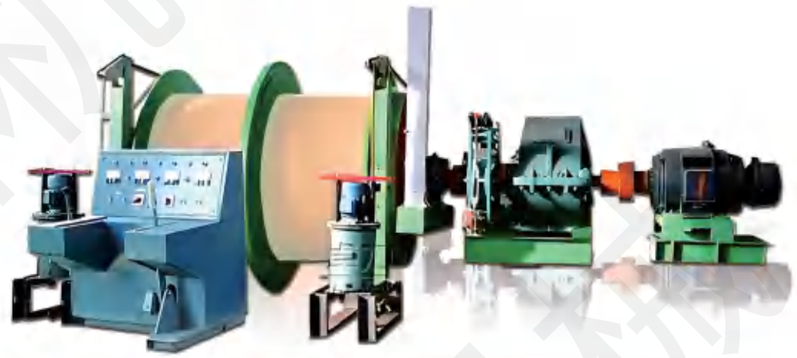
The JTK and 2JTK mine hoist winches consist of the main shaft assembly, safety brake, depth indicator, reducer, working brake system, gear coupling, electric motor, and electrical control system.

These winches are primarily used in coal, metal, and non-metal mines for lifting materials in surface or underground inclined drifts and small vertical shafts.

The JTK / 2JTK series is designed and manufactured in accordance with:

Enterprise Standard Q/HBWF001-2007 – JTK Mine Hoist Winch (HebiWanfeng Mining Machinery Co., Ltd.)

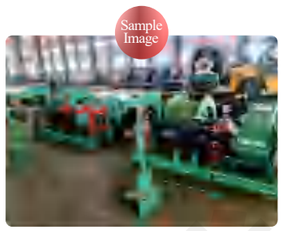
Industry Safety Standard AQ1032-2007 – Safety Inspection Code for JTK Mine Hoist Winch for Coal Mines (PRC)



Product Model Examples

□ J T K - □ × □ □ □

- Improvement Serial Number
- Additional Features (VFD = P, No mark for Resistive Control)
- Drum Width (m)
- Drum Diameter (m)
- Block Brake
- Mine Hoist Winch
- Winch
- Number of Drums (No mark for single drum)



Example: A single-drum block-type mining hoist winch with a drum diameter of 1.0m, a width of 0.8m, and conventional speed regulation is modeled as JTK-1.0x0.8.

Example: A single-drum block-type mining hoist winch with a drum diameter of 1.2m, a width of 1.0m, and variable speed regulation is modeled as JTK-1.2x1.0P.

Example: A double-drum block-type mining hoist winch with a drum diameter of 1.6m, a width of 0.9m, and conventional speed regulation is modeled as 2JTK-1.6x0.9.

JTK、2JTK Mine Hoist Winch–Technical Specifications

No.	Product Model	Drum			maximum static tension (kN)	Maximum statictension difference (kN)	maximum diameter (mm)	Maximum lifting speed (m/s)	Number of winding layers	High maximum lifting height (m/s)
		number	diameter (m)	width (m)						
1	JTK–0.8X0.6	1	0.8	0.6	15	/	14	1.0	3	315
2	JTK–1X0.8	1	1.0	0.8	20	/	16	1.8		426
3	JTK–1.2X1	1	1.2	1.0	30	20	20	2.6		472
4	2JTK–1.2X0.8	2	1.2	0.8	30	/	20	2.6		370
5	JTK–1.2X1.2	1	1.2	1.2	30	20	20	2.6		582
6	2JTK–1.2X1	2	1.2	1.0	30	/	20	2.6		472
7	JTK–1.4X1.2	1	1.4	1.2	35	25	22	2.6		617
8	2JTK–1.4X1	2	1.4	1.0	35	/	22	2.6		505
9	JTK–1.6X1.2	1	1.6	1.2	45	30	26	4.1		601
10	2JTK–1.6X0.9	2	1.6	0.9	45	/	26	4.1		434
11	JTK–1.6X1.5	1	1.6	1.5	45	30	26	4.1		767
12	2JTK–1.6X1.2	2	1.6	1.2	45		26	4.1		601

Note 1: Maximum hoisting height or inclined length is a reference value calculated based on the maximum wire rope diameter.

Note 2: Maximum hoisting speed is calculated for a single-layer winding.

JTP permanent magnet internal and external mining hoisting winch

Product Overview

This series of permanent magnet mining hoists/winches are suitable for lifting materials or personnel in inclined drifts and vertical shafts, both aboveground and underground, in coal, metal, and non-metallic mines.

Permanent magnet mining hoists/winches are available in two configurations, internal and external direct drive, based on their layout and drive structure.

Technical Features: 1、Mature technology, high safety, and excellent reliability; 2、Small footprint, compact structure, and simple foundation; 3、Energy-saving and efficient; 4、Low noise; 5、High transmission efficiency; 6、Easy installation and maintenance.

Technical parameter table of permanent magnet internal and external mining hoist/winch

No.	Product Model	Drum			maximum static tension	Maximum static tension difference	Wire rope diameter	Lifting height or transport length			Maximum lifting speed
		Quantity	Diameter	Width				Hsingle -layer	Double -layer	Triple -layer	
		piece(s)	mm		kN	kN	mm	m			m/s
1	JTP-1.2x1.0PYC	1	1200	1000	30	/	20	134	297	472	2.6
2	JTP-1.2x1.2PYC			1200				168	371	582	
3	JTP-1.6x1.2PYC		1600	1200	45		24	172	382	601	4.1
4	JTP-1.6x1.5PYC			1500				226	491	767	
5	JK-2X1.5PYC		2000	1500	60		25	295	586	914	7
6	JK-2X1.8PYC			1800				366	730	1132	
7	JK-2.5X2PYC		2500	2000	90		31	403	802	1245	9
8	JK-2.5X2.3PYC			2300				473	944	1460	
9	JK-3X2.2PYC		3000	2200	130		37	447	887	1378	12
10	JK-3X2.5PYC			2500				518	1030	1595	
11	JK-3.5X2.5PYC		3500	2500	170		43	582	1185	1798	12
12	JK-3.5X2.8PYC			2800				648	1318	2000	

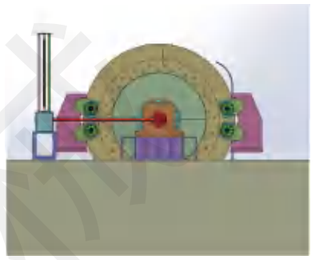
Note 1: Max hoisting speed is based on nominal drum diameter with single-layer

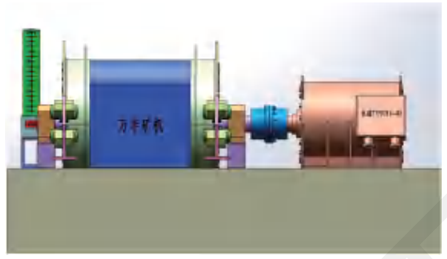
Note 2: Max hoisting speed must not exceed the specified limit.

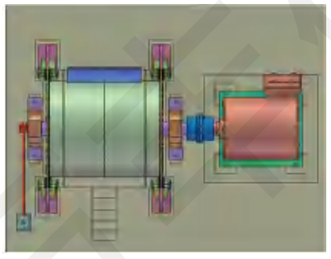
Note 3: Hoisting height/length is calculated with max rope diameter.

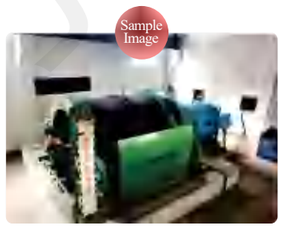
Note 4: Drum/rope diameter ratio ⩾80 (surface hoist), ⩾60 (underground hoist).

Product Model Examples









Example: A single-drum, disc-type, permanent magnet motor mining hoist winch with a drum diameter of 1.2 meters, a width of 1.0 meters, and a variable frequency drive is modeled as JTP-1.2X1.0PYC.
Example: A single-drum, disc-type, permanent magnet motor mining hoist winch with a drum diameter of 1.6 meters, a width of 1.2 meters, and a variable frequency drive is modeled as JTP-1.6X1.2PYC.

B

PRODUCT CENTER

Well Drilling Construction Series Products

JZ series sinking winch

Product Overview

The JZ series sinking winch is mainly used in coal mines, metal mines, and non-metal mines for vertical shaft construction. It is designed for suspending sinking platforms, pumps, ventilation ducts, compressed air pipes, grouting pipes, and other excavation equipment, as well as for

tensioning guide ropes. It can also be used for replacing the wire ropes of multi-rope friction hoists, temporary shaft hoisting, and for lifting heavy objects both underground and on the surface. This hoist is intended for short-term duty and is not suitable for continuous heavy-load operation. Carrying personnel is strictly prohibited.

The product is designed and manufactured in accordance with Q/HBWFJZ001 “Shaft Sinking Hoist”, AQ 1031-2007 “Safety Inspection Specifications for Shaft Sinking Hoists Used in Coal Mines”, and GB/T 15112-2007 “Shaft Sinking Hoist”.Working Principle:

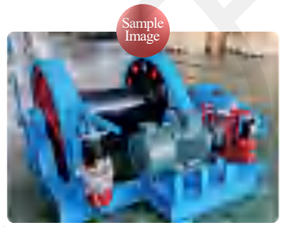
When the main motor is started, the motor rotor transmits power through an elastic coupling to the high-speed shaft of the reducer. After speed reduction, the torque is transferred via a crosshead coupling to the main shaft assembly, driving the drum to wind or unwind the wire rope. By

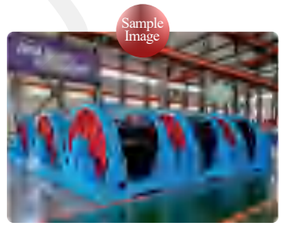
reversing the motor direction, the drum enables periodic reciprocating motion of the load, ensuring continuous torque supply to meet operational requirements.

Product Model Examples

□ JZ □-XX/XXX □

- Improvement No. (Disc brake P; band brake not marked)
- Drum Capacity (m)
- Maximum Static Tension of Wire Rope (10 kN)
- A indicates it is used for hoisting a safety ladder.
- Shaft Sinking Hoist
- Hoisting Winch
- Number of Drums (single drum not marked)





Example: A single-drum belt brake sinking winch with a maximum static wire rope tension of 100 kN and a drum capacity of 800 m is designated as JZ-10/800.

Example: A single-drum disc brake sinking winch with a maximum static wire rope tension of 160 kN and a drum capacity of 1000 m is designated as JZ-16/1000P.

JZ TECHNICAL PARAMETER TABLE OF SHAFT SINKING HOIST

Category	No.	Product Model	maximum static tension (kN)	Drum Rope Capacity (m)	Drum Diameter (mm)	First-Layer Wire Rope Speed (m/s)	Wire Rope Diameter (m/s)	Motor	
								Power (m/s)	Voltage (V)
shaft sinking winch with brake	1	JZ–5/400	50	400	630	0.250	24	11	380
	2	JZ–5/600		600					
	3	JZ–5/1000		1000					
	4	JZ–10/600	100	600	800		32	22	
	5	JZ–10/800		800					
	6	JZ–10/1000		1000					
	7	JZ–16/800	160	800	1000		40	30	
	8	JZ–16/1000		1000					
	9	JZ–16/1300		1300					
	10	JZ–16/1320		1320					
	11	JZ–16/1500		1500					
	12	JZ–16/1600		1600					
	13	JZ–16/1800		1800					
	14	JZ–16/2120		2120					
	15	JZ–25/1000	250	1000	1050		52	45	
	16	JZ–25/1300		1300					
	17	JZ–25/1320		1320					
	18	JZ–25/1500		1500					
	19	JZ–25/1600		1600					
	20	JZ–25/1800		1800					
	21	JZ–40/1300	400	1300	1250		60	75	
	22	JZ–40/1500		1500					
	23	JZ–40/1600		1600					
	24	JZ–40/1800		1800					
	25	JZ–40/2000		2000					
drilling winch disc brake	26	JZ–5/600P	50	600	630	0.075	24	11	
	27	JZ–5/1000P		1000					
	28	JZ–10/600P	100	600	800		32	22	
	29	JZ–10/800P		800					
	30	JZ–10/1000P		1000					
	31	JZ–16/800P	160	800	1000		40	30	
	32	JZ–16/1000P		1000					
	33	JZ–16/1300P		1300					
	34	JZ–16/1500P		1500					
	35	JZ–16/1600P		1600					
	36	JZ–16/1800P		1800					
	37	JZ–16/2120P		2120					
	38	JZ–25/1300P	250	1300	1050		52	45	
	39	JZ–25/1500P		1500					
	40	JZ–25/1800P		1800					
	41	JZ–40/1500P		1500			60	75	
	42	JZ–40/1600P		1600					
	43	JZ–40/1800P		1800					
	44	JZ–40/2500P		2500					

Note: This series of shaft sinking hoists is available in two braking types: band brake and disc brake.
Note: The matching electric control speed regulation methods are available in two options: conventional and frequency conversion.

2JZseries sinking winch

Product Overview

The JZ Series Shaft Sinking Winch is primarily used in coal mines, metal mines, and non-metallic mineral shafts for suspending hoisting pans, water pumps, air ducts, compressed air pipes, grouting pipes, ventilation ducts, and other shaft-sinking equipment, as well as for tensioning and stabilizing ropes. It can also be employed for other underground and surface heavy-lifting tasks. Additionally, it is suitable for replacing steel wire ropes connecting multi-rope friction hoists and can temporarily serve as a shaft winch.

This winch is designed for short-term operation and is not intended for continuous heavy-duty lifting. Under no circumstances should it be used for transporting personnel.

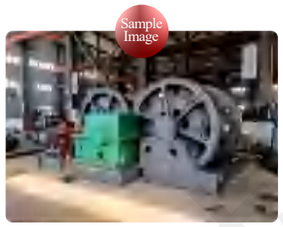
The winch is manufactured in accordance with the enterprise standard Q/HBWFJZ001 “Shaft Sinking Winch” of Hebi Wanfeng Mining Machinery Manufacturing Co., Ltd., as well as the national safety production standards AQ 1031-2007 “Safety Inspection Code for Shaft Sinking Winches for Coal Mines” and GB/T 15112-2007 “Shaft Sinking Winches.”

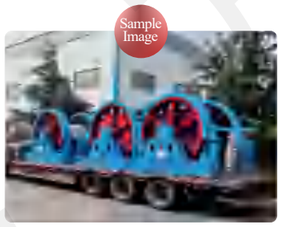
When the main motor is started, power is transmitted from the motor rotor to the high-speed shaft of the reducer via an elastic coupling. After speed reduction in the reducer, torque is delivered through a cross-slide coupling on the reducer’s output shaft to the main shaft assembly. By reversing the motor rotation, the drum can wind or unwind the wire rope, enabling periodic reciprocating movement of the hoisted load. The winch is designed to continuously provide the torque required for hoist operation.

Product Model Examples

□ JZ □-××/××× □

- Improvement No. (Disc brake P; band brake not marked)
- Drum Capacity (m)
- Maximum Static Tension of Wire Rope (10 kN)
- A indicates it is used for hoisting a safety ladder.
- Shaft Sinking Hoist
- Hoisting Winch
- Number of Drums (single drum not marked)





Example: The maximum static tension of the wire rope is 250kN, the drum rope capacity is 1300m. A double-drum band brake sinking winch is designated as 2JZ-25/1300.

2JZ Technical Specifications of Shaft Sinking Winch

Category	No.	Product Model	maximum static tension (kN)	Drum Rope Capacity (m)	Drum Diameter (mm)	First-Layer Wire Rope Speed (m/s)	Wire Rope Diameter (m/s)	Motor	
								Power (m/s)	Voltage (V)
Double-drum sinking winch with brake	1	2JZ–10/800	100	800	800	0.075	32	37	380
	2	2JZ–10/1000		1000					
	3	2JZ–16/800	160	800	1000		40	55	
	4	2JZ–16/1000		1000					
	5	2JZ–16/1300		1300					
	6	2JZ–16/1320		1320					
	7	2JZ–25/1300	250	1300	1050		52	90	
	8	2JZ–25/1320		1320					
	9	2JZ–25/1500		1500					
	10	2JZ–25/1600		1600					
	11	2JZ–25/1800		1800					

Note: There are two types of electronic speed control: ordinary and variable frequency.

JZA Type Shaft Sinking Winch

Product Overview

The JZA Series Shaft Sinking Winch is primarily used in coal mines, metal mines, and non-metallic mineral shafts for suspending hoisting pans,water pumps, air ducts, compressed air pipes, grouting pipes, ventilation ducts, and other shaft-sinking equipment, as well as for tensioning and stabilizing ropes. It can also be used for other underground and surface heavy-lifting tasks. Additionally, it is suitable for replacing steel wire ropes connecting multi-rope friction hoists and can temporarily serve as a shaft winch.This winch is designed for short-term operation and is not

intended for continuous heavy-duty lifting.The winch is manufactured in accordance with the enterprise standard Q/HBWFJZ001 “Shaft Sinking Winch” of Hebi Wanfeng Mining Machinery Manufacturing Co., Ltd., and the national safety production standards AQ 1031-2007 “Safety Inspection Code for Shaft Sinking Winches for Coal Mines” and GB/T 15112-2007 “Shaft Sinking Winches.”

Safety Ladder Shaft Sinking Winch Operation:The winch can operate both with and without power. It supports three modes of operation: electric, manual, and motor-driven (via belt pulley).

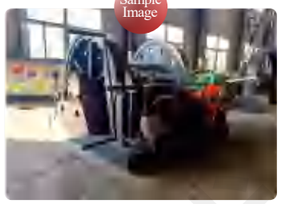
Operation during power outage:Turn off the power switch.Lower the brake pawl located directly behind the large gear and ensure it is fully engaged. Release the push rod of the electric brake.Install the factory-supplied handles on both ends of the reducer’s high-speed shaft (one handle on top, one on bottom). Only after properly installing the handles can operation begin.

Operation with power:After manual operation is complete: Remove the handles.Adjust the electric brake and hydraulic actuator push rod to their original released positions. Raise the pawl behind the gear. Confirm all steps are correctly completed before powering the winch. Important: During manual operation, a dedicated person must be responsible for controlling the power switch.

Product Model Examples

□ JZ □-XX/XXX □

- Improvement Code
- Drum Capacity (m)
- Maximum Static Tension of Wire Rope (10 kN)
  A indicates it is used for hoisting a safety ladder.
- M represents friction type winding type omitted
- Shaft Sinking Hoist
- Hoisting Winch
- Number of Drums (single drum not marked)



Example: A single-drum sinking winch with a maximum static wire rope tension of 100kN and a drum capacity of 800m is designated as JZ-10/800.

Example: A double-drum sinking winch with a maximum static wire rope tension of 160kN and a drum capacity of 800m is designated as 2JZ-16/800.

Example: A sinking winch used for hoisting a safety ladder with a maximum static wire rope tension of 50kN and a drum capacity of 1000m is designated as JZA-5/1000.

JZA Technical Specifications of Shaft Sinking Winch

Category	No.	Product Model	maximum static tension (kN)	Drum Rope Capacity (m)	Drum Diameter (mm)	First-Layer Wire Rope Speed (m/s)	Wire Rope Diameter (m/s)	Motor	
								Power (m/s)	Voltage (V)
with brake safety winch	1	JZA-5/1000	50	1000	630	0.250	26	22	380
	2	JZA-5/1300		1300					
	3	JZA-10/1500	100	1500	850			37	

Note: There are two types of electronic speed control: ordinary and variable frequency.

JKZ 、2JKZ Model: Shaft Hoist Winch

Product Overview

This series of products is designed for use in coal mines, metal mines, and non-metallic mineral shafts for hoisting personnel, materials, and equipment during shaft sinking operations.

The JKZ Series Shaft Hoist Winch is designed and manufactured in accordance with the following standards: JB/T 12193-2015 – Shaft Hoist Winch (PRC Safety Production Industry Standard)AQ 1035-2007 – Safety Inspection Code for Single-Rope Winding Mine Hoists in Coal Mines GB/T 20961-2018 – Single-Rope Winding Mine HoistQ/HBWF015-2023 – Enterprise Standard of Hebi Wanfeng Mining Machinery Manufacturing Co., Ltd.

Coal Mine Safety Regulations Main Components:The winch mainly consists of the main shaft assembly, rope adjustment mechanism (double-drum), disc brake system, hydraulic station, lubrication station, depth indicator, reducer, speed measurement device, elastic coupling, gear coupling, electric motor, control console, and electrical control system.

Operating Principle:When the main motor starts, power is transmitted from the motor rotor to the high-speed shaft of the reducer via an elastic coupling. After speed reduction through the reducer, torque is delivered via a gear coupling on the reducer's output shaft to the main shaft assembly. By continuously changing the motor rotation direction, the drum can wind or unwind the wire rope, enabling the hoisting container to perform periodic reciprocating movement in the shaft.

Product Model Examples

2 J K Z - □ × □ □ □

- Improvement Serial Number
- Additional Feature (Variable frequency speed regulation = "P"; resistance speed regulation not indicated)
- Drum Width (m)
- Drum Diameter (m)
- Shaft Sinking (Sinking)
- Mine (Mining)
- Hoist Winch Category (Hoist)
- Double Drum (Single Drum omitted)

Example 1: A single-drum drilling hoist with a drum diameter of 2.8m and a width of 2.2m is model JKZ-2.8×2.2P.

Example 2: A double-drum drilling hoist with a drum diameter of 3m and a width of 1.8m is model 2JKZ-3×1.8P.

JKZ、2JKZ Technical Specifications of Shaft Hoist Winch

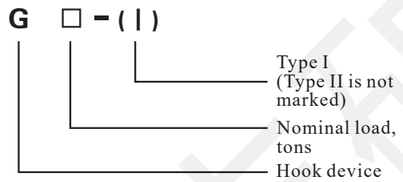
No.	Product Model	Drum			maximum static tension	maximum static tension difference	maximum Wire rope diameter	Hoisting Height /Transport Length			Wire Rope Capacity	MotorSpeed (Not Exceeding)
		Quantity	Diameter	Width				First Layer	Second Layer	Third Layer		
		piece(s)	mm		kN		mm	m			m/s	r/min
1	JKZ–2.8 × 2.2P	1	2.8	2.2	180	/	40	380	797	1259	5.68	750
2	JKZ–3.2 × 2.6P		3.2	2.6	200		42	515	1065	1663		
3	JKZ–3.2X3P			3				595	1229	1919	6.48	
4	JKZ–3.6X3P		3.6		220		44	633	1306	2038	7.30	
5	JKZ–4X3P		4		285		50	611	1261	1976	7.85	600
6	JKZ–4X3.5P			3.5	285		50	728	1497	2332		
7	JKZ–4.5X3.7P		4.5	3.7	340		56	780	1590	2490	7.94	
8	JKZ–5X4P		5	4	410		62	900	2000	2700	7.85	
9	JKZ–5.5X5P		5.5	5	500		75	990	2000	3100	8.64	
10	2JKZ–3X1.8P	2	3	1.8	180	155	40	322	678	1080	6.08	
11	2JKZ–3.6X1.85P		3.6	1.85	220	180	44	360	752	1199	7.30	
12	2JKZ–4X2.65P		4	2.65	285	255	50	530	1097	1726	8.11	
13	2JKZ–5X3P		5	3	410	290	62	610	1260	1959	7.85	
14	2JKZ–5.5X4P		5.5	4	590	410	75	760	1600	2500	8.64	

Note 1: The maximum hoisting height or inclined length is a reference value calculated based on the maximum diameter of the wire rope.
Note 2: The maximum hoisting speed is calculated for the first layer of winding.
Note 3: The maximum hoisting speed indicates only that the equipment is capable of reaching this speed.

05 Hook Head Device

Product Model Examples

Hook head and connecting device, commonly referred to as the hook head assembly,features a simple structure with all components machined from forgings. It serves a single functional purpose: suspending buckets during vertical shaft sinking operations. Select the appropriate hook head model based on the bucket's actual load capacity. Wire ropeconnections are available in two configurations (Type I and Type II). Type I employs a non- eccentric rope guide ring connection; Type II utilizes a tapered sleeve fused to the wirerope using Babbitt alloy casting. The Babbitt alloy casts the tapered sleeve, wedges, and wire rope together, ensuring a secure connection without damaging the wire rope.



Technical Specifications for Hook Head Assembly

No.	Product Model	Nominal load	total height	Hook opening diameter	Thrust Bearing Model	Hook device weight	Applicable wire rope diameter	Static load test Safety factor	Compatible with Bucket capacity (m^3)	
		t	mm	mm		(kg)	m	≥	Hook	bottom unloading
1	G5|	5	1220 ± 10	90 ± 10	51311	110	26–28	13	2.0	1.6
2	G7|	7	1280 ± 10	100 ± 10	51313	145	31–35		3.0	2.0
3	G9|	9	1400 ± 10	120 ± 10	51413	193	37–40		4.0	3.0
4	G11|	11	1550 ± 10	120 ± 10	51315	300	40–43		5.0	4.0
5	G13|	13	1640 ± 10	130 ± 10	51316	312	44–46		6.0	4.0
6	G15|	15	1650 ± 10	130 ± 10	51317	330	48–52		7.0	/
7	G18|	18	1750 ± 10	130 ± 10	51317	350	45–52		8.0	/
8	G21|	21	1800 ± 10	130 ± 10	51317	400	52–60		8.0	/
9	G5	5	1550 ± 10	90 ± 10	51311	140	26–28		2.0	1.6
10	G7	7	1620 ± 10	100 ± 10	51313	160	31–35		3.0	2.0
11	G9	9	1733 ± 10	120 ± 10	51313	190	37–40		4.0	3.0
12	G11	11	1853 ± 10	120 ± 10	51315	215	40–43		5.0	4.0
13	G13	13	1952 ± 10	130 ± 10	51316	283	44–46		6.0	4.0
14	G15	15	2000 ± 10	130 ± 10	51317	334	48–52		7.0	/
15	G18	18	2070 ± 10	130 ± 10	51317	390	48–52		8.0	/
16	G21	21	2170 ± 10	130 ± 10	51317	420	52–60		8.0	/

MYJ Overall movable metal formwork 06

Product Image Examples




The MJY integral movable metal formwork system comprises the main formwork body, cutting edges, tapered formwork, and hydraulic stripping devices. Its structure exhibits excellent integrity, minimal geometric deformation, and uniform radial shrinkage. Utilizing a hydraulic single-seam stripping mechanism, formwork stripping and erection become effortless. The formwork employs advanced welding techniques, laser cutting, and all-steel plate assembly welding.

The main structure of the shaft-type integral movable metal formwork typically comprises curved metal sections connected to form a single-seam annular structure. Multiple layers are joined to create a rigid formwork with a single contraction opening. Formwork erection and stripping operations are executed via hydraulic pump directional control valves. Based on the number of expansion joints, it is categorized into single- seam and double-seam types.

Overall Template Technical Specifications Table

No.	Product Model	Diameter (m)	Height (m)	Number of blocks (pieces)	Blade Foot Size (mm)
1	MYJ-diameter/height	4.5——13.5	3.2——4.7	9——21	150——350

Note: Designed according to shaft diameter, depth, ground pressure, and concrete thickness. Channel steel can be composite or artificial. Casting inlet: window or circular type.

07 Bottom–dumping bucket

Product Model Examples

The bottom-discharge bucket is specialized equipment used for transporting concrete in vertical shaft construction at mines. It is employed in coal mines,metal mines, non-metal mines, and other vertical shaft constructionscenarios requiring concrete pouring, particularly suitable for frozen ground construction where material delivery pipes cannot be used.

The bottom-discharge bucket primarily consists of the bucket body, bucket beam, sector gate, gate opening/closing handle, and locking mechanism.

T D – □
- Nominal Volume (m^3)
- Bottom-discharge bucket

Technical Specifications for Bottom–Discharge Bucket

No.	Product Model	Volume	Barrel Outer Diameter	Bucket opening diameter	Barrel height	Bucket total height	Discharge Port	Weight
		m^3	mm	mm	mm	mm	mm	kg
1	TD–1.2	1.2	Φ1450	Φ1320	1485	2757	400X400	815
2	TD–1.6	1.6	Φ1450	Φ1320	1730	3004	400X400	882
3	TD–2.0	2.0	Φ1650	Φ1450	1940	3200	400X500	1066
4	TD–2.4	2.4	Φ1650	Φ1450	1965	3340	470X470	1250
5	TD–3	3	Φ1850	Φ1698	2065	3600	470X470	1280
6	TD–4	4	Φ2000	Φ1873	2280	4025	470X470	1800
7	TD–5	5	Φ2150	Φ2000	2400	4400	470X470	2100

Note: 1. Strictly prohibit the use of bottom–discharge buckets for lifting personnel.

08 Bucket with a hook mount

Product Model Examples

The bucket consists of components such as the bucket beam, bucket body, pin shaft, and bucket ears. It serves as the primary container for hoisting waste rock, transporting personnel, and moving materials during the excavation of vertical shafts. It can also be used for dewatering. The seat-hook type bucket is equipped with an automatic waste rock tipping device.

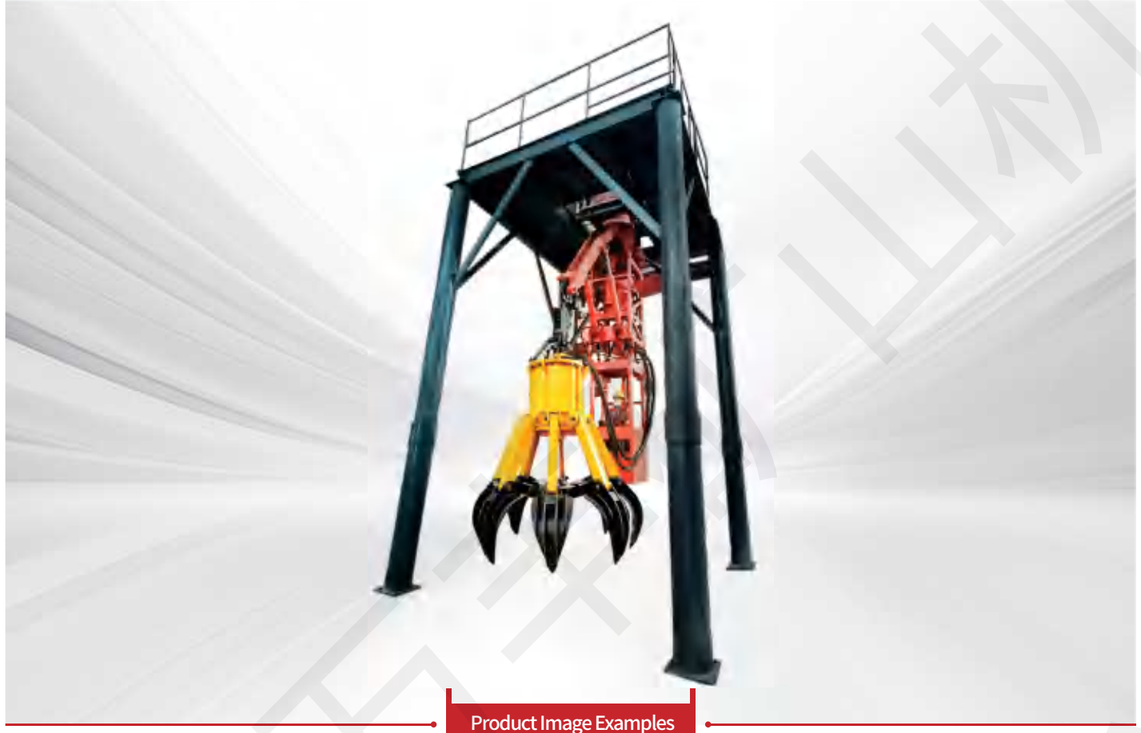
T Z – □
- Nominal Volume (m^3)
- Seat hook type bucket

Technical Specifications for Hook–Type Bucket

No.	Product Model	Volume	Barrel Outer Diameter	Bucket opening diameter	Barrel height	Bucket total height	Discharge Port	Weight
		m^3	mm	mm	mm	mm	mm	kg
1	TZ—1	1	Φ1150	Φ1000	1150	2005	Φ55	348
2	TZ—1.5	1.5	Φ1280	Φ1150	1280	2270	Φ65	478
3	TZ—2	2	Φ1450	Φ1320	1350	2480	Φ70	728
4	TZ—3	3	Φ1650	Φ1450	1650	2890	Φ80	1049
5	TZ—4	4	Φ1850	Φ1630	1700	3080	Φ90	1530
6	TZ—5	5	Φ1850	Φ1630	2100	3480	Φ90	1690
7	TZ—6	6	Φ2000	Φ1800	2120	3705	Φ100	2218
8	TZ—7	7	Φ2000	Φ1800	2440	4025	Φ100	2375
9	TZ—8	8	Φ2000	Φ1800	2750	4325	Φ100	2500

Note: 1. During operation, designated personnel shall inspect the bucket beam, pins, lugs, and rivet welds.

HZ–6(4) Central Slewing Grab Loader



Product Image Examples

Product Image Examples

Our company's HZ-6(4) Central Rotary Rock Grabber represents a major upgrade over previous models, featuring significant improvements to the slewing bearing, steering knuckle, and booster cylinder. Its structure is more rational, performance more stable, maintenance requirements lower, and service life longer. It is now widely used in theconstruction of vertical shafts for coal mines, metal mines, and non-metal mines across the country. Its superior product quality and comprehensive after-sales service have earned high praise from users.

Technical Specifications for the HZ–6 Central Rotary Rock Grabber

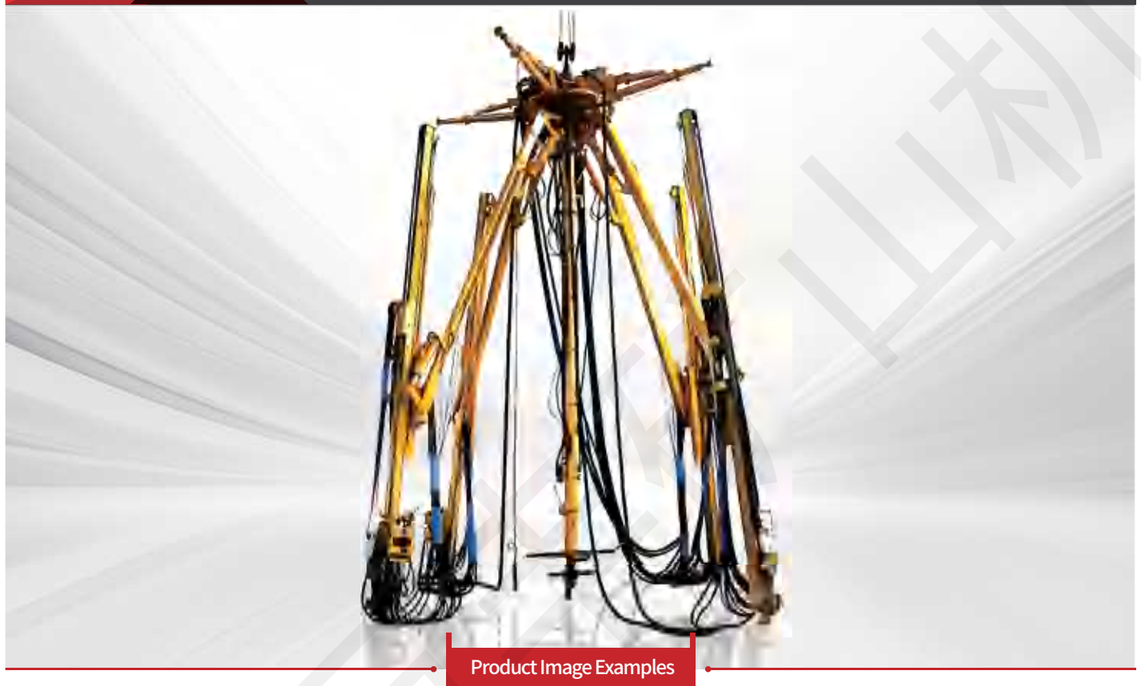
No.	Product Model	Enhance capabilities (kg)	Acceleration (m/s)	Starter motor power (kW)	Rotation angle	Grab capacity (m^3)	Working pressure (Mpa)	Use shaft Diameter (m)	Productivity (m^3/h)	Machine quality (kg) (Includes 2grapples)
1	HZ—4A	1100	0.2–0.4	≈22	>360°	0.4	0.5–0.7	⩾4	30–40	9400
2	HZ—6A	1100	0.2–0.4	≈22	>360°	0.6	0.5–0.7	⩾4	50–60	10700

The grab bucket is specialized equipment for mine shaft sinking, primarily used to scoop loose rock and minerals from blasting operations within vertical shafts where rock size is less than 500 millimeters. It can also be used to remove soft topsoil layers. The 0.6m grab bucket offers advantages such as high strength, rapid operation,excellent sealing performance, and high rock-grabbing efficiency, making it widely adopted in the shaft sinking industry.

Technical Specifications Table for Rock Grab and Matching Grapple

No.	Volume (m^3)	Cylinder Diameter (mm)	Piston stroke (mm)	Number of sheets grabbed (sheets)	Gripper Opening Outer Diameter (mm)	Clamping Plate Closure Outer Diameter (mm)	Compressed Air Working Pressure (Mpa)	Dimensions (Closed) (mm)	Weight (kg)
1	0.4	500	575	8	⩾1965	1300	0.5–0.7	ϕ1300×2200	1800
2	0.6	600	620	8	⩾2500	1600	0.5–0.7	ϕ1600×2500	2500

FJD Series vertical shaft umbrella drilling rig



Product Image Examples

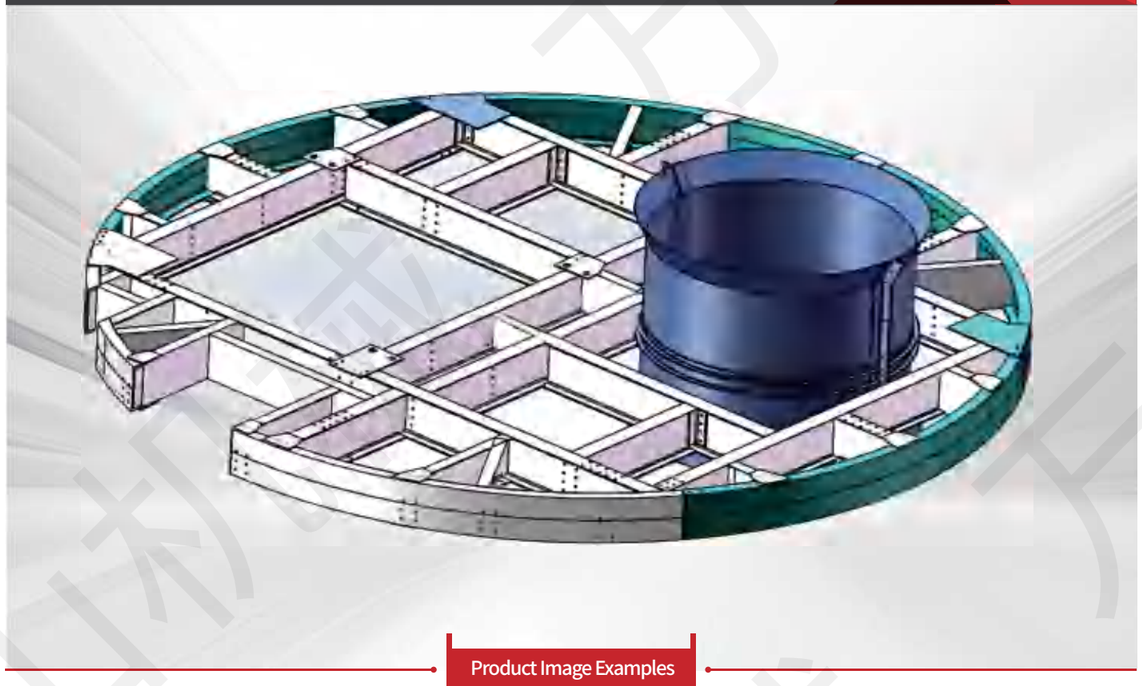
This series of vertical shaft drilling rigs is specialized equipment developed for constructing vertical shafts in mine construction. It accommodates a wide range of shaft diameters, offers flexible operation, and ensures precise positioning. Powered by compressed air and utilizing hydraulic transmission, the rig mechanizes all movements of the drill frame. The pneumatic rock drill features a long thrust stroke. Combined with a parallel- moving mechanism, this enhances drilling accuracy and efficiency, significantly reducing auxiliary work time and boosting overall productivity by 30%.

The hydraulic station employs a pneumatic motor to drive the oil pump. A multi-way valve centrally controls all cylinders, enabling column fixation within the shaft and positioning of the pusher at the working face. Hydraulic locks at each cylinder inlet/outlet ensure precise positioning. The combination of a rigid boom and pusher, along with the parallel movement mechanism, enhances drilling accuracy and efficiency while reducing physical labor for operators. The cylinder-wire rope advancement system allows adjustable thrust force, delivers substantial bit extraction power, and operates smoothly to accommodate varying rock hardness at the working face. Compared to pneumatic motor-screw advancement systems, it reduces the number of pneumatic motors required, lowering overall machine noise. All cylinders except the advancement cylinder are standard types, facilitating maintenance.

FJD Series Vertical Shaft Drilling Rig Basic Technical Parameters Table

Product Model	Applicable Wellbore Diameter (m)	Collapsed Dimensio (m)	Number of booms	support range	Swing Arm Angle (°)	swinging mode	Drilling Range (m)	Rock drill	form of power	Oil Pump Powe kw	Work Pressure Mpa	Advance Itinerary (m)	Working Pressure Mpa	Air consumption m³/min	Drill rod Length (m)	Drill bit Diameter mm	Gross weight kg	Working Water Pressure Mpa	Tapered Tail Specifications mm	Total inlet pipe inner diameter	Total Inlet Pipe ID
FJD6.7	6-8	Φ1.9×7.2	6	Positioned as per requirement	120	hydraulic cylinder	Φ1.65–8.2	6/YGZ70	windmotor oil pump	5.8	10–14	4.3	0.5–0.7	68	4.7	Φ38–55	7800	0.3–0.5	Hexagonal Hole 25×159	Φ102	Φ32
FJD6.9	8-9	Φ1.9×8	6		120		Φ1.65–9.5	6/YGZ70		5.8	12–14	5.3	0.5–0.7	68	5.7	Φ38–55	8200	0.3–0.5			
FJD6.10	8-10	Φ1.9×8	6		120		Φ1.65–10.5	6/YGZ70		5.8	12–14	5.3	0.5–0.7	68	5.7	Φ38–55	8700	0.3–0.5			
FJD6.11	9–11	Φ1.9×8	6		120		Φ1.7–11.5	6/YGZ70		5.8	12–14	5.3	0.5–0.7	68	5.7	Φ38–55	9000	0.3–0.5			
FJD8.12	10-12	Φ2.25×8.1	8		96		Φ1.7–11.5 Φ1.7–13.5	8/YGZ70		5.8	12–14	5.3	0.5–0.7	100	5.7	Φ38–55	12000	0.3–0.5			

Shaft Sinking Hanging Platform



Product Image Examples

suspension tray stabilizer

The shaft sinking hoist platform serves as the core platform for support, equipment installation, and personnel operations in vertical shaft construction. Featuring a double-layer or multi-layer steel structure design, it employs a wire rope suspension system for lifting functions. Constructed with I-beammain girders, channel steel secondary girders, and anti-slip steel plates, it typically maintains a layer spacing of 4-6 meters and can be equipped with construction machinery such as rock grabs and horizontal pumps. Primarily responsible for tasks such as shaft wall masonry, anchor bolt installation, and guide rail beam positioning, it also serves as an operational platform for construction personnel and a transport passage for equipment. Suitable for vertical shaft projects in coal mines, tunnels, and similar environments, it is essential during both excavation and permanent equipment installation phases. It is particularly valuable during combined operations, enabling simultaneous wall masonry and equipment installation. During vertical shaft construction, the platform is secured against the shaft wall via rotatable adjustment wheels, ensuring stability during operations. The tightening force of these wheels directly controls platform elevation, eliminating the need for time-consuming platform positioning and securing procedures.

Advantages of the Hoist Platform Fixer:

1. Simple and convenient operation;
2. Rotatable, elastic adjustment wheels cause no damage to shaft walls;
3. Direct hoist platform lifting/lowering saves time on platform adjustment and securing, enhancing efficiency;
4. The hoist platform remains constantly braced, ensuring reliable stability;
5. Suitable for construction on outer walls with deep frozen deformation cross-sections and both inner/outer shaft walls.

Drilling Rig Technical Specifications Table

Suspension platform diameter (m)	Number Of Floors	Interlayer spacing (m)	Number of support columns (units)	Number Of Fixtures Per Layer (pieces)
3.5–12	2–3	4–6	4–8	4–8

Fixed Sheave

Product Image Examples




Product Overview

Sheaves can be categorized based on their application into three types: fixed sheaves, traveling sheaves, and shaft hoisting sheaves. Structurally, they can be divided into welded and cast designs.

The fixed sheave serves as a core component in lifting, hoisting, and conveying operations. Its performance is characterized by structural stability, load-bearing capacity, wear resistance, operational reliability, and ease of maintenance. These qualities make the fixed sheave a reliable and durable key transmission component, capable of supporting efficient operations under complex working conditions.

Fixed Skywheel Technical Parameters

No.	Fixed Sheave Model	Wire rope diameter (mm)	Skywheel Diameter (m)
1	TLG–1200	12.5–21.5mm	1.2m
2	TLG–1600	18.5–26.0mm	1. 6m
3	TLG–2000	20.0–28.0mm	2.0m
4	TLG–2500	26.0–32.0mm	2. 5m
5	TLG–3000	32.0–40.0mm	3.0m
6	TLG–3500	36.0–45.0mm	3.5m
7	TLG–4000	45.0–52.0mm	4.0m
8	TLG–4500	52.0–60.0mm	4. 5m

Hoisting Sheave Technical Specifications

No.	Fixed Sheave Model	Wire rope diameter (mm)	Skywheel Diameter (m)
1	MZS1.1–0–1.2	20mm	1.2m
2	MZS1.1–0–1.6	26mm	1. 6m
3	MZS1.1–0–2.0	31mm	2.0m
4	MZS1.1–0–2.5	40mm	2. 5m
5	MZS1.1–0–3.0	46mm	3. 0m
6	MZS1.1–0–3.5	50mm	3. 5m
7	MZS1.1–0–4.0	56mm	4.0m
8	MZS1.1–0–5.0	62mm	5.0m

Movable Head Sheave

Product Image Examples




Product Overview

As a type of mining sheave, the core function of a traveling sheave is to support the wire rope connecting the hoist drum and the hoisting container while guiding its direction. Unlike fixed sheaves, the drum of a traveling sheave can not only rotate but also move axially. This characteristic makes it particularly suitable for scenarios requiring dynamic adjustment, such as inclined shaft hoisting with multiple cars. Floating sheaves effectively adapt to the movement characteristics and stress conditions of steel ropes in this hoisting method, ensuring safe and efficient lifting operations.

Moving Skywheel Technical Specifications

No.	Swimming Skywheel Model	Wire rope diameter (mm)	Diameter of the celestial wheel(m)	swimming distance (mm)	No.	Swimming Skywheel Model	Wire rope diameter (mm)	Diameter of the celestial wheel(m)	swimming distance (mm)
1	TD–800/700	16.0–21.5mm	0.8m	700mm	7	TD–1400/800	24.5–32.0mm	1. 4m	800mm
2	TD–800/1000	16.0–21. 5mm	0.8m	1000mm	8	TD–1400/1350	24.5–32.0mm	1. 4m	1350mm
3	TD–1000/850	20.0–26.0mm	1. 0m	850mm	9	TD–1600/900	24.5–32.0mm	1.6m	900mm
4	TD–1000/1000	20.0–26.0mm	1. 0m	1000mm	10	TD–1600/1350	24.5–32.0mm	1. 6m	1350mm
5	TD–1200/1050	20.0–28.0mm	1. 2m	1050mm	11	TD–2000/1350	28.0–40.0mm	2. 0m	1350mm
6	TD–1200/1200	20.0–28.0mm	1. 2m	1200mm	12	TD–2000/1500	28.0–40.0mm	2.0m	1500mm

Shaft Sinking Suspended Sheave

Product Image Examples

Product Overview

The suspended sheave is specialized equipment used in vertical shaft construction to support and guide the steel wire rope of the sinking winch. Based on the performance of the sinking winch, it is categorized into single-groove and double-groove types.

The single-groove suspended sheave is primarily used for suspending hoisting platforms, form work, and stabilizing ropes, while the double-groove suspended sheave is more commonly employed for suspending ventilation ducts, pipes, and other construction materials and ductwork during construction.

Both double-groove and single-groove pulleys consist primarily of a rope wheel, fixed shaft, and bearing housing. The inner bore of the rope wheel is fitted with an alloy copper bushing. During operation, the pulley rotates around the shaft. An oil cup is mounted on the hub to lubricate the interface between the shaft and the copper bushing. The double-groove pulley features two rope wheels separated by an adjustment ring, allowing for the regulation of the distance between the two wheels.

Technical parameters of single–slot well sinking suspension sheave

No.	Product Model	Maximum Wire Rope Diameter	Maximum Allowable Static Tension of a Single Wire Rope	Main Dimensions							
				Shaft Diameter	Shaft Journal	Wheel Diameter	Outer Diameter	Axle Base Distance	Shaft Length	Center Height	Bearing Housing Bolt Hole Dimensions (Φ×A×B)
1	MZS2.1–0–1X0.5	23	50(5)	90	70	500	595	280	430	90	26X70X220
2	MZS2.1–0–1X0.65	31	100(10)	100	85	650	775	340	490	100	26X70X250
3	MZS2.1–0–1X0.8	40	160(16)	120	100	800	960	400	560	110	26X80X280
4	MZS2.1–0–1X1.05	52	250(25)	150	120	1050	1260	460	620	120	26X80X300
5	MZS2.1–0–1X1.25	60.5	400(40)	180	140	1250	1495	520	680	140	26X80X330

Double–Groove Shaft Sinking Suspended Sheave Technical Specifications

No.	Product Model	Maximum Wire Rope Diameter	Maximum Allowable Static Tension of a Single Wire Rope	Main Dimensions								
				Shaft Diameter	Wheel Diameter	Outer Diameter	Track Width	Distance Between Shaft Seats	wheelbase	Shaft Length	Center Height	Bearing Housing Bolt Hole Dimensions (Φ×A×B)
				mm								
1	MZS2.2–0–2×0.5 /270–320	23	50(5)	120	500	595	270–320	590–640	160	800	120	26X80X300
2	MZS2.2–0–2×0.5 /630–750	23	50(5)	120	500	595	630–750	950–1070	160	1230	120	26X80X300
3	MZS2.2–0–2×0.65 /270–420	31	100(10)	150	650	775	270–420	630–780	180	940	140	26X80X330
4	MZS2.2–0–2×0.65/630–850	31	100(10)	150	650	775	630–850	990–1210	180	1370	140	26X80X330
5	MZS2.2–0–2×0.8 /270–420	40	160(16)	180	800	960	270–420	670–820	200	990	160	26X80X330
6	MZS2.2–0–2×0.8 /850–960	40	160(16)	180	800	960	850–960	1250–1360	200	1530	160	26X90X370
7	MZS2.2–0–2×1.05 /320–420	52	250(25)	210	1050	1260	320–420	800–900	240	1070	160	26X90X440
8	MZS2.2–0–2×1.05 /850–960	52	250(25)	210	1050	1260	850–960	1330–1440	240	1610	180	26X90X440
9	MZS2.2–0–2×1.25 /320–420	60	400(40)	240	1250	1260	320–420	800–900	240	1070	160	26X90X440
10	MZS2.2–0–2×1.25 /850–960	60	400(40)	240	1250	1260	850–960	1330–1440	240	1610	180	26X90X440

Note: 1. Clean and re-lubricate after use for more than six months.

Note: 2. If the tapered end of the locking screw is damaged, replace it promptly.

Note: 3. Regularly check the lubrication of the alloy copper sleeve and fixed shaft and re-lubricate if necessary.

Shaft Sinking Headframe

Product Image Examples

The vertical shaft sinking headframe series is primarily constructed from steel pipes and structural steel, using welded or bolted connections. The headframe consists of the sheave house, sheave platform, main truss, skip dumping platform, ladders, and foundation.These headframes are designed to accommodate shafts of varying diameters and depths, meeting the specific construction and process requirements. While ensuring strength, rigidity, and stability, the design also emphasizes structural rationality, ease of manufacturing, convenient transportation, installation, and disassembly.

Shaft Sinking Headframe Technical Specifications

No.	Product Model	Applicable Shaft Cylinder Diameter	Height from Base to Sheave Wheel Platform	Headframe Leg Span	Sheave Wheel Platform Dimensions	Weight
		m	m	m	m	t
1	I	3.5–5.0	16.242	10X10	5.5X5.5	25.09
2	II	4.5–6.0	17.250	12x12	6.0X6.0	30.62
3	III	5.0–6.5	17.346	12X12	6.5X6.5	33.07
4	IIIG	5.0–6.5	19.846	12.83X12.83	6.5X6.5	39.47
5	IV	6.0–8.0	21.970	14X14	7.0X7.0	49.39
6	IVG	6.0–8.0	25.870	15.3X15.3	7.0X7.0	58.54
7	V	8.0–9.0	26.364	16X16	7.5X7.5	72.37
8	VI	8.0–10.0	27.078	17.55X17.55	9.05X9.05	110.00
9	VII	10.0–14. 0	29.200	21X21	12X12	215.22

Permanent Headframe

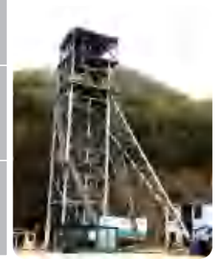
Product Image Examples

The inclined-brace headframe was developed alongside the advancement of ground-based multi-rope friction hoists and single-rope winding hoists. It features a unique design, large span, high mass, simple structure, efficient load distribution, reduced construction work, cost-effectiveness, and

advanced technology.After shaft construction is completed, the shaft-sinking headframe is generally converted into a production headframe to meet the operational needs of the mine. The production headframe plays a crucial role in mining projects, serving as a key facility for safe and efficient hoisting operations.The vertical multi-rope friction headframe is specially designed for mines requiring a multi-rope friction hoisting system. It is mainly used in coal, metal, and non-metallic mineral shafts for hoisting coal, ores, personnel, materials, and equipment.

Inclined–Brace Permanent Headframe

Item Name	Model Number	Applicable Shaft Depth / Height / Capacity
Permanent Headframe / Production Headframe	Box Structure	Custom-Made as per Customer Specifications
Permanent Headframe	Structural Steel Framework	Custom-Made to Customer Specifications
Permanent Headframe	Composite Structure	Custom-Made to Customer Specifications



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PRODUCT CENTER

Drilling Rig Equipments and Products

01 Tipping mine car

Product Image Examples

The tipper mine car features a V-shaped or U-shaped wagon body mounted on a rotating track, allowing the body to tip and unload materials.It is used in mines or construction sites to transport broken or block materials, such as ores, coal, and stones. The car consists of the wagon body, chassis, buffer stops, and wheel axles.The structure is simple, robust, and durable, and materials can be easily unloaded by manually opening the stop plate. Roller bearings on the axles reduce operational resistance, enabling manual movement of the car.

Tipper Mine Car Technical Specifications

No.	Product Model	Volume Capacity	Load Capacity	Track Gauge	Overall Dimensions (mm)			Wheel base	Wheel Diameter	Traction Height	Traction Force	Dumping Angle	Self-Weight
		m^3	t	mm	Length	Width	Height	mm			kN		Kg
1	MFC0.55-6	0.55	0.74	600	1600	850	1150	500	300	320	60	≥40	≤500
2	MFC0.75-6	0.75	1.01	600	1700	980	1250	600	300	320	60	≥40	≤610
3	MFC1.1-6	1.1	1.98	600	2500	1400	1300	800	300	320	60	≥40	≤680
4	MFC1.5-6	1.5	2.7	600	3360	1750	1450	1000	300	320	60	≥40	≤1120
5	YFC0.55-6	0.55	1.38	600	1600	850	1150	500	300	320	60	≥40	≤570
6	YFC0.75-6	0.75	1.88	600	1700	980	1250	600	300	320	60	≥40	≤740
7	YFC1.1-6	1.1	1.98	600	2500	1400	1300	800	300	320	60	≥40	≤900

02 Single-Side Curved-Rail Side-Dump Mine Car

Product Image Examples

The single-side curved-rail side-dump mine car is mainly used in metallurgy, mining, coal mines, railways, highway tunnels, hydraulic culverts, underground mine drifts, and military tunnels for excavation, construction, and simple slag transport.It is composed of wheel sets, chassis, pins, wagon body, unloading curved rail, tipping rollers, door pins, wagon doors, support rods, and other components.

Working Principle:The mine car is pulled by a track locomotive or winch, and unloading occurs only at a curved rail unloading platform. One side of the wagon body is connected to the chassis via a pivot pin, while the opposite side has an unloading roller mounted on the door.During unloading, as the roller moves up the incline of the curved rail, the wagon body tilts, and the pivoting side door opens to release the load. When the roller moves down the slope of the curved rail, the wagon body automatically returns to its original position by gravity, closing the door.Operational Note: When lifting the car from the shaft bottom to the unloading platform, the hoist should slow down on the slope to ensure smoothunloading. The wagon door connection can be either hook-type or rod-type, and the matched unloading curved rail can be half-section or full-section.

Single-Side Curved-Rail Side-Dump Mine Car Technical Specifications

No.	Product Model	Volume Capacity	Load Capacity	Track Gauge	Overall Dimensions (mm)			Wheel base	Wheel Diameter	Traction Height	Traction Force	Dumping Angle	Self-Weight
		m^3	t	mm				mm			kN		Kg
1	M(Y)CC0.7-6	0.7	1.75	600	1650	980	1050	600	300	320	60	≥40	≤800
2	M(Y)CC1.2-6	1.2	3.0	600	1900	1050	1200	600	300	320	60	≥40	≤1000
3	M(Y)CC1.2-7	1.2	3.0	762	1900	1050	1200	600	300	320	60	≥40	≤1000
4	M(Y)CC1.6-6	1.6	4.0	600	2500	1200	1300	800	350	320	60	≥40	≤1610
5	M(Y)CC1.6-7	1.6	4.0	762	2500	1200	1300	800	350	320	60	≥40	≤1610
6	M(Y)CC2-6	2.0	5.0	600	3000	1250	1300	1000	400	320	60	≥40	≤1880
7	M(Y)CC2-7	2.0	5.0	762	3000	1250	1300	1000	400	320	60	≥40	≤1880
8	M(Y)CC2.5-6	2.5	6.25	600	3500	1250	1300	1100	400	320	60	≥40	≤2460
9	M(Y)CC2.5-7	2.5	6.25	762	3500	1250	1300	1100	400	320	60	≥40	≤2460
10	M(Y)CC4-6	4.0	10	600	3900	1400	1650	1300	450	430	60	≥40	≤3200
11	M(Y)CC4-7	4.0	10	762	3900	1400	1650	1300	450	430	60	≥40	≤3200
12	M(Y)CC4-9	4.0	10	900	3900	1400	1650	1300	450	430	60	≥40	≤3300
13	M(Y)CC6-6	6.0	15	600	4800	1530	1505	2000	450	500	60	≥40	≤6400
14	M(Y)CC6-7	6.0	15	762	4800	1530	1505	2000	450	500	60	≥40	≤6400
15	M(Y)CC6-9	6.0	15	900	4800	1530	1505	2000	450	500	60	≥40	≤6400

Note: Mine car usage code (M - coal mine car,Y - metal and non-metal mine car);
Note: Track gauge code (6 represents 600mm, 7 represents 762mm, 9 represents 900mm);

Steel Wire Rope Selection Standards

Product Image Examples

Recommended table for main uses of wire rope

GB8918-2006

Purpose	name	Wire Rope Construction	Remarks
Vertical Shaft Hoisting	Triangular Strand Wire Rope	6VX37S、6VX37、6VX34、6VX30、6VX43、6VX21	
	Strand-Contact Wire Rope	6X19S、6X19W、6X25FI、6X29FI、6X26WS、6X31WS、6X36WS、6X41WS	
	Multi-Layer Strand Wire Rope	18X7、17X7、35WX7、24WX7	Non-Rotating Wire Rope
		6QX19+6VX21 6QX33+6VX21	
Shaft Sinking Hoisting (For Shaft Construction)	Multi-Layer Strand Wire Rope and Special-Shaped Strand Wire Rope	6QX33+6VX21 17X718X7 34X7 36X7 6QX19+6VX21 4VX39S 4VX48S 35WX7 24WX7	Non-Rotating Wire Rope
Vertical Shaft Balance Rope	Wire Rope	6X37S 6X36WS 4VX39S 4VX48S	
	Multi-Layer Strand Wire Rope	17X7 18X7 34X7 36X7 35WX724WX7	
Inclined Shaft Hoisting (Winch)	Triangular Strand Wire Rope	6VX18 6VX19	Inclined Shaft Hoisting Winch
	Wire Rope	6X7 6X9W	
Vertical Shaft Skip and Ropeway	Triangular Strand Wire Rope	6VX18 6VX19	
	Multi-Layer Strand Wire Rope	18X7 17X7	

Wire Rope Mechanical Properties Table

GB8918-2006

Wire rope structure:6x7+FC、6x7+IWS、6x7+IWR、6x9W+FC、6x9W+IWS

Wire rope Nominal diameter (mm)	Wire Rope Reference Weight (ka/100m) Tolerance: 1% + 50			Nominal tensile strength of wire rope/MPa							
				1570		1670		1770		1870	
				Minimum breaking force of wire rope/KN							
	Natural Fiber Core Wire Rope	Synthetic Fiber Core Wire Rope	Steel Core Wire Rope	Fiber Core Wire Rope	Steel Core Wire Rope	Fiber Core Wire Rope	Steel Core Wire Rope	Fiber Core Wire Rope	Steel Core Wire Rope	Fiber Core Wire Rope	Steel Core Wire Rope
14	68.8	67.4	75.9	102	110	109	118	115	125	122	132
16	89.9	88.1	99.1	133	144	142	153	150	163	159	172
18	114	111	125	169	183	180	194	190	206	201	218
20	140	138	155	208	225	222	240	235	254	248	269
22	170	166	187	252	273	268	290	284	308	300	325
24	202	198	223	300	325	319	345	338	366	358	387
26	237	233	262	352	381	375	405	397	430	420	454
28	275	270	303	409	442	435	470	461	498	487	526
30	316	310	348	469	507	499	540	529	572	559	604
32	359	352	396	534	577	568	614	602	651	636	687
34	406	398	447	603	652	641	693	679	735	718	776
36	455	446	502	676	730	719	777	762	824	805	870

Wire Rope Mechanical Properties Table

GB8918-2006

Wire rope structure:6x19S+FC、6x19S+1WR、6x19W+FC、6x19W+1WR

Wire rope Nominal diameter (mm)	Wire Rope Reference Weight (ka/100m) Tolerance: 1% + 50			Nominal tensile strength of wire rope/MPa							
				1570		1670		1770		1870	
				Minimum breaking force of wire rope/KN							
	Natural Fiber Core Wire Rope	Synthetic Fiber Core Wire Rope	Steel Core Wire Rope	Fiber Core Wire Rope	Steel Core Wire Rope	Fiber Core Wire Rope	Steel Core Wire Rope	Fiber Core Wire Rope	Steel Core Wire Rope	Fiber Core Wire Rope	Steel Core Wire Rope
14	72.2	70.5	79.5	102	110	108	117	114	124	121	130
16	94.4	92.1	104	133	143	141	152	150	161	158	170
18	119	117	131	168	181	179	193	189	204	200	216
20	147	144	162	207	224	220	238	234	252	247	266
22	178	174	196	251	271	267	288	283	304	299	322
24	212	207	234	298	322	317	342	336	363	355	383
26	249	243	274	350	378	373	402	395	426	417	450
28	289	282	318	406	438	432	466	458	494	484	522
30	332	324	365	466	503	496	535	526	567	555	599
32	377	369	415	531	572	564	609	598	645	632	682
34	426	416	469	599	646	637	687	675	728	713	770
36	478	466	525	671	724	714	770	757	817	800	863
38	532	520	585	748	807	796	858	843	910	891	961
40	590	576	649	829	894	882	951	935	1010	987	1070
Wire Rope Construction： 17x7+FC、17x7+IWS、18x7+FC、18x7+IWS、18x19W+FC、18+19S+FC、18x19+IWS											
14	/	76.4	84.3	95.4	101	101	107	108	114	114	120
16		99.8	110	125	132	133	140	140	149	148	157
18		126	139	158	167	168	177	178	188	188	199
20		156	172	195	206	207	219	219	232	232	245
22		189	208	236	251	251	265	266	281	281	297
24		225	248	280	298	298	316	316	334	334	353
26		264	291	329	350	350	370	371	392	392	415
28		306	337	382	406	406	429	430	455	454	481
30		351	387	438	466	466	493	494	523	522	552
32		399	440	498	530	530	561	562	594	594	628
34		451	497	563	598	598	633	634	671	670	709
36		505	557	631	671	671	710	711	752	751	795
38		563	621	703	748	748	791	792	838	837	886
40		624	688	779	824	828	876	878	929	928	981
42		688	759	859	908	913	966	968	1020	1020	1080
44		755	832	942	997	1000	1060	1060	1120	1120	1190
46		825	910	1030	1090	1100	1160	1160	1230	1230	1300
48		899	991	1120	1190	1190	1260	1260	1340	1340	1410

Full–Digital Low–Voltage VFD Control System

Product Image Examples

Product Image Examples

System Overview

Product Name: Fully Digital AC Low-Voltage Variable Frequency Speed Control Electrical System, consisting of a power cabinet (incoming line cabinet), frequency converter cabinet, braking cabinet, network intelligent operating console, human-machine interface (HMI), encoder, and other components.

Key Features of the System

1. Main Circuit Control Method:
Fully digital variable frequency speed control with sufficient capacity margin.
2. Control Circuit Method:
PLC(Programmable Logic Controller) based system.The new-type electrical control system uses fully digital variable frequency speed regulation with Siemens PLC control. The control principles meet hoisting process requirements and incorporate comprehensive hardware and softwareprotection, with key protections implemented in a dual-redundant manner. According to signal flow, the system allows manual or semi-automatic acceleration, automatic deceleration, and automatic stopping.
3. Key Features of Main Control Equipment:
Dual Power Supply Loops: Equipped with corresponding control, measurement, and protection functions; operates in an active-standby mode.
Uninterruptible Power Supply (UPS): Installed in the cabinet to supply power to control devices and PLC, ensuring reliable safety braking and data retention in the event of low-voltage power failure.
Digital Variable Frequency Drive (VFD): Achieves stepless speed regulation for stable operation. Eliminates large rotor resistances, significantly reduces energy consumption, lowers operating costs, and saves floor space.
High Anti-Interference Capability: Strong environmental adaptability, low harmonic content, and grid-friendly. Uses vector control VFD technology for
precise speed tracking. Smooth transition between constant speed, deceleration, and creeping phases, providing superior speed regulation compared to DC-driven hoists.
Advanced Fault Diagnosis: Powerful internal software and external circuit fault diagnostics. Upon detecting a fault, the system automatically stops operation to prevent escalation and provides accurate fault alarms.

System Protection Features

1. Interlock at zero position of main command handle 2. Interlock at zero position of brake control handle 3. Main circuit power-off protection 4. High brake oil pressure protection 5. Reverse direction protection 6. Overspeed protection in constant speed section 7. Overspeed protection indeceleration section 8.Overwind protection 9. Spring fatigue and brake shoe wear protection 10. Deep indicator shaft break protection 11. Ropeslack protection 12. Free-fall (runaway) protection 13. Frequency converter (VFD) fault protection 14. Rope adjustment interlock 15. Constant speed protection 16. Speed limit protection
17. Overload protection (over-capacity protection) 18. Full-load protection 19. Oil temperature protection 20. Hydraulic station residual pressure overlimit protection 21. Rope clutch failure protection 22. Undervoltage protection.

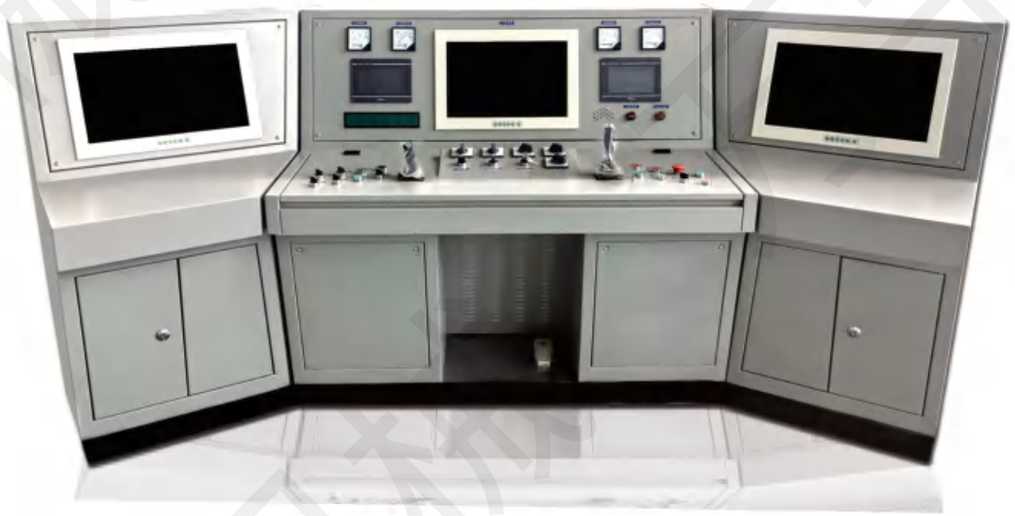
PLC Main Control Station

1. Intelligent CNC Operating Console The console is designed with an intelligent CNC control platform. A central HMI touch screen displays system operating status and working parameters, while also recording parameter variations during operation. It provides audio-visual fault alarms. On both sides, optional cornerconsoles can be configured: Left corner cabinet: equipped with a 22-inch monitor for real-time surveillance of the hoist room and multiple slope- change points.Right corner cabinet: equipped with a 22-inch industrial computer (upper-level computer) for software monitoring, providing dual hardware and software protection for the console.
2. Imported Dual Protection Control The system uses imported Siemens dual PLCs and imported Omron dual encoders from Japan, forming an independent dual-line protection structure.
3. Manual Command Controller & Emergency Brake Equipped with a manual command controller to adjust braking force and hoisting speed. Includes a foot-operated emergency brake switch that ensures reliable dynamic braking energy during normal operation and enables rapid braking in emergencies to prevent accidents.
4. Multi-Mode OperationThe system provides manual, maintenance, and (semi-)automatic start modes. A mode selection switch is installed. In automatic start mode,parameters can be set via the HMI touch screen, enabling automatic execution of braking distance, stopping parameters, acceleration, constant speed, deceleration, and automatic parking.
5. PLC-Based Hoist Control & RedundancyUsing Siemens PLC S7 for hoisting process control, the system ensures cross-monitoring and redundant safety protection. The PLC system includes DUDO, AVAO, high-speed counters, and communication functions with spare capacity.
Safety functions include:
Redundant safety circuits via PIC and relays. Full-range speed monitoring: Pre-alarm if actual speed exceeds set speed by 8%. Safety braking if speed exceeds 15% in constant speed section or 10% in deceleration section. Overwind protection: safety braking at 0.5m overwind. Brakeshoe wear and spring fatigue protection. Hardware and software interlock with the signaling system. Comprehensive PLC software fault protection.
Additional protections include:
Overcurrent, overvoltage, and undervoltage protection. Inverter input/output phase loss protection. Depth indicator shaft break protection. Backup protection for deceleration points.Shaft collar overspeed protection. Reverse direction protection. Secondary brake release protection. Overspeed protection in constant speed and deceleration sections.Start-up and signal interlock protection. Automatic self-lock and directional switching. Safety circuit achieved through both PLC internal and external AC loops.
Indicators, Instruments & Controls:
The console is equipped with indicator lights, instruments, selection switches, buttons, and audio-visual alarms to meet hoist operation requirements.Instrument displays include: hoisting speed, motor voltage, motor current, brake oil pressure, adjustable brake current, etc. Indicator lights include: hoist operating status, signaling status, and safety status.Switches & buttons include: operation mode selector switch, overwind reset switch, self-locking emergency brake button, and semi-automatic start button.

Product Image Examples

Overview of the System

The entire electrical control system is divided into three parts: High-Voltage Variable Frequency Speed Control System, Dual PLC Networked Operating System, and Intelligent Upper-Level Monitoring System.



Product Image Examples

Key Features of the System

1、Uses a fully digital high-voltage AC variable frequency speed control system.

2、Employs fully digital speed, current, and position closed-loop control, enabling stable and reliable operation of the hoist at any speed while maintaining a constant crawling distance, resulting in high operational efficiency.

3、The operation and safety protection system utilizes two separate configurations of Siemens S7 series PLCs. The main and auxiliary PLCs communicate and monitor each other. Dual-line control is applied during operation, and critical hoist signals are protected redundantly and mutually monitored.

4、The PLC operation control system supports multiple operation modes, including manual, semi-automatic, maintenance, emergency, container handling, and human-induced overwind. The system automatically selects the maximum allowable speed based on container position, direction, and lifting type, improving operational efficiency.

5、Three safety protection circuits are included: two software safety circuits and one hardware safety circuit. Key functions (e.g., overwind, overspeed, 2- meter fixed-point overspeed) are protected with triple or multiple redundancies. Redundant safety circuits ensure efficient and safe operation of mining equipment. Hardware safety circuits cover backup deceleration, overspeed, speed limit, and overwind protection.

6、Minor and major faults are indicated with audio-visual alarms or pre-alarms.

7、The monitoring system uses a Taiwan-made industrial computer as the upper-level computer, with a large color display and color printer. It supports multi-screen real-time monitoring, multi-parameter digital and graphical display, fault alarm recording, and stores charts and curves for more than 10 days of hoist cycles, with PLC communication capability.

8、Subsystems exchange data and signals via a network, achieving networked distributed control. This reduces external wiring, saving installation time and costs.

9、The system features remote diagnostic capabilities, allowing observation and analysis of all inputs, outputs, and intermediate parameters through telephone networks. Fault causes can be determined quickly, and solutions identified efficiently, facilitating technical communication with on-site personnel and rapid troubleshooting.

Full–Digital AC Explosion–Proof Variable –Frequency Electric Control System

Product Image Examples

The fully digital sensorless vector control enables a wide speed regulation range and high speed regulation accuracy. Even during low-frequency operation, the inverter guarantees 100% rated torque output.

The AFE self-commutation inverter technology allows the hoisting winch to automatically switch to regenerative feedback mode during deceleration or load lowering operations. This ensures smoother braking, simpler operation, and significantly enhances safety and reliability.

All system protection functions meet or exceed requirements stipulated in the Coal Mine Safety Regulations.

Implementation of "dual-line" control ensures reliable emergency operation during faults. This dual-line approach also provides safety protection, with critical circuits (e.g., safety circuits, deceleration loops) employing both hardware/software redundancy and diversity design for dual or triple protection. Operators enjoy simplified and reliable control. Previously repetitive and complex operations are now streamlined and dependable. The hoist's start, constant speed, deceleration, crawling, and load lowering functions can all be executed using the master control handle. This simplified operation

significantly reduces operator workload. Moreover, the system's safety and reliability are no longer determined by the operator but are inherent to the equipment itself.

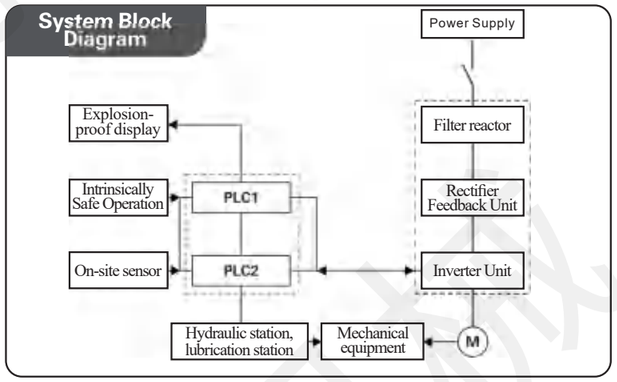
High automation reduces maintenance requirements, minimizing equipment downtime for repairs.

Comprehensive EMC (Electromagnetic Compatibility) installation solutions are provided, ensuring the system meets national and IEC standards for electromagnetic compatibility.

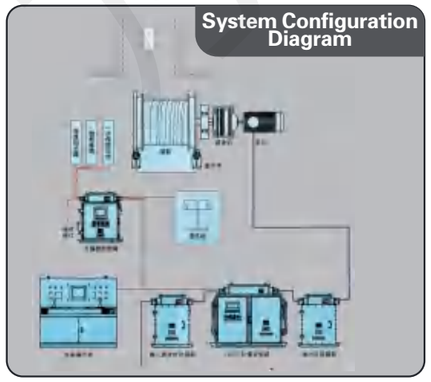
System Overview

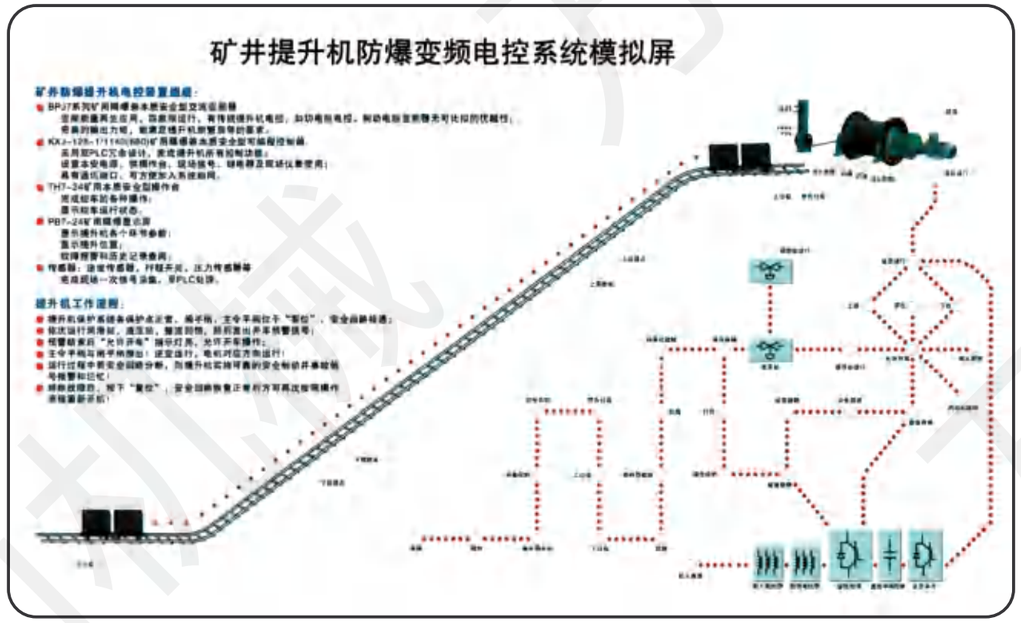
Explosion-proof Variable Frequency Drive Control System for Mine Hoisting Winches. The core equipment utilizes explosion-proof and intrinsicallysafe AC variable frequency drives for mining applications, complemented by explosion-proof and intrinsically safe PLC control cabinets, intrinsically safe operator consoles, explosion-proof displays, field sensors, control boxes, and audible-visual indicators. This system is suitable forunderground coal mines and other locations containing coal dust, methane, or other flammable and explosive gases. Applicable scenarios include underground blind inclines; single-level and multi-level shafts; single-drum and double-drum hoisting machines. It features a compact structure with a small footprint, excellent speed regulation and control performance, high safety and reliability, and convenient operation and maintenance.

System Block Diagram



System Configuration Diagram





Key Technical Principles of the AFE Energy Recovery System

1. The grid-side inverter employs PWM chopping modulation to generate a sinusoidal input current waveform, significantly reducing harmonic pollution to the grid with total harmonic current content <5%.

2. The grid-side inverter employs a dedicated CPU for PID control, continuously monitoring and regulating the magnitude and phase ofgrid-side AC current to maintain a power factor consistently close to 1. When the hoist enters generator mode, energy flows back from the inverter to the DC bus. The system immediately controls the phase of the AC input current to oppose the grid voltage phase, feeding power back into the grid.

3. Energy feedback conserves electricity. During hoist lowering operations, the motor operates as a generator. The system automatically feeds regenerative energy back to the power grid, achieving significant energy savings compared to traditional resistor-based speedcontrol systems. Concurrently, increased braking torque ensures safety during hoist descent.

Primary Protection Functions of the System

Primary Protection of the Electrical Control System

Excess volume	Over-wind switch activation or PLC calculation of excessive winding height triggers emergency braking of the hoist.
Hoist overspeed	When the hoist's operating speed exceeds 15% of its maximum speed, the hoist initiates emergency braking.
Speed Limit Protection	When the lifting container exceeds the limit value upon reaching the terminal position, the hoist initiates emergency braking.
Overload and Undervoltage	Hoist Emergency Brake
Depth indicator malfunction	When the indicator fails, the hoist applies emergency braking.
Voltage Gap Protection Device	When the gate gap exceeds the specified value, an automatic alarm will sound.
Slack Rope Protection	Automatically shuts off power and sounds an alarm when the steel wire rope becomes slack.
Incorrect operating direction	The hoist's operating direction and speed do not match the set parameters, triggering an emergency brake.
Control Panel Emergency Stop Signal	Hoist Emergency Brake
Signal System Emergency Stop	Hoist Emergency Brake
Fault in Variable Frequency Drive	Hoist Emergency Brake
Frequency Inverter Malfunction	Hoist Emergency Brake
Hydraulic Station Failure	Hoist Emergency Brake

Primary Protection Functions of the Variable Frequency Drive Unit

Motor Overload Protection	1.2 Overload for 2 minutes triggers the variable frequency drive to activate, causing the hoist mechanism to brake.
Undervoltage/Overvoltage Protection	Hoist Emergency Brake
Phase loss protection	Hoist Emergency Brake
Momentary power failure protection	The hoist emergency brake has been activated. The power supply system cannot restart automatically.

Mine Hoist Signal Equipment

Product Image Examples

System Overview

Main technologies and related requirements of the hoist electrical control system and signal control system include the technical requirements for the design, selection, configuration, structure, performance, manufacturing, installation guidance, testing, commissioning, trial operation, training, technical services, maintenance, and quality assurance of the software system, equipment, and their accessories.

Communication Between the Main Control System and the Signal System

The main controller and monitoring controller communicate via dedicated cables within the same cabinet, where cable and fiber speeds are nearly identical. The main control and signal systems use single-mode, single-fiber communication, offering wide bandwidth, low loss, long distance, low error rate, and strong anti-interference performance.This improves speed, accuracy, and real-time monitoring of underground safety doors, platforms, and car stoppers. Faults can be quickly located and addressed (emergency stop, deceleration, or lockout after stopping), enhancing overall stability and safety. Lightning and electromagnetic interference are mitigated with optical fiber fieldbus communication and surge protection at signal stations.

Equipment requirements: Use industrial-grade switches, transceivers, and fiber devices. Fiber must be 24-core, single-mode, flame- retardant, and meet vertical shaft installation standards.

Point Marking Process

The signaling process is divided into: shaft mouth signals, mid-level signals, and emergency signals. Mid-level signals are further divided into direct signals and relay signals.Shaft mouth signal: Only the shaft mouth has control authority; mid-levels cannot send signals. Mid-levels retain emergency stop and deceleration stop authority to halt the container at that level for operating equipment (oil pump, safety door, platform, car stopper, pusher, etc.). Mid-level direct signal: The mid-level where the hoisting container is located has control authority; all other levels, including the shaft mouth,have no control.

Mid-level relay signal: Both the container's mid-level and the shaft mouth have control authority, but final authority rests at the shaft mouth. The mid-level signal must be relayed through the shaft mouth before the main control system receives the start signal.Emergency signal: Sent by hardware bell pulse directly to the main control system. Used only when the signal control system fails and cannot be quickly restored. Not for long-term use; for emergencies only.

Main Control System Overview

The operation console is designed as an integrated structure, which becomes a three-part structure when the system includes upper-level monitoring. The console surface is equipped with instruments, indicator lights, buttons and switches, brake handles, and main command handles, forming the display and control platform of the electrical control system.

The instruments display key parameters including control power voltage, operating speed, set speed, main circuit current,

brake current, and brake oil pressure. Indicator lights show the status of external relay hardware safety circuits, PLC software safety circuits, system equipment such as hydraulic and lubrication stations.and control modes including manual operation, maintenance, and rope adjustment. They also indicate clutch engagement for dual drums, hoisting, lowering, deceleration points, and minor fault conditions.

The main command switches and handles allow the operator to perform forward and reverse overwind resets, switch between rope adjustment, maintenance, manual, and semi-automatic operation, convert between normal and emergency hoisting control, select hoisting or lowering directions, reset the system after safety faults or emergency stops, and adjust the motor speed or frequency. Inside the console, multiple PLC modules are installed, mainly comprising the CPU main control module, a 10-channel digital I/O expansion module, and analog input/outputmodules. Signals from various control and feedback points are collected through input ports, processed, and output as control signals. Thesystem uses two original Siemens PLCs connected via network, with the main controller being a high-performance internationally recognizedPLC, ensuring powerful and reliable control. The CPU and digital modules handle signal acquisition, computation, and actuator control to implement all aspects of the hoisting process. The PLC system consists of digital I/O, analog I/O, CPU, functional, counting, and communication modules, with over 20% of I/O capacity reserved for future expansion.

Safety is ensured through redundant circuits combining PLC control elements and relays. In case of PLC failure, the system can operate at low speed for simplified start-up. Full-travel speed monitoring provides pre-alarms at 8% above the set speed and safety braking at 15% above the set speed. Overwind monitoring triggers pre-alarms at 0.3 meters and safety braking at 0.5 meters. Backup point-speed monitoring provides additional protection, and interfaces are reserved for brake shoe wear and spring fatigue protection. Interlocks are applied for handle zero position and rope adjustment, as well as logical interlocks between brake oil pumps and high-voltage line reversers. The PLC software also provides comprehensive fault protection.

The control system supports multiple operational modes. In manual mode, the operator controls the hoist below the set speed, with automaticdeceleration and precise stopping under travel controller supervision. Semi-automatic operation allows the operator to complete a hoist cycleusing the handle when conditions are met, with automatic direction and speed selection, acceleration, deceleration, and precise stopping. Fullyautomatic operation enables the hoist to follow the signal system's direction and mid-stage commands to complete a full hoist cycle and stopautomatically,also performing automatic direction and speed selection. Maintenance mode allows manual operation at 0.3–0.5 m/sfor inspection purposes. In the event of a PLC fault, emergency low-speed operation is possible at less than 1.0 m/s, complying with the Safety Regulations for Metal and Non-Metal Mines.

Hoist Safety Protection Description

Safety protection is divided into three categories:

Category 1 (Severe faults): Immediate disconnection of the safety circuit and activation of the safety brake. Includes overspeed, power supply faults, overcurrent, converter or PLC faults, overwinding, emergency stop, network failure, hoist frame/gate issues, dual speed sensor failure, main circuit faults, residual pressure high, motor overheating, etc.

Category 2 (Relatively severe faults): Decelerate to 1 m/s, then activate safety brake. Includes depth indicator failure, rope slippage, large encoder deviation, brake oil circuit faults, brake shoe wear, main circuit over/undervoltage, grounding faults, etc.

Category 3 (Minor faults): One operation allowed; cannot run again until repaired. Includes single speed sensor failure, high/low lubrication pressure, high motor temperature, spring fatigue, brake disc misalignment, fan undervoltage, etc.

Protection system: Dual-line control with multiple layers (hardware and software) for key signals (speed, position, safety, deceleration, overwinding). Faults trigger audible and visual alarms. Hardware/software measures (isolation, filtering, proper wiring) prevent electromagnetic and powerinterference.

Specific protections include:

Depth indicator shaft break: Photoelectric monitoring triggers fault if main speed exceeds indicator by 0.5 m/s.Shaft top 2 m/s limit: Protective braking if speed >2 m/s near shaft top.Reverse operation: Protective braking if mine car moves opposite to signal.Two-stage brake release: Single emergency brake at shaft top to prevent overshoot.Deceleration section overspeed: Protective braking if speed exceeds designed curve by 10%. Undervoltage: Inverter protected against low DC bus voltage and grid fluctuations.Overheat: Dual protection on VFD and major heat-generating components (transformer 130°C, power devices 80°C).Safety circuits combine PLC internal and external AC circuits, ensuring dual-line and triple-line protection for critical components.

Product Image Examples

Product Overview

The disc brake is a new high-performance brake and represents the development direction of modern mechanical brakes. It uses a rear-mounted dual-circuit hydraulic cylinder design, offering low inertia, fast response, good adjustability, high reliability, strong versatility, simple foundation,and easy maintenance.

Disc brakes can be used in mine hoists, belt conveyors, aerial ropeways, ship lifts, and other machinery. On mine hoists, they serve as bothworking brakes and emergency brakes, driven and controlled by a separate hydraulic station. The braking torque is generated axially by brake shoes pressing from both sides onto the brake disc. To prevent additional deformation of the brake disc and axial load on the main shaft, brakes are installed in pairs, with each pair constituting one disc brake unit. Multiple units can be installed per hoist depending on the required braking torque.The disc brake generates braking force via disc springs and releases the brake using hydraulic pressure. During braking, the normal force of the brake shoes on the disc is determined by the hydraulic pressure in the cylinder.The new disc brake, combined with the hydraulic station, forms the braking system of a mine hoist. Pipelines use ferrule-type joints, and thecylinder, piston, and seals are optimized based on foreign designs. The piston uses low-temperature carbon-ammonia diffusion (QPQ) treatment to enhance wear resistance and ensure zero leakage, providing reliable working and safety braking for the hoist.




Key Features

The disc brake is a key actuator in the hoist braking system, forming a complete braking system together with the hydraulic station and pipeline system. It is used for both working braking and safety braking of the hoist.

The disc brake generates braking force through disc springs and releases the brake using hydraulic pressure, with the braking force acting axially. The magnitude of braking force, maintenance, and adjustment significantly affect the safe operation of the entire hoist system. Installation and

operating units must pay close attention to ensure operational safety.

Performance Features:

Braking torque is highly adjustable.

Low inertia, fast action, and high sensitivity.

High reliability: multiple brakes (typically 2–12) can work simultaneously. If one fails, only a small portion of braking force is lost, and the hoist can generally still be stopped. In case of hydraulic station or system failure, braking is automatically applied.

Good versatility: many parts are interchangeable, and the same model of disc brakes can be used on different hoists in varying quantities. Simple structure, easy maintenance, and adjustment.

Working Environment

1. The piston and brake shoes of the disc brake should operate simultaneously under the design hydraulic pressure, without crawling or sticking.

2. Under no-load conditions, the minimum operating pressure of the disc brake piston should not exceed 0.3 MPa.

3. Under the design hydraulic pressure, the stroke of the disc brake shoes should not differ from the design stroke by more than 10%.

4. When maintained at 1.25 times the design pressure for 10 minutes, no oil leakage should appear at any seal.

5. The disc brake should be equipped with a brake shoe over-wear protection device and a spring fatigue warning device.

6. The disc brake should be fitted with an air release device.

To meet the requirements of various series of mine hoists, disc brakes are available in different specifications.

Disc Brake Parameter Table

Disc Brake Type	Maximum Pressure of a Single Brake Unit	Friction Coefficient (Brake Shoe Design)	Brake Shoe Allowance	Disc Spring Specification	Brake Shoe Dimensions
	KN	f	℃	Outer Diameter × Thickness	Length×Width ×Thickness (mm)
TP–4.0T	40	0.4	≤80	ϕ100*8.2	280X185X20
TP–6.3T	63			ϕ140*11.2	320X238X27

Constant Torque Hydraulic Station

Product Image Examples

Product overview

The hydraulic station is an important safety and control component of the hoist, forming a complete braking system together with the disc brake. Its performance and quality directly affect mine productivity and equipment service life. This hydraulic system is professionallydesigned and manufactured for hoists, using carefully selected high-quality domestic hydraulic components and accessories. The system adopts an integrated oil circuit block structure, making the overall design advanced, reasonable, reliable, and easy to maintain.

Performance Features

Advanced Valves: Major valves are produced using internationally advanced technology, ensuring extremely high reliability.

Proportional Relief Valve: An internationally advanced proportional relief valve replaces the original electro-hydraulic pressure regulating device, allowing easy adjustment, excellent pressure linearity, and smoother, more reliable operation.

Strong Magnetic Oil Filter: Effectively solves issues of poor hydraulic oil cleanliness, preventing accidents caused by iron filings or debris clogging the oil circuit and reducing operating costs.

Integrated Valve Technology: Reduces piping connections and potential failures. All valves are mounted on a panel for easy observation and maintenance.

Dual-System Design: Single tank with dual motors, dual pumps, dual pressure regulators; one system in use and one as backup. The control console has pump #1 and #2 selector switches for easy operation. Manual or electronic emergency pressure relief is provided.

Redundant Parallel Circuits: The hydraulic station includes parallel redundant circuit channels for enhanced reliability.

Technical Parameters of Constant Torque Hydraulic Station

Maximum Working Hydraulic Pressure	Maximum Oil Supply	Operating Oil Temperature	Single Oil Tank Capacity	Two-Stage Brake Delay Time	Electro-Hydraulic Proportional Relief Valve Input Current	Hydraulic Oil Grade
6.3MPa	9–21L/min	15–65℃	490–700L	0–10second	400–1200mA	Winter: N32# Anti-Wear Hydraulic Oil Summer: N46# Anti-Wear Hydraulic Oil

Constant Deceleration Hydraulic Station

Product Image Examples

Product overview

The WF183 Constant Deceleration Hydraulic Station is an important safety and control component of mine hoists. Together with the disc brake and electrical control system, it forms the hydraulic braking system of the mine hoist.

The WF183 Constant Deceleration Hydraulic Station features constant deceleration control during emergency braking via the electrical control system, while retaining the original constant-torque two-stage braking performance. If the constant deceleration control system fails, it automatically switches to the constant-torque two-stage braking mode, enhancing system reliability.Additionally, this hydraulic station uses a solenoid directional valve with spool position monitoring, allowing self-inspection during routine maintenance, significantly improving automation and providing reliable support for normal

Performance Features

1. Working Brake: Provides adjustable hydraulic pressure to the disc brake, allowing the hoist to achieve different braking torques for normal operation, speed regulation, and stopping.

2. Constant Deceleration Safety Brake (in-shaft): In any emergency within the shaft, automatically adjusts the disc brake pressure to decelerate the hoist at the set rate. After stopping, all disc brake pressure quickly returns to zero, placing the system in full braking mode.

3. Two-Stage Safety Brake (in-shaft): If constant deceleration fails, automatically switches to two-stage braking. Disc brake pressure drops to a preset value and, after a delay, returns to zero, ensuring full braking.

4. Level-One Safety Brake (at shaft top): In any emergency at the shaft top, disc brake pressure immediately returns to zero, putting the system in full braking.

5. Startup Self-Check: Before operation, the hydraulic station performs self-inspection to confirm proper function. If it cannot meet operational requirements, an alarm is triggered.

Technical Parameters of Constant Deceleration Hydraulic Station

Maximum Working Hydraulic Pressure	Maximum Oil Supply	Operating Oil Temperature	Single Oil Tank Capacity	Number of Oil Tanks	Two-Stage Brake Delay Time	Electro-Hydraulic Proportional Relief Valve Control Voltage	Proportional Directional Valve Control Voltage	Hydraulic Oil Grade
14 Mpa	16–20L/min	15–65℃	700–900L	2piece	0–10second	⩽ 10 V	–10 ~ +10 V	Winter: N32# Anti-Wear Hydraulic Oil Summer: N46# Anti-Wear Hydraulic Oil

Lubrication Station

Product Image Examples

Product overview

The lubrication station primarily supplies lubricating oil to gear friction pairs, forming an oil film of certain thickness between meshing gear surfaces to prevent metal-to-metal contact. The circulating oil carries away heat generated during power transmission and washes away metal particles and impurities produced by normal gear wear, thereby improving transmission efficiency, reducing friction, minimizing wear, lowering power loss, and extending equipment service life.

Key Features:

1、Precise Oil Supply: Oil is distributed through throttling plugs and directional valves, delivering a controlled amount to bearings, gears, and other friction pairs.

2、Contamination Control: Dual-stage filtration (coarse filter for inlet, fine filter for return) intercepts metal debris, dust, and other contaminants.

3、Thermal Management: A cooler prevents oil temperature from exceeding 60°C. In low-temperature environments, oil must be preheated above 10°C before startup.

Technical Parameters of Lubrication Station

Oil Supply Pressure	Nominal Flow	Oil Supply Temperature	Oil Tank Capacity
Mpa	L/min	℃	L
0.4	50	38–42	500–700

Technical Parameters of Lubrication Station Filter

Model	Filter Accuracy	Filter Area	Allowable Pressure Difference
	mm	m^2	Mpa
DLQ–25	0.12	0.11	/

Technical Parameters of Lubrication Station Gear Pump

Model	Flow Rate	Pressure
	L/min	Mpa
CB–B50	50	0.2–1.5

Technical Parameters of Lubrication Station Motor

Power	Voltage	Rotation Speed
kW	V	r/min
1.5–2.2	380/660/1140	1430

Anti–Runaway Device for Inclined Tunnels

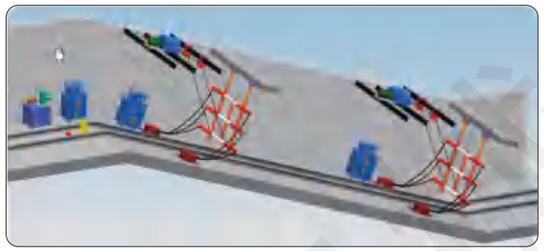
Product Image Examples

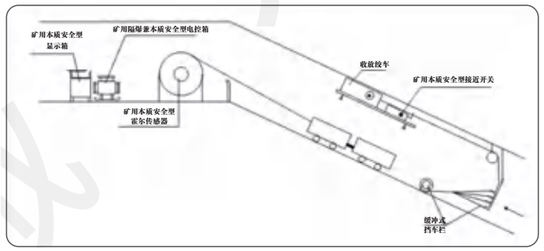
Product Overview

This product complies with the Coal Mine Safety Regulations, which mandate the installation of runaway vehicle protection devices in inclined shafts capable of stopping vehicles that have broken cables or disengaged hooks. The vehicle restraint device must remain closed at all times and may only be opened when releasing vehicles. In inclined shafts also used for personnel transport, both the vehicle restraint device andrunaway vehicle protection device must remain in the open position and be reliably locked when lifting personnel.

This device is interlocked with the winch power supply: when the winch is energized, the device operates; when the winch is de-energized, the device ceases operation. Upon power-up, the system detects the real-time position of the mine car to verify whether the car stop barrier is fully lowered.During normal descent, the barrier remains closed. When the mine car reaches the first preset value set by the PLC, the master PLC controlsthe hoisting motor to automatically raise the barrier. Upon reaching the second preset value, the PLC controls the motor to lower the barrier,restoring the closed state. During normal ascent, the barrier automatically lowers upon reaching the second preset value, returning to the closed state. When the mine car ascends normally to the second preset value,the PLC controls the barrier to rise. Upon reaching the first preset value, the barrier automatically lowers, restoring the normally closed state.

When the mine car exceeds normal travel speed (runaway or coasting), the PLC controls the buffer-type barrier to reliably intercept the mine car, effectively preventing accidents.





Performance Features

1. Normally Closed Interception: The vehicle barrier remains closed by default. Linked to the winch via position sensors, it automatically opens for normal mine car passage and closes immediately afterward. Runaway mine cars are intercepted by flexible buffers.
2. Energy-Absorbing Buffering: Utilizes steel rope energy absorbers (withstanding 2.5-10 megajoules of impact energy) for buffered interception, minimizing damage to mine cars.
3. Intelligent Control: The PLC system continuously monitors mine car positions (with an accuracy of ≤1 meter), integrating audible/visual alarms, winch interlocking, and self-diagnostic fault detection functions.

Key Components

1. Core Structure: Vehicle Barrier (Normally Closed), Energy-Absorbing Buffer, Winch Power Unit (1.5-7.5kW)
2. Sensing System: Encoder Distance Measurement, Position Sensor, Speed Detection Device (Interception Threshold 5m/s)
3. Protection Levels: Adheres to “One Slope, Three Barriers” design,ensuring safety through multi-level interception

Installation Specifications

Deployment Locations:

Install the first vehicle barrier ≥20 meters below the gradient change point.

When the slope length exceeds 50 meters, add additional vehicle barriers every 80-150 meters (time interval ≤100 meters for slopes >8°). Install temporary interception devices 15-20 meters above the work area.

Application Scenario: Suitable for inclined tracks with a single rail, gradient ≤30°, and track weight 18-38 kg.

Parameters Table for Anti–Runaway Device in Inclined Shafts

Parameter Category	Technical Specifications	Reference Standard/Model
Impact resistance	1.5–2.5MJ	MT933–2005
Buffer distance	0.3–10m（Flexible Energy Absorber）	ZDC30
Maximum Buffer Resistance	≤220kN（ZDC30–2.2）	
Applicable tilt angle	≤30°	
Control Box Voltage	AC 127V（±10%）	KHG6–127/B
Winch Motor Voltage	AC 380V/660V/1140V, power1.5–4kW	JF–150ZD
Sensing Accuracy	Parking space detection error ≤0.1m, Speed detection threshold 5m/s	
Barrier Response Time	Normally closed design, Actuation response ≤0.5 seconds, Lifting time 3 5 seconds	
Wire Rope Specifications	ϕ18mm（6×37+FC）	
Track Adaptation	single–track(18–38kg/m)	

DTL–Type Fixed Belt Conveyor

Product Image Examples

Product Overview

The DTL Series General-Purpose Fixed Belt Conveyor, also known as a belt conveyor or rubber belt conveyor (commonly referred to as conveyingequipment), is primarily used in coal mines for main or transport roadways to move raw coal. It can also be applied in open-pit coal mines, surfacetransport, and material handling in other industries. Depending on roadway slope changes, brakes and backstop devices can be added. The conveyor can operate horizontally or on an incline. This series features a simple structure, high versatility, high efficiency, easy operation and maintenance, and supports long-distance continuous transport. The head drive unit can be installed on the left or right side according to roadway conditions. It comes with a complete set of electrical control and protection systems to enable automated operation. For high-capacity transport, high-power motors can be used, with multi-point drive design if necessary. Soft-start functionality is possible using a variable frequency drive (VFD) starter or CST-controlledstarting device.

Key Performance Features

1. Stable and Efficient Conveying Capacity
Designed with a fixed structure and precise belt tensioning system to ensure uniform belt tension. Materials are transported smoothly without accumulation, allowing long-term stable conveyance of bulk materials and meeting the needs of continuous production.
2. Robust and Durable Structure
Core components such as the frame and idler supports are made of high-strength steel and treated with anti-corrosion processes like hot-dip galvanizing or plastic spraying. This provides excellent impact resistance and corrosion protection. Idlers use high-quality bearings with wear- resistant rubber layers, offering low running resistance, long service life, and adaptability to heavy loads and complex working conditions.
3. Easy Installation and Maintenance
The fixed structure requires no frequent disassembly. During installation, it can be quickly secured using embedded parts and foundation bolts. Routine maintenance only requires periodic inspection of idlers, lubrication of bearings, and removal of material accumulation on the belt,
reducing operational costs significantly.
4. Wide Application Scenarios
Suitable for mining, construction materials, chemical, port, and other industries. It can transport coal, ore, sand, gravel, grain, and other materials, and is adaptable to open-pit, enclosed, or humid environments.
5. Energy-Saving and Environmentally Friendly
The drive system combines a high-efficiency motor with a gearbox, providing high transmission efficiency and low energy consumption. The belt operates smoothly with low noise, meeting industrial requirements for energy-saving and environmentally friendly production.

Main Components

The belt conveyor is divided into four main parts: head unloading device, drive unit, tensioning device, middle section, and tail section.
1. Head Unloading Device: Composed of the head frame, drive drum (serving as the unloading drum), and scraper. 2. Drive Unit: The drive unit powers the entire conveyor and consists of a motor, coupler, gearbox, drive drum, frame, and redirecting drum. The motor drives the drive drum via the coupler. The drive drum uses a welded structure, with a thick, wear-resistant cold-bonded rubber surface. This enhances friction with the conveyor belt to prevent slippage, reduces drum surface wear, and provides a self-cleaning effect. 3. Middle Section: The middle frame uses a channel steel fixed-frame structure. Each channel steel section is 3 meters long. The steel and support legs are bolted together. The idler frame channel steel is also bolted, making the structure simple, easy to assemble/disassemble, reducing labor intensity, and shortening operationtime. 4. Tail Section and Tensioning Device: The tail section consists of the tail frame, tail drum, buffer rollers, lower idler rollers, plow-typescraper, and tensioning carriage. The tail drum is mounted on the tail frame with adjustable shaft alignment to correct belt tracking. Tensioning is achieved using a gravity carriage system.

DTL Fixed Belt Conveyor Technical Specifications

Product Model	Conveying Capacity (t/h)	Belt Width (mm)	Belt Speed (m/s)	Belt Length (m)	Motor Power (kW)	Roller Diameter (φmm)	Idler Diameter (φmm)	Belt Incline (°)
DTL65/15/2x37	150	650	2	500	2x37	500	89	
DTL65/30/2x55	300	650	2	500	2x55	500	89	
DTL80/40/2x40	400	800	2	500	2x40	500	89	0–10
DTL80/40/2x55	400	800	2	700	2x55	500	89	
DTL80/40/2x75	400	800	2	1000	2x75	630	89	
DTL80/40/2x90	400	800	2	1200	2x90	630	89	0–15
DTL80/50/2x110S	500	800	2.5	1200	2x110	800	89	
DTL80/50/2x132S	500	800	2.5	1400	2x132	800	89	
DTL100/63/2x75S	630	1000	2	700	2x75	800	108	0–7
DTL100/63/2x90S	630	1000	2	1000	2x90	800	108	0–10
DTL100/63/2x110S	630	1000	2	1200	2x110	800	108	
DTL100/6312x132S	630	1000	2	1400	2x132	800	108	0–15
DTL100/63/2x160S	630	1000	2.5	1400	2x160	800	108	
DTL100/63/2x220S	630	1000	2.5	1600	2x220	800	108	
DTL100/63/2x250S	630	1000	2.5	1800	2x250	800	108	
DTL120/80/2x280S	800	1200	3.15	1000	2x280	1000	133	
DTL120/120/2x315S	1200	1200	3.15	1200	2x315	1000	133	0–14
DTL120/120/2x450S	1200	1200	3.15	1500	2x450	1000	133	0–18


只生产安全可靠铰车—中国·万丰人诺言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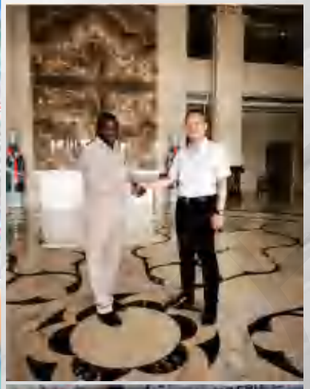
万丰矿机
万丰矿机




Manufacturing safe and reliable













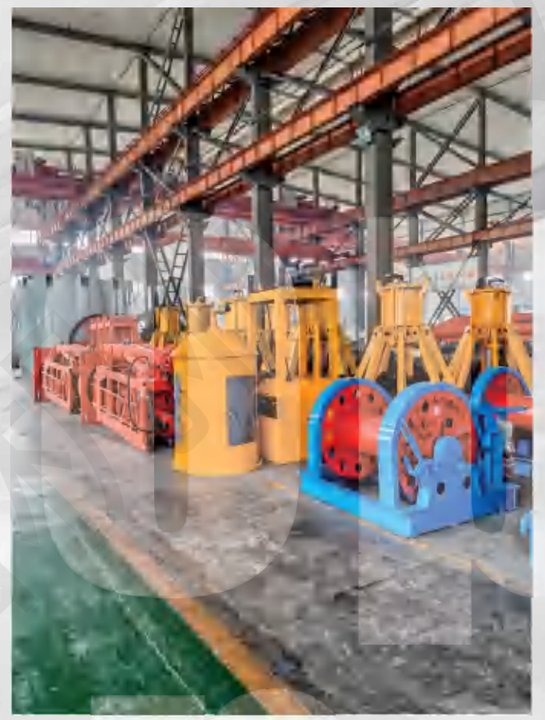




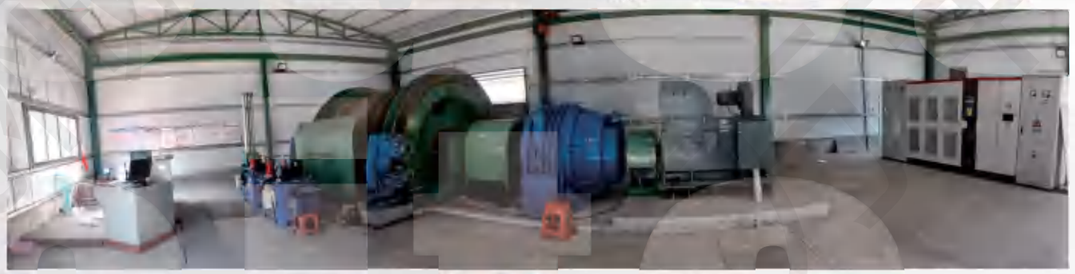


















(画册内所有产品图片仅供参考，以产品定制为准)