NIETZ

Professional
Drive Manufacturer

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CF80 Series Medium Voltage Variable Frequency Drive

Model Selection Catalogue

NIETZ ELECTRIC CO.,LTD

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NIETZ

Innovation +
Driving Tomorrow

WHO WE ARE

NIETZ is one Leading Manufacturer of industrial automation products, with more than millions units sold worldwide, established 2005 Shanghai, China. We are committed to building long-lasting and successful business relations with our partners, has gained good reputation and deep influence.

We aim to provide the best quality, unmatched reliability and low price in our services and our products. We aim to reduce your costs, streamline manufacturing, to improve productivity.

The products of NIETZ are Variable Frequency Inverters, AC Servo System, Soft Starter, Planetary Gearboxes and Complete Device,The products NIETZ are technological advanced products and it has quite wide product range and already used widely in various applications such as textile machine, air compressor, hoist, packing machine, printing machine, electronic machine and other industries, which exported to over 40 countries and regions such as Europe, South America, Southeast Asia, Middle East and so on.

NIETZ always aims to be the professional driving solution provider and your mutual-benefit partner.

PRODUCT STRUCTURE

Power cell

Each phase is composed of 3~9 power cells, forming a 4N+1 ladder PWM wave, three-phase Y connection, direct output 3~11kV.

Control system

Intelligent controller based on high-speed ARM, DSP, and FPGA;

Flux closed-loop vector control technology, optimized stacked wave PWM Control technology to achieve high-quality sinusoidal voltage and current output.

Air cooling

Adopt centrifugal fans from internationally renowned brands in the industry. Large air volume, sufficient margin, long life, and high stability.This ensures the heat dissipation needs of the high-voltage inverter itself. Improved product stability.

HMI

Using a well-known brand touch screen with a novel interface,Rich interfaces facilitate on-site expansion and user system and system connection.

Bypass cabinet
Cable connecting cabinet

Innovatively integrated design of bypass cabinet,Without changing the installation dimensions of the product, it can Built-in one-drive-one manual bypass cabinet or one-drive-one automatical bypass cabinet.

Transformer cabinet

Transformer cabinets and power cell cabinets are arranged in front and back program, through advanced thermal design, ensures on the basis of satisfying heat dissipation, it reduces the safety of the site. installation space to reduce infrastructure costs for customers.

Power cell

Brand new power cell design, the product is more lightweight andaesthetic;

The innovative semi-sealed structural design makes it environmentally friendly Stronger adaptability and higher reliability. No life limit Self-healing film capacitors, even if overvoltage breakdown short circuit.

Modular design

The power cell adopts modular design and can be interchanged at will. The power cell is easy to disassemble and assemble.

Multi-pulse Rectification Method

The input side uses a phase-shifting transformer to form a multi-pulse rectification method, which greatly improves the current waveform on the grid side, increases the input power factor, and reduces the harmonic interference of the equipment on the grid.

Improve short circuit protection technology

Phase-shifting transformer secondary short-circuit protection technology to avoid fires and In the event of accidents such as equipment damage, reduce customer losses and prevent the failure from expanding.

Timely: The short circuit information can be detected in time within the transformer's endurance time, and protective measures can be taken to ensure the safety of the equipment;
All-round: The number of short-circuit phases and short-circuit locations are considered in all directions, and can be effectively protected under various working conditions;
Flexible: No need to add additional equipment, more flexible and reliable.

PERFORMANCE ADVANTAGES

Performance Advantages

Design Features
High reliability, using well-known 1700V high-voltage IGBT (Insulated Gate Bipolar Power Transistor).

User Benefits
Ensure high-reliability operation with a mean time between failures of 20 years.

Design Features
The main circuit uses long-life self-healing metal film capacitors to replace traditional electrolytic capacitors that need to be replaced regularly.

User Benefits
Maintenance and operating costs are low, and no maintenance or replacement is required during the entire life cycle of the frequency converter.

Design Features
The entire system efficiency is as high as 97.5% (design value).

User Benefits
Especially in the field of flow control applications, the energy saving effect is considerable.

Design Features
Diode rectification ensures that the power factor reaches more than 95% within the speed range.

User Benefits
No need to set power factor compensation capacitor.

Design Features
The multi-level PWM control method makes the output waveform very similar to a sine wave (6kV frequency conversion is 11 levels, 10kV frequency conversion is 17 levels).

User Benefits
The nearly perfect sinusoidal waveform allows the motor to operate without derating, and the motor generates no additional harmonic heat.

Design Features
Using multi-pulse rectification and phase-shifting transformer: 3.3kV level: 18 pulses; 6.0kV level: 30 pulses; 10kV level: 48 pulses

User Benefits
No harmonic filter is required, and it meets the high-order harmonic current output limit standards stipulated in IEEE-519 (1992) and GB14549-1993.

Design Features
Even if there is a momentary drop in the power supply voltage or a power outage within 300mS, the inverter can maintain the output and continue to operate.

User Benefits
For important loads, it provides safety guarantee.

Design Features
Synchronous switching function allows smooth switching to power frequency bypass without toggle.

User Benefits
Multiple motors can be controlled by one frequency converter. When the power supply of the motor is switched from VFD model to grid mode ,there will be no impact on the power grid and the motor.

Design Features
Perfect control ensures short acceleration time and good dynamic response.

User Benefits
It can meet the requirements of high-precision control. For variable torque loads, it has the protection function of accelerating without overcurrent and decelerating without overvoltage.

Design Features
The frequency converter has a built-in input dry-type isolation transformer, integrated design.

User Benefits
Provides better protection for the motor, simplifies installation, and lowers installation costs.

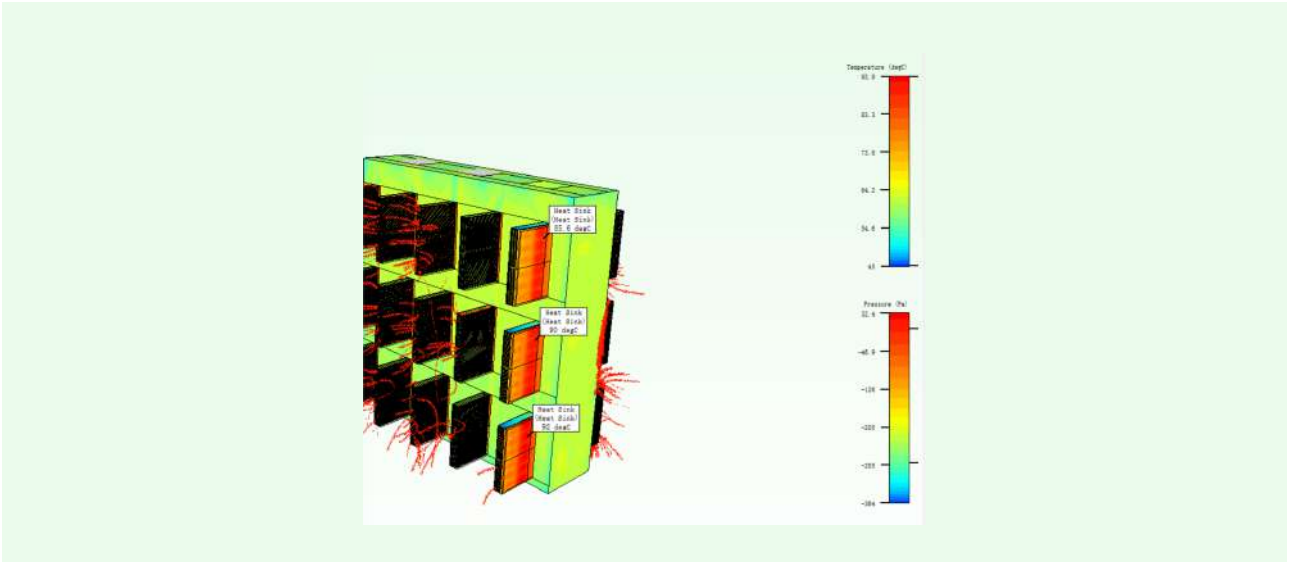
Design Features
Directly drives ordinary high-voltage motors. Can be adapted to standard synchronous/asynchronous motors and other special motors.

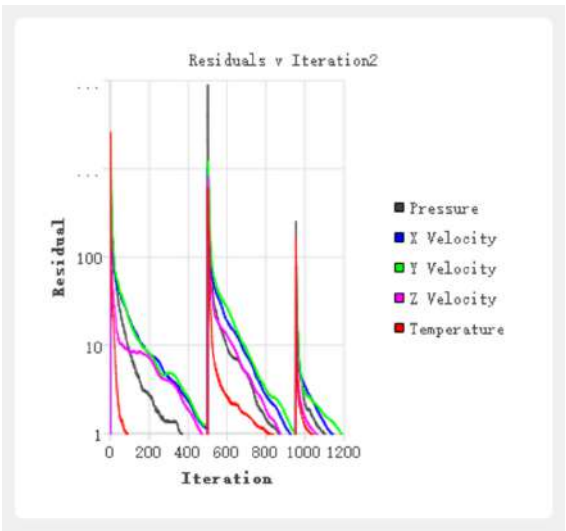
User Benefits
No output transformer is required, saving costs and energy while also reducing installation site requirements.

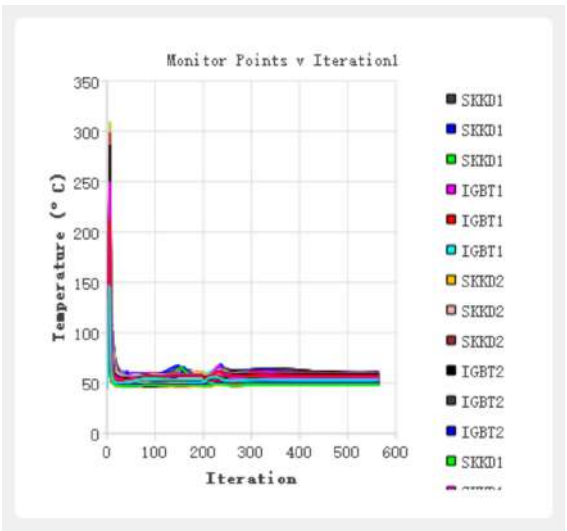
PRODUCT ADVANTAGE

Thermal Simulation Analysis

Use mainstream simulation software to conduct thermal analysis to determine the radiator temperature and air duct air flow direction.





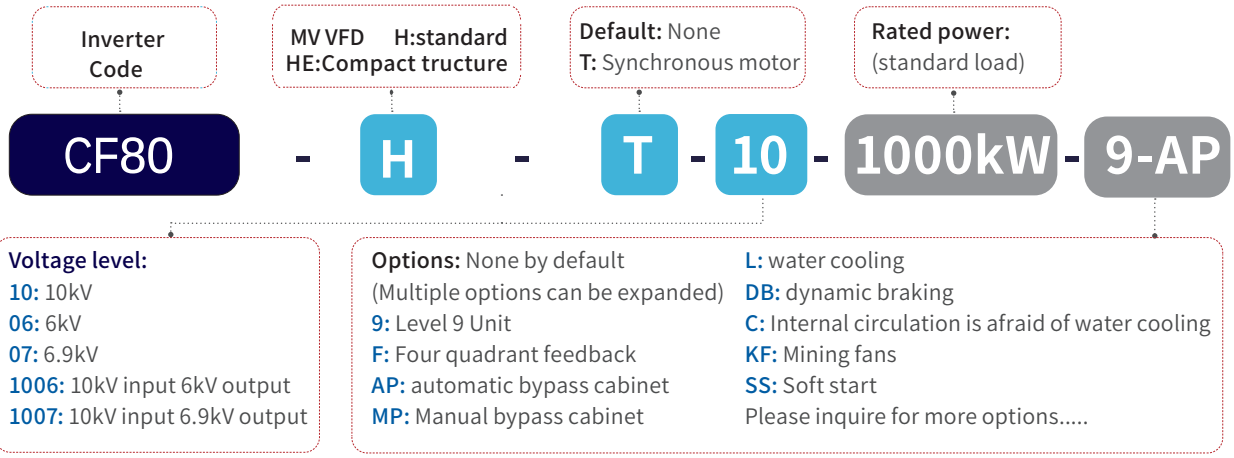


TECHNICAL SPECIFICATION SHEET

Item	Voltage	6KV Series	10KV Series
Input	Rated voltage	3 phase 50/60Hz, 6KV	3 phase 50/60Hz, 10KV
	Voltage fluctuation range	6kV/10kV ±10% full load operation, -10%~-35% allows long-term derated operation	
	Frequency range	50/60Hz±5%	
	Power cell input voltage	690V	
	Input power factor	>0.95 (above 20% load)	
	Input current harmonics	<2% meets IEEE519-1992 and GBT14549-93	
Output	Output voltage range	0-6KV	0-10KV
	Output capacity range	180~630kW	250~800kW
	Output Voltage	690V	
	Output frequency range	0-120Hz	
	Speed ratio	40:1(Universal Vector)100:1(SVc)200:1(FVC)	
	Speed accuracy	±0.5 (SVC) ± 0.2 %(FVC)	
	Torque response	>750rad/s	
	Starting torque	0.5HZ/150%6 (SVC) ;0Hz/180% (FVC)	
Technical solutions		Power cell cascade, AC-DC-AC, MV-MV type	
Control Model		Universal vector, without/with speed sensor control method (SVC/FVC)	
Rectification type		Diode three-phase full bridge	
Contravariant type		IGBT inverter bridge	
Acceleration and deceleration time		0.1-6500 seconds, >6500 seconds factory customized	
Start/stop control		Local or distant	
Control systerm		ARM、DSP、CPLD、HMI、PLC	
HMI		Touch screen/LCD optional, Simplified Chinese, English	
Overload capacity		120% rated current, 1 minute	
Overall machine efficiency		＞97.5%	
Fuse		Power cell input side with fuse	
Whether the electrical isolation part uses optical fiber		Yes	
Whether the input filter required		No	
Whether the output filter required		No	
Whether the power factor compensation required		No	
Power cell protection		Overvoltage, undervoltage, voltage equalization, input phase loss, overcurrent, overtemperature, communication, etc.	
Mean time between failures		50,000 hours	
System protection		Motor overload, output overload, output short circuit, output grounding, input overcurrent, input overvoltage, input unbalance, input grounding, cooling fan failure alarm, door switch interlock protection, transformer overheating alarm, transformer overheating trip, etc.	
Communication Interface		Modbus RTU, other protocols can be customized according to user requirements.	
Switch input		16 channels, relay dry contact (other options available upon request)	
Switch output		8 channels, relay dry contact (other configurations available upon request)	
Analog input		2 channels, 4-20mA or 0-10V (other options available upon request)	
Analog output		2 channels, 4-20mA or 0-10V (other options available upon request)	
Usage environment		Indoor	
Ambient temperature		-10°C ~+40°C , +40°C ~+50°C derated operation; low T-10°C , preheating is required before starting	
Environment humidity		5%~95%, no condensatio	
Altitude		<1000m, more than 1000m requires derating operation, please specify when ordering	
Total equipment noise		<75dB	
Cooling method		Forced air cooling	
IP Class		IP31, IP42, or other customizable options.	
Cable entry and exit methods		Bottom in and bottom out, top in and top out, customized	
Control Power		AC 220V±15% or AC 110V±15%, single phase.	

MEDIUM VOLTAGE INVERTER PRODUCT SELECTION

MODEL DEFINITION



Specification Sheet of HE series

VFD Model	Motor power（kW)	VFD capacity(kVA)	Weigh(kg)	Cabinet Dimension (W×D×H)
CF80-HE-10-315kW	400	230	2055	2150×1400×2400
CF80-HE-10-355kW	450	260	2155	
CF80-HE-10-400kW	500	310	2266	
CF80-HE-10-450kW	560	330	2388	
CF80-HE-10-500kW	630	400	2521	
CF80-HE-10-560kW	710	420	2665	
CF80-HE-10-630kW	800	480	2820	
CF80-HE-10-710kW	900	520	2986	
CF80-HE-10-800kW	1000	610	3163	
CF80-HE-6-250kW	355	350	1780	
CF80-HE-6-315kW	400	400	1910	
CF80-HE-6-355kW	450	430	2050	
CF80-HE-6-400kW	500	480	2205	
CF80-HE-6-450kW	560	550	2371	
CF80-HE-6-500kW	630	610	2548	
CF80-HE-6-560kW	710	680	2736	
CF80-HE-6-630kW	800	770	2935	

Specification Sheet of H series

VFD Model	Motor power（kW)	VFD capacity(kVA)	Weigh(kg)	Cabinet type	Cabinet Dimension (W×D×H)
CF80-H-06-185kW	185	230	2650	Cabinet A1	2150×1400×2400
CF80-H-06-220kW	220	275			
CF80-H-06-250kW	250	320			
CF80-H-06-280kW	280	350	2760		
CF80-H-06-315kW	315	400			
CF80-H-06-355kW	355	450	2930		
CF80-H-06-400kW	400	500			
CF80-H-06-450kW	450	560	3160		
CF80-H-06-500kW	500	630	3360		

VFD Model	Motor power（kW)	VFD capacity(kVA)	Weigh(kg)	Cabinet type	Cabinet Dimension (W×D×H)
CF80-H-6-560kW	560	700	3985	Cabinet B1	3450×1600×2250
CF80-H-6-630kW	630	800	4042		
CF80-H-6-710kW	710	900	4160		
CF80-H-6-800kW	800	1000	4382		
CF80-H-6-900kW	900	1150	4590		
CF80-H-6-1000kW	1000	1250	4792		
CF80-H-6-1120kW	1120	1400	4985		
CF80-H-6-1250kW	1250	1600	5285		
CF80-H-6-1400kW	1400	1800	6120	Cabinet C1	4150×1600×2250
CF80-H-6-1600kW	1600	2000	6390		
CF80-H-6-1800kW	1800	2250	6745		
CF80-H-6-2000kW	2000	2500	7090		
CF80-H-6-2250kW	2250	2800	9220	Cabinet D1	5400×1400×2400
CF80-H-6-2500kW	2500	3200	9570		
CF80-H-6-2800kW	2800	3500	10070		
CF80-H-6-3200kW	3200	4000	10670		
CF80-H-6-3600kW	3550	4500	11240		
CF80-H-6-4000kW	4000	5000	12500	Cabinet F1	6850×1400×2400
CF80-H-6-4500kW	4500	5650	13000		
CF80-H-6-5000kW	5000	6300	14000		
CF80-H-6-5600kW	5600	7000	17755	Cabinet G1	8200×1600×2400/2600
CF80-H-6-6300kW	6300	8000	18795		
CF80-H-6-6600kW	7100	9000	19450		
CF80-H-10-185kW	185	230	2220	Cabinet A	2000×1500×2000
CF80-H-10-220kW	220	275	2240		
CF80-H-10-250kW	250	320	2260		
CF80-H-10-280kW	280	350	2286		
CF80-H-10-315kW	315	400	2316		
CF80-H-10-355kW	355	450	2346		
CF80-H-10-400kW	400	500	2383		
CF80-H-10-450kW	450	560	2433		
CF80-H-10-500kW	500	630	2483		
CF80-H-10-560kW	560	700	2593		
CF80-H-10-630kW	630	800	2719		
CF80-H-10-710kW	710	900	2875		
CF80-H-10-800kW	800	1000	3062		
CF80-H-10-900kW	900	1150	3192	Cabinet B	2500×1650×2200
CF80-H-10-1000kW	1000	1250	3258		
CF80-H-10-1120kW	1120	1400	3409		
CF80-H-10-1250kW	1250	1600	4390		
CF80-H-10-1400kW	1400	1800	4648		
CF80-H-10-1600kW	1600	2000	4948		
CF80-H-10-1800kW	1800	2250	5270		
CF80-H-10-2000kW	2000	2500	5604	Cabinet C	4000×1500×2200
CF80-H-10-2250kW	2250	2800	5916		
CF80-H-10-2500kW	2500	3150	7990		
CF80-H-10-2800kW	2800	3500	8150		
CF80-H-10-3200kW	3200	4000	8700		

VFD Model	Motor power（kW)	VFD capacity(kVA)	Weigh(kg)	Cabinet type	Cabinet Dimension (W×D×H)
CF80-H-10-3600kW	3550	4500	8820	Cabinet D	6925×1500×2455
CF80-H-10-4000kW	4000	5000	11990		
CF80-H-10-4500kW	4500	5600	12500		
CF80-H-10-5000kW	5000	6300	13300		
CF80-H-10-5500kW	5600	7000	13800		
CF80-H-10-6300kW	6300	8000	18410	Cabinet E	9100×1650×2455
CF80-H-10-7100kW	7100	9000	19700		
CF80-H-10-8000kW	8000	10000	20400	Cabinet F	9200×1700×2800
CF80-H-10-9000kW	9000	11250	22500		
CF80-H-10-10000kW	10000	12500	27120	Cabinet G	12200×1600×2455
CF80-H-10-11000kW	11000	13750	28860		

Remarks:

- The above dimensions and weight are for reference only, the specific dimensions and weight are subject to the technical agreement;
- The input voltage and output voltage of the standard series are the same;
- The height of the overall size does not include the height of the fan, which requires an additional 300mm to 600mm;
- The above overall machine size and weight refer to the sum of the control cabinet, unit cabinet, and transformer cabinet, excluding the power frequency bypass cabinet;
- The distance between the front of the device and the wall is no less than 1500mm, the distance between the back and the wall is no less than 1000mm, the distance between the sides and the wall is no less than 800mm, and the distance between the top and the roof is no less than 1000mm.
- Standard overload capacity is 120%/1 minute, overload is allowed for 1 minute every 10 minutes; overload capacity of 125%, 150%, and 200% can be selected to meet the needs of different applications;
- The applicable motor power may change due to differences in the form and structure of the motor and is for reference only.

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