WOLONG
Power your future

Wolong (Zhejiang) Power Electronics Co., Ltd

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Universal high-voltage frequency converter

WD5100 Series
WD5180 Series

Wolong (Zhejiang) Power Electronics Co., Ltd

GROUP PROFILE

Wolong,built in 1984, set the goal of "Global Motor NO.1", has been committed to providing safe, efficient, intelligent and green motor power system solutions to users all over the world. It owns 3 listed companies, Wolong Electric (600580SH), Wolong Real Estate (600173SH), and Brook Crompton (AWC.SI), 57 wholly-owned and holding subsidiaries, and more than 18,000 employees. Wolong has 39 manufacturing bases and 5 technology centers in China, Vietnam, Britain, Germany, Austria, Italy, Poland, Serbia, Mexico, Japan, India and other places, and has established a global three-level technology research and development system of central research institute, product group and manufacturing factory, forming a research and development, manufacturing, sales and service network in more than 100 countries around the world, kept on building a safe, efficient and stable supply guarantee system for customers.

Since its earlier days, Wolong has been insisted on developing enterprises through technology, creating a leading position in the motor R&D industry. It has applied for 2,861 patents, including 305 invention patents, participated in the formulation of 100 + international, national and industry standards, and has two nationally recognized laboratories CNAS, nationally recognized enterprise technology center, institute soil expert workstation, post-doctoral research workstation, special motor material production and application demonstration platform of the Ministry of Industry and Information Technology, national technological innovation demonstration enterprise, and national manufacturing single champion demonstration enterprise.

Special motors for industrial use in Tamel, Poland

Norwich, United Kingdom

Project Motor
DC motor, permanent magnet motor

UK
Poland
Mönchengladbach, Germany (EMEA Headquarters)
Germany
Austria
Italy
Serbia

Henan Nanyang Factory

Global Sales Headquarters (Shanghai)
Southern District Headquarters
Beijing(North District Headquarters)
China
Japan
Saudi Arabia
India
Haiphong, Vietnam (Asia-Pacific Headquarters)
Singapore (BCH Headquarters)

Mönchengladbach, Germany

Explosion-proof motors, special motors and frequency converters (low and medium voltage)

South Africa

Haiphong, Vietnam

FHP/IHP motor

Australia

COMPANY PROFLE

Wolong Power Electronics, affiliated to Wolong Electric Group, is a high-tech enterprise with motor drive technology as its core. The company focuses on the research and development of high-performance vector control technology, permanent magnet synchronous motor and synchronous reluctance motor control technology, three-level inverters control technology and unit cascade multi-level control technology. The products currently cover the full voltage range of 380V-10kV, including high-performance low-voltage inverters, 1140V/3300V three-level inverters and control systems, unit cascade high-voltage inverters, low-voltage three-level high-speed permanent magnet synchronous motor inverters, etc.

The products are widely used in coal mine, chemical industry, petroleum, metallurgy, electric power and other industrial fields. It has great advantages especially in low-frequency and high-torque starting, long cable drive, ultra-high frequency output, harmonic control, low harmonic feedback, permanent magnet motor drive, multi-drive load distribution and other applications.

3 main operations centers worldwide, 42 manufacturing plants

Asia (China, Vietnam)| America (Mexico)

Europe (UK, Germany, Italy, Poland, Serbia)

Shangyu Headquarters

Home Appliance motors, new energy vehicle motors, industrial motors, vibration motors, etc.

Canada
USA
Houston, USA (Americas Headquarters)
Mexico

Industrial Motors in Monterrey, Mexico

Brazil

- Research and Development Center
- Manufacturing plant
- Global Sales Headquarters
- Theater Headquarters and BCH Headquarters
- Sales and service network

Company employees:

18000+

Manufacturing site:

39

Apply for a patent:

2861+

Listed company + wholly-owned + holding subsidiary:

60家

WOLONG
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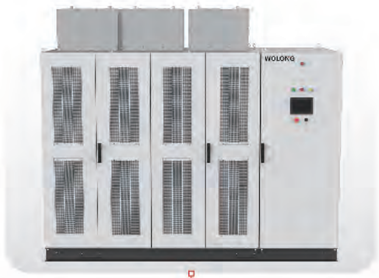
Product Introduction of General high-voltage frequency converter



	WD5100 Series General high-voltage frequency converter	WD5180 Series High performance compact high-voltage frequency converter
Capacity Range	6kV series: 250 ~ 9000kVA 10kV series: 250 ~ 16000kVA	10kV：280kVA-2500kVA
Product Features	Based on the traditional cell series technology, the cell structure is calculated, and the universal high-voltage vector inverter with bypass structure is adopted by connecting the cell H bridge in series.	Based on two-quadrant, synchronous/asynchronous machine control platform, the performance is more stable, the volume is smaller, and the same control system is used as WD5100
Application field	Energy-saving applications of fans and water pumps in petroleum, electric power, chemical industry, metallurgy, building materials, municipal administration and other fields; Compressors, belt conveyors, hoists, crushers, ball mills, frequency conversion soft starts and other process applications	Energy-saving applications of fans and water pumps in metallurgy, HVAC, chemical industry, nonferrous metals, building materials, coal mines, municipal administration, electric power, papermaking, testing equipment, petroleum and other fields

Complete machine naming rules

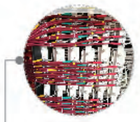
WD5100－1000－M100－ATB

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	②	③	④	⑤	⑥	⑦	⑧
Product category: WD51-Wolong large transmission products	00: Use high-voltage frequency converter 10: Special for internal mixer 20: Special for air conditioner 30 variable frequency power supply 40 ater-cooled high-voltage frequency converter 80: Compact high-voltage frequency converter	Rated capacity of frequency converter: Unit kVA	Input voltage level: A-380V B-690V C-1140V D-3kV E-3.3kV G-4.2kV H-6kV L-6.6kV M-10kV N-11KV P-13.8kV	Output voltage: 060-6kV 100-10kV	Motor Type: A: Asynchronous motor P: permanent magnet motor S: Electric excitation is the same as Step machine	F: The frequency converter has energy feedback T: The frequency converter does not have energy feedback	B: Power unit configuration bypass Default: No cell bypass

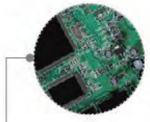
General high-voltage frequency converter application scenarios

WD5100 series General high-voltage frequency converter



Phase-shifting transformer

The input transformer adopts dry-type multi-pulse rectification to improve the power factor and have no harmonic pollution to the power grid side

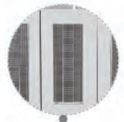


Control system

High-performance chip based on high-speed ARM, DSP and FPGA, realizes high-performance vector control, and adopts stacked PWM control technology to realize high-quality sinusoidal voltage and current output

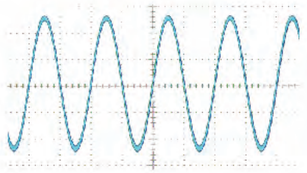
Communication

Adopt optical fiber isolation communication, featuring on high security and strong anti-interference ability



Filter device

The isolation filter screen uses a pull-up structure, which is easy to replace



Output waveform

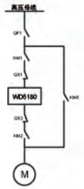
Output 4N +1 ladder PWM wave, almost sine wave, more friendly to motors

Power unit

The power unit adopts modular design to facilitate later maintenance and replacement

Concise HMI

On the HMI, the operation status of the frequency converter can be intuitively displayed, the function code can be viewed or set, and the fault information can also be viewed;



Bypass cabinet

Available manual/automatic bypass to realize switching between fixed and variable frequency.

WD5180 series high performance compact high-voltage frequency converter

Capacity Range:
280kVA~2500kVA

Fully enclosed design of power unit with high environmental adaptability

Industry-leading power density, the overall machine size is 45% smaller than that of general products

Extra long life:
The life of core devices such as thin film capacitors can be increased by up to **100%**

Comprehensive protection: Temperature, voltage, current, fault self-recovery, etc

Transformer cabinet and power unit cabinet integrated heat dissipation

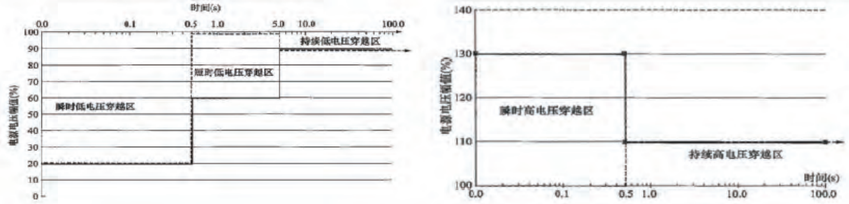
Technical advantages:

1 Support synchronous machine/asynchronous machine control algorithm

With high performance vector control algorithm, it can drive asynchronous machine, electric excitation synchronous machine, permanent magnet synchronous machine and other types of motors

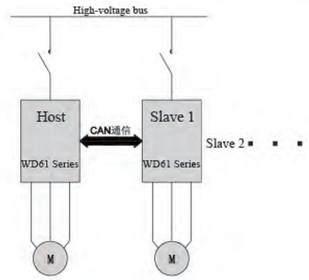
2 LVRT low voltage ride-through technology

Frequency converters can continue to operate despite short-term grid drops



3 Master-slave control function

High control accuracy, simple operation and wide application range; It can realize one-to-one, one-to-many;



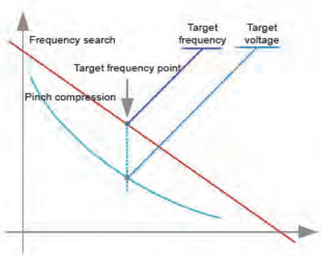
Master-slave control mode

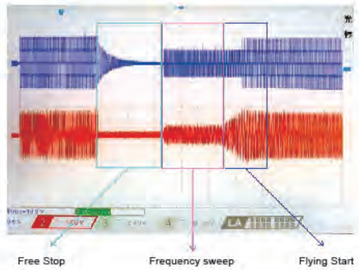
4 Rich bus interfaces

Provide rich fieldbus protocols and optional cards, which are convenient to connect with users' DCS system, and realize centralized monitoring and management of equipment

5 Flying Start function

Starting the frequency converter when the running state of the motor is unknown, the system can accurately track the current speed and direction of the motor, and output the voltage and current matching the current speed, so as to realize the Flying Start and reduce the impact on the motor



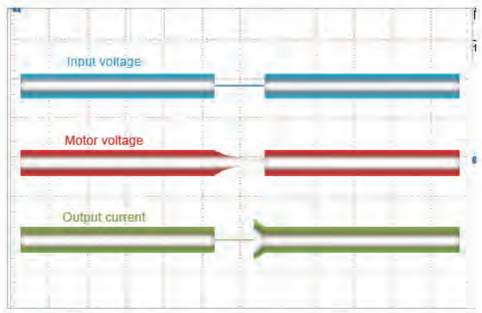


6 Adapt to the harsh natural environment

Be able to operate stably in high altitude areas and coastal areas, and provide timely after-sales service

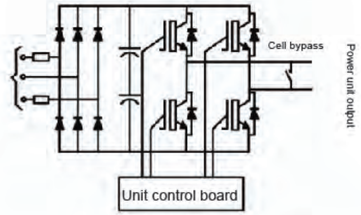
7 Power off restart function

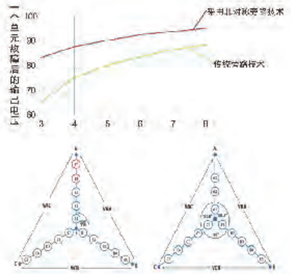
After the short-term frequency converter is powered off and then powered on, the frequency converter will automatically restart according to the state before the power-off, detect the motor speed through speeding start, and start to the current target frequency.



8 Asymmetric execution unit bypass

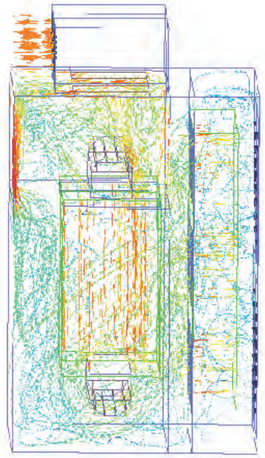
In order to improve the reliability and safety of operation, the frequency conversion unit has a bypass function. When any power unit fails, the power unit uses the form of switch hard bypass to realize the unit bypass. With the neutral point offset technology, it can still control the stable operation of the system.

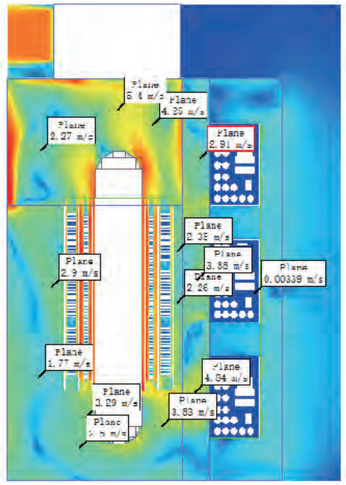




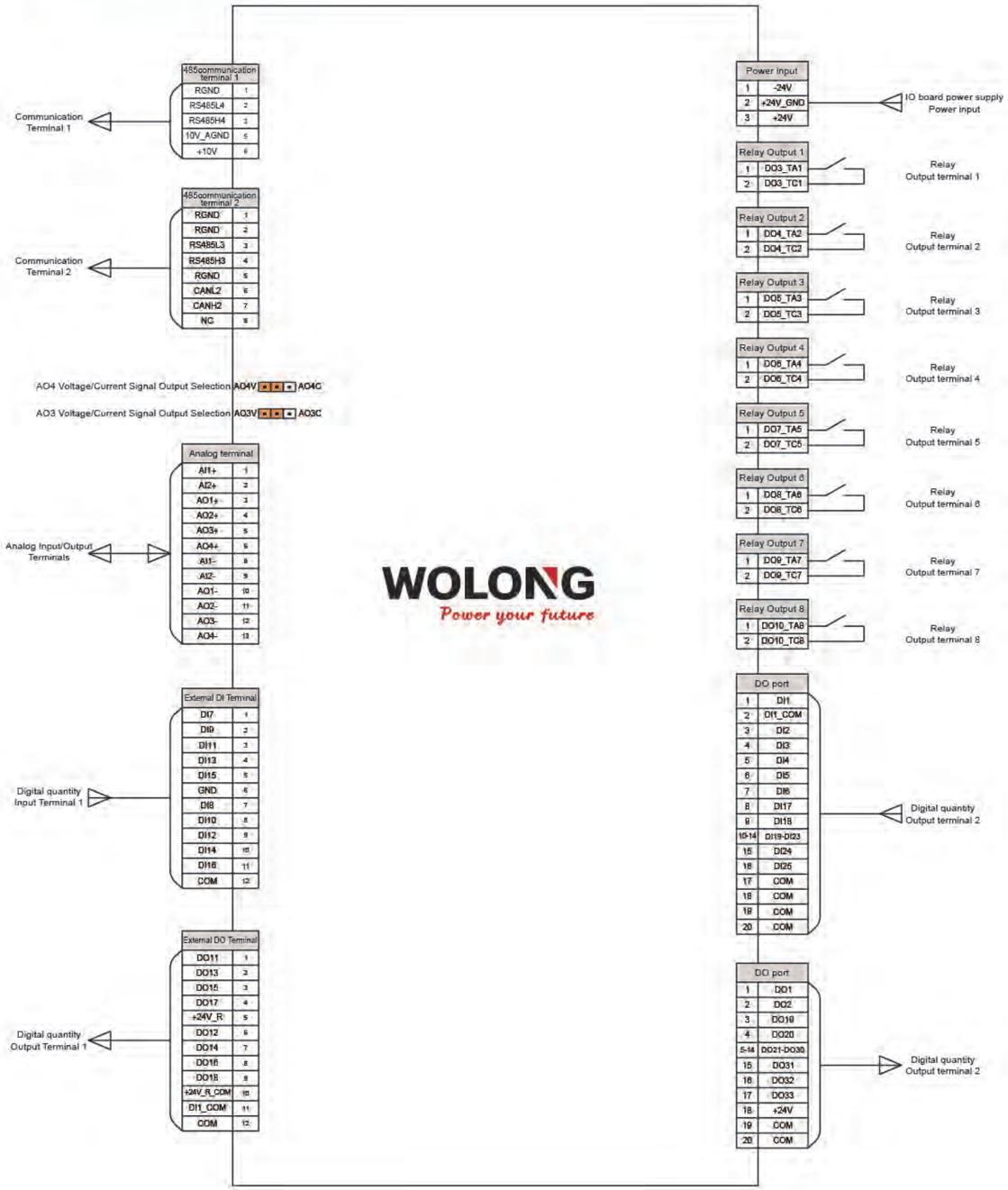
9 Advanced thermal simulation technology

All products in the full power segment are subjected to thermal simulation, ensuring good heat dissipation design.





Standard IO interface



WD5100/WD5180 Technical Data

Items	Voltage	6kV series	10kV series
Input	Input rated voltage	Phase 3 50/60 Hz, 6KV	Phase 3 50/60 Hz, 10KV
	Voltage fluctuation range	± 10% full load operation,-35% ~-10% long-term derating allowed	
	Frequency variation range	50Hz±5%	
	Unit input voltage	690V	
	Input power factor	≥ 0.95 (above 20% load)	
	Input current harmonics	≤ 4% meet IEEE519-1992 and GBT14549-93 standards	
Output	Output voltage range	0 ~ 6kV	0 ~ 10kV
	Output capacity range	315kVA ~ 9000kVA	5100 : 280kVA-16000kVA 5180 : 280kVA-2500kVA
	Unit output voltage	690V	
	Output frequency range	0 ~ 120Hz 120Hz or above manufacturer customized	
	Speed ratio	40: 1 (universal vector)100:1 (SVC) 200:1 (FVC)	
	Speed accuracy	±0.5% (SVC) ±0.2% (FVC)	
Number of power units		15pcs	24pcs (WD5180:12pcs)
Technical solution		Unit cascade, AC-DC-AC, high-high mode	
Control mode		V/F, without/with speed sensor control mode (SVC/FVC)	
Adapted motor types		Asynchronous motor, electric excitation synchronous machine, permanent magnet synchronous machine, etc	
Rectified form		Diode three-phase full bridge	
Inverter form		IGBT inverter bridge	
Acceleration and deceleration time		0.1 ~ 6500s	
Start-stop control		Local or remote	
Control system		ARM、DSP、FPGA、HMI	
The panel shows		Touch screen, Simplified Chinese	
Overload capacity		5100: 120% rated current/1min 5180: 110% rated current/1min	
Overall efficiency		≥96%	
Whether the frequency conversion device has a fuse or not		Yes	
Protection level		IP30	
System protection		Motor overload, output overload, output short circuit, output grounding, input overcurrent, input overvoltage, input imbalance, input grounding, cooling fan fault alarm, door switch interlock protection, transformer overheating alarm, transformer overheating trip, etc.	
Mean free error time		50,000 hours	
Communication interface		CAN, Modbus RTU, Modbus TCP, PROFIBUS-DP (Optional)	
Switch value input		25-way relay dry contact	
Switch value output		33-way relay dry contact	
Analog input		2 channels, 4 ~ 20mA or 0 ~ 10V	
Analog output		4 channels, 4 ~ 20mA or 0 ~ 10V	
Usage environment		Indoor	
Environmental temperature		Preheating may be required below 0 °C, derating is required above 40 °C	
Altitude for use		< 1000m, derating is required above 1000m(please specify when ordering)	
Total equipment noise		≤80dB	
Cooling method		Forced air cooling	
Control power		380V ± 10% AC three-phase four-wire	
Incoming and outgoing line mode		Bottom in and bottom out (Customizable)	

WD5100 Product Specifications

10kV

Model	Nominal Capacity (kVA)	Overall Dimensions (width × depth × height mm)	Overall weight (kg)
WD5100-280-M100-*T(B)	280	2700X1350X2050	2520
WD5100-315-M100-*T(B)	315		2540
WD5100-355-M100-*T(B)	355		2560
WD5100-400-M100-*T(B)	400		2580
WD5100-450-M100-*T(B)	450		2600
WD5100-500-M100-*T(B)	500		2620
WD5100-560-M100-*T(B)	560		2640
WD5100-630-M100-*T(B)	630		2760
WD5100-710-M100-*T(B)	710		2860
WD5100-800-M100-*T(B)	800		2960
WD5100-900-M100-*T(B)	900		3170
WD5100-1000-M100-*T(B)	1000		3370
WD5100-1120-M100-*T(B)	1120		3570
WD5100-1250-M100-*T(B)	1250		3770
WD5100-1400-M100-*T(B)	1400	3050X1625X2150	4680
WD5100-1600-M100-*T(B)	1600		4880
WD5100-1800-M100-*T(B)	1800		5080
WD5100-2000-M100-*T(B)	2000		5280
WD5100-2250-M100-*T(B)	2250		5480
WD5100-2500-M100-*T(B)	2500		5680
WD5100-2800-M100-*T(B)	2800	4500X1375X2050	7430
WD5100-3000-M100-*T(B)	3000		7720
WD5100-3150-M100-*T(B)	3150		7760
WD5100-3500-M100-*T(B)	3500		7870
WD5100-3750-M100-*T(B)	3750		7950
WD5100-4000-M100-*T(B)	4000		8470
WD5100-4500-M100-*T(B)	4500		8500
WD5100-5000-M100-*T(B)	5000	6400X1500X2500	11890
WD5100-5600-M100-*T(B)	5600		12400
WD5100-6300-M100-*T(B)	6300		13200
WD5100-7000-M100-*T(B)	7000		13700
WD5100-8000-M100-*T(B)	8000	7350X1900X2850	18550
WD5100-9000-M100-*T(B)	9000		19150
WD5100-10000-M100-*T(B)	10000		21350
WD5100-11250-M100-*T(B)	11250		23300
WD5100-12500-M100-*T(B)	12500		24730
WD5100-13750-M100-*T(B)	13750		25190
WD5100-15000-M100-*T(B)	15000		26070
WD5100-16000-M100-*T(B)	16000		26950

6kV

Model	Nominal Capacity (kVA)	Overall Dimensions (width × depth × height mm)	Overall weight (kg)
WD5100-315-H060-*T(B)	315	2000X1275X1900	1230
WD5100-355-H060-*T(B)	355		1360
WD5100-400-H060-*T(B)	400		1490
WD5100-450-H060-*T(B)	450		1620
WD5100-500-H060-*T(B)	500		1750
WD5100-560-H060-*T(B)	560		1880
WD5100-630-H060-*T(B)	630		2010
WD5100-710-H060-*T(B)	710		2140
WD5100-800-H060-*T(B)	800	2300X1525X2000	2500
WD5100-900-H060-*T(B)	900		2700
WD5100-1000-H060-*T(B)	1000		2900
WD5100-1120-H060-*T(B)	1120		3100
WD5100-1250-H060-*T(B)	1250		3300
WD5100-1400-H060-*T(B)	1400		3500
WD5100-1600-H060-*T(B)	1600		3700
WD5100-1800-H060-*T(B)	1800	2600X1575X2050	3950
WD5100-2000-H060-*T(B)	2000		4500
WD5100-2250-H060-*T(B)	2250		4850
WD5100-2500-H060-*T(B)	2500		5150
WD5100-2800-H060-*T(B)	2800		5500
WD5100-3150-H060-*T(B)	3150	4950X1300X2455	8000
WD5100-3500-H060-*T(B)	3500		8550
WD5100-4000-H060-*T(B)	4000		8750
WD5100-4500-H060-*T(B)	4500	6800X1450/1300X2405	12420
WD5100-5000-H060-*T(B)	5000		12690
WD5100-5600-H060-*T(B)	5600		12970
WD5100-6300-H060-*T(B)	6300		13290
WD5100-7000-H060-*T(B)	7000	7100X1600/1400x2405	15420
WD5100-8000-H060-*T(B)	8000		16240
WD5100-9000-H060-*T(B)	9000		17000

WD5180 Product Specifications

Model	Nominal Capacity (kVA)	Overall Dimensions (width × depth × height mm)	Overall weight (kg)
WD5180-280-M100-*T(B)	280	1600X1300X2100	1880
WD5180-315-M100-*T(B)	315		1890
WD5180-355-M100-*T(B)	355		1900
WD5180-400-M100-*T(B)	400		1930
WD5180-450-M100-*T(B)	450		1950
WD5180-500-M100-*T(B)	500		1990
WD5180-560-M100-*T(B)	560		2000
WD5180-630-M100-*T(B)	630		2100
WD5180-710-M100-*T(B)	710		2200
WD5180-800-M100-*T(B)	800		2300
WD5180-900-M100-*T(B)	900		2500
WD5180-1000-M100-*T(B)	1000		2700
WD5180-1120-M100-*T(B)	1120	1600X1400X2100	2800
WD5180-1250-M100-*T(B)	1250		2850
WD5180-1400-M100-*T(B)	1400		1900
WD5180-1600-M100-*T(B)	1600	1900X1500X2100	3300
WD5180-1800-M100-*T(B)	1800		3600
WD5180-2000-M100-*T(B)	2000		4000
WD5180-2250-M100-*T(B)	2250		4350
WD5180-2500-M100-*T(B)	2500		4700

Note: (1) The inverter capacity can be selected according to the user's requirements, and the bypass cabinet can be installed selectively.
(2) The input voltage and output voltage of the standard series are consistent, and the size of the whole machine shall be increased by 300mm-600mm fan height.
(3) The weight of the whole machine only includes transformer cabinet, power unit cabinet and control cabinet.