

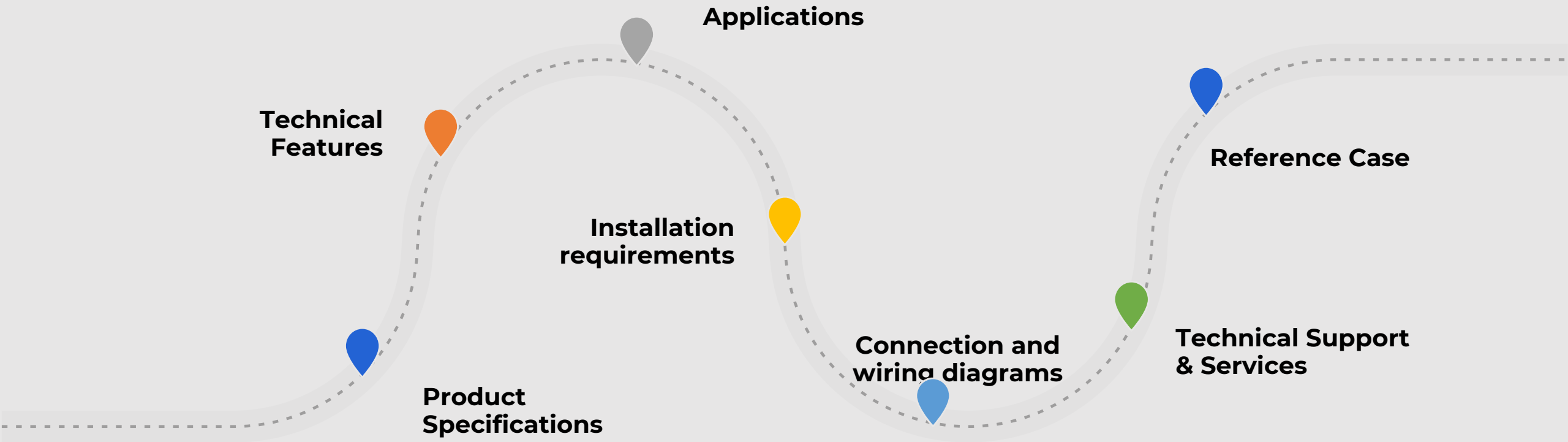
SCHORCH-CH MIDDLE VOLTAGE VFDS

Reference List

SCHORCH-ZDEN-2020-9



Journey



Product Specifications

	ITEM	Parameter Selection
Input	Input rated	3、3.3、6、6.6、10KV(*)
	Voltage fluctuation range	Runs at full load with voltage fluctuation of $\pm 10\%$
	Frequency variation range	50Hz $\pm 10\%$
	Input power factor	≥ 0.95 (over 20% load)
	Input current harmonics	$\leq 5\%$ meeting standards of IEEE519-1992 and GBT14549-93
Output	Output voltage range	3、3.3、6、6.6、10KV(*)
	Max. output capacity	30000KVA
	Output frequency range	0-120Hz(*)
Control mode	Main circuit mode	Directly connected in series with HV converter
	Control mode	Vector control with/without speed sensor, V/F control
	Output frequency resolution	0.01Hz
	Acceleration and deceleration time	1-3000s(*)
	Overload capacity	125% 60s
	Current limiting protection	150%
	Converter efficiency	$> 97\%$ (including input transformer)
	Main control functions	Patented function of power unit pre-charge, functions of efficient low-voltage speed regulation, flying start, restart after instantaneous stop, main circuit bypass, high and low voltage ride-through, abnormal detection of unit waveform and converter output waveform, and remote diagnosis.
	Protection functions	Overload, over current, abnormal output voltage (stop when deviation exceeds 30%), abnormal cooling fan, power failure detection, etc.
	Communication function	Hard wiring(standard) Profibus-DP(*), Modbus(*), Ethernet(*)
	Earthling resistance	$\leq 4\Omega$
	MTBF	80000h

Technical Features

🌀 Torque ripple control is at the leading level in the industry

The industry requires that the torque ripple (dv/dt) should not exceed 2%, and we can make it below 1%. The test data comes from Tianjin Tianchuan Electric Control Equipment Test Co., Ltd.

🌀 Soft charging technology

The convert uses a unique soft charging technology to effectively eliminate excitation inrush current. The power unit is charged first when the system is energized with high voltage power. It prolongs the service life and reliability of the capacitor.

🌀 Bidirectional control of power flow

A four-quadrant frequency inverter is a power electronic device that controls the flow of electrical energy in four different operating quadrants. It is used to regulate the speed and torque of motors or loads. The four quadrants enable the inverter to achieve forward rotation, reverse rotation, dynamic braking, and energy regeneration. By precisely adjusting the output voltage and frequency, it finds wide applications in industries such as manufacturing, transportation, elevators, and wind power. Its benefits include improved energy efficiency, reduced mechanical losses, and enhanced control performance and operational efficiency.

🌀 Harmonic content less than 1.3%

The industry requires that the harmonic content should not exceed 4%, and we can make it below 1.3%. Our product adopts SPWM pulse width modulation technology, which results in a significant reduction in harmonic content. So the equipment in the customer's factory is basically free from the interference of harmonic pollution.

🌀 Low voltage ride through

So far, only two or three companies have conducted the low voltage ride-through tests. We are one of them. When the input voltage drops below 60% and recovers within 3 seconds, the convert can track the speed and restart normally.

🌀 Tracking rotating speed when starting

As shown in the figure, when the frequency convert is turned off, the motor speed can be tracked when it is started again to complete a shock-free start. Our device can search the motor frequency from 50-0 Hz, which helps it to restart quickly. It can also judge whether the motor is running in reverse.

Applications



Cement Factory

Kiln induced draft fan, preheating tower fan, cooler exhaust fan, pressure blower, raw meal grinding induced draft fan, etc.



Mining and Metallurgy

Sintering main exhaust fan, mud Pump, high pressure blower, cooling water pump, etc.



Thermal Power Generation

Feed water pump, dust suction fan, centrifugal induced draft fan, mortar machine, blower, circulating water pump, etc.



Bit energy loads & large inertia loads

mine under transport tape conveyor, oil field pumping machine, or large inertia loads, such as: centrifugal separator, cement pipe making, etc



Water Supply and Sewage Treatment

Sewage pump, purification pump, fresh water pump, biological rough treatment tower pump, etc.



Petroleum and Chemical Industry

Main pipeline pump, water injection pump, mixer, gas compressor, extrude, brine pump, submersible oil pump, boiler feed pump, etc.

Installation requirements

Environmental Requirements of Installation Site

In order to ensure the long-term stable and reliable operation of the converter, it must be placed indoors and maintain the most suitable operating conditions: | Ambient temperature 0~40°C, transport/storage temperature -25°C~55°C. | No condensation when the relative humidity is below 90%. | Places without dripping water (for standard IP20 protection level). | No corrosive and explosive gas. | No metal dusts. | Low dust (pollution class II). | Low vibration (generally less than 0.5G). | Low magnetic field, low radiation.

Space Requirements of Installation Site

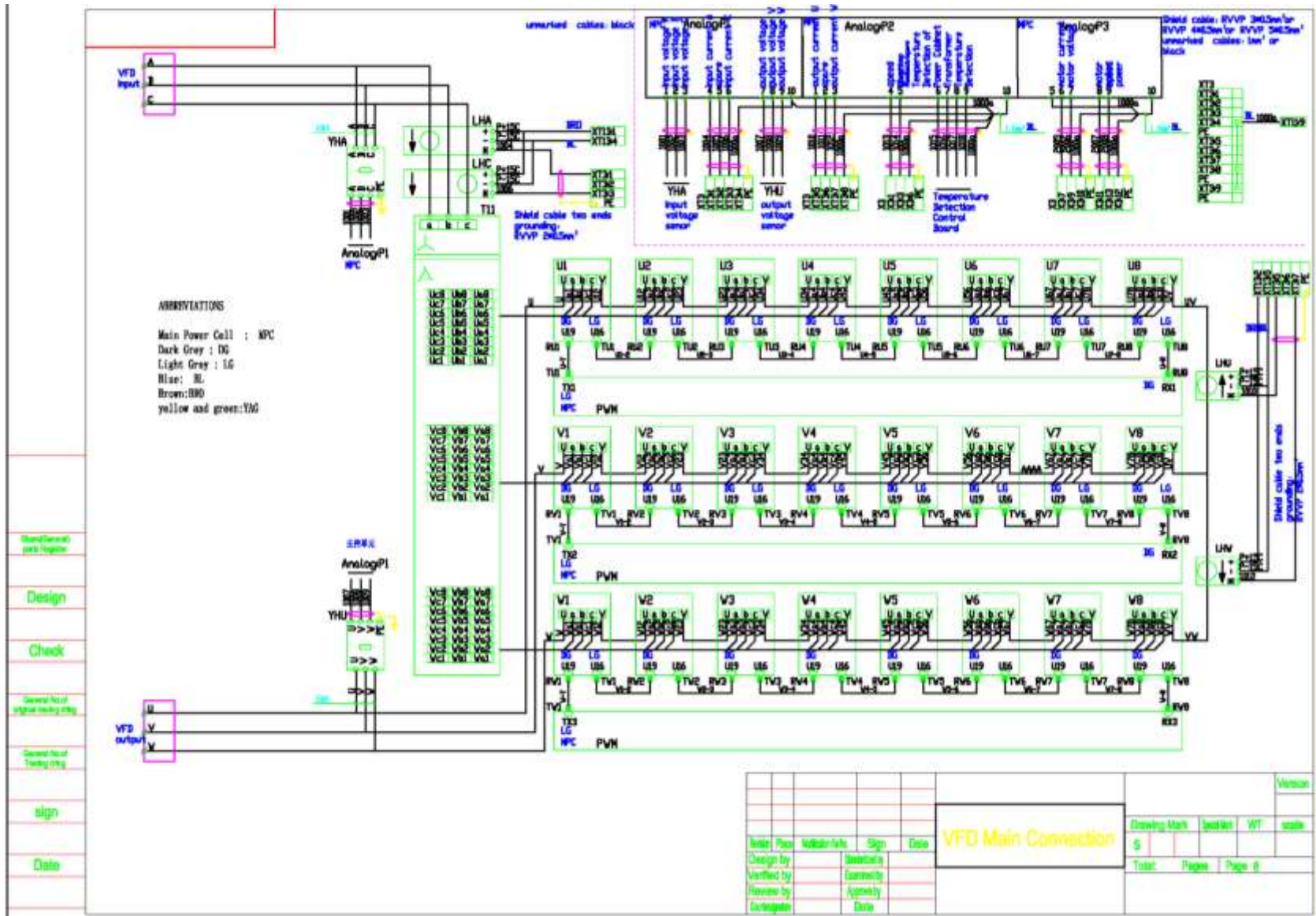
To prevent the reducing of the cooling effect of the converter and to allow sufficient space for maintenance, be sure to pay attention to the following: (The specific space requirements will change with the cabinet size and voltage level requirements, please refer to the layout drawings of converter) | Distance between converter front and wall: 2000 mm. | Distance between converter back and wall: 1000mm. | Distance between converter side and wall: 1000mm. | Distance between converter top and roof: 800mm.

Foundation Requirements of Installation Site

The converter should be placed on a ready-to-install foundation. The foundation methods are recommended as follows: | The foundation of embedded channel steel (12# channel steel) should be 5mm higher than the ground. | The channel steel foundation should be well grounded, and there should be a good connection with the converter (M12 fixing bolts or spot welding). The converters are arranged in a straight line, from left to right are switching cabinet, transformer cabinet (internal integrated control cabinet), power cabinet, and control cabinet (non-integrated control cabinet). Please refer to the layout drawing of the converter for details.

Cautions

When the converter cabinet is not grounded or the grounding is unreliable, if the charged body in the cabinet is short-circuited to the cabinet, the converter cabinet will be under high voltage, which is prone to electric shock accident and personal injury. The default openings of the power cable and control cable of the frequency converter are at the bottom of the converter (please consult the converter manufacturer if there is any special way of incoming and outgoing lines), and a cable trench should be reserved under the foundation, which should be waterproof, dustproof and prevent small animals from entering.



Main connection



05. Technical Support & After Sales



Local technical support



Well-established spare parts stock plan



Operation training support

Reference case

Project in Guangdong

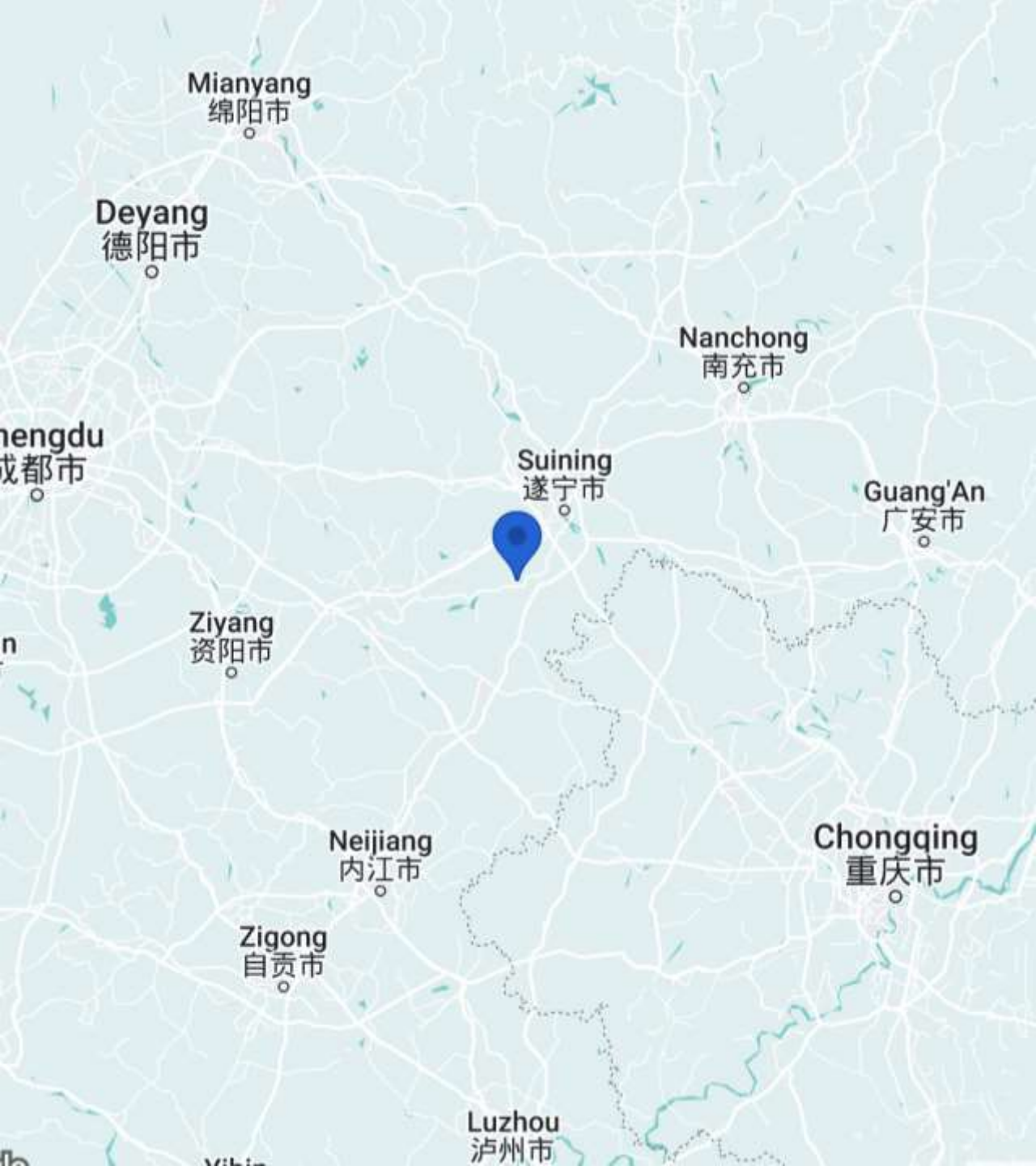
A project with steel sintering main exhaust fan, coal injection, ore chute and other equipment (a total of 12 sets) in Guangdong has been successfully put into operation in December 2021. The successful operation of this project has expanded the southeast market for Schorch Electric in high-power frequency conversion. The converters of this project adopt the industry's most advanced power unit bypass, remote monitoring and management of the IoT and other functions.

Project in Hebei

Schorch Electric, a leading energy-saving service provider and converter manufacturer in China, has implemented various complex converter projects. This includes frequency conversion systems for synchronous motors in the metallurgical industry, power industry applications like blast furnace blowers and induced draft fans. Notably, a project for an iron and steel company in Hebei province involved high-power converters and double-exhaust fans. With advanced features like power unit bypass and wireless remote monitoring, the project achieved significant energy savings, reduced failure rates, and prolonged equipment lifespan. The frequency converters resulted in an average annual power saving rate of 12%, equivalent to over 18 million kWh of electricity savings. This success further solidified Schorch Electric's reputation in the high-power frequency conversion field.

Projects in Fujian and Anhui

Fujian Longking and Anhui Weida are working on a desulfurization and denitrification project for Jingye Steels. The project includes the installation of two 7700kW desulfurization and denitrification booster fans with adjustable blades. The fans are produced by Howden and have higher efficiency compared to traditional centrifugal fans. For this project, Schorch Electric has provided two water-cooled MV converters with a capacity of 10000kVA. These converters have functions such as power unit bypass, flying start-up, and frequency conversion drive operation. They can adjust the conversion frequency in real time to achieve energy savings while meeting production requirements. The project has successfully completed the trial run and practical training for on-site personnel.



Contact Us

Intersection of Andong Avenue and Shunan South Road, Anju Economic Development Zone, Suining City, Sichuan Province, China.629000

 +86 133 0818 0898

 +86 133 0818 0898

 info@schorch-convert.com

 www.schorch-convert.com