DAYU ELECTRIC



GBT-MV Series Voltage-source

High-voltage Variable Frequency Drive (VFD)

大禹电气科技股份有限公司
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Technology creates infinite possibilities for energy saving of motors



COMPANY PROFILE

Dayu Electric Technology Co., Ltd. was established in 1996. As a key national high-tech enterprise, it is rooted in the Xiaogan National High-tech Zone, Hubei Province, a national-level hometown of filial piety culture. It is committed to becoming a well-known electrical control system solution provider in China, providing users with integrated industry-wide solutions for electrical control system planning and design, intelligent power transmission and distribution equipment manufacturing, power equipment and EPC, and operation and maintenance services, as well as products and technical services, to help users achieve energy conservation and emission reduction, and enhance the safety, reliability and intelligence level of the power system.

Since establishment, Dayu Electric has always adhered to the dual commitment of quality and service. It is specialized in the research and development, as well as manufacturing of various large and medium-sized motor soft starters, variable frequency speed control devices, power compensation, load as well as efficient and energy-saving electrical equipment. The Company's products not only sell well in domestic industries such as industrial, municipal, new energy and JG, but are also exported to overseas markets in Europe, America, Asia and Africa, gradually establishing a global sales and service network. It has been listed as a key national SRDI "Little Giant" enterprise, and has been selected into the list of "Golden Seed" Listed-company Candidates in Hubei Province as well as the list of Military-civil Fusion Demonstration Enterprises.

In terms of technological innovation, the Company has carried out in-depth industry-university-research cooperation with top domestic universities such as Tsinghua University and Wuhan University, and has established a powerful technological R&D platform. The Company has led the drafting of 16 national and industry standards, holds over 110 patents, has been recognized as a national intellectual property demonstration enterprise, and has established three innovation platforms: "Hubei Province Engineering Technology Research Center for Motor Soft Starter", "Provincial-level Enterprise Technology Center", and "Hubei Province Engineering Laboratory". This is also the first private enterprise in Hubei Province that integrates "Academician and Expert Workstation", "Postdoctoral Research Workstation", and "High-skilled Talent Workstation". It has undertaken numerous scientific research projects such as the National Science and Technology Major Project, the Science and Technology Innovation Program, the National Torch Program, the National Key New Product Program, and the National Innovation Fund in Hubei Province. It has won the title of "Hubei Famous Brand" for six consecutive years. The Company also actively fulfills its social responsibilities and has successively received numerous honors, including "National Advanced Collective for Assisting and Supporting People with a Disability", "Hubei Province Disability Employment Demonstration Base", "National Model Workers' Home", and "Hubei Province 20-Year Contribution Award for Hope Project".

Innovation starts the dream, and diligence creates great achievements! Dayu Technology is determined to build an outstanding national electrical enterprise brand, and is committed to becoming a leading enterprise in motor control in China. With its independently developed high-voltage VFDs, it aims to achieve batch substitution of foreign equipment in core industries such as steel, petrochemicals, and new energy. The Company looks forward to sincere cooperation with friends from all sectors of society, jointly seeking development, and working together to create a bright future.

Academician and Expert Workstation

Postdoctoral Research Workstation

Five national standards

National Demonstration Enterprise for Knowledge Products

National Specialized, Refined, Unique and Innovative "Little Giant"Enterprise

DEVELOPMENT HISTORY OF THE COMPANY

1996

1996. Starting a Business · Building a Soft Start Foundation

The Xiaogan Dayu Electric Factory was established, focusing on the R&D and manufacturing of soft starters for motors. With breakthroughs in core technologies, it has filled the domestic market gap and gradually become a benchmark enterprise in the domestic industry.

2002

2002. Shareholding Transformation · Technology Upgrade

The Company carried out shareholding reform, bid farewell to family-style management, and established Xiaogan Dayu Electric Co., Ltd., establishing a modern enterprise governance structure. The independently developed 10MW "intelligent hydro-resistance soft starter" has been recognized as a "National Key New Product Program" and a "Hubei Famous Brand", and has become a technological leader in the industry.

2005

2005. Brand Upgrade · Product Iteration

The enterprise has changed its name to "Hubei Dayu Electric Co., Ltd." and its brand has expanded its reach from the local area to the entire country. The Company launched the third-generation electromagnetic voltage-regulation soft starter. By relying on completely independent intellectual property rights, the Company has filled the domestic equipment technology gap and further consolidated the market position.

2007

2007. Capacity Expansion · Talent Foundation Building

Relocating to the newly built plant in the Western District of Xiaogan National Hi-Tech Industrial Development Zone, the company ended the era of leasing and achieved large-scale production. Leveraging the opportunity of state-owned enterprise reform, it introduced seasoned management and technical professionals to establish its first subsidiary, namely Hubei Dayu Hanguang Vacuum Electric Co., Ltd., creating a diversified talent team.

2009

2009. Capital Operation · Innovation & Breakthrough

The company was renamed "Dayu Electric Technology Co., Ltd.", marking the launch of its capital operation strategy. The Wuhan R&D Center was established, attracting top-tier technical talent. With the independent development of a 30MW high-voltage solid-state soft starter - a breakthrough featured on CCTV's News Broadcast - the company has become an industry innovation leader.

2011

2011. Global Layout·Brand Development

The company relocated and established a modern production base, achieving a 300% increase in production capacity. By introducing Emerson technologies from the U.S., it launched products such as medium-voltage VFDs, catering to high-end industries including metallurgy, petrochemicals, and mining. Its products were exported to Asia, Africa, Latin America, and Europe and earned the title of "China's Well-known Trademark" the same year, propelling the brand's global influence.

2014

2014. Capital Empowerment · "New Board" Listing

On January 24, the company became the first in Xiaogan and among the first nationwide to list on the National Equities Exchange and Quotations ("New Third Board") with stock code 430386. On December 28, 2023, it achieved a secondary listing on NEEQ and secured Series A financing under stock code 874361, marking continuous enhancement of its capital strength.

2015

2015. Strategic Cooperation · Localization

The company has introduced strategic investors and deepened technological collaborations with global industry leaders such as Emerson and ABB, with a focus on developing ultra-high-power high-voltage VFDs. Actively implementing the national policy of "import substitution in high-end manufacturing," it is driving the localization and independent control of core equipment.

2017

2017. Leading Standard · Industry Benchmark

Recognized as a "National Intellectual Property Demonstration Enterprise," the company has participated in drafting five national standards, two local standards, and nine industry standards, solidifying its leadership in shaping industry technology standards.

2022

2022. High-End Breakthroughs · Defense-Sector Support

With strong technical expertise and reliable product performance, the company has expanded into defense-sector applications, with products serving marine, aerospace and other high-standard fields. This marks afurther extension from industrial automation to high-end equipment manufacturing, driven by Technology + Security.

2025

2025. New Energy Expansion · Globalization

Recognized as a national standardization pilot unit for high-end equipment manufacturing, the company secured strategic investment from Western Capital. It won multiple benchmark projects in compressed air and pumped storage sectors, including the world's first 300MW-level compressed air energy storage demonstration project. The company established its first overseas facility in Nigeria, Africa, while partnering with CRRC to expand operations in Indonesia.

ENTERPRISE HONOR AND QUALIFICATION

ENTERPRISE HONOR
AND QUALIFICATION













Ordering Instructions

Please provide the following accurate information when ordering:

- Model and specification of the required products:
- Main technical parameters of the controlled motor or system:
- Type, characteristics and technical parameters of the driven machinery load
- Requirements on installation and cabinet consolidation or the electrical or dimensional requirements of other relevant equipment
- Please specify other special requirements in contract or technical agreement.

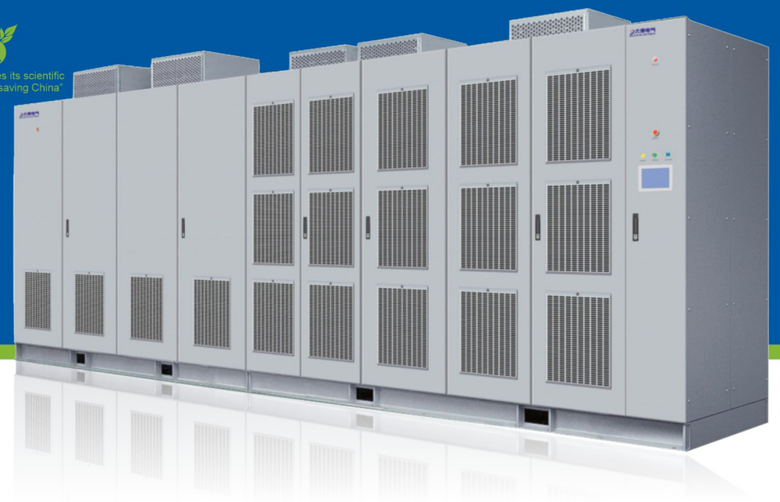
Conditions of product service environment:

- Ambient temperature: -10°C ~ +50°C;
- The relative humidity of air shall not exceed 95%;
- The altitude shall not exceed 1000m:
- The installation inclination shall not exceed 5°
- Where there is no explosion hazard, violent vibration or impact, chemical corrosion or conductive dust. Where there are rainproof and lightning protection facilities.

GBT-MV Series High-voltage VFD

Reliable High-efficiency Energy saving

Dayu Electric continues its scientific research for "Energy-saving China"



Service Commitment

Provide free maintenance service during the warranty period

Always provide free consultation services

Make satisfactory reply to customers in 24 hours

In case on-site services are required, we promise to send technical service personnel to site in 24 hours within the province or 48 hours within the country

Overview of Voltage-source High-voltage VFD

The GBT-MV series high-voltage VFD, independently developed and manufactured by Dayu Electric, employs Sinusoidal PWM (SPWM) control technology to achieve variable frequency speed regulation for high-voltage motors. It enhances the control level, power factor, and operational efficiency of high-voltage drive systems, meets process control requirements, reduces motor energy consumption, and achieves energy-saving and environmental protection goals.

The GBT-MV series high-voltage VFD is a voltage-source, high-high configuration VFD. A cascaded unit design and a phase-shifting superposition principle are used to generate near-perfect sinusoidal waves. It directly outputs high voltage without requiring any additional output step-up devices, enabling direct drive of high-voltage motors.

Typical System Composition

① Transformer Cabinet

The input-side phase-shifting transformer isolates the primary-side high voltage from the secondary-side voltage. The secondary-side windings have a fixed phase difference, forming a multi-pulse rectification method that allows harmonic currents to cancel each other out. This significantly improves the grid-side current waveform, enhances the grid-side power factor, and eliminates harmonic pollution from the VFD to the power grid.

The transformer features Class H insulation, professional safety protection design, high-quality iron cores, strong short-circuit resistance, and high reliability

② Cooling Fan

Internationally renowned cooling fans are used, with high airflow, ample redundancy, reliable performance, long service life, and low failure rates. Professional Computational Fluid Dynamics (CFD) thermal design ensures excellent heat dissipation for the VFD, improving product reliability

③Human-machine Interface (HMI)

A high-definition color LCD touch screen is used, with a multilingual display interface

It can enable system status display, parameter setting and query, fault display, and other functions, making it more convenient for customers to debug, maintain, and monitor equipment operation



④ Control Cabinet

A three-core design (DSP+ARM+FPGA) is used for the control, with logic and algorithms running on separate cores, ensuring more stable operation and faster response. The VFD can support various control methods such as V/F control and vector control to meet diverse customer needs

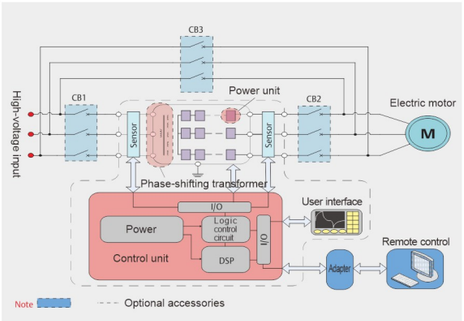
⑤ Power Cabinet

GBT-MV series high-voltage VFD is composed of multiple power units in series, and it superimposes the outputs of multiple low-voltage power units to obtain high-voltage output. It can directly drive the high-voltage motors

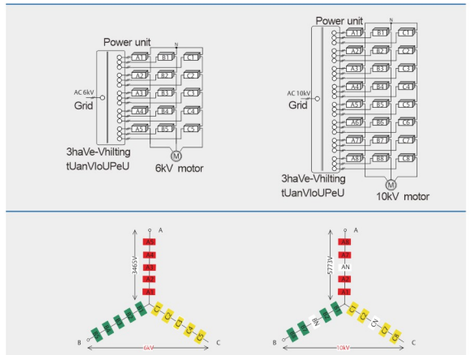
Classical Topology

GBT-MV series high-voltage VFD is a voltage-source and high-high structure VFD. Directly connected to the high-voltage bus, a cascaded power unit design and a phase-shifting superposition principle are used to achieve perfect and harmonic-free high-voltage output. No boosting or filtering device is required. It can directly drive ordinary high-voltage motor.

The GBT-MV series high-voltage VFD employs a multi-unit cascaded structure. The power unit input is connected to the secondary winding output of the phase-shifting transformer, and end-to-end cascading is performed to the power unit output, ultimately forming a Y-type connection output.

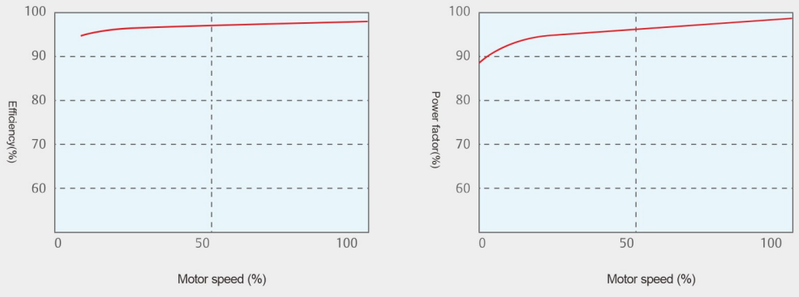


Block Diagram of GBT-MV High-voltage Variable-frequency Drive (VFD) System



High Efficiency and High Power Factor

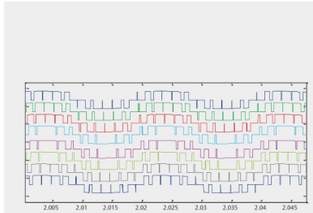
With high-performance components and optimized design, the GBT-MV series high-voltage VFD can ensure an overall efficiency of over 97% and a power factor exceeding 0.96 (at loads greater than 20%) without the need for any compensation devices.



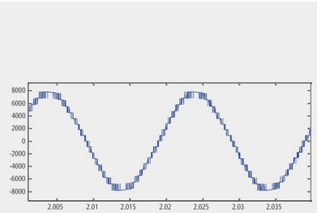
Perfect Output Waveform

A SPWM (Sinusoidal PWM) control technology is used for the VFD to output the nearly perfect sine wave. The output waveform complies with the requirements of the power quality standards in the Chinese national standard GB/T 14549 and IEEE 519.

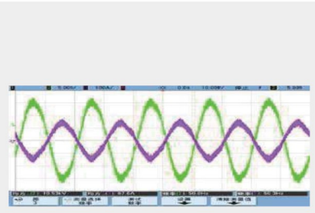
- No additional filters or power compensation devices in any form are needed, eliminating harmonic issues in motor operation.
- The input phase-shifting isolation transformer can effectively eliminate the influence of common-mode voltage of the VFD on the motor, without the insulation stress caused by motor common-mode voltage.
- Precise SPWM control technology can ensure a smaller dv/dt, allowing flexible cable length requirements.



Waveform of Single Module Output Voltage



Waveform of Series Output Voltage

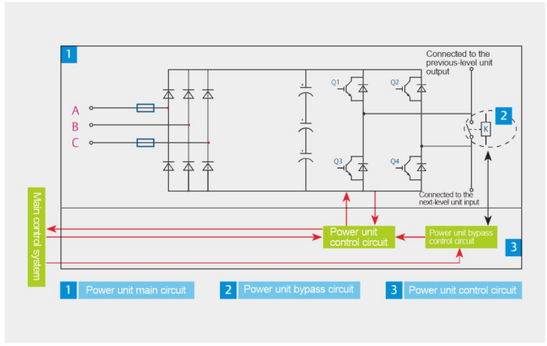


(Measured) Waveform of 50Hz Output Voltage and Current

Reliable Power Unit

A PCB copper connection is used for the main circuit inside the power unit, reducing cable copper bar connection points for higher reliability. Optional on-board bypass module components in the cabinet provide a simple and aesthetically compact structure. Innovative semi-sealed design separates cooling air duct from control components in sealed layers, enhancing environmental adaptability.

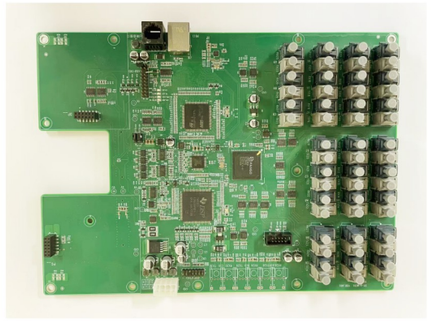
Power unit bypass technology: If a power unit fails, the main control system automatically detects the fault and sends a corresponding unit bypass control signal. The faulty power unit is automatically bypassed, and the three-phase voltage output by the VFD is guaranteed to be balanced through a neutral-point shifting technology. The unit bypass action time is very short (millisecond level), which will not produce significant output fluctuation to affect the normal operation of load.



Excellent Product Features

Multi-core Control Platform for the Main Control System to Significantly Enhance the Overall System Performance

- 1xSystem DSP+1×Control ARM+1×FPGA is used to realize the separation of logic control and algorithm control;
- BGA package is used for the core CPU to greatly reduce size and power consumption and make the performance more stable;
- The main frequency of DSP of 150MHz delivers up to 150MIPS computing power, enabling high-precision, high-speed computations with exceptional data processing and high-speed interrupt handling.



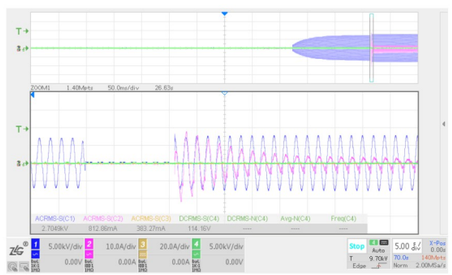
Convenient Operation & Maintenance

- Multiple mainstream communication protocols (such as Modbus, Profibus-DP, DeviceNet, and InterBus) are compatible, facilitating on-site modifications by users and remote debugging;
- Large-screen color touch screen is provided, with a multi-language interface, simple menu and built-in help interface, which is easy to operate and convenient to integrate the fault diagnosis function. The users can instantly view current and historical fault information and operation events for fault diagnosis and analysis;
- Front-access maintenance. A slide-out structure is used for the power unit for convenient and quick maintenance. In addition, the main control software provides intelligent fault positioning function to quickly position the location of fault unit. It greatly reduces maintenance time and improves maintenance efficiency;
- In view of the harsh operating conditions of high-voltage VFD, the more strict design and selection standards are used, with professional safety regulations and electromagnetic compatibility design, to ensure the incomparable superior characteristics.



Professional and Reliable

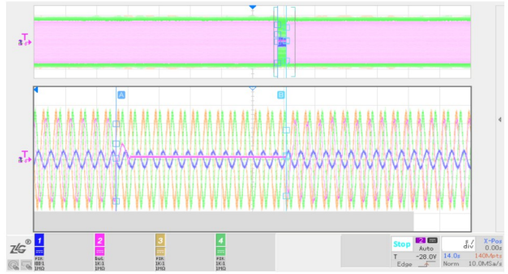
- The main components are of high-end brands, with redundant design, sufficient margin and high reliability, which can fully adapt to extreme working conditions;
- An 8-layer PCB design is used for the main control board, and a 4-layer PCB design is used for the power module control board. Meanwhile, all circuit boards are treated with three-layer three-proofing paint, to ensure the reliable operation of high-voltage VFD in various harsh application environments;
- A three-level redundant power supply is used for the control system: The secondary coil of the phase-shifting transformer is connected in parallel with the mains supply for operation, with redundant hot backup and no switching time. UPS or super capacitor backup power supply ensures the reliability of the power supply of control system to the greatest extent;
- The exclusive wide-voltage output technology is used. When the grid voltage drops to 55% of the rated voltage for a short time, it can continue to operate (derating) without protection shutdown;
- By adopting a unique pre-charging technology, the secondary coil of the transformer is used to pre-charge the power unit, effectively reducing the excitation current when the transformer is closed, and causing less impact on the power grid.

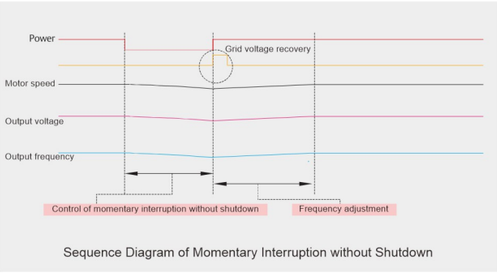


Outstanding Product Functions

Function of Momentary Interruption without Shutdown

If the power supply voltage drops or there is a power outage within 600ms, the output of the VFD will continue to track the rotational speed of the motor, maintaining that the DC bus voltage of all power units is higher than the DC bus under-voltage shutdown point, thus ensuring that the VFD does not shut down.

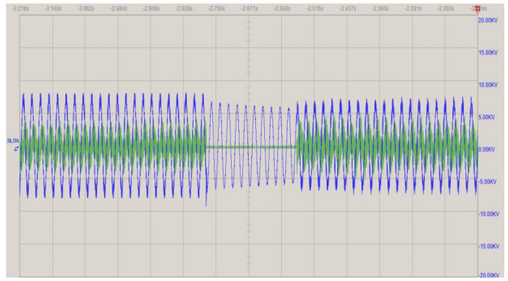


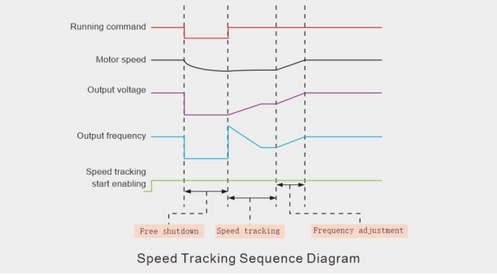


Sequence Diagram of Momentary Interruption without Shutdown

Rotational Speed Tracking Function

It is also known as flying start function. Whether the load moves or not, the VFD shall accurately detect and determine the current load state before output, and automatically output the frequency consistent with the current speed of the load, so as to realize the smooth starting and operation of the motor from the current rotational speed, without over-current.

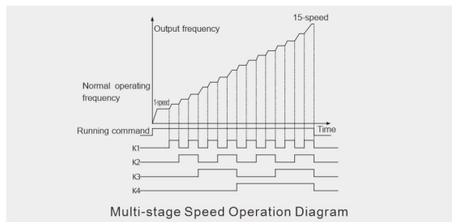




Speed Tracking Sequence Diagram

Multi-stage Speed Operation

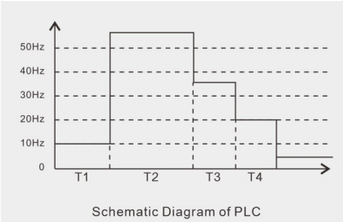
The VFD can run along the set multi-stage speed curve, with a maximum of 16-stage speed to be set, and the acceleration/deceleration slope between two adjacent stages of speed can be set as needed.



Multi-stage Speed Operation Diagram

Simple PLC Function

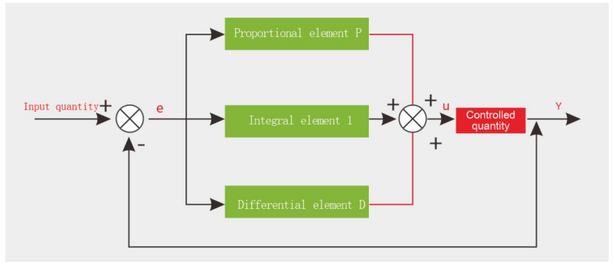
This function can control the motor to operate at different rotational speed stages at different time periods based on the received commands.

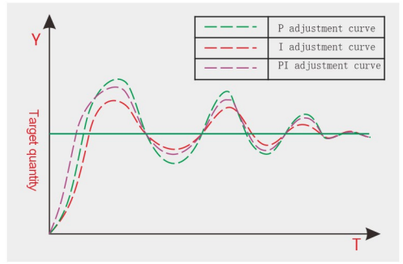


Schematic Diagram of PLC

Built-in PID

This function adjusts the output frequency of the VFD by performing proportional, integral, and derivative operations on the deviation between the feedback signal of the controlled quantity and the target quantity signal. It forms a feedback system to keep the controller stable at the target quantity. It is applicable to flow control, pressure control, temperature control and other process control.

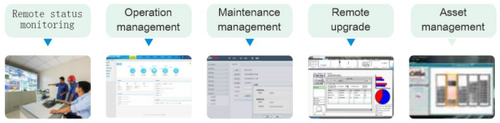


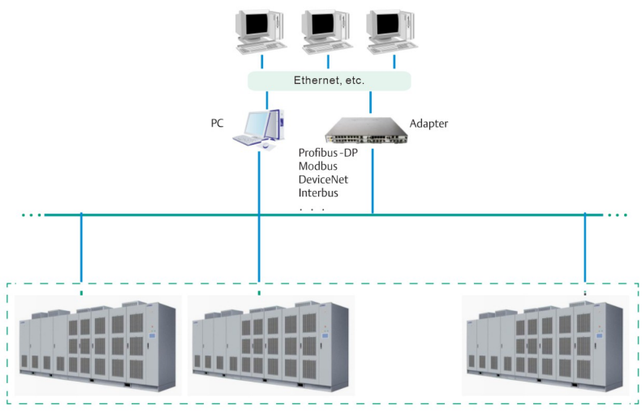


Diverse Communications and Interfaces

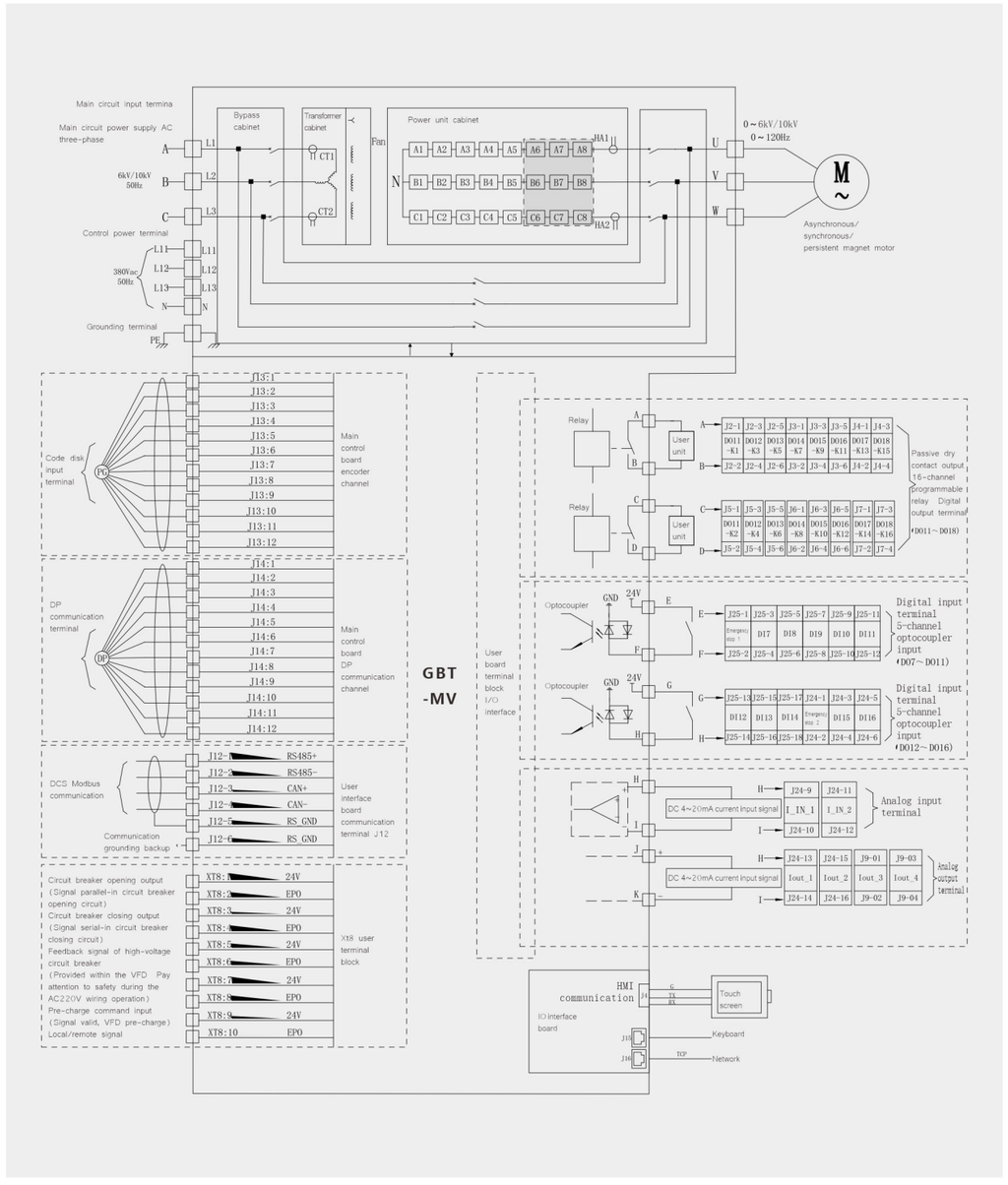
Remote Communication

GBT-MV series high-voltage VFD can realize the local, remote, backend communication and other control modes. Multiple mainstream communication protocols (such as Modbus, Profibus, DeviceNet, and InterBus) are compatible to complete remote debugging, remote parameter setting, remote monitoring and other operations, providing the perfect flexible connection for user system integration.





External Wiring Diagram



Input/Output Interface

S/N	Interface Definition	Technical requirements	Remarks
DI (DCS-VFD)			
1	Remote start	Passive dry contact	
2	Remote shutdown	Passive dry contact	
3	Remote pre-charging closing	Passive dry contact	
4	Remote fault reset	Passive dry contact	
5	Remote opening	Passive dry contact	
6	Remote emergency stop (EPO)	Dry contact normally closed	
DO (VFD-DC5)			
7	System in readiness	Passive contact output. It is defined as valid when the contact is closed	Contact capacity is AC220V and 5A
8	VFD allowed to start		
9	VFD in operation		
10	VFD fault		
11	VFD alarm		
12	Remote control		
AO (VFD-DCS)			
13	VFD speed output	Current source output of 4 ~ 20mADC (supplied by the VFD)	Load capacity is 600 Ω
14	VFD current output	Current source output of 4 ~ 20mADC (supplied by the VFD)	Load capacity is 600 Ω
AI (DCS-VFD)			
15	VFD speed setting	4~20mADC two-wire current source output	The load capacity is greater than 250 Ω,and the 4~20mADC signal must maintain a linear relationship with the speed range (lower/upper limits)
VFD - user incoming line switch			
16	Incoming line circuit breaker opening output	Passive contact output. It is defined as valid when the contact is closed	Contact capacity is DC220V, 10A
17	Incoming line circuit breaker closing output	Passive contact output. It is defined as valid when the contact is closed	Contact capacity is DC220V, 10A
User incoming line switch - VFD			
18	High-voltage circuit breaker status feedback signal input	Passive dry contact	

Perfect Technical Indicators

Items	Voltage	6kV	10kV
Applicable motor range	Common asynchronous motor, electrically excited synchronous motor, and permanent magnet synchronous motor		
Input	Rated voltage	Three-phase 50/60Hz, 6kV	3-cabinet, 50/60Hz, 10kV
	Voltage fluctuation range	Full load operation at 6kV/10kV±10%, with -45%~+10% long-term derating operation allowed	
	Frequency variation range	50Hz±10%	
	Unit input voltage	690Vac	
	Input power factor	20.95 (for loads above 20%)	
	Input current harmonic	≤ 4%, meeting the standards of GB/T14549-93 and EE519-1992	
Output	Output voltage range	0-6kV	0-10kV
	Unit output voltage	720V	
	Output frequency range	0~50Hz/60Hz, up to 700Hz (120Hz~700Hz customizable)	
	Speed control ratio	40:1 (general vector)/100:1 (SVC)/200:1 (FVC)	
	Speed accuracy	±0.5%(SVC)/±0.2%(FVC)	
	Torque response	<10ms	
	Starting torque	0.5Hz/150%(SVC);0Hz/180%(FVC)	
Technical Scheme		Unit cascading, AC-DC-AC, high-high mode	
Control mode		General vector, without/with speed sensor control mode (SVC/FVC)	
Rectifier mode		Diode three-phase full bridge	
VFD pattern		IGBT H-bridge inverter	
Acceleration/deceleration time		0.1~6,500s (>6,500s customizable)	
Start/stop control		Local or remote	
Control system		DSP，ARM，FPGA，HMI	
Panel display		Touch screen, multi-language	
Overload capacity		120% rated current, 1min	
Whether to have a fuse in the VFD		A fuse on the input side of the power unit	
Electrical isolation		Optical fiber	
Whether an input filter is required		No	
Whether an output filter is required		No	
Whether power factor compensation is required		No	
Power unit protection function		Overvoltage, undervoltage, input phase loss, overcurrent, overtemperature, communication, etc.	
System protection function		Motor overload, output overload, output short circuit, output grounding, input overcurrent, input overvoltage, input three-phase imbalance, input grounding, cooling fan fault alarm, door opening/closing interlock protection, transformer overheating alarm, transformer overheating trip, transformer secondary winding short circuit protection, etc.	
MTBF		50000h	
Communication interface		Modbus, Profibus-DP, and CAN (custom options available)	
On-off input		10-channel, relay dry contact	
On-off output		16-channel, relay dry contact	
Analog input		4-channel, 4~20mA or 0~10V	
Analog output		4-channel, 4~20mA or 0~10V	
Service environment		Indoor	
Ambient temperature		-10~40°C, +40~+50°C (derated operation), preheating required below -10°C	
Ambient humidity		5%~95%, non-condensing	
Altitude		≤1000m, If it is greater than 1,000m, the derated operation shall be performed. Please specify when ordering	
Total equipment noise		≤80dB	
Cooling mode		Forced air cooling	
Protection grade		IP30	
Incoming/outgoing line mode		Bottom incoming/outgoing (custom options available)	
Control power source		380Vac±10%, 3-phase 4-wire	

Perfect and Mature Primary Scheme

When the VFD needs to operate in two modes (power frequency and variable frequency), a special primary bypass scheme can be set to switch the operation modes of power frequency and variable frequency. According to the different needs of users, users can choose the following general schemes.

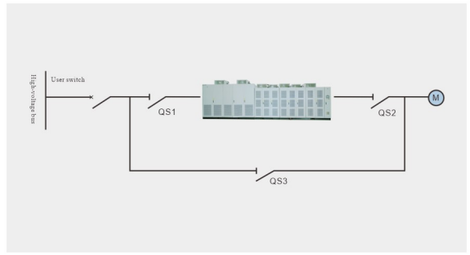
(1) Manual Bypass Using Disconnectors

The entire bypass system consists of three high-voltage disconnectors (QS1, QS2, and QS3):

When QS1 and QS2 are closed and QS3 is disconnected, the motor will operate in a variable-frequency mode;

When QS1 and QS2 are disconnected and QS3 is closed, the motor will operate in power frequency mode;

The bypass cabinet shall strictly follow the five-prevention requirements. The mechanical interlock is realized between the incoming and outgoing line switches QS1 and QS2 and the bypass switch QS3. The switching process cannot be completed automatically and requires manual intervention.



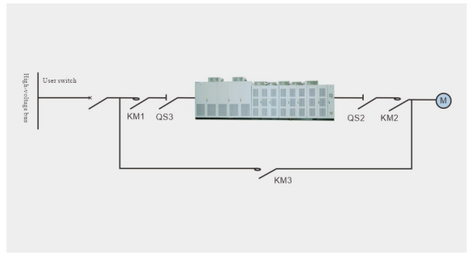
(2) Contactor-based Automatic Bypass

The entire bypass system consists of three vacuum contactors (KM1, KM2, and KM3) and two high-voltage disconnectors (QS1 and QS2):

When QS1 and QS2 are closed, KM1 and KM2 are closed and KM3 is disconnected, the motor will operate in variable frequency mode;

Electrical interlock is performed between incoming and outgoing line switches KM1 and KM2 and the bypass switch KM3. When the VFD fails, the motor can be switched to power frequency operation through Km3.

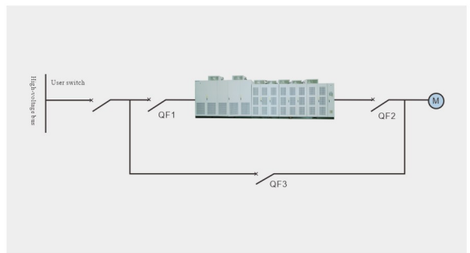
The function of disconnectors QS1 and QS2 is to isolate the VFD for maintenance and ensure the safety of maintenance personnel. The two disconnectors are in closing state during non-maintenance period.



(3) Circuit Breaker-based Automatic Bypass

The entire bypass system consists of three vacuum circuit breakers (QF1, QF2, and QF3): When QF1 and QF2 are closed and QF3 is disconnected, the motor will operate in a variable-frequency mode;

Electrical interlock is performed between the incoming and outgoing line switches QF1 and QF2 and the bypass switch QF3. In case of a fault in the VFD, the motor can be switched to operate at the power frequency through QF3.



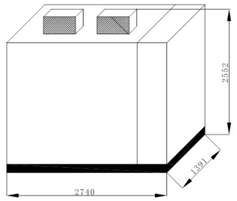
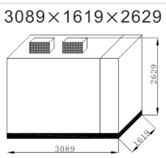
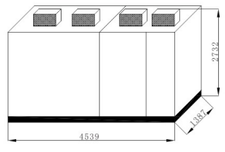
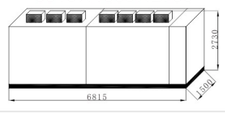
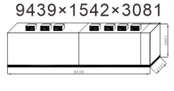
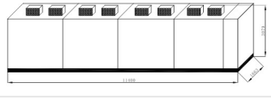
Product Specifications

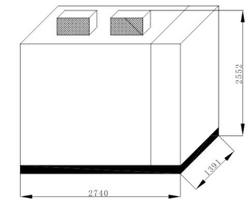
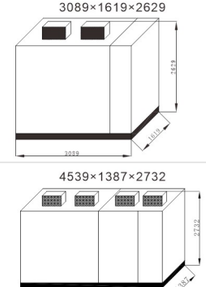
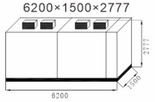
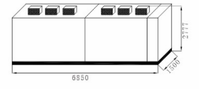
Model Description

GB T-MV S G 800- 10/10 C □-N-A1

- GB: High-voltage variable frequency
- T: Speed control RQ: Soft start
- MV: Product series
- S: New generation Default: None
- Model position
  G: General type
  F: High-performance type
  E: Four-quadrant type
  C: Special machine for air compressor
  M: Special machine for internal mixer
- Capacity: Unit: kVA
  800kVA
- Input voltage level Unit: kV
  06:6kV
  10. 10kV
- Output voltage level Unit: kV
  06:6kV
  10. 10kV
- Cabinet size category
  C: Compact type
  B: Conventional type
- Bypass type of the whole machine
  Default: Without bypass
  A: Automatic bypass
  M: Manual bypass
- N: Unit without bypass
  Y: Unit with bypass
- Default: Only for dragging asynchronous motors
  -A1: It can be used for dragging synchronous motors or asynchronous motors

Specification and Model of GBT-MV Series High-voltage VFD

Voltage Level (kV)	Model & Spec.	Rated Capacity (kVA)	Output Current (A)	Adaptive Motor Power (kW)	Weight (t)	Overall Dimensions (WXDXH, mm)
10	GBT-MVSG0280-10/10C□-□-□	280	16	220	2.5	2740×1391×2552 
	GBT-MVSG0315-10/10C□-□-□	315	18	250	2.5	
	GBT-MVSG0355-10/10C□-□-□	355	20	280	2.6	
	GBT-MVSG0400-10/10C□-□-□	400	23	315	2.6	
	GBT-MVSG0450-10/10C□-□-□	450	26	355	2.6	
	GBT-MVSG0500-10/10C□-□-□	500	29	400	2.6	
	GBT-MVSG0560-10/10C□-□-□	560	32	450	2.6	
	GBT-MVSG0630-10/10C□-□-□	630	36	500	2.8	
	GBT-MVSG0710-10/10C□-□-□	710	41	560	2.9	
	GBT-MVSG0800-10/10C□-□-□	800	46	630	3.0	
	GBT-MVSG0900-10/10C□-□-□	900	52	710	3.2	
	GBT-MVSG1000-10/10C□-□-□	1000	58	800	3.4	
	GBT-MVSG1120-10/10C□-□-□	1120	65	900	3.6	
	GBT-MVSG1250-10/10C□-□-□	1250	72	1000	3.8	
	GBT-MVSG1400-10/10C□-□-□	1400	81	1120	4.7	3089×1619×2629 
	GBT-MVSG1600-10/10C□-□-□	1600	92	1250	4.9	
	GBT-MVSG1800-10/10C□-□-□	1800	104	1400	5.1	
	GBT-MVSG2000-10/10C□-□-□	2000	115	1600	5.3	
	GBT-MVSG2250-10/10C□-□-□	2250	130	1800	5.5	
	GBT-MVSG2500-10/10C□-□-□	2500	144	2000	5.7	
	GBT-MVSG2800-10/10B□-□-□	2800	162	2240	7.4	4539×1387×2732 
	GBT-MVSG3000-10/10B□-□-□	3000	173	2400	7.7	
	GBT-MVSG3150-10/10B□-□-□	3150	182	2500	7.8	
	GBT-MVSG3500-10/10B□-□-□	3500	202	2800	7.9	
	GBT-MVSG3750-10/10B□-□-□	3750	217	3000	8.0	
	GBT-MVSG4000-10/10B□-□-□	4000	231	3150	8.5	
	GBT-MVSG4500-10/10B□-□-□	4500	260	3550	8.5	
	GBT-MVSG5000-10/10B□-□-□	5000	290	4000	8.8	6815×1500×2730 
	GBT-MVSG5600-10/10B□-□-□	5600	320	4500	9.3	
	GBT-MVSG6250-10/10B□-□-□	6300	360	5000	11.2	
	GBT-MVSG6300-10/10B□-□-□	6300	360	5000	12.0	
	GBT-MVSG7000-10/10B□-□-□	7000	410	5600	13.7	
	GBT-MVSG8000-10/10B□-□-□	8000	460	6300	15.1	9439×1542×3081 
	GBT-MVSG9000-10/10B□-□-□	9000	520	7100	16.3	
	GBT-MVSG9500-10/10B□-□-□	9500	550	7600	17.1	
	GBT-MVSG10000-10/10B□-□-□	10000	580	8000	17.4	
	GBT-MVSG11250-10/10B□-□-□	11250	650	9000	18.0	11400×1663×3079 
	GBT-MVSG12500-10/10B□-□-□	12500	720	10000	19.0	
	GBT-MVSG13750-10/10B□-□-□	13750	810	11000	21.0	
	GBT-MVSG15600-10/10B□-□-□	15600	900	12500	23.0	
	GBT-MVSG16000-10/10B□-□-□	16000	920	13000	25.0	

Voltage Level (kV)	Model & Spec.	Rated Capacity (kVA)	Output Current (A)	Adaptive Motor Power (kW)	Weight (t)	Overall Dimensions (WXDXH, mm)
6	GBT-MVSG315-06/06C□-□-□	315	30	250	1.4	2740×1391×2552 
	GBT-MVSG355-06/06C□-□-□	355	34	280	1.4	
	GBT-MVSG400-06/06C□-□-□	400	38	315	1.4	
	GBT-MVSG450-06/06C□-□-□	450	43	355	1.7	
	GBT-MVSG500-06/06C□-□-□	500	48	400	1.7	
	GBT-MVSG560-06/06C□-□-□	560	54	450	1.7	
	GBT-MVSG630-06/06C□-□-□	630	61	500	2.1	
	GBT-MVSG710-06/06C□-□-□	710	68	560	2.1	
	GBT-MVSG800-06/06C□-□-□	800	77	630	2.6	3089×1619×2629 
	GBT-MVSG900-06/06C□-□-□	900	87	710	2.6	
	GBT-MVSG1000-06/06C□-□-□	1000	96	800	3.1	
	GBT-MVSG1120-06/06C□-□-□	1120	108	900	3.1	
	GBT-MVSG1250-06/06C□-□-□	1250	120	1000	3.5	
	GBT-MVSG1400-06/06C□-□-□	1400	135	1120	3.5	
	GBT-MVSG1600-06/06B□-□-□	1600	154	1250	3.6	4539×1387×2732
	GBT-MVSG1800-06/06B□-□-□	1800	173	1400	4.0	
	GBT-MVSG2000-06/06B□-□-□	2000	192	1600	4.6	
	GBT-MVSG2250-06/06B□-□-□	2250	217	1800	4.7	
	GBT-MVSG2500-06/06B□-□-□	2500	241	2000	5.0	
	GBT-MVSG2800-06/06B□-□-□	2800	269	2250	5.5	6200×1500×2777 
	GBT-MVSG3150-06/06B□-□-□	3150	303	2500	8.1	
	GBT-MVSG3550-06/06B□-□-□	3550	341	2800	8.6	
	GBT-MVSG4000-06/06B□-□-□	4000	385	3150	8.6	
	GBT-MVSG4500-06/06B□-□-□	4500	433	3550	12.6	6850×1500×2777 
	GBT-MVSG5000-06/06B□-□-□	5000	481	4000	12.6	
	GBT-MVSG5600-06/06B□-□-□	5600	539	4500	13.0	
	GBT-MVSG6300-06/06B□-□-□	6300	606	5000	13.3	

Notes:

1. The dimensions listed in the table are standard. For models without specified dimensions, please refer to the actual product or contact Dayu Electric for details.
2. For VFD products with other power ratings, voltages, or dimensions, please consult Dayu Electric.

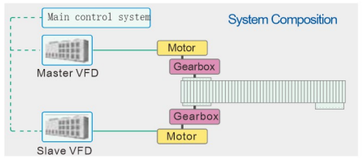
Innovative Design Solutions

High-voltage VFD Solution for Belt Conveyor

Model Selection

The upward belt conveyor will not generate energy feedback during operation, so the general VFD is selected.

The downward belt conveyor will generate numerous energy feedbacks during operation, so the four-quadrant VFD is selected.

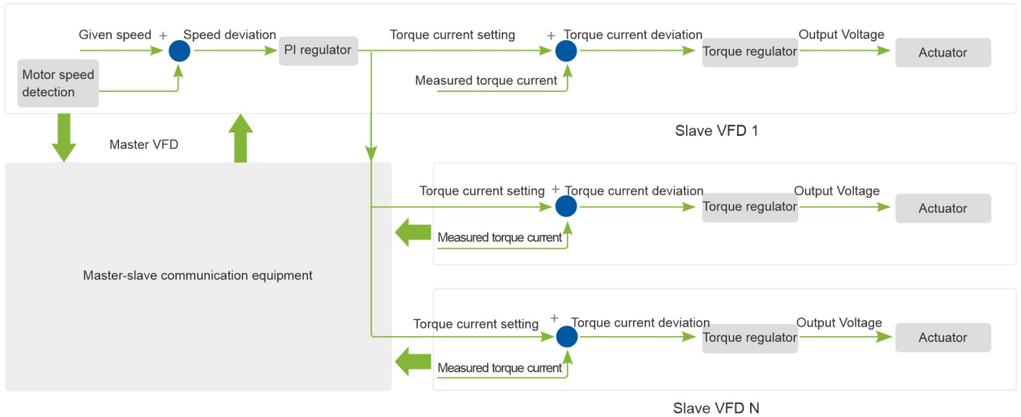


Capacity Selection

The capacity of the general VFD is more than 1.25 times the rated power of the motor. It can handle a 150% rated current overload for 60s. If a four-quadrant VFD is used, please consult Dayu Electric for capacity selection.

Control mode

In complex working condition belt system with numerous motors, large discreteness of load parameters of a single motor and scattered motor arrangement, the master-slave control scheme of multi-VFD is generally used. The master-slave synchronous control system realizes and ensures the consistent speed of each motor through several completely independent VFDs via the synchronous CAN bus communication of the master and slave units. The CAN bus communication collects the current signal, voltage signal and frequency signal from the slave unit in real time and transmits them to the master unit. The master unit dynamically adjusts the torque signal of the slave unit, and the slave unit always follows the torque setting of the master unit, ensuring the average output power and power balance between the master and slave units.



Key Features

In order to avoid master VFD fault affecting the safety of entire system, an unfixed master unit operation mode is used for the system. Any VFD participating in the master-slave control can be set as the master unit, ensuring there is backup VFD in the entire belt conveyor system. During normal operation, one-master one-slave or one-master multi-slave coordinated control is performed. When the master VFD fails, any slave unit or backup VFD can be quickly set as the master unit, maintaining the master-slave control mode of the system and ensuring the normal operation of the system.

Permanent Magnet Synchronous Motor System Solution

Applications

Permanent magnet synchronous motors are mainly used in electric power, metallurgy, building materials, papermaking, cement, coal mining, chemical industry, refrigeration and other working conditions of the enterprise's fans, pumps, air compressors, blowers, belt conveyors, ball mills, mixers, extruders, and other loads, through the high and low-speed permanent magnet synchronous motors direct-drive, semi-direct-drive program, to achieve the application of the motor drive to improve the energy efficiency of the application scenarios.

Load Characteristics



High-speed direct drive

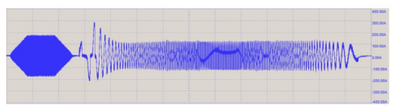


Low-speed direct drive

System Features

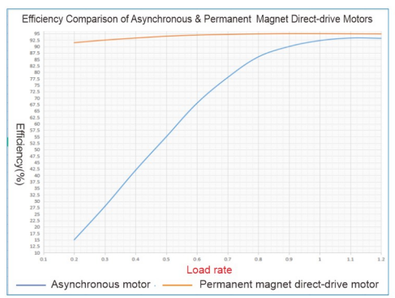
Motor Parameter Self-learning

Through static tuning and dynamic tuning methods, the parameters such as the d-axis inductance, q-axis inductance, stator resistance, and winding back EMF of the permanent magnet synchronous motor can be accurately identified and stored. Based on these identified parameters, the motor can be precisely controlled in vector mode.



Field Vector Control

An advanced space vector field-oriented control (FOC) strategy is used, and the system is controlled using a dual closed-loop structure consisting of a speed outer loop and a current inner loop. The rotor position is directly measured through sensors to ensure the stability and high precision of the system.



Sensorless Vector Control

By using the MRAS algorithm, the rotor position and speed can be estimated based on the stator side voltage and current of the motor, eliminating the need for a motor encoder.

High System Operation Efficiency

The two-phase permanent magnet synchronous motor has a relatively high efficiency curve, and even when the load rate is below 50%, it still maintains a relatively high efficiency value. The original reducer can be replaced with a high and low-speed permanent magnet motor for direct drive. The speed of the motor is adjusted by the VFD to meet the production process requirements.

High-voltage VFD Solution for Internal Mixer

With the development of society and economy, the internal mixer, as the core equipment in the rubber tire industry, has received increasing attention from customers for its energy conservation and emission reduction capabilities. Dayu Electric responds promptly to the customers' demands and launches a dedicated high-voltage VFD for the internal mixer, in combination with advanced vector control technology, to achieve energy conservation and emission reduction while improving the customers' production processes. It will bring greater practical benefits to customers.

Advantages of Using High-voltage VFDs in the Internal Mixer

Meet the overload requirements of internal mixers

Be applicable to the periodic load requirements

Improve the system speed stability requirements

Improve the mixing process. It can also be customized according to the specific requirements of the customers

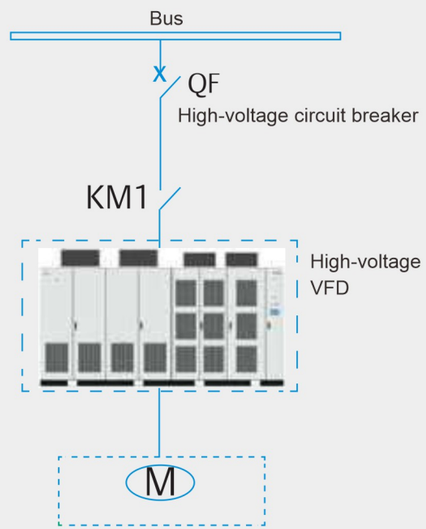
High precision of steady speed

High dynamic speed index

Fast torque response

Large starting torque

System Solution







Innovative Design Solutions

Test process

Safety test
Insulation and withstand voltage

EMC test
Lightning, power supply noise Electrical fast transient Static, voltage drop

Environmental test
Alternating temperature and humidity,high/low temperature shock Salt mist, high temperature, full load libration, drop

Performance test
Rated Parameters Protection function Basic function

Application Field



Mining

Ventilator Belt conveyor
Elevator Gas pump



Petroleum & petrochemical

Pipelinepump Waterinjectionpump
Electricsubmersiblepump Brinepump
Descalingpump Exhaust fan



Water supply

Lift pump Sewage pump
Purificationpump Cleanwaterpump



Electric power

Induced draft fan Blower
Booster fan Condensate pump
Feed pump Circulating water pump



Metallurgy

Blast furnace blower Dust removal fan
High temperature fan Circulating water pump



Light industry & textile clothing

Internal mixer Refiner
Air compressor Turbine fan

Nationwide Service Network



● Sales outlets ● Office ★ Branch ★ Headquarters

Services	Engineering technical services	Professional Training	Service System
√ Spare parts localization √ Maintenance by local personnel	√ Overall scheme design √ Installation and commissioning tracing √ Upgrading support	√ Regular technical training √ Engineering installation guidance √ Training on industrial solutions	√ Guarantee corresponding using times √ Upgrading process of emergency call √ Customer service network √ National multi-level component service √ Industry leading training & certification
Free Hotline			0712-2883450

Regional Performance Overview of VFD

- 内蒙古聚实能源有限公司焦化升级改造年产20万吨合成蜡配套清洁化学品项目
- 乌海包钢万腾钢铁有限责任公司AV71（BPRT）机组变频软启动装置
- 三峡能源空气压缩机组配套高压变频装置

- 宁夏滨泽新能源科技有限公司6万吨/年冶金工业尾气生物发酵法制燃料乙醇项目离心煤气压缩机组配套变频调速装置
- 宁夏申银特钢股份有限公司80MW煤气综合利用发电项目工程

- 西北电力设计院甘肃酒泉玉门300MW压缩空气储能电站示范工程EPC总承包项目

- 新疆八一钢铁股份有限公司炼钢120t转炉增设三次除尘项目变频器设备
- 新疆伊犁钢铁风机电机高效节能变频改造项目（EMC）
- 中国恩菲新疆火烧云铅锌矿60万吨/年铅锌冶炼工程
- 克拉玛依区南郊污水处理厂再生水利用工程

- 青海格尔木中科储能项目
- 西宁特殊钢股份有限公司65MW亚临界发电机组
- 青海亚洲硅业半导体有限公司40000t/a电子级多晶硅项目

- 山西高义钢铁有限公司AV80-16 BCRT机组变频软启动装置
- 山西建龙实业有限公司烧结系统项目
- 山西燃气产业集团有限公司原平煤层气液化项目

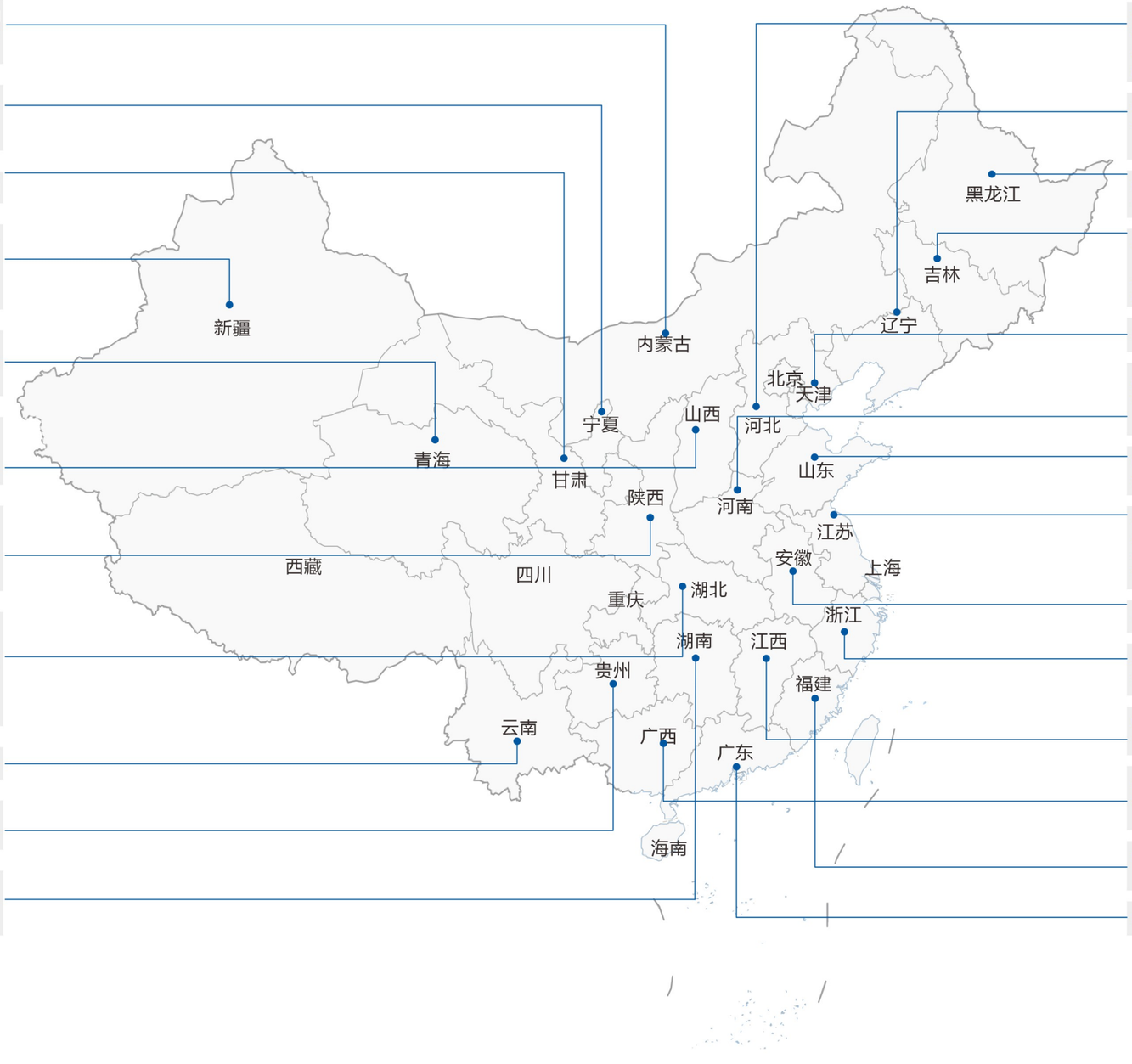
- 陕西龙门钢铁有限责任公司AV71机组配套高压变频器
- 中机国能延安煤油气资源综合利用热动力站工程
- 中国电建陕西澄城秦尧电厂4×29MW热源项目
- 中盐榆林盐化有限公司鱼河制盐厂锅炉风机变频节能改造

- 湖北应城300MW级压缩空气储能电站示范工程项目
- 武钢有限能环部热控单元五鼓风机变频器升级改造维修工程
- 中国电建大悟抽蓄机电设备成套项目静止变频起动装置设备采购项目
- 武汉钢铁有限公司六号高炉大修改造LCI变频器项目
- 中韩（武汉）石油化工有限公司炼油四部2#焦化压缩机K-2201项目
- 湖北大峪口化工有限责任公司磷酸车间循环水高压变频调速项目

- 昆明东山水泥生产有限公司2#水泥磨系统技改工程

- 贵州安达科技能源股份有限公司高压变频器项目
- 贵州紫金矿业股份有限公司高压变频器项目

- 衡阳市城市生活垃圾焚烧发电厂扩建工程（二期）项目
- 常德市生活垃圾焚烧发电项目技改续建工程
- 三峡后续规划华容县城关二水厂工程



- 唐山瑞丰钢铁（集团）有限公司引风机高压变频项目
- 河钢乐亭钢铁有限公司AV90-15机组
- 河北中翔能源有限公司120000Nm3/h焦炉气制LNG及富氢尾气制液氨装置
- 某研究所169MW测试系统高压变频器项目

- 辽宁澎辉铸业有限公司AV71 BPRT变频软起动装置
- 本溪北营钢铁（集团）股份有限公司1x135MW 余气资源综合利用发电EPC总承包工程

- 建龙西林钢铁有限公司AV71(BPRT)机组变频软启动装置
- 建龙北满特钢有限责任公司265㎡烧结机升级改造项目

- 吉林杭氧气体有限公司2*25000Nm3/h O2空分装置空压机、氧压机变频一拖四启动装置
- 长春大成生物科技开发有限公司高压变频器项目
- 吉林恒联精密铸造科技有限公司煤气加压机高压变频装置

- 天津铁厂有限公司

- 河南闽源特钢有限公司产能置换炼钢系统
- 灵宝宝鑫电子科技有限公司年产4万吨动力锂电池铜箔项目冷冻机离线压缩机变频装置

- 山东泰安350MW压缩空气储能创新示范项目
- 山东临沂钢铁投资集团特钢公司高炉鼓风机电机及变频软起动

- 江苏省镔鑫钢铁集团有限公司AV63-15机组变频软启动装置
- 扬州恒润海洋重工有限公司炼铁大修改造高炉风机主电机变频软起动装置
- 徐州陕鼓工业气体有限公司6万+3万空分装置项目
- 江苏徐钢钢铁集团有限公司1280立方米高炉配套烧结机技改项目

- 安徽首矿大昌金属材料有限公司新建3500mm中厚板轧机工程项目

- 北大先锋浙江聚泰制氧项目
- 杭州福斯达深冷装备股份有限公司GOX40000配套

- 新余钢铁股份有限公司AV80-15轴流压缩机
- 江西齐劲材料有限公司制氧站项目

- 广西柳州钢铁集团有限公司镍铁冶炼项目高炉系统供配电系统总承包工程
- 广西钢铁集团有限公司防城港钢铁基地项目（一期）长材系统扎线主体及附属设施工程

- 正新（漳州）橡胶工业有限公司211A车间12#流程以及21#流程HF串联式密炼机工程

- 广东新兴铸管有限公司高炉冲渣泵高压变频调速装置