

# VH6 fully functional closed-loop vector inverter

VH6 series is a fully functional closed-loop vector converter developed by Xinje company. The product adopts vector control technology, which realizes the open-loop and closed-loop vector control of asynchronous and synchronous motors, and also strengthens the reliability and environmental adaptability of the product. In addition, the product provides a wealth of expansion cards for customers to choose from to meet customers' diversified needs.

## Panel



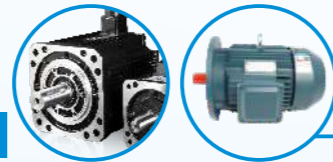
- LCD and LED keyboard are rich in information and convenient for debugging
- It has multi-functional combination keys, which can realize remote and local switching, emergency shutdown, etc
- The LCD panel contains a parameter storage chip, which is convenient for users to store, upload and download parameters. It is especially suitable for batch supporting customers, which can greatly save debugging time and improve installation efficiency
- Support up to 5m extension cable

## I/O Expansion Card



- I/O terminals with different functions are designed in different colors, which greatly reduces the probability of user wiring errors
- The terminals are pluggable for easy maintenance and replacement
- Quick wiring of spring terminals, no need to worry about screw slip

## Motor adaptability

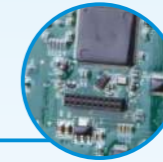


- Support asynchronous motor, synchronous motor
- Support three control modes VVF / open loop vector / closed loop vector



## Multifunctional Network Port

- Connect the LCD panel to realize dialogue interaction
- Connect the debugging software, observe the motion waveform and effectively analyze the problem
- The inverter software is easy to upgrade



## Appearance and protection

- The new narrow book body design saves installation space
- EMC and high protection design, stable operation of equipment
- The built-in circuit board has enhanced protection, which can effectively resist the harsh environment such as humidity, corrosion and dust



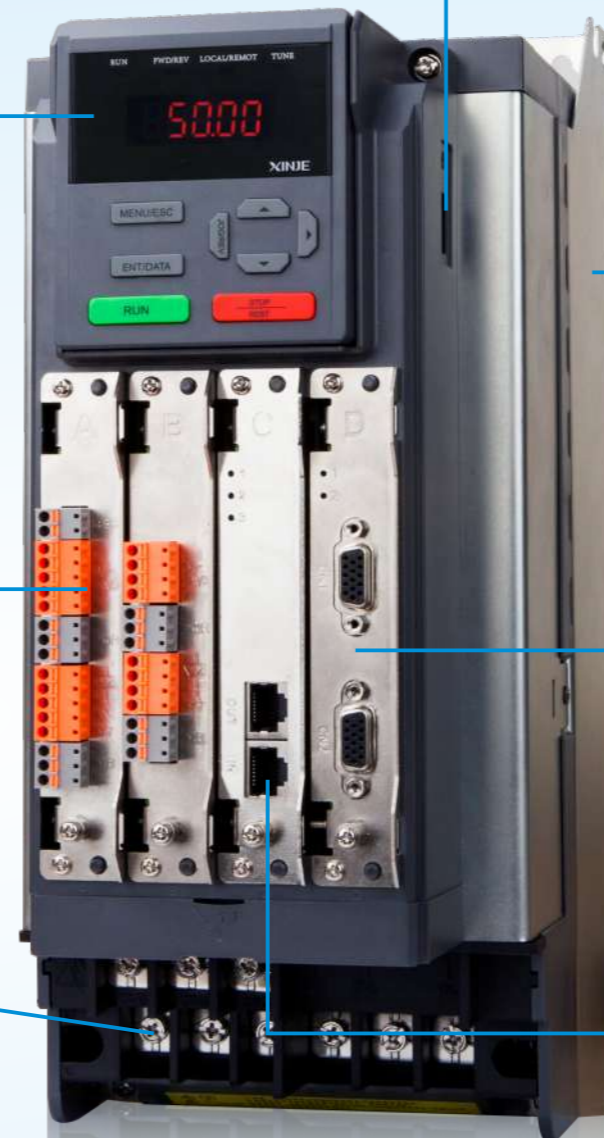
## PG card feedback

- Support photoelectric encoder and rotary encoder, suitable for high-precision driving occasions
- PG card supports 0 to 63 arbitrary frequency division multiple output
- Support differential, collector and push-pull signal input



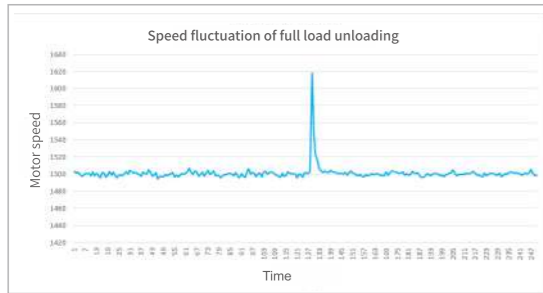
## Networking function

- Optional communication card CANopen and EtherCAT, networking with control products
- Modbus communication is equipped with 32 groups of customer free mapping addresses to realize continuous reading of parameters
- The two-channel network ports are in from the bottom and out from the top, with switch function, and the wiring is clean and concise

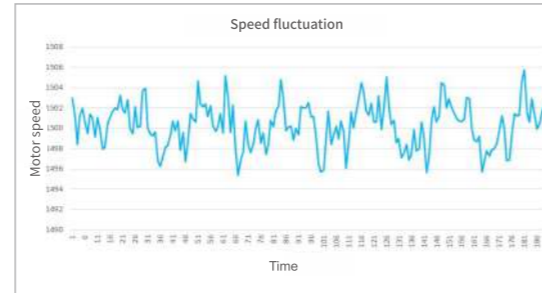


# Excellent Product Performance

## Excellent performance



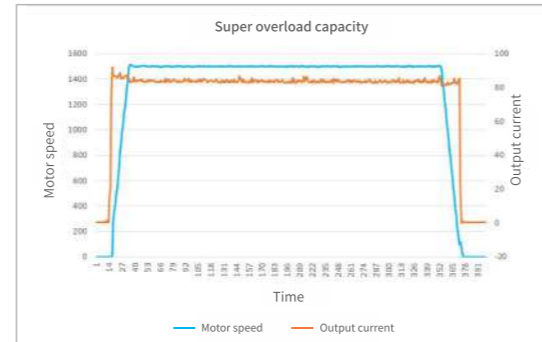
The speed fluctuation of VH6 series frequency converter driving the motor to suddenly reduce to no-load at rated torque and speed, and recovering the speed within 2 seconds.



The speed fluctuation of VH6 series frequency converter driving the motor at rated torque and speed is stable at  $\pm 0.2\%$ .

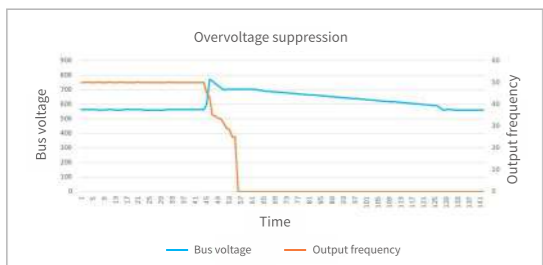


When the VH6 series frequency converter drives the motor at 0.5Hz, the torque output is as high as 180%, reflecting the strong low-frequency torque performance.

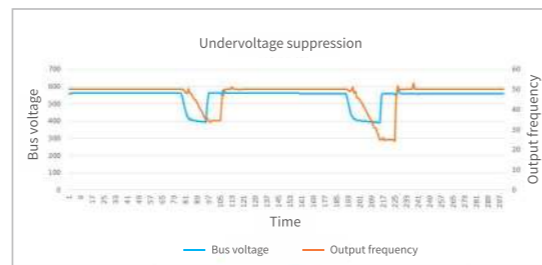


VH6 series frequency converter drives the motor to drive the load. The maximum overload can reach 180% and last for 3 seconds.

## Perfect protection mechanism



Overvoltage suppression is that when the bus voltage reaches or exceeds the bus overvoltage suppression point, the frequency converter will automatically adjust the operation frequency to suppress the rise of bus voltage, so as to ensure that the frequency converter will not cause overvoltage protection due to high bus voltage.



Undervoltage suppression is that when the bus voltage drops to the bus undervoltage suppression point, the frequency converter will automatically adjust the operation frequency, so as to ensure that the frequency converter will not report undervoltage fault due to low bus voltage in a short time. Once the power supply is restored within the validity period of undervoltage suppression, the frequency converter can continue to operate normally.

# Naming Rule

## VH6 frequency inverter naming rule

**VH 6 - 4 5P5 - B**  
 ① ② ③ ④ ⑤

### ① Product code

Sign	Name
VH	General frequency inverter

### ② Product series

Sign	Name
6	Fully functional closed-loop vector converter (asynchronous motor)
6S	Fully functional closed-loop vector converter (synchronous motor)

### ④ Power level

Sign	Power level (kW)
0P7	0.75
1P5	1.5
...	...
5P5	5.5
...	...
011	11
018	18.5
055	55
075	75
090	90
110	110

### ③ Input voltage level

Sign	Power supply voltage
4	380V

### ⑤ Brake unit

Sign	Brake unit
B	Built-in brake unit
Vacant	No

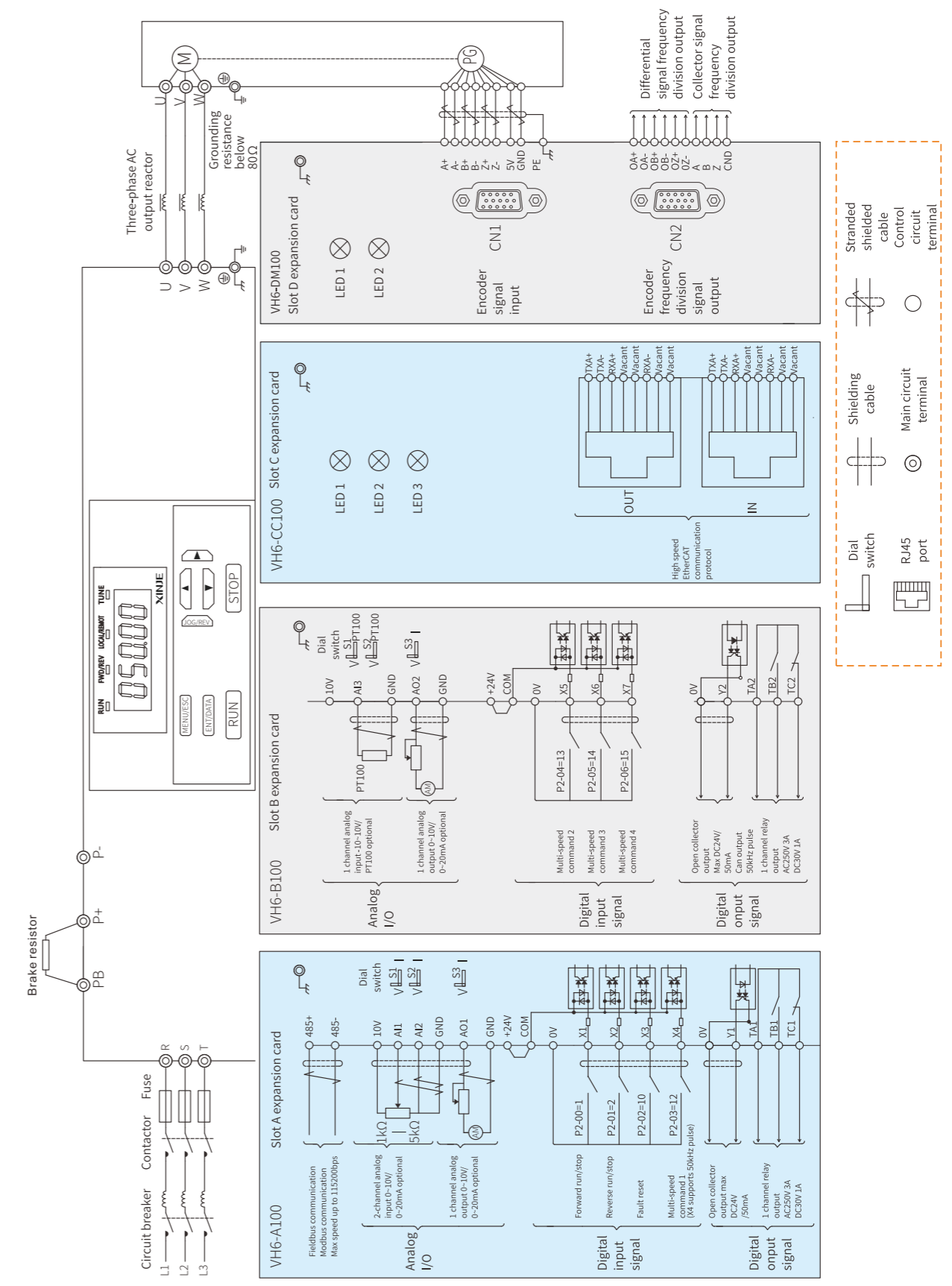
# Technical Parameters

Model	Power supply capacity (KVA)	Input current (A)	Output current (A)	Adaptive motor (kW)
Three-phase 380V 50/60Hz				
VH6-43P7-B	5.9	11.0	9.0	3.7
VH6-45P5-B	8.9	14.6	13.0	5.5
VH6-47P5-B	11.0	20.5	17.0	7.5
VH6-4011-B	17.0	26.0	25.0	11.0
VH6-4015-B	21.0	35.0	32.0	15.0
VH6-4018-B	24.0	38.5	37.0	18.5
VH6-4022-B	30.0	46.5	45.0	22.0
VH6-4030-B	40.0	62.0	60.0	30.0
VH6-4037-B	63.0	69.0	75.0	37.0
VH6-4045-B	81.0	89.0	90.0	45.0
VH6-4055-B	97.0	106.0	110.0	55.0
VH6-4075-B	127.0	139.0	152.0	75.0
VH6-4090-B	150.0	164.0	176.0	90.0
VH6-4110-B	179.0	196.0	210.0	110.0
VH6-4132	220.0	240.0	253.0	132.0
VH6-4160	263.0	287.0	304.0	160.0
VH6-4185	293.0	343.0	360.0	185.0
VH6-4200	334.0	365.0	377.0	200.0
VH6-4220	375.0	410.0	426.0	220.0
VH6-4250	404.0	441.0	465.0	250.0
VH6-4280	453.0	495.0	520.0	280.0
VH6-4315	517.0	565.0	585.0	315.0
VH6-4355	565.0	617.0	650.0	355.0
VH6-4400	629.0	687.0	725.0	400.0
VH6-4450	716.0	782.0	820.0	450.0

# Technical Specifications

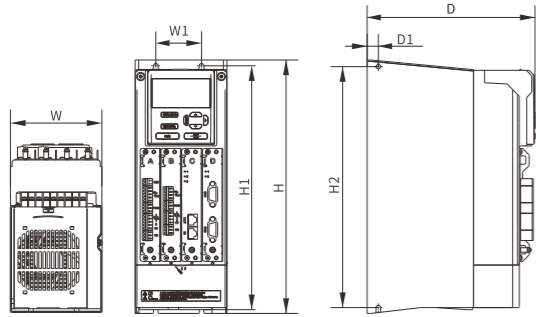
Item name	VH6 high performance closed loop vector frequency inverter specification			
Power range				
3.7kW-450kW				
Input	Rated voltage, frequency	Three-phase 380V: three-phase 380V, 50/60Hz		
	Allowable voltage fluctuation range	Three-phase 380V: 320~440V		
Output	Voltage	0~input voltage		
	Frequency	0~600Hz		
Control performance	Control motor type	Asynchronous motor, permanent magnet synchronous motor, variable frequency motor		
	Control mode	Vector control with speed sensor (FVC)	Vector control without speed sensor (SVC)	V/F control (VVF)
	Speed precision	±0.2%	±0.5%	±1%
	Speed fluctuation	±0.2%	±0.3%	±0.5%
	Speed regulation range	1:2000	1:100	1:50
	Startup torque	0Hz:180%	0.5Hz:150%	1.0Hz:150%
	Torque accuracy	±5% rated torque	±10% rated torque	/
	Torque response	≤10ms	≤20ms	/
	Overload ability	150% rated current 60s		
	Frequency precision	Low frequency operation mode: 0.01Hz, high frequency operation mode: 0.1Hz		
	Frequency resolution	Low frequency operation mode: digital setting-- 0.01Hz, analog setting -- max frequency ×0.1% High frequency operation mode: digital setting -- 0.1Hz, analog setting -- max frequency ×0.1%		
	Control terminal input	Digital input channel	Up to 7-channel digital input X, card A has 4-channel (X1~X4), resolution is less than 2ms, card B has 3-channel (X5~X7), X4 can support max 50kHz high speed pulse input	
Analog input channel		Up to 3-channel analog input AI, card A has 2-channel (AI1, AI2), resolution is less than 20mV, card B has 1 channel (AI3). AI1, AI2 support 0~10V or 0~20mA input, AI3 support -10~10V input, can support PT100 input		
Control terminal output	Digital output channel	Up to 4-channel digital output Y, card A has 1 channel (Y1) + 1 channel (TA1TB1TC1), card B has 1 channel (Y2) + 1 channel (TA2TB2TC2).Y2 can support max 50kHz high speed pulse output		
	Analog analog channel	Up to 2-channel analog output AO, card A has 1 channel (AO1), card B has 1 channel (AO2) AO1, AO2 support the output 0~10V or 0~20mA		
Product performance	Start command given mode	Communication given (Modbus, CANopen, EtherCAT), operate panel given, terminal given		
	Frequency given mode	Communication given (Modbus, CANopen, EtherCAT), operate panel given, terminal given, analog AI given, multi-speed given, simple PLC given, PID main and auxiliary given		
	Typical function	Frequency main and auxiliary operation, no reverse rotation, torque increase, nine VF curve settings, five section AI curve settings, acceleration and deceleration curve settings, terminal delay and filtering, terminal two-functional input and output, DC braking, dynamic braking, jog operation, 16-section speed, built-in two-channel PID, speed tracking restart, carrier modulation, fault recording, fault self reset, pre-excitation start, 30 groups of user-defined parameters		
	Important function	Carrier modulation, torque control, motor self-tuning, current limiting control, overvoltage control, undervoltage control, speed tracking, droop control, oscillation suppression, overvoltage overcurrent stall control, automatic voltage regulation (AVR), automatic energy-saving operation, etc		
	Protection function	Power on motor short circuit detection, input and output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, speed tracking, droop control, oscillation suppression, overvoltage overcurrent stall control, automatic voltage regulation (AVR), automatic energy-saving operation, etc		
	Dynamic braking	380V level driver: brake unit braking voltage: 650~750V. 3.7kW~110kW models have built-in brake unit, please connect brake resistor between P+ and PB		
	DC reactor	18.5kw and above models are built-in DC reactors		
Features function	Common DC bus	Share the regenerative energy when the frequency converter decelerates, improve the braking capacity, achieve the purpose of energy saving and save the additional space and cost required by the resistance		
	Multiple bus support	Standard Modbus, can expand EtherCAT, CANopen		
	Multiple encoder support	Differential input encoder, OC input encoder, rotary encoder		
	LCD panel	LCD display, parameter setting, status monitoring, parameter copy, fault analysis and location, program download, mass storage of parameters		
	Instant stop nonstop	In case of instantaneous power failure, the load feedback energy compensates for the reduction of voltage to maintain the continuous operation of the frequency converter in a short time		
	Timing control	Timing control function: time range 0.1min~6500min		
	Multi-motor switching	Two groups of motor parameters can realize the switching control of two motors		
	Motor overheating protection	AI3 supports PT100 sensor signal input		
	Flexible and diversified terminal functions	There are 51 kinds of multifunctional terminals X, 41 kinds of terminals Y, and 19 kinds of logic function options AO, which meet the requirements of general frequency converter control functions		
	Communication customization parameters	It is convenient for users to read and write the parameters of the frequency converter continuously		
Display and keyboard	Keyboard display	It can display the set frequency, output frequency, output voltage, output current, input and output status and other parameters		
	Key lock	Realize partial or full locking of keys to prevent false triggering		
	Parameter copy	Standard LED display digital potentiometer keyboard, optional LCD English display keyboard (parameter upload/download)		
	Optional accessories	LCD keyboard, communication card (EtherCAT, CANopen), encoder PG card (incremental pulse, resolver)		
Environment	Place of use	Indoor, free from direct sunlight, no dust, corrosive gas, combustible gas, oil mist, water vapor, drip or salt		
	Altitude	Less than 1000m (When it is higher than 1000m, the output current needs to be reduced by about 10% of the rated current for each increase of 1000m)		
	Ambient temperature	-10°C~+40°C (please derate to use or enhance the heat dissipation when ambient temperature is 40°C~50°C)		
	Ambient humidity	Less than 95%RH, no condensation of water droplets		
	Vibration	Less than 5.9m/s <sup>2</sup> (0.6g)		
	Storage temperature	-40°C~+70°C		
Installation mode	Protection level	IP20		
	Cooling mode	Forced air cooling		
Installation mode	Wall mounted and embedded			

# Terminal Wiring Diagram

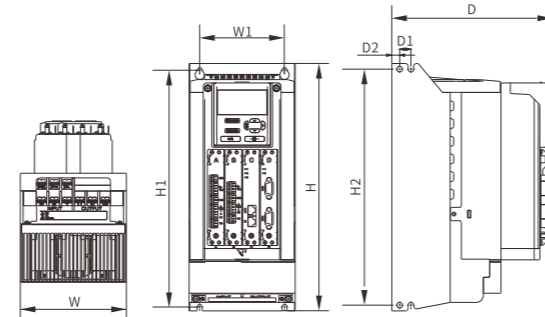


# Installation Dimension (Unit: mm)

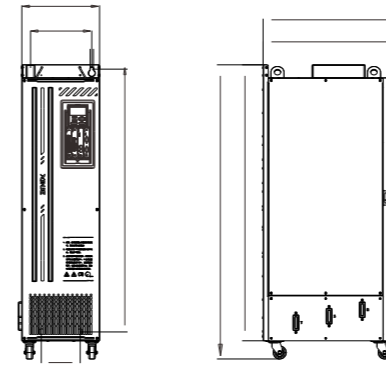
X1 model: 3.7~7.5kW



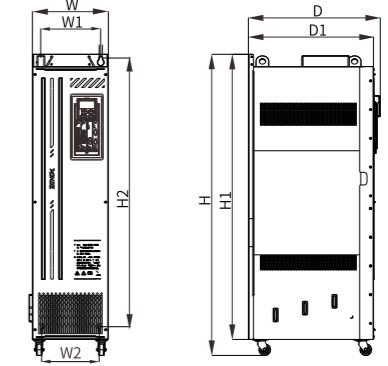
X2 model: 11~15kW



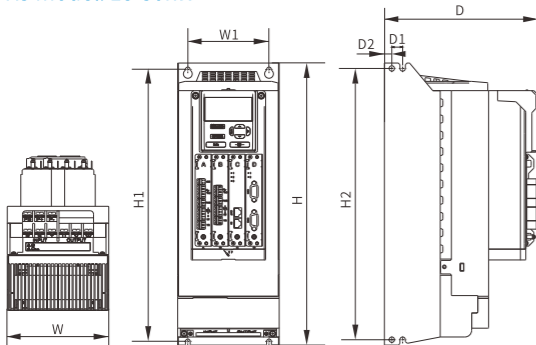
X7 model: 185~220kW



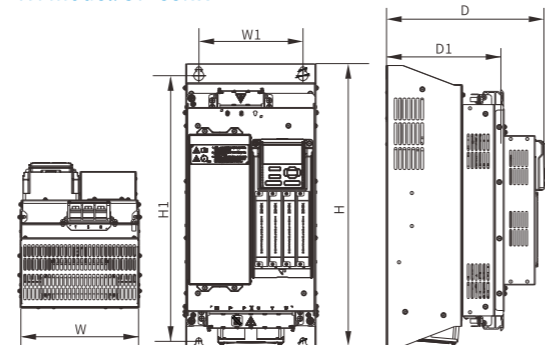
X8 model: 250~280kW



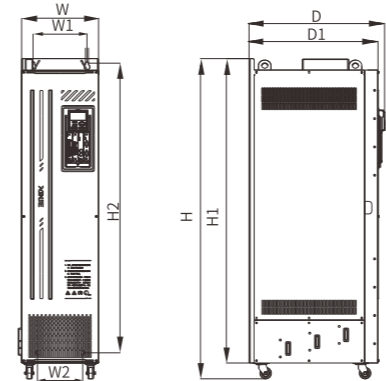
X3 model: 18~30kW



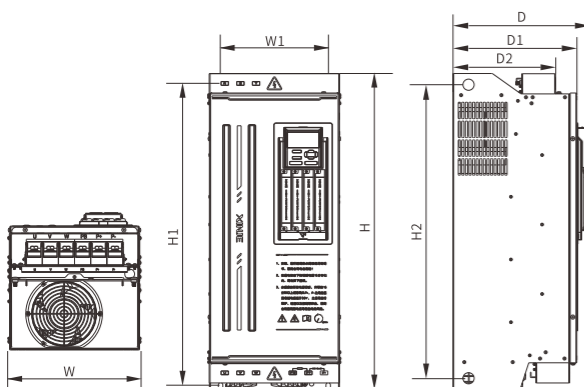
X4 model: 37~55kW



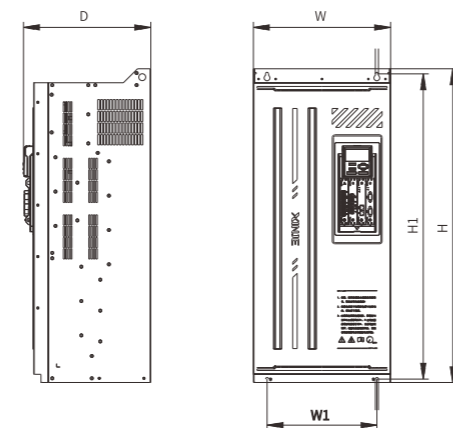
X9 model: 315~450kW



X5 model: 75~110kW

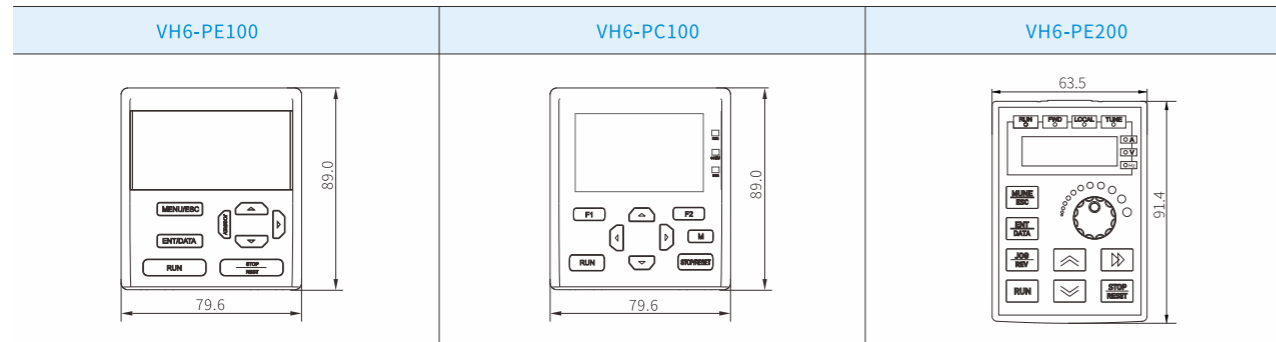


X6 model: 132~160kW

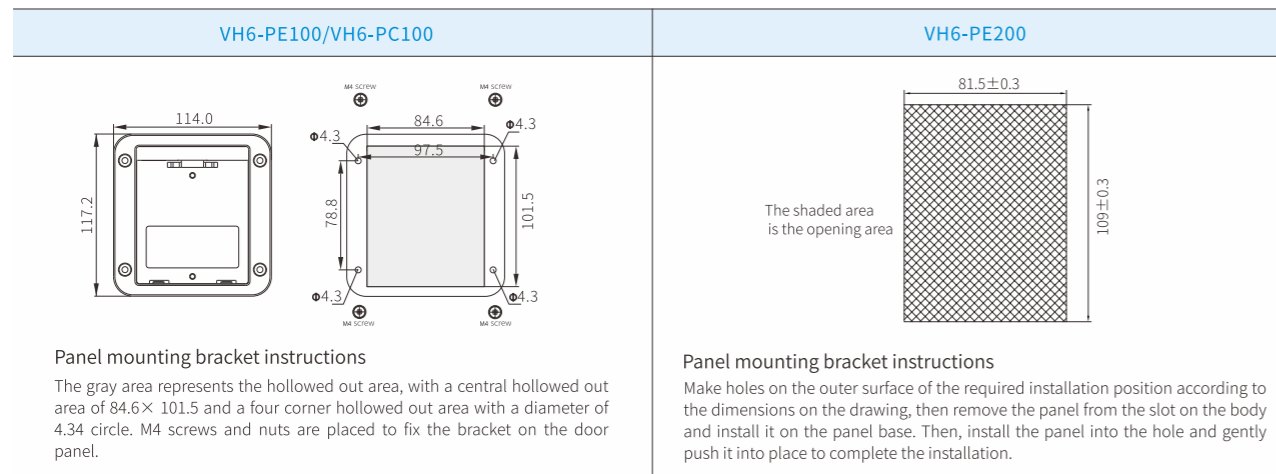


Voltage level	Driver model	Overall installation dimension (width×height×depth)										Mounting screw specification	Weight (Kg)	
		Body code	W	H	D	W1	W2	H1	H2	D1	D2			
380V	VH6-43P7-B													
	VH6-45P5-B	X1	110	305	202	55	/	290	290	14	/	M5	4	
	VH6-47P5-B													
	VH6-4011-B	X2	150	350	228	120	/	335	334	27	11	M6	5.7	
	VH6-4015-B													
	VH6-4018-B													
	VH6-4022-B	X3	150	417	228	120	/	402	402	27	11	M6	10	
	VH6-4030-B													
	VH6-4037-B													
	VH6-4045-B	X4	235.6	510	287.9	188	/	490	/	213.9	/	M8	25	
	VH6-4055-B													
	VH6-4075-B													
	VH6-4090-B	X5	290	705	306	240	/	683	635	276.5	229	M8	45	
	VH6-4110-B													
	VH6-4132	X6	400	915	371	320	/	890	/	/	/	M8	80	
	VH6-4160													
	VH6-4185													
	VH6-4200	X7	300	1135	553.5	240	150	1065	1025	524	/	M12	100	
	VH6-4220													
	VH6-4250													
VH6-4280	X8	330	1310	590	235	250	1240	1162.5	560.5	/	M12	120		
VH6-4315														
VH6-4355														
VH6-4400	X9	340	1415	597	240	200	1345	1280	567.5	/	M12	155		
VH6-4450														

Panel size



Panel mounting bracket drawing



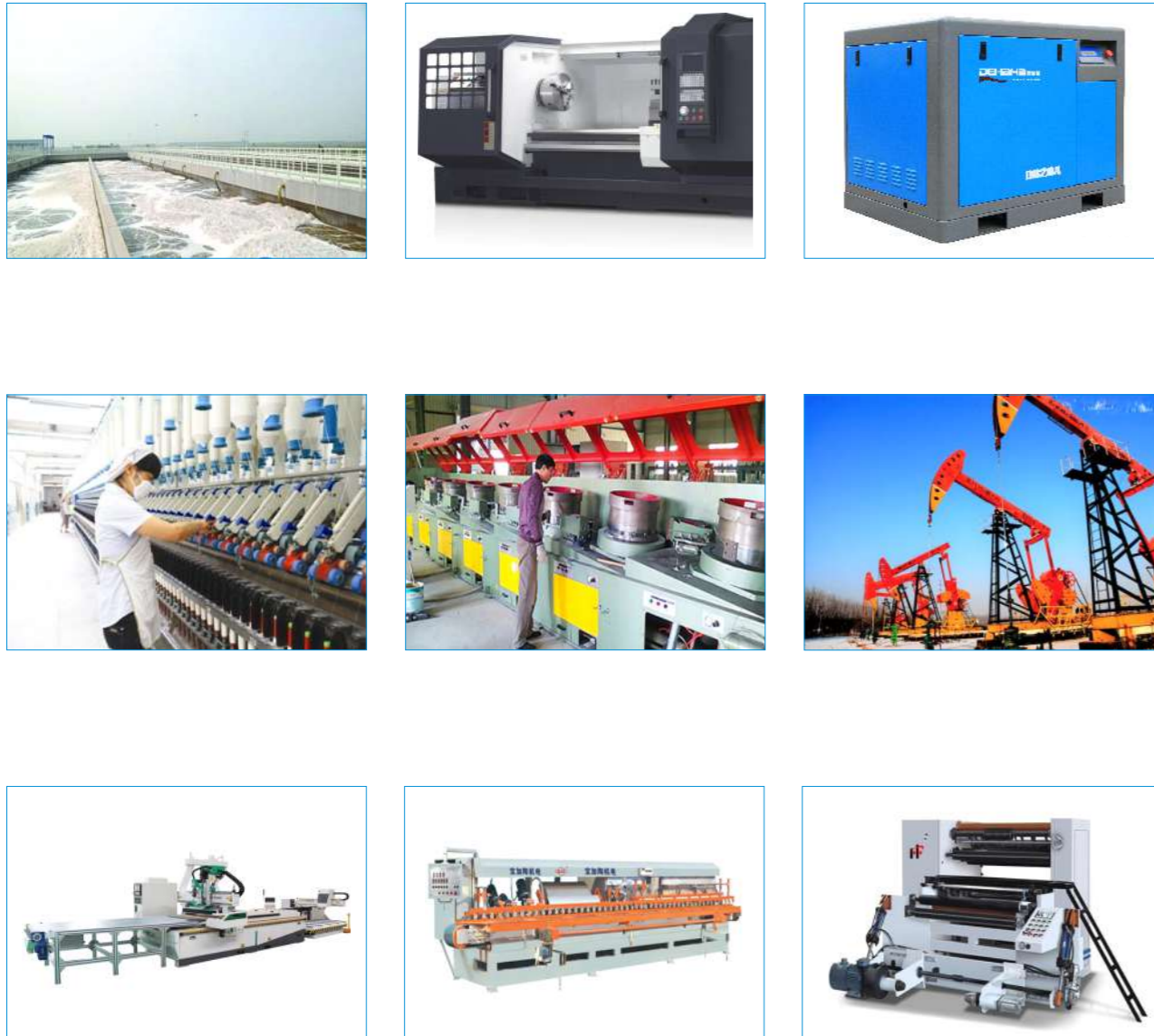
Accessory Description

<p><b>Standard I/O card</b> VH6-A100</p> <p>1 channel RS485 communication + 2 channels AI + 1 channel AO + 4 channels bipolar input + 1 channel YT + 1 channel YR</p>	<p><b>Expansion I/O card</b> VH6-B100</p> <p>1 channel AI + 1 channel AO + 3 channels bipolar input + 1 channel YT + 1 channel YR</p>	<p><b>CANopen communication card</b> VH6-CN100</p> <p>The expansion interface card specially designed for CANopen protocol is suitable for Xinje frequency converter. Xinje frequency converter can be connected to CANopen network and exist as a slave station through this card.</p>
<p><b>EtherCAT communication card</b> VH6-CC100</p> <p>The expansion interface card specially designed for EtherCAT protocol is suitable for Xinje frequency converter. Xinje frequency converter can be connected to EtherCAT network and exist as a slave station through this card.</p>	<p><b>Simple incremental encoder PG card</b> VH6-DM200</p> <p>It is used for receiving and detecting motor encoder signal by frequency converter. The frequency converter can control the motor speed and torque more accurately. The types of encoder signals that this PG card can receive are: differential type, NPN collector open circuit, push-pull type. However, this PG card does not support frequency division output function.</p>	<p><b>LCD panel</b> VH6-PE100</p> <p>The panel is LED display, which can set parameters, monitor the operation status of the frequency converter and operate the frequency converter.</p>
<p><b>Upper computer connection cable</b> JC-EV-15</p> <p>To connect the frequency inverter and PC, to connect the frequency inverter software and update the firmware.</p>	<p><b>Panel expansion cable</b> JC-RD-20</p> <p>The extension cable of the operation panel is a standard network cable, which only provides 2 or 3 meters. Users can also make other lengths of network cables by themselves.</p>	<p><b>Mounting base</b> VH6-DPANEL</p> <p>Base of VH6 frequency converter operation panel during extension installation. Model: VH6-DPANEL</p>
<p><b>LCD panel</b> VH-PC100</p> <p>The panel adopts LCD display, which can set parameters, upload and download parameters, monitor the operation status of the frequency converter, and facilitate the debugging of the frequency converter.</p>	<p><b>Knob panel</b> VH6-PE200</p> <p>The panel uses a knob to adjust the speed, which can set parameters, monitor the operation status and facilitate the speed control of the frequency converter.</p>	<p><b>Expansion card protection cover</b> VH6-A100-PC</p> <p>It can be used for protection of VH6 converter A/B expansion card. Model: VH6-A100-PC</p>

PLC  
HMI  
Integrated controller  
Industrial information  
Servo system  
Frequency inverter  
Stepping system  
Vision system

# Typical Application Industry

It is applicable to machine tools, air compressors, papermaking, oil fields, municipal engineering, plastic machinery industry, metal processing, textile industry, printing and packaging, ceramic machinery, wood processing, cable processing, sewage treatment and other fields.



# VH1 open-loop vector VFD

The VH1 series is a single-phase 220VAC and three-phase 380VAC open-loop vector frequency converter launched by Xinje Company based on the market demand for small power, small volume, and simple speed regulation. As an economical frequency converter with small volume and large capacity, the VH1 series has significant advantages such as high EMC specification design and high protection. It can be widely used in small automated application machinery represented by woodworking carving, food canning, automated production lines, packaging equipment, logistics conveyor lines, edge banding machines, etc.

### Operate panel

- Adjustable knob design for simpler speed regulation
- Multifunctional indicator light, rich in information and impressions

### Appearance and protection

- Small volume, compact and exquisite design
- Guide rails side by side installation, saving time and effort
- Strengthening the coating to improve product protection, easily facing oil mist, moisture, and corrosion environment

- Support 150% overload for 1 minute every 300 seconds and 180% overload for 3 seconds
- Standard RS485 communication, building a multi-axis control system
- A brand new ARM platform system that supports both asynchronous and synchronous motors



- The entire series is equipped with built-in RFI filters, effectively reducing EMC external interference and ensuring stable equipment operation
- Full range of modular machines to enhance product stability
- Supports external LCD panels, enabling one click parameter download and upload

- PLC
- HMI
- Integrated controller
- Industrial informatization
- Servo system
- Frequency inverter
- Stepping system
- Vision system

# Excellent product performance

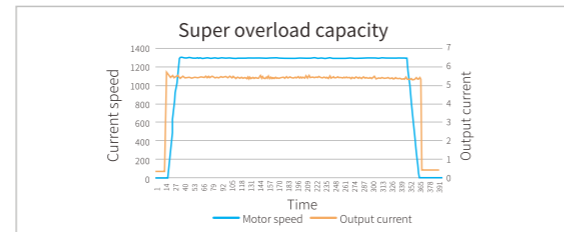
## Integrated and versatile

- Support VF and SVC algorithms.
- Based on a brand new ARM platform, it supports synchronous and asynchronous simultaneously. (2.2KW and above support).



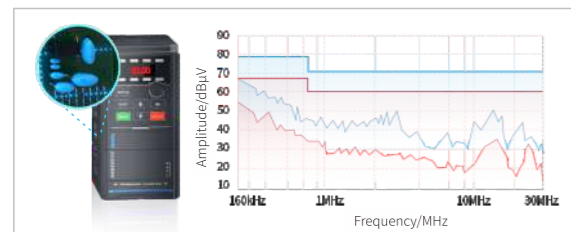
## Heavy load output

- The VH1 series comes standard with an IGBT integrated module, achieving 150% overload output for 1 minute.
- The VH1 series comes standard with braking function to ensure stable equipment shutdown for a long time.



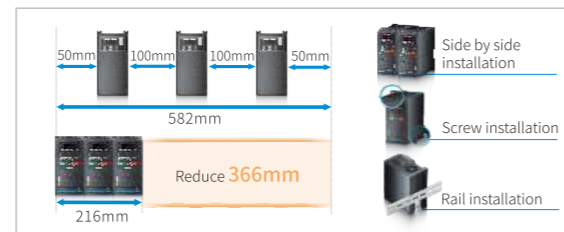
## High specification EMC design

The entire series is equipped with built-in RFI filters, effectively reducing EMC external interference and meeting precision control requirements.



## Compact design

- Optimal power density design to minimize product volume.
- Support seamless parallel installation in the smallest space (ambient temperature below 40°C).
- Support screw installation and rail installation.



## Debugging is easy and fast

- The potentiometer type adjustable knob makes speed regulation easier.
- Support external LCD panel for one click parameter download upload.
- Support upper computer software debugging, making on-site frequency converter debugging and monitoring more convenient and efficient.



## Full coverage of PCB board coating

Adopting automatic spraying line equipment with three-proofing paint, different spraying strategies can be designed according to different circuit boards, achieve full coverage of the three-proofing paint coating, without fear of oil and moisture erosion.



## The air duct is completely isolated from the PCB board

Independent air duct design, smooth heat dissipation, ensuring long-term stable operation of electronic components.



## Obtaining EU CE certification



# Naming rule

## VH1 VFD naming rule

**VH 1 - 4 1P5 - B**

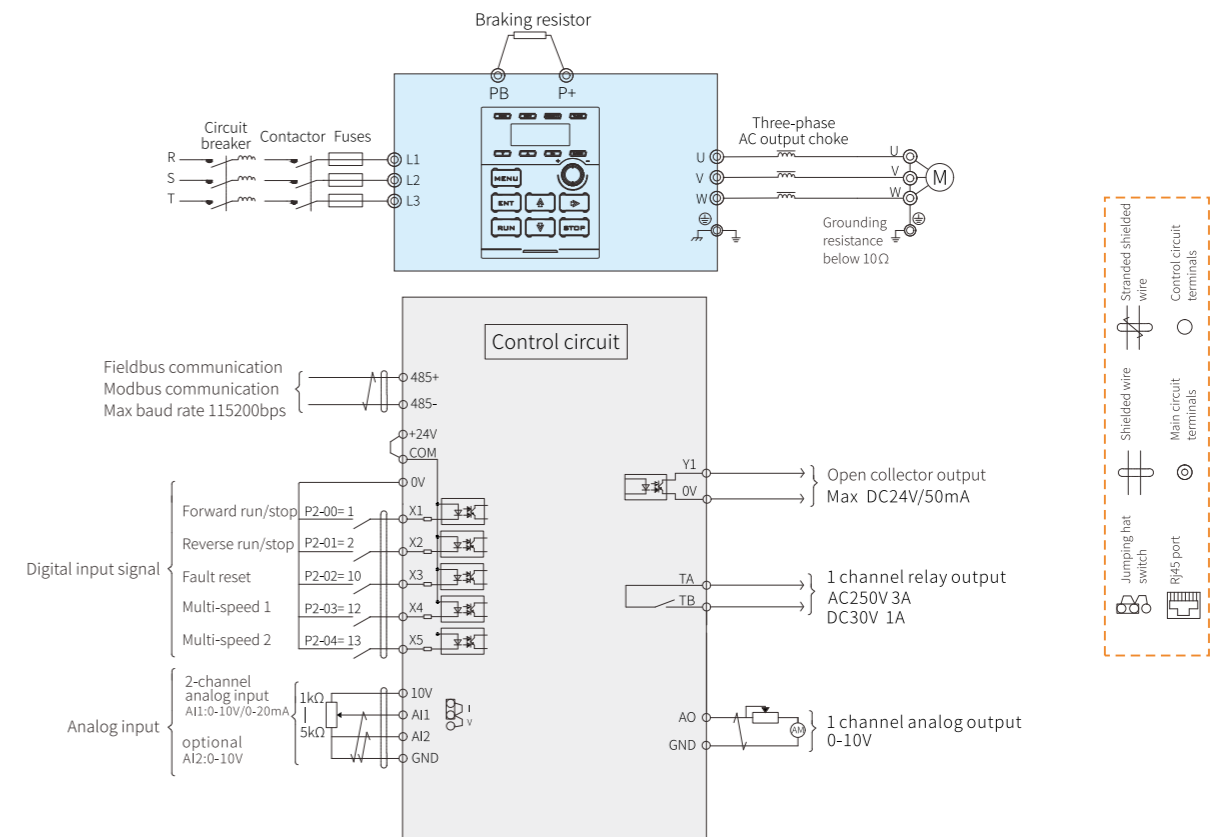
① ② ③ ④ ⑤

① Product code		② Product series		③ Input voltage level		④ Power level		⑤ Brake unit	
Symbol	Name	Symbol	Name	Symbol	Power supply voltage	Symbol	Power level (kW)	Symbol	Brake unit
VH	General VFD	1	Open-loop vector VFD	4	380V	0P7	0.75	B	Built-in brake unit
				2	220V	1P5	1.5	Vacant	None

# Technical parameters

VFD model	Power supply capacity (KVA)	Input current (A)	Output current (A)	Suitable motor (kW)
Single phase 220V 50/60Hz				
VH1-20P4-B	1	1.3	2.5	0.4
VH1-20P7-B	1.5	9.8	4	0.75
Three phases 380V 50/60Hz				
VH1-40P4-B	1	1.8	1.5	0.4
VH1-41P7-B	1.5	2.3	2.1	0.75
VH1-41P5-B	3.0	4.4	3.8	1.5
VH1-42P2-B	4	5.8	5.1	2.2
VH1-43P7-B	5.9	10.5	9	3.7

# Wiring diagram

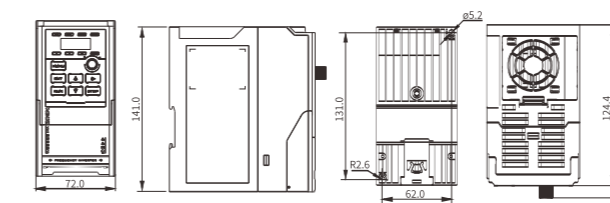


# Technical specification

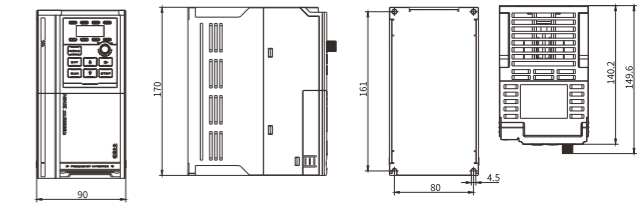
Item	VH1 open-loop vector VFD
<b>Power range</b>	0.4kW~55kW
<b>Input</b>	Rated voltage, frequency 3AC 380V; 50/60Hz 1AC 220V; 50/60Hz
	Permissible voltage fluctuation range ±15%
<b>Output</b>	Voltage 0~input voltage
	frequency 0~600Hz
<b>Control performance</b>	Control motor type Asynchronous motor, synchronous motor
	Control mode V/F control (VVF), vector
	Speed accuracy ±1%
	Speed fluctuations ±0.5%
	Speed regulation range 1: 50
	Starting torque 1.0Hz: 150%
	Torque accuracy /
	Torque response /
	Overload capacity G-type 150% rated current 60 seconds, P-type 120% rated current 60 seconds
	Frequency accuracy Low frequency operation mode: 0.01Hz, High frequency operation mode: 0.1Hz
Frequency resolution Digital setting -0.01Hz, analog setting - maximum frequency × 0.1%	
<b>Control terminal input</b>	Digital input channel Standard configuration: 5 digital inputs X, supports NPN and PNP inputs
<b>Control terminal output</b>	Analog input channel Standard configuration: 2 analog inputs AI, AI1 supports 0-10V and 0-20mA, AI2 supports 0-10V
	Digital output channel Standard configuration: 1 digital output Y and 1 relay output (supports one pair of normally open)
<b>Function</b>	Analog output channel Standard configuration: 1 analog output AO, supports 0-10V voltage output
	Starting command setting mode Setting through communication(Modbus), operate panel and terminals
	Frequency setting mode Setting through communication(Modbus), operate panel, terminals, analog input, multi-speed, simple PLC, PID, main and auxiliary
	Typical functions Frequency main and auxiliary operation, reverse run prohibition, torque improving, nine V/F curve settings, five segments AI curve settings, acceleration and deceleration curve settings, terminal delay and filtering, terminal multifunctional input and output, DC braking, energy consumption braking, jog operation, 16 multi-speeds, built-in two channels PID, speed tracking restart, carrier modulation, fault recording, fault self reset, preexcitation start, 30 sets of user-defined parameters
<b>Feature</b>	Key functions Carrier modulation, torque control, motor self-tuning, current limiting control, overvoltage control, undervoltage control, speed tracking, droop control, oscillation suppression, overvoltage overcurrent stall control, automatic voltage regulation (AVR), automatic energy-saving operation, etc
	Protection function Power on motor short circuit detection, input/output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheating protection, overload protection, underload protection, overcurrent and overvoltage stall protection, relay excitation protection, terminal protection, instantaneous power failure without stopping, etc
<b>Display and keyboard</b>	Energy consumption braking Built in braking unit, suitable braking resistor needs to be selected
	Fieldbus Modbus
	LCD panel LCD display, parameter setting, status monitoring, parameter copying, fault analysis, program download, and high-capacity storage of parameters
	Instantly stop without stopping During an instantaneous power outage, the reduction in voltage is compensated through load feedback energy to maintain the frequency converter's continued operation for a short period of time
	Timing control Timing control function: Set the time range from 0.1Min to 6500.0Min
	Multi-motor switching Two sets of motor parameters can achieve switching control between two motors
	Diversified terminal functions The multifunctional terminals X have 51 types, Y has 41 types, and AO has 19 logical function options, meeting the conventional control function requirements of general VFD
	Communication customization parameters Convenient for users to continuously read and write VFD parameters
Software Rich backend monitoring functions, convenient for on-site data collection and debugging	
<b>Environment</b>	Keyboard display It can display various parameters such as set frequency, output frequency, output voltage, output current, input/output status, etc
	Key lock Implement partial or complete locking of buttons to prevent accidental triggering
	Parameter copying Standard LED digital potentiometer keyboard, optional LCD display keyboard (parameter download)
	Optional accessories LCD keyboard
	Place of use Indoor, not exposed to direct sunlight, without dust, corrosive gases, flammable gases, oil mist, water vapor, dripping water or salt, etc
	Altitude Below 1000 meters. (When the height exceeds 1000 meters, it needs to be used with a reduced rating. For every additional 1000 meters of height, the output current will decrease by about 10% of the rated current.)
	Surrounding temperature -10°C~+40°C (ambient temperature between 40°C~50°C, please reduce the rating or enhance heat dissipation)
Surrounding humidity Less than 95% RH, no water droplet condensation	
<b>Installation</b>	Vibration Less than 5.9m/s <sup>2</sup> (0.6g)
	Storage temperature -40°C~+70°C
	Protection level IP20
	Cooling method Forced air cooling
Installation Wall mounted and rail mounted	

# Dimension (unit: mm)

VH1-20P4/20P7/40P4/40P7/41P5-B

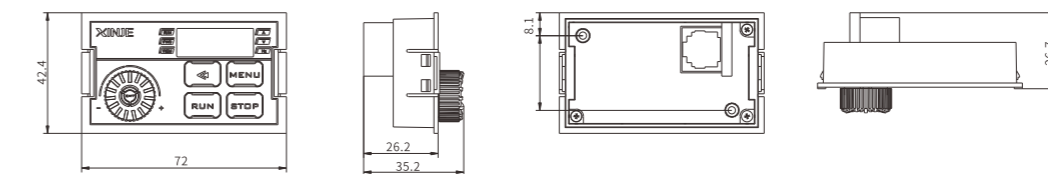


VH1-42P2/43P7-B



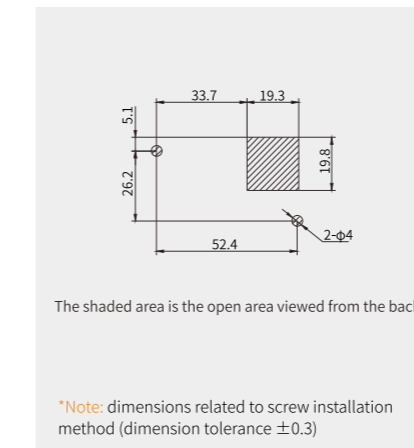
\*Note: the installation screws are all M4.

VH1-PE100

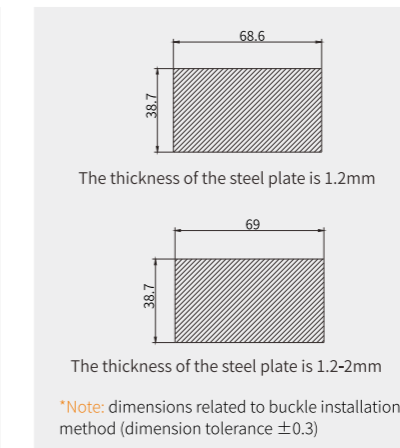


VH1-PE100 installation dimension

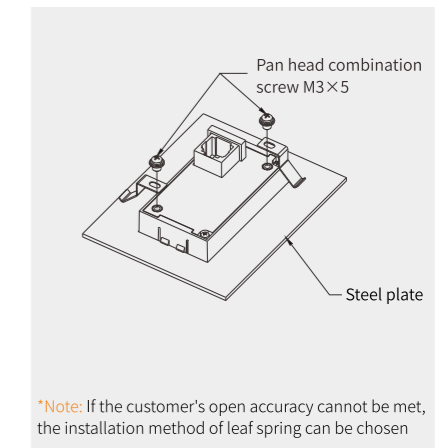
① Suggested screw installation size



② Suggested buckle installation size



③ Leaf spring installation



# Accessory

**Knob panel VH1-PE100**

The panel adopts a knob for speed regulation, which can set parameters, monitor the VFD operation status, and facilitate VFD debugging.



# VHL general open-loop vector converter

VHL series is a general open-loop vector converter developed by Xinje Company. With the book structure design, the volume is greatly reduced compared with the previous generation of products, and at the same time, the appearance value and protection level are significantly improved. The internal coating is strengthened, which conforms to the 3C3 standard. The whole system is equipped with IGBT integrated module, which can achieve 150% heavy load output. It can be widely used in wire drawing machines, air compressors, livestock farms, grinders, wire cutting, edge banding machines and other application machinery.

### Operation Panel

- Shuttle keyboard design, easy for customers to adjust speed
- Silicone key design, greatly improved touch feeling
- White LED and blue indicator light, full of sense of technology



### Appearance and protection

- Book structure design, saving installation space
- Independent air duct design can prevent dust from entering the inverter to cause short circuit and other faults, and improve reliability
- Close the body to prevent foreign matters and ensure the long-term stable operation of electronic components
- The coating is strengthened to prevent oil mist and moisture corrosion, meeting 3C3 standard

### Motor terminal UVW

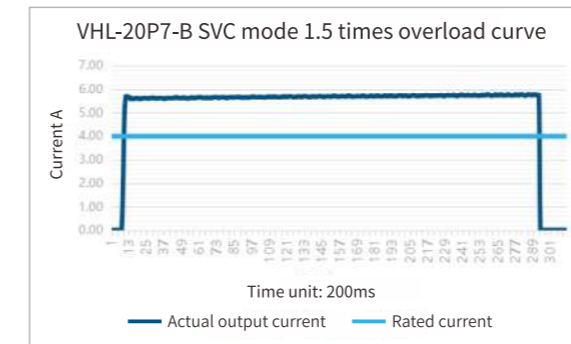
- Support 150% 60s interval 300s overload
- Support asynchronous synchronous motor control

### Control terminals

- Quick wiring of spring terminals, no need to worry about screw slipping

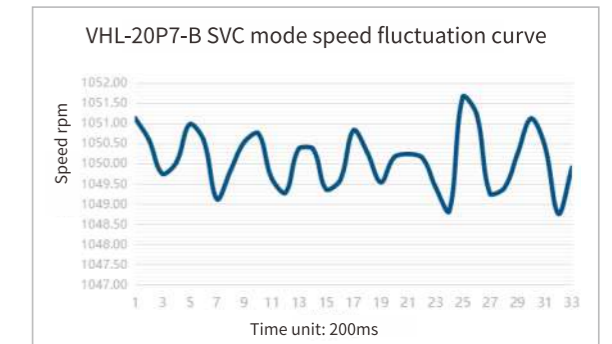
## Excellent Product Performance

### I Overload capacity



VHL inverter 1.5 times overload time 60s

### I Speed fluctuation



VHL inverter speed fluctuation  $\pm 0.3\%$

## Naming Rule

### I VHL inverter naming rule

**VH L - 2 0P4 - B**

① ② ③ ④ ⑤

① Product code		② Product series		③ Input voltage level		④ Power level		⑤ Brake unit	
Symbol	Name	Symbol	Name	Symbol	Power supply voltage	Symbol	Power level (kW)	Symbol	Brake unit
VH	General VFD	L	Book-type open-loop vector converter	4	380V	0P4	0.4	B	Built-in brake unit
				2	220V	0P7	0.75	Vacant	None

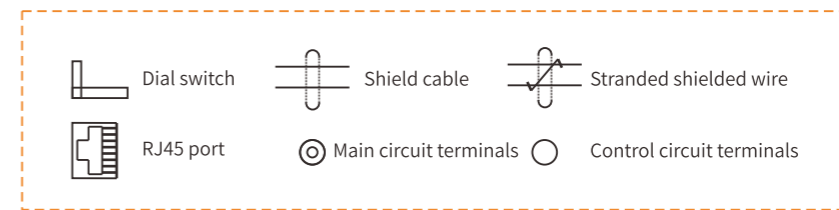
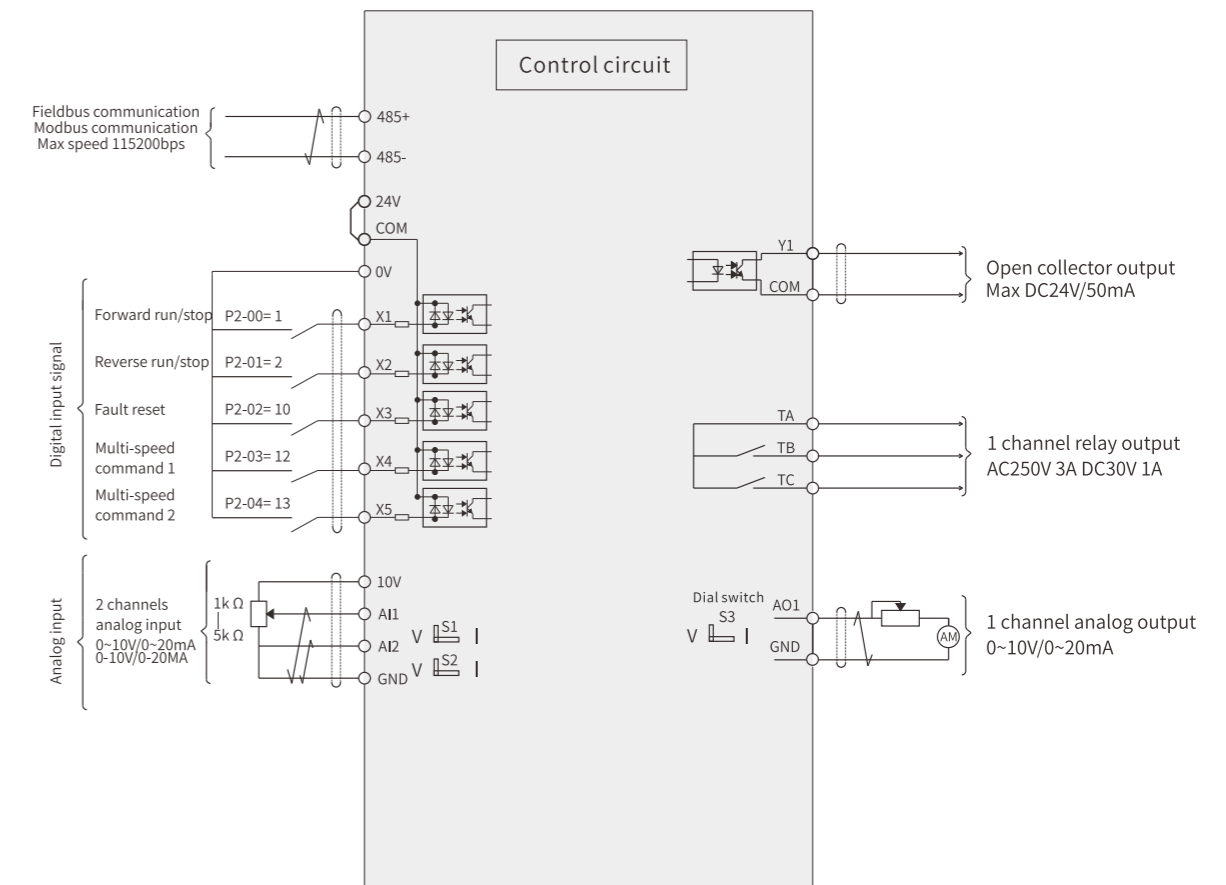
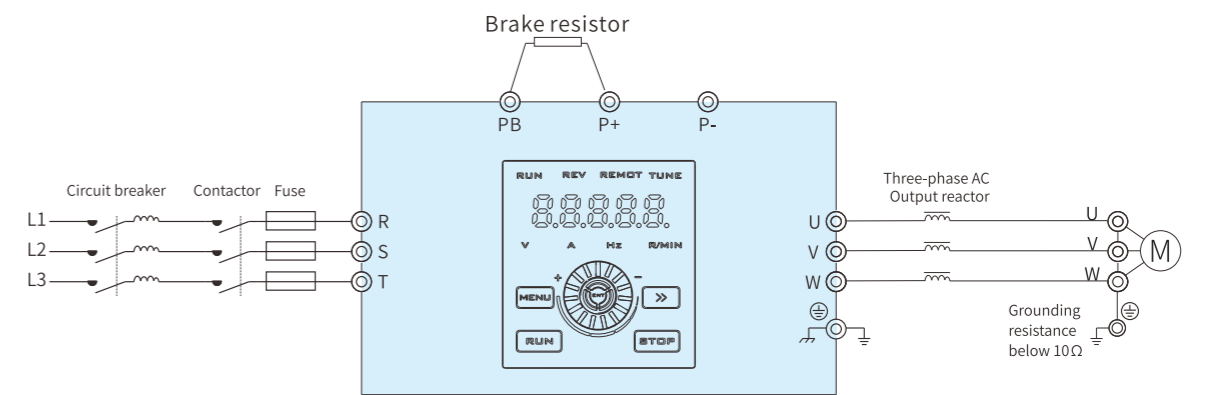
## Technical Parameters

VFD model	Power supply capacity (KVA)	Input current (A)	Output current (A)	Adaptive motor
Single phase 220V 50/60Hz				
VHL-20P4-B	1	5.4	2.3	0.4
VHL-20P7-B	1.5	5.6	4	0.7
Three phase 380V 50/60Hz				
VHL-40P4-B	1	1.9	1.5	0.4
VHL-40P7-B	1.5	3.4	2.1	0.7

# Technical Specification

Item name		VHL general open-loop vector converter	
Power range		0.4kW-5.5kW	
Input	Rated voltage, frequency	3AC 380V;50/60Hz 1AC 220V;50/60Hz	
	Allowable voltage fluctuation range	±15%	
Output	Voltage	0~input voltage	
	Frequency	0~600Hz	
Control performance	Control motor type	Asynchronous motor, synchronous motor	
	Control mode	Vector control without speed sensor (SVC)	V/F control (VVF)
	Speed precision	±0.5%	±1%
	Speed fluctuation	±0.3%	±0.5%
	Speed regulation range	1:100	1:50
	Startup torque	0.5Hz:150%	1.0Hz:150%
	Torque accuracy	±10% rated torque	/
	Torque response	≤20ms	/
	Overload ability	150% rated current 60s	
	Frequency precision	0.01Hz	
	Frequency resolution	Digital setting-- 0.01Hz, analog setting - - max frequency ×0.1%	
	Control terminal input	Standard: 5 digital bipolar input X terminal	
Control terminal output	Standard: 1 multi-functional Y1 output terminal, 1 group of TA TB TC relay output terminal		
Product performance	Digital input channel	Standard: 5 digital bipolar input X terminal	
	Analog input channel	Standard: 2 analog input AI1/AI2, support 0-10V voltage input or 0-20mA current input	
	Digital output channel	Standard: 1 multi-functional Y1 output terminal, 1 group of TA TB TC relay output terminal	
	Analog analog channel	Standard: 1 analog output terminal AO1, support 0-10V voltage output or 0-20mA current output	
Features function	Start command given mode	Communication given (Modbus), operate panel given, terminal given	
	Frequency given mode	Communication given (Modbus), operate panel given, terminal given, analog AI given, multi-speed given, simple PLC given, PID main and auxiliary given	
	Typical function	Frequency main and auxiliary operation, no reverse rotation, torque increase, nine VF curve settings, five section AI curve settings, acceleration and deceleration curve settings, terminal delay and filtering, terminal multi-functional input and output, DC braking, energy consumption braking, jog operation, 16-section speed, built-in two-channel PID, speed tracking restart, carrier modulation, fault recording, fault self reset, pre-excitation start, 30 groups of user-defined parameters	
Protection function	Important function	Carrier modulation, torque control, motor self-tuning, current limiting control, overvoltage control, undervoltage control, speed tracking, droop control, oscillation suppression, overvoltage overcurrent stall control, automatic voltage regulation (AVR), automatic energy-saving operation, etc	
	Protection function	Power on motor short circuit detection, input and output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheat protection, overload protection, underload protection, overcurrent overvoltage stall protection, relay pull in protection, terminal protection, instantaneous power failure nonstop, etc	
Display and keyboard	Dynamic braking	Built-in brake unit, please select suitable brake resistor	
	Multiple bus support	Standard Modbus	
	Multiple encoder support	LCD display, parameter setting, status monitoring, parameter copy, fault analysis and location, program download, mass storage of parameters	
	Instant stop nonstop	In case of instantaneous power failure, the load feedback energy compensates for the reduction of voltage to maintain the continuous operation of the frequency converter in a short time	
Environment	Timing control	Timing control function: time range 0.1min-6500min	
	Multi-motor switching	Two groups of motor parameters can realize the switching control of two motors	
	Flexible and diversified terminal functions	There are 51 kinds of multifunctional terminals X, 41 kinds of terminals Y, and 19 kinds of logic function options AO, which meet the requirements of general frequency converter control functions	
	Communication customization parameters	It is convenient for users to read and write the parameters of the frequency converter continuously	
Installation mode	Software	Rich background monitoring functions to facilitate on-site data acquisition and debugging	
	Keyboard display	It can display the set frequency, output frequency, output voltage, output current, input and output status and other parameters	
	Key lock	Realize partial or full locking of keys to prevent false triggering	
	Parameter copy	Standard LED display digital potentiometer keyboard, optional LCD English display keyboard (parameter upload/download)	
Environment	Optional accessories	LCD keyboard	
	Place of use	Indoor, free from direct sunlight, no dust, corrosive gas, combustible gas, oil mist, water vapor, drip or salt	
	Altitude	Less than 1000m (When it is higher than 1000m, the output current needs to be reduced by about 10% of the rated current for each increase of 1000m)	
	Ambient temperature	-10°C~+40°C (please derate to use or enhance the heat dissipation when ambient temperature is 40°C~50°C)	
	Ambient humidity	Less than 95%RH, no condensation of water droplets	
	Vibration	Less than 5.9m/s <sup>2</sup> (0.6g)	
	Storage temperature	-40°C~+70°C	
	Protection level	IP20	
Cooling mode	Forced air cooling		
Installation mode	Wall mounted and embedded		

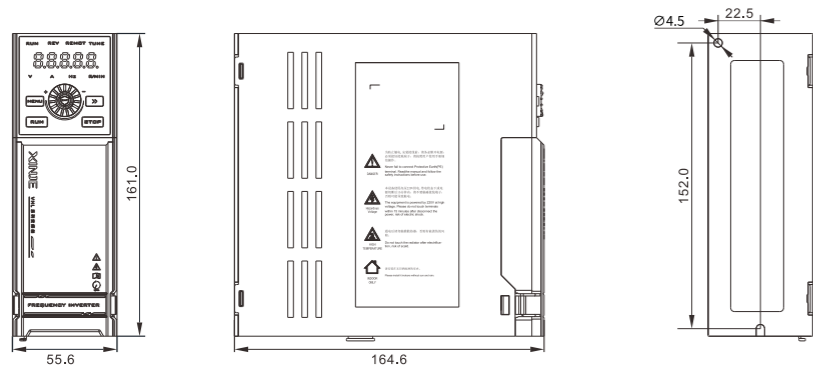
# Terminal Wiring Diagram



PLC  
HMI  
Integrated control  
Industrial information  
Servo system  
Frequency inverter  
Stepping system  
Vision system

# Installation Dimension Drawing (unit: mm)

VHL-20P4/20P7/40P4/40P7-B



# VH5 general type open loop vector frequency inverter

VH5 series is a general-purpose open-loop vector frequency converter developed by Xinje company. It has the remarkable characteristics of small volume, better cost performance and high reliability. At the same time, VH5 series can be combined with communication expansion card to realize EtherCAT, CANopen and other high-speed bus networking.

VH5 can be widely used in automatic production lines, textile, woodworking, engraving machines, logistics equipment, food filling, food packaging and other miniaturized mechanical equipment.



VH5 frequency converter is equipped with one RS485 communication port as standard. In addition, it can be added to EtherCAT and CANopen networks through the special communication expansion card and exist as a slave station.

- PLC
- HMI
- Integrated controller
- Industrial informatization
- Servo system
- Frequency inverter**
- Stepping system
- Vision system

# Excellent Product Performance



# Naming Rule

## VH5 frequency inverter naming rule

**VH 5 - 4 0P7 - B**  
 ① ② ③ ④ ⑤

### ① Product code

Sign	Name
VH	Frequency inverter

### ② Product series

Sign	Name
5	General type open loop vector frequency inverter

### ③ Input voltage level

Sign	Power supply voltage
4	380V
2	220V

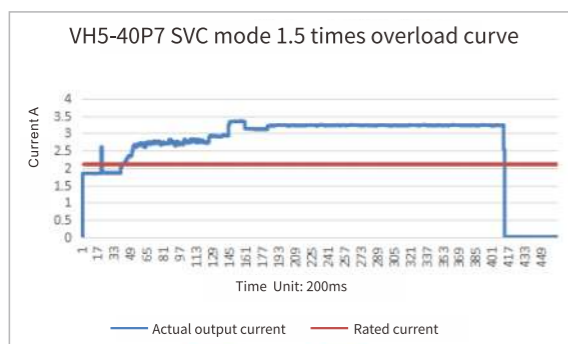
### ④ Power level

Sign	Power level (kW)
0P7	0.75
1P5	1.5
...	...
5P5	5.5

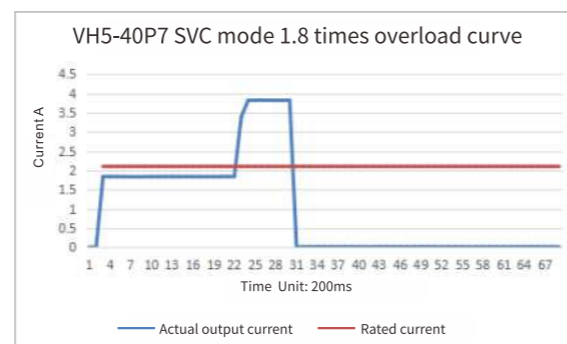
### ⑤ Brake unit

Sign	Brake unit
B	Built-in brake unit
Vacant	No

## Overload ability

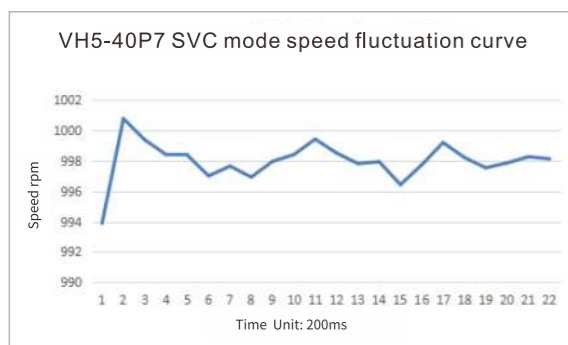


VH5 frequency converter 1.5 times overload time 60 seconds



VH5 frequency converter 1.8 times overload time 1 second

## Speed fluctuation



VH5 frequency inverter speed fluctuation ±0.3%

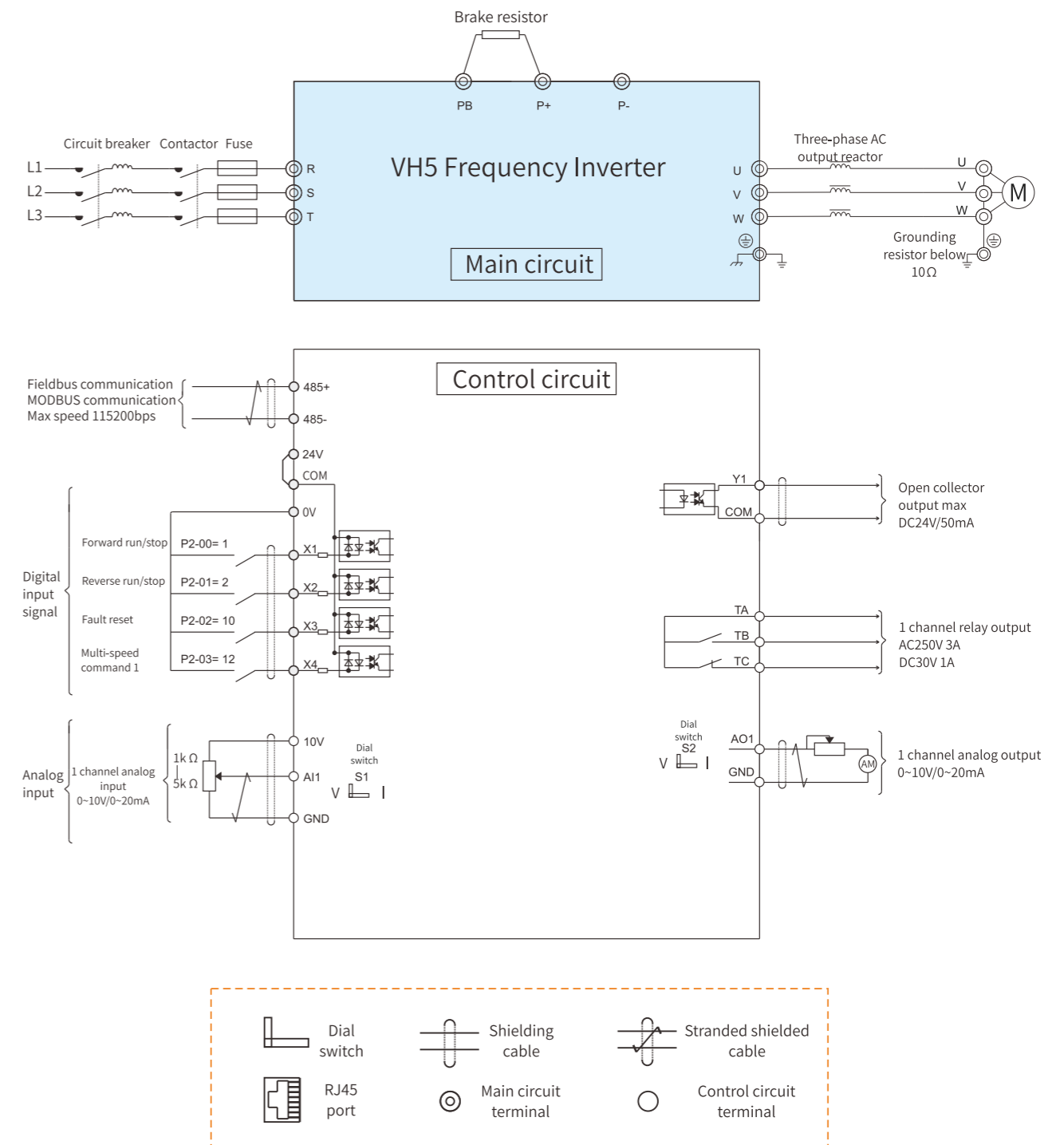
## Technical Parameter

Model	Power supply capacity (KVA)	Input current (A)	Output current (A)	Adaptive motor (kW)
Single phase 220V 50/60Hz				
VH5-20P7-B	1.5	5.6	4.7	0.75
VH5-21P5-B	3.0	9.3	7.5	1.5
VH5-22P2-B	4.5	12.7	10.0	2.2
Three-phase 380V 50/60Hz				
VH5-40P7-B	1.5	3.4	2.1	0.75
VH5-41P5-B	3.0	5.0	3.8	1.5
VH5-42P2-B	4.0	5.8	5.1	2.2
VH5-43P7-B	5.9	10.5	9.0	3.7
VH5-45P5-B	8.9	14.6	13.0	5.5

# Technical Specifications

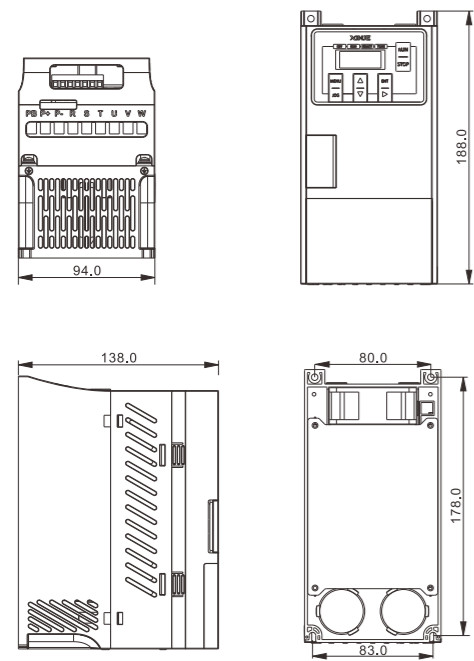
Item name	VH5 general type open loop vector frequency inverter			
<b>Power range</b>				
0.75kW~5.5kW				
Input	Rated voltage, frequency	3AC 380V;50/60Hz	1AC 220V;50/60Hz	
	Allowable voltage fluctuation range	±15%		
Output	Voltage	0~input voltage		
	Frequency	0~600Hz		
Control performance	Control motor type	Asynchronous motor		
	Control mode	Vector control without speed sensor (SVC)	V/F control (VVF)	
	Speed precision	±0.5%	±1%	
	Speed fluctuation	±0.3%	±0.5%	
	Speed regulation range	1:100	1:50	
	Startup torque	0.5Hz:150%	1.0Hz:150%	
	Torque accuracy	±10% rated torque	/	
	Torque response	≤20ms	/	
	Overload ability	150% rated current 60s, 180% rated current 10s, 200% rated current 2s		
	Frequency precision	0.01Hz		
	Frequency resolution	Digital setting -- 0.01Hz, analog setting -- max frequency × 0.1%		
	Control terminal input	Digital input channel Standard: 4 digital X bipolar input terminals		
	Control terminal output	Digital output channel	Standard: 1 multi-functional Y1 output terminal, 1 group TA TB TC relay output terminal	
Analog output channel		Standard: 1 analog output terminal AO1, support 0~10V or 0~20mA		
Product function	Start command given mode	Communication given (Modbus, CANopen, EtherCAT), operate panel given, terminal given		
	Frequency given mode	Communication given (Modbus, CANopen, EtherCAT), operate panel given, terminal given, analog AI given, multi-speed given, simple PLC given, PID main and auxiliary given		
	Typical function	Frequency main and auxiliary operation, no reverse rotation, torque increase, nine VF curve settings, five section AI curve settings, acceleration and deceleration curve settings, terminal delay and filtering, terminal multi-functional input and output, DC braking, dynamic braking, jog operation, 16-section speed, built-in two-channel PID, speed tracking restart, carrier modulation, fault recording, fault self reset, pre-excitation start, 30 groups of user-defined parameters		
	Important function	Carrier modulation, torque control, motor self-tuning, current limiting control, overvoltage control, undervoltage control, speed tracking, droop control, oscillation suppression, overvoltage overcurrent stall control, automatic voltage regulation (AVR), automatic energy-saving operation, etc		
	Protection function	Power on motor short circuit detection, input and output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheat protection, overload protection, underload protection, overcurrent overvoltage stall protection, relay pull in protection, terminal protection, instantaneous power failure nonstop, etc		
	Dynamic braking	Built-in brake unit, please select suitable brake resistor		
	Multiple bus support	Standard Modbus, can expand EtherCAT, CANopen		
	Multiple encoder support	LCD display, parameter setting, status monitoring, parameter copy, fault analysis and location, program download, mass storage of parameters		
	Instant stop nonstop	In case of instantaneous power failure, the load feedback energy compensates for the reduction of voltage to maintain the continuous operation of the frequency converter in a short time		
	Timing control	Timing control function: time range 0.1min~6500min		
Features function	Multi-motor switching	Two groups of motor parameters can realize the switching control of two motors		
	Flexible and diversified terminal functions	There are 51 kinds of multifunctional terminals X, 41 kinds of terminals Y, and 19 kinds of logic function options AO, which meet the requirements of general frequency converter control functions		
	Communication customization parameters	It is convenient for users to read and write the parameters of the frequency converter continuously		
	Software	Rich background monitoring functions to facilitate on-site data acquisition and debugging		
Display and keyboard	Keyboard display	It can display the set frequency, output frequency, output voltage, output current, input and output status and other parameters		
	Key lock	Realize partial or full locking of keys to prevent false triggering		
	Parameter copy	Standard LED display digital potentiometer keyboard, optional LCD English display keyboard (parameter upload/download)		
	Optional accessories	LCD keyboard, communication card (EtherCAT, CANopen)		
Environment	Place of use	Indoor, free from direct sunlight, no dust, corrosive gas, combustible gas, oil mist, water vapor, drip or salt		
	Altitude	Less than 1000m (When it is higher than 1000m, the output current needs to be reduced by about 10% of the rated current for each increase of 1000m)		
	Ambient temperature	-10°C+40°C (please derate to use or enhance the heat dissipation when ambient temperature is 40°C~50°C)		
	Ambient humidity	Less than 95%RH, no condensation of water droplets		
	Vibration	Less than 5.9m/s <sup>2</sup> (0.6g)		
	Storage temperature	-40°C~+70°C		
	Protection level	IP20		
Installation mode	Wall mounted and embedded			

# Terminal Wiring Diagram

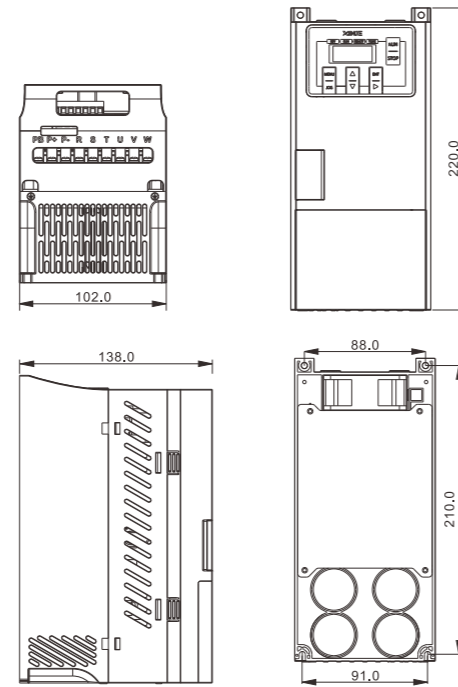


# Installation Dimension (Unit: mm)

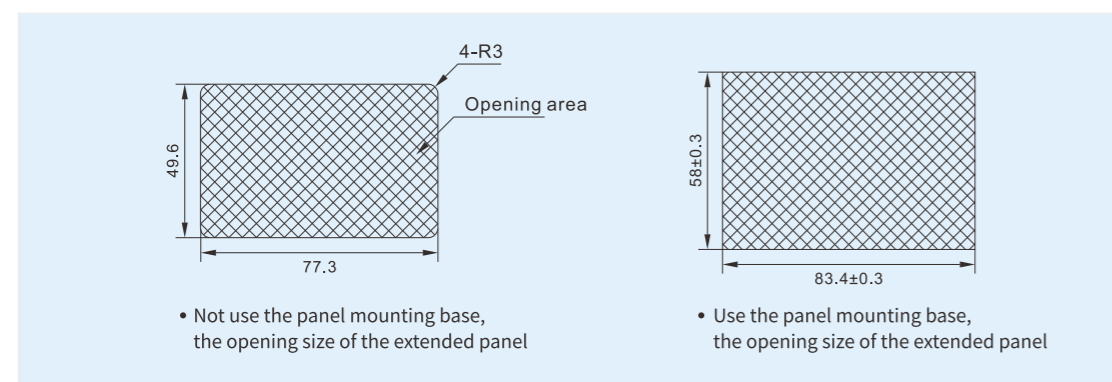
VH5-20P7/21P5/22P2/40P7/41P5/42P2/43P7-B



VH5-45P5-B



## Panel extension



VH5 series VFD operate panel can be extended, users can install the VFD panel in the hole slot according to the two opening sizes provided above.

# Accessory Description

### CANopen communication card VH5-CN100

The expansion interface card specially designed for CANopen protocol is suitable for Xinje frequency converter. Xinje frequency converter can be connected to CANopen network and exist as a slave station through this card.

### EtherCAT communication card VH5-CC100

The expansion interface card specially designed for EtherCAT protocol is suitable for Xinje frequency converter. Xinje frequency converter can be connected to EtherCAT network and exist as a slave station through this card.

### LED operate panel VH5-PE100

The panel is a single-row LED display, which can set parameters, monitor the operation status and operate the converter.

### Mounting base VH5-DPANEL

VH5 series VFD extension panel installation base.  
Model: VH5-DPANEL

- PLC
- HMI
- Integrated controller
- Industrial information
- Servo system
- Frequency inverter**
- Stepping system
- Vision system

# VH rectifier braking module

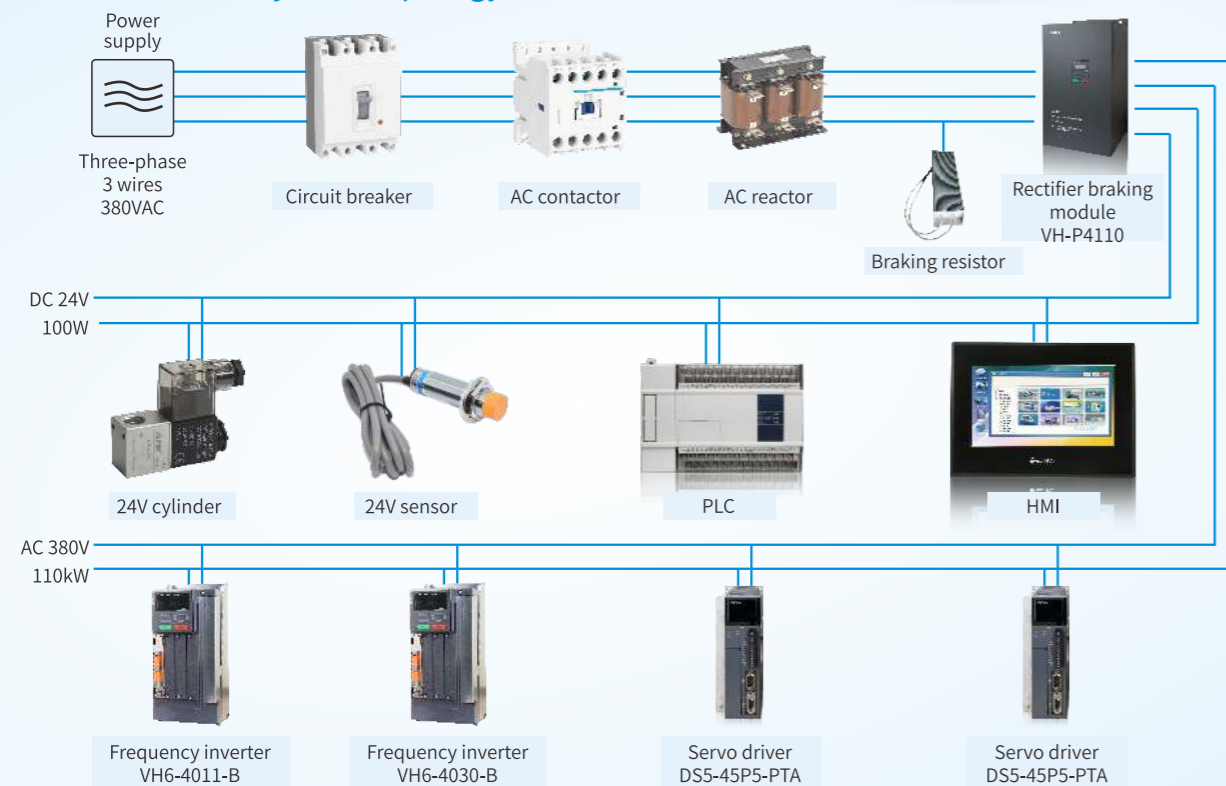
VH series rectifier braking module is mainly used in occasions where DC common bus is required for drive products such as frequency converter or servo.

Two functions of rectifier braking unit composing the common bus:

- Energy conservation and environmental protection, power recovery
- Stable and reliable operation to avoid losses caused by accidental power failure and shutdown



## DC common bus system topology



\*Note: The VH rectifier module inputs AC380V voltage, which can provide electric energy for the following products after rectification:  
 1. 380V frequency converter, servo driver, and the total load power shall not exceed the rated power of the module.  
 2. DC 24V PLC, HMI, cylinder, sensor, stepping driver, the maximum power shall not exceed 100W.

## Application device type:

Double twister, slitter, drawing machine, non-woven production line and other types of equipment.

# Naming Rule

## Naming rules of rectifier braking module

**VH - P 4 110**  
 ① ② ③ ④

① Product code

Sign	Name
VH	VH series

② Rectifier braking module

Sign	Name
P	Rectifier braking module

③ Input voltage level

Sign	Power supply voltage
4	380V

④ Power level of rectifier module

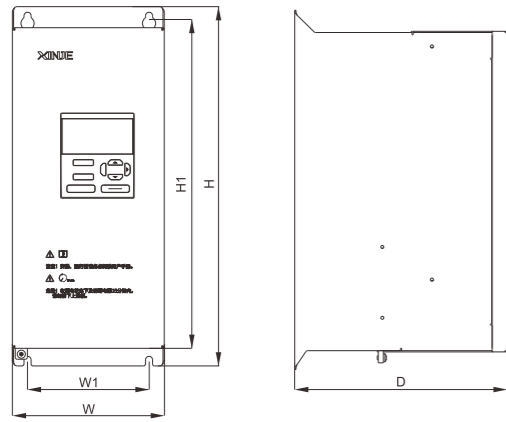
Sign	Power level (kW)
030	30
055	55
110	110

## Model and Technical Parameters of Rectifier Braking Module

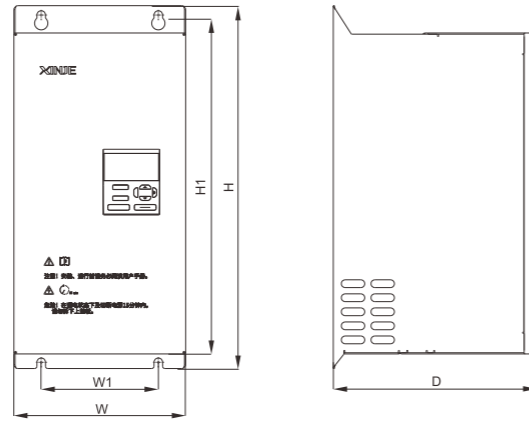
Model of rectifier braking module		VH-P4110	VH-P4055	VH-P4030
Input	Rated power (kW)	110	55	30
	Input current (A)	220	112	68
	Input voltage (ACV)	380V;50Hz/60Hz		
	Power supply capacity (KVA)	180	85	55
Output	Output current (DCA)	240	100	44
	Output voltage (DCV)	537	530	531
Braking	Rated continuous braking current (A)	50	40	40
	Max peak braking current (A)	110	100	50
	Recommended rated braking resistor (Ω)	11kW / 10Ω	9kW / 13Ω	5kW / 20Ω
	Min braking resistor	7Ω	10Ω	16Ω

# Installation Dimension Drawing (Unit: mm)

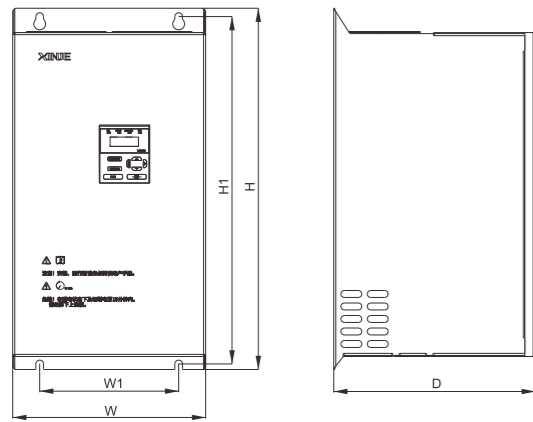
VH-P4030



VH-P4055



VH-P4110



Model of rectifier braking module	Overall installation dimension (width×height×depth)				
	W	W1	D	H	H1
VH-P4030	150	120	210	355	340
VH-P4055	220	150	260	465	445
VH-P4110	277.6	200	290	520	500