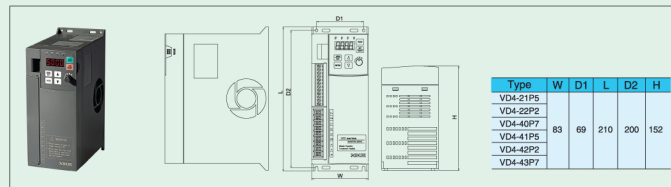
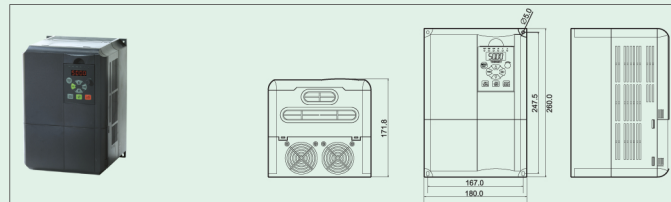


Dimension and Appearance (unit: mm)

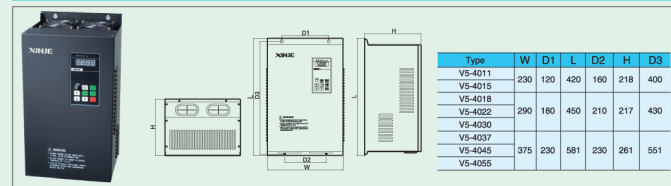
VD4 single-phase 1.5~2.2KW, VD4 3-phase 0.75~3.7KW



VD4, VB5 3-phase 5.5~7.5KW



V5 3-phase 11~55KW



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stable performance
easy operation

XINJE



Match the motor 0.75~55KW
General inverter VB3/VD4/VB5/V5 Series

CE

Excellent product performance

VD4 brings enhanced product performance **new product**

High performance DSP chip for motion control

- Faster process speed, more accurate current control comparing to VB series

Optimize the whole design

- Air channel is easy for cooling and avoid oil stain, water vapor blowing on the PCB board.
- Easy and fast wiring for function terminals and main circuit terminals, avoid short circuit and open circuit.
- VD4 has new appearance.

Basic functions

► High startup torque

- Current open loop vector control, low speed high torque, 1Hz output torque up to 100% of rated torque.

► Motor auto-tune

- 3 phases 380V (VB) series has vector control function. The inverter will auto-learn the motor parameters and auto-match the motor.

► Built-in PI tune function

- Easy to make process close loop control system, improve the precision

► High speed pulse input and output

- X6 terminal supports maximum 20 KHz pulse input for pulse frequency speed tune.
- DO terminal supports maximum 20 KHz pulse output, self-defined functions, PLC and other controllers can read the internal variable of inverter via frequency testing.

► Flexible I/O terminals

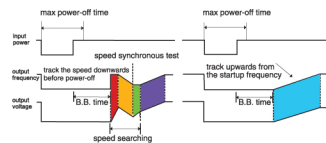
- I/O terminals can be defined to diverse functions.

► Modify the parameters online

- Modify the inverter parameters when it is running, more convenient to operate.

► Speed tracking function

- Before motor stops and need to start up again, inverter can track the motor speed and startup it without impact.



► Energy consumption brake

- The inverters below 15KW have built-in brake unit. The inverters up 18.5KW need external brake unit. Please refer to page 6 for details.

► Auto energy-saving running

- Auto-optimize the V/F curve according to the load; perform auto energy-saving running.

► Up to 9 channels for frequency setting

- Set the frequency through potentiometer, keyboard, UP/DOWN terminal, Vi/Ci terminal, pulse terminal setting, combination setting, remote setting from serial port.

► Function group is easy to set

- Function group P0-PB is easy to set and check.

► Built-in simple PLC function

- The simple PLC function is a multi-segment generator. The inverter will switch the frequency and direction as the running time.

Excellent performance

Communication function

► RS485 port, Modbus-RTU protocol

► Master-slave multi-inverter linkage function

► Compact design

- Protection level accords to IP20
- Compact volume, save space, seamless installation



► Moveable cooling fan (for inverters up 11KW)



► Complete protection functions

- Over current protection
- Over voltage protection
- Under voltage protection
- Over heating protection. Inverter will cut the output and free stop.
- Over load protection. Inverter will cut the output and free stop.

► Moveable numeric keyboard



► Moveable rotary potentiometer

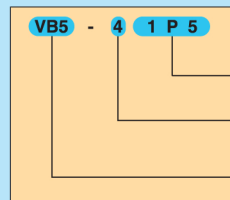
► Optional accessories: installation seat of operation panel and extension cable

- User can remote operate the inverter with these accessories.

► Filtering unit

- The inverters up 30KW are equipped with reactor to restrain the higher harmonic and improve the power factor.

Product type



Max suitable motor capacity
1P5: 1.5KW (P: radix point)
015: 15KW

Voltage level
2: 220V
4: 380V

Series name
VB3: VVV/vector control, mini type
VD4: VVV/vector control
VB5: VVV/vector control
VV: VVV/vector control

Note: 220V types have no vector control

Rich models



The models include VB3, VD4, VB5 series; voltage level contains single-phase 220V, 3-phase 380V; motor capacity contains 0.75KW to 55KW.

Types selection

Power (kw)	Current(A)	Single-phase 220V				3-phase 380 V			
		VB3	VD4	VB5		VB3	VD4	VB5	V5
0.75	2.5	VB3-20P7	VD4-20P7	VB5-20P7		VB3-40P7	VD4-40P7	VB5-40P7	
1.5	7.5		VD4-21P5	VB5-21P5					
	4.5					VB3-41P5	VD4-41P5	VB5-41P5	
2.2	10.0		VD4-22P2	VB5-22P2					
3.7	8.0					VB3-42P2	VD4-42P2	VB5-42P2	
5.5	9.8					VB3-43P7	VD4-43P7	VB5-43P7	
7.5	14.0								
11.5	17.0						VD4-47P5	VB5-47P5	
15	25.0								V5-4011
18.5	33.0								V5-4015
22	46.0								V5-4018
30	60.0								V5-4022
37	75.0								V5-4030
45	90.0								V5-4037
55	110.0								V5-4055

Standard specification 220V types

Type	VB3-20P7	VD4-20P7	VD4-21P5	VD4-22P2	VB5-20P7	VB5-21P5	VB5-22P2
Compatible motor(kW)	0.75	1.5	1.5	2.2	0.75	1.5	2.2
Rated output current (A)	4.7	4.7	7.5	10.0	4.7	7.5	10.0
Rated voltage (V)	AC220						
Frequency range (Hz)	0-500						
Frequency resolution (Hz)	0.01						
Overload capability	150% of rated current 1 minute, 180% of rated current 1 second						
Rated voltage/frequency	Single phase 220V/50/60Hz						
Allowable range of AC voltage fluctuation	Voltage: -20% to +20%, voltage imbalance rate <0%						
Allowable range of frequency fluctuation	Frequency: ±5%						
Power supply capacity(kVA)	1.5	1.5	2.8	4.5	1.5	2.8	4.5

Standard specification 380V types

Type	VB3-40P7	VB3-41P5	VB3-42P2	VB3-43P7
Compatible motor(kW)	0.75	1.5	2.2	3.7
Rated current (A)	2.5	4.5	6.0	8.6
Rated voltage(V)	AC380			
Frequency range (Hz)	0-500			
Frequency resolution(Hz)	0.01			
Overload capability	150% of rated current 1 minute, 180% of rated current 1 second			
Rated voltage/frequency	3 phase 380V/50/60Hz			
Allowable range of AC voltage fluctuation	Voltage: -20% to +20%, voltage imbalance rate <0%			
Allowable range of frequency fluctuation	Frequency: ±5%			
Power supply capacity(kVA)	2.1	2.5	3.0	3.9

Type VB5-4...	0P7	1P5	2P2	3P7	5P5	7P5
Compatible motor(kW)	0.75	1.5	2.2	3.7	5.5	7.5
Rated input current (A)	2.5	4.5	6.0	8.6	14.0	17.0
Rated voltage(V)	AC380					
Frequency range (Hz)	0-500					
Frequency resolution(Hz)	0.01					
Overload capability	150% of rated current 1 minute, 180% of rated current 1 second					
Rated voltage/frequency	3 phase 380V/50/60Hz					
Allowable range of AC voltage fluctuation	Voltage: -20% to +20%, voltage imbalance rate <0%					
Allowable range of frequency fluctuation	Frequency: ±5%					
Power supply capacity(kVA)	2.1	2.5	3.0	3.9	5.5	11.0

Standard specification/performance

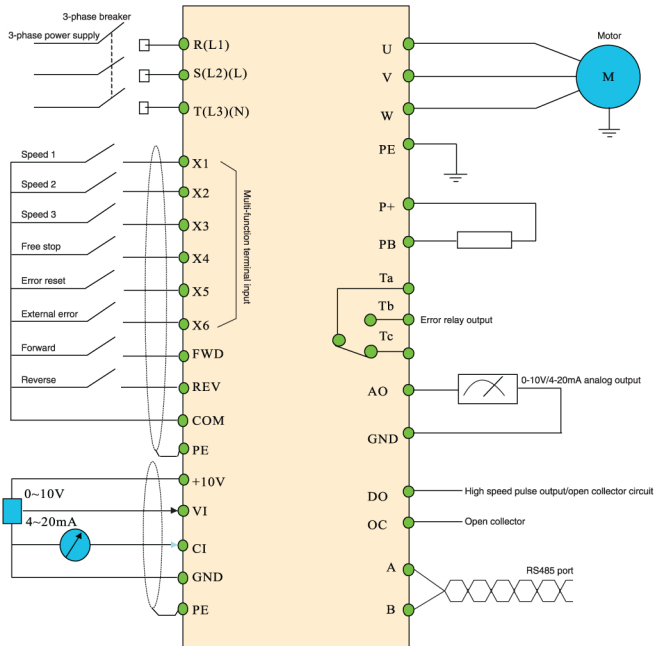
Environment and structure

Item	Specification
Environment	Using place
	Indoor, protect from direct sunlight, dustless, no corrosive gas, no oil mist, no steam
	Altitude
	Lower than 1000 meters(need derate when higher than 1000 meters)
	Ambient temperature
Structure	-10℃~+40℃
	Humidity
	<90% RH, no condensation
	Vibration
	<5.8m/s ² (0.6G)
Protection structure	Storage temperature
	-20℃~+60℃
	Protection structure
Cooling mode	IP20(when use keyboard or status display unit)
	Forced air-cooling
Installation mode	Wall-mounted, cabinet-mounted

Performance specification

Control functions	Modulation mode	Optimal space voltage vector modulation SVPWM
	Control mode	Space voltage vector modulation SVPWM(optimal low-frequency dead zone compensation)
	Frequency accuracy	Digital setting: the highest frequency $\times \pm 0.01\%$ Analog setting: the highest frequency $\times \pm 0.2\%$
	Frequency resolution	Digital setting: 0.01HzAnalog setting: the highest frequency $\times 0.1\%$
	Startup frequency	0.20Hz~20.00Hz
	Torque increase	Automatic increase the torque, manual increase the torque by 0.1% to 30.0%
	V/F curve	Five modes: constant torque V/F curve, 1 kind of user-defined multi-segment V/F curve, 3 kinds of torque falling curve(2nd power, 1.7th power, 1.2nd power)
	Acceleration and deceleration curve	2 modes: linear acceleration/deceleration, S curve acceleration/deceleration; 7 kinds of acceleration/deceleration time, units options: minutes/second, up to 6000 minutes
	DC brake	Start frequency of DC brake: 0 to 15.00Hz Brake time: 0 to 60.0 s. Brake current: 0 to 80%
	Energy consumption brake	Built-in energy consumption brake unit, enable to connect external brake resistor
Running functions	Jog	Jog frequency range: 0.1 to 50.00Hz, jog acceleration/deceleration time: 0.1 to 60.0 s
	Built-in PI	Easy to form the closed loop control system
	Multi-speed running	Run in multi-speed mode via built-in PLC or control terminals
	Textile swing frequency	Swing frequency with adjustable preset and center frequency
	Automatic voltage regulation(AVR)	Maintain the stability of the output voltage when the power line voltage is changing
	Automatic energy-saving running	Automatic optimize the V/F curve according to the load condition to fulfill the energy-saving running
	Automatic current restriction	Automatic limit the current to prevent from over current and trip when running
	Fixed-length control	The inverter stops running when reach the preset length
	Communication function	RS-485 port, support Modbus-RTU protocol, support master-slave linkage function
	Command running channel	Set via control panel, Set via control terminals, Set via serial port 3 modes can switch to each other
Control panel	Frequency setting channel	Set via the potentiometer. Set via up/down buttons. Set via analog voltage. Set via analog current. Set via pulse. Set via combination. Kinds of modes can switch to each other.
	Switch setting channel	Forward/backward command; 8 channels programmable digital input, 35 kinds of functions, X6 supports 0-20KHz pulse input
	Analog input channel	2 channels analog input: 4 to 20mA/0 to 10 V
	Analog output channel	1 channel analog output: 0 to 10 V/4 to 20mA. Output the preset frequency, output frequency
	Switch, pulse output channel	1 channel programmable open collector output, 1 channel relay output, 1 channel 0 to 20 KHz pulse output. Output multi-signal
	LED digital display	Display the preset frequency, output voltage, output current, etc.
	External meter display	Display the output frequency, output current, output voltage, etc.
	Key lock	Lock all the keys
	Protection functions	Over current protection, overvoltage protection, under voltage protection, overheat protection, overload protection
	Accessories	Brake unit, control panel, extension cable of the control panel

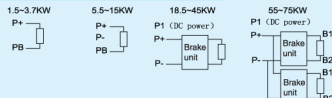
Standard wiring diagram



Note:

- (1) Terminal P is only used to inverter above 5.9KW.
- (2) Terminal L, N is suitable for VB3, VB5 (single-phase), VD4-20P7.
- (3) Terminal L1, L2, L3 is suitable for VD4/VB5 3-phase 0.75~3.7KW (note: the power input terminal of VD4-21P5, VD4-22P2 is L1, L2, L3, please use any two of them to connect 220V).
- (4) VB3 3-phase 0.75~3.7KW has no X5, X6, VI, DO, P+, PB.
- (5) VB5 3-phase 0.75~3.7KW has no X5, VI, DO.
- (6) VD4 3-phase 0.75~3.7KW has no X4-X6, AO, DO.
- (7) VB3/VB5 single-phase has no X4, X5, X6, VI, AO, DO, OC.

The brake wiring diagram for inverters:



Brake resistor

0.75~18.5KW inverters have brake unit inside. Please refer to the following table to choose brake unit if there are energy-consumption brake requirements. The inverters above 18.5KW need to connect external brake unit. Please refer to wiring diagram on pages.

► Brake unit and resistor

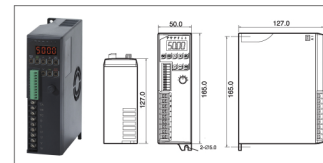
Type (KW)		Brake unit		Brake resistor	
		Type	Quantity	Equivalent brake resistor (Ω)	Equivalent brake power (W)
220V	Built-in		1	150	200
			1	100	400
			1	70	500
			1	300	400
			1	200	500
	Built-in		1	200	500
			1	100	500
			1	75	1000
			1	50	1000
			1	40	1500
380V	BRU-4045		1	32	5000
			1	27.2	5000
			1	20	6000
			1	18	9000
			1	13.6	9000
			1	10	12000
			1		
			1		
			1		
			1		

► Operate panel and extension cable

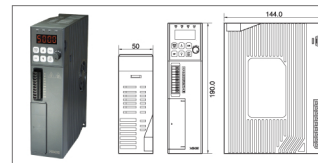
Operate panel	Power range (KW)	Suitable type	Mounting dimension of control panel W×H (mm)	Extension cable type
VD4-OPU-01	0.75	VD4 single-phase	46*51	YC-ECC-07
VD4-OPU-02	1.5~2.2	VD4 single-phase	46*51	YC-ECC-07
VD4-OPU-03	0.75~3.7	VD4 3-phase	54.5*56.5	YC-ECC-05
VD4-OPU-04	5.5~7.5	VD4 3-phase	62*75	YC-ECC-10
VD4-OPU-05	11~55	VD4 3-phase	71*131	YC-ECC-10
VB5-OPU-01	0.75~2.2	VB5 single-phase		
	0.75~3.7	VB5 3-phase	62*75	YC-ECC-05
	5.5~7.5	VB5 3-phase		
VB5-OPU-03	11~55	VB5 3-phase	71*131	YC-ECC-10

Note: The length type of extension cable: 1m, 2m, 3m, 5m.

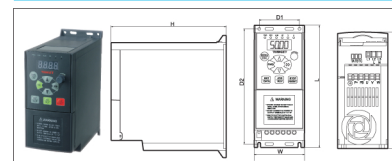
VB3 single-phase 0.75KW



VD4 single-phase 0.75KW



VB3/VB5 0.75~3.7KW



Type	W	D1	L	D2	H
VB5-20P7					
VB5-21P5	70	56	170	160	162
VB5-22P2					
VB3/VB5-40P7					
VB3/VB5-41P5	80	56	200	190	162
VB3/VB5-42P2					
VB3/VB5-43P7					

Unit: mm