RENLE

RNHV

RNHV series High-voltage VFD

Technical innovation benefits the world

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Professional Manufacturer for Smart Grid • New Energy • Electric Drive

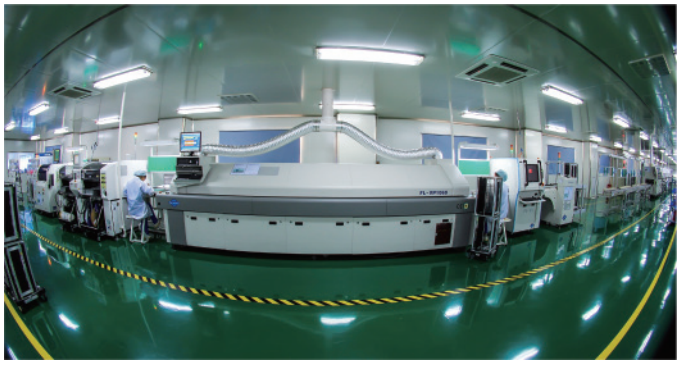
Shanghai RENLE Science&Technology Co., Ltd.

Shanghai RENLE Technology Co., Ltd specializes in providing advanced electrical energy-saving systems and integrated control solutions. Our range includes soft starters for both high and low voltage motors, variable frequency drives tailored for various voltage applications, intelligent electrical appliances, cutting-edge new energy solutions, and comprehensive sets of equipment designed for high and low voltage power transmission. These products find widespread application across industries such as power generation, metallurgy, oil and gas, military operations, mining, chemicals, construction, building materials, light industry, pharmaceuticals, municipal services, textile printing, paper production, rubber and plastics, as well as electrified railways. Our products are distributed globally in numerous countries and regions.

The company has contributed essential products and services to major national projects including the Shanghai World Expo, Beijing Olympics, Yangshan Deepwater Port project at the Shanghai International Shipping Center, Shanghai Pudong Airport, Shanghai Hongqiao Airport, Three Gorges Project, Gansu Satellite Launch Center, South-to-North Water Diversion Project, West-East Gas Pipeline, China National Petroleum Corporation, China Petrochemical Corporation, Shuangqian Group, and Linglong International Tire Co., Ltd. With top-tier product quality and exceptional after-sales service, our offerings have garnered rave reviews from satisfied users.

The company has taken the lead in obtaining various certifications such as ISO9001 Quality Management System, ISO14001 Environmental Management System, OHSAS18001 Occupational Health and Safety Management System,

雷诺尔
Shanghai RENLE
Science&Technology Co., Ltd.



CE Certification from the European Union, China Compulsory Certification (CCC), China Energy Conservation Product Certification, TUV Certification from Southern Germany, GOST Certification from Russia, and other product inspection certifications. Renle consistently invests in advanced international production equipment and testing devices, establishing laboratories and research and development hubs in collaboration with several domestic universities. With approval from the Human Resources and Social Security Bureau, the company has been authorized to set up a postdoctoral workstation. This initiative underlines Renle's commitment to fostering partnerships with academic institutions, creating an industry-university-research platform that bolsters independent innovation capabilities and strengthens R&D efforts.

Throughout the years, the dedicated team at Renle has been committed to progress, driving the company towards modernized production, centralized management, specialized product offerings, and technological excellence. This unwavering commitment has garnered Renle numerous accolades and honors including recognition as a National Torch Program Key High-Tech Enterprise, National Contract-Abiding and Credit-Reliable Enterprise, National Key New Product awardee, as well as various distinctions such as Shanghai Innovative Enterprise, Shanghai Enterprise Technical Center, Shanghai Famous Trademark, Shanghai Famous Brand Product, Shanghai Key New Product, Shanghai Excellent Product, Postdoctoral Workstation, and Smart Grid Research and Development Center.

Renle will continue to innovate by developing energy-saving, efficient, precise, and user-friendly products. Leveraging our expertise in industrial control technology, pioneering product solutions, and comprehensive integrated offerings, we aim to support our users in achieving economic transformation and industrial advancement. Additionally, we are committed to accelerating our international presence, striving for global recognition as a premier provider of intelligent electrical solutions marked by quality. Our aspiration is to be a renowned global leader in the smart electrical industry!

RNHV

RNHV series High-voltage Variable Frequency Drive(VFD)

Product Overview

The RNHV series intelligent high-voltage variable frequency drive adopts the power unit series connection technology, which directly output 6kV/10kV voltage. It belongs to the high-high voltage source type inverter.

The product is designed with the goals of ensuring high reliability, user-friendly operation, and exceptional performance. It effectively meets the requirements of users seeking energy-saving speed control for applications such as fans, pumps, and compressors, thus enhancing production processes.

The entire system undergoes rigorous inspection and performance testing before leaving the factory, ensuring the quality and performance of each individual equipment that is being shipped.

To meet the needs of retrofit projects and minimize the investment for new construction projects, as well as to shorten the construction period for the installation and retrofitting of high-voltage variable frequency drive systems , and integrated design concept has been adopted. This includes transformer cabinets, power cabinets, control cabinets, high-voltage switchgear(optional bypass cabinet), and all components and internal connections. Users only need to connect the high-voltage input/output cables, low-voltage control power supply, and control signal lines.

The RNHV series high-voltage variable frequency drive system features integrated transportation and unilateral maintenance, making it convenient and user-friendly for on-site installation, maintenance, and commissioning. The unit's DC support capacitor requires a metallized film capacitor and an internal mechanical bypass module.Compared to electrolytic capacitors, it offers higher reliability, maintenance-free operation, and longer lifespan. The system also enhanced protection and control functions, providing greater environmental adaptability and meeting the process speed control requirements of various operating conditions.

Product Features

RNHV1000 series

- Output Power: Maximum power 10kV/2000kW, 6kV/1250kW
- Integrated structure: Overall dimensions reduced by 40%, integral transportation and enabling one-sided maintenance.
- Quick connectors: Maintenance time for power units reduced by 50%, providing a streamlined and efficient process.
- Film capacitors: Expected lifespan of up to 10 years, ensuring safety, reliability, and excellent performance.
- Unit thermal protection: Real-time temperature monitoring, offering sensitive and reliable protection.
- Human-machine interaction window: True color touch screen, providing easy operation and a clear overview of equipment information.
- 5G+ Industrial Cloud: Cloud-based intelligence, enabling remote and efficient technical support

RNHV2000 series

- Output power: Maximum power of 10kV/12500kW and 6kV/8000kW.
- Standard Industrial Design: Supports various voltage levels ranging from 3 to 13.8kV, suitable for high altitude, low temperature, and high humidity applications.
- Customization for Customers: Supports customized functionality and appearance to meet diverse customer requirements.
- Inverter Type: Voltage source cascaded multilevel technology with no special requirements for motors and cables, achieving perfect harmonic-free operation without the need for filters. Direct power supply distance can reach up to 1000m
- Siemens PLC： Provides safe and reliable precise logic process control with standard industrial interfaces.

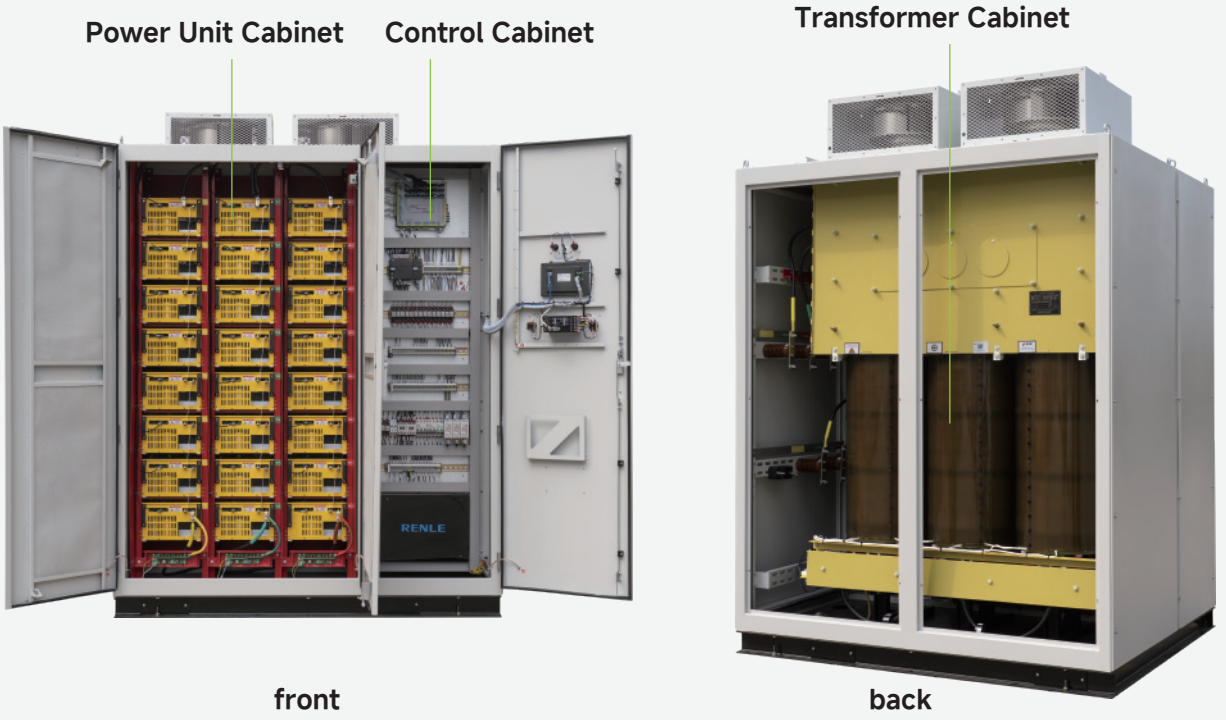
Model Description

RN HV- A - 10 / 1000

- Output Power
- Voltage Level
- Motor Type
- Product Code
- Company code

NO.	Name	Model	Description
1	Company code	RN	Shanghai Renle Science&Technology Co.,Ltd.
2	Product code	HV	High-Voltage variable frequency Drive
3	Motor Type	A	A:Asynchronous Motor, S:Synchronous Motor, PS:Permanent magnet synchronous motor
4	Voltage Level	10	10:10kV、6:6kV
5	Output Power	1000	Adapted motor power “1000” represents “1000kW”

The components of the RNHV1000 Series



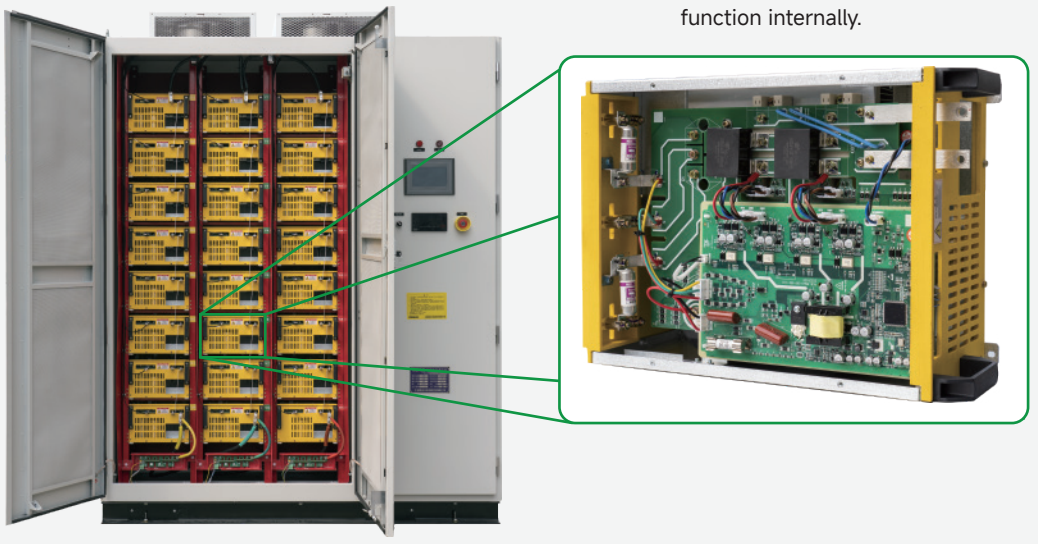
Power Unit Cabinet

Innovative modular drawer cabinet structure

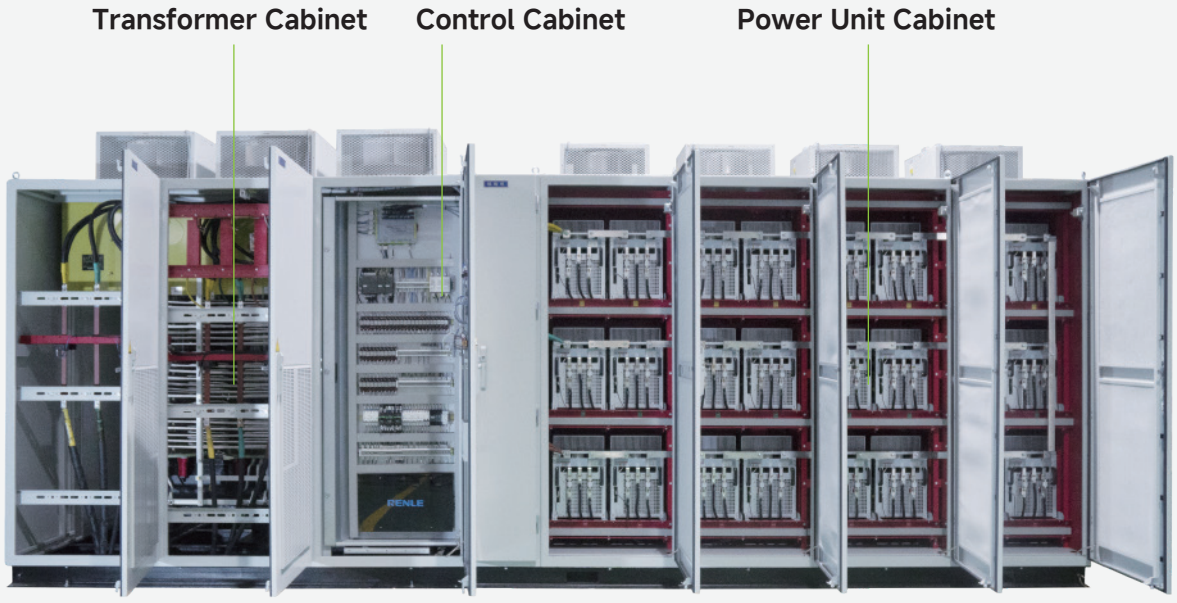
The new cabinet design features a modular drawer cabinet structure, allowing for quick plug-and-play connections and convenient installation and maintenance. It incorporates innovative aesthetics with a lightweight and visually pleasing design.

Power Unit

H-bridge topology structure, modular design with interchangeable units; semi-sealed structure, strong environmental adaptability and high reliability; Integrated unit with bypass function internally.



The components of the RNHV2000 Series



front

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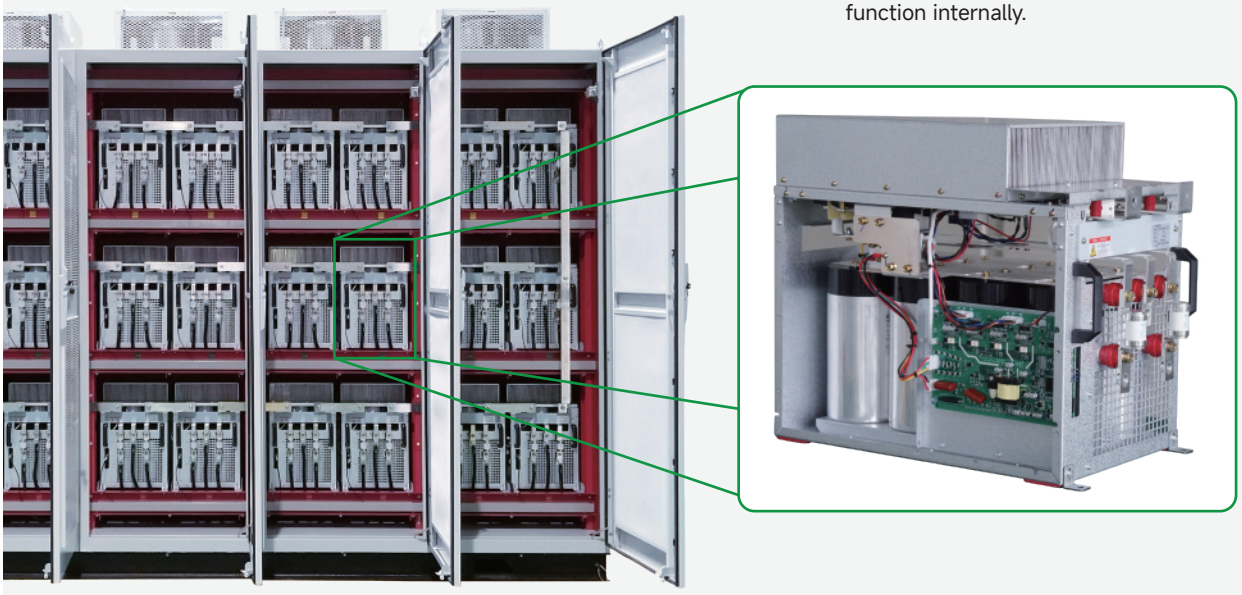
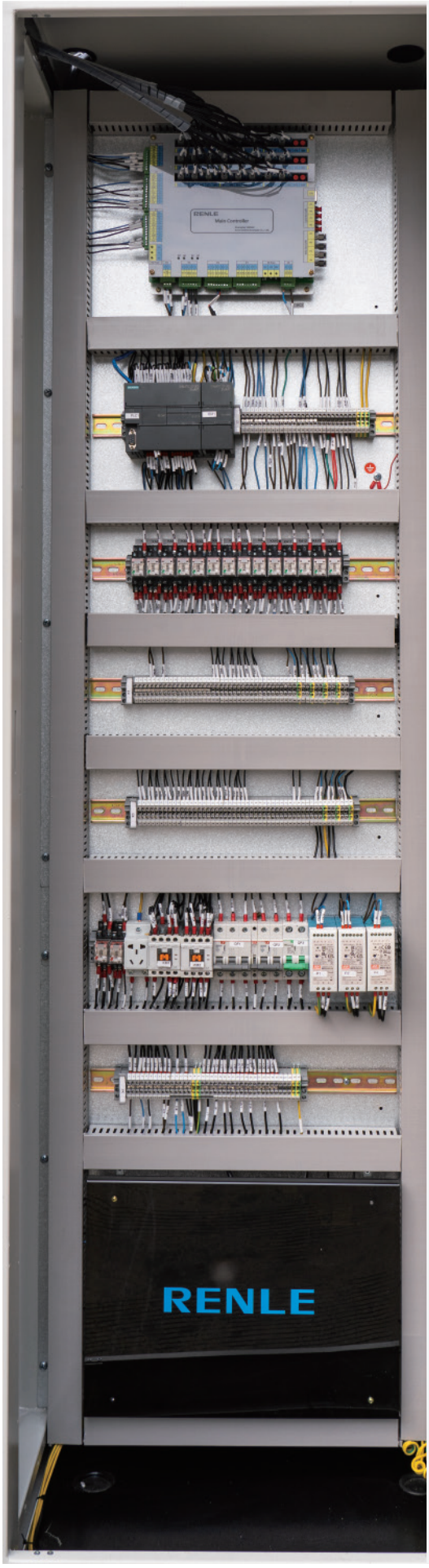




RNHV

series High-Voltage Variable Frequency Drive(VFD)

Control Cabinet

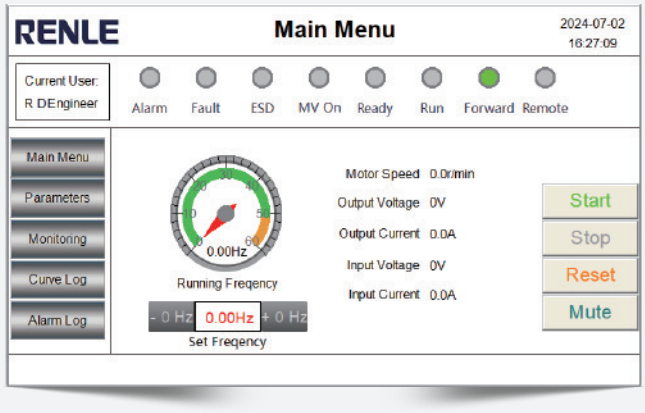
Revolutionary all-in-one controller

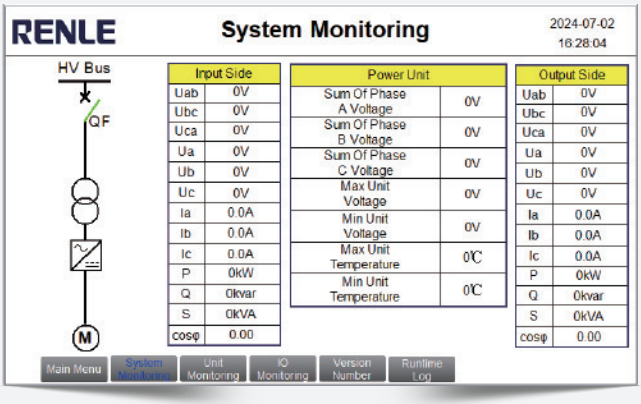
Our state-of-the-art integrated controller, in conjunction with the PLC controller and standardized internal and external interfaces, enhances the cabinet's layout, provides convenient on-site installation and usage, while ensuring consistent equipment maintenance.

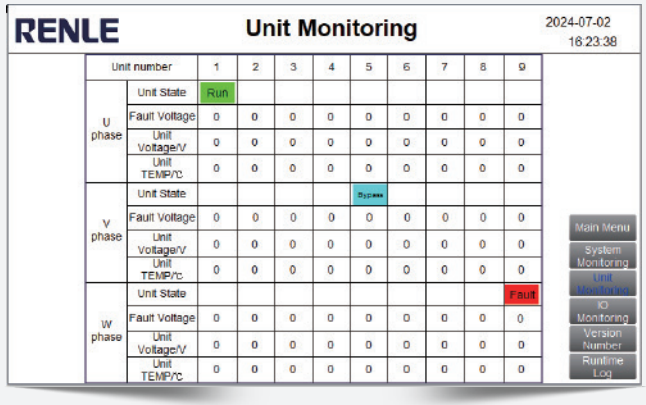
Excellent Human-Machine Interface

Monitoring Systems

> True color touchscreen, easy to use
> User-friendly interface with accessible operational data
> Virtual gauges for instant display of key variable frequency drive parameters
> System status monitoring and power unit status monitoring
> Real-time data, historical data, trend analysis, and fault diagnostics
> Parameter setting and operation data recording
> User permission settings for equipment usage, debugging, and maintenance
> Multi-language support







Control System

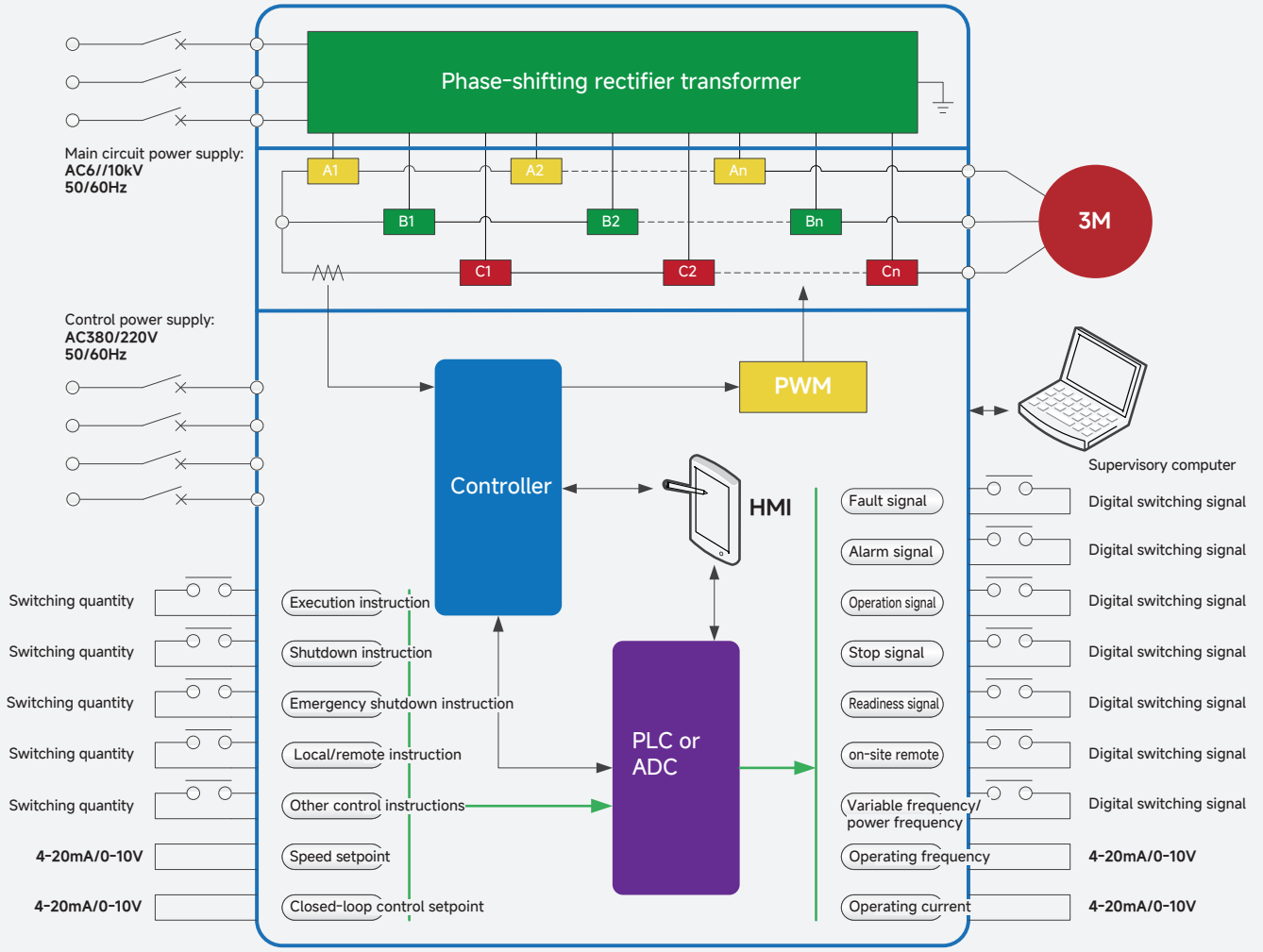
The control system is the core of the entire high-voltage variable frequency speed control system. All functions are based on a comprehensive control concept, and the carefully designed algorithms ensure that the motor operates at its optimal state. The human-machine interface provides a user-friendly fully Multilingual selection monitoring and operating interface, while also enabling remote monitoring and network-based control.

1. The control system consists of a controller, a human-machine interface(HMI), and a programmable logic controller(PLC), among others. The HMI serves as a window for communication between the high-voltage variable frequency speed control system and the user on-site, offering convenience and efficiency. The controller implements PWM control algorithms. The built-in PLC is used for the logical processing of switch signals inside the cabinet, allowing flexible interaction with the user on-site to meet specific requirements.

2. The programmable logic controller(PLC) is used to handle various switch-based logical signals, user on-site control system flow signals, and status signals. This enables the variable frequency speed control system to have a strong system interface and communication capability. Additionally, it can be expanded according to user requirements.

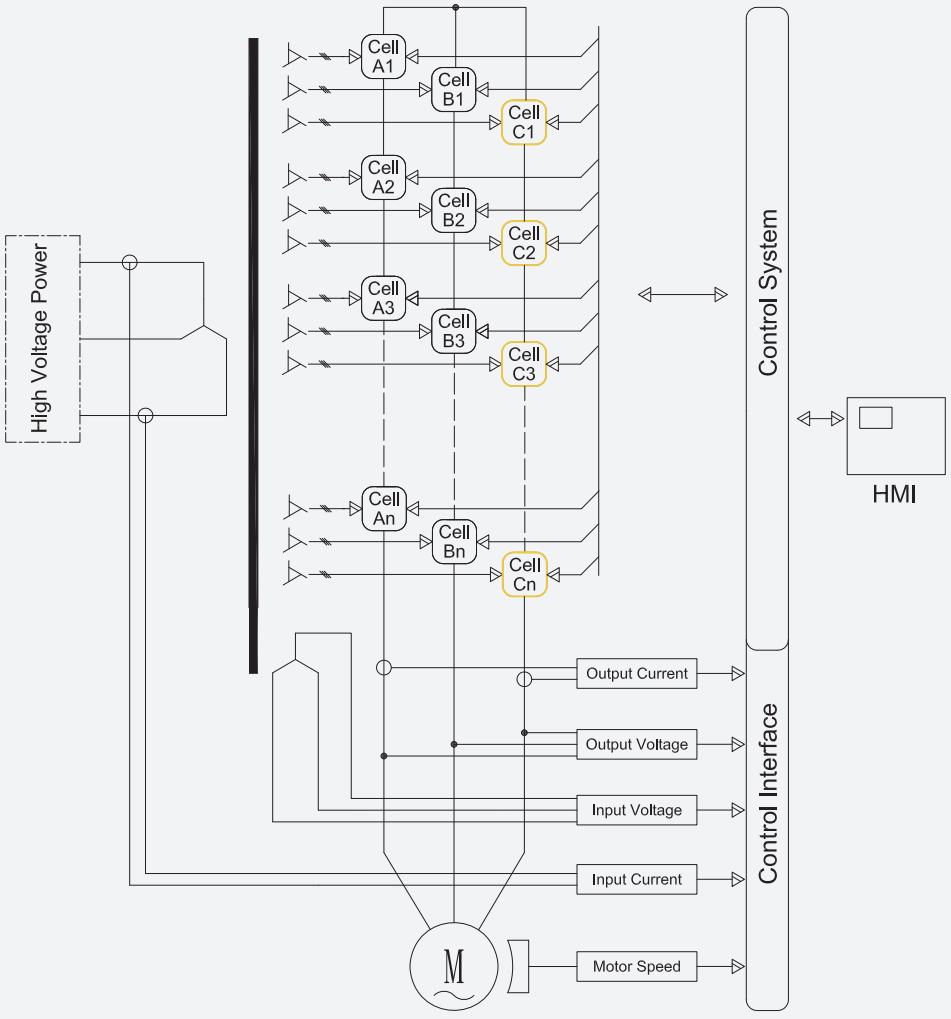
3. The control cabinet and the power unit are connected using fiber optic communication technology, ensuring electrical isolation between the low-voltage and high-voltage parts. This system has high reliability, fast communication speed, and strong resistance to electromagnetic interference. The control cabinet is equipped with an Uninterruptible Power Supply(UPS) to ensure reliable power supply for the control system.

System Wiring Diagram



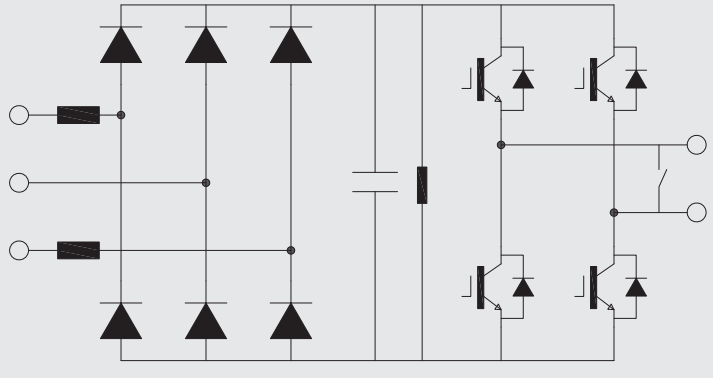
Topology

This system adopts the most advanced power unit cascaded multi-level technology, which is connected in series. By staking the voltages of these units, it enables direct high-voltage output, facilitating variable frequency operation to drive the motor.



Each power unit is a three-phase input, single-phase output pulse width modulation (PWM) H-bridge topology structure, with identical structure and performance.

The rectification side uses a diode full-bridge rectifier to convert the input three-phase AC into DC. The inverter side consists of an IGBT inverter bridge, single-phase AC output can be obtained.

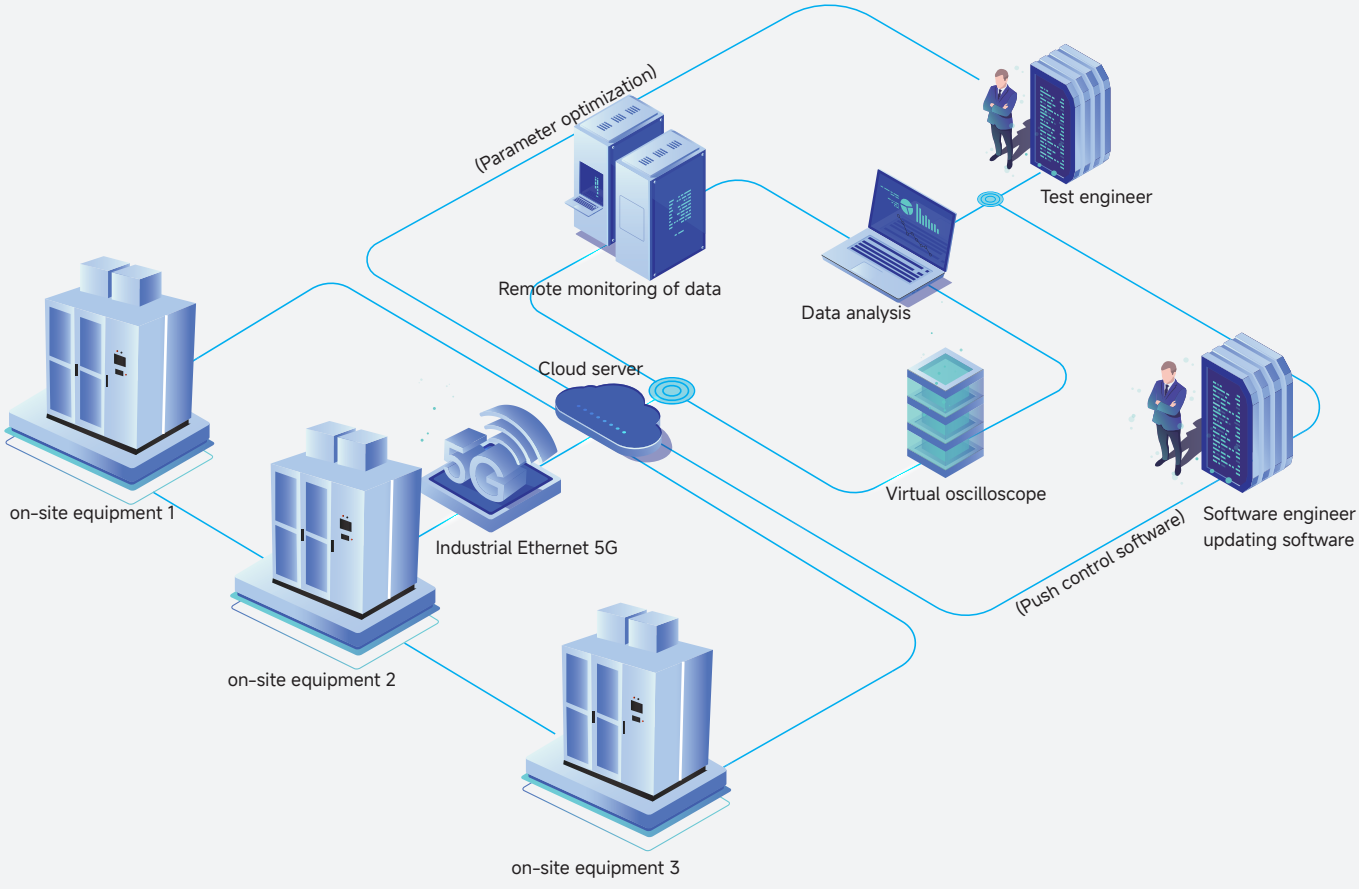


power unit

5G Industrial Ethernet Communication Technology

Based on industrial Ethernet + cloud platform, comprehensive remote technical support for on-site equipment through advanced technology.

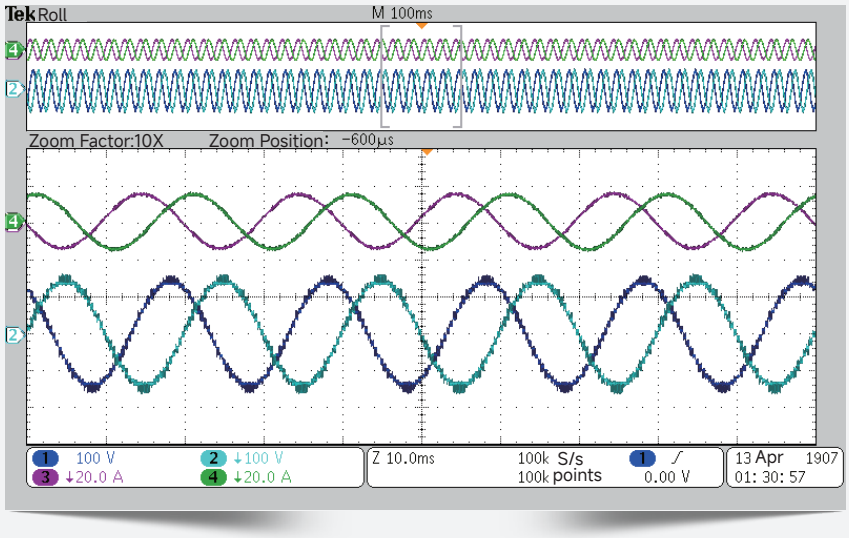
Data reading->Waveform display->Data diagnosis->Software upgrade

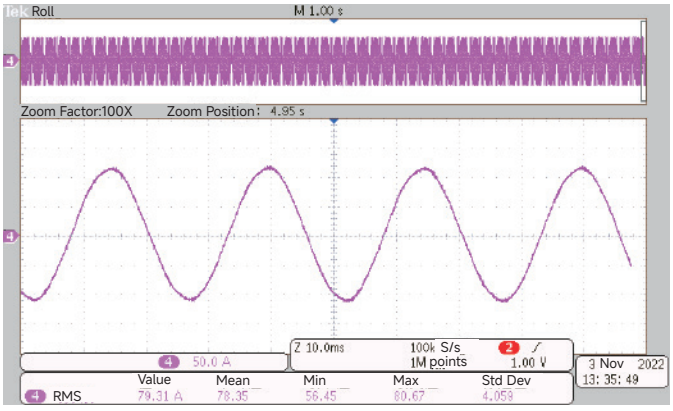


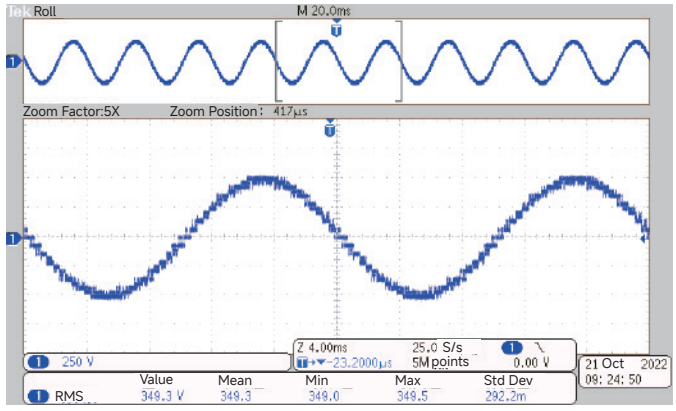
Integration of multiple communication protocols

1. Multi-channel Modbus-TCP interface, data monitoring, parameter read/write
2. Remote virtual oscilloscope protocol, in conjunction with RENLE SCADA software
3. FTP and TFTP file download services, software upgrade

Perfect Input-output Waveform







High-quality input waveform

● Multi-pulse rectification eliminates the need for additional power factor compensation and harmonic suppression devices.

● Automatic pre-charge power limits transformer surge impact.

● The total harmonic distortion(THD) of the input current is far better than the national standard requirement of 5%, while maintaining the power factor of the inverter input close to 1, greatly improving the quality of the grid-side power supply.

Perfect output waveform

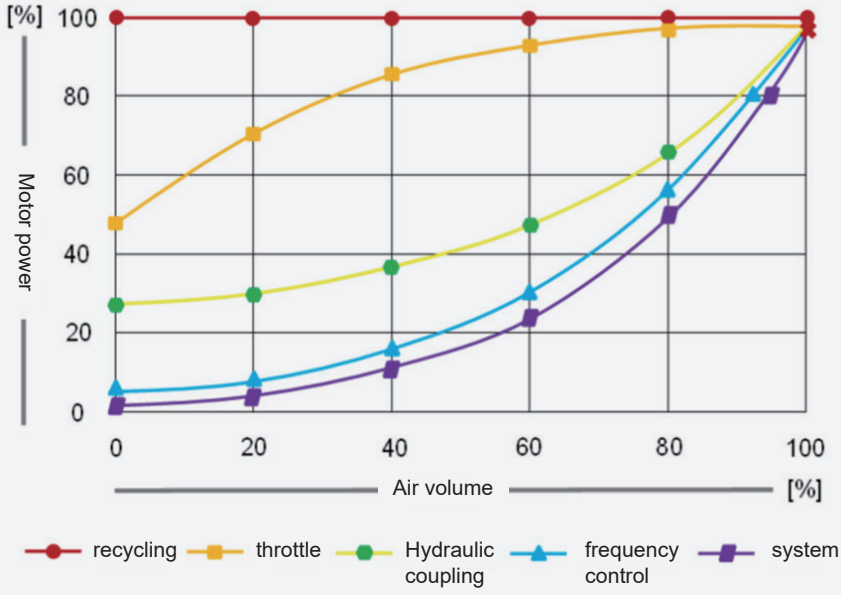
● Multi-level superposition for voltage sinusoidal waveform output

● Outputs high-quality sinusoidal waveform without torque pulsation caused by harmonic components from frequency converters, even at low speeds.

● Low dv/dt value, no special insulation requirements for motors and cables, no need to replace the motor.

Energy-saving and Consumption Reduction

> According to the load characteristic curve, the energy consumption of fans, pumps, and compressors is directly proportional to the cube of the motor speed. For such loads, controlling the motor speed is the most effective measure to achieve energy savings.
> When fluid velocity can be controlled by throttle valves or dampers, controlling the motor speed can significantly reduce energy consumption.
> By employing more precise, fast, and flexible motor speed control methods, the overall level of process control can be comprehensively improved.
> Variable frequency drives(VFDs) have the feature of soft starters, which reduces the impact of high currents during motor startup on the power grid(voltage drop). Additionally, compared to soft starters, VFDs can provide greater starting torque and lower starting current, resulting in a more significant reduction in motor winding stress and energy conservation.
> The motor startup and acceleration processes can be controlled effectively, leading to a decrease in mechanical stress on the user's load.
> Compared to operating at the motor's rated frequency, using VFDs yields a higher input power factor.
> VFD energy losses can be as low as 1.5%(excluding transformers)

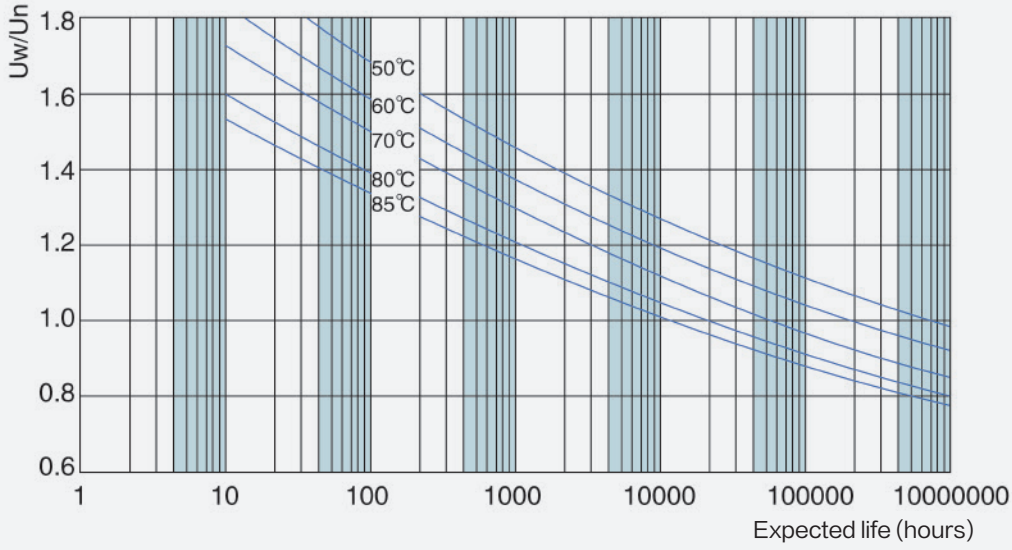


Energy consumption comparison between different fan load control methods

High Reliability

> When selecting unit DC capacitors, we opt for dry-type metalized electrolytic film capacitors, whereas traditional inverters commonly utilize aluminum electrolytic capacitors.
> The role of DC capacitors is to fully isolate the grid and the load through the inverter, eliminating voltage ripple, stabilizing DC voltage, and effectively suppressing disturbance caused by load and grid-side harmonics, as well as switch transients. This leads to a longer mean time between failures(MTBF) and increased reliability.
> The advantages of using metalized thin film capacitors.
> High ripple current handling capability.
> With their self-repair capacities, they have a longer lifespan.
> Outstanding performance in low temperatures.
> Operating at high voltage without the need for series connection or polarity, which can simplify system design, reduce the impact of stray parameters, and enhance system stability.

Expected Life of Thin Film Electrofusion

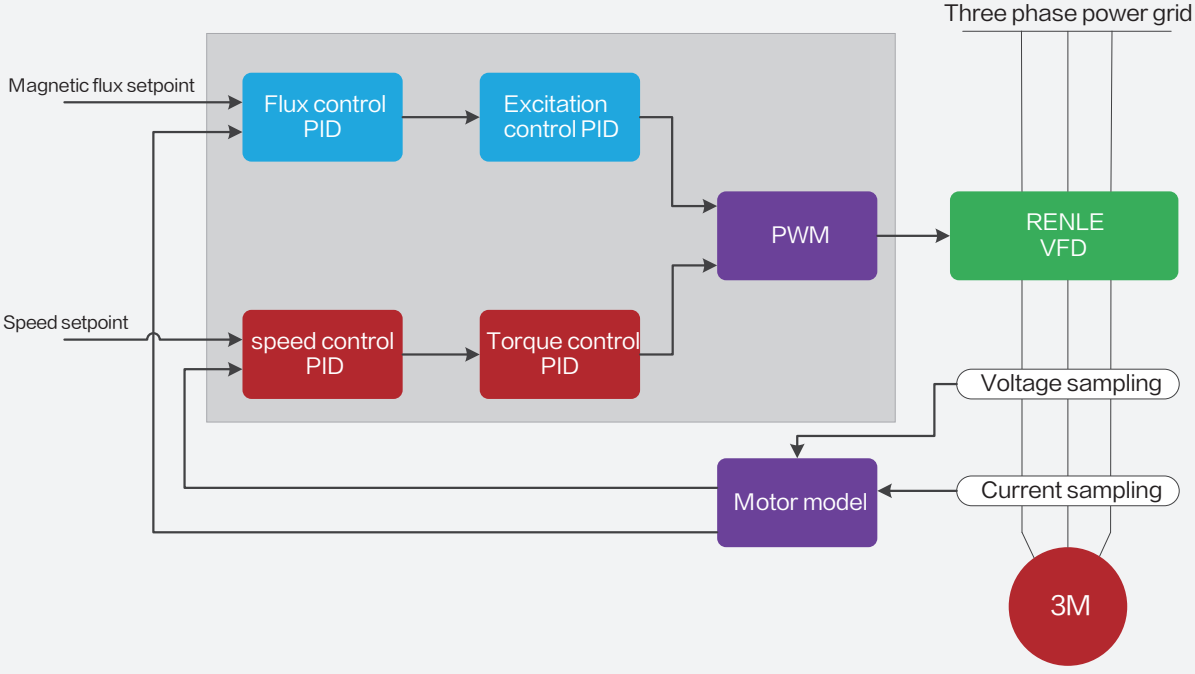


Vector Control

>The use of speed sensors introduces potential reliability issues, so their usage should be avoided whenever possible. Traditionally, closed-loop control systems with speed sensors employ the V/F control method. This method has poor control accuracy, limited torque regulation capabilities, and is unable to control motors operating at close to zero speed.

>Open-loop control, also known as sensorless vector control, can enhance starting torque control and provide higher precision in torque and speed control at low motor speeds. The low-speed control performance under open-loop control can achieve a level comparable to close-loop control with speed sensors without incurring the associated high maintenance costs.

> Variable frequency drives can automatically identify the motor parameters required for vector control, allowing for better implementation of motor speed control in vector control applications.



Flying Start

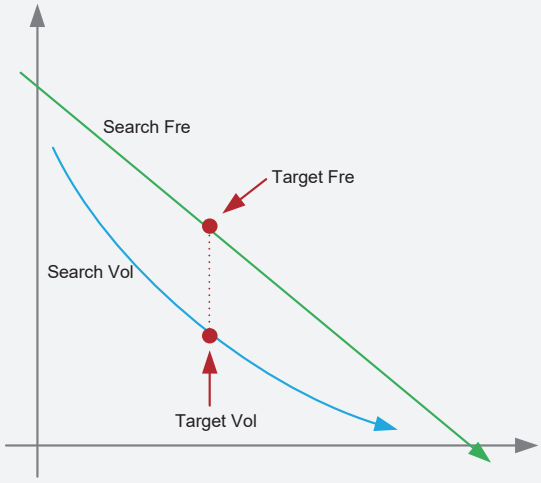
> The inverter has a function that allows restarting the motor while it is still rotating, without the need to wait for the motor to naturally come to stop. This process does not cause overvoltage tripping of the inverter. By continuously monitoring the changing output frequency and motor current, the inverter calculated the motor frequency quickly through effective measures, enabling motor rotation to be restarted while in motion.

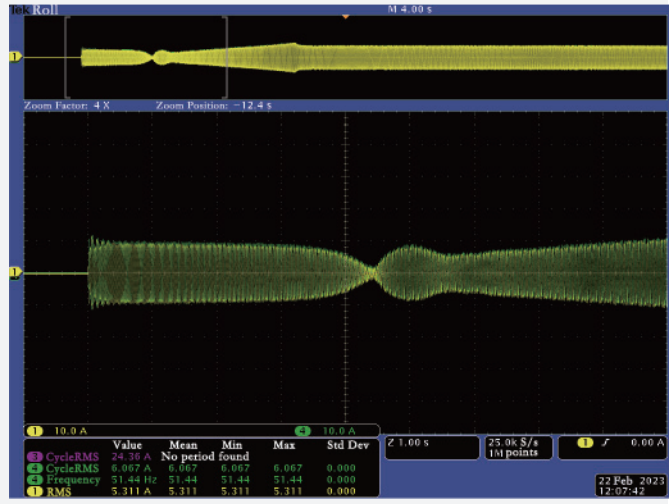
> Examples of flying start application.

> The motor is not connected to power, it is rotated by mechanical load.

> Restarting the VFD after it has stopped.

> Restarting the VFD after a low-voltage ride-through. (instantaneous drop or interruption of power supply voltage.)





Torque Limiting

> To prevent motor, power system, or inverter overload, the inverter provides a torque limiting function for precise control. This function ensures that the motor does not burn out due to excessive current when it is in a stalled state, such as during the start-up of motors with high inertia or initial friction resistance.

> The torque limiting function can also prevent or limit the electrical energy fed back to the frequency converter during motor overspeed, thereby preventing the frequency converter from tripping due to overvoltage faults.

Low Voltage Ride Through

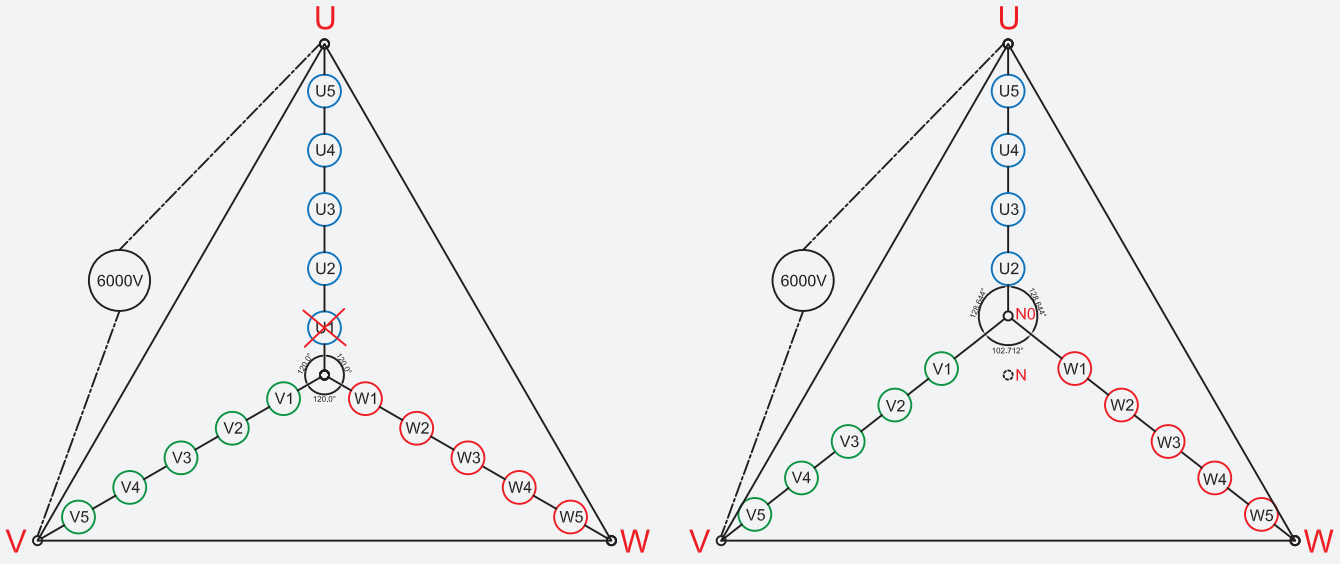
> When the input voltage of the inverter momentarily drops, the system will utilize the energy fed back by the load to support the DC bus voltage during the voltage drop period, maintaining the control power of the unit and magnetic flux of the motor. The inverter uses this energy to ride through the low-voltage drop and can automatically resume normal operation without manual intervention.

> If the voltage drop lasts too long and causes the DC bus voltage to fall below the limit, the inverter will shut down for protection. If the grid recovers within the specified time, the system will enter an automatic restart procedure; however, if the recovery exceeds the specified time, the system will shut down for protection.

Unit Bypass

> When the inverter detects a fault in a power unit, it will cut off the output current and bypass the fault unit. It ensures output voltage three-phase balance through neural point drift technology and then automatically restarts the inverter. This entire process is carried out automatically by the inverter.

> When a power unit in the system fails due to a malfunction, The inverter automatically bypasses it and can output the maximum achievable voltage value. As shown in the diagram below: Where U1 represents the fault unit.

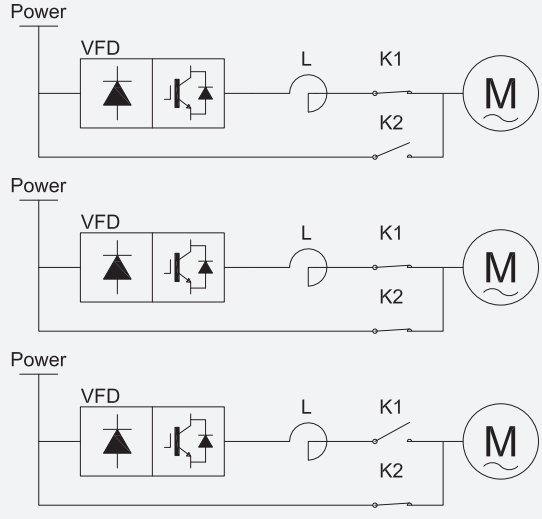


Unit bypass voltage vector diagram

Synchronous Switching

> Connecting a single motor to the grid: Achieving synchronous switching of the power supply from the inverter to the grid (bypassing the inverter). The synchronous grid connection function adjusts the output frequency, voltage amplitude, and phase of the inverter to match the local grid. Once synchronized, the bypass switch is closed, enabling a smooth transition for the motor from the inverter to the local grid, preventing motor overcurrent and torque disturbances.

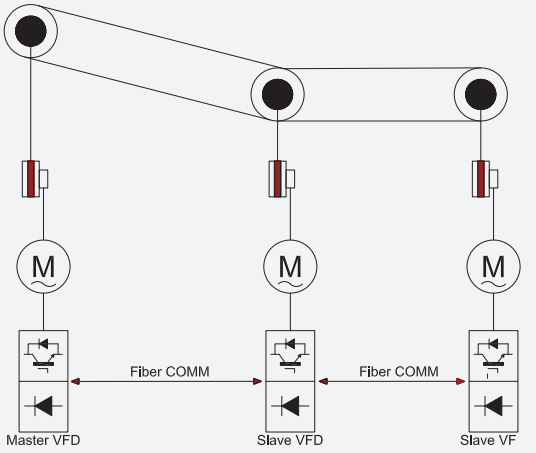
> When multiple motors are connected to the grid: The synchronous grid connection feature lets the inverter fine-tune the speed of one motor while enabling soft start and grid connectivity for other motors not needing speed changes. Once an inverter hooks a motor to the grid, it can power up additional motors. The final motor starting, if requiring speed tweaks, can be directly controlled by the inverter for speed regulation. Moreover, project-wise, you can seamlessly switch between line frequency and variable frequency. For sites not mandating speed adjustments, the inverter startup device can precisely compute startup conditions based on load demands, generally necessitating lower capacity to launch high-power units.



Multi-machine Transmission

> When utilizing two or more motors to drive a load jointly through mechanical coupling, it is essential for the speeds of each motor to be synchronized. However, even more critical is ensuring that each motor consistently produces power evenly and operates stably according to set standards. Even if each motor is driven by its individual variable frequency drive, it can still ensure a uniform speed control sequence, with each motor correctly and appropriately sharing the torque of the mechanical load.

> The master-slave control function of the variable frequency drive can meet the requirements mentioned above. The variable frequency drive must operate in vector control mode. Any of the drives can be designated as the master, while the rest are assigned as slaves. The master drive's speed control system issues the torque control command, which is then received by the slave drives, temporarily disabling their own speed control systems. If the master drive's speed control system malfunctions, the system will automatically designate one of the slave drives as the new master. In a multi-drive master-slave system, fiber optic communication is used to transmit torque control commands.



Convenient Maintenance

> Cascaded multilevel topology at the unit level, modular design of units, drawer cabinet structure, units connected to transformers using quick connectors.

> Single-side maintenance design, simple single-side maintenance operation for inverter components, providing greater practicality.

Product Technical Specifications

Name	Item	Specification
Input	1000 Series Power Supply	3-phase 6kV/10kV, frequency: 50/60Hz
	2000 Series Power Supply	3-phase, 3.3~11kV, frequency: 50/60Hz
	Input voltage range	Voltage: -10% to +10%; Frequency: ±2%
Output	1000 Series Rated Voltage	3-phase 6kV/10kV, frequency: 50/60Hz
	2000 Series Rated Voltage	3-phase 3.3~11kV, frequency: 50/60Hz
	Frequency modulation range	0 ～ 50/60Hz
	Setting resolution	0.01 Hz
	Overcurrent capability	120% of rated output current for 1 minute every 10 minutes; 150% of rated output current for instantaneous protection.
Control	Control method	V/F control with PG vector control and without PG vector control.
	Synchronous switching	The frequency converter follows the voltage phase and frequency of the power grid, achieving a state of grid connection and smooth switching from frequency converter to power frequency without impact.
	Torque compensation	Automatic torque boost during startup to reach above 150%.
	Slip compensation	Compensates for speed drop under load to enhance mechanical robustness.
	Upper and lower frequency limits	Upper and lower frequency limits can be set.
	Skip frequency	Skip frequency can be set in 3 groups.

> Connect the table

Name	Item	Specification
Control	Speed tracking during restart	The inverter can automatically search for the motor speed and smoothly restart operation when the motor is coasting due to power loss.
	Acceleration and deceleration time	Acceleration and deceleration time can be independently set from 0.1 to 3600 seconds.
	Acceleration and deceleration profile types	Linear or S-curve profiles can be selected to meet various application requirements.
	Operating modes	Local operation, on-site operation, remote operation.
	Stopping methods	Option to choose between coasting stop or deceleration stop.
	PID closed-loop control	Can be applied to various closed-loop control systems such as flow, pressure, temperature, and more.
	Neutral drift	By bypassing a power unit and using neutral drift technology, the three-phase output stays balanced. This guarantees maximum output power even after bypassing a unit. In case of a single-unit failure, the system can operate in bypass mode without impacting regular production operations.
	Automatic unit bypass	When a unit malfunctions, the inverter can automatically bypass the faulty unit and continue operating using neutral drift technology without the need for manual intervention. If more than two units are bypassed, users simply need to operate at a reduced capacity as necessary.
	Power failure restart	In the event of an abnormal power outage, the inverter can automatically restart and restore to its pre-power loss state once the grid is restored within the set time, without the need for manual intervention.
	Frequency setting	Analog input signal setting: Configurable via a 4-20mA current signal. Multiple frequency segment selection settings.
	Fieldbus	Modbus，Tcp/ip、PROFIBUS-DP
	Operating state output signal	Relay output: selectable to indicate operating states such as running, stopped, fault, etc. Analog output: selectable to indicate operating parameters such as frequency, current, voltage, speed, etc.
Display	During operation/stop	Display frequency, current, voltage, etc.
	During setting	Display the set menu number or set parameter value
	During functional operation	Display active function information or prompts.
	During alarms, faults	Display various alarms and faults.
Protection	Overload protection	To monitor the output current of the inverter and protect the inverter in case of overload.
	Overvoltage protection	To detect the overvoltage of the DC busbar unit and protect the inverter in case of input overvoltage.
	Surge voltage protection	To monitor surge voltages between input power lines and line-to-ground, protecting the inverter.
	Under-voltage protection	To monitor the input voltage and protect the inverter in case of under-voltage.
	Overheat protection	To monitor the temperature rise of the heat sink and protect the inverter when it exceeds the set value.
	Short-circuit protection	To monitor short circuits or overcurrent on the output side of the inverter, protecting the inverter.
	Motor overload protection	To monitor the motor for overload during operation and protect the motor.
	Open phase protection	To monitor the input voltage for phase loss and protect the inverter.
Environment	Place of use	Indoors, at an altitude below 1000 meters, with no corrosive or flammable gases; free from dust, oil mist, water droplets, etc., preventing direct sunlight exposure, and without strong magnetic field interference. Altitudes above 1000 meters require derating for use.
	Operating temperature	-5℃～+40℃
	Operating humidity	5 ～ 95%RH (non-condensing)
	Vibration	≤0.5g
	Storage temperature	-40℃～+70℃
	Ingress protection rating	IP30 (Please specify other protection ratings when ordering)

RNHV1000 Product Selection Table

Inverter model	Rated voltage (kV)	Rated current (A)	Motor power compatibility (kW)	Output capacity (kVA)	Dimensions (W*D*H mm) (including fan)	Weight (kg)
10kV						
RNHV-A-10/220	10	16	220	280	1800*1500*2550	2200
RNHV-A-10/250	10	18	250	315		2200
RNHV-A-10/280	10	20	280	350		2200
RNHV-A-10/315	10	23	315	400		2200
RNHV-A-10/355	10	26	355	450		2200
RNHV-A-10/400	10	29	400	500		2250
RNHV-A-10/450	10	32	450	560		2300
RNHV-A-10/500	10	36	500	630		2350
RNHV-A-10/560	10	40	560	700		2400
RNHV-A-10/630	10	46	630	800	2000*1500*2580	2680
RNHV-A-10/710	10	52	710	900		2850
RNHV-A-10/800	10	58	800	1000		2950
RNHV-A-10/900	10	65	900	1120		3190
RNHV-A-10/1000	10	72	1000	1250		3400
RNHV-A-10/1120	10	81	1120	1400		3940
RNHV-A-10/1250	10	90	1250	1600	2200*1700*2620	4310
RNHV-A-10/1400	10	100	1400	1750		4390
RNHV-A-10/1600	10	115	1600	2000		4500
RNHV-A-10/1800	10	130	1800	2250		4550
RNHV-A-10/2000	10	145	2000	2500		4600
RNHV-A-10/2240	10	160	2240	2800		4630
RNHV-A-10/2400	10	170	2400	3000		4630
RNHV-A-10/2500	10	180	2500	3125		4630
6kV						
RNHV-A-6/220	6	26	220	280	1800*1500*2550	2150
RNHV-A-6/250	6	30	250	315		2150
RNHV-A-6/280	6	34	280	350		2150
RNHV-A-6/315	6	38	315	400		2150
RNHV-A-6/355	6	43	355	450	2000*1500*2580	2150
RNHV-A-6/400	6	48	400	500		2150
RNHV-A-6/450	6	54	450	560		2200
RNHV-A-6/500	6	60	500	630		2250
RNHV-A-6/560	6	67	560	700		2300
RNHV-A-6/630	6	76	630	800		2350
RNHV-A-6/710	6	86	710	900		2400
RNHV-A-6/800	6	96	800	1000	2200*1700*2620	3800
RNHV-A-6/900	6	108	900	1120		3900
RNHV-A-6/1000	6	120	1000	1250		4000
RNHV-A-6/1120	6	135	1120	1400		4100
RNHV-A-6/1250	6	150	1250	1600		4200
RNHV-A-6/1400	6	170	1400	1750		4230
RNHV-A-6/1600	6	185	1600	2000		4230

RNHV2000 Product Selection Table I

Inverter model	Rated voltage (kV)	Rated current (A)	Motor power compatibility (kW)	Output capacity (kVA)	Dimensions (W*D*H mm) (including fan)	Weight (kg)
10kV						
RNHV-A-10/220	10	16	220	280	3800*1200*2700	5200
RNHV-A-10/250	10	18	250	315		5300
RNHV-A-10/280	10	20	280	350		5400
RNHV-A-10/315	10	24	315	400		5600
RNHV-A-10/355	10	26	355	450		5800
RNHV-A-10/400	10	30	400	500		6300
RNHV-A-10/450	10	35	450	560		6400
RNHV-A-10/500	10	40	500	630		6800
RNHV-A-10/560	10	45	560	700		7200
RNHV-A-10/630	10	50	630	800		7300
RNHV-A-10/710	10	55	710	900		7400
RNHV-A-10/800	10	60	800	1000		7700
RNHV-A-10/900	10	65	900	1120		7900
RNHV-A-10/1000	10	75	1000	1250	4100*1500*2700	8000
RNHV-A-10/1120	10	85	1120	1400		8100
RNHV-A-10/1250	10	95	1250	1600		8200
RNHV-A-10/1400	10	100	1400	1750		8300
RNHV-A-10/1600	10	115	1600	2000		8500
RNHV-A-10/1800	10	130	1800	2250		8700
RNHV-A-10/2000	10	145	2000	2500	4900*1500*2800	9700
RNHV-A-10/2240	10	165	2240	3000		9900
RNHV-A-10/2500	10	180	2500	3150		10100
RNHV-A-10/2800	10	200	2800	3500		10300
RNHV-A-10/3150	10	230	3150	4000		10500
RNHV-A-10/3550	10	250	3550	4500	5900*1700*2800	13000
RNHV-A-10/4000	10	280	4000	5000		13200
RNHV-A-10/4500	10	320	4500	5650		13500
RNHV-A-10/5000	10	360	5000	6250	6900*1700*3200	17000
RNHV-A-10/5600	10	400	5600	7000		17800
RNHV-A-10/6300	10	460	6300	8000		20400
RNHV-A-10/7100	10	520	7100	9000	8200*1700*3200	20600
RNHV-A-10/8000	10	580	8000	10000		20800
RNHV-A-10/9000	10	650	9000	11250	8400*1700*3500	22600
RNHV-A-10/11000	10	780	11000	13750	12400*1700*3500	25700
RNHV-A-10/12500	10	900	12500	15600		26000

RNHV2000 Product Selection Table II

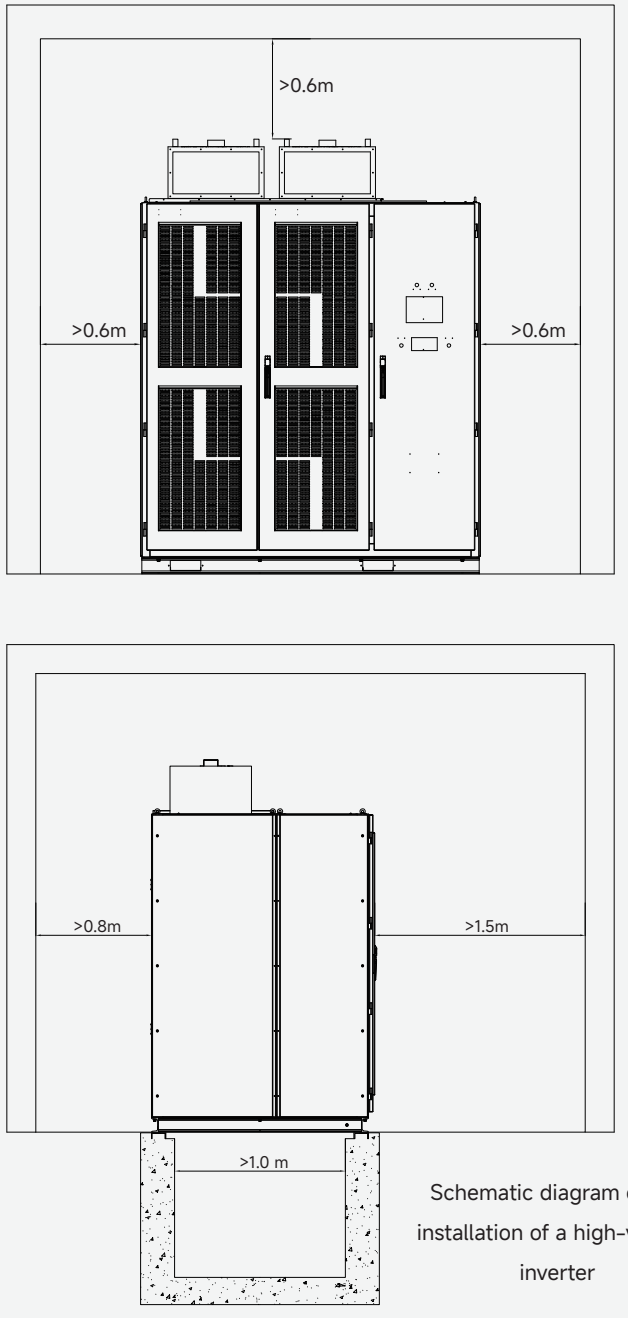
Inverter model	Rated voltage (kV)	Rated current (A)	Motor power compatibility (kW)	Output capacity (kVA)	Dimensions (W*D*H mm) (including fan)	Weight (kg)
6kV						
RNHV-A-6/220	6	25	220	280	3000*1200*2700	3100
RNHV-A-6/250	6	30	250	315		3200
RNHV-A-6/280	6	34	280	350		3300
RNHV-A-6/315	6	38	315	400		3400
RNHV-A-6/355	6	43	355	450		3500
RNHV-A-6/400	6	48	400	500		3600
RNHV-A-6/450	6	54	450	560		3700
RNHV-A-6/500	6	60	500	630		4000
RNHV-A-6/560	6	67	560	700		4100
RNHV-A-6/630	6	76	630	800		4200
RNHV-A-6/710	6	86	710	900		4300
RNHV-A-6/800	6	96	800	1000		4400
RNHV-A-6/900	6	108	900	1120		4500
RNHV-A-6/1000	6	120	1000	1250		4600
RNHV-A-6/1120	6	135	1120	1400		5000
RNHV-A-6/1250	6	150	1250	1600	3800*1500*2800	5200
RNHV-A-6/1400	6	170	1400	1800		8700
RNHV-A-6/1600	6	190	1600	2000		8800
RNHV-A-6/1800	6	215	1800	2250		9200
RNHV-A-6/2000	6	240	2000	2500	4600*1500*2800	12200
RNHV-A-6/2240	6	270	2240	2800		12400
RNHV-A-6/2500	6	305	2500	3150		12600
RNHV-A-6/2800	6	338	2800	3500	4900*1700*3100	13000
RNHV-A-6/3000	6	360	3000	3750	5100*1700*3100	16500
RNHV-A-6/3150	6	380	3150	4000		16700
RNHV-A-6/3550	6	430	3550	4500		16900
RNHV-A-6/4000	6	480	4000	5000		17100
RNHV-A-6/4500	6	540	4500	5600	6600*1700*3100	18600
RNHV-A-6/5000	6	600	5000	6300		20000
RNHV-A-6/5600	6	675	5600	7000	6500*1700*3500	20600
RNHV-A-6/6300	6	760	6300	8000		21000
RNHV-A-6/7100	6	870	7100	9000	8800*1700*3500	21200
RNHV-A-6/8000	6	900	8000	10000		21300

The system specifications are shown in the table above. Please note that the dimensions may vary slightly from the actual size and are provided for equipment selection reference only. For specific actual dimensions, please consult our sales personnel.

Product Installation, Transportation, and Storage

To ensure stable and reliable operation of the inverter throughout its entire lifespan, please ensure to maintain a suitable environment:

- Environmental Temperature: -10°C to +50°C
- Relative humidity below 95%, no condensation
- Low presence of dust and metal particles in the air
- Low vibration levels
- Transport / Storage Temperature: -25°C to +70°C
- No corrosive gases or liquids
- Low magnetic fields, low radiation
- Sufficient space for heat dissipation and air circulation, facilitating daily maintenance



Schematic diagram of the installation of a high-voltage inverter

The top of the inverter cabinet should have a clearance of at least 0.5 meters from the ceiling.

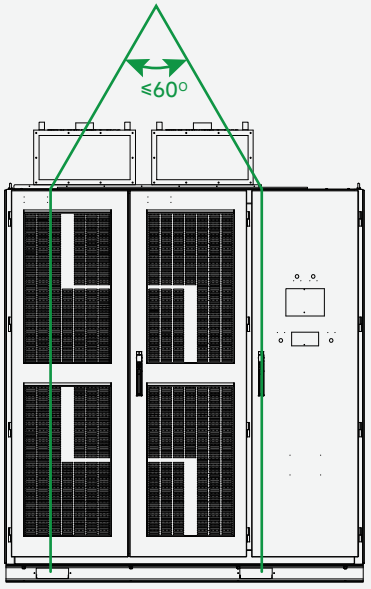
The back of the inverter cabinet should have a clearance of at least 0.8 meters from the wall. The sides of the inverter cabinet should have a clearance of at least 0.6 meters from adjacent walls.

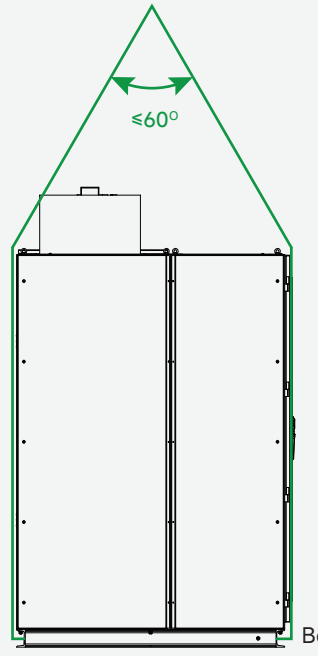
A minimum clearance of 1.6 meters should be maintained in front of the inverter cabinet for operation.

Note: The above are recommended distance layout requirements.

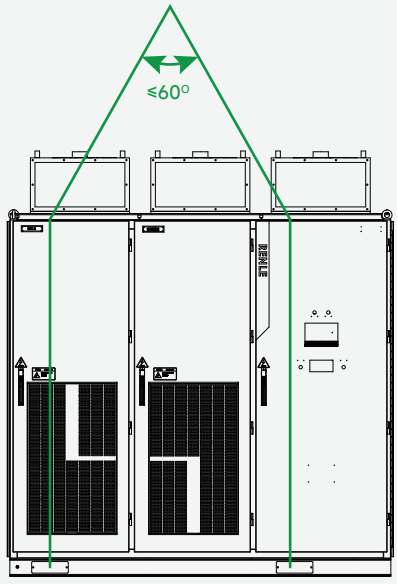
Rigging Diagram

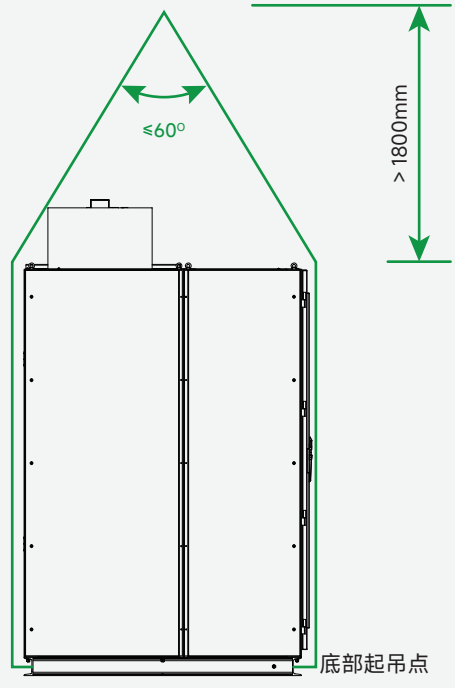
Lifting and positioning must be carried out strictly in accordance with the lifting instructions





RNHV1000 series





RNHV2000 series

Application Areas

Power plant

Wind turbine / Compressor / Pumped hydro storage plant / Draft fan / Condensate pump / Circulating water pump / Boiler feedwater pump, etc.

Oil, Petrochemicals, Natural gas

Pipeline transfer pump / Injection pump / Feedwater pump / Submersible oil pump / Circulating water pump / Brine pump / Compressor / Booster fan / Oil transfer pump / Electric submersible pump, etc.

Coal, Mining

Scale removal pump / Slurry pump / Slag slurry pump / Clear water pump / Feed pump / Axial flow fan / Agitation pump / Kiln / Transmission / Dust removal fan / Drainage pump / Media pump / Counter-rotating fan, etc.

Cement building materials

Kiln induced draft fan / Kiln forced draft fan / Kiln tail fan / Kiln head fan / High-temperature fan / Coal mill fan / Dust removal fan / Circulating fan / Raw material grinding fan / Cement grinding fan / Separator fan / Pressure conveying fan, etc.

Steel and metallurgy

Blast furnace blower / induced draft fan / compression fan / air supply fan / feedwater pump / water supply pump / descaling pump / dust removal fan / converter / blast furnace / etc.

Municipal water supply

Aeration blower(for heating, water supply, sewage, etc.) / induced draft fan / air supply fan / booster pump / hot water circulation pump / sewage pump / clean water pump / lift pump / water supply pump / reclaimed water pump, etc.

Light industry, Chemical industry

Coal gas blower / booster pump / compressor / axial flow pump / soft water pump / water supply pump, etc.

Partial performance in the power industry

Electric power industry

Shanxi Lu'an Ronghai Power Generation Co., Ltd	Shandong Zhucheng Longguang Thermal Power Co., Ltd
Shandong Zaozhuang Jianyang Thermal Power Co., Ltd	Shandong Weihai Thermal Power Group Co., Ltd
Huadian International Power Co., Ltd. Anhui Huadian Lu'an Power Plant Co., Ltd	
China Power International Development Co., Ltd. Shanxi Shentou Power Generation Co., Ltd	
Inner Mongolia Datang International Renewable Resources Development Co., Ltd	
China Datang Group Co., Ltd. Datang Gansu Power Generation Co., Ltd	
China Datang Group Co., Ltd. Datang Lubei Power Generation Co., Ltd	
China Huadian Group Co., Ltd. Hubei Xiangyang Huadian Power Generation Co., Ltd	
China Huadian Group Co., Ltd. Guizhou Huadian Tangzhai Power Generation Co., Ltd	
China Huadian Group Co., Ltd. Shaanxi Huadian Yuheng Coal Power Co., Ltd	

Partial performance in the steel industry

Steel industry

China Baowu Iron and Steel Group Co., Ltd	Ma'anshan Iron and Steel Co., Ltd
Houying Group Haicheng Steel Co., Ltd	Xining Special Steel Co., Ltd
Hebei Xingang Iron and Steel Group Co., Ltd	Fujian Sangang (Group) Co., Ltd
Pangang Group Co., Ltd. Xichang Steel Vanadium Co., Ltd	Tonghua Steel Co., Ltd
Jiangsu shagang Group Co Ltd	Hebei Zongheng Iron and Steel Group Co., Ltd
Benxi Iron and Steel (Group) Co., Ltd	Anyang Iron and Steel Co., Ltd
Hyundai Steel Company of Hyundai Group in Korea	Zhongtian Steel Group Co., Ltd
Xuanhua Iron and Steel Group Co., Ltd	Rizhao Steel Rolling Co., Ltd
Shandong Iron and Steel Group Laiwu Iron and Steel Xinjiang Co., Ltd	
Shaanxi Iron and Steel Group Shaanxi Longmen Iron and Steel Co., Ltd ...	

Partial performance in the paper industry

Paper industry

Shandong Sun Paper Industry Co., Ltd	Vietnam Shun'an Paper Industry Co., Ltd
Dongguan Junye Paper Industry Co., Ltd	Shandong Tianhe Paper Industry Co., Ltd
Shandong Huatai Paper Industry Co., Ltd	Shanxi Qiangwei Paper Industry Co., Ltd
Shandong Huamai Paper Industry Co., Ltd	Puyang Longfeng Paper Industry Co., Ltd
Fuyu Chenming Paper Industry Co., Ltd	Henan Xinmi Hengfeng Paper Industry Co., Ltd
Shandong Tianzhang Paper Industry Co., Ltd	Shandong Ronghua Paper Industry Co., Ltd
Jiulong Global (China) Investment Group	Shanying International Holdings Co., Ltd
Shandong Hengyu Paper Industry Co., Ltd	Shandong Jianghe Paper Industry Co., Ltd
Jiangsu Yangzi Shengda Paper Industry Technology Development Co., Ltd	
Zhejiang Rongsheng Environmental Protection Paper Industry Co., Ltd ...	

Partial performance in the coal industry

Coal industry

Jiangxi Fengcheng Qujiang Coal Development Co., Ltd	Zaozhuang Mining (Group) Co., Ltd
Kailuan (Group) Weizhou Mining Co., Ltd	Guangxi Bainaihe Mining Co., Ltd
Guizhou Panxian Zisenyuan Group Company	Huating Coal Industry Group Co., Ltd
Shenhua Ningxia Coal Industry Group Co., Ltd	Shanxi Lanhua Coking Coal Baoxin Coal Industry Co., Ltd
Xinjiang Tunnan Coal Industry Co., Ltd	China Pingmei Shenma Group Thirteenth Mine
Shanxi Coke Group Co., Ltd	Zuoquan Xinshun Coal Industry Co., Ltd. of Shanmei Group
Shanxi Xiyang Fenghui Coal Industry Co., Ltd	Inner Mongolia Shendong Coal Company
Shandong Yankuang Group Co., Ltd	Xinjiang Xinsai Shuanglu Mining Co., Ltd
Yutian County Guyu Coal Coking Co., Ltd	Qinghai Jiangcang Coal Industry Co., Ltd
Shanxi Coal Import and Export Group Zuoyun East Gucheng Coal Industry Co., Ltd ...	

Partial performance in the water conservancy industry

Water conservancy industry

Shanghai Nanhui Collection Rainwater Pump Station	Jinghui Large Pump Station in Baiyin City, Gansu Province
Tianjin Binhai New Area Central Bridge Yinhe Pump Station	Inner Mongolia Wulante Qianqi Water Supply Project
Jingdian Large Pump Station of Jingtaichuan Electric Power Irrigation Management Bureau in Gansu Province	
Reclaimed Water Reuse Project of Housing and Urban Rural Development Bureau in Siping City,Jilin Province	
Yijingtan Large Pump Station in Alashan League, Inner Mongolia Autonomous Region	
Connection of the Chengdong Water System in Jingmen City, Hubei Province to the Sutai Lake Pumping Station	
Ecological Migration Poverty Alleviation and Development Water Supply Project in Central Gansu Province	
Continued Construction and Distribution Project of Zaozhuang City on the East Line of the South to North Water Diversion Project	
Hebei Urban and Rural Water Supply Source Project in Zhongning County, Ningxia Province	
Gansu Province Taoyin Water Supply Phase II Qin'an County Urban and Rural Water Supply Good Ground Beam Project ...	

Partial performance in the petrochemical industry

Petroleum industry

Sinopec Shengli Oilfield Co., Ltd	Shandong Haixin Petrochemical Co., Ltd
CNOOC Tianjin Liquefied Natural Gas Co., Ltd	China Petroleum Sichuan Petrochemical Co., Ltd
CNOOC Huizhou Petrochemical Co., Ltd	Shandong Huafeng Petroleum Technology Co., Ltd
China National Petroleum Corporation Daqing Oilfield Co., Ltd	Wusu Huatai Petrochemical Co., Ltd
Jianghan Petroleum Drill Bit Co., Ltd	Shandong Haixin Petrochemical Co., Ltd
PetroChina Karamay Oilfield Branch	China Petroleum Dagang Oilfield Company
Xinjiang Zhongji Petrochemical Co., Ltd	Qingdao China Petroleum Warehousing Co., Ltd
China National Petroleum Corporation Liaohe Oilfield Branch	CNOOC Guangxi Fangchenggang Natural Gas Co., Ltd
China Petroleum and Chemical Corporation Natural Gas Sichuan East Pipeline Branch	
Hainan Fushan Oilfield Exploration and Development Co., Ltd. of China National Petroleum Corporation ...	

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