# 06

## Frequency comversion system

VH6 | VH1 | VHL | VH5

# 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
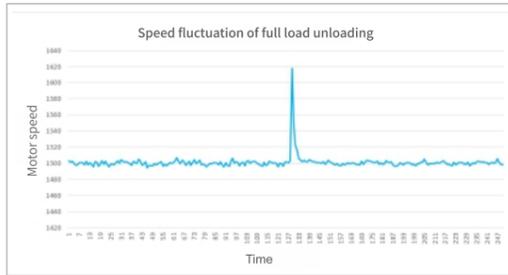• Support differential, collector and push-pull signal input

## 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

PLC
HMI
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Vision system

# Excellent Product Performance

## Excellent performance



Speed fluctuation of full load unloading

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.
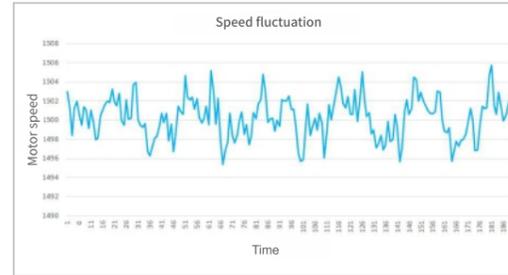


Speed fluctuation

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



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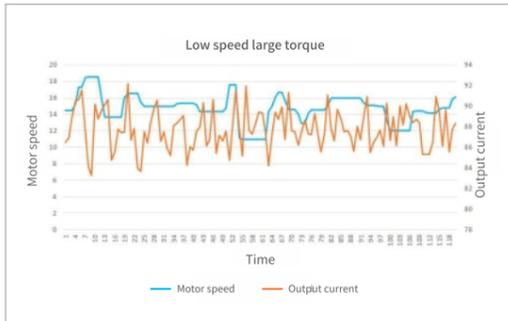
When the VH6 series frequency converter drives the motor at 0.5Hz, the torque output is as high as 180%, reflecting the strong low-frequency torque performance.



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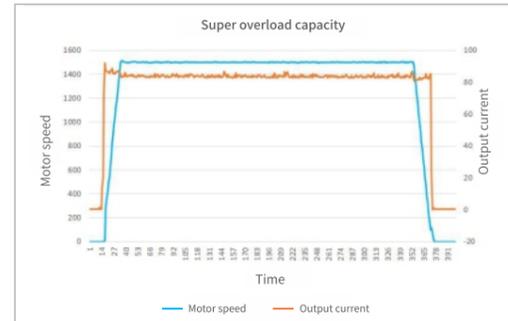
VH6 series frequency converter drives the motor to drive the load. The maximum overload can reach 180% and last for 3 seconds.

## Perfect protection mechanism



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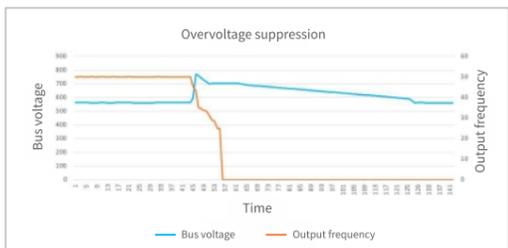
Overvoltage suppression is that when the bus voltage reaches or exceeds the bus overvoltage suppression point, the frequency converter will automatically adjust the operation frequency to suppress the rise of bus voltage, so as to ensure that the frequency converter will not cause overvoltage protection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



Undervoltage suppression
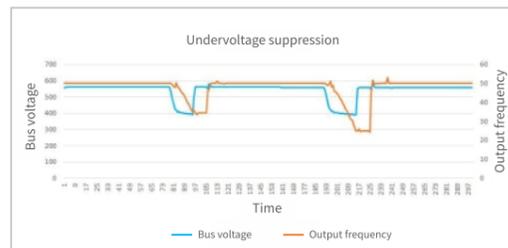
Undervoltage suppression is that when the bus voltage drops to the bus undervoltage suppression point, the frequency converter will automatically adjust the operation frequency, so as to ensure that the frequency converter will not report undervoltage fault due to low bus voltage in a short time. Once 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 |

PLC
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Vision system

# 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 | 0~1000Hz | | |
| 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%<br>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).<br>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)<br>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 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 | 380V level driver: brake unit braking voltage: 650~750V.<br>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 | | |
| | 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 | | |
| Features function | 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 | | |
| | 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), 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℃~+40℃(please derate to use or enhance the heat dissipation when ambient temperature is 40℃~50℃) | | |
| | Ambient humidity | Less than 95%RH, no condensation of water droplets | | |
| | Vibration | Less than 5.9m/s2 (0.6g) | | |
| | Storage temperature | -40℃~+70℃ | | |
| | Protection level | IP20 | | |
| | Cooling mode | Forced air cooling | | |
| Installation mode | | Wall mounted and embedded | | |

# Terminal Wiring Diagram

# Installation Dimension (Unit: mm)
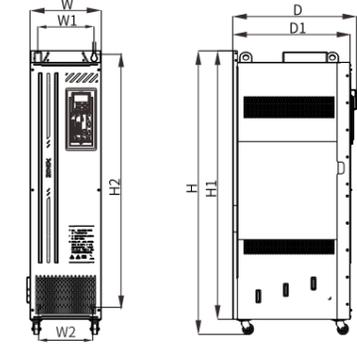
**X1 model: 3.7~7.5kW**
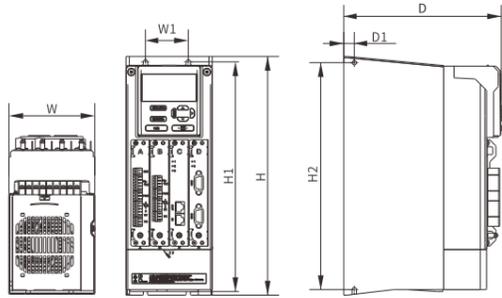


**X2 model: 11-15kW**
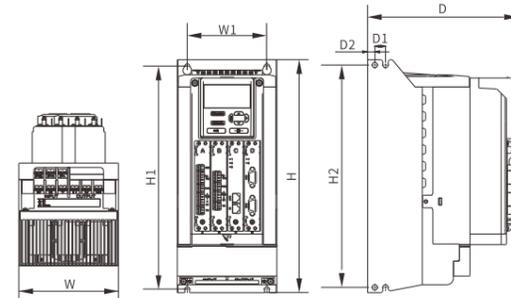


**X7 model：185~220kW**
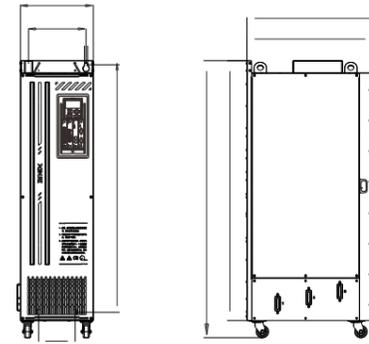


**X8 model：250~280kW**



**X3 model: 18-30kW**
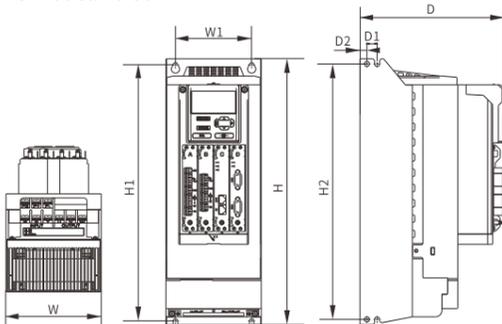


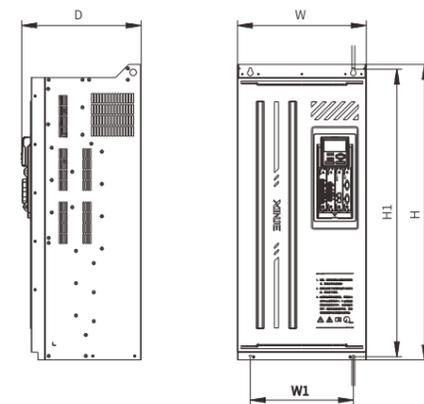**X4 model: 37~55kW**
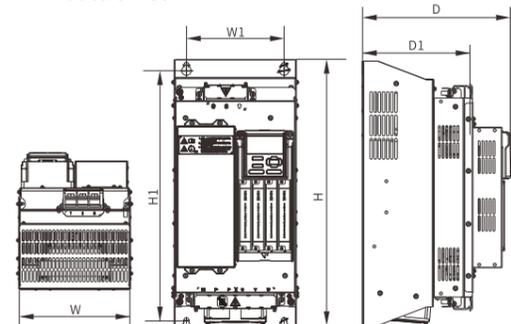


**X9 model：315~450kW**
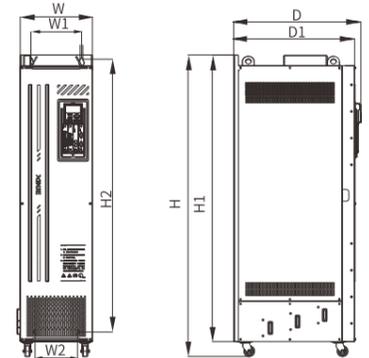


**X5 model: 75-110kW**
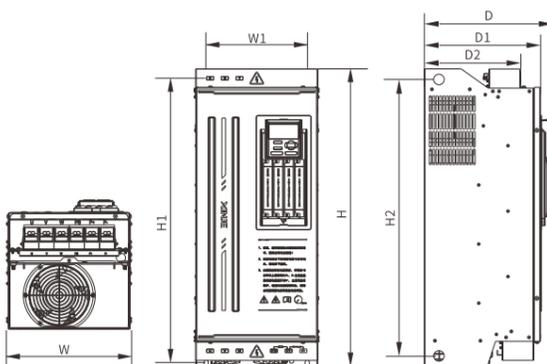


**X6 model：132~160kW**



| 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 | X1 | 110 | 305 | 202 | 55 | / | 290 | 290 | 14 | / | M5 | 4 |
| | VH6-45P5-B | | | | | | | | | | | | |
| | VH6-47P5-B | | | | | | | | | | | | |
| | VH6-4011-B | X2 | 150 | 350 | 228 | 120 | / | 335 | 334 | 27 | 11 | M6 | 5.7 |
| | VH6-4015-B | | | | | | | | | | | | |
| | VH6-4018-B | X3 | 150 | 417 | 228 | 120 | / | 402 | 402 | 27 | 11 | M6 | 10 |
| | VH6-4022-B | | | | | | | | | | | | |
| | VH6-4030-B | | | | | | | | | | | | |
| | VH6-4037-B | X4 | 235.6 | 510 | 287.9 | 188 | / | 490 | / | 213.9 | / | M8 | 25 |
| | VH6-4045-B | | | | | | | | | | | | |
| | VH6-4055-B | | | | | | | | | | | | |
| | VH6-4075-B | X5 | 290 | 705 | 306 | 240 | / | 683 | 635 | 276.5 | 229 | M8 | 45 |
| | VH6-4090-B | | | | | | | | | | | | |
| | VH6-4110-B | | | | | | | | | | | | |
| | VH6-4132 | X6 | 400 | 915 | 371 | 320 | / | 890 | / | / | / | M8 | 80 |
| | VH6-4160 | | | | | | | | | | | | |
| | VH6-4185 | X7 | 300 | 1135 | 553.5 | 240 | 150 | 1065 | 1025 | 524 | / | M12 | 100 |
| | VH6-4200 | | | | | | | | | | | | |
| | VH6-4220 | | | | | | | | | | | | |
| | VH6-4250 | X8 | 330 | 1310 | 590 | 235 | 250 | 1240 | 1162.5 | 560.5 | / | M12 | 120 |
| | VH6-4280 | | | | | | | | | | | | |
| | VH6-4315 | X9 | 340 | 1415 | 597 | 240 | 200 | 1345 | 1280 | 567.5 | / | M12 | 155 |
| | VH6-4355 | | | | | | | | | | | | |
| | VH6-4400 | | | | | | | | | | | | |
| | VH6-4450 | | | | | | | | | | | | |

## Panel size

| VH6-PE100 | VH6-PC100 | VH6-PE200 |
|---|---|---|
| 89.0 / 79.6 | 89.0 / 79.6 | 63.5 / 91.4 |
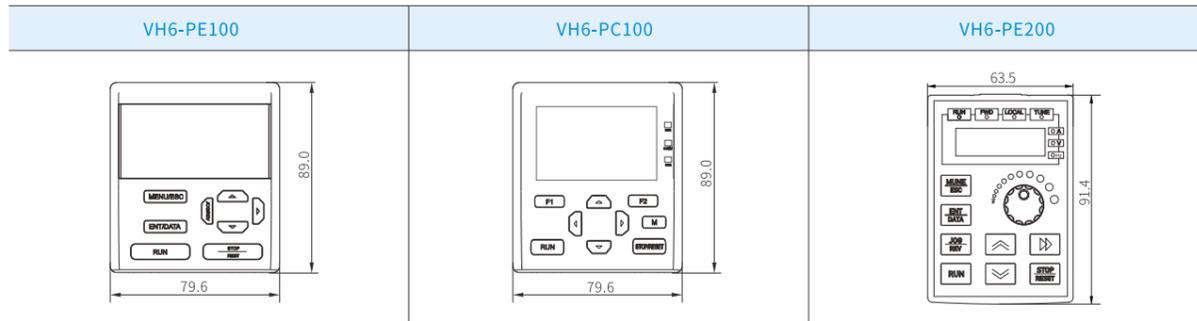
## Panel mounting bracket drawing

| VH6-PE100/VH6-PC100 | VH6-PE200 |
|---|---|
| 114.0 / 117.2 / 84.6 / 97.5 / 78.8 / 101.5 / Φ4.3 | 81.5±0.3 / 109±0.3 / The shaded area is the opening area |

**Panel mounting bracket instructions**

The gray area represents the hollowed out area, with a central hollowed out area of 84.6× 101.5 and a four corner hollowed out area with a diameter of 4.34 circle. M4 screws and nuts are placed to fix the bracket on the door panel.

**Panel mounting bracket instructions**

Make holes on the outer surface of the required installation position according to the dimensions on the drawing, then remove the panel from the slot on the body and install it on the panel base. Then, install the panel into the hole and gently push it into place to complete the installation.

# Accessory Description

## Standard I/O card
### VH6-A100

1 channel RS485 communication + 2 channels AI +1 channel AO + 4 channels bipolar input + 1 channel YT + 1 channel YR

## Expansion I/O card
### VH6-B100

1 channel AI + 1 channel AO + 3 channels bipolar input + 1 channel YT + 1 channel YR

## CANopen communication card
### VH6-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
### VH6-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.

## Simple incremental encoder PG card
### VH6-DM200

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.

## LCD panel
### VH6-PE100

The panel is LED display, which can set parameters, monitor the operation status of the frequency converter and operate the frequency converter.

## Upper computer connection cable
### JC-EV-15

To connect the frequency inverter and PC, to connect the frequency inverter software and update the firmware.

## Panel expansion cable
### JC-RD-20

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.

## Mounting base
### VH6-DPANEL

Base of VH6 frequency converter operation panel during extension installation.
Model: VH6-DPANEL

## LCD panel
### VH-PC100

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.

## Knob panel
### VH6-PE200

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.

## Expansion card protection cover
### VH6-A100-PC

It can be used for protection of VH6 converter A/B expansion card.
Model: VH6-A100-PC

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

- 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

## 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

- 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

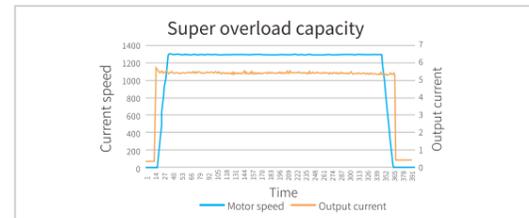Vision system

# 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).
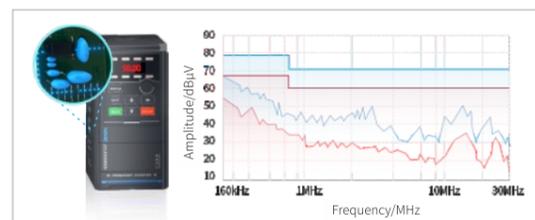
Support multiple algorithms
☑ VF  ☑ SVC

Vh1 VFD

Asynchronous motor    Synchronous motor

## ■ High specification EMC design

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

Amplitude/dBuV
Frequency/MHz

## ■ 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.

Adjustable knob    External LCD panel    Debugging software

## ■ 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.

## ■ 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.

Super overload capacity

Current speed    Output current
Time
— Motor speed    — Output current

## ■ 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.

50mm  100mm  100mm  50mm
582mm
Reduce 366mm
216mm

Side by side installation
Screw installation
Rail installation

## ■ 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.

Dustproof

## ■ Obtaining EU CE certification

EU CE certification

# Naming rule

## | VH1 VFD naming rule

VH 1 - 4 1P5 - B
① ② ③ ④ ⑤

| ① Product code | |
| --- | --- |
| Symbol | Name |
| VH | General VFD |

| ② Product series | |
| --- | --- |
| Symbol | Name |
| 1 | Open-loop vector VFD |

| ③ Input voltage level | |
| --- | --- |
| Symbol | Power supply voltage |
| 4 | 380V |
| 2 | 220V |

| ④ Power level | |
| --- | --- |
| Symbol | Power level (kW) |
| 0P7 | 0.75 |
| 1P5 | 1.5 |

| ⑤ Brake unit | |
| --- | --- |
| Symbol | Brake unit |
| B | Built-in brake unit |
| Vacant | None |

# Technical parameters

| VFD model | Power supply capacity (KVA) | Input current (A) | Output current (A) | Adaptive motor |
| --- | --- | --- | --- | --- |
| | Single phase 220V 50/60Hz | | | |
| VH1-20P4-B | 1.0 | 5.4 | 2.3 | 0.4 |
| VH1-20P7-B | 1.5 | 5.6 | 4.0 | 0.75 |
| VH1-21P5-B | 3.0 | 9.3 | 7.0 | 1.5 |
| VH1-22P2-B | 4.5 | 12.7 | 9.6 | 2.2 |
| | Three phase 380V 50/60Hz | | | |
| VH1-40P4-B | 1.0 | 1.8 | 1.5 | 0.4 |
| VH1-40P7-B | 1.5 | 2.3 | 2.1 | 0.75 |
| VH1-41P5-B | 3.0 | 4.4 | 3.8 | 1.5 |
| VH1-42P2-B | 4.0 | 5.8 | 5.1 | 2.2 |
| VH1-43P7-B | 5.9 | 10.5 | 9.0 | 3.7 |
| VH1-45P5-B | 8.9 | 14.6 | 13.0 | 5.5 |
| VH1-47P5-B | 11.0 | 20.5 | 17.0 | 7.5 |
| VH1-4011-B | 17.0 | 26.0 | 25.0 | 11.0 |
| VH1-4015-B | 21.0 | 35.0 | 32.0 | 15.0 |
| VH1-4018-B | 24.0 | 38.5 | 37.0 | 18.5 |
| VH1-4022-B | 30.0 | 46.5 | 45.0 | 22.0 |

# Wiring diagram



Braking resistor
PB  P+
Circuit breaker  Contactor  Fuses
R  S  T
L1  L2  L3
Three-phase AC output choke
U  V  W
Grounding resistance below 10Ω
M

Control circuit

Fieldbus communication
Modbus communication
Max baud rate 115200bps
485+
485-
+24V
COM
0V

Digital input signal
Forward run/stop  P2-00=1  X1
Reverse run/stop  P2-01=2  X2
Fault reset  P2-02=10  X3
Multi-speed 1  P2-03=12  X4
Multi-speed 2  P2-04=13  X5

Analog input
2-channel analog input AI1:0~10V/0~20mA
1kΩ
5kΩ
optional AI2:0~10V
10V
AI1
AI2
GND

Y1
0V
Open collector output
Max DC24V/50mA

TA
TB
1 channel relay output
AC250V 3A
DC30V 1A

AO
GND
1 channel analog output
0~10V

Standed shielded wire
Control circuit terminals
Shielded wire
Main circuit terminals
Jumping hat switch
RJ45 port

# Technical specification

| Item | | VH1 open-loop vector VFD |
|---|---|---|
| Power range | | 0.4kW～55kW |
| Input | Rated voltage, frequency | 3AC 380V；50/60Hz　　1AC 220V；50/60Hz |
| | Permissible voltage fluctuation range | ±15% |
| Output | Voltage | 0~input voltage |
| | frequency | 0～600Hz |
| Control performance | 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% |
| Control terminal input | Digital input channel | Standard configuration: 5 digital inputs X, supports NPN and PNP inputs |
| | Analog input channel | Standard configuration: 2 analog inputs AI, AI1 supports 0-10V and 0-20mA, AI2 supports 0-10V |
| Control terminal output | Digital output channel | Standard configuration: 1 digital output Y and 1 relay output (supports one pair of normally open) |
| | Analog output channel | Standard configuration: 1 analog output AO, supports 0-10V voltage output |
| Function | 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 |
| | 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 |
| | Energy consumption braking | Built in braking unit, suitable braking resistor needs to be selected |
| Feature | 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 |
| Display and keyboard | 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 |
| Environment | 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℃~+40℃ (ambient temperature between 40℃~50℃, please reduce the rating or enhance heat dissipation) |
| | Surrounding humidity | Less than 95% RH, no water droplet condensation |
| | Vibration | Less than 5.9m/s2(0.6g) |
| | Storage temperature | -40℃~+70℃ |
| | Protection level | IP20 |
| | Cooling method | Forced air cooling |
| Installation | | Wall mounted and rail mounted |

# Dimension (unit: mm)

## VH1-20P4/20P7/21P5/40P4/40P7/41P5-B VH1-42P2-B(S)
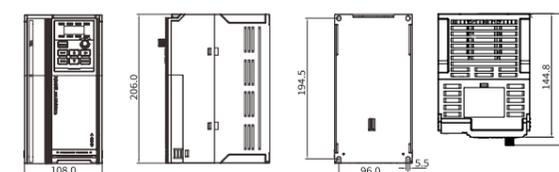
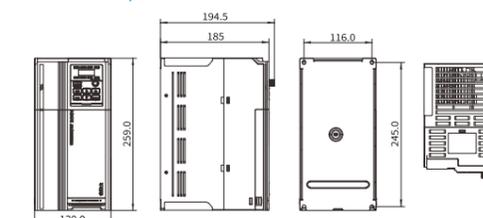*Note: the installation screws are all M4.
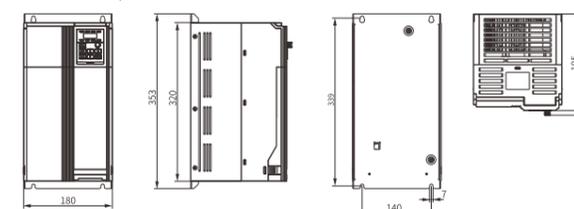
## VH1-22P2/42P2/43P7-B
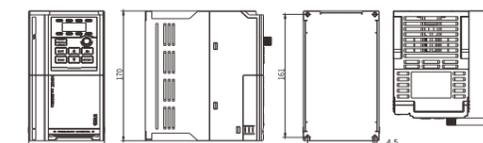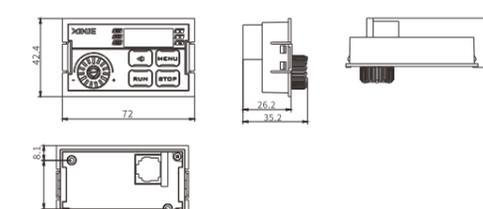
## VH1-45P5/47P5-B

## VH1-4011/4015-B
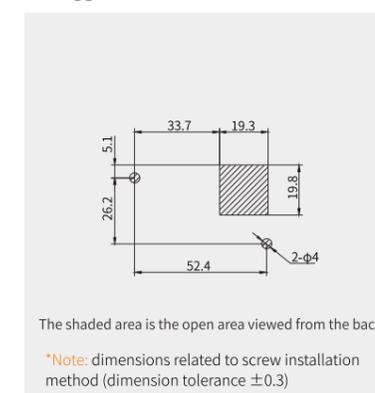
*Note: the installation screws are all M5.

## VH1-4018/4022-B

## VH1-PE100
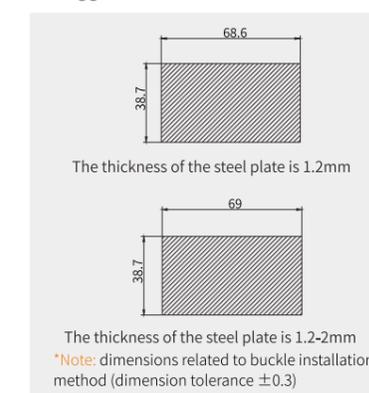
*Note: the installation screws are all M6.
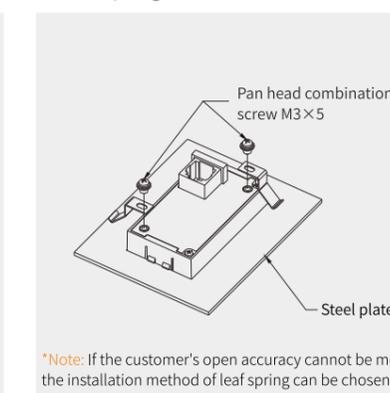
## VH1-PE100 installation dimension

① Suggested screw installation size

The shaded area is the open area viewed from the back

*Note: dimensions related to screw installation method (dimension tolerance ±0.3)

② Suggested buckle installation size

The thickness of the steel plate is 1.2mm

The thickness of the steel plate is 1.2-2mm

*Note: dimensions related to buckle installation method (dimension tolerance ±0.3)

③ Leaf spring installation

Pan head combination screw M3×5

Steel plate

*Note: If the customer's open accuracy cannot be met, the installation method of leaf spring can be chosen

# 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

## Motor terminal UVW

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

## 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
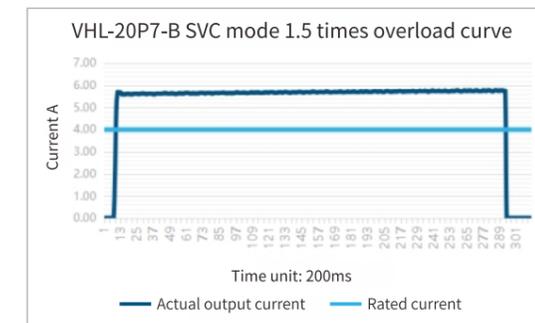
## Control terminals

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

# Exc llent Product Performance

## Overload capacity

VHL-20P7-B SVC mode 1.5 times overload curve

Time unit: 200ms

— Actual output current    — Rated current

VHL inverter 1.5 times overload time 60s

## Speed fluctuation

VHL-20P7-B SVC mode speed fluctuation curve

Time unit: 200ms
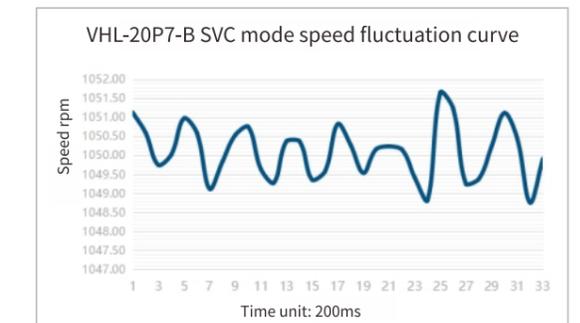
VHL inverter speed fluctuation ±0.3%

# Naming Rule

## VHL inverter naming rule

$$\underset{①}{\underline{VH}}\ \underset{②}{\underline{L}}\ -\ \underset{③}{\underline{2}}\ \underset{④}{\underline{0P4}}\ -\ \underset{⑤}{\underline{B}}$$

① Product code

| Symbol | Name |
|---|---|
| VH | General VFD |

② Product series

| Symbol | Name |
|---|---|
| L | Book-type open-loop vector converter |

③ Input voltage level

| Symbol | Power supply voltage |
|---|---|
| 4 | 380V |
| 2 | 220V |

④ Power level

| Symbol | Power level (kW) |
|---|---|
| 0P4 | 0.4 |
| 0P7 | 0.75 |

⑤ Brake unit

| Symbol | Brake unit |
|---|---|
| B | Built-in brake unit |
| 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 |
| VHL-41P5-B | 3 | 5.0 | 3.8 | 1.5 |

PLC

HMI

Integrated controller

Industrial information

Servo system

Frequency inverter

Stepping system

Vision system

# 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 | 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 | |
| Control terminal output | 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 | |
| Product performance | 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 | |
| | 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 | |
| Features function | 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 | |
| | 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 | |
| | 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 | |
| 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/s2 (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

# Installation Dimension Drawing （unit: mm）

## VHL-20P4/20P7/40P4/40P7/41P5-B

161.0
55.6
164.6
Ø4.5
22.5
152.0
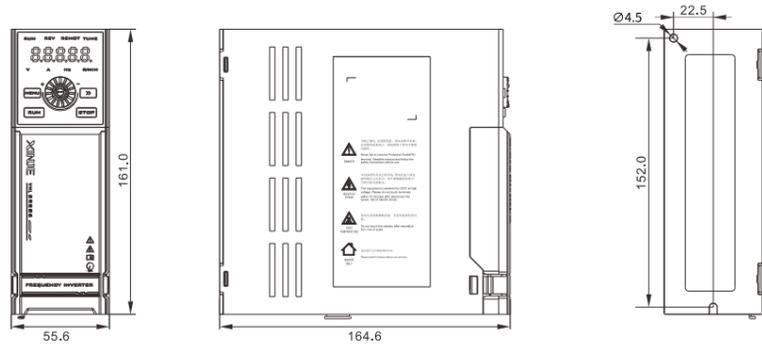
# VH5 general type open loop vector frequency inverter

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.

**Operate panel**

**Communication expansion card**

The communication expansion card supports EtherCAT, CANopen.

**Control terminal**

**Power supply terminal RST**

**Motor terminal UVW**

**EMC grounding terminal**

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

$$\underset{①}{\underline{VH}} \ \underset{②}{\underline{5}} - \underset{③}{\underline{4}} \ \underset{④}{\underline{0P7}} - \underset{⑤}{\underline{B}}$$

**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

### VH5-40P7 SVC mode 1.5 times overload curve

Current A

Time Unit: 200ms

— Actual output current    — Rated current
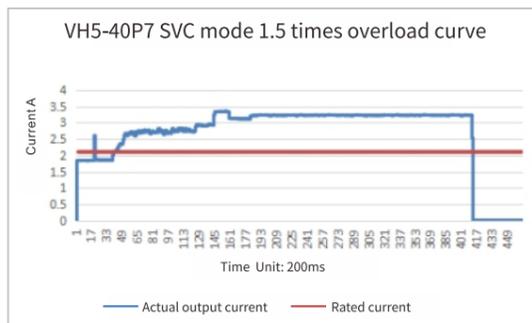
VH5 frequency converter 1.5 times overload time 60 seconds

### VH5-40P7 SVC mode 1.8 times overload curve

Current A

Time Unit: 200ms

— Actual output current    — Rated current
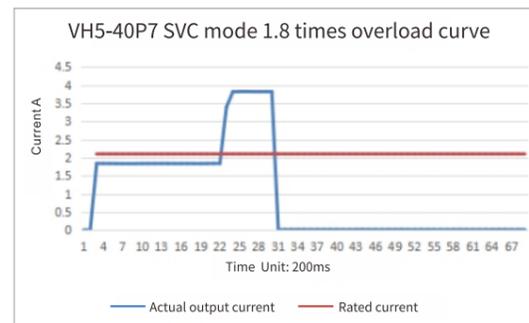
VH5 frequency converter 1.8 times overload time 1 second

## Speed fluctuation

### VH5-40P7 SVC mode speed fluctuation curve

Speed rpm

Time Unit: 200ms
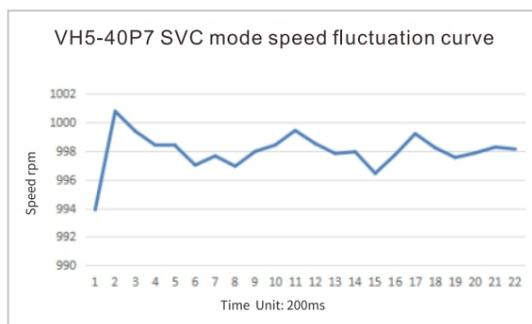
VH5 frequency inverter speed fluctuation ±0.3%

# 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 |

PLC

HMI

Integrated controller

Industrial information

Servo system

Frequency inverter

Stepping system

Vision system

# Technical Specifications

| Item name | | VH5 general type open loop vector frequency inverter | | |
|---|---|---|---|---|
| Power range | | 0.75kW~5.5kW | | |
| Input | Rated voltage, frequency | 3AC 380V;50/60Hz | 3AC 220V;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 | | |
| | Analog input channel | Standard: 1 analog input terminal AI1, support 0~10V or 0~20mA | | |
| 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 | | |
| Features function | 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 | | |
| | 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℃+40℃ (please derate to use or enhance the heat dissipation when ambient temperature is 40℃~50℃) | | |
| | Ambient humidity | Less than 95%RH, no condensation of water droplets | | |
| | Vibration | Less than 5.9m/s2 (0.6g) | | |
| | Storage temperature | -40℃~+70℃ | | |
| | Protection level | IP20 | | |
| | Cooling mode | Forced air cooling | | |
| 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
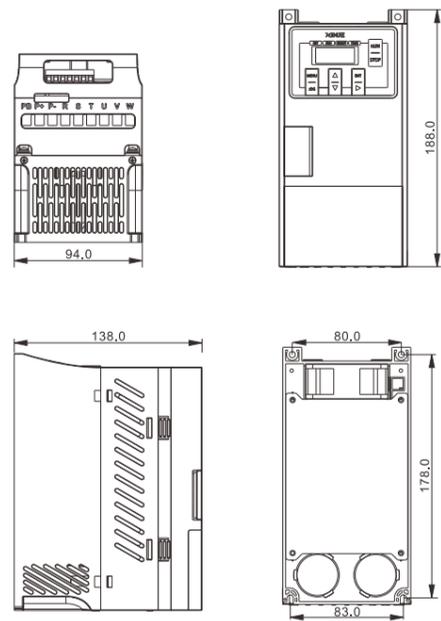


## Panel extension



4-R3

Opening area

49.6

77.3

58±0.3

83.4±0.3

• Not use the panel mounting base,
  the opening size of the extended panel

• Use the panel mounting base,
  the opening size of the extended panel
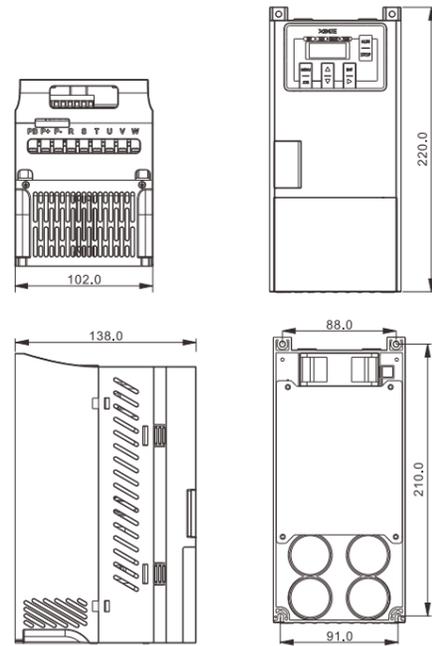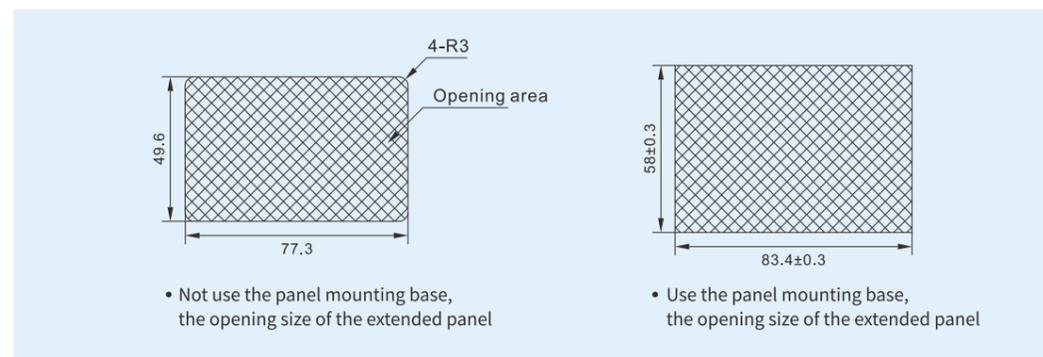
VH5 series VFD operate panel can be extended, users can install the VFD panel in the hole slot according to the two opening sizes provided above.

# 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
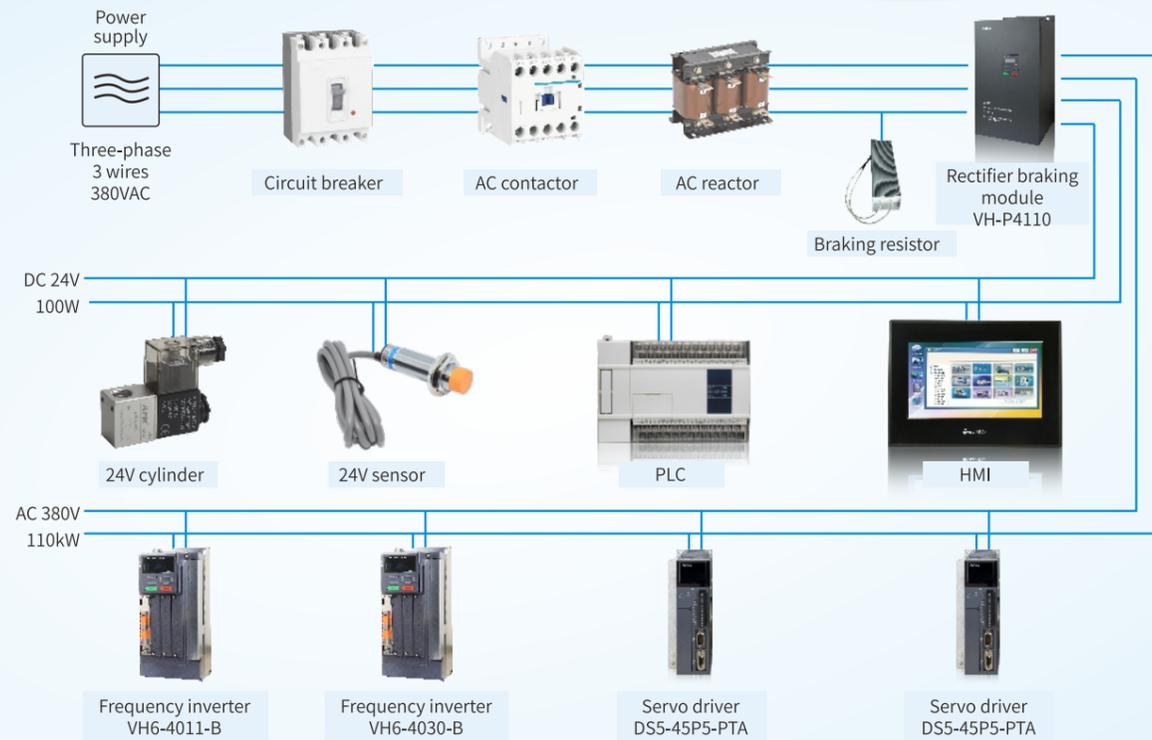
# VH rectifier braking module

**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



Power supply

Three-phase 3 wires 380VAC

Circuit breaker    AC contactor    AC reactor

Braking resistor

Rectifier braking module VH-P4110

DC 24V 100W

24V cylinder    24V sensor    PLC    HMI

AC 380V 110kW

Frequency inverter VH6-4011-B    Frequency inverter VH6-4030-B    Servo driver DS5-45P5-PTA    Servo driver DS5-45P5-PTA

*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

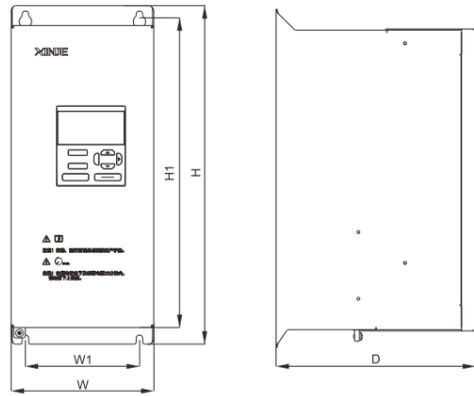$$\underline{VH} - \underline{P} \; \underline{4} \; \underline{110}$$
① ② ③ ④

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

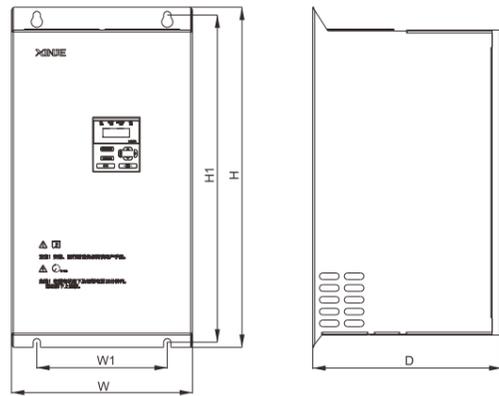| Model of rectifier braking module | | VH-P4110 | VH-P4055 | VH-P4030 |
|---|---|---|---|---|
| Input | Rated power (kW) | 110 | 55 | 30 |
| | Input current (A) | 220 | 112 | 68 |
| | Input voltage (ACV) | 380V;50Hz/60Hz | | |
| | Power supply capacity (KVA) | 180 | 85 | 55 |
| Output | Output current (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
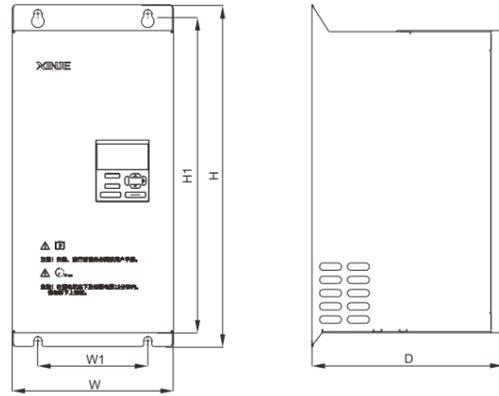


VH-P4110



| 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 |